



The Dominant Factors Affecting Employee's Performance a Case Study at PT Bintai Kindenko Engineering Indonesia

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Authors' contributions

This work was carried out in collaboration among all authors. Author AS designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author Kholil managed the analyses of the study. Author TH managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

The general situation of national domestic business is not encouraging. More specifically, the number of Construction Service Companies engaged in the Mechanical, Electrical and Plumbing (MEP) field in Indonesia is increasing. In order to make all companies compete competitively, companies need effective human resources (HR) on MEP project on the meaning of effective HR is that have Knowledge, Skills and Attitude. One of the ways companies can achieve improved workforce performance is by applying disciplinary attitudes in accordance with applicable regulations. And must be supported by having a competent workforce. Leaders as managers in a project must be able to create a comfortable working atmosphere and conditions for their staff to have good performance. Leadership factors may effect the success or failure of an agency. The purpose of this research is to identify the dominant factors that affect labor performance in the MEP project conducted at PT Bintai Kindenko Engineering Indonesia. Data analysis with help of smartPLS 3.0 software. The results are that the discipline and leadership hasn't an affecting on

workforce performance improvement, competency variables have an affecting on workforce performance improvement. And together the variables of discipline, competence, and leadership have an affecting on workforce performance improvement. The most affecting factor is the competency variable, with an affecting coefficient of 0.627 on performance.

Keywords: Competence; discipline; human resources; leadership; MEP; performance.

1. INTRODUCTION

The general situation of national domestic business is not encouraging. More specifically, the number of construction companies engaged in the Mechanical, Electrical, and Plumbing (MEP) field in Indonesia is increasing. Therefore, the MEP companies must be more competitive and supported by qualified human resources in the sense of having Knowledge, Skill and Attitude. There are 3 main criteria for success in the MEP project ; namely on time, on cost and on quality.

According to [1], human resources have a big role in determining the success or failure of an organization and also have a big contribution to achieve the organization's goals. People is the main resources of organization, so the top management are required to have a strategy, policy and work program which appropriate with human resource's ability to operate work tools to achieve the goals [2].

One of the ways to realize the company's goals that have been set is to apply work discipline, in accordance with applicable regulations. This is also proven by [3] that the discipline factor has a significant effect on the workforce performance of company. It must be supported by the competence of all workforce. According to a research conducted [4] stated that the competency factor has an influence on workforce performance. In addition, the leader as the driving force in a project must be able to create a comfortable atmosphere and should know the condition his employees to have a good performance, while [5] and Roeleejanto et al. [4] stated the leadership and commitment are the two important factor that determine company's performance.

PT Bintai Kindenko Engineering Indonesia, is a company engaged in MEP and already have lot of experience handling MEP projects since 2012. Currently the project handled is the distribution of electrical power plan which included design planning of the mechanical, electrical and

plumbing systems. Key success factor of this project depends on the discipline and compliance of workers with the established regulations. So, this research was carried out under the title "The Dominant Factors Affecting Employee Performance in MEP Projects (Case Study at Pt Bintai Kindenko Engineering Indonesia)"

2. LITERATURE REVIEW

Performance is the work achieved by a person in carrying out the tasks assigned to him based on skills, experience, seriousness and time [6], while according to [7] define performance as basically what is done and not done by employees, or "*job performance is formally defined as the value of the set of employee behaviors that contribute, either positively or negatively, to organizational goal accomplishment*" [8]

The performance of an employee can be assessed from various aspects, including knowledge about work, leadership initiatives, work quality, cooperation, decision making, creativity, reliability, planning, communication, intelligence, problem solving, delegation, attitude, effort, motivation, and organization [9,10,11]. According to [12] there are three groups of variables that affect individual performance, namely individual variables, psychology, and organizational variables.

There are many aspects that affect a person's performance, one of which is motivation, education and regulation. while for the institution the leader is a very dominant factor in performance, [13]. Leadership behavior is an important factor in achieving performance [14].

