

Analysis of the influence of Management Planning, Organizing, Actuating and Controlling on the Time Performance of Construction Implementation Tower Telecommunications

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ABSTRACT

The discovery of the phenomenon of delays in the Bakti Kominfo telecommunications tower construction project is a major problem that is currently being widely discussed by the public, just as researchers have found to occur in projects already run by PT. ABC consists of 51 village locations divided into regions (Sumatra, Kalimantan, Maluku). After conducting further analysis of the Detail Summary Sitelist PT. ABC with the construction of telecommunications towers in 51 village locations. As for the results of the sitelist analysis that has completed the construction stage with the final result achieved, it can be seen that there are 13 village locations that were built faster with a maximum duration of 26 days than the target given by the client. Furthermore, the results of the sitelist analysis that have completed the construction stage with the final result Delayed can be seen, there are 38 village locations that have development delays with a maximum duration of -199 days from the target given by the client. There are average performance or productivity results of PT. ABC completed the construction of the target determined by the client in 60 days with average construction productivity results ranging from -50 days. It can be concluded that the performance productivity and implementation of management carried out by the PT Resource Team. ABC is still not optimal and is considered late in completing the construction of the BTS tower. By conducting this research it is intended to find out the delay factors that most influence time performance, with elements of implementing POAC (Planning, Organizing, Actuating and Controlling) management in a systematic and measurable manner.

Key Words: Driving and Controlling, Factors on Time Performance, Implementation Planning, Organizing, Multiple Linear Regression, SPSS Analysis, Telecommunication Tower.

1. INTRODUCTION

The construction of the Base Transceiver Station (BTS) tower is part of the project to provide 4G services in 7,904 villages in the 3T (Frontier, Remote and Disadvantaged) category. In this project, Kominfo, in this case BAKTI (*Telecommunications and Information Accessibility Agency*), implemented a Cooperation Operation (KSO) system with cellular operator companies that have licenses in Indonesia. In this KSO scheme, BAKTI Kominfo is responsible for building and maintaining 4G BTS infrastructure, including providing land. "Meanwhile, cellular operator partners are responsible for providing 4G services to customers, including carrying out operations and maintenance of the 4G network as a whole," said Main Director of the Ministry of Communication and Information's Telecommunication and Information Accessibility Agency (BAKTI), Anang Latif in 2021.

One of them is every work activity indicator that experiences problems in the process of implementing construction work, which can be a factor in delays in time performance and result in losses for the contractor company. The following is a detailed summary of the PT site list. ABC with a *total of 51 telecommunications tower construction in village locations* that have completed the construction stages with final results that can be analyzed further.

Tabel 1.1 Detail Summary Site list of PT. ABC

No	SITE NAME	PROVINCE	EXCAVATION	FENCE	DURATION	TARGET	TOTAL AGING
1	JERE	MALUKU UTARA	07-Jul-22	19-Oct-22	104	Delayed	-44
2	TAHAFO	MALUKU UTARA	08-Jul-22	01-Sep-22	55	Achieved	5
3	TOGOLA SANGER	MALUKU UTARA	12-Jul-22	13-Oct-22	93	Delayed	-33
4	MARITANGO	MALUKU UTARA	19-Jul-22	20-Oct-22	93	Delayed	-33
5	NANAS	MALUKU UTARA	12-Jul-22	04-Sep-22	54	Achieved	6
6	TOBAOL	MALUKU UTARA	29-Jul-22	28-Oct-22	91	Delayed	-31
7	GAMKONORA	MALUKU UTARA	23-Jul-22	18-Nov-22	118	Delayed	-58
8	DODINGA	MALUKU UTARA	29-Jul-22	07-Sep-22	40	Achieved	20
9	GAMSIDA	MALUKU UTARA	25-Jul-22	07-Sep-22	44	Achieved	16
10	TARUBA	MALUKU UTARA	25-Jul-22	15-Sep-22	52	Achieved	8
11	PODOL	MALUKU UTARA	25-Jul-22	19-Oct-22	86	Delayed	-26
12	AFORE GOBO	SUMATERA UTARA	07-Oct-22	06-Dec-22	60	Achieved	0
13	LIMO BIANG	SUMATERA UTARA	31-Oct-22	13-Jun-23	225	Delayed	-165
14	BAWOLAWINDRA	SUMATERA UTARA	08-Oct-22	13-Mar-23	156	Delayed	-96
15	SILINA BARU	SUMATERA UTARA	17-Oct-22	31-Mar-23	165	Delayed	-105
16	LABUHAN RIMA BARU	SUMATERA UTARA	28-Sep-22	22-Apr-23	206	Delayed	-146
17	LABUAN RIMA	SUMATERA UTARA	27-Sep-22	18-Apr-23	203	Delayed	-143
18	LUAHA IDANO PONO	SUMATERA UTARA	02-Oct-22	13-Mar-23	162	Delayed	-102
19	MARIT BARU	SUMATERA UTARA	08-Oct-22	08-Mar-23	151	Delayed	-91
20	BINTUANG	SUMATERA UTARA	06-Oct-22	15-Apr-23	191	Delayed	-131
21	SEBUA'ASI	SUMATERA UTARA	27-Sep-22	20-Jan-23	115	Delayed	-55
22	SIFITUEWALI	SUMATERA UTARA	23-Sep-22	03-Jan-23	102	Delayed	-42
23	SIGESE	SUMATERA UTARA	08-Oct-22	27-Jan-23	111	Delayed	-51
24	SIBARANUN	SUMATERA UTARA	17-Sep-22	06-Dec-22	80	Delayed	-20
25	HAYO	SUMATERA UTARA	07-Oct-22	27-Jan-23	112	Delayed	-52
26	FOIKHU FONDRAKO	SUMATERA UTARA	12-Oct-22	21-Jan-23	101	Delayed	-41
27	ORAHILI BOE	SUMATERA UTARA	12-Oct-22	15-Jun-23	246	Delayed	-186

