Analysis Of The Effect Of Knowledge And Work Design On Employee Performance With Job Satisfaction As An Intervening Variable In The Eastern Crossroad Preservation Project In Riau Province

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ABSTRACT

Research methods applied in study This is study quantitative . for test and prove hypothesis that has been made through various test and data processing . Data collection methods sample in research This is in a way census so that all population in research This will become sample study that is all employee active in PT Adhi Karya (Persero) Tbk on the Project Preservation of the East Cross Road in Riau Province , totaling 103 people . Based on results study can seen that in a way partial T- *statistic* value and P- *value* For variable knowledge to performance each employee is T- *statistic* $3.688 \geq 1.660$ and P- *value* $0.000 \leq 0.05$, so that can concluded knowledge own significant influence to performance employees . Then , the T- *statistic* value and P- *value* For variable design Work to performance each employee is T- *statistic* value $0.056 \leq 1.660$ and P- *value* $0.955 \geq 0.05$, so can concluded design Work No own significant influence to performance employees . Then , the T- *statistic* value and P- *value* For variable satisfaction Work to performance each employee has a T- *statistic* of $3.365 \geq 1.660$ and a P- *value of* $0.001 \leq 0.05$, so that can concluded satisfaction Work own significant influence to performance employees . Then , the T- *statistic* value and P- *value* For variable knowledge to satisfaction work respectively amounted to T- *statistic* $0.504 \leq 1.660$ and P- *value* $0.615 \geq 0.05$, so that can concluded knowledge No own significant influence to satisfaction work . Then , the T- *statistic* value and P- *value* For variable design Work to satisfaction each work is T- *statistic* $3.240 \geq 1.660$ and P- *value* $0.001 \leq 0.05$, so that can concluded design Work own significant influence to satisfaction work . Then , the T- *statistic* value and P- *value* For variable knowledge to performance employee through satisfaction each work is T- *statistic* $0.460 \leq 1.660$ and P- *value* $0.646 \geq 0.05$, so that can concluded knowledge No own significant influence to performance employee through satisfaction work . Then , the T- *statistic* value and P- *value* For variable design Work to performance employee through satisfaction each

work is T- *statistic* 2.906 ≥ 1.660 and P- *value* 0.004 ≤ 0.05, so that can concluded design Work own significant influence to performance employee through satisfaction Work .

Keywords : Knowledge , Design Work , Satisfaction Work , and Employee Performance .

I. INTRODUCTION

In the information age moment this , company set standard tall in selection employee use ensure quality source Power good human resources (HR) . HR has role strategic in development organization , and performance employee influenced by factors like knowledge work , design work , and satisfaction Work .

Knowledge Work is asset not tangible that is very valuable . Knowledge is also a source Power the most valuable , most unique , most difficult organization replaced , and the most difficult imitated . Knowledge and skills For create knowledge new allow company For create , manipulate , and change source Power others . Companies need to realize importance manage and maximize knowledge individual in organization as organizational capital . Related knowledge with production processes , communication , and fields other develop along development (Panungkelan , 2018).

Remember importance source Power human , then every company try For get quality and productive employees For operate company . In overcoming obstacle will need source Power quality human being company Can use various type way , one of them is company expected can give satisfaction Work to employee those who ultimately expected Can increase performance employees (Dihan & Muhammad Suharto Agus Saputra, 2023). This was also confirmed by Rahayu & Dahlia (2023) who stated that the level of satisfaction work influences performance Employee .

Important for company For review and decide How method For increase quality source Power the people in the company to create success productivity in the company That own . design work is one of factor booster success productivity a company . Job design blend Contents work (tasks , authority and relationships) reply services and required qualifications (skills , knowledge and abilities) to every work with method fulfil need employee and also company .

Effective HR management must done in a way comprehensive in system management strategic . Knowledge Work considered as asset valuable support productivity

organization . The company needs to manage and maximize knowledge individual as organizational capital .