The definition performance according to [15] is the result of work in quality and quantity achieved by an employee in carrying out his duties in accordance with the responsibilities assigned to him. Rivai et al. [16] define performance as real behavior that is displayed by everyone as work performance produced by employees according

to their role in the company, employee's performance is something that is very important in the company's efforts to achieve its goals. Colquitt et al. [10] stated, "job performance is formally defined as the value of the set of employee behaviors that contribute, either positively or negatively, to organizational goal accomplishment". Generally performance is a set of values that contribute positively or negatively to employee's behavior for achieving organizational goals. Performance is a commitment that must be fulfilled as stipulated in the contract [11]. Individual performance greatly determines organizational performance, whether or not the company's performance is very dependent on individual performance. A similar opinion was conveyed by Winarno and Perdana [12] who stated that the high performance of individual human resources will have an impact on high organizational performance. Because there is a strong relationship between individual performance and organizational performance.

According to Darsono and Siswandoko discipline is an behavior of obedience of rules, norms, obedience based on a high awareness of responsibility that given to him, it is not because of scared or forced, the discipline should based of the ability to carry out responsibilities, readiness and accept the sanctions if there is a problem, dedication is willing to sacrifice to achieve the goals [2]. Meanwhile, M. Harlie stated that work discipline essentially raises awareness for workers to carry out their job, where the formation does not arise automatically, must be formed through formal and non-formal education, and motivation should exists in each employee developed properly. [13], meanwhile Handoko views discipline as a management activity to carry out organizational standards [14].

According to Kandula [15], defining competence is a personal characteristic that underlies behavior and individual performance in producing an effective performance or situation. These competencies include initiative, influence, teamwork, innovation and strategic thinking. Winarno and Perdana [12] defined competence as individual characteristics that can be

measured and determined to demonstrate behavior and work performance in a person. While [17] competence is a set of knowledge, skills, behaviors, lived, and controlled by a teacher or lecturer in carry out professional duties. There are several variables that predominantly affect employee performance, namely motivation, job satisfaction, commitment, and competence [17,18]. Leadership have a significant role to safety performance, it's includes influencing process in determining organizational goals, motivating follower behavior to achieve the goals, influencing to improve the group and its culture [19]. In addition, it also influences the interpretation of the events of its followers, organizing, and activities to achieve the goal of maintaining relationships, group work, obtaining support and cooperation from people outside the group or organization [20,21,22].

3. METHODS

The data analysis used is Structural Equation Modeling (SEM) with Partial Least Square (PLS), this approach to find predictive linear relationships between variables [23]. PLS analysis is preceded by data quality testing, including validity and reliability tests [24]. PLS can be a powerful method because it does not require many demands for measurement scale, sample size, and residual distribution [25]. SEM-PLS analysis includes several steps, namely testing the outer model, testing the construct validity, testing the construct reliability, and testing the inner model [23]. There are two main steps to evaluate PLS results: measurement evaluation model and structural model evaluation, [23,24]. The dependent variable in this study is performance, the perception of the work results or work performance of employees that are assessed based on the quantity and quality aspects of work, timeliness, attendance, supervision and conservation attitudes. While the independent variables are discipline, competence, leadership. Data collection through questionnaire which designed Likert scale to 88 male respondents and 17 female respondents. The research frame work as shown below (Fig. 1) and research model Fig. 2.

