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WORLD MARITIME UNIVERSITY

Shanghai, China

**ANALYSIS FEASIBILITY CREATING
SUBSIDIARIES TO SUPPORT VERTICAL AND
HORIZONTAL INTEGRATION AT INDONESIA
PORT CORPORATION (IPC)**

By

ANGGA IRIANO NUGROHO

Indonesia

A research paper submitted to the World Maritime University in partial fulfillment of the requirements for the award of the degree of

**MASTER OF SCIENCE
INTERNATIONAL TRANSPORT AND LOGISTICS**

2013

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DECLARATION

I certify that all the material in this research paper that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

.....

Angga Iriano Nugroho

.....

Supervised by

Professor Xu Dazhen

Shanghai Maritime University

Assessor

World Maritime University

Co-Assessor

Shanghai Maritime University

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Last but not least, I am very grateful to my father and my beloved wife for their support and prayer during studied in Shanghai, China.

ABSTRACT

Title of Dissertation: **Analysis Feasibility Creating Subsidiaries To Support Vertical And Horizontal Integration At Indonesia Port Corporation (IPC)**

Degree: **Master of Science in International Transport and Logistics**

Based on Shipping Law No. 17 of 2008, status of Indonesia Port Corporation (IPC) changed from regulator to operator. Therefore the main set has to change from authorities to business entities. Nowadays, IPC has 10 subsidiaries to support core business of the company. The subsidiaries provide services in the scope of vertical and horizontal integration on port business.

The establishment of other subsidiaries will provide benefit to business group. The existing condition has running well but considering the large number of business segments of Indonesia Port Corporation (IPC). Priorities scale and complex bureaucracy in State Owned Company will make Indonesia Port Corporation (IPC) has difficulty to maximize all business opportunities.

Therefore, IPC has made a strategy to establish other several subsidiaries every year gradually. Each subsidiary will focus on one services for satisfy customers. Establishment of a subsidiary will take notice to several aspects such as market, financial, human resources and operations.

KEYWORDS: Subsidiary (ies), Company, Corporation, Vertical and Horizontal Integration

TABLE OF CONTENTS

Declaration	ii
Acknowledgement	iii
Abstract	iv
Table of contents	v
List of Tables	viii
List of Figures	x
List of Abbreviations	xii
1 Introduction	
1.1 Background of Study	1
1.2 Research Problem	3
1.3 Question, Option and Limitation	3
1.4 Structure and Outline of Thesis	4
1.5 Expected Contribution	4
1.6 Conclusion and Reality	5
2 Literature Review and Conceptual Framework	
2.1 Vertical and Horizontal Integration	6
2.2 Holding-Subsidiaries Companies	11
2.3 Port Finance and Accounting	12
2.4 Supply Chain Integration	13
2.5 Conceptual Framework	15
2.6 Research Methodology	
2.6.1 Marketing Model	16
2.6.2 Finance Model	18
2.6.3 Human Resources Model	20
2.6.4 Vertical and Horizontal Model	20
3 Current Situation and Problem Identification for The Company	
3.1 Company Overview	22
3.2 Current Situation	22
3.3 Illustration	22

3.3.1	Multi Terminal Indoensia (MTI)	22
3.3.2	Jakarta International Container Terminal (JICT)	23
3.3.3	Electronic Data Interchange Indonesia	24
3.3.4	Port Hospital	25
3.3.5	Koja Container Terminal (KOJA)	26
3.3.6	Indonesia Vehicle Terminal	26
3.3.7	Indonesia Logistics Community Service (ILCS)	27
3.3.8	Indonesia Port Energy	27
3.3.9	Equipment Service Indonesia	28
3.3.10	Port Development Indonesia	28
3.4	Problem Case	30
4	Data Analysis And Solutions	
4.1	Data Collection	32
4.1.1	Prime Lending Rate	34
4.1.2	Data for IPC Container Terminal Corporation	35
4.1.2.1	Container traffic flow	35
4.1.2.2	Tariff	36
4.1.2.3	Direct Costs incurred in 5 container terminals	37
4.1.2.4	Investment of IPC Container Terminal Corporation	37
4.1.2.5	Organization Structure of Container Division	38
4.1.3	Data for Indonesia Marine Service Corporation	38
4.1.3.1	Investment of Indonesia Marine Service Corporation	39
4.1.3.2	Revenue and Direct Costs in 11 pilotage division	40
4.1.3.3	Organization Structure of Pilotage Division	41
4.1.4	Data for Tanjung Priok Multi Purpose Terminal Corporation	41
4.1.4.1	Investment of Tanjung Priok Multi Purpose Co.	42
4.1.4.2	Traffic Flow	43
4.1.4.3	Tariff of 5 Services in Tanjung Priok Branch	44
4.1.4.4	Direct Cost in Terminal 1 & 3 Tanjung Priok Port	44
4.1.4.5	Organization Structure of Terminal 1 & 3 Tanjung Priok Port	45

