

PROPOSED OPERATIONS STRATEGY FOR ASSURANCE IMPROVEMENT IN FIXED BROADBAND SERVICES PT. ABC

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Abstract

The fixed broadband industry services in Indonesia are expanding and show an increasing trend in its services subscription due to the increasing of online savvy users in Indonesia. There are several companies that work in this industry, one of them are PT. ABC, which deliver its services using the FTTH (Fiber to the Home) as their main technology for delivering its services. The operational activity in fixed broadband and TV cable services in PT. ABC are being conduct by its subsidiaries and its activity is divided into 3, there are provisioning, assurance and maintenance. During 2018, PT. ABC shows that its assurance process is not in a good condition, it can be seen from its KPI achievement. The representative KPI is Q, Q is the percentage of customer complaint due to network service error, during 2018, PT.ABC sets the target of Q to be only 3% but in reality, the Q is measured to be 7,25%. Besides the performance that is not showing a good result, PT. ABC also notices that in 2018, it already lost 10% of its customers. The purpose of this study is to find the root cause of the problem faced and to propose new operations strategies that can be used by the company to improve their fixed broadband and TV cable assurance process. The study was conducted using the root cause analysis and operations strategy framework from Nigel and Slack. This study will use the operations strategy framework from Nigel and Slack, to propose operations strategy solutions that can be used to solve the identified problem. The result of the analysis shows that the main business issue here is there is a gap between the assurance current network performances and the customer expectation with regards to the network services performances, and PT.ABC needed to be able to provide more stable fixed broadband services. This study then proposed 8 operations strategies to be applied by PT. ABC.

Keywords: Corporate Performance, Operations Strategy, Root Cause Analysis.

1. Introduction

The fixed broadband industry services in Indonesia are expanding and show an increasing trend in its service to customer due to the increasing of online savvy user in Indonesia. There are several companies that work in this industry, one of them are PT. ABC. As a company that engaged in telecommunication and network provider business in Indonesia. PT. ABC has approximately 5.1 million Customers of fixed broadband and TV cable as per 2018. PT. ABC is considered the largest telecommunication company Indonesia that already operates all across Indonesia, it is divided its operational activity into 7 regions that scope all across Indonesia. In each region, PT. ABC then divided again its operational activity in several telecommunication areas. This study was conducted in one of telecommunication areas of PT. ABC that operates in east Java. PT. ABC deliver its services using the FTTH (Fiber to the Home) as their main

technology for delivering its services. The operational activity in fixed broadband and TV cable services in PT. ABC are being conducted by its subsidiaries and its activities are divided into 3, there are provisioning, provisioning is a fulfilment activity in which technicians are installing the services to new Customer, the second one is assurance, assurance activity happens when Customer file a complaint or report a disturbance in using its services, the last one is maintenance activity, the maintenance activity was done to make sure there is no under specification in its network access and also to prevent any further disturbance that might happen because of network access failure

2. Research Problem

During 2018, PT. ABC shows that its assurance process is not in a good condition, it can be seen from its KPI achievement in which the company measures its assurance performance with a set of key performance indicator as be seen on the table 1. Besides the performance that is not showing a good result, PT. ABC also notices that in 2018 it already lost 10% of its customers and its shows an increasing trend during 2018. The purpose of this study is to find the root cause of the problem that affects the company KPI achievement and to propose new operations strategies that can be used by the company to improve their fixed broadband and TV cable assurance process.

Table 1: Company Key Performance Indicator

Performance Indicator	Meaning	Target	Achievement
Q	Customer complaint	3%	7,25%
GAUL	Customer complaint more than 1 time during 1-month period	3%	5,28%
TTR 3 Hours	Time to repair	100%	45,47%

3. The Original Framework

The original framework that being used in this study are coming from Slack and Lewis (2002) which stated that operations strategy is the strategic reconciliation between operations resources and its market requirement. The operations' resources later on will be analyzed to know the operations capabilities and the market requirements will be analyzed to know the performance objectives, below are the operation strategy framework that being used in this study;

