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Research paper

Evaluation of the Suitability of the Implementation of the Project in Contracts Quality Plan

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Abstract

This paper aims to evaluated the quality control of project implementation and the determining factors conformity of the implementation of the contract quality plan on the project. Here we discuss road projects in East Kalimantan because according to the central government infrastructure instruction that must be prioritized is road construction. Because there is still a lack of service on road infrastructure in East Kalimantan. Statistical method is Importance Performance Analysis (IPA), through validation and reliability testing variable item through data collection of respondents in the form of questionnaires. Factors that cause a striking difference between contract execution plans with the quality of the road project in East Kalimantan. Have weaknesses in operational variables (X 1) indicator more obvious scheduling system and planned (X 1.6) it has a score of 0.55 and human resource variables (X 3) on the recruitment and training of the indicator (X 3.12) has a score of 0.56. This paper provides references to insight and understanding about method of evaluating nonconformity, corrective and preventive actions in implementing contract quality plans in project implementation.

Keywords: *Quality control, Importance Performance Analysis, Road project*

1. Introduction

Contact Quality Plan has Investigated to be applied in the determination of the quality of the current project [1,2,3,4,5,6,7]. In the case of particular occasionally implementation, still less satisfying. so the necessary steps are taken to ensure that project activities have been conducted according to plan Quality Contacts that has been made and approved prior to implementation of the project activities. If not suitable then action needs to be taken quality control project implementation based on the employment contract that was already agreed between the giver tasks (Owner) and recipients of job duties (User). In principle the use of use of quality contract on the project plan is to detect quality control project implementation. Besides the advantages, the use of a quality plan in the contract need interpretation the observant and conscientious. so the results are expected to be fit and be accountable. Therefore, the performance of the implementation plan of the quality contract on the quality of the project should be evaluated and analyzed, and tested that the accuracy of and the results obtained should be accountable.

2. Determination Of Data

This research was conducted with the census method/ questionnaire because the number of respondents who made the object of research is only confined to stap companies involved in road construction project in East *Kalimantan*. The data used in this research is the primary data and secondary data. Primary data obtained from observation through the list of questions has been prepared (Questionnaire) to the respondent in question.

2.1. General Overview Respondent

The population of this research is Local Construction services company stap located in East *Kalimantan* as the giver of the service (user) and staf government agencies and private Users as the service (ouner). Than planned as many as twenty projects (one hundred and twenty respondents) that returns as many as fourteen projects (eighty four respondents).
Questionnaire the questionnaire distributed to every instance of the construction services company and populated by the people understand the plan of quality and understand its application at the company. Respondents include: from the giver Owner; Project Management (PM), Site Manager (SM), and Site Engineering (SE), and from users of the service, Leadership project (PI), Technical support (BT), field Coordinator (KL).

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2.2 The questionnaire

Questionnaire in this study consists of two parts:

a. General
   Contains the data of the respondents which includes the identity of government agencies from the service recipient questionnaire filler (owner). Purposes so that the information obtained from the respondents can be trusted and can be accountable.
b. Main
   Contains questions about the obstacles the implementation evaluation of the control of rendering the application of Contact Quality Plan on the application of the implementation of the project.

2.3 Characteristics of respondents

The following is an overview of the characteristics of respondents:

a. Department/company
b. The capacity
c. Experience
d. Education
e. The age of

2.3.1. General Overview Respondent

The population of this research is Local Construction Services Company staff located in East *Kalimantan* as the giver of the service (user) and staff government agencies and private Users as the service (owner).
Than planned as many as twenty projects (one hundred and twenty respondents) that returns as many as fourteen projects (eighty-four respondents), then the result of the dissemination of the questionnaire research on the instances of user services (public works), There are six projects that did not return the four public works project of *Samarinda* and two public works project *Kutai Timur*, while for a construction services company doesn't return six related companies on six the project is being implemented by six instances of service users who do not return the questionnaire so that the name of the company construction services cannot be known.