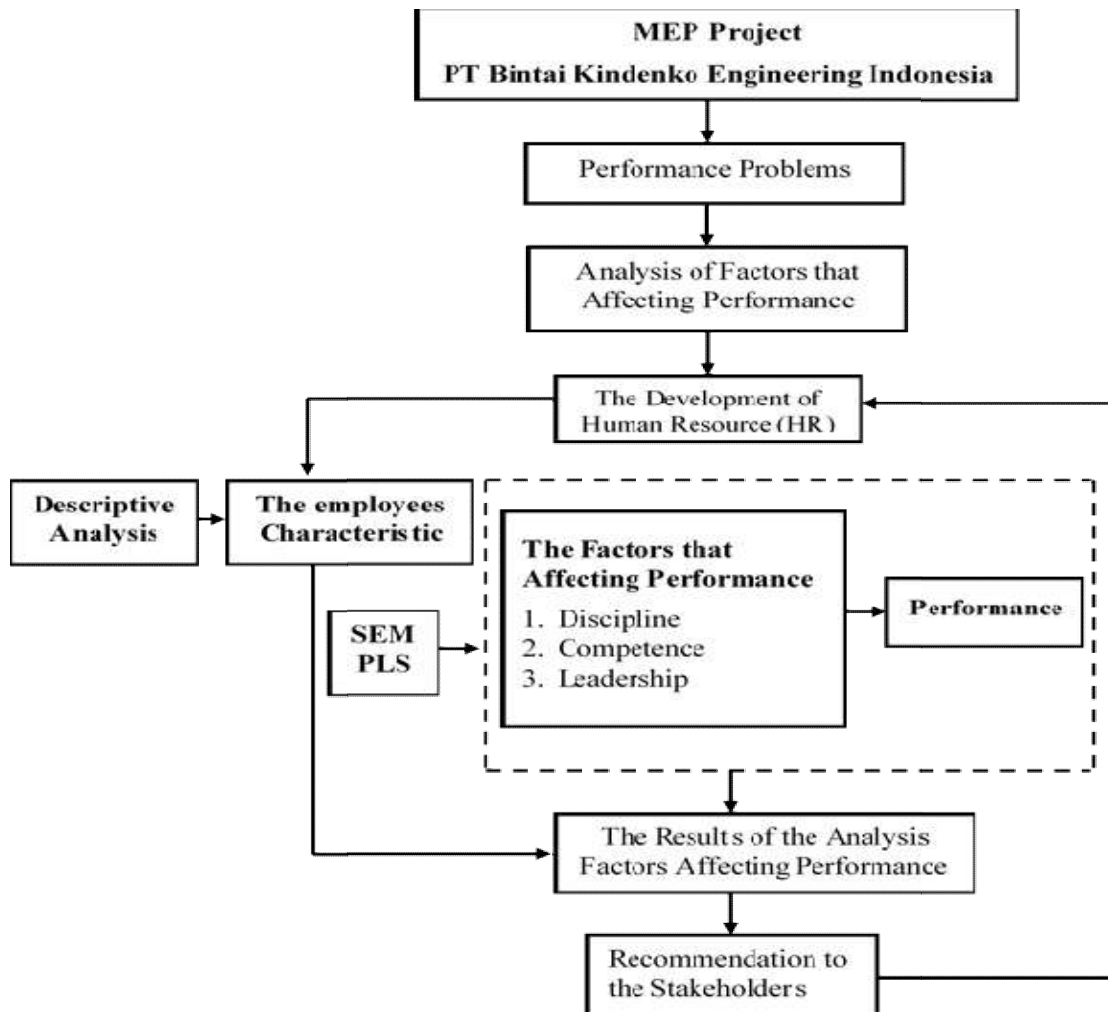


Fig. 1. Research framework

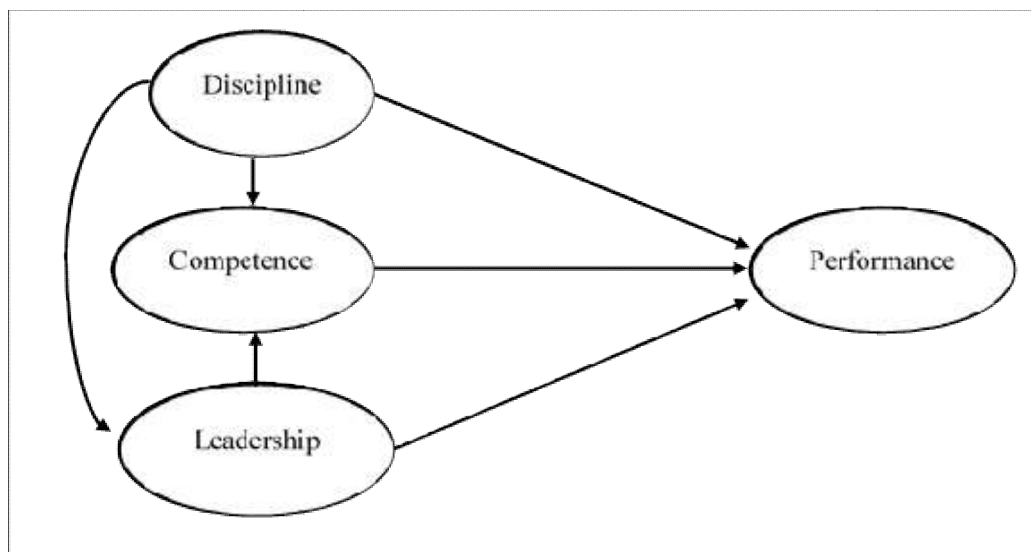


Fig. 2. Research model

4. RESULTS AND DISCUSSION

4.1 Analysis of Factors Affecting Performance with Smart PLS3

Analysis of the influence of discipline, competency and leadership factors on performance using SmartPLS 3 tools. The latent variables in this study are discipline, competence, leadership and performance. Each of these variables has a manifest variable (indicator) that is reflective of the latent variable. According [23] there are two parts of PLS SEM analysis: the assessment of the outer model and the inner model.

4.1.1 Test measurement (outer) model

Outer model assessed by looking at the convergent validity (the amount of loading factor for each construct). An indicator is considered reliable if it has a correlation value above 0.70. Based on these criteria, the initial test results of the outer model and the loading factor image are shown in Fig. 3. The outer model test results

show that there are some indicators that have value below 0.70 must be removed from the model shown in Table 1. The steps starting with the smallest value loading factor, until the best model with the standard is obtained.

Based on the principle of reability test, indicators below 0.7 are removed, so that indicators that are considered reliable and used as a questionnaire as shown in Table 2.

Based on Table 1, it is necessary to reduce the indicators loading factor value below 0.70. After reducing the value, the outer model test results are obtained, which have reach the convergent validity (reliable) standard as shown in Table 2 and Table 3.

4.2 Construct Validity Test

The construct validity test was carried out to see the Average Variance Extracted (AVE) value, the results of construct validity test nas shown in Table 4.

Table 1. Outer loading before reduction of the indicator

	Discipline	Leadership	Performance	Competence
X1.1	0.188			
X1.2	0.713			
X1.3	0.726			
X1.4	0.680			
X1.5	0.703			
X1.6	0.183			
X1.7	0.646			
X1.8	0.345			
X2.1				0.722
X2.2				0.732
X2.3				0.709
X2.4				0.787
X2.5				0.720
X2.6				0.730
X2.7				0.731
X2.8				0.473
X3.1		0.799		
X3.2		0.814		
X3.3		0.728		
X3.4		0.859		
X3.5		0.844		
Y1			0.826	
Y2			0.673	
Y3			0.813	
Y4			0.753	
Y5			0.363	
Y6			0.430	