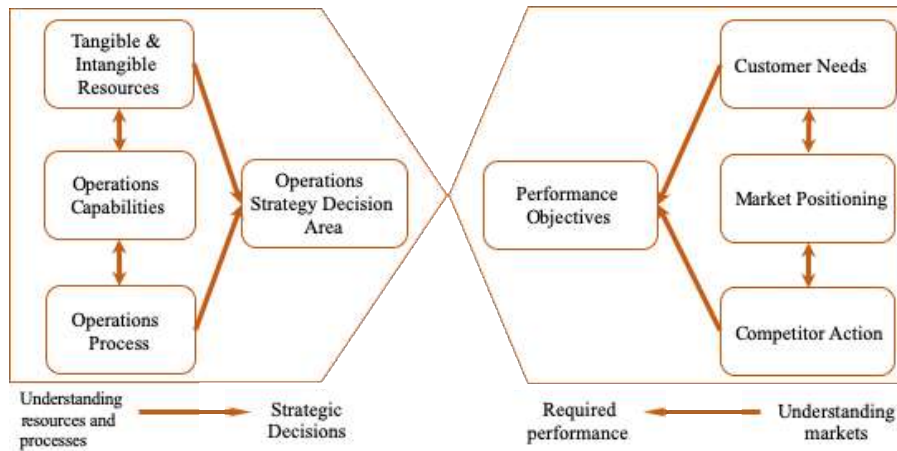


Figure1. Operation Strategic Reconciliation Framework (Slack & Lewis, 2002)

The result of those analysis will generate the capabilities and performance objectives that will be placed on the operation strategy matrix that later on will be use to propose alternative operation strategy along with the result of root cause analysis, the alternative strategy will be generated and also with the implementation plan.

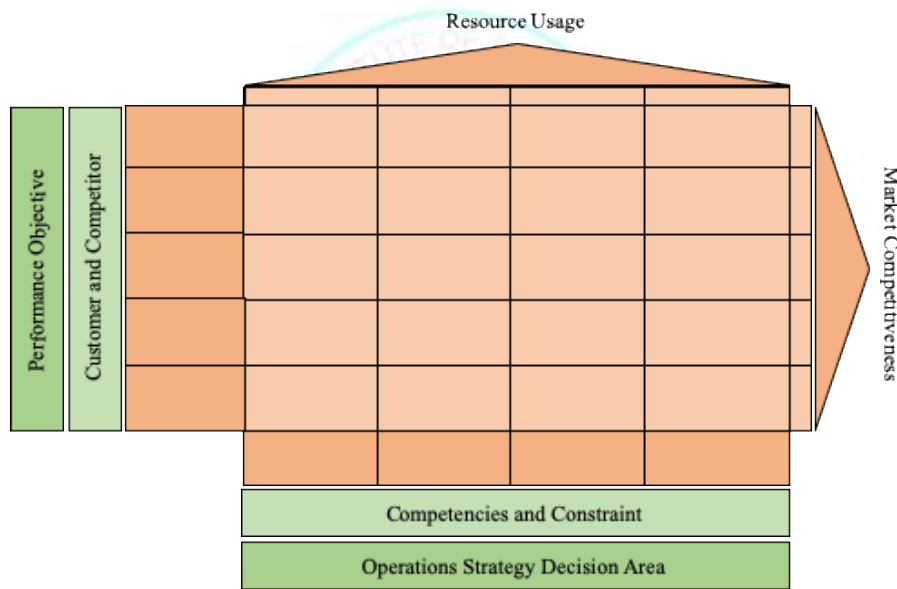


Figure 2 Operation Strategy Matrix (Slack & Lewis, 2002)

4. Methodology

In order to find the root cause of the problem, a deep interview was conducted with the related expert that works and handheld the assurance process in PT. ABC, the deep interview was conducted with 1 assurance manager, 1 site manager, 2 technicians team leader and 4 technicians, the deep interview data then complemented with secondary internal data which are Q composition data.

