ANALYSIS OF HUMAN RESOURCES THAT INFLUENCE CONTRACTOR PERFORMANCE IN BUILDING CONSTRUCTION PROJECT IMPLEMENTATION

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Abstract: *This research is to identify and determine human resource factors that influence contractor performance in building construction projects and provide solutions to improve the performance of contractor human resources in Payakumbuh City. This research method uses a quantitative approach. The results of data analysis obtained Determination coefficient value (R-Square) of 0.515 or 51.5%, this shows that all variables competency, motivation, loyalty, compensation, discipline and work environment simultaneously influence the contractor's performance variables, while the remaining 48.5%. Influenced by other variables not tested in the research. From the calculated F value, it is 17,873, while the resulting significant value is 0,000 < 0,05, it is concluded that all variables competency, motivation, loyalty, compensation, discipline and work environment simultaneously influence the contractor's performance variables. From the results of the t test calculations, it is concluded that competence, motivation and discipline have a partial influence on contractor performance. Based on the largest t value, the most dominant human resource factor is Motivation (X2) because it is found that t count > t table (5.415 > 1.980), and the significance value is 0.000 < 0.05.*
Keywords: *Human Resources, Performance, Contractors, Projects, Construction*

A. Introduction

A construction project is a collection of interrelated activities that have a starting and ending point and a desired final result. Most projects involve cross-functional organizations, which means they require different types of expertise/skills from different jobs. Each project is different, and none are the same. A project is an effort that requires resources to achieve certain goals, targets and expectations (Devina, 2020). A building project is an activity carried out over a certain period of time and involves several resources which are one aspect of project completion, consisting of human resources, costs, materials, equipment and technology. With effective resource management, projects can be completed with cost, quality, efficiency and benefit to society. (Jajang, 2016).

The increasingly rapid pace of the Government in increasing the growth of the construction industry, especially in Payakumbuh City, which continues to carry out regional infrastructure development every year, including building construction projects became a breakthrough for the regional government of Payakumbuh City With the aim of supporting activities in the government and economic sectors in order to improve community welfare one of the success factors in implementing building construction projects is the contribution and role of contractors who have competent and experienced human resources. However, the performance of building construction projects in Payakumbuh City shows that the role of human resources has not been carried out optimally, as can be seen from the lack of productivity of human resources, which hinders project acceleration (Gray, 2007).

Other problems include delays in completing work according to the contract, which can result in fines, several work packages resulting in termination of the contract and being subject to blacklisting sanctions, failures and quality defects in work, which are mostly caused by the contractor's management human resources not having competence and only functioning as a complement to the administrative requirements to complete the tender process.According to Shah (2015), another cause of work delays is the contractor's ineffectiveness in the management aspecthuman Resources and activities during project implementation, as well as changes in weather at the project location, which cause the project to be delayed or stopped. Adequate human resources and natural resources are needed in construction project work.

As a result of implementing activities in the field, contractor companies show a lack of competence and low performance of the human resources involved. The real fact is that the human resources involved in the project usually do not have the competence or quality because the contractor focuses on educational qualifications rather than quality. This has an impact on the low performance of human resources both from the implementation aspect in the field and the project administration aspect (Widiasanti, 2016). The low performance human Resources in development project building construction, especially on project with size secondary until height, impact on failure implementation project, especially in terms of dimensions quality which produced (Willy, 2020). Indicator low performance human Resources contractor, like lack understanding to specification technical work Which done, result quality work Which produced No achieved, less understand method work, result solution the project does not appropriate time, less understand budget cost implementation, result cost implementation swollen or even resultloss, lack of implementation of the system management occupational safety and health resulting in work accidents (Barrie, 2016).

The quality of the workforce can be influenced by two factors, namely internal factors that come from within the workforce themselves such as formal education, work experience, physical characteristics in the form of physical health, as well as personal characteristics and personality types of the workforce, while external factors influence the quality of the workforce. Work can come from the work environment and company management system (Simamora, 2014). One of reason low performance human Resources in implementation and control projectBecause caused by a number of factor like desire for increase productivity work so that finished appropriate time, without consider quality work, and lack understanding human Resources Of area related with quality work or Which shown in plan stop contract onwork (Setiawan, 2017).