2.3.2. The following description of respondents

A. characteristics of the Agency/Company Respondents

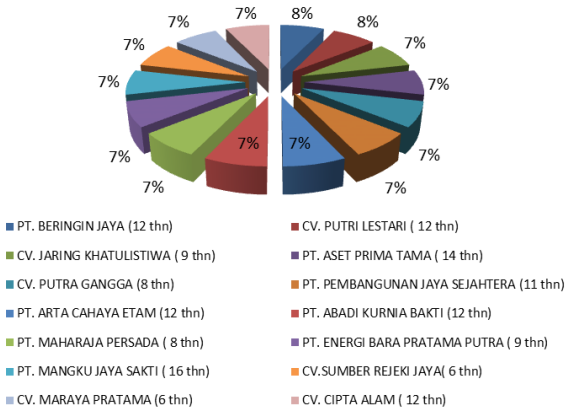


Fig. 1: Characteristics of establishments/Company Respondents

From The Picture. 1, it can be noted that of the 14 Establishments/companies each taken three people to serve as respondents.
B. Characteristics of the position of the respondent

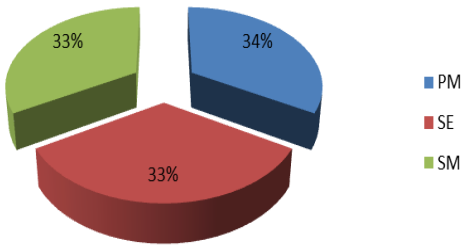


Fig. 2: The characteristics of the position of the respondent

From The Picture. 2, can be known that 42 of those respondents each consisting of 33% or 14 respondents who have tenure as PM, SE, and SM.
C. The last Education Characteristics of respondents
From the Picture. 3 below, can be known from 42 respondents, most people have an education last up to s. 1, namely amounting to 81% or 34 people.

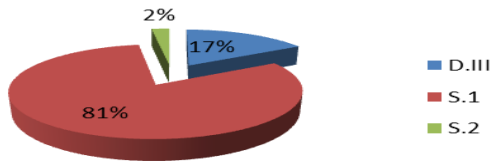


Fig. 3: Last Education Characteristics of respondents

D. Age of Respondent Characteristics (in years).

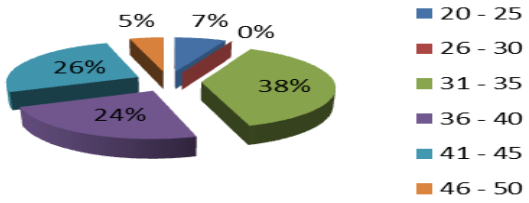


Fig. 4 Characteristics Age Respondents

Figure 4, known from 42 people most respondents already aged between 31-year up to 35 years, namely amounting to 38% or 16 people.

E. the company/Agency Characteristics of respondents (Owner)

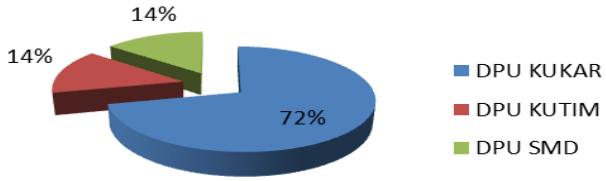


Fig. 5: Characteristics of establishments/companies Implementing Respondents

From The Image 5, be aware that 42 of those respondents, mostly from *DPU Kutai Kartanegara* namely amounting to 72% or 30 respondents.

F. Officials Experience Characteristics of respondents

The following Figure 6, it can be noted that 42 of those respondents, most of it is not known how long experience working as a PPTK i.e. of 63% or 25 people.

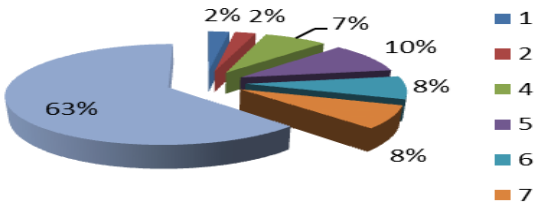


Fig.6: Implementing the respondent Experience Characteristics As Officials implementing technical activities (in years)