In order to propose a new operations strategy for assurance process, while doing the root cause analysis, the business situation analysis is also being conducted, the operational resources and operation process was being analyzed to know PT. ABC capabilities and the market requirement analysis was conducted to know PT. ABC customer demand and its competitor action.

5. Operation Resources and Process Analysis

FTTH is fiber optic communication delivery form where the fiber extends from a central office to the boundary of a home living space or business office. Once it reaches the home or business office, the signal is conveyed throughout the space using coaxial cable, wireless, optical fibers or power line communication (Technopedia, 2018). This technology is able to provide faster connection and higher capacity compared to pair conductors. PT ABC services are delivered to its customer through several series of network access, The series of its network access are the first one is the device in the inside plant which are OLT (Optical Line Termination) and FTM (Fiber Termination Modul), this device is only available in the site operation (STO). The second one is ODC (Optical Distribution Center), The third device is ODP (Optical Distribution Point) this device also can be easily spotted on the street, as a black box that usually hanging on a telephone pillar, and the last devices are the network equipment element which is the ONT (Optical Network Termination) and STB (Set Top Box) that are the home installation devices that will be installed to the customer home. All of these devices were connected using fiber optic cable, the connected cables are differentiated into 4 parts, feeder optical cables connect the central office to the ODC, distribution optical cables connect ODC to ODP, drop core optical cables connect the ODP to home installation optical cables and devices, below are the illustration of the network access;

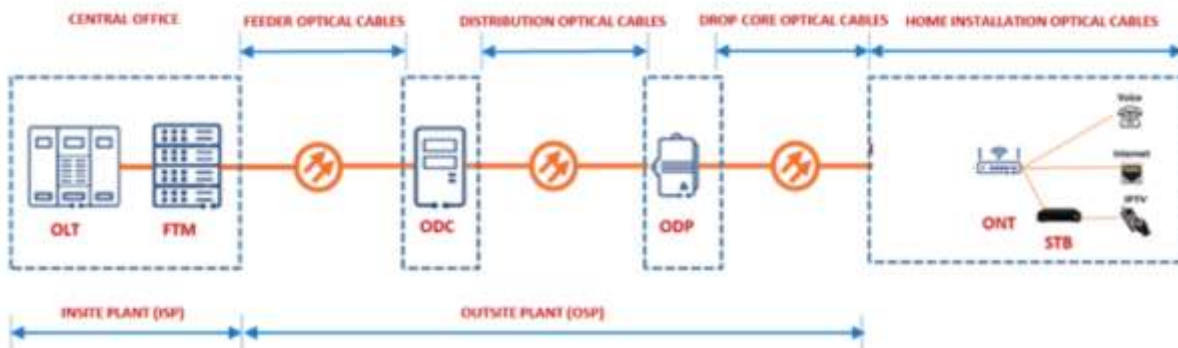


Figure 3. PT. ABC Network Access

The resources that PT. ABC has to support its assurance process consist of 8 site operation with total 1.019 ODC and 27.134 ODP and in total PT. ABC has 327 technicians that spread across its site operation. With regards to its assurance process, PT. ABC also has 4 channels for handling its customer complaint, through PT. ABC mobile application, National call center, Social media and through its site operation. Complement with the technology that the company provided for its Customer, PT. ABC technician also supported with dashboard and application to do its job. Current strategies that being used by PT. ABC are PT. ABC divided each of the site operations into several operational sectors which lead by a team leader and the technician are required to act as a multi-skilled technician. This current strategy is being implemented since 2018, in which before using this strategy, there are no operational sector and technician are functionally grouped. From this analysis, it is known the company resources and capabilities, furthermore, this will be used to develop new operations strategies that are suitable with the company current resources.

6. Market Requirement

At the end of 2018, PT. ABC has 136.511 household customers to be maintained which PT. ABC already lost 10% of its Customer. The market requirement analysis was conducted to know the customer demand and its competitor action due to the assurance process.

The customer demand analysis was conducted using secondary data from the company customer overview and feedback data, it shows that 100% of the customers did not want to have a network access disturbance that caused an internet service error, and if there is an error happening, 80% of the respondents would want that their problem be resolved within a day. The competitor analysis shows that there is 4 others competitor that provide the same services as PT.ABC, from the competitor analysis, it is known that there are others competitor that offered lower prices, regards to the assurance process it is hard to know the competitor action process since it is an internal activity.