Source: Data analysis with SmartPLS 3, processed in 2020

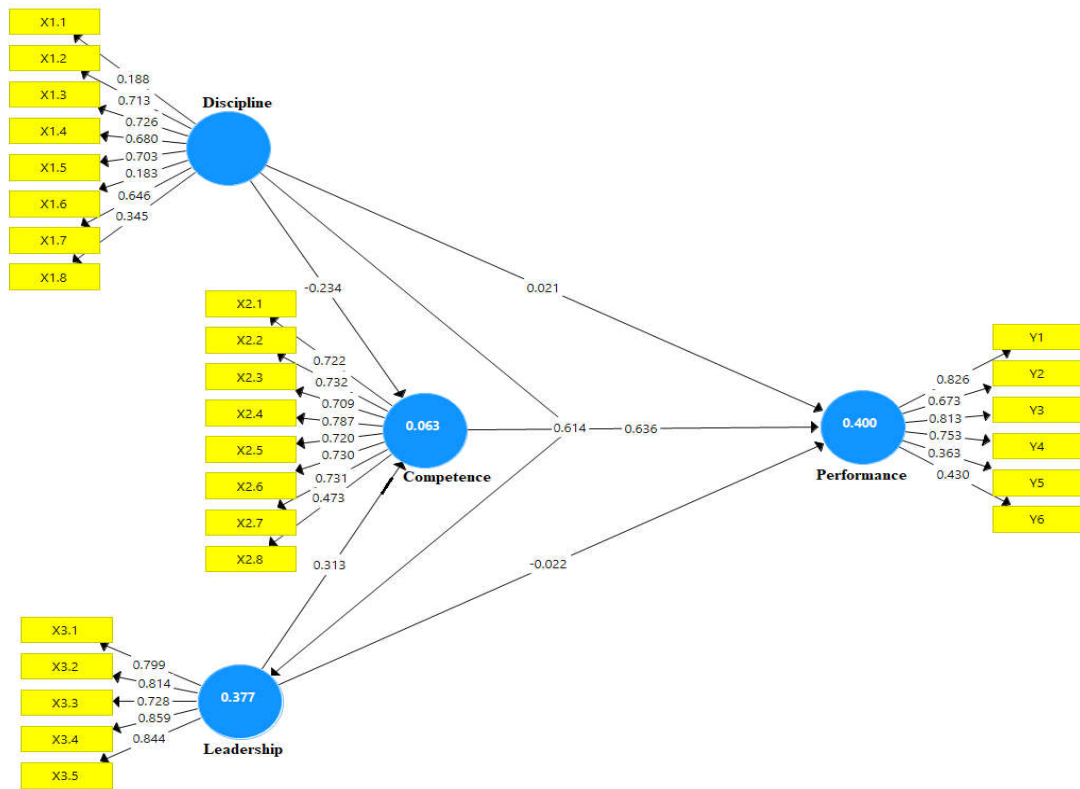


Fig. 3. Initial outer model before subtraction indicator

Table 2. Outer loading test results after reducing the indicator

	Discipline	Leadership	Performance	Competence
X1.2	0.727			
X1.3	0.712			
X1.4	0.726			
X1.5	0.769			
X2.1				0.743
X2.2				0.753
X2.3				0.721
X2.4				0.803
X2.5				0.707
X2.6				0.752
X2.7				0.706
X3.1		0.800		
X3.2		0.806		
X3.3		0.727		
X3.4		0.868		
X3.5		0.840		
Y1			0.829	
Y2			0.682	
Y3			0.832	
Y4			0.740	

Source: Data analysis with SmartPLS 3, processed in 2020

Table 3. The results of the cross loading test after reducing the indicator

	Discipline	Leadership	Performance	Competence
X1.2	0.727	0.449	0.032	-0.084
X1.3	0.712	0.426	0.023	-0,080
X1.4	0.726	0.361	-0.176	-0,219
X1.5	0.769	0.522	-0.026	-0,115
X2.1	-0.093	0.172	0.388	0.743
X2.2	-0.179	0.099	0.431	0.753
X2.3	-0.164	0.116	0.405	0.721
X2.4	-0.169	0.092	0.560	0.803
X2.5	0.085	0.205	0.377	0.707
X2.6	-0.166	0.028	0.482	0.752
X2.7	-0.119	-0.049	0.485	0.706
X3.1	0.590	0.800	-0.001	0.054
X3.2	0.372	0.806	0.173	0.230
X3.3	0.356	0.727	0.093	0.118
X3.4	0.596	0.868	-0.058	0.062
X3.5	0.463	0.840	0.209	0.073
Y1	-0.012	0.184	0.829	0.481
Y2	-0.079	-0.083	0.682	0.266
Y3	-0.091	0.025	0.832	0.637
Y4	0.031	0.133	0.740	0.413

Source: Data analysis with SmartPLS 3, processed in 2020

Table 4. AVE test results

Indicator	Average Variance Extracted (AVE)
Discipline	0.538
Leadership	0.655
Performance	0.511
Competence	0.550

Source: Data analysis with SmartPLS 3, processed in 2020

The test results are said to be valid / good if the AVE of each value more than 0.50. Based on the results of the tests, it can be seen that the result of AVE has a value more than 0.50, this indicates all of indicators are valid / good.

4.3 Construct Reliability Test

The construct reliability test conducted by the two criteria : composite reliability and ronbach's alpha. The construct, it is reliable if the composite reliability and Cronbach's alpha value is above 0.70, and not reliable below 7.0 [21].

Based on the results of the composite reliability and Cronbach's alpha test for each construct, it has a value more than 0.70, can be reliable as shown in Table 5.