4.1.5	Data for Maritime and Logistics Training Corporation	46
4.1.5.1	Investment of Maritime and Logistics Training Co.	47
4.1.5.2	Training Participant	47
4.1.5.3	Operation Cost	48
4.1.5.4	Organization Structure of Port Training Center Business Unit	49
4.2	Analysis of 4 Subsidiaries	49
4.2.1	Marketing Model	50
4.2.2	Finance Model	58
4.2.3	Human Resources Model	81
4.2.4	Vertical and Horizontal Operation Model	85
4.3	Solution	86
5	Conclusion And Recommendation	
5.1	Conclusion	88
5.2	Recommendation	89
	List of References	91
	Appendices	
Appendix 1	Calculation of IPC Container Terminal Corporation	94
Appendix 2	Calculation of Indonesia Marine Service Corporation	94
Appendix 3	Calculation of Tanjung Priok Multipurpose Corporation	95
Appendix 4	Calculation of Maritime & Logistics Training Corporation	96

LIST OF TABLES

Table 2.1	UNCTAD generations of ports	10
Table 4.1	Subsidiaries Plans	32
Table 4.2	Subsidiaries Establishments Schedule	33
Table 4.3	Top 5 biggest Prime Lending Rate for Corporate Loan 2013	34
Table 4.4	Top 5 biggest Prime Lending Rate for Consumer Loan 2013	34
Table 4.5	Tariff in 5 container terminal (US \$) per 2012	37
Table 4.6	Direct Cost of Container Terminal in Panjang, Palembang, Pontianak, Jambi and Teluk Bayur (US \$)	37
Table 4.7	Investment for IPC Container Terminal Corporation (US \$)	38
Table 4.8	Investment for Indonesia Marine Service Corporation	39
Table 4.9	Vessels and Human Resources in Pilotage Division	40
Table 4.10	Revenue and Cost of Pilotage Division in 11 branches	40
Table 4.11	Investment for Tanjung Priok Multi Purpose Corporation	43
Table 4.12	Summary of Multi Purpose Facilities in Tanjung Priok Branch	43
Table 4.13	Traffic of Multi Purpose, Container, Vehicle, Passenger and Heavy Equipment in Tanjung Priok Branch	44
Table 4.14	Average Rate of Multi Purpose, Container, Vehicle, Passenger and Heavy Equipment in Tanjung Priok Branch	44
Table 4.15	Cost in Terminal 1 & 2, Tanjung Priok Port	45
Table 4.16	Summary of Maritime and Logistics Training Center's Investments as agreed between IPC and STC	47
Table 4.17	General and Simulator Training participant in Port Training Center Unit	48
Table 4.18	Inflation of Education Sector	48
Table 4.19	Cost of education in 4 ASEAN countries	49
Table 4.20	Total Revenue of Container Terminal	61
Table 4.21	Forecasting of Total Cost	61
Table 4.22	Cash Flow of IPC Container Terminal	63
Table 4.23	Forecasting of Total Revenue in 11 Branches	65

Table 4.24	Forecasting of Total Cost in 11 Branches	65
Table 4.25	Cash Flow of Marine Service Investment	67
Table 4.26	Forecasting of Revenue in Terminal 1 & 2 Tanjung Priok Branch	71
Table 4.27	Forecasting of operation cost in Tanjung Priok Branch	72
Table 4.28	Cash Flow of Tanjung Priok Multi Purpose Investment	73
Table 4.29	Forecasting total Revenue of Port Training Center	76
Table 4.30	Cash Flow of Maritime & Logistics Training	80
Table 4.31	Salary Guide 2011/12 in Supply Chain & Logistics Industries	85