G. Technical Assistance Experience Characteristics of respondents (Owner)

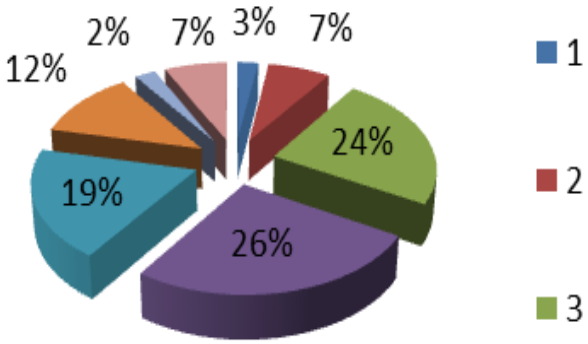


Fig. 7: Implementing Respondents Experience Characteristics As technical assistance (in years)

From The Picture. 7, it can be noted that 42 people from the majority of respondents who had experience working in the field of technical assistance for four years that is as much as 26% or 11 people.

H. Characteristics of the Field Coordinator Experience respondents (Owner)

The Following Picture. 8, can be known that 42 of those respondents, most of it is not known how long his experience working as a coordinator for a field that is as much as 24% or 10 people.

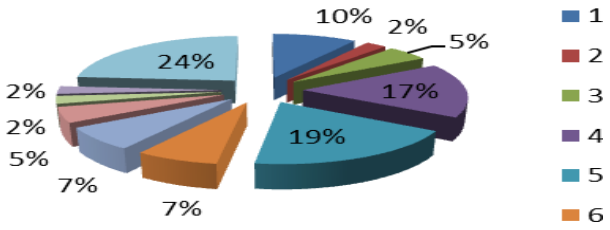


Fig. 8: Implementing characteristics of Respondents Experience as the Coordinator of the field (in years)

The last Education Characteristics of respondents (Owner)
The Following Picture. 9, known from 42 respondents, most people have an education last up to s. 1 of 74% or 31 people.

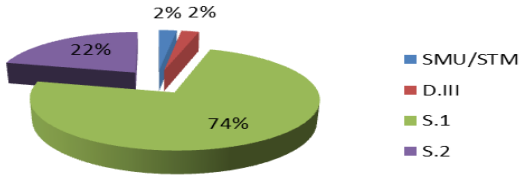


Fig.9: The respondent Executors Last Education Characteristics

J. Characteristic Age of respondents (Owner)
The following is an overview of the characteristics of the Age of respondents (Owner)

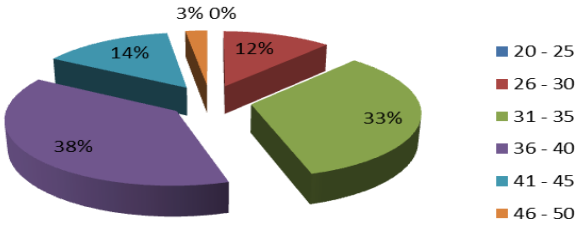


Fig10: Characteristics Age Respondent Executors (in years)

Picture 10, known from 42 people most respondents already aged between 36 years up to 40 years that is as much as 38% or 16 people.

2.4 Research variables

The variables analyzed in this research is the dependent variable and differentiated into independent variable.

1. the dependent Variable (Y) is variable depending on which its existence is influenced by other variables. The dependent variable in this study was the evaluation of the suitability of the Implementation Plan of the quality of the contract on the project. This variable is a dummy variable. These variables are nominal scale:

a. A value of 0: for evaluation before
b. A value of 1: for after the evaluation

2. The independent variable (X) is the free variable that would later influence the dependent variable which consists of:
   a. The first variable (X1) is operational.
   b. The second variable (X2) is finance.
   c. A third variable (X3) is human resources.
   d. Provisional Hand Over (PHO)

3. Methods of data analysis

Discussion the analysis of the results of the research began with the exposure in a descriptive regarding the characteristics of respondents who became the object of research, testing analysis of the validity of the, and reliability against the results of a research instrument. Then proceed with the analysis of the Importance Performance Analysis (IPA) [8,9,10,11,12,13,14].