PT. ABC itself position its product as a premium product and selling its product using differentiation strategy. PT. ABC has difficulties to give the best quality services to the customer that perceived them as a trusted and premium internet network service provider, which can threaten the loyalty of their customer, since there are others competitors that can give the services with cheaper price even though the services are not exactly the same as PT. ABC packages.

7. Root Cause Analysis

Root cause analysis are tools that help individuals or groups to identify potential root causes of the problem, this study will use the current reality tree to analyze and explore the root cause of the business issue. The current reality tree below was developed by the author with several iterations of interview discussion with several related parties, visitation and several supporting secondary data. The supporting secondary data was given in the form of Q composition analysis.

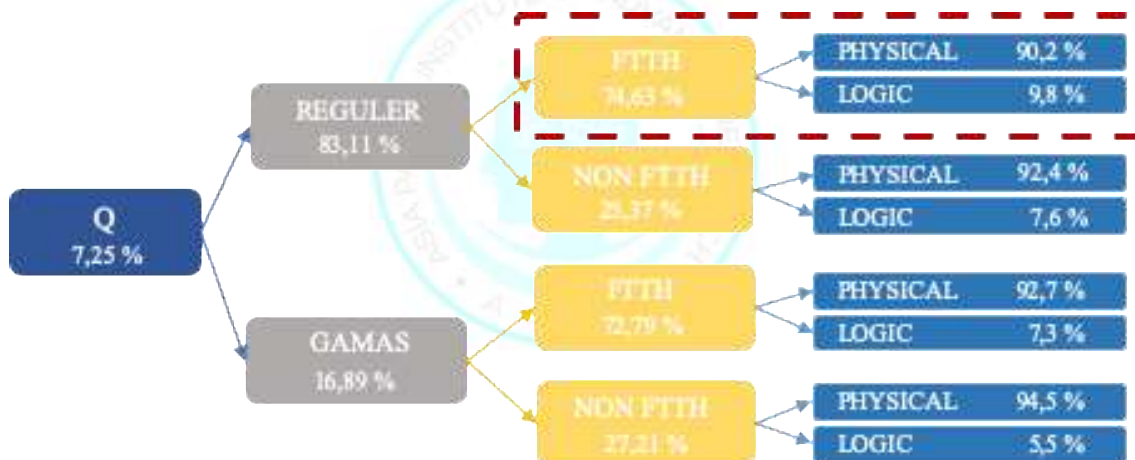


Figure 4 Q Composition Analysis

From the Q composition data above, there are 2 types of Q cause, regular cause and GAMAS (Mass Disturbance/Error), Q can be categorized as GAMAS if only there is a natural disaster that affect certain operations area, otherwise it is categorized as Regular cause. It is known that 83.11% is a regular Q, which cause of an error along the PT. ABC network access, 74.63% is happening in the FTTH access or the fiber to the home (fiber optic cable) services. From the data above, 90.2% Q was happened because physical error in the field or the hardware. Logic error is error that happens in the cloud server or the software.