4.4 Structural Model Test (Inner Model)

This test is done by looking at the R-Square value which is a goodness-fit test. This stage to analyze the level estimation of discipline variable, competency and leadership on the performance variables. The results can be seen in a model shown in Fig. 4.

Table 5. Composite reliability and cronbach's alpha test results

Indicator	Cronbach's Alpha	Composite Reliability
Discipline	0.716	0.823
Leadership	0.869	0.905
Performance	0.766	0.833
Competence	0.864	0.895

Source: Data analysis with SmartPLS 3, processed in 2020

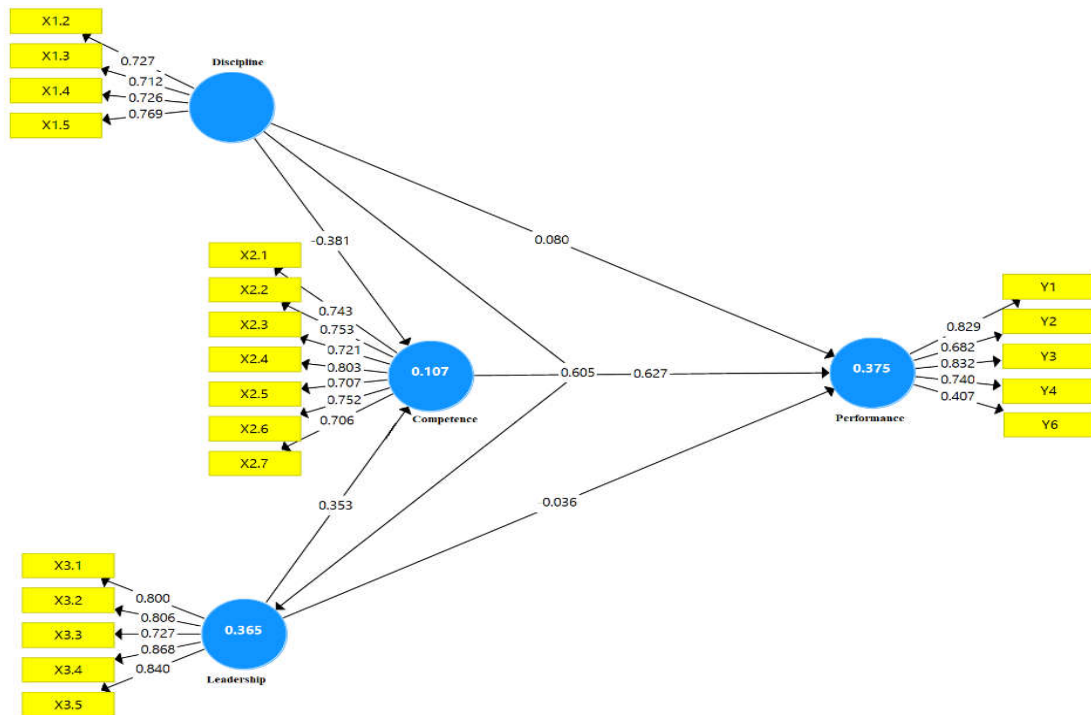


Fig. 4. Analysis of the initial model using the PLS algorithm technique
 $R^2 = 0.375$

Based on the results of this analysis, it can be explained that the value R-Square in Fig. 4 on discipline, competence, and leadership is able to affect performance by 37.5% and the remaining 72.5% is explained by other variables outside of this research. While discipline and leadership affect competence by 10.7%, the remaining 89.7% is explained by other variables not examined in this study and discipline affects the leadership variable by 36.5%, the remaining 63.5% is explained by other variables not examined in this research.

4.4.1 Hypothesis testing

Hypothesis testing is carried out based on the results of the inner model (structural model) test which includes the R Square output, parameter coefficient and t-statistics. To see whether a

hypothesis can be accepted or not, by looking at the significance value between contracts, t-statistics, and p-values. This hypothesis testing is done with SmartPLS (Partial Least Square) 3.0 software. The results of PLS as shown in Fig. 5.