28	ORAHUA ULUZOI	SUMATERA UTARA	12-Oct-22	28-Jun-23	259	Delayed	-199
29	BINTANG BARU	SUMATERA UTARA	08-Oct-22	21-Jan-23	105	Delayed	-45
30	WAY TIAS	LAMPUNG	27-Aug-22	24-Nov-22	89	Delayed	-29
31	SIRING GADING	LAMPUNG	20-Sep-22	08-Nov-22	49	Achieved	11
32	BANDAR DALAM	LAMPUNG	16-Sep-22	28-Nov-22	73	Delayed	-13
33	WAY HARU	LAMPUNG	27-Aug-22	22-Oct-22	56	Achieved	4
34	LONG GELAWANG	KALIMANTAN TIMUR	15-Dec-22	13-Mar-23	88	Delayed	-28
35	MATALIBAQ	KALIMANTAN TIMUR	23-Oct-22	27-Feb-23	127	Delayed	-67
36	RUKUN DAMAI	KALIMANTAN TIMUR	28-Oct-22	27-Feb-23	122	Delayed	-62
37	LONG MERAH	KALIMANTAN TIMUR	21-Oct-22	01-Feb-23	103	Delayed	-43
38	MEMAHAK TEBOQ	KALIMANTAN TIMUR	26-Sep-22	27-Feb-23	154	Delayed	-94
39	LONG HURAI	KALIMANTAN TIMUR	12-Oct-22	08-Jan-23	88	Delayed	-28
40	WANA PARIQ	KALIMANTAN TIMUR	23-Oct-22	27-Feb-23	127	Delayed	-67
41	DANUM PAROY	KALIMANTAN TIMUR	12-Oct-22	13-Jun-23	244	Delayed	-184
42	KENDESIQ	KALIMANTAN TIMUR	28-Oct-22	27-Feb-23	122	Delayed	-62
43	PERENG TALIQ	KALIMANTAN TIMUR	09-Oct-22	27-Feb-23	141	Delayed	-81
44	UJOH BILANG	KALIMANTAN TIMUR	15-Dec-22	11-Feb-23	58	Achieved	2
45	LONG GELAWANG II	KALIMANTAN TIMUR	16-Oct-22	22-Jan-23	98	Delayed	-38
46	UJUNG SIALIT	ACEH ISLAND	08-Oct-22	27-Apr-23	201	Delayed	-141
47	SITUBAN MAKMUR	ACEH	24-Sep-22	07-Nov-22	44	Achieved	16
48	SUKA MAKMUR	ACEH ISLAND	24-Sep-22	17-Dec-22	84	Delayed	-24
49	SUMBER MUKTI	ACEH	11-Sep-22	27-Oct-22	46	Achieved	14
50	MUKTI LINCIR	ACEH	11-Sep-22	06-Nov-22	56	Achieved	4

After conducting further analysis of the Detail Summary Sitelist PT. ABC has built a total of 50 telecommunications towers in village locations and a target of completing the construction of telecommunications towers that has been given by the *client* in 60 days. The results of the sitelist analysis that have completed the development stage with the final result meeting the target (*Achieved*) can be seen, there are 13 village locations that were built more quickly with a maximum gap duration of 26 days and in accordance with the minimum duration target of 0 days or according to the schedule of the target that has been given by clients.

Furthermore, the results of the sitelist analysis that have completed the development stage with the final results being late (Delayed) can be seen, there are 38 village locations that have delayed of the target determined by the client for 60 days. It can be concluded that the performance of completion time or productivity of telecommunications tower construction that has been carried out by the PT Resource Team. ABC is still not optimal and is considered late in completing the construction of telecommunications towers. Management in

managing construction work activities is very necessary considering that businesses in the construction sector are currently growing rapidly. Construction management can be a business entity which requires human resources who are experts in their respective fields which include POAC (*Planning, Organizing, Actuating and Controlling*) in a systematic and measurable manner. By implementing appropriate management in a company or individual who is professional in the field of construction management in supporting the project owner to manage it, it is hoped that the project targets can be achieved effectively and efficiently.

2. LITERATURE REVIEW

2.1. Theoretical review

The telecommunications network in Indonesia is growing rapidly day by day. Long distance communication now feels more comfortable and can reach further areas such as regional (3T). This can happen partly because of the increasing number of telecommunications towers spread throughout Indonesia. BTS telecommunications towers are generally found in city centers, so it is not surprising that the signal quality in urban areas is better than in suburban areas. In the following article you will be explained further so that you can find out more specifically about **BTS Telecommunication Towers**, their components, types and how they work.

2.2. Project management

Project management is all planning, implementation, control and coordination of a project, from the beginning of planning to the completion of the project to ensure that the project can be implemented on time, at the right cost and at the right quality (*Ervianto, 2007*). Construction Management will generally include physical construction quality, costs and time. material management and natural resource management. In principle, in construction management, workforce management is one of the things that will be emphasized more.

2.3. Factors Influence the Occurrence of Delays

Delays in construction projects mean an increase in the completion time that has been planned and stated in the contract documents. Completion of work not on time is the main factor of delay which is divided into the levels of Planning, Mobilization, Organizing and Supervision which of course impacts all of these work indicators, resulting in project quality being considered poor, both in the form of quality on government projects and in the form of increased investment costs. and losses on private projects. Project delays are reviewed by the management function indicator **POAC (Planning, Organizing, Actuating, and Controlling)**.

1. The following factors influence delays based on **Planning**, including:

a. Poor selection of Resource Manpower criteria. **b.** Delay in mobilizing CME manpower resources and work equipment to the location point after SKOM is completed. **c.** Findings of differences in the sub-contractor's work plan schedule with the client in completing the project. **d.** Delays in providing tower material fabrication and special accessories, delivery of materials to location points after SKOM. **e.** Delay in the process of sending tower materials and special accessories to the location after the SKOM Site Kick of Meeting was carried out. **f.** Differences between the As Planned Drawing and the results of the Site Kick of Meeting (**SKOM**) joint review by the supervisor require revision of the design until approval by the client and owner. **g.** Incompatibility of Owner experience in creating work type guidelines (**Scope of Work**). **h.** Inability to provide enough human resources for work activities within the scope of the project. **i.** Mistakes in sending unneeded materials. **j.** Consultant's mistake in determining the criteria for available natural materials.