On Project Preservation of East Cross Road in Riau Province , evaluation performance show part big project target achieved , even though There is constraints at stage certain . Level of education employee majority is college high , which is expected increase performance they . Clear work design contribute to efficiency operational and productivity .

Study This aiming For to study How factor knowledge , design work , and satisfaction Work each other interact in increase performance employees , as well as give outlook for better human resource management Good in project construction in Indonesia.

II. THEORITICAL REVIEW

1. Employee performance

Performance is results or level success somebody in a way overall during period certain in the carry out task compared to with various possibility , such as standard results work , target or target , or criteria that have been determined moreover before and has been agreed together . Employee performance can also influence how much many / big they give contribution organization (Kasmir, 2019). While according to Paparang et al., (2021) Employee performance defined as results work produced by a person employee in operate duties and responsibilities the answer is . Performance reflects how much Good a employee in carry out his work and contribute to the achievement objective organization .

According to Kasmir (2019) for measure performance employee can used a number of indicator about criteria performance among them .
1) Quality
2) Quantity
3) Time
4) Press Cost
5) Supervision
6) Employee Relations

2. Satisfaction Work

According to Nurrohmat & Lestari (2021), satisfaction Work or job satisfaction basically is condition pleasant emotional or No fun , and the employees look at work them.Satisfaction Work reflect feeling somebody to his job and this seen in behavior and

attitude employee in life everyday , usually shown in matter positive response in work . Need realized that satisfaction Work is driving factors employee more active work and at the same time as motivation in working . While other opinion satisfaction Work in work is satisfaction work that is enjoyed in work with to obtain praise results work , placement , treatment , equipment , and atmosphere environment good work . (Paparang et al., 2021)

According to Paparang et al., (2021) , indicators satisfaction Work employee shared into 5 of them :

1) Wages
2) Work That Alone
3) Work colleague
4) Chance Promotion
5) Security Work .

3. Knowledge

Knowledge Work is understanding and skills possessed by a person related with duties and responsibilities answer in work them . This includes understanding about processes, procedures , tools , and techniques required For do work in a way effective . Knowledge Work can obtained through formal education , training , experience practical , and learning throughout career (Setyorini et al., 2021). Knowledge until ability Work employee considered important Because leader need understand characteristics possessed by employees . Through effort said , the atmosphere more work conducive can created , support improvement performance employees (Rahayu Sri, 2019). The abilities possessed by employees will become factor Supporter in help company reach the goals that have been set .

Knowledge employee participate determine succeed whether or not implementation assigned tasks to him , knowledge referring to information and results learning . employees who have sufficient knowledge will increase efficiency company . However for employees who have not have knowledge enough , then will Work stuttering . Waste materials , time and energy as well as factor other production will be made by employees knowledgeable less . As for the indicators is as following (Setyorini et al., 2021).

1) Think Analytical
2) Think Conceptual
3) Knowledge About Work

4. Design Work

Design Work is a process of aligning range work , duties and responsibilities answer For develop ability someone to be able to Work maximum and independent as satisfaction personal so that work finished in a way efficient , economical , reliable and safe (Torrington et al., 2017). Hayati et al., (2021) in his research say that one of factor affecting performance employee is design Work . Whereas according to Lumantow et al., (2023), Design Work is the process of determining tasks to be done implemented , the methods that will be used For carry out tasks , and how work the related with work other in organization or company .

Good job must more from just a bunch tasks to be done done . Job must can increase productivity , satisfaction and reducing absence . Therefore that , job must designed or designed with good (*job design*). Torrington et al., (2017) identify a number of indicator the main thing that becomes reference in design Work :

1) Diversity Skills
2) Identification Task
3) Significance Task
4) Autonomy
5) Feedback

III. RESEARCH METHODS

1. Approach Study

Research methods applied in study This is study quantitative . Research methods quantitative in a way principle based on philosophy positivism , used For learn population or sample certain , collecting data with instrument research , analyzing data quantitative or statistics , for test hypothesis that has been formulated (Sugiyono , 2018).

Study This will done in the Project Preservation of the East Cross Road in Riau Province , research This will conducted in August 2024 until with December 2024.

