

## CHAPTER I INTRODUCTION

### I.1 Background

The development of the current era with modern telecommunication and communication technology is needed by everyone. The number of people who use cellular phones for communication media requires cellular networks, namely wireless telecommunications networks (Widyastoro, Hafidudin, & Saputra, 2015). Wireless telecommunication networks are supported by the construction of BTS Towers or Base Transceiver Stations. To expand the range of cellular services, it is necessary to add fronthaul development as a form of fulfillment of the simultaneous improvement in the quality of data and voice services (Susanto, Hartono, & Nainggolan, 2017).

In one area of West Bandung there is no fronthaul service or telecommunications network to reach cellular networks. For this reason, especially in mountainous areas, namely in one of the tourist areas of Mount Puntang, Telkomsel's Easy Macro BTS Fronthaul Tower was built, but in reality related to licensing and land acquisition, coffee farmers asked for the project which is actually not the competence of farmers to make towers. The tower was built to expand the range of services that have not been reached by the nearest base station. Below is a description of the development of Telkomsel's BTS Easy Macro Fronthaul project.

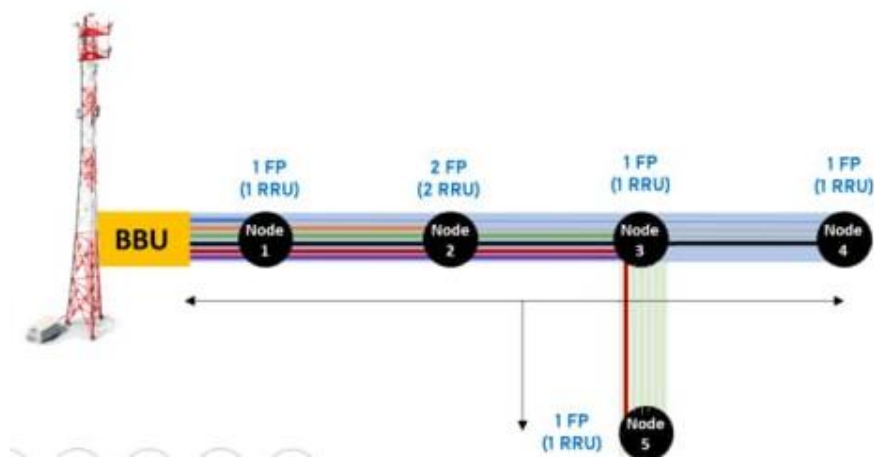


Figure I.1. Telkomsel BTS Easy Macro Fronthaul Project

(Source: PM Fronthaul Easy BTS Telkomsel construction project)

Based on the Figure I.1 of the land area of the Telkomsel BTS Fronthaul Easy Macro project, the owner is a coffee plantation farmer. The coffee owner himself builds and becomes a project stakeholder in a BTS or Tower project without having the knowledge or skills of the project. In the implementation of the project, the macro content is declared to be on air if the connectivity from the BBU (Base Band Unit) radio device has been connected to the Radio Remote Unit (RRU) through a fiber optic network. PT XYZ is a fronthaul chronology service provider as a fiber optic infrastructure service that can use aerial cables (KU) or ground cables (KT) from existing BTS or Base Transeiver Station (Emasriani & Rahmadewi, 2021). Telkomsel solutions the network as an expansion of service coverage to improve services, both internet data communication, and voice data so that service capacity and access remain optimal (Susanto, Hartono, & Nainggolan, 2017).

PT XYZ is a subsidiary engaged in telecommunications in Indonesia, Tbk which is engaged in construction services, one of which is working on fronthaul easy macro projects as an order from Telkomsel. In construction services in the description of activities, there is a process that processes project resources into a result of activities in the form of buildings. The process that occurs in the description of these activities certainly involves related parties, both directly and indirectly. The description of the activities of the implementation of the Telkomsel BTS easy macro fronthaul construction can be seen according to the data curve below, which is as follows.

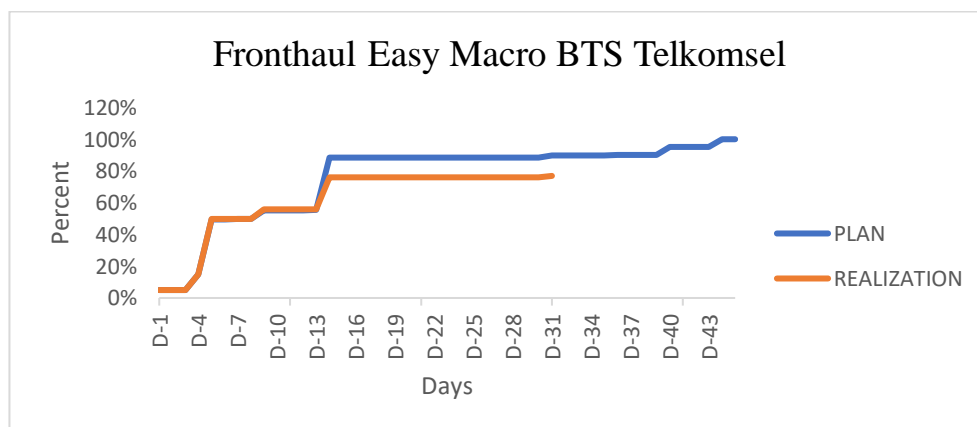


Figure I.2. S curve of Telkomsel BTS Easy Macro Construction Project  
 (Source: PM Fronthaul Easy BTS Telkomsel construction project)