Based on data from PBJ & Dalbang Section of Payakumbuh City Regional Secretariat There are 75 building construction work packages in the last 5 (five) years (2017-2021) which were carried out through a tender process with small qualifications. Of the 75 work packages, 12 work packages experienced delays in work completion (16%). In 2017 there were 19 work packages with 2 work packages experiencing delays in completing the work (10.53%), in 2018 there were 7 work packages with 2 work packages experiencing delays in completing the work (28.57%), in 2019 there were 19 work packages with 4 work packages experienced delays in completion (21.05%), in 2020 there were 8 work packages with 2 work packages experiencing delays in work completion (25%), and in 2021 there were 22 work packages with 2 work packages experiencing delays in work completion (9, 09%)(Data from the PBJ & Dalbang Section of Payakumbuh Regional Secretariat, 2022).

Based on an interview with the Head of the Public Works and Spatial Planning Department of Payakumbuh City, several problems that are often encountered in building construction projects in Payakumbuh City can be described as follows: (1)There is a delay in completing the work according to the implementation time agreed upon in the Agreement Letter (Contract) resulting in the need for additional or extension of implementation time and a late fine will be imposed during the extended implementation time period. This is due to the lack of competence and experience of site managers / field implementers in selecting and implementing building construction work implementation methods; (2)Some work results were found to have to be redone/repaired due to physical defects/imperfections because they did not comply with the technical specifications listed inin the Letter of Agreement or contractand there was also a shortage of work volume at the time of the first handover of the first job (PHO), so more time was needed for physical improvements and additional work volume at the time of the first handover of the first job (PHO). This was caused by a lack of control fromsite manager / field implementer and lack of supervision from supervisory consultants; (3) Termination of contracts and blacklisting sanctions for several building construction project packages due to the inability to complete all the work and not achieving 100% work weight until the end of the implementation period, thus causing the building to be abandoned and unable to be used or utilized properly.

Wrong One the cause is lack role and low performance human Resources in implementation and project control, Because caused by a number of factor between other, desire to complete the work quickly or on time, but ignoring the quality of the work and lack of understanding by human resources about the quality of the work as stated in the work contract quality plan (Payakumbuh City PUPR Service, 2022).

B. Methods

In this research the author used a quantitative approach.In this research, the population is several SKPD within the Regional Government of Payakumbuh City as Project Owners, Contractors and Supervising Consultants on building construction projects that experienced delays in completing work in Payakumbuh City from 2017 to 2021 which was carried out through a tender process with little qualification. There are several SKPDs within the Regional Government of Payakumbuh City as the Project Owner (Owner), including 7 (seven) SKPDs, including the Public Works and Spatial Planning Service, Education Service, Health Service, Tourism, Youth and Sports Service, Dr. RSUD. Adnaan WD and North Payakumbuh District, contractors for 12 (twelve) companies and supervisory consultants for 12 (twelve) companies. This research used 108 samples, consisting of several SKPDs within the Regional Government of Payakumbuh City as Project Owners (24 respondents), 36 Contractors, and 48 Supervisory Consultants. The stages that will be carried out in this research are as follows:

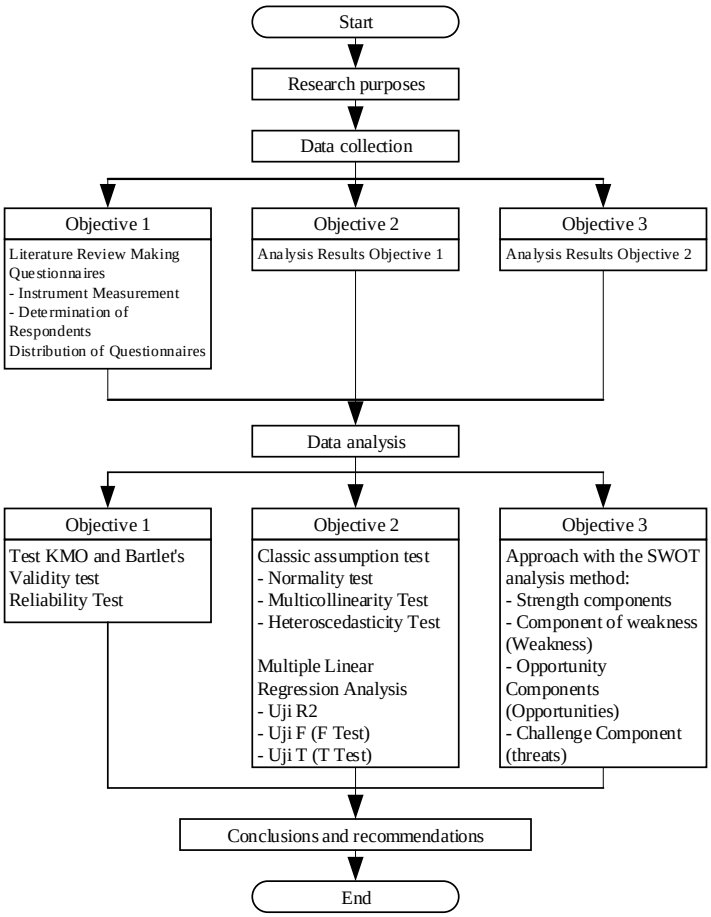

Fig. 1 Research Stages

C. Results and Discussion

Data Analysis Objective I

Before carrying out data analysis for objective I, the instrument is first tested through validity and reliability tests to obtain a valid and reliable instrument.

a) Test Assumptions/KMO (Kaiser Mayer Oiken) and Bartlett's

From the test results KMO (Kaiser Mayer Oiken) and Bartlett's, The results obtained for each factor are as follows:

Table 1. Recapitulation of KMO and Bartlett's Test Results Values

Factor	KMO Test Result	Bartlett's significance value
Competency (X1)	0,700	0,000
Motivation (X2)	0,669	0,000
Loyalty (X3)	0,646	0,000
Compensation (X4)	0,592	0,000
Discipline (X5)	0,662	0,000
Work Environment (X6)	0,555	0,000

Source: Data processing results (2023)

The test results shown in Table 1 found that each factor that influences the performance of contractors in the implementation of building construction projects in Payakumbuh City has met the requirements and this shows the adequacy of the number of samples and there is a correlation between the independent variables.

b) Validity test

The results of the validity test analysis of each variable are as follows:

Table 2 Recapitulation Validity Test

Factor	Variable Code	r Count	r Table (5%)	Information
Competency (X1)	X1.1	0,665	0,195	Valid
	X1.2	0,583	0,195	Valid
	X1.3	0,484	0,195	Valid
	X1.4	0,714	0,195	Valid
	X1.5	0,669	0,195	Valid
Motivation (X2)	X2.1	0,686	0,195	Valid
	X2.2	0,599	0,195	Valid
	X2.3	0,515	0,195	Valid
	X2.4	0,613	0,195	Valid
	X2.5	0,706	0,195	Valid
	X2.6	0,702	0,195	Valid
Loyalty (X3)	X3.1	0,811	0,195	Valid
	X3.2	0,346	0,195	Valid
	X3.3	0,284	0,195	Valid
	X3.4	0,859	0,195	Valid
	X3.5	0,800	0,195	Valid
Compensation (X4)	X4.1	0,657	0,195	Valid
	X4.2	0,708	0,195	Valid
	X4.3	0,364	0,195	Valid
	X4.4	0,574	0,195	Valid
Discipline (X5)	X5.1	0,715	0,195	Valid
	X5.2	0,721	0,195	Valid
	X5.3	0,698	0,195	Valid
	X5.4	0,789	0,195	Valid
Work Environment (X6)	X6.1	0,513	0,195	Valid
	X6.2	0,646	0,195	Valid
	X6.3	0,646	0,195	Valid
	X6.4	0,674	0,195	Valid
	X6.5	0,533	0,195	Valid
Contractor Performance (Y)	Y1.1	0,700	0,195	Valid
	Y2.2	0,739	0,195	Valid
	Y3.3	0,719	0,195	Valid

Source: Data processing results (2023)

Based on Table 2, from the results of the validity test on each variable, the analysis results show that all variables are declared valid.

c) Reliability Test

The results of the reliability test in this research can be seen from the following table:

Table 3. Reliability Test Results

Reliability Statistics

Cronbach's Alpha	N of Items
.672	32

Source: Data processing results (2023)

Based on Table 3, the results of the reliability test/reliability statistics above can be said to be reliable.

Discussion of Objectives I

From the results of the analysis of objective I, the KMO and Bartlett's test results were above 0.5 and the Bartlett's significance value was 0.000. This shows the adequacy of the sample size and that there is a correlation between the independent variables. The results of the validity test on each variable showed that all variables were declared valid. From the Reliability test, a Cronbach's Alpha value was obtained of 0.672 ≥ 0.60, this shows that there is a strong and positive correlation between the independent variables (competence, motivation, loyalty, compensation, discipline and work environment) and the dependent variable (Contractor Performance).

Data Analysis Objective II

Classic assumption test

a) Normality Test

The normality test can be carried out using the normal probability plot method in SPSS.