LIST OF FIGURES

Figure 2.1	Value chain of rail freight market	8
Figure 2.2	Relationships between port players	8
Figure 2.3	Interactions between port-related players and their size	9
Figure 2.4	Port system	9
Figure 2.5	Finance Structure	12
Figure 2.6	Directions of Intercompany Transaction	13
Figure 2.7	The different flows in transport assignment	14
Figure 2.8	Conceptual Framework of Port Holding Company	15
Figure 2.9	Vertical and Horizontal Integration in Port Company	16
Figure 2.10	Research Methodology	21
Figure 3.1	Customer Satisfaction Index 2008, 2009 and 2010	31
Figure 4.1	Concept of IPC Container Terminal Corporation	35
Figure 4.2	Container Throughput in 5 container port	36
Figure 4.3	Organization Structure of Container Services	38
Figure 4.4	Concept of Indonesia Marine Service Corporation	39
Figure 4.5	Organization Structure of Pilotage Services	41
Figure 4.6	Concept of Tanjung Priok Multi Purpose Corporation	42
Figure 4.7	Organization Structure of Terminal 1 & 2, Tanjung Priok Port	45
Figure 4.8	Concept of Maritime and Logistics Training Corporation	46
Figure 4.9	Organization Structure of Port Training Center	49
Figure 4.10	Forecasting of Container Traffic in Panjang Port	58
Figure 4.11	Forecasting of Container Traffic in Palembang Port	59
Figure 4.12	Forecasting of Container Traffic in Pontianak Port	59
Figure 4.13	Forecasting of Container Traffic in Jambi Port	60
Figure 4.14	Forecasting of Container Traffic in Teluk Bayur Port	60
Figure 4.15	Forecasting of Multi Purpose Traffics Tanjung Priok Branch	69
Figure 4.16	Forecasting of Container Traffic in Tanjung Priok Branch	69
Figure 4.17	Forecasting of Vehicles Traffic in Tanjung Priok Branch	70
Figure 4.18	Forecasting of Passenger Traffic in Tanjung Priok Branch	70

Figure 4.19	Forecasting of Heavy Equipment Traffic in Tanjung Priok Branch	71
Figure 4.20	Forecasting of General Training Participants	75
Figure 4.21	Forecasting of Simulator Training Participants	75
Figure 4.22	Organization Structure for IPC Container Terminal Corporation Co.	82
Figure 4.23	Organization Structure for Marine Service Co.	83
Figure 4.24	Organization Structure for Tanjung Priok Multi Purpose Co.	83
Figure 4.25	Organization Structure for Maritime and Logistics Training Co.	84

LIST OF ABBREVIATIONS

Co.	Corporation
IPC	Indonesia Port Corporation
IRR	Internal Rate Of Return
NPV	Net Present Value
TEUs	Twenty Equivalent Units

Chapter 1. INTRODUCTION

1.1. Background of Study

Indonesia is an archipelago country, where the most the domestic and International trades are dependent on sea transport. Therefore, the port industry is very promising in Indonesia. The need for the shipping industry is urgent and must be supported by a good port system. Shipping lines are becoming increasingly complex and required a system that can maximize the potential of the market. Complex route optimization has therefore developed a solution, to minimize the cost or where a large spike in the delivery of service users who will take to the destination. Operational decisions to minimize costs in supply chain management made by the port company. This decision based on the policy of logistics supply chain.

The objective of the integration of supply chain management is to ensure a sufficient supply all activities involved in port company as part of all logistics management activities. The activities in port take place in the middle of total supply chain's activities. If there is a bottleneck at some point lead to delays, failures may even lead to the cessation of a series of supply chain in the logistics process.

Port operators have the task to manage and operate the terminal. Port management have to make coordination with all parties that have an interest.. Port activities not only loading and unloading cargo but also many activities that support the implementation of the loading and unloading activities.

The ship already in anchorage area hereafter the master ask to the port to organize navigation and pilotage so the vessel can berth safely on the quay. Pilotage is mandatory to do in several ports that have dangerous or congested waters. The pilot should be well knows and have much experience about condition and situation of the basin or river mostly the depth of water.

After the vessel already berth in the quay, port operator will provide heavy equipment such as Container cranes, so the loading and unloading proses can be

carried out quickly and efficiently. Container Crane needs very large number of electricity to operate, moreover if the customer has big container vessel. It will involve many container cranes for load and unload cargo. In addition, to the port that has 24 hours service, it will take lighting in the port to make sure the safety port operation.

Port authorities have to manage the depth of access channel and turning basin every time for safe and unimpeded access to quay. Appropriate water depth might require dredging especially at the port that has a natural silting that need annual, quarterly or monthly maintenance dredging.

The information system also fundamental needs to support port management. Operational efficiency will be reached by using data that has good characteristic such as accurate, accessible, complete, economical, flexible, relevant, reliable, secure, simple, timely and verifiable. It kind data only produce if port operator has good, update and modern information system. Information system also helps to control costs, improve service, increase profits, or achieve a competitive advantage (Stefansson, 2012).

Due to economies of scale in shipping industry, It brings impact to development of port infrastructure. Ships become bigger so require more depth water and large quay in port. It means construction of a new port is needed to catch the water depth. The construction and development of ports are needed in order to compete with other ports.

Human resource is the most important factor in the management of the port. Port companies have to make sure the supply of human resources because work in the port industry must have specific expertise. Moreover, human resources in port industry must upgrade their knowledge in a sustainable manner to follow the requirements of regulatory and technology developments.