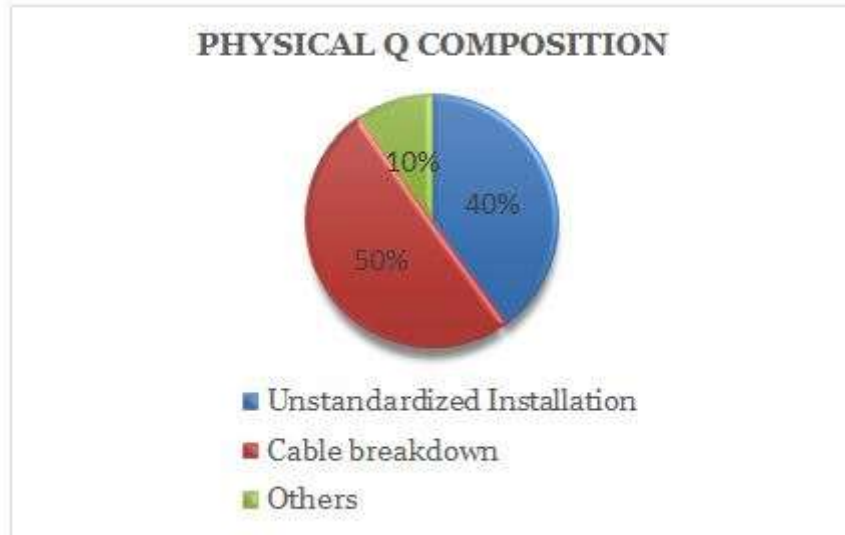


Figure 5 Physical Q Composition Analysis

Since the physical error shows a really big number, the analysis will continue to analyze the Physical Q composition, it is known that 50% of the physical Q are caused by cable breakdown, there are many causes that can lead to cable breakdown, for FTTH network access, fiber optic cable are currently located underground and some are located above the ground, 60% cable breakdown are caused by external factor, such as; bad weather, fallen tree, government infrastructure construction, and other construction job from others parties (Electrical construction, housing construction and etc.). These kinds of cable breakdown are currently hard to manage by PT. ABC, according to PT. ABC Assurance Manager, the external factor that might lead to cable breakdown are involving a lot of parties and also the natural state of bad weather and natural disaster are unpredictable. This study later on will focus on proposing a strategy that can help to reduce the physical network access disturbance that is not caused by the external factors. Refer to the result of data analysis, this study later on will focus, explore and elaborate deeply regards to the physical Q that caused by unstandardized installation (40%) and others (10%).

The root cause analysis then continued with the current reality tree analysis. Current reality tree is one of the tools that are being developed by Goldratt in 1990, current reality tree was designed to show the current state of reality as it exists in a system, its purposes to help practitioners find the links between symptomatic factors, called undesirable effect (UDEs) of the core problem (Dogget, 2006), below are the current reality tree diagram of the business issue;

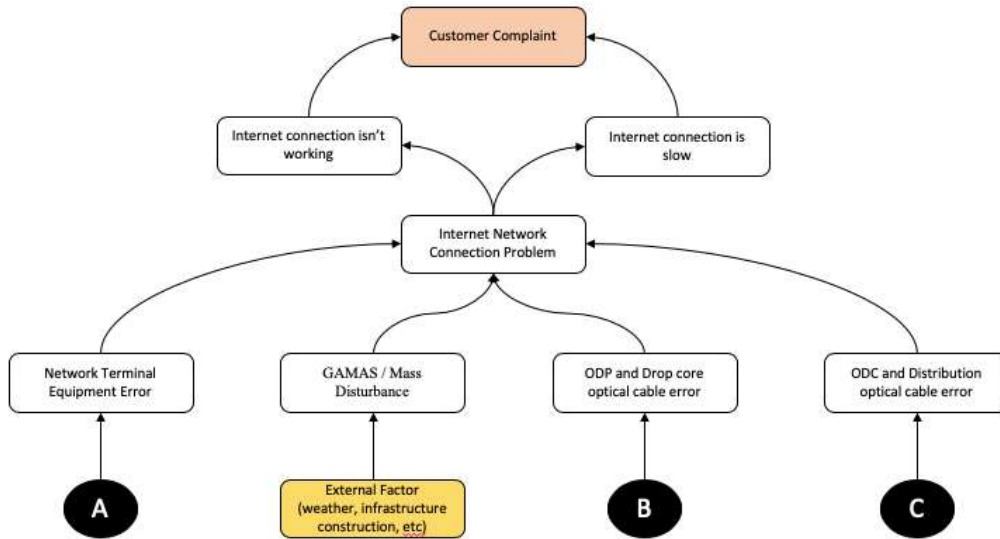


Figure 6: Current Reality Tree Diagram Part 1

Figure 6 shows the top parts of the current reality tree diagram which shows that customer complaint is one of the undesirable effects that come up in assurance process, the customer complaint that being analyzed here are the customer complaint due to network access error. There are root causes that came up are the external factor, such as bad weather, infrastructure construction or even a natural disaster that might cause a mass disturbance to PT. ABC services, but this kind of root causes are unable to be managed since it is something that is unpredictable and cannot be handheld.