Table 4. Kolmogorov Smirnov Normality Test Results One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		108
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	1.24042356
Most Extreme Differences	Absolute	.072
	Positive	.064
	Negative	-.072
Kolmogorov-Smirnov Z		.753
Asymp. Sig. (2-tailed)		.622

a. Test distribution is Normal.

b. Calculated from data.

Source: Data processing results (2023)

Based on Table 4, Based on the Normality test results*Kolmogorov Smirnov* earned value*Asymptotic Significance (2-tailed)* as big as **0,622.** Because the significance is more than 0.05, the residuals are normally distributed.

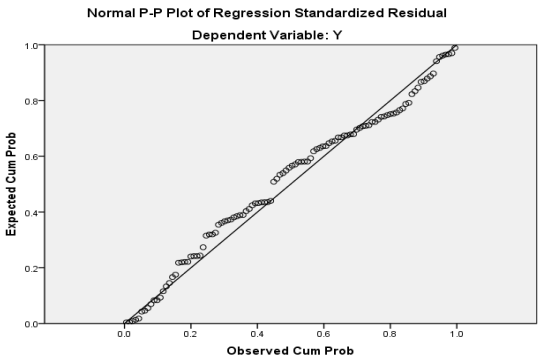

Fig 2. Graph Normal P-Plot

Based on Fig 2, the results of the normality test using the P-Plot above can be seen that the points are spread around the diagonal line and follow the direction of the diagonal line.

b) Multikolinieritas Test

When carrying out a multicollinearity test in a multiple regression model, it can be done by looking at the value*tolerance* and*Variance Inflation Factor* (VIF), if value*tolerance* > 0.1 or a VIF value < 10 means there is no multicollinearity in the multiple regression model:

Table 5. Multikolinieritas Result Test

Modle		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	X1	.879	1.138
	X2	.671	1.490
	X3	.843	1.186
	X4	.761	1.314
	X5	.594	1.683
	X6	.766	1.306

a. Dependent Variable : Y

Source: Data processing results (2023)

Based on Table 5, value*tolerance* and*VIF* of all independent variables. Earned value*tolerance* of all the independent variables are all greater than 0.1 and the VIF values are all smaller than 10, it can be stated that there is no multicollinearity between the independent variables.

Heteroskedastitas Test

The heteroscedasticity test is carried out to determine whether the regression model has unequal variance between the residuals from one observation to another (Ghozali, 2011).

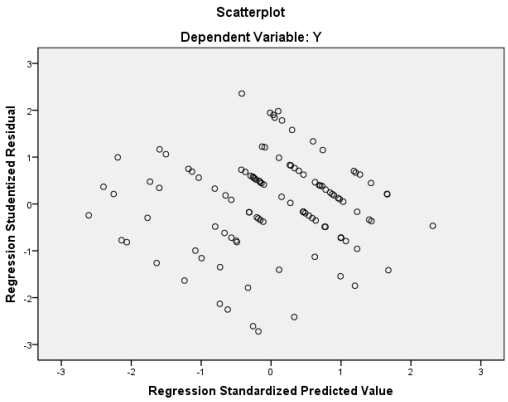

Fig. 3 Graph Scatterplot

Based on Fig 3 above, it can be seen that the distribution of points forms an unclear pattern and spreads above and below zero at point y. So it is concluded that there is no heteroscedasticity in this regression model.

Multiple Linear Regression Analysis

From the multiple linear regression analysis, the following analysis results were obtained:

Table 6 Coefficients (Regresi Linier Berganda)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.777	1.650		1.683	.095
X1	.112	.049	.168	2.268	.025
X2	.214	.039	.458	5.415	.000
X3	.069	.043	.122	1.621	.108
X4	.008	.071	.009	.116	.908
X5	.157	.057	.247	2.749	.007
X6	-.062	.050	-.099	-1.253	.213

a. Dependent Variable : Kinerja Kontraktor (Y)

Source: Data processing results (2023)

From Table 6 *Coefficients* (Multiple Linear Regression) obtained Human Resources factors that have an influence on Contractor Performance, namely (1) Competency factor (X1), with a value of sig. 0.025 < 0.05, (2) motivation factor (X2), with Sig. 0.000 < 0.05, (sig. value 0.000 < 0.05, indicating that it is significant. Because it is 0.000, it is the most significant variable). (3) loyalty factor (X3), with a sig value. 0.108 > 0.05, (4) competency factor (X4), with a sig value. 0.908 > 0.05, (5) discipline factor (X5), with a Sig value. 0.007 < 0.05, (6) work environment factors (X6), with a Sig value. 0.213 > 0.05. Ctt (significant < 0.05, t calculated with a value of min (-) shows that it has a negative effect). So the most dominant factor is the motivation factor (X2) because it has the highest regression coefficient (B) of 0.214.