1.2. Research Problem

To ensure all activities in the port business, the port company must be able to control supply activities as already mentioned in above. Management of supply activities bring some advantages to the port when serve customers. The service can be done quickly. This study is trying to analyze benefit of subsidiaries from vertical and horizontal integration point of view.

Moreover, bureaucracy is a main issue for develop state-owned company in Indonesia. Based on World Economic Forum (WEF), Indonesia's economic competitiveness position goes down four levels from 46 in 2011 to 50 in 2012. It is also often expressed by the minister of state-owned enterprises that state-owned company often lost in competing to get business opportunities due to the slow lengthy approval process.

In some case, requires shareholder approval to expand the business of state-owned company. The decision to get business opportunity should be up to minister's table for approval. The establishment of subsidiaries will minimize the problem, The decision and approval only from the Board of Directors of parent company as the shareholder and no need minister's approval. In this situation, the decision-making process will be faster.

1.3. Question, Option and Limitation

The research will determine whether the subsidiaries are feasible or not to be established as separate company (independent corporation). To sharpen the scope of the study, a question and option is occur in this research problem. Some limitation is required to sharpen scope of the study and conduct the analysis specifically. The limitations of the study are explained as follows:

- 1). Object of the study is in Indonesia Port Corporation (IPC) specifically in division or business unit that will changed become subsidiaries in 2014.
- 2). Due to the limitation of time, the study is limited on feasibility of the division or unit business become independent business (subsidiary) without taking into account the financing of capital expenditure, Environmental Impact Assessment (EIA) and Public Service Obligation (PSO).

- 3). Not discuss current operations because have been running well and several proper operation research have been made such as terminal 1 Tanjung Priok, container terminal in Palembang port, Jambi port and Panjang port.

1.4. Structure and Outline of Thesis

The research will be presented in the five systematic chapters. In *chapter 1*, the background of the study, research problem, question, limitation, expected contribution, and reality will be explained. *Chapter 2* will discuss relevant literature, such as vertical and horizontal Integration, holding-subsidiaries, port finance and accounting, and also supply chain integration. *Chapter 3* describe about Indonesia Port Corporation (IPC) and subsidiaries to provide high quality port services for fulfill customers satisfaction, including creating new subsidiaries. *Chapter 4* presents collection of data and analyze the data related to case study at IPC. This chapter will analyze feasibility of new subsidiaries in scope of Vertical and horizontal integration with several method will displayed. Finally, in *chapter 5* will describe a brief conclusion which can be drawn from this research and give recommendation for next studies.

1.5. Expected Contribution

The purpose of the study is to analyze subsidiaries in vertical and horizontal chain that can be regulated efficiently and to assurance of availability of supply chain at port operation. Port companies are commonly confronted with a choice between doing all business (core and supporting business) by them self or create new companies that focus on supporting businesses. Moreover mutually beneficial cooperation with competitors also be considered. It is intended to provide great benefits for customers. The logistics cost will be decreased due to each port company can share the fixed costs of operating the port.

1.6. Conclusion and Reality

The main objective of this research was to estimate the benefit of Vertical and Horizontal Integration to allow it to be fully prepared to meet future demand with regards to improve the productivity of the company, where the most crucial factor seems to be the high amounts of investment and time required. Mostly state owned companies in Indonesia that profitable should be the backbone of the economy. In this case, Indonesia port corporation not only the pursuit of profit. Indonesia port Corporation trying to keep the existence business of the company by maintain the supply row material. The strategies will make the companies enable to evolve and provide the best service to customers.

Chapter 2. LITERATURE REVIEW

This part will be devoted, featured and presented many related literatures to support this research. Such as Vertical and Horizontal Integration, Holding-subsidaries Companies, Port Finance, Accounting and Supply Chain Management and also theory that applicable in real situation in maritime sector. All this kind theories will be discussed as reference. Some conceptual framework of research will be given to explain the project to complete all research.

2.1 Vertical and Horizontal Integration

In logistics, Ports has an important role of the entire logistics chain and is part of the overall logistics cycle. Van De Voorde and Vanelslander (2009) likens the flow of the supply chain such as bolts and nuts oil smeared on a machine. Shipping companies will get benefit if they have share in the container terminal company. The container terminal will give priority to ships owned by the shipping company. In this point, the shipping company will achieve greatest cost savings.

The problem of Horizontal and Vertical Integration may be occur to the company conducting acquire or mergers that explained by Pilsbury and Meaney (2009). Company has decisions to acquire other companies for reinforce the core business of company can generate to a strengthening or collect of market power because give the companies to control all process. This is also cause to customer dissatisfaction because the companies that acquire may not obtain a competitive advantage if the competitors not get supply from same supplier company.