1. Test validity and Reliability
   The validity of a test is done by measuring the correlation between indicators/items with the total score indicator. How to measure the validity of invalid constructs that is by finding a correlation between each question with a score total correlation technique using the formula product moment. If the value of the correlation (r) > 0.3 then it can be stated the item was valid. Be aware that all items of the variable satisfaction question has a value of correlation (r) > 0.3, so summed up all the questions in the questionnaire items can be declared to have been valid.
2. Reliability Test Of Variables Of Satisfaction
   It can be seen that the value of the Cronbach's Alpha of each indicator on the variable satisfaction shows significant results When compared with critical values of 0.6, so it can be concluded the entire item or subvariabel that is contained in each variable in the questionnaire have been reliability.

4. Results and Discussion

Program Processing of research data using SPSS program [15,16,17,18]

1. Analysis IPA

a. Analysis of the perception of the Customers Towards the implementation of the plan of implementation of the contract on the quality of road construction project in East Kalimantan work system personnel, creativity and innovation.

Tabulated results of importance and satisfaction according to Owner can note that the value of the benefit (3.57) is greater than the value of satisfaction (2.32) :

$$\frac{\bar{\bar{X}}}{\bar{\bar{Y}}} = \frac{2.32}{3.57} = 0.65 \text{ atau } \frac{\bar{\bar{X}}}{\bar{\bar{Y}}} < 1,$$

Tabulated results of importance and satisfaction according to the Executor can be aware that the value of the benefit (3.89) is greater than the value of satisfaction (2.67) :

$$\frac{\bar{\bar{X}}}{\bar{\bar{Y}}} = \frac{2.67}{3.89} = 0.69 \text{ atau } \frac{\bar{\bar{X}}}{\bar{\bar{Y}}} < 1$$

Thus it can be concluded the level of customer satisfaction towards the implementation of the plan of implementation of the contract on the quality of road project in East *Kalimantan* not optimal or not yet satisfied customers against the service.

b. The level of Compliance of each Variable

which has the lowest value of the level of implementation of the plan of implementation of the contract on the quality of road project in East *Kalimantan*, as follows:

Table 1. Conformity rate of Customers towards the implementation of the Project on the road the contract on the quality in East *Kalimantan*

1. An indicator of the fact the cost is lower than the budget has the highest score namely of 0.74 and indicator of product quality has the highest score namely of 0.81 compared to other indicators, the fact the cost is lower than the budget **is excess**.
2. Personnel recruitment and training indicators have the lowest score that is amounted to 0.56 and scheduling system clearer and planned to have the lowest score, namely of 0.55 as compared to other indicators, indicators this **is a weakness.**

To know the priority of each variable in order to improve the quality of the implementation of the plan of implementation of the project contract on quality Street in East Kalimantan, then the whole variable Cartesian diagram can be described in accordance with the weighting owned by each variable.

Table 1: The average rating for importance and satisfaction towards the implementation of road projects on the implementation of the plan of quality contract in East *Kalimantan*

Code	Variabel	The Assessment Of The Interests (Y)	The Assessment Of Customer Satisfaction (X)	(Y)	(x)
X1	**OPERATIONAL**				
X1.1	The reality of lower cost budget	160	119	3.81	2.83
X1.2	Efficiency and effectiveness of resources	176	121	4.19	2.88
X1.3	Conformity with the plan results	187	127	4.45	3.02
X1.4	Product quality	179	130	4.26	3.10
X1.5	Completion of the work on time	181	104	4.31	2.48
X1.6	The more obvious scheduling system and planned	187	111	4.45	2.64
X1.7	The integration process is to achieve the best results	183	112	4.36	2.67
X1.8	The quality of equipment	178	116	4.24	2.76
X1.9	Relationship with suppliers	165	101	3.93	2.40
X1.10	Fluency in the provision of material	168	106	4.00	2.52
X2	**FINANCE**				
X2.1	Advantage	165	111	3.93	2.64
X2.2	Cash flow	165	109	3.93	2.60
X3	**HUMAN RESOURCES**				
X3.1	Resource productivity	172	114	4.10	2.71
X3.2	Discipline within the company	177	115	4.21	2.74
X3.3	Personnel motivation and morale	181	123	4.31	2.93
X3.4	Resource management more effective and efficient	181	123	4.31	2.93
X3.5	Duties and authorities in accordance with the responsibility	182	114	4.33	2.71
X3.6	Awareness of the importance of the quality of personnel	180	122	4.29	2.90
X3.7	Improve the work system personnel	186	109	4.43	2.60
X3.8	Responsibility of personnel	187	133	4.45	3.17
X3.9	The quality of the company's experts	181	122	4.31	2.90
X3.10	The quality and dedication of the personnel	178	122	4.24	2.90
X3.11	Kreativitas dan inovasi personel	191	109	4.55	2.60
X3.12	Training and recruitment of personnel	186	105	4.43	2.50
X4	**PROVISIONAL HAND OVER**				
X4.1	Owner Satisfaction	185	126	4.40	3.00
X4.2	Owner Loyalty	178	126	4.24	3.00
X4.3	The acquisition of market share	183	127	4.36	3.02
X4.4	On-demand products and services Ouner	193	117	4.60	2.79