2. Factors influencing delays based on **Organizing**, include:

a. There were differences in instructions and perceptions from head office management towards field implementers. **b.** There are requests outside the technical specifications for work, equipment and materials carried out by the client. **c.** The length of bureaucracy or mechanism for obtaining permits for the construction of Telecommunication Towers from the government apparatus sector. **d.** The influence of social environmental conditions on manpower resources in project implementation. **e.** Failure to fulfill the desires or perspectives of work implementation criteria by the supervisor. **f.** Ineffective communication between the contractor, foreman and workers. **g.** The emergence of changes in direction or policy is unexpected and different from the initial decision by the Ministry of Communication and Information and the local village head. **h.** The client's inability to communicate and evaluate the results of the design planning submitted by the construction implementation team. **i.** Lack of teamwork on

the part of the contractor and the client causes delays in the project **j**. Poor communication relationship with the environment, resulting in blocking related to social conflict (*cultural customs*). **k**. Mistakes in the application of work methods conveyed by the supervisor to the foreman and workers.

3. Factors influencing delays based on *Actuating*, include:

a. Lack of work experience, human resources and work productivity to support construction implementation. **b.** The emergence of types of natural materials that do not match the specifications and qty in the delivery process by local natural resources. **c.** There is no system for providing incentives or allowances for implementing overtime work on special jobs (*requires completion at one time*). **d.** Non-compliance with work specifications and use of materials on work continuity. **e.** It was found that many jobs had conditions of uncertainty (*Unforeseen Condition*). **f.** Failure of workers to leave equipment after work. **g.** The emergence of different perceptions of work completion. **h.** Failure to accept the hospitalization or take over work process between foremen and workers. **i.** Unexpected things such as landslides occur after completion of work.

4. Factors influencing delays based on *Controlling* include:

a. Lack of supervision over stocking and use of materials at the location. **b.** Client delays in making and taking decisions. **c.** Lack of routine monitoring of each work item on site. **d.** Not carrying out detailed inspection and feasibility test procedures for each work item completed by the supervisor. **e.** Lack of monitoring of opportunities. A series of interdependent activities has the effect of increasing performance during project implementation. **f.** Lack of contractor understanding to analyze and estimate work implementation costs. **g.** Difficulty in the coordination process between the team in the field and the management team at the head office. **h.** Disruption of contractor financial factors resulting in delays in business process administration payments. **i.** Lack of supervision and maintenance of work equipment. **j.** There was a disturbance by wild animals entering the location area.

2.8. Management Organization

POAC is an organizational management principle that was first introduced by *George R. Terry*, which consists of the management functions *Planning, Organizing, Actuating, and Controlling*. Management is a regulatory process to achieve company goals by involving the people in it. Apart from that, management is a science and art that regulates the process of utilizing various existing resources in a company effectively and efficiently to achieve company goals. Therefore, companies must carry out management functions correctly. According to *George R. Terry*, the company's Management Function is shortened to POAC, namely *Planning, Organizing, Actuating, and Controlling*. These four management functions do not run linearly, but in a spiral, making it possible for an organization to move continuously and not stop at one stage.

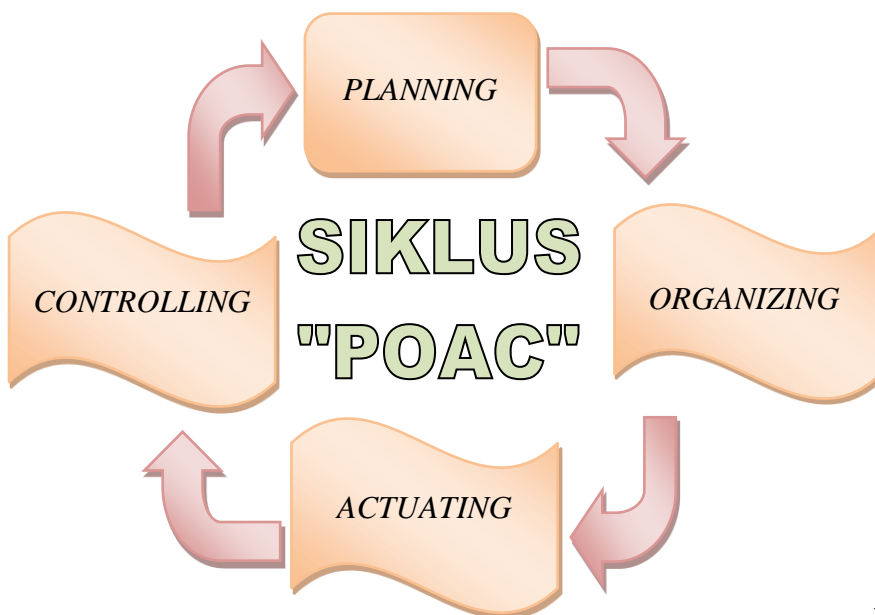


Figure 2.4 POAC cycle

(Source: From Previous Journal Data (2023))

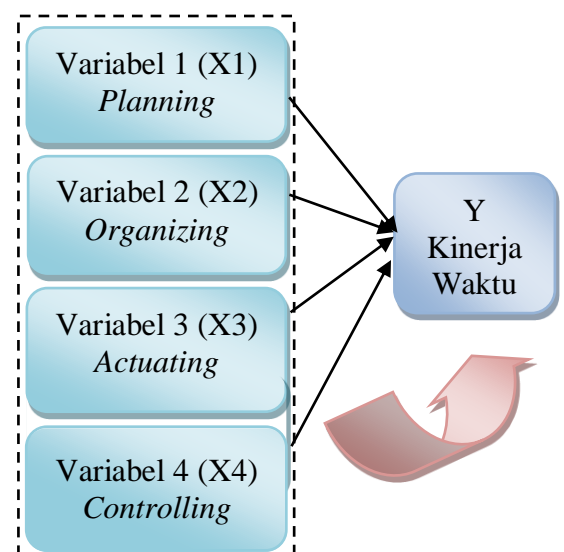


Figure 2.2 Relationships between Dependent Variable and Independent

(Source: From Previous Journal Data (2023))

1. Planning

The planning stage is a systematic and orderly arrangement of steps to achieve company goals, and thinking about methods and determining the use of facilities to achieve these facilities. Allocation of very limited resources is a basic principle and foundation in formulating planning and organization. In preparing a plan, it must be determined in advance what must be done, how to do it and who will carry out the activities in an organization.