Liner shipping industry and container terminal industry are the oligopoly process. Mergers and acquisitions or alliances method usually used by shipping companies. On the other hands, several biggest port operators so active to invest container terminal in many countries. They have some reasons to invest their money in container terminal i.e. serve their ship and profit. Shipping companies want to ensure the port able to serve their ship fast and efficient, furthermore container terminal always provide a lot of money for shipping companies. In this case, Takayuki Mori

(2007) has various oligopoly research literatures and the strategies of terminal operators.

Vertical and horizontal integration strategies become important decision of shipping companies presented by Cariou (2007). The strategies of shipping companies in liner business are combine horizontal integration, vertical integration and their investment to increase size of the vessels. The correct strategies should be selected to deal with the uncertainty on the potential future over-capacity and regulations.

Sanchez, Moner-Colonques, Sempere-Monerris and Alvarez (2010) describe competition and horizontal integration in maritimefreight transport. It is a theoretical model in maritime sectors and road (land) sectors. Road freight sector have a competitive behavior where constant returns to scale or the size of transportation always same. In the other hands, the freight maritime sector is considered as oligopolistic behavior. The shipping company more concern to economies of scale that behave to maximize profit, then the equilibrium occurs if horizontal integration of shipping lines already happen.

Anderson and Monteiro (2009) define competition between port operators. The growths of world trade and in port competitiveness are supported by container operator. The port authority, the terminal operators, and the long shore labor are three primary units. There are internal stakeholders or primary and external stakeholders or second set of major players such as railroads, truck carriers, governments, shippers and local communities.

The distributions of goods by logistics company require transfer services and terminals as the destination point. Integration of companies in the same sector of value chain is horizontal mergers such as two rail freight companies, in the other hands; Integration from different sector of the value chain is vertical mergers such as rail freight and infrastructure managers.

Oxera (2006) give ideas about the distribution of goods by logistics company require transfer services and terminals as the destination point. Integration of companies in

the same sector of value chain is horizontal mergers such as two rail freight companies, in the other hands, Integration from different sector of the value chain is vertical mergers such as rail freight and infrastructure managers.

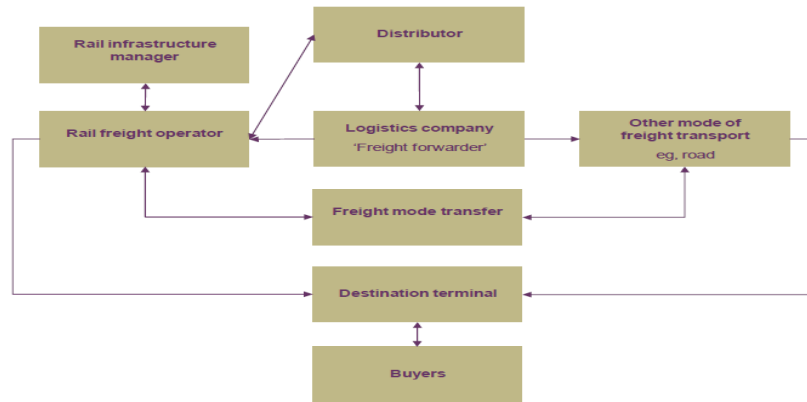


Figure 2.1. Value chain of rail freight market
 Source : Oxera

Coppens et al (2007) in his study determine the principal clients and suppliers of all port players. Regional input-output table related to microeconomic data, analyzed by sector with bottom-up approach. There are three important players in the port: the port authority as regulator body, the shipping companies as principal customer and terminal operator companies as service provider in the port.

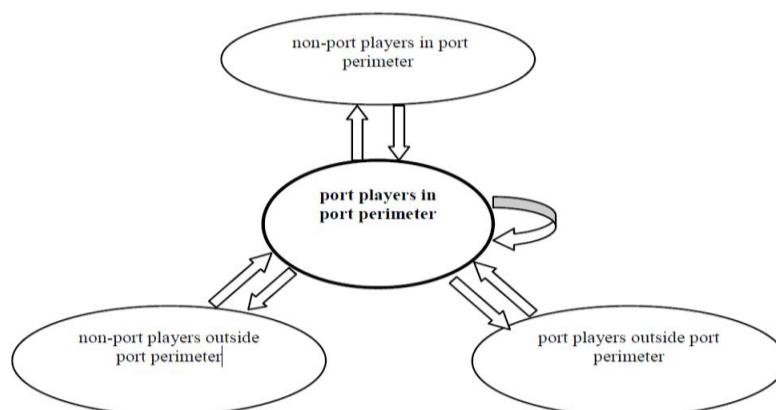


Figure 2.2. Relationships between port players
 Source: Coppens et al. (2007)

The empirical research by Coppens et al. (2007) in port of Antwerp. There are fuel trading and dredging as players in ship operation, construction of shipping and port facilities. Dredging is important activities of capacity creation and maintenance.