This hypothesis testing is done to answer the research equation, using bootstrapping technique. Bootstrapping technique is a random sample data recalculation technique to obtain t-statistics and p value with path coefficients test. The rules of thumb used in this study are t-statistics > 1.96 (T table with a significant p value of 5% or 0.05). If the t-statistics value > 1.96 then it has a significant effect and in otherwise if it has a value t-statistics < 1.96, it has an insignificant effect. For the results this hypothesis can be seen in Fig. 5, Path Coefficients test with the bootstrapping technique shown in Table 6.

Table 6. The results of the path coefficients test with the bootstrapping technique

No.	Variable	Original Sample (O)	Standard Deviation (STDEV)	t-statistics (O / STDEV)	P values
1	Discipline -> Performance	0.08	0.13	0.612	0.541
2	Leadership -> Performance	-0.036	0.145	0.249	0.804
3	Competence -> Performance	0.627	0.067	9.305	0.000
4	Discipline -> Leadership -> Competence -> Performance	0.134	0.053	2,517	0.012

Source: Data analysis with SmartPLS 3, processed in 2020

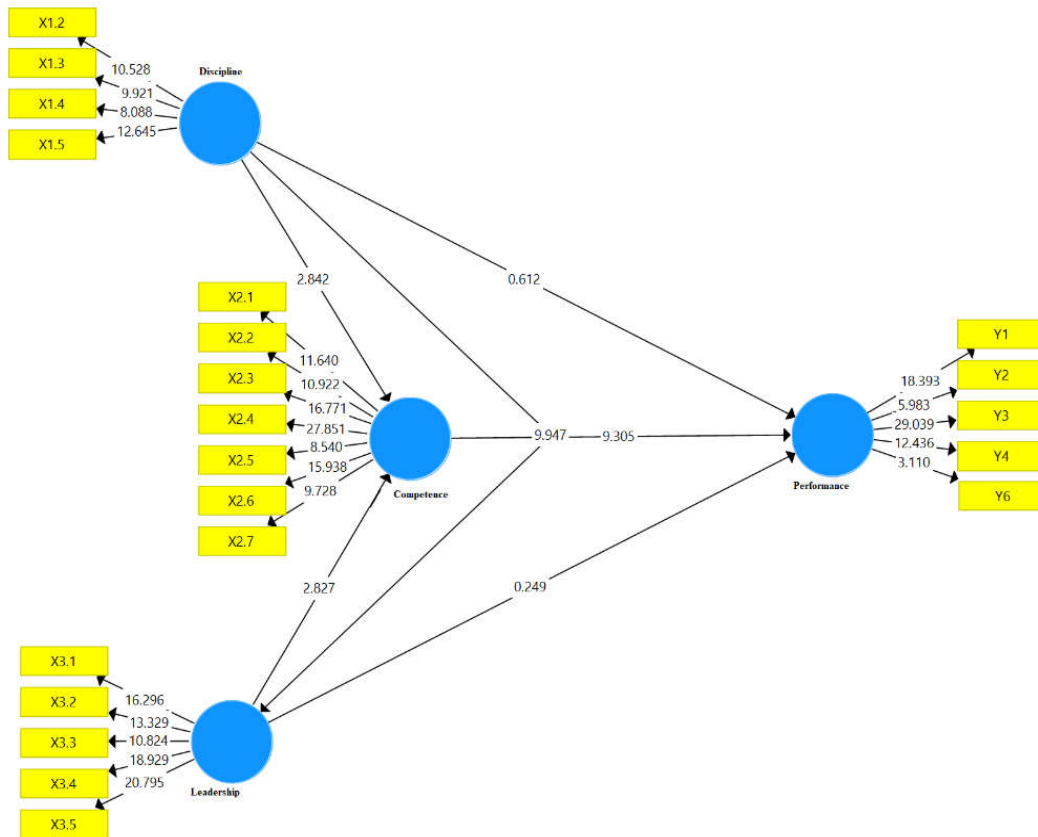


Fig. 5. Analysis of the final model using the bootstrapping technique

4.4.2 Hypothesis testing based on Table 6

1. The path coefficient test on the discipline variable on the performance variable shows the t-statistical value of 0.612 < 1.96 and the p value of 0.541 > 0.05, it means that the discipline variable has no significant effect on the performance, so that first hypothesis is rejected. These results support Amaliyyah's [24] research findings which prove that discipline does not affect workforce performance. It means that in the workforce, discipline has not had a significant effect on workforce performance.
2. The path coefficient test on the leadership variable on the performance variable shows the t-statistical value of 0.249 < 1.96 and the p value of 0.804 > 0.05, it means that the leadership variable has no effect on the performance variable, so the second hypothesis is rejected. These results support the research findings of Azizi [26] which prove that leadership does not affect to the workforce performance