X4.5	Quality assurance to the Owner	187	125	4.45	2.98
X4.6	Complaints from customers	185	118	4.40	2.81
X4.7	Timeliness in the completion of the project	198	116	4.71	2.76
On Average The Entire Variable				**4.29**	**2.79**

The table 2 illustrates the compliance level is used to illustrate a comparison between the perceived current conditions with the condition wish for each variable.

Table 2: The average rating for importance and satisfaction of Customers

Code	Variabel	$\frac{\overline{Xi}}{\overline{Yi}}$	Averange
XI	**OPERATIONAL**		
	X1.1 X1.2 X1.3 X1.4 X1.5 X1.6 X1.7 X1.8 X1.9 X1.10	0.74 0.69 0.68 0.73 0.57 0.59 0.61 0.65 0.61 0.63	0.65
X2	**FINANCE**		
	X2.1 X2.2	0.66 0.67	0.67
X3	**HUMAN RESOURCES**		
	X3.1 X3.2 X3.3 X3.4 X3.5 X3.6 X3.7 X3.8 X3.9 X3.10 X3.11 X3.12	0.66 0.65 0.68 0.68 0.63 0.68 0.59 0.71 0.67 0.69 0.57 0.56	0.65
X4	**PROVISIONAL HAND OVER**		
	X4.1 X4.2 X4.3 X4.4 X4.5 X4.6 X4.7	0.68 0.71 0.69 0.61 0.67 0.65 0.59	0.65

Diatribusi each of the indicators in the Cartesian Diagram (OWNER) can be seen in figure 11:



Fig. 11: Diagram the interest and satisfaction owner

QUADRANT A: the indicator gets top priority to be fixed or improved performance: Timely completion of the work, the scheduling system more clear and well-planned, process Integration to achieve the best results, tasks and powers in accordance with the responsibility, Improve the work system personnel, creativity and innovation of personnel, training and recruitment of personnel, products and services as requested by owner, Timeliness in the implementation.

QUADRANT B: this quadrant is excess owned: The reality of lower cost budget, Conformity with the plan results, Motivation and morale of personnel, The quality of the company's experts, The quality and dedication of the personnel, Owner satisfaction, The acquisition of market share, Quality assurance to the owner, complaints from customers.
QUADRANT C: have a low interest rate and the level of satisfaction is also or just plain. The efficiency and effectiveness of resources, product quality, awareness of the importance of personnel quality, the quality and dedication of the personnel, owner loyalty.
QUADRANT D: deemed less important but the community is satisfied with his presence. Only get medium priority, whom quality equipment, relations with suppliers, fluency in the provision of material, profit, cash flow, productivity of resources, discipline in the company.
Diatribusi each of the indicators in the Cartesian Diagram, interests and customer satisfaction in figure 12.