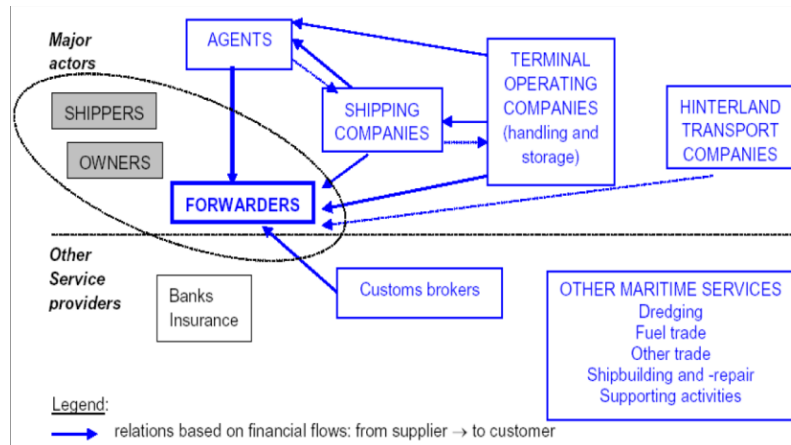


Figure 2.3. Interactions between port-related players and their size
 Source: Coppenset al. (2007)

In Antwerp, The most supplying's actors are outside such as agents, customs brokers, forwarders, hinterland transport companies and shipping companies.

Trujillo and Nombela (1998) describe that mostly port system based on concession contracts. This kind system to encourage private firms to investments infrastructure or increase existing facilities. The purpose of concessions is to give incentives to private investors because the firms who have obligation to construct infrastructure and pay all costs. After all projects are completed, they have the right to doing business and operate those facilities in long period.

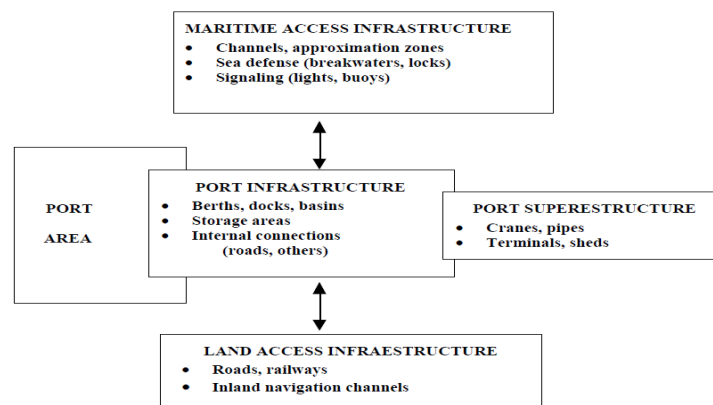


Figure 2.4. Port System
 Source :Trujillo and Nombela (1998)

There are so many issues in port industry. Not only spatial and physical issues, ports also facing with transformation in logistics and transport industry. Horizontal and

vertical integration is important strategy to minimize costs, increase services quality and, capture more value in over last decade. There are so many ways to implement this strategy, for instance takeovers or alliances. Some shipping have own terminal operator as their division, sister company or subsidiaries. Hutchison Port Holdings from Hong Kong, PSA Corporation from Singapore and DP World from Dubai are the biggest terminal operating companies in the world. Nowadays, these three companies handle the most of containers shipped around the world. (Aoyama et al 2006).

O’Leary-Kelly and Flores (2002) in their study stated that Integration whatever is it, vertical or horizontal integration make up from commitment between parties that work together in a cooperation to achieve same purpose. This target can be reached with cooperation, coordination, interaction and collaboration between all parties in the supply chain.

A. First generation	Prior to 1950	Sea approach, transfer of goods, temporary storage, delivery.
B. Second generation		Includes A plus industrial and commercial activities which give added value to the goods. The port is a handling and services centre.
C. Third generation	Since 1980	Includes A plus B plus structuring of the port community, plus strengthening links between town and port and between port-users, plus extension of the range of services offered beyond the port boundary, plus an integrated system of data collection and processing. The port has become a logistics platform for trade.
D. Fourth generation	Since 2000	Network of physically separated ports (terminals) linked through common operators or through a common administration.