According to Figure I.2 data, it can be described that the Telkomsel BTS Easy Macro Fronthaul construction project is not according to the original plan, meaning that the construction project can be defined as experiencing delays as the planned time past the completion date specified in the contract or outside the agreed date. Figure I.2 is known to be the project late from day 14 to day 31. A project that is late on schedule is already a common problem in construction projects. The fishbone diagram is arranged as follows.

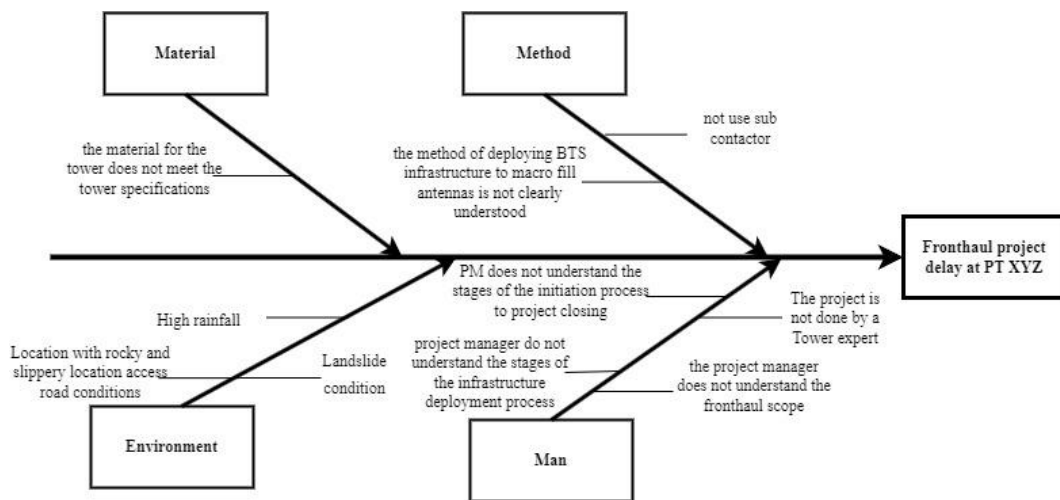


Figure I.3. Fishbone Project Delay Diagram

Based on Figure I.3 of the problems in the fishbone diagram that the author has formulated on the fishbone diagram in the background, it can be seen that the problem of the fronthaul construction project is the delay of the fronthaul project. In a more in-depth analysis, this problem can be described into several aspects including the following:

In the man (human resources) aspect, it was found that the project manager still had a limited understanding of the stages from the initiation process to project closing, the project manager did not understand the scope of fronthaul, the project manager did not have a deep understanding of the stages of the infrastructure deployment process, and the project was not carried out by tower experts.

In the method aspect, it was revealed that there is no comprehensive understanding of the infrastructure deployment process, the method of deploying infrastructure from BTS to antenna macro content is not understood or conveyed clearly. In the

material aspect, it was found that the material for the tower did not meet the tower specifications. And in the environmental aspect, some problems are the condition of the road location to the project site is rocky and slippery, the condition of the soil ranges against landslides, weather conditions are high rainfall.

To find out complex problems, the author displays alternative solutions by presenting a table listing alternative solutions with weighting included. The following table of alternative solutions containing several alternative solutions based on existing problems can be seen in Table I.1.

Table I.1. List of Alternative Solutions

No	Root Cause	Potential Solutions	Weight
1.	Project Manager does not understand the stages of the initiation process until project closing	Project managers measure and conduct training with experts by referring to PMBOK guidelines	20%
2.	Project managers don't understand fronthaul scope yet	Training with experts was conducted by referring to PMBOK guidelines	20%
3.	Project manager don't understood the process of deploying infrastructure	Carry out the training/training development stage with a companion who understands the infrastructure process by referring to the PMCDF reference	20%

Table I.2. List of Alternative Solutions (Continued)

No	Root Cause	Potential Solutions	Weight
4.	The project was not done by Tower experts	Switching the Tower project to a subcontractor or to a Tower expert	10%
5.	The method is not yet understood the process of deploying infrastructure	Training with experts was conducted by referring to PMBOK guidelines	10%
6.	The method of deploying the infrastructure BTS to antenna macro content is not clearly understood	Training with experts was conducted by referring to PMBOK guidelines	10%
7.	The material for the tower does not meet the tower specifications	Accelerated material supplier	5%
8.	Location with rocky and slippery location access road conditions	Work done in a safety manner	2%
9.	Landslide condition	Conduct a site survey	2%
10.	High rainfall	Survey weather conditions	1%

Based on the weights of alternative solutions listed in Table I.1, using the basis of weights for decision making with stakeholders involved in the fronthaul project by considering risk analysis, it can be determined based on the potential impact of the

criteria on risk. Efforts to identify the root of the most dominant problems in the Fronthaul Easy Macro BTS Telkomsel development project are more focused. In this context, the three biggest problem weights were chosen, namely those related to human resources. This section pays special attention to human resource issues.