In planning, there are several factors that must be considered. Namely, it must be **S.M.A.R.T**:

- a. Specific means that planning must have clear aims and scope. Not too broad and too idealistic.
- b. Measurable means that the work program or plan must be able to measure its level of success.
- c. Achievable means it can be achieved. So it's not wishful thinking.
- d. Realistic means that it is in accordance with the capabilities and resources that must be considered in terms of technical, economic, social and services provided by the organization.

So, planning as a link between current status and the targets to be achieved becomes a comparative measure for each leader, in determining a number of activities that members must carry out in the organization. A clear plan will make it easier for each member of the organization to carry out their activities, so that they can make a maximum and positive contribution to the organization. In the planning process you need to know the following things:

- a. Prepare related to project objectives and available resources.
- b. How to achieve the goal of completing work and targets by paying attention to available natural resources.
- c. Adjustment of work plans and natural resources into concrete activity programs.
- d. Determining the work period that can be planned to achieve goals and objectives.

2. Organizing

The organizing stage is the second stage of managing and structuring all the resources available in the organization, both human resources and material resources. The organization of organizational resources is based on appropriate concepts for each function such as task requirements, work procedures, people in charge, and relationships between functions.

These functions form a relationship in the system, where one part supports another part and one line depends on another line. Thus, organizing is the activity of establishing relationships between all work activities, use of labor, and utilization of all resources, through a formal structure with respective authorities. In the management process, Organizing functions to:

- a. Prioritize the maintenance of good coordination.
- b. Assist the leadership in driving the management functions of the organizational structure.
- c. Unifying the thoughts of smaller organizational units within its coordination.
- d. Good coordination diagonally (**Describes interactions at different levels outside the command function that run well and correctly**).

In the organizing function, coordination is a structural and functional relationship mechanism that must be carried out consistently. Coordination can be carried out through mechanisms:

- a. Vertical Coordination (**Describes the Leadership Command Function**)
- b. Horizontal Coordination (**Illustrating One Level Interaction**)
- c. Diagonal coordination (**describes interactions at different levels outside the command function that run well and correctly**).

3. Actuating

The actuating stage is the third stage of activities to move and control all organizational resources in an effort to achieve targets. The actuating or implementation function in construction management aims to realize the building required by the project owner, and which has been designed by the planning consultant within the agreed cost and time limits, and with the required quality.

At this stage, the actuating function is divided into 2, namely the staffing function and the directing function. The staffing function is concerned with recruitment, placement, performance assessment, training and development of the workforce in the organization. Meanwhile, the directing function is an effort to mobilize the resources owned by the organization so that they can move as a unit in accordance with the plans that have been made. The stages of the directing process also contain efforts on how to motivate to work well and how to lead the leadership process to

achieve goals. In Actuating, all activities are united and cooperation is created from all lines, so that organizational goals can be achieved smoothly and efficiently. The following are several methods for making "Actuating" a success stated by *George R. Terry*, namely:

- a. There needs to be work guidelines that are clear, concise, easy to understand and implemented by work implementers.
- b. Instructions from a leader must be carried out by considering good decisions given individual differences and conditions at the location.
- c. Respect someone whatever their task, so that they feel that their existence in a group or organization is important.

4. Controlling

The monitoring stage is the final stage that needs to be implemented so that members of the organization can work together well and move together towards achieving the general goals and objectives of the organization. The control function of construction management consists of controlling, supervising and coordinating functions. In order for work to run in accordance with the vision, mission, rules and work program, control is needed. Both in the form of supervision, control, inspection and audit. These words do have different meanings, but the most important thing is how early deviations can be identified that are occurring. Both in the planning, implementation and organizing stages.

Supervision is carried out to measure work results, to avoid deviations, and if necessary, immediately take firm action against various deviations that occur. The scope of controlling activities includes supervision over all aspects of plan implementation, including:

- a. Pay close attention to the results of work, both qualitatively and quantitatively.
- b. Oversee all resources used (*People, Money, Equipment, Materials*).
- c. Provide references or examples of procedures and how they work.
- d. Accelerate technical policy decisions taken during the process of achieving project goals.

3. METHODOLOGY RESEARCH

3.1. Desain Penelitian

Quantitative Descriptive research methodology is carried out systematically and structured based on stages according to the background, objectives and benefits of the research, literature study, up to the formation of the research methodology. After that, the results of the questionnaire were collected to analyze factors and actions that influenced the performance during the construction of telecommunications towers. In this research, project criteria will be taken as statistical data analysis and validation of the effect of implementing *Planning, Organizing, Actuating and Controlling* management on this method. The stages in this *research flow diagram* are:

- a) Identification of variable groups and research variable indicators is carried out through literature studies of similar research that has previously existed. (*Accredited journal*).
- b) Making statements and distributing research questionnaire data.
- c) Expert Validation of each variable that has been determined, from the data resulting from statistical analysis in this research for each variable that influences time performance has been discussed with experts or experts in the field of telecommunication tower construction. The total number of experts who were interviewed or interviewed was 5 people.
- d) Measurement Scale Determine the level of factors and actions that influence delays in the time performance of telecommunication tower construction projects based on the questionnaire perception of the level of importance of each respondent, using a Likert Scale:
 1. No effect: Value $1 \leq X \leq 1.5$
 2. Less influential: Value $1.5 \leq X \leq 2.5$
 3. Influential: Value $2.5 \leq X \leq 3.5$
 4. Very influential: Value $3.5 \leq 4$

The largest average value is determined as the best (*Dominant*) value for each question, the method used for actions that need to be taken to ensure good running time performance. Next, the questionnaire is compared as a ranking coefficient for each factor by sorting the average value (*Mean*) from the highest value as ranking

$$RII = \frac{\sum W}{A \times N}$$

W = weighting given to each factor by the respondent A = Highest weighting (5) N = Number of Respondents

a. Relative Importance Index (RII)

Shows the relative importance level for each action of the variable indicator based on the respondent's opinion. The higher the RII level, the greater the influence of the variable indicator factors on construction work productivity. The equation used to calculate RII refers to (*Source: Hickson (2014), Alaghbari (2017), and Van Tam (2018)*)

b. Test the validity of the questionnaire using factor analysis.