2. Population and Sample

Population in the study This is all employee active both those with status employee still and also employee contract at PT Adhi Karya (Persero) Tbk on Project Preservation of the East Cross Road in Riau Province , totaling 103 people.

Method of retrieval sample in research This is in a way census so that all population in research This will become sample study that is all employee active in PT Adhi Karya (Persero) Tbk on the Project Preservation of the East Cross Road in Riau Province , totaling 103 people .

3. Data Analysis Techniques

Study This done use method data analysis with smartPLS software . SEM (Structural Equation Modeling) analysis is representation of the system being studied should can explain behavior system approach condition real . Next stages data analysis conducted that is with using smartPLS software as following .

1) Design of Measurement Model (*Outer Model*). *Outer model* is determine How every block indicator relate with variable latent . In the technique data analysis using SmartPLS , there is three criteria For evaluate *outer model* , reject measure the first that is validity convergent validity , reject measuring second that is validity discriminant *validity* or use average extraction variant (*Average Variant Extracted*), and reject measuring third is *Construct Reliability* is assessed use *Composite Reliability* and *Croncbach Alpha* .

2) Structural Model Design (*inner model*) *Inner Model* , namely determine connection between latent construct with consider results estimate parameter coefficients and levels its significance

IV.RESULTS AND DISCUSSION

1. Structural Model Evaluation Results (*Inner Model*)

Testing *inner model* or structural model , which aims For analyze connection between construct or influence between variable in study in accordance with hypothesis that has been formulated . Initial steps in structural model testing involving evaluation R- *Square* value on endogenous constructs for measure the influence he received from construct exogenous . The following This is results structural model testing use application SmartPLS .

Figure 1. Structural model (*inner model*)
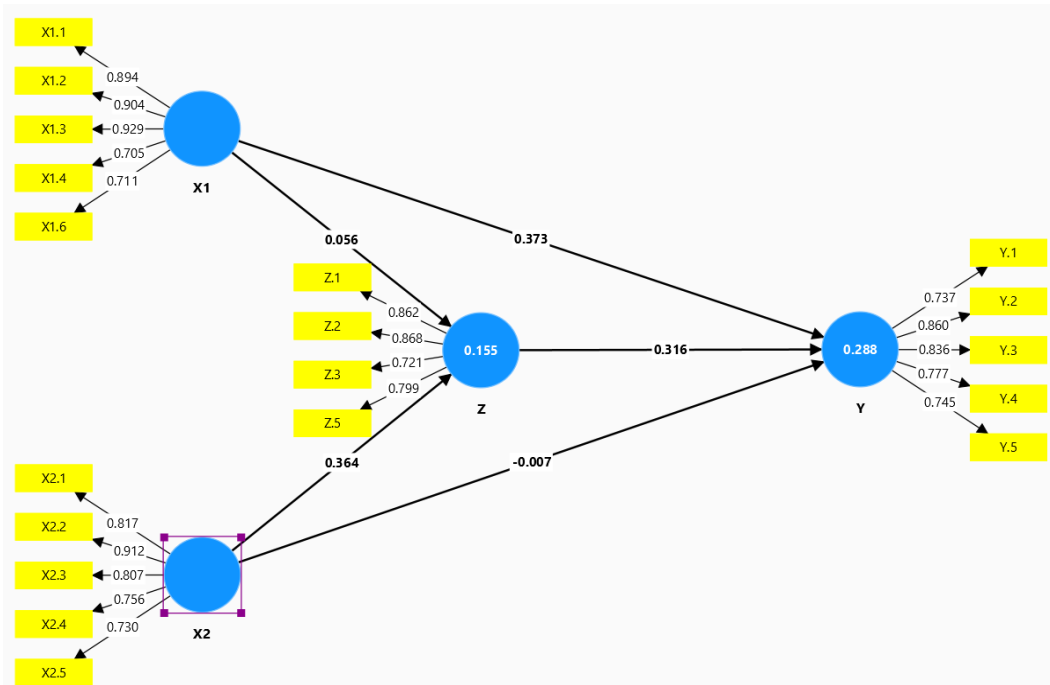
Source :
Processed Data , 2025.