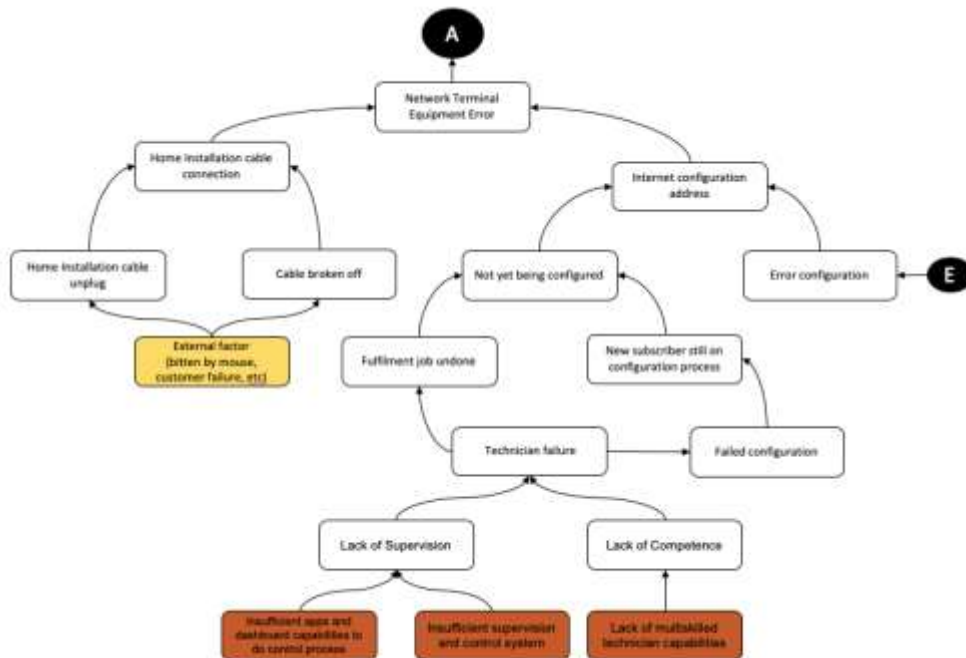


Figure 7: Current Reality Tree Diagram Part 2

Figure 7 shows that the root cause that happen in the network terminal equipment are related to the home installation process and equipment, there is also external factors causes that cannot be

prevented by PT. ABC and also the home installation cable configuration are easily changed by the customer, so the error might happen because of customer failure.