This is because the action groups of the research variables have been determined based on a literature review, so that factor reduction is no longer carried out on the research variables. A factor is said to be valid if the KMO value is above 0.361, a significant value ($\text{sig} < 0.05$), the factor eigenvalue is greater than 1 and the loading factor is greater than 0.36. To determine whether the question item being tested has a valid or invalid value that supports the research variable, it must meet the following criteria:

1. If the r-calculated value is ≥ 0.361 , it shows that the variable used is valid.
2. If the r-calculated value is < 0.361 , it indicates that the variable used is invalid or must be eliminated.

c. Questionnaire Reliability

Test using the Cronbach alpha method. According to (Kountur, 2004), a questionnaire is said to be reliable if the Cronbach Alpha value is greater than 0.6 ($\text{Alpha} > 0.6$). Reliability testing can show accuracy and consistency including:

- a. If Cronbach's alpha (α) is 0.00 to 0.20, then it is **less reliable**
- b. If Cronbach's alpha (α) is 0.21 to 0.40, then it is **somewhat reliable**
- c. If Cronbach's alpha (α) is 0.41 to 0.60, then it is **quite reliable**
- d. If Cronbach's alpha (α) is 0.61 to 0.80, then it is **reliable**
- e. If Cronbach's alpha (α) is 0.81 to 1.00, then it is **very reliable**

d. Multiple Regression Test

This analysis is used to determine the relationship or influence of aspects of other variables that are considered constant. Considering that this research uses more than two variables, the multiple regression analysis method is used. To calculate the multiple regression, the following formula is used (*Djarwanto, 1998*):

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + \dots + b_nX_n$$

Information: **Y** : dependent variable **X** : independent variable **a** : constant number **b₁** : variable aspect regression coefficient **n** : number of aspects

e. T Test (T-Test) and F Test (F – Test)

T test and F test to determine the relationship between independent variables simultaneously and the dependent variable, the general form of the T test and F test equation is as follows:

$$F = \frac{r^2}{(1 - r^2)/(n - k - 1)}$$

Information : **n** : Number of data **k** : Number of independent variables **r** : Coefficient of multiple determination

- I. The regression model is said to be feasible if the significance figure in ANOVA is **<0.05**.
- II. The regression coefficient must be significant. The test is carried out using the T test. The regression coefficient is significant if **T calculated > T table (critical value)**.

Criteria for accepting the proposed hypothesis:

- I. $H_0 = b_1, b_2, b_3, b_4, b_n = 0$, there is no influence between the independent variable X and the dependent variable Y.
- II. $H_0 = b_1, b_2, b_3, b_4, b_n \neq 0$, there is an influence between the independent variable X and the dependent variable Y.

Interpretation of the test:

- I. If $F_{\text{count}} < F_{\text{table}}$ then H_0 is accepted and H_a is **rejected**.
- II. If $F_{\text{count}} > F_{\text{table}}$ then H_0 is rejected and H_a is **accepted**.

f. Correlation Between Variables

This analysis is used to measure the level of closeness of the relationship between all variables, with the following conditions:

- a) If $r = 1$ or close to 1, then the variable has a strong and positive relationship.
- b) If $r = -1$ or close to -1, then the variable has a strong and negative relationship.
- c) If $r = 0$ or close to 0, then the variables are uncorrelated and unrelated.

The results of the correlation coefficient test are classified as follows:

- a) Pearson Correlation value $r = 0.70 - 1.00$ Very Strong correlation.
- b) Pearson Correlation value $r = 0.40 - 0.69$ Strong correlation.
- c) Pearson Correlation value $r = 0.20 - 0.39$ Slightly Strong Correlation.
- d) Pearson Correlation value $r = 0.00 - 0.19$ Low correlation.

When determining the mean, there are two or more variables that have the same value. So it is sorted from the questionnaire that has the highest weighted value. In this questionnaire, the weight with the highest value is very influential. Based on the score ranking order, 3 factors and actions (*Dominant*) will be taken that influence time performance, by looking at the ranking of the top scores in the data analysis. The research method aims to determine the appropriate method to answer the problems in this research which has been adapted to the research topic, namely "Analysis of the Influence of Planning, Organizing, Actuating and Controlling Factors on the Time Performance of Telecommunication Tower Construction Implementation".

4. RESULTS AND DISCUSSION

4.1. Inventory Variable

Variables obtained from previous research with a discussion of factors and the influence of the application of Planning, Organizing, Actuating and Controlling on time performance, are grouped between **43 (Forty-Three)** X and Y indicator variables. These variables have been validated by **5 person expert's construction**. Based on the results of the expert validation, **5 variables** were determined. The variable factors influencing the application of *Planning, Organizing, Actuating and Controlling* on time performance have been validated and used as a further research questionnaire which will be distributed and filled in by respondents.

4.2. Respondent Profile Data

Respondents are expected to be able to provide an assessment of the research questionnaire by filling in multiple choices, providing explanations and input on correction factors in the correction factor column and in the anticipation factor input column of the dominant influencing factors obtained from the regression results that have the highest R^2 based on work experience or his expertise. The samples that researchers can take are **30 samples as types of respondents** in each company referred to as KSO PT. Fiberhome, PT. Telkominfra and PT. Multi Trans Data or Main Contractor, Sub Contractor according to the actual organizational structure of the project.