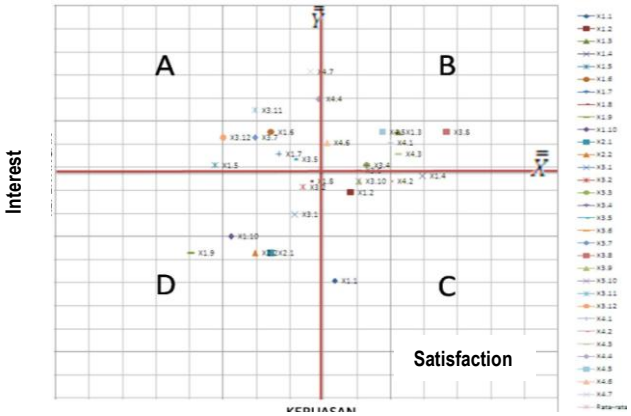


Fig. 12: Diagram of interest and customer satisfaction

Diagram of interest and customer satisfaction indicators contained in A quadrant is an indicator that can affect the level of user satisfaction on performance where his condition is not satisfactory and the level of interest is high.
Quadrant B contains indicators that affect user satisfaction level on performance where his condition has met expectations and needs to be maintained. In other words the indicators contained in this quadrant represents the excess of the quality plan implementation owned contracts on project execution path in East Kalimantan.
In quadrant C indicator that there is a low interest rate and the level of satisfaction that is enough or standard.
In quadrant D is an indicator that there is considered to be less important, but the community is satisfied with his presence. The indicators contained in this quadrant are considered less important so only get medium priority.
Customer Satisfaction Analysis, Analysis Of The IPA
From the results of the analysis note that the average total customer satisfaction towards the implementation of the plan of implementation of the project contract on quality Street in East Kalimantan, according to the view OWNER and Executor still not optimal. It can be seen the value of the level of satisfaction is still below standards (under 1).
Analysis of Customer Satisfaction (Owner)
Specified based on the priority of the service improvement plan implementation quality of the contract, then the indicator that gets top priority: Timely completion of the work, the scheduling system more clear and well-planned, process Integration to achieve the best results, tasks and powers in accordance with the responsibilities, improve the work system personnel, creativity and innovation of personnel, Training and recruitment of personnel, products and services as requested by owner, timeliness in the completion of the project.
While the indicators need to be maintained according to OWNER. The reality of lower cost of the budget, the suitability of the results with the plan, the motivation and morale of personnel, the quality of the company's experts, the quality and dedication of the personnel, the satisfaction of the owner, Gaining market share, quality assurance to the owner, complaints customer. Because of the indicator has been able to deliver customer satisfaction towards the quality plan implementation contract.
Analysis of customer satisfaction (User)
Specified based on the priority of the service improvement plan implementation, contract quality indicators that gets top priority is Timely completion of the work, the scheduling system more clear and well-planned, relations with suppliers, Fluency in the provision of material, profit, cash flow, productivity of resources, improve the work system personnel, products and services in accordance request owner, Complaints from customers. While the indicators need to be maintained according to the Executor, as the indicators has been able to deliver customer satisfaction towards the implementation quality plan contract, i.e. Quality products, quality of Equipment, management of resources became more effective and efficient, the authority in accordance with the duties and responsibilities of personnel, awareness of the importance of quality, responsibility for personnel, the satisfaction of the owner, owner Loyalty, Gain market share, Quality assurance to the owner, the timeliness in completing the project.

2. Evaluation of the implementation of the Road Project in East *Kalimantan* before and after the implementation of the plan of the quality contract.

In a review of variable operational, financial, human resources, and Variable Handover work, then used wilcoxon test analysis method, with the following hypothesis:
H0: there is no difference in the implementation of the road project in East Kalimantan before the application, and after the application of a quality plan contract.
H1: there is a difference in implementation of road project in East *Kalimantan* before the application, and after the application of a quality plan contract.
Decision making of hypotheses, comparing the value of the wilcoxon test P-value with α (5%). If the value of the wilcoxon test P-value is greater than α (5%). Then it can be decided to accept H0, if the value of the wilcoxon test P-value smaller than α (5%), then it can be decided to reject H0. Next to find out whether the difference. should be further analyzed using the wilcoxon test analysis in one direction, with the following hypothesis: H0: variables related to the quality of employment (operational, financial, human resources, and on the

implementation of the handover) road project in East Kalimantan have been better after application, compared to before the application of a quality plan contract.
H0: variables related to the quality of employment (operational, financial, human resources, and the handover) on the implementation of the road project in East Kalimantan have been better after application, compared to before the application of a quality plan contract.
H1: variables related to the quality of employment (operational, financial, human resources, and the handover) on the implementation of the road project in East Kalimantan have been better before the application of a quality plan contract.
If the value of the wilcoxon test statistic (T +) is greater than the critical value of the wilcoxon test, then it can be decided to accept H0, and if the value of the wilcoxon test statistic (T +) is less than the critical value of the wilcoxon test, then it can be decided to reject H0.
View OWNER