Based on table B obtained from multiple linear regression analysis, the following regression equation model can be formed:

Y = 2,777 + 0,112 X1 + 0,214 X2, + 0,069 X3 + 0,008 X4 + 0,157 X5-0,062 X6 (1)

This multiple linear regression equation explains that:

a) The constant value (a) has a positive value of 2.777. The positive sign means that it shows a unidirectional influence between the independent variable and the dependent variable. This shows that if all independent variables which include competence (X1), motivation (X2), loyalty (X3), compensation (X4), discipline (X5) and work environment (X6) have a value of 0 percent or have not changed, then contractor performance value (Y) is 2.777.
b) The regression coefficient value for competency (X1) has a positive value of 0.112. This shows that if competency (X1) increases by 1%, then the contractor's performance (Y) will increase by 0.112 assuming other independent variables are considered constant. A positive sign means that it shows a unidirectional influence between the independent variable and the dependent variable.
c) The regression coefficient value for motivation (X2) has a positive value of 0.214. This shows that if motivation (X2) increases by 1%, then the contractor's performance (Y) will increase by 0.214 assuming the other independent variables are considered constant. A positive sign means that it shows a unidirectional influence between the independent variable and the dependent variable
d) The regression coefficient value for loyalty (X3) has a positive value of 0.069. This shows that if loyalty (X3) increases by 1%, then contractor performance (Y) will increase by 0.069 assuming other independent variables are considered constant. A positive sign means that it shows a unidirectional influence between the independent variable and the dependent variable
e) The regression coefficient value for compensation (X4) has a positive value of 0.008. This shows that if compensation (X4) increases by 1%, then the contractor's performance (Y) will increase by 0.008 assuming other independent variables are considered constant. A positive sign means that it shows a unidirectional influence between the independent variable and the dependent variable
f) The regression coefficient value for discipline (X5) has a positive value of 0.157. This shows that if discipline (X5) increases by 1%, then contractor performance (Y) will increase by 0.157 assuming other independent variables are considered constant. A positive sign means that it shows a unidirectional influence between the independent variable and the dependent variable
g) The regression coefficient value for the work environment variable (X6) is -0.062. This value shows a negative influence (in the opposite direction) between the work environment variable (X6) and contractor performance (Y). This means that if the work environment variable (X6) experiences an increase of 1%, then on the other hand the contractor performance variable (Y) will experience a decrease of 0.062. Assuming that other variables are held constant.

Based on the above, if the competency factor (X1) increases with the assumption that other factors remain constant, the contractor's performance will also increase, and so will the treatment for other factors, namely when the value is B for the Human Resources factor. (X) increasing will affect Contractor Performance (Y) which will also increase

Coefficient of Determination Test (R^2)

This coefficient of determination is used to determine the magnitude of the influence of the independent variable on the dependent variable. The value of the coefficient of determination is determined by value Adjusted R square.

Table 7 Model Summary

Model					Change Statistics				
	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1 dimension0	.718[a]	.515	.485	1.277	.515	17.873	6	101	.000

a. Predictors: (Constant), X6, X4, X1, X3, X2, X5

Source: Data processing results (2023)

Based on Table 7, the value of the Coefficient of Determination (R-Square) of 0.515 or equal to 51.5%. This shows that all independent variables, namelycompetency (X1), motivation (X2), loyalty (X3), compensation (X4), discipline (X5) and work environment (X6),simultaneously (together) the effect is equal to**51,5%** on the dependent/independent variable Contractor Performance (Y). While the remainder is (100%-51.5% =**48,5%)** influenced by other variables not tested in the research.

Uji F (F-Test)

The provisions of the F test (Ghozali, 2016) are as follows:

1) If the significant value F < 0.05 then H^0rejected and H^1 accepted. This means that all independent/free variables have a significant influence on the dependent/dependent variable.
2) If the significant value F> 0.05 then H^0 accepted and H^1 This means that all independent variables do not have a significant influence on the dependent variable.