3. The path coefficient test on the competency variable on the performance variable shows the t-statistical of 9.305 > 1.96 and the p value of 0.000 < 0.05, It means that the competency variable has a significant effect on the performance variable, so the third hypothesis is accepted. This proves that the competency variable has a positive effect on the performance variable. According to Roeleejanto et al. [27] who found that competence has a significant effect on workforce performance. This proves that workforce competence in the form of knowledge, skills and confidence to be able a good job
4. The path coefficient test on the discipline, leadership and competence variables on the performance variable shows the t-statistical value of 2.517 > 1.96 and p value 0.012 < 0.05, it means that the discipline, leadership and competence variables have a significant effect on the performance variable. So, the fourth hypothesis can be accepted.

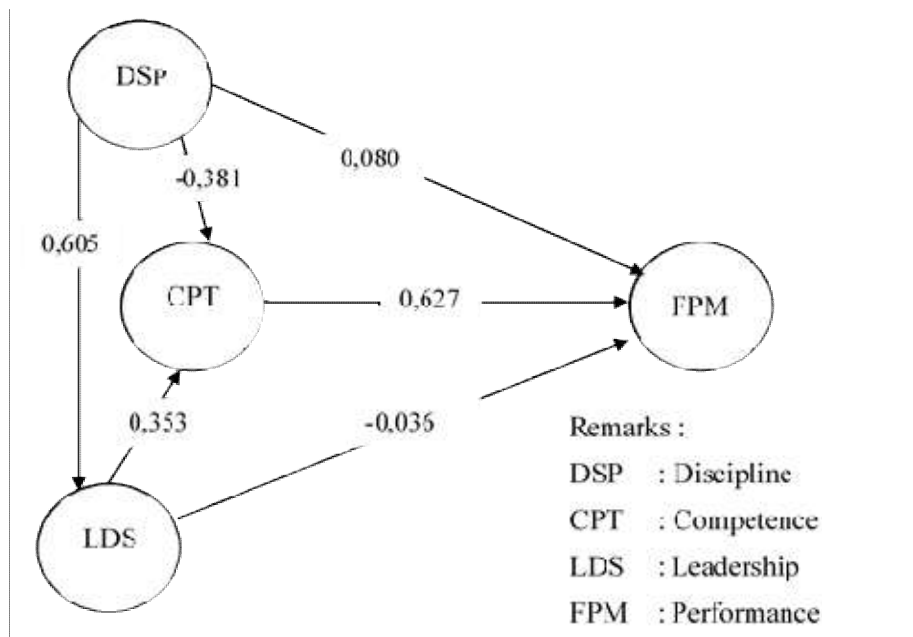


Fig. 6. Variables that have a significant effect on performance
 Description: DSP: Dicipline; CPT: Competency; LDS: Leadership and; FPM: Performanvce

Based on the results of hypothesis, it is known that the workforce with the dominant influence variable on performance is the competency variable, because the competence has the greatest influence coefficient value of 0.627 on performance compared to other variables, namely discipline to performance of 0.080 and leadership to performance of -0.036.

Based on hypothesis testing, the variables that have a significant effect on performance can be described as shown in Fig. 6.

5. CONCLUSION

Discipline and leadership variables are not significant effect on performance. But the competency variable has a significant effect on the performance of the workforce of the MEP project. But collectively the discipline, competence, and leadership variables have a significant effect on the employees performance of PT. Bintai Kinendo Engineering Indonesia. This mean that competence is the dominant variable which affect to performance. Thus increasing employee's competence is a key factor in improving performance

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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