1. Operational Variables
   that the value of wilcoxon statistics (T +) P-value value to the operational variables (X 1) of 0000, compared with α (5% = 0.05), since the P-value obtained operational variables smaller than the α (5% = 0.05). Thus it was decided to accept H0, Later to find out more, do further analysis using the wilcoxon test of one-way analysis. retrieved value statistic wilcoxon (T +) of 181, and n = 19, then compared with critical values test of wilcoxon (n; α) = (19; 0.05) = 54 Note that the value of the statistic wilcoxon (T +) is greater than the value of critical, so it was decided received: H0: that means according to the view OWNER variable on the operational implementation of a road project in East Kalimantan have been better before the application of a quality plan contract.
2. Financial Variables
   that the value of the P-value of wilcoxon statistics value to financial variables (X 2) of 0000, then compared with α (5% = 0.05), since the P-value obtained a financial variable is greater than α (5% = 0.05), then it can be decided to reject H0, for find out more, if the difference is better after implementation quality plan contract or not, then conducted further analysis using the wilcoxon test of one-way analysis, (T +) of 240, and n = 23, then compared with critical values test of wilcoxon (n; α) = (23; 0.05) = 83 is greater than the value of critical, thus it was decided to receive: H0: that means according to the implementing variable views of human resources in the implementation of a road project in East *Kalimantan* have been better before the application of a quality plan contract.
3. Human resource Variables
   that the value of the P-value of wilcoxon statistics value to human resource variables (X 3) of 0000, then compared with α (5% = 0.05), since the P-value obtained for human resource variables smaller than the α (5% = 0.05). Then it can be decided to reject H0, carried out further analysis using the wilcoxon test of one-way analysis, (T +) amounted to 435, and n = 29, then compared with critical values test of wilcoxon (n; α) = (29; 0.05) = 141 is larger than the critical value, Thus it was decided to accept.
   H0: that means according to the implementing variable views of human resources in the implementation of a road project in East Kalimantan have been better before the application of a quality plan contract.
4. Provisional Hand Over Variable
   that the value of the P-value of wilcoxon statistics value to variable Handover Work 0.007 (X 4) for, then compared with α (5% = 0.05), since the P-value obtained First Job Handover variables smaller than the α (5% = 0.05), then it can It was decided to reject H0, carried out further analysis using the wilcoxon test of one-way analysis (T +) of 325, and n = 25, then compared with critical values test of wilcoxon (n; α) = (25; 0.05) = 101 is greater than the value of critical, so that it can It was decided to accept.
   H0: that means Implementing variable views according to Handover first on the implementation of the road project in East *Kalimantan* have been better after the implementation of the plan of implementation of the quality compared to before the contract.

5. Conclusion

From the results of research and analysis that has been done then it can be taken as a conclusion is to note that the average total customer satisfaction towards the implementation of the plan of implementation Contact Quality Plan of the project in East *Kalimantan* still not optimal because it is still under standard 1 based on analysis of the IPA.

1. The factors that cause the glaring discrepancy between the plan of implementation of the contract with quality road project in East Kalimantan have weaknesses on Operational variables (X 1) on indicator more obvious scheduling system and planned (X 1.6) score of 0.55 and followed human resource Variables (X 3) on indicator for training and recruitment of personnel (X 3.12) has a score of 0.56.
2. In order to overcome obstacles and improve customer satisfaction towards the implementation of the Contact Quality Plan, need to do are:
   a. The service improvement Priority indicators that became a top priority.
   b. Maintain the indicator indicator that has been able to deliver customer satisfaction against application of Contact Quality Plan.

Acknowledgement

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