Based on the image above , the structural model (*inner model*) above can to form model equation as following .

1) Equation model I, is the big picture influence construct knowledge (X1), Design Work (X2), and Satisfaction Work (Z) on Employee Performance (Y) with level *error* (*e*) which is error estimate or not Can explained in the research model .

Y   = a X1 + b X2 + c Z + *e*
Y   = 0.373 X1 – 00.07 X2 + 0.316 Z + *e*

Results of the equation model regression multiple on can be explained as follows:

1) Coefficient knowledge (X1) is 0.373 and shows existence influence positive , so that If assumed all variable free other nature still so every addition variable knowledge One unit will increase variable performance employee as big as 0.373 units ;

2) Coefficient design Work (X2) is 0.007 and shows existence influence negative , so that If assumed all variable free other nature still so every addition variable design Work One unit will reduce variable performance employee as big as 0.007 units ;

3) Coefficient satisfaction Work (Z) is 0.316 and shows existence influence positive , so that If assumed all variable free other nature still so every addition variable satisfaction Work One unit will increase variable performance

employee as big as 0.316 units .

2) Model equation II, is the big picture influence construct knowledge (X1) and Design Work (X2) on Satisfaction Work (Z) with level *error* (*e*) which is error estimate or not Can explained in the research model .

$$Z = a\, X1 + b\, X2 + e$$
$$Z = 0.056\, X1 + 0.364\, X2 + e$$

Results of the equation model regression multiple on can be explained as follows:
1) Coefficient knowledge (X1) is 0.056 and shows existence influence positive , so that If assumed all variable free other nature still so every addition variable knowledge One unit will increase variable satisfaction Work as big as 0.056 units ;
2) Coefficient design Work (X2) is 0.364 and shows existence influence positive , so that If assumed all variable free other nature still so every addition variable design Work One unit will increase variable satisfaction Work as big as 0.364 units ;

2. Coefficient Test Determination (R^2)

Purpose of doing testing coefficient determination (R^2) is For show how much big percentage influence variable independent to variable dependent . Through data processing on the samples studied obtained results as following Furthermore based on from results data processing with using Smart PLS obtained R2 value as following .

Table 1. R Square Value

	R-Square
Employee performance	0.788
Satisfaction Work	0.752

Source : Processed Data , 2025.

Based on the table above can explained that variable knowledge , design work and satisfaction Work give influence by 78.80% against variable performance employees . While the rest 21.20 % is influenced by variables that are not there is in study this . Based on matter said , the results calculation for R^2 show that R^2 including strong . Knowledge and design Work give influence by 75.20% against intervening variable satisfaction work . While the rest 24.80 % is influenced by variables that are not there is in study this . Based on matter said , the results calculation for R^2 shows that R^2 including strong .

3. Partial Test (T-Test)

The purpose of doing this Testing partial or T Test is For know influence variable independent in a way partial to Employee Performance Variables with assumption that other variables are considered constant . For do This T-Test test can compare between count with ttable , or can see mark significance . Where if t $_{count}$ > t $_{table}$ and P $_{value}$ < α = 0.05, then H0 is rejected and H1 is proposed accepted (influential). On the contrary If t $_{count}$ < t $_{table}$ and P $_{value}$ > α = 0.05 then H0 is accepted and H1 is proposed rejected (not influential).