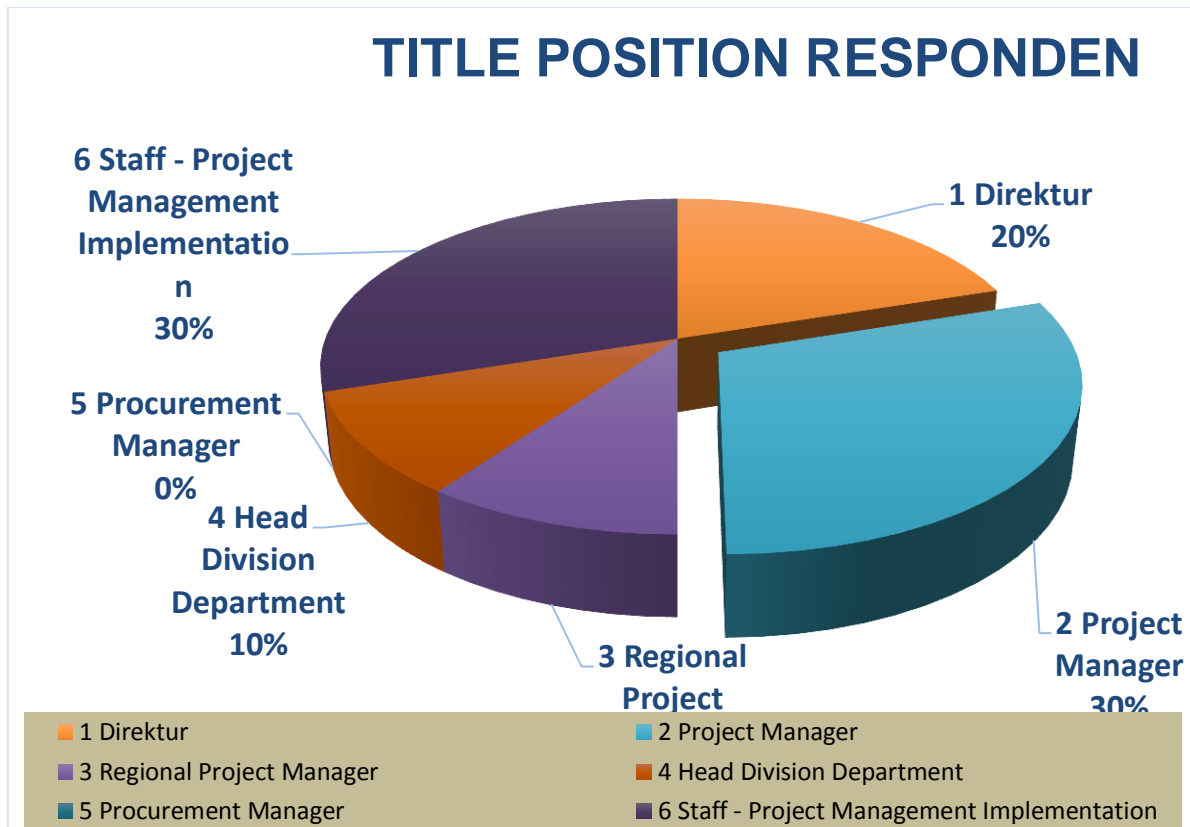


Figure 4.1 Graph of Respondent's Position / Position

(Source: Processed from Research Respondent Data Criteria (2023))

Figure 4.1 shows data on the criteria for positions/expert positions. Respondents who received and filled out the questionnaire were 6 person Directors, 3 person Department Head Divisions, 9 person Project Managers, 3 person Regional Project Managers, 0 person Procurement Managers. and Project Management Implementation Staff of 9 person.

4.3. Data Normality Test

In order to ensure that the data to be analyzed is normally distributed, a normality test is needed on the respondent questionnaire data. The normality test can also be carried out using the Kolmogorov Smirnov test, so it can be used in this research on the basis of decision making as follows:

1. If the sig value. > 0.05, then the residual value is *normally distributed*.
2. If the sig value. < 0.05, then the residual value is *not normally distributed*.

Based on table 4.13, it shows that the value of Asymp. Sig (2-tailed) which shows that variable X1 (Planning), variable X2 (Organizing), variable X3 (Actuating), variable X4 (Controlling) influences variable Y (Time Performance) with a value > 0.05 (*Test Distribution is Normal*). So, based on the data normality test results, it is known that the significance values are 0.284 X1, 0.504 X2, 0.146 X3, 0.404 X4 > 0.05. So it can be concluded that the residual value is normally distributed.

Table 4.13 One – Sample Kolmogorov – Smirnov Test

One-Sample Kolmogorov-Smirnov Test						
		X1 - Planning	X2 - Organizing	X3 - Actuating	X4 - Controlling	Y - Kinerja Waktu
N		30	30	30	30	30
Normal Parameters ^{a,b}	Mean	35.9333	35.8667	35.7667	33.7000	8.9667
	Std. Deviation	3.66656	3.99770	4.27247	4.30036	1.32570
Most Extreme Differences	Absolute	.180	.151	.209	.163	.210
	Positive	.134	.151	.161	.163	.151
	Negative	-.180	-.150	-.209	-.112	-.210
Kolmogorov-Smirnov Z		.987	.825	1.143	.892	1.150
Asymp. Sig. (2-tailed)		.284	.504	.146	.404	.142

a. Test distribution is Normal.

b. Calculated from data.

Source: SPSS Processed Data (2023)

Table 4.14 Data Normality Test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Y - Kinerja Waktu	.210	30	.002	.933	30	.058

a. Lilliefors Significance Correction

Source: SPSS Processed Data (2023)

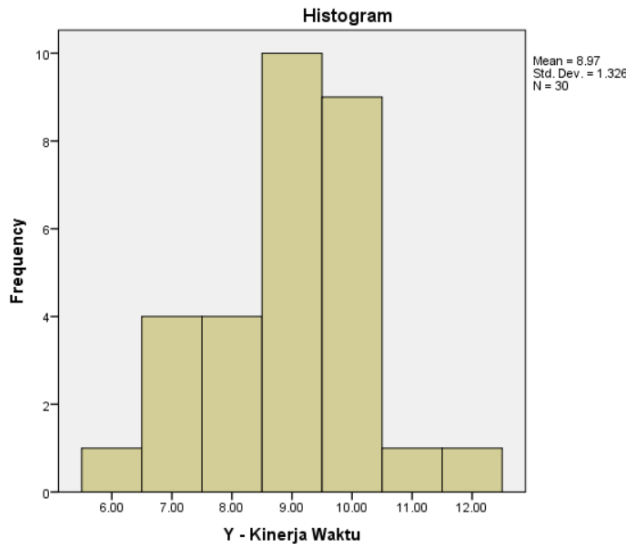


Figure 4.1.5 Histogram Graphic Data

Source: SPSS Processed Data (2023)