In the man aspect (human resources) there are three weights of 20%, namely 3 root problems out of the 10 root problems that have been described. Focusing on the elaboration of alternative solutions above, the author's choice focuses on human resources, focusing on the role of project managers who are not yet fully competent in understanding the knowledge and skills required in managing projects.

A project manager is expected to be qualified to lead, manage, and communicate project direction to the team. However, the history of projects managed by these project managers often suffers from delays. Therefore, the author takes the issue related to human resources and competence in the personal aspects of a project manager.

To overcome this problem, the author decided to use the Project Manager Competency Development Framework (PMCDF®) method in evaluating project manager competence in personal aspects. This method was developed taking into account the knowledge capabilities and skills of project management outlined in PMBOK® (PMI, A Guide to the Project Management Body of Knowledge (PMBOK® Guide) Seventh Edition, 2021). The use of the PMCDF® method is expected to provide more in-depth competency measurement results.

The PMCDF® method makes it possible to assess the weaknesses or shortcomings possessed by the project manager, provide guidance on aspects that need to be improved, as well as identify the advantages that should be strengthened and improved. This evaluation is directed to gain a clearer understanding of the level of competence, knowledge and skills possessed by the project manager, by comparing it with the minimum level set by the PMCDF® method.

The results of this evaluation become the basis for planning the next steps in improving the level of competence, knowledge and skills of the project manager.

This process will ensure that project managers have the right resources to overcome challenges and lead the Fronthaul Easy Macro BTS project more effectively.

## **I.2 Problem Statement**

Based on the background that the author has explained, that this research has several problem formulations as follows:

1. How is the measurement of the level of personal competency as a project manager in the knowledge and skills contained in the Fronthaul Easy Macro BTS Telkomsel construction project at the development stage based on the PMCDF® method?
2. How is the proposal to increase the competency of a Project Manager from the aspect of knowledge and skills contained in the Fronthaul Easy Macro BTS Telkomsel construction project?

## **I.3 Research Objectives**

Based on the formulation of the problem that the author has mentioned, this research has research objectives, as follows:

1. To identify the measurement of personal competency level as a project manager in the knowledge and skills contained in the Fronthaul Easy Macro BTS Telkomsel construction project at the development stage based on the PMCDF® method.
2. To identify proposals for improving the personal competency of a Project Manager from the point of view of knowledge and skills contained in the Fronthaul Easy Macro BTS Telkomsel construction project.

## **I.4 Research Benefits**

Based on the objectives of the author explained, it is expected to provide benefits for related parties. There are several benefits of this research as follows:

1. This research can find out from the identified level of personal competence aspects in knowledge and skills of the Fronthaul Easy Macro BTS Telkomsel construction project at the stage.
2. This research can provide support to project managers in the Fronthaul Easy Macro BTS Telkomsel project to improve personal aspects of project

manager knowledge and skills so that the project runs better than the previous project development.

3. This research can provide new insights into measuring project managers with the PMCDF® method on Fronthaul Easy Macro BTS Telkomsel project.
4. This research can be used as an evaluation by the implementer of Fronthaul Easy Macro BTS Telkomsel project.

### **I.5 Systematics of Writing**

In this study, the author of the writing report explained the writing systematics, as follows:

#### **CHAPTER 1 INTRODUCTION**

In the Introduction Chapter, the author describes the background, problem formulation, research objectives, research benefits, research limitations, and research systematics.

#### **CHAPTER II LITERATURE REVIEW**

In the Literature Review Chapter, the author describes a literature study related to research studies to solve problems in research cases.

#### **CHAPTER III RESEARCH METHODOLOGY**

In the Research Methodology Chapter, the author describes an explanation of the steps and methods used in collecting and analyzing data in research cases.

#### **CHAPTER IV INTEGRATED SYSTEM DESIGN**

In the Integrated System Design Chapter, the author describes the necessary data collection activities and data management in research.

#### **CHAPTER V ANALYSIS AND EVALUATION OF DESIGN RESULTS**

In the Chapter on Analysis and Evaluation of Design Results, the author describes the analysis of data processing that has been made so that data is easier to understand accompanied by data verification and validation.



## **CHAPTER VI CONCLUSION AND ADVICE**

In the Conclusions and Advice chapter, the author describes conclusions on the results of the problem analysis that has been carried out and suggestions that can be implemented.