Tabel 8. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	174.800	6	29.133	17.873	.000[a]
	Residual	164.636	101	1.630		
	Total	339.435	107			

a. Predictors: (Constant), work environment (X6), compensation (X4), competence (X1), loyalty (X3), motivation (X2), discipline (X5)

b. Dependent Variable: Contractor Performance (Y)

Source: Data processing results (2023)

Based on Table 8, it can be concluded that H^0rejected and H^1 accepted. This can be seen from the calculated F value, which is 17.873. Meanwhile, the resulting significance value is0,000 < 0,05. It can be concluded that this multiple linear regression model is suitable for use and includes independent variablescompetency (X1), motivation (X2), loyalty (X3), compensation (X4), discipline (X5) and work environment (X6) has a simultaneous influence on the dependent variable contractor performance (Y) or the hypothesis is accepted.

Uji T (T-test)

The T test was carried out to determine the level of relationship between factor 05). The basis for decision making in the T test is that if the calculated T value > T table then factor X (Human Resources) influences Y (Contractor Performance).

Table 9. Coefficients

Source	Coefisien	t_{count}	*Sig.(p)*	Information
Source	0.112	2.268	0.025	Influential
Motivation (X2)	0.214	5.415	0.000	Influential
Loyalty (X3)	0.069	1.621	0.108	No effect
Compensation (X4)	0.008	0.116	0.908	No effect
Discipline (X5)	0.157	2.749	0.007	Influential
Work Environment (X6)	-0.062	-1.253	0.213	No effect

Source: Data processing results (2023)

Table 10. T Test Result

Source	t_{count}	t_{table}	Information
Competency (X1)	2.268	1.980	Influential
Motivation (X2)	5.415	1.980	Influential
Loyalty (X3)	1.621	1.980	No effect
Compensation (X4)	0.116	1.980	No effect
Discipline (X5)	2.749	1.980	Influential
Work Environment (X6)	1.253	1.980	No effect

Significant level 5% (0.05)

Source: Data processing results (2023)

Based on Table 10, the T test results in the table above show the following:

1) From the table above, we get the t calculated effect of Competency (X1) on Contractor Performance (Y) of 2.268 and a significance of 0.025, where the t table (dk = n-k-1 = 108-6-1 = 101) is 1.980, we get t calculated > t table (2.268 > 1.980), and the significance value of 0.025 is smaller than 0.05, it can be concluded that the Competency variable (X1) has an influence on the Contractor Performance variable (Y).
2) From the table above, the t count of the influence of Motivation (X2) on Contractor Performance (Y) is 5.415 and the significance is 0.009, where the t table (dk = n-k-1 = 108-6-1 = 101) is 1.980, we get t count > t table (5.415 > 1.980), and the significance value of 0.009 is smaller than 0.05, so it can be concluded that the Motivation variable (X2) has an influence on the Contractor Performance variable (Y).
3) From the table above, we get the t count of the effect of Loyalty (X3) on Contractor Performance (Y) of 1.621 and a significance of 0.108, where the t table (dk = n-k-1 = 108-6-1 = 101) is 1.980, we get t count < t table (1.621 < 1.980), and the significance value of 0.108 is greater than 0.05, so it can be concluded that the Loyalty variable (X3) has no influence on the Contractor Performance variable (Y).
4) From the table above, we get the calculated t effect of Compensation (X4) on Contractor Performance (Y) of 0.116 and a significance of 0.908, where the t table (dk = n-k-1 = 108-6-1 = 101) is 1.980, we get t calculated < t table (0.116 < 1.980), and the significance value of 0.908 is greater than 0.05, so it can be concluded that the

Compensation variable (X4) has no influence on the Contractor Performance variable (Y).

5) From the table above, the t count of the effect of Discipline (X5) on Contractor Performance (Y) is 2.749 and the significance is 0.007, where the t table (dk = n-k-1 = 108-6-1 = 101) is 1.980, we get t count > t table (2.749 > 1.980), and the significance value of 0.007 is smaller than 0.05, so it can be concluded that the Discipline variable (X5) has no influence on the Contractor Performance variable (Y).
6) From the table above, we get the calculated t effect of the Work Environment (X6) on Contractor Performance (Y) of 1.253 and a significance of 0.213, where the t table (dk = n-k-1 = 108-6-1 = 101) is 1.980, we get the t calculated < t table (1.253 < 1.980), and the significance value of 0.213 is greater than 0.05, it can be concluded that the Work Environment variable (X6) has an influence on the Contractor Performance variable (Y).