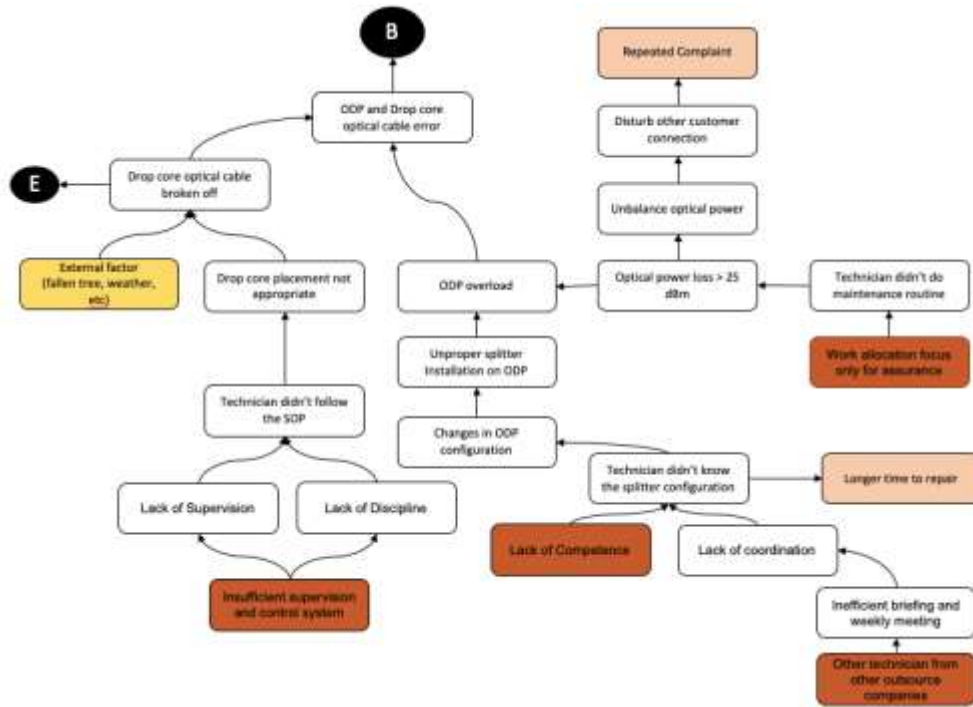


Figure 8 Current Reality Tree Diagram Part 3

Figure 8 shows the root cause of the error happens in drop core optical cable or in ODP. There are several undesirable effects that came up, they are the repeated complaints and also longer time to repair, and external factor still becomes one of the root causes that cannot be handheld due to its nature.

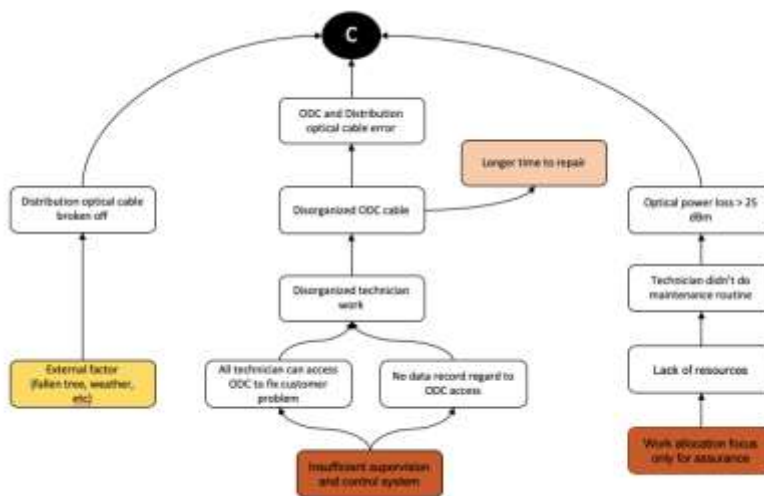


Figure 9 Current Reality Tree Diagram Part 4

Figure 9 shows the root cause of the error that happen in the distribution optical cable and/or in ODC. There is an undesirable effect that came up which is a long time to repair and also there is still external factors that cannot be handheld due to its nature. The main problem that is usually came up in the ODC are the disorganized ODC cable, in which it is caused by the lack of

supervision or control system that can track technician job, resulting in the quality of technician job that cannot be monitored, that does not only happen in ODC but also in ODP. From the current reality tree analysis, there is no further data that can be collected to quantify or to prioritize these root causes. This identified root causes later on will be classified into several categories, the categorized that will be used are the 3 categorized of people, process and technology.

Table 2: Identified Root Causes

People	Lack of multi skilled technician capabilities
	Uneven technician capabilities due to different outsource company
Process	Insufficient supervision and control process
	Work allocation composition process
Technology/Tools	Insufficient apps and dashboard capabilities to do supervision and control process

7. Alternative Strategies Formulation

To formulate the alternative strategies, according to the framework that being used, operations strategies are the strategic reconciliation between performance objectives and operation capabilities. The performance objectives were derived from the market requirement analysis, the performance objectives are the set of performance expected by the customer that need to be fulfilled by companies using their operational capabilities. To formulate the alternative strategies, first, the performance objectives need to be determined, and the second is to determine the operation strategies decision area so that the strategies being proposed are delivered clearly.