Ttable value with amount sample (n) = 103, number variable free (k) = 3, level significance of 5% or 0.05, can obtained as following :

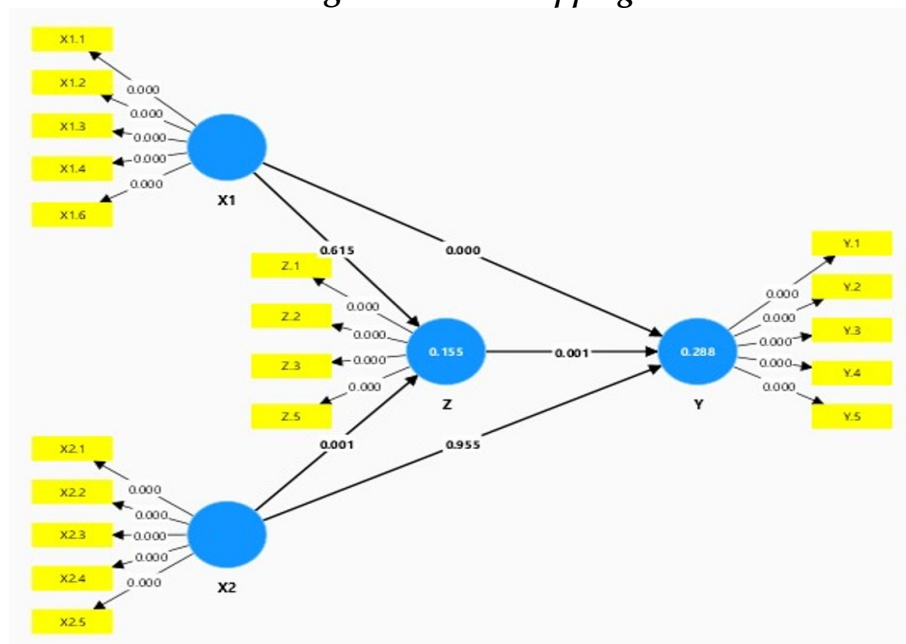$$\begin{aligned} \text{t}_{table} \quad &= n - k : \alpha/2 \\ &= 103 - 3 : 0.05/2 \\ &= 100 : 0.025 \\ &= 1.66023 \ (\text{in t}_{table}) \end{aligned}$$

Information :

   n : amount of data

   k : total variables free

Figure 2. *Bootstrapping*

Source : Processed Data , 2025.

Bootstrapping is procedure nonparametric used For test significance statistics from various PLS-SEM results . The results of the bootstrapping analysis will in the form of t *statistic* value , p value , and the *original* sample used . Based on the bootstrapping so can seen results estimate influence direct and indirect directly on the table under This .

Table 2. T-Test Results

	T Statistics	**P Values**
Knowledge > Employee Performance	3.688	0.000
Design Work > Employee Performance	0.056	0.955
Satisfaction Work > Employee Performance	3.365	0.001
Knowledge > Satisfaction Work	0.504	0.615
Design Work > Satisfaction Work	3.240	0.001
Knowledge > Satisfaction Work > Employee Performance	0.460	0.646
Design Work > Satisfaction Work > Employee Performance	2.906	0.004

Source : Processed Data , 2025.

Based on results research in the table above obtained results and explanation hypothesis as following .

1) Hypothesis 1

Analysis results show that T- *statistic* value and P- *value* For variable knowledge to performance employees of 3,688 and 0,000 respectively . With mark T- *statistic* 3.688 ≥ 1.660 and P- *value* 0.000 ≤ 0.05 , both fulfil the criteria set . Therefore that , hypothesis first (H1) stated accepted , which means knowledge own significant influence to performance employee .

2) Hypothesis 2

Analysis results show that T- *statistic* value and P- *value* For variable design Work to performance employees were 0.056 and 0.955 respectively . With mark T- *statistic* 0.056 ≤ 1.660 and P- *value* 0.955 ≥ 0.05 , both No fulfil the criteria set . Therefore that , hypothesis second (H2) is stated rejected , which means design Work No own significant influence to performance employee .

3) Hypothesis 3

Analysis results show that T- *statistic* value and P- *value* For variable satisfaction Work to performance employees were 3.365 and 0.001 respectively . With mark T- *statistic* 3.365 ≥ 1.660 and P- *value* 0.001 ≤ 0.05 , both fulfil the criteria set . Therefore that , hypothesis third (H3) is stated accepted , which means satisfaction Work own significant influence to performance employee .