Table 2.1. UNCTAD generations of ports

Source: UNCTAD (1999)

Another study by Meersman et al. (2009) is the basic option for operator to give all service categories. Based on consideration to provide or not provide the service and complex relationship between port actors. Most scholars have opinion about trend of cargo handling by private operator.

De Langen (2007) define that good operation and proper integration of three dimensions are determine the competitiveness and the sustainability of a port.

Integration of three dimensions provide many forms of conflict that have important result of contravention dimensions of stakeholders

2.2. Holding-Subsidiaries Companies

Moayer and Hanafizadeh (2008) divide holding companies into three types that is investment, managerial and operating holding company. The investment holding company is type of holding company that pursues profits from the investments in the securities of its subsidiaries. The managerial holding company is if not only to get earning from subsidiary's profits, but also involved in the subsidiaries' transactions. The operating holding company is type of holding company that has business to sell some products or services to its own customers.

Rommens, Deloof, and Jegers, (2003) in their research give explanation about holding companies trade at a discount, with an overview of the following :

- 1) The benefits smaller than holding company costs such as taxes and operating costs
- 2) The investment lack of liquidity
- 3) Take control stockholder to get private benefits

Stringham and Leauanae (2005) describe four basic types of discounts to parent companies: 1) discount of liquidation; 2) lack of control discount; 3) discount for lack of marketability; and 4) discount of cotenancy in real estate industry

Halsey and Hopkins (2012) describe upstream versus downstream transactions in parent company with subsidiaries company are no difference. In upstream versus downstream transactions, the combined financial statements should not record all deferred profit, or all deferred profit must be eliminated, whatever the direction of the transaction but if the deferred profit will compensate the regular Equity Method income recognized by the holding company.

Kotler and Keller (2009) state that Intensive growth strategy for identify further opportunities to get growth within the organizations current business. Integrative

growth strategy is used to build or acquire businesses that are related to the company's current business. Diversification growth strategy is starting up or buying businesses outside their current business/markets. The strategy can be chosen by a company which is defined by Dazhen (2012) as a gap between desired level of sales and profit.

2.3. Port Finance and Accounting

Based on World Bank (2007), The port authority and the government finance the basic infrastructure of ports. In the other hand, private operator or terminal operator companies finance the terminal superstructure and equipment. There are some exceptions in fully privatized ports, In the case a government had no money for develop port infrastructure, the port development was stopped or get preferential rates from World Bank

Theory of Lending Structures introduced by Law (2012) in his handout. There are Bilateral Lending, Syndicated Lending and "Club" Lending. Bilateral Loan is a loan that involves a single borrower and a single lender. Syndicated lending is Loan financing provided by a group of lenders and is structured, arranged, and administered by one or several commercial/investment banks known as arrangers. Club lending is A club deal is a smaller loan - usually \$25–150 million - that is pre-marketed to a group of relationship lenders. The arranger is generally a first among equals, and each lender gets a full cut, or nearly a full cut, of the fees.

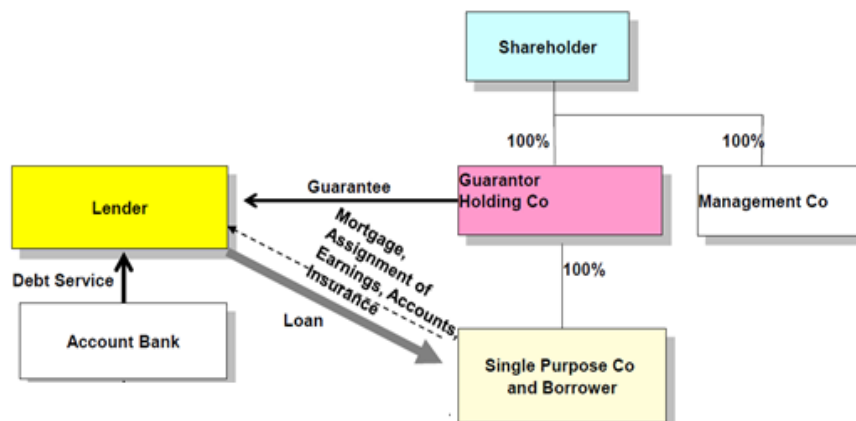


Figure 2.5. Finance Structure
Source : Law (2012)

The accounting profession as basic philosophy against consolidations and intercompany transactions be included in ARB No. 51. ARB No. 51 gives a justification for the deletion of parent and subsidiaries transactions, whatever the direction, parent and subsidiaries transaction must be eliminated when provide the financial statements consolidation. ARB No. 51 states that *“The purpose of consolidated statements is to present, primarily for the benefit of the shareholders and creditors of the parent company, the results of operations and the financial position of a parent company and its subsidiaries essentially as if the group were a single company with one or more branches or divisions”*.