Performance objectives are the operation performance dimensions that try to satisfy market requirements. In their book, Nigel and Slack are using the generic performance objective which classified into 4 categories, there are; Quality, Speed, Dependability and Flexibility. This part intended to define the meaning of each performance objectives correlated with the PT. ABC network assurance process.

Table 3: Performance Objectives

Performance Objectives	Meaning	PT. ABC Network Assurance	PT. ABC Assurance KPI Relation
Quality	Operation's ability to produce goods and services to their defined specification reliably and consistently.	Stable PT. ABC network services	Q, GAUL
Speed	Operation's ability to provide the services needed by the customer starts when they need a product or service and ends when they are completely satisfied with its installation.	Fast complaint responds	TTR
Dependability	Operation's ability to keeping delivery promises.	Problem resolved during certain period of time and fulfill network service specification	Q, TTR
Flexibility	Operation's ability to change the variety products or services being produced by the operation within a given time period.	Service delivery time and type flexibility	Q, TTR

According to Nigel and Slack, operations strategy decision areas are the sets of decision which operations managers needed to take in order to manage the resources of the operation in the long term, Nigel and Slack identified these are into 4 decision area, there are; capacities, supply network, process technology, and development and organization of the operation process. In terms of PT.ABC network assurance process, operations strategies decision area in capacities are related to the operations of the human resources allocation, the area being managed, and the amount of ODP, ODC and customer coverage in one site operation to minimize the network assurance disturbance. The supply network decision area is related to the logistics of the work tools, network terminal equipment and also the procurement of the services that being handheld by PT.ABC. Technology and development decision area will be dealt with the information system that being used to support the operational activity, and the last is the development and organization area will be cover the infrastructural area, such as; organizational culture, change management and etc. The operations matrix will be used to formulate the operations strategies needed based on the performance objectives and the operations decision area that is being used by Nigel and Slack. The strategy that is being formulated in the operation matrix strategies are the result from all the analysis above.

8. Proposed Operations Strategies

To formulate the proposed operations strategies after determined the performance objectives and the operational decision area, the strategies are being formulated to solve the problem arises that already been identified as the root causes, below are the table that shows the relationship between the identified root causes and the proposed alternative strategies, the table below only shows the 3 stars alternative strategies and what problem arises that being solved by implementing the problems. There are 5 identified root causes and 8 proposed strategies that are being formulated to solve the identified root causes and improve the assurance and maintenance process of PT. ABC.

Table 5: Proposed Operations Strategies

Identified Root Causes	Proposed Operations Strategies
Lack of multi skilled technician capabilities	Improve technician competence on multi skilled capabilities.
	Enhance technician knowledge about SOP (Standard Operational Procedure)
Uneven technician capabilities due to different outsource company	Partnership working agreement evaluation
Insufficient supervision and control process	Digitalize workforce management supervision and evaluation
	Improve SOP (Standard Operational Procedure) implementation
Work allocation composition process	Territorial operational activities optimization
Insufficient apps and dashboard capabilities to do supervision and control process	Develop a proactive maintenance system
	Develop smart surveillance application system

Conclusions

The conclusion of this study is the root cause of the problems that is found to refer to the analysis are physical FTTH error which data shows this error takes up to 90,2% error, it is also known physical FTTH error was due to 50% cable breakdown, 40% un-standardized installation, and 10% due to other reasons. From 50% drop core cable breakdown, 60% of drop core cable breakdown are causes by external factor, such as; bad weather, fallen tree, government infrastructure construction, and others construction job from other parties. The internal root cause analysis shows that lack of multi skilled technician capabilities, uneven technician capabilities due to different outsource company, insufficient supervision and control process, work allocation composition process and insufficient apps and dashboard capabilities to do supervision and control process as the root causes.

The main business issue here is there is a gap between the PT. ABC current network performances and the PT. ABC customer expectation regards to the network services

performances, PT. ABC needed to be able to minimize the network disturbance happened. There are several alternative operation strategies that being proposed to refer to the analysis, the operation strategy was formulated using Nigel and Slack framework. These strategies were formulated based on performance objectives and operations decision area. The proposed operations strategies are already mentioned in the table 5 above.

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