4) Hypothesis 4

Analysis results show that T- *statistic* value and P- *value* For variable knowledge to satisfaction work respectively of 0.504 and 0.615. With mark T- *statistic* 0.504 ≤ 1.660 and P- *value* 0.615 ≥ 0.05 , both No fulfil the criteria set . Therefore that , hypothesis fourth (H4) stated rejected , which means knowledge No own significant influence to satisfaction Work .

5) Hypothesis 5

Analysis results show that T- *statistic* value and P- *value* For variable design Work to satisfaction work of 3.240 and 0.001 respectively . With mark T- *statistic* 3.240 ≥ 1.660 and P- *value* 0.001 ≤ 0.05 , both fulfil the criteria set . Therefore that , hypothesis fifth (H5) stated accepted , which means design Work own significant influence to satisfaction Work .

6) Hypothesis 6

Analysis results show that T- *statistic* value and P- *value* For variable knowledge to performance employee through satisfaction work respectively of 0.460 and 0.646. With mark T- *statistic* 0.460 ≤ 1.660 and P- *value* 0.646 ≥ 0.05 , both No fulfil the criteria set . Therefore that , hypothesis sixth (H6) stated rejected , which means knowledge No own significant influence to performance employee through satisfaction Work .

7) Hypothesis 7

Analysis results show that T- *statistic* value and P- *value* For variable design Work to performance employee through satisfaction work respectively of 2.906 and 0.004. With mark T- *statistic* 2.906 ≥ 1.660 and P- *value* 0.004 ≤ 0.05 , both fulfil the criteria set . Therefore that , hypothesis seventh (H7) stated accepted , which means design Work own significant influence to performance employee through satisfaction Work

V. CONCLUSION AND SUGGESTIONS

1. Conclusion

From the results analysis with using 103 samples and processed with using SMART PLS then researcher do analysis study with variable Knowledge , Design Work , Satisfaction Employee Work and Performance , then can taken conclusion as following .

1) Knowledge own significant influence to performance employees on the Project Preservation of the East Cross Road in Riau Province . With T- *statistic* value 3.647 ≥ 1.660 and P- *value* 0.000 ≤ 0.05.

2) Design Work No own significant influence to performance employees on the Project Preservation of the East Cross Road in Riau Province . With T- *statistic* value 0.056 ≤ 1.660 and P- *value* 0.956 ≥ 0.05.

3) Satisfaction Work own significant influence to performance employees on the Project Preservation of the East Cross Road in Riau Province . With T- *statistic* value 3.357 ≥ 1.660 and P- *value* 0.001 ≤ 0.05.

4) Knowledge No own significant influence to satisfaction Work employees on the Project Preservation of the East Cross Road in Riau Province . With T- *statistic* value 0.486 ≤ 1.660 and P- *value* 0.627 ≥ 0.05.

5) Design Work own significant influence to satisfaction Work employees on the Project Preservation of the East Cross Road in Riau Province . With T- *statistic* value 3.151 ≥ 1.660 and P- *value* 0.002 ≤ 0.05.

6) Knowledge No own significant influence to performance employee through satisfaction Work employees on the Project Preservation of the East Cross Road in Riau Province . With T- *statistic* value 0.442 ≤ 1.660 and P- *value* 0.659 ≥ 0.05.

7) Design Work own significant influence to performance employee through satisfaction Work employees on the Project Preservation of the East Cross Road in Riau Province . With T- *statistic* value 2.874 ≥ 1.660 and P- *value* 0.004 ≤ 0.05.

2. Suggestion

The suggestions given by the researcher in the research are: This is as following .

1) For variable knowledge , writer suggest that workers must improve and have deep understanding about duties and responsibilities answer in work .

2) For variable Design work , writer suggest that workers can understand design work and can undergo good communication between superior or colleague Work through bait constructive feedback .

3) For variable satisfaction work , writer recommend for workers can to weave Relationship and Communication with colleague Work walk with smooth and effective until formed satisfaction Work That Alone .

4) For variable performance employee , writer suggest that workers always ensure work done in accordance with standard specified quality.

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