From the results of the T Test above, it can be concluded that competency factors (X1), motivation factors (X2) and discipline factors (X5) have a partial influence on Contractor Performance (Y). The dominant factor in this research is the Motivation factor (X2) because it is found that t count > t table (5.415 > 1.980), and the significance value of 0.009 is smaller than 0.05, which consists of the variables improving work ability (X2.1), support and company guarantees for achievement (X2.2), desire to achieve work achievements (X2.3), application of professional teamwork (X2.4), recognition and appreciation for work results (X2.5), work situations and relationships good (X2.6).

D. Conclusions

The conclusions from this research are:

1) From research literature studies relevant to this research, human resource factors can be identified that influence contractor performance on building construction projects in Payakumbuh, namely the independent variables competence (X1), motivation (X2), loyalty (X3), compensation (X4), discipline (X5) and work environment (X6) and the dependent variable contractor performance (Y).
2) The results of the multiple linear regression analysis calculations obtained are:
   Y = 2.777 + 0.112 X1 + 0.214 X2, + 0.069 This shows that all the variables competency (X1), motivation (X2), loyalty (X3), compensation (X4), discipline (X5) and work environment (X6), simultaneously have an influence of 51.5% on the Contractor Performance variable (Y). While the remaining 48.5% influenced by other variables not tested in the research. From the calculated F value, it is 17,873, while the resulting significant value is 0.000 < 0.05. It can be concluded that this multiple linear regression model is suitable for use and competence (X1), motivation (X2), loyalty (X3), compensation (X4), discipline (X5) and work environment (X6) have a simultaneous influence on contractor performance (Y). From the results of the t test calculations, the t value for Competency (X1) is 2,268, the t value for Motivation (X2) is 5,415, the t value for Loyalty (X3) is 1,621, the t value for Compensation (X4) is 0.116, the t value for Discipline (X5) is 2,749, and the calculated t value for the Work Environment (X6) is 1,253 while the t table value is 1,980, with the conclusion that competence (X1), motivation (X2) and discipline (X5) have a partial influence on Contractor Performance (Y) because it is found that t count > t table), and the

significance value is smaller than 0.05. Based on the largest t value, the most dominant human resource factor is Motivation (X2) because it is found that t count > t table (5.415 > 1.980), and the significance value of 0.000 is smaller than 0.05.

Alternative solutions that must be implemented are as follows: (1) Establishing good communication between Human Resources on the project; (2) Improving the conditions of the workforce or Human Resources on the project; (3) Give awards to Human Resources who contribute good work to create stronger work motivation; (4) Provide clear information and training to contractor Human Resources so that teamwork can be implemented professionally; (5) Provide recognition and appreciation for work results, so that a good working situation and relationship is established; (6) Providing allowances and salaries on time so that Human Resources motivation increases

References

[1] Ariestadi. (2008). *Teknik Struktur Bangunan*. Departemen Pendidikan Nasional.
[2] Arikunto, S. (2002). *Metodologi Penelitian Suatu Pendekatan Proposal*. PT. Rineka Cipta.
[3] B. Johnson, E. (2007). *Contextual Teaching & Learning; Menjadikan Kegiatan Belajar-Mengajar Mengasyikan dan Bermakna*. MLC.
[4] Buddewi Sukindrawati, & Widya Kartika (2021). Analisis Variabel Yang Mempengaruhi Kinerja Tim Proyek. *Jurnal Rancang Bangun Teknik Sipil, 7(1), 35*.
[5] Dipohusodo. (1996). *"Manajemen Proyek dan Konstruksi."* Penerbit Kanisius.
[6] Dewi, A. . D. P., Sudipta, I. G. K., & Setyowati, D. S. (2016). *Analisis Aspek Sumber Daya Manusia Terhadap Kinerja pada Proyek Konstruksi Di Kabupaten Bandung*. Jurnal Ilmiah Teknik Sipil, 20(2), 103–109.
[7] Ervianto. (2005). *Manajemen Proyek Konstruks* (Andi (ed.); Edisi Revisi).
[8] Ghozali, I. (2011). *"Aplikasi Analisis Multivariate Dengan Program SPSS."* Badan Penerbit Universitas Diponegoro.
[9] Gusti Ayu Putu Candra Dharmayanti, Ida Bagus Rai Adnyana, & Made Arditya Nugraha (2020). Pengaruh Kinerja Sumber Daya Manusia Terhadap Kinerja Proyek Konstruksi Di Kabupaten Badung. *Jurnal Ilmiah Teknik Sipil, 24(2), 71.*
[10] Hamdi. (2013). *"Pengukuran Kinerja Kontraktor Dikaitkan dengan Sistem Manajemen Mutu ISO 9001:2008 (Studi Kasus di Kota Mataram)" Magister Thesis, Universitas Brawijaya*.
[11] Herni Setiawan, T., & Ariadi, T. (2012). Indikator Keberhasilan Proyek Pembangunan Bangunan Gedung Yang Dipengaruhi Faktor Internal Site Manager. *Jurnal Teknik Sipil*, *11*(2), 128–134.
[12] I Wayan Muka, & I Made Harta Wijaya (2019). Pengaruh Pengalaman Tenaga Kerja Terhadap Kinerja Kontraktor Pada Proyek Konstruksi. *Jurusan Teknik Sipil Fakultas Teknik Universitas Hindu Indonesia*
[13] Kerzner, H. (2009). *"Project Management, A System Approach to Planning, Schedulling and Controlling"* (Tenth Edition). John Wiley & Sons Inc, (2009).
[14] Mangkunegara, A. P. (2004). *Manajemen Sumber Daya Manusia*. PT Remaja Ros Dakarya
[15] Marno Nugroho, & Renjana Paradifa. (2020). Pengaruh Pelatihan, Motivasi, Kompetensi Terhadap Kinerja Sumber Daya Manusia. *JRMSI - Jurnal Riset Manajemen Sains Indonesia*, *11*(1), 149–168.