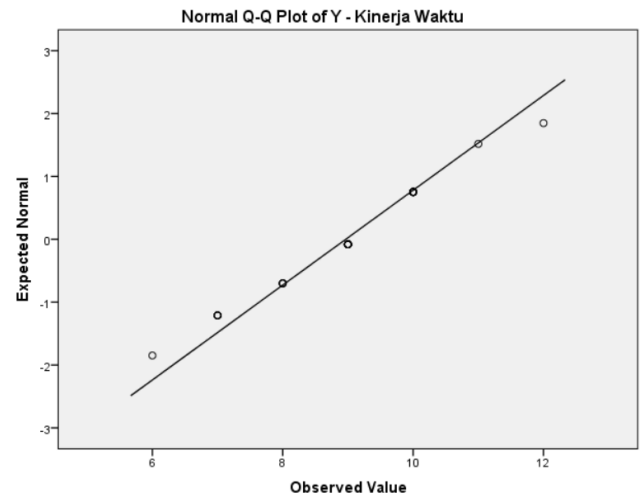


Figure 4.1.5 Data Plot of X against Y Time Performance

Source: SPSS Processed Data (2023)

4.4. Multiple Linear Regression Analysis

The results of the Multiple Linear Regression analysis are used to find out how the influence of all independent variables, variable X1 (Planning), variable X2 (Organizing), variable X3 (Actuating), variable as follows :

a. Regression analysis of variable X1 (Planning), variable X2 (Organizing), variable X3 (Actuating), variable X4 (Controlling) has an effect on variable Y (Time Performance).

From Table 4.17, the independent variable that has the greatest influence on the dependent variable Y is Variable X2 (Organizing), X4 (Controlling). Meanwhile, variable X3 (Actuating) has the smallest influence. The value of each coefficient is as follows: a. Constant a = 4.111 b. Coefficient b1 (At X1) = - 0.114 c. Coefficient b1 (At X2) = 0.79 d. Coefficient b1 (At X3) = - 0.010 e. Coefficient b1 (At X4) = 0.191 The basis for decision making is if the probability value (Significance) is <0.05 then it can be said that the independent variable has a significant effect on the dependent variable. Multiple Linear Regression Test was carried out to measure the influence of the independent variable on the dependent variable.

Table 4.17 Regression Test Results on Variable Y

		Coefficients ^a				
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	4.111	2.261		1.818	.081
	X1 - Planning	-.114	.127	-.314	-.894	.380
	X2 - Organizing	.079	.099	.238	.801	.430
	X3 - Actuating	-.010	.091	-.031	-.107	.915
	X4 - Controlling	.191	.090	.621	2.119	.044

a. Dependent Variable: Y - Kinerja Waktu

Source: SPSS Processed Data (2023)

Based on the test results in table 4.17, the multiple regression line equation obtained is:

$$Y' = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4$$

$$Y = 4.111 - 0.114 X_1 + 0.79 X_2 - 0.010 X_3 + 0.191 X_4$$

4.5. Discussion of Research Results

In this research, the application of 4 (four) influence factor variables, namely (Planning X1), (Organizing X2), (Actuating X3), (Controlling Time (Y) has 3 (three) indicators. The variables above were obtained from literature studies in previous research journals, and have been validated by experts in the field of telecommunications construction, then distributed via Google questionnaire form to respondents in the form of statements and questionnaire questions which will be selected by respondents using a predetermined Likert scale.

1. Questionnaire data collection has been carried out and data has been distributed to 30 respondents in order to obtain data on the results of the assessment of each factor influencing the performance during the implementation of the construction of telecommunications towers with the following data obtained: Table 4.8 Questionnaire Data on Factors Influencing Time Performance.
2. From the results of questionnaire data processing, Relative Importance Index (RII) Analysis Testing and Multiple Linear Regression Analysis have been carried out with the help of SPSS software. Firstly, the Relative Importance Index (RII) Analysis Test Results provide data from the test results, namely the Most Dominant Factor of the 4th (four) variable X which influences the Time Performance of Variable Y in the implementation of the construction of telecommunications towers.

Table 4.10 Factors Influencing RII's Highest Rank Time Performance

Variabel	Sub Factor	Recapitulation of questionnaire results				Amount	Mean	Index RII	Rank
		1 (TB)	2 (KB)	3 (B)	4 (SB)				
Planning	X1-1	0	0	5	25	30	3.83	0,77	1
Planning	X1-8	0	1	5	24	30	3.77	0,75	2
Organizing	X2-6	0	1	7	22	30	3.76	0,75	3

Source: SPSS Processed Data (2023)

a. In the First Rank, namely the Planning variable (X1-1 Selecting Resource Manpower criteria in a qualified manner.) b. In Second Rank, namely the Planning variable (X1-8 Paying attention to the availability of human resources for work activities within the project scope) c. In the third rank is the Organizing variable (X2-6 Maintaining more intense communication between the contractor and the foreman and workers.) It can be seen in Table 4.10. The questionnaire results for each statement from all discussions have a minimum RII index of 0.33 and a maximum of 0.77. According to the standard, Cronbach's Alpha (d) 0.61 to 0.81 is a Reliable result, while Cronbach's Alpha (a) 0.81 to 1.00 is declared Very Reliable. That way, all valid questionnaire results have met the Validity Test and Reliability Test. Looking at the RII index for each statement, the ranking of the dominant or highest factors is also obtained. In this case, 3 Highest Factor criteria can be determined as shown in table 4.10 below:

3. After data acquisition, there is a relationship between Planning, Organizing, Actuating and Controlling Management in this research with previous research: Have a similar relationship in implementing POAC management which aims to monitor resources and maintain budgeting or finances. Management can be defined as an activity of monitoring or managing manpower resources, managing or managing every work plan that has been well planned. In a broader sense, management is defined as the process of managing and using the resources of an organization through the collaboration of office holders in order to achieve

organizational goals effectively and efficiently. Obtained data from comparison of this research with previous research, related to the application of Planning, Organizing, Actuating and Controlling Management: The data that shows the results of this research are differences between this research and 11 previous research journals, table 4.10, including research objects, involvement of project parties, respondents and experts related to construction projects, namely by providing data validity and comparing facts that occur in the field. In previous (similar) research, research was carried out on PLN road, building and tower construction projects where POAC management had not yet been fully implemented so that it became the right solution proposal. after problems, delays and losses occur in projects that have been experienced and re-examined by previous research. In this research, we analyze the implementation of the construction of the Bakti Kominfo BTS telecommunications tower.