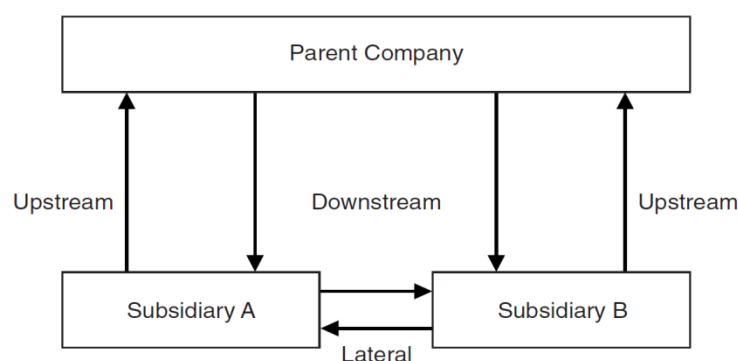


Figure 2.6. Directions of Intercompany Transaction
 Source : *Accounting Research Bulletin, No. 51*

2.4. Supply Chain Integration

Description about port is part in supply chains and become important are given by Paixao and Marlow (2003), Marlow and Paixao (2003) and Bichou and Gray (2004) in their paper. Paixao and Marlow (2003) and Marlow and Paixao (2003) give opinion about logistics measures of cost and responsiveness by introduce the logistics concepts as key factors in the measurement of port performance.

Bichou and Gray (2004) in their study using a logistics approach to the measurement of port performance are beneficial to support port more efficient. Efficient strategy bring value-added in logistics activities.

Hall (2002) in his study has opinion in logistics. There are flows of goods, services, information flow and also finance are characterizing port activities. the flows

traverse some port that very specific. Logistics is focused with the flows of goods, services, information that related, and finance and accounting term.

Van der Lugt and De Langen (2007) mark off between non-own port related activities in non-own ports and related activities in own port. The own port related activities divisible into support activities and operational activities. There are some problem in port boundaries and can be overstay into the hinterland. Notteboom and Winkelmanns (2001) in their study said that the most important role for port authorities classify the strategic relationships development with other transport nodes, ports in other state, neighbouring ports and/or inland ports in the new millennium.

Lumsden (2012) describe the goods transportation in one or some links is connected to other flows in the system of transportation that create material flow. There is a two-way flow in contrast to the material flow as from the resources are not used in the system of transportation. The producing company have to communicate with the consuming company in order to get and give information about functions specification and time, horizontal information etc. The information about the status and the physical location of the goods and the increases of resources obtainable from demand.

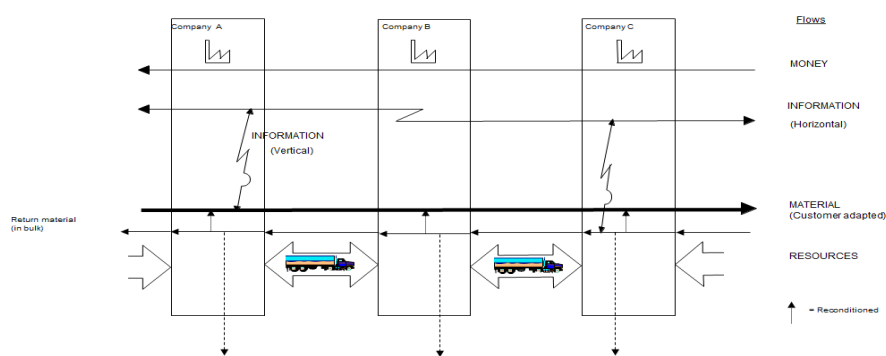


Figure 2.7. The different flows in transport assignment
 Source : Lumsden (2012)

Cariou (2012) define Invesment and also the return of invesment is a relative concept as creating value for shareholders means bringing more than other alternatives such as bank account, to invest in treasury bonds. There are several way to get information about invesment and also the return. In another expression, Kavussanos (2012)

defines the proper discount rate is the point for correct valuing future cash flows and It can be earnings or obligations.

2.5. Conceptual Framework

Based on to the literature review, the mostly research about vertical and horizontal integration in shipping companies. The shipping companies has dedicated terminal such as container terminal or RoRo terminal and logistics company.

This research specific in port companies that have several subsidiaries to support the core business. Subsidiaries of port company will analyzed from vertical and horizontal point of view with the conceptual framework as shown in figure 2.8. Core business of port operator are provide loading and unloading of cargo either in container terminal, RoRo terminal, liquid terminal etc. Several subsidiaries work to support the port core business such as Electricity Company, Information Technology Company, Hospital Company, Pilotage Company, dredging company etc.