[16] Mashun, M. (2006). *Pengukuran Kinerja Sektor Publik* (Cetakan Pertama). Penerbit BPFE- Yogyakarta.
[17] Moeheriono. (2011). *Pengukuran Kinerja Berbasis Kompetensi : Competency Based Human Reseurce Management*. Ghalia Indonesia.
[18] Nurhayati. (2010). *"Manajemen Proyek"* . Penerbit Graha Ilmu, Yogyakarta.
[19] Rani, H. A. (2016). *Manajemen Proyek Konstruksi*. 99.
[20] Rivai, V. (2005). *Manajemen Sumber Daya Manusia Untuk Perusahaan Dari teori Ke Praktik*. PT. Raja Grafindo Persada.
[21] Salsabiila, A. K., & Hidayati, R. A. (2022). Pengaruh Lingkungan Kerja, Kedisiplinan, dan Beban Kerja Terhadap Kinerja Karyawan PERUMDA Aneka Usaha Lamongan. *Master: Jurnal Manajemen Dan Bisnis Terapan*, *2*(2), 137.
[22] Sari. (2011). *"Evaluasi Penerapan Sistem Manajemen Mutu Pada Pelaksanaan Konstruksi Jalan di Provinsi Aceh".* Jurusan Teknik Sipil Universitas Syiah Kuala.
[23] Simamora. (2004). *Manajemen Sumber Daya Manusia*. STIE-YKPN.
[24] Sinambela. (2012). *Kinerja Pegawai Teori Pengukuran dan Implikasi*. Graha Ilmu.
[25] Soeharto, I. (1997). *"Manajemen Proyek."* Erlangga, Jakarta.
[26] Stukhart, G. (1995). *Construction Materials Management*. Marcel Dekker, Inc.
[27] sugiyono. (2014). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, kualitatif, dan R&D Alfabeta*.
[28] Sugiyono. (2001). *Metode Penelitian*. CV Alfa Beta.
[29] Sugiyono. (2009). *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Alfabeta.
[30] Sugiyono. (2011). *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Alfabeta.
[31] Sugiyono. (2014). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D*. Alfabeta.
[32] Sugiyono. (2016). *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. PT Alfabet.
[33] Wibowo. (2011). *Manajemen Kinerja*. PT.Raja Grafindo Persada.
[34] Wirawan. (2009). *Evaluasi Kinerja Sumber Daya Manusia Teori Aplikasi dan Penelitian*. Penerbit: Salemba Empat.
[35] Wulfarm I, E. (2005). *Manajemen Proyek Konstruksi Edisi Ketiga*. Edisi Revisi, Andi, Yogyakarta.
[36] Zaenal Arifin, M., Susetyo, B., & Syafwandi, S. (2022). Analisis Motivasi dan Kepemimpinan Terhadap Keberhasilan Proyek Melalui Kompetensi Sumber Daya Manusia di Proyek Gedung Bertingkat Tinggi. *Jurnal Health Sains*, *3*(1), 163–179.