4. Based on the results of data acquisition and previous discussions, it can be concluded that there are differences in the application of Planning, Organizing, Actuating and Controlling management in this research and previous research: In previous research, there were 11 relevant journals that had been cited. Meanwhile, in the results of the analysis, there were still problems with delays and project losses in the implementation and completion of construction projects. Because the management functions of Planning, Organizing, Actuating and Controlling have not yet been fully implemented which affect the performance of time, costs and quality of construction projects for building PLN towers, Telecommunication Towers, Road Infrastructure, Hospital Buildings, Laboratory Buildings, Semarang National University Buildings. Therefore, it is necessary to choose effective and appropriate management to minimize the occurrence of problems and risks that will arise, both internal and external factors, in the future. Management activities on construction projects cover very broad aspects, starting with the application of planning, organizing, actuating and controlling management in order to achieve certain goals effectively and efficiently. The implementation of good management can be achieved if it is carried out with discipline and consistency, so that the business carried out can run smoothly and in accordance with targets or faster than expected. These elements have their respective roles and are interrelated or influential in realizing construction project completion targets.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusion

Based on the results of the research that has been carried out, it can be concluded that:

1. In this study, the application of Management (Planning X1), (Organizing X2), (Actuating X3), (Controlling X4) The Time Performance (Y) variable has 3 (three) indicators.
2. Based on the results of the analysis and discussion above, the Relative Importance Index Analysis Test Results show the **Most Dominant Factor** in table 4.10 with the results: a. In the **First Rank**, namely the Planning variable (X1-1 Selecting Resource Manpower criteria in a qualified manner.) b. In **Second Rank** is the Planning variable (X1-8 Paying attention to the availability of human resources for work activities within the project scope). c. In the **third rank** is the Organizing variable (X2-6 Maintaining more intense communication between the contractor and the foreman and workers.)
3. Based on the results of the analysis and discussion above, there is a relationship between this research and previous research. The following results were obtained: a. Having a similar relationship, **Planning, Organizing, Actuating and Controlling** management has not been implemented so that delays and losses still occur in the project research object. The steps for selecting and implementing POAC management aim to be more focused on managing resources, managing every job to be completed well and on time and maintaining budgeting or finances that **have been well planned**. b. Data obtained from **comparison** of this research with previous research, related to the application of **Planning, Organizing, Actuating and Controlling** Management: The data that shows the results of this research are different from previous research, including research object data, the involvement of project parties, respondents and experts related to construction projects, namely by providing data validity and comparing facts that occur in the field. In previous (similar) research, research was carried out on PLN road, building and tower construction projects by implementing POAC management so that it became a proposed solution after problems, delays and losses occurred on the project that had been experienced and re-examined by previous research. In this research, we

analyzed the implementation of the construction of the Bakti Kominfo BTS telecommunications tower. After testing the data analysis in this research, the results were obtained that if Organizing Management was implemented, it had a significant influence on time performance. It can be concluded by looking at the results of regression testing with a coefficient value of 0.79 and the application of Controlling Management has a significant influence on time performance. It can be concluded by looking at the results of the regression test with a regression coefficient value of 0.191.

4. Based on the results of data acquisition and previous discussions, it can be concluded that there are differences in the application of ***Planning, Organizing, Actuating and Controlling*** management in this research and previous research: In previous research, there were ***11 relevant journals*** that had been cited, while the results of the analysis still contained problems with delays and project losses from implementation to completion of construction projects. Because the management functions of Planning, Organizing, Actuating and Controlling ***have not yet been fully implemented*** which affect time, cost and quality performance. In this research, it can be concluded that the implementation of Organizing Management requires (readiness in terms of a good company organizational structure) and has a work coordination process flow both vertically and horizontally in a structured manner from the beginning of the project development implementation to the end of the completion of the telecommunications tower, so that it has an impact on performance over time. quickly and becomes a proposed solution for implementing POAC Management. Implementation of Controlling Management includes routine supervision carried out by each employee by monitoring the composition of the materials used and the use of work equipment on the results of the work. Both directly and indirectly, the performance of each field worker, technical expert, implementation expert, financial expert and administrative staff can be properly monitored. In this way, what each employee does can be organized and directed towards the correct implementation stages with the aim of realizing the completion of the construction of the telecommunications tower faster than the specified schedule which is also a proposed solution for implementing POAC Management.

5.2. Recommendations

From the results of the analysis of the discussion regarding research data. Factor Analysis of the Influence of Planning, Organizing, Actuating and Controlling Management on the Time Performance of the Construction of Telecommunication Towers. The following suggestions can be given:

1. ***Academically***: In further research, additional or changes to different independent variables such as quality performance and cost performance can be carried out. Contractors and other parties involved within the scope of a project can understand more widely the influence of time performance on research analysis data using quality performance and cost performance variables for objects of this type.
2. There is development of further research data analysis regarding the influence of performance during the implementation of telecommunication tower construction with different and complementary discussions, both determining in terms of research objects, different parties involved, research methods and the application of Planning Organizing, Actuating and Controlling management to performance quality and cost performance of other projects.
3. ***Practically***: In order to minimize the significant negative impact of delays in a construction project, it is necessary to implement good management, cooperation and communication between the parties or the organizational structure resources involved and other external parties involved in the large-scale scope of the construction project, so that the impact Negatives that occur can be minimized properly and do not harm various parties, especially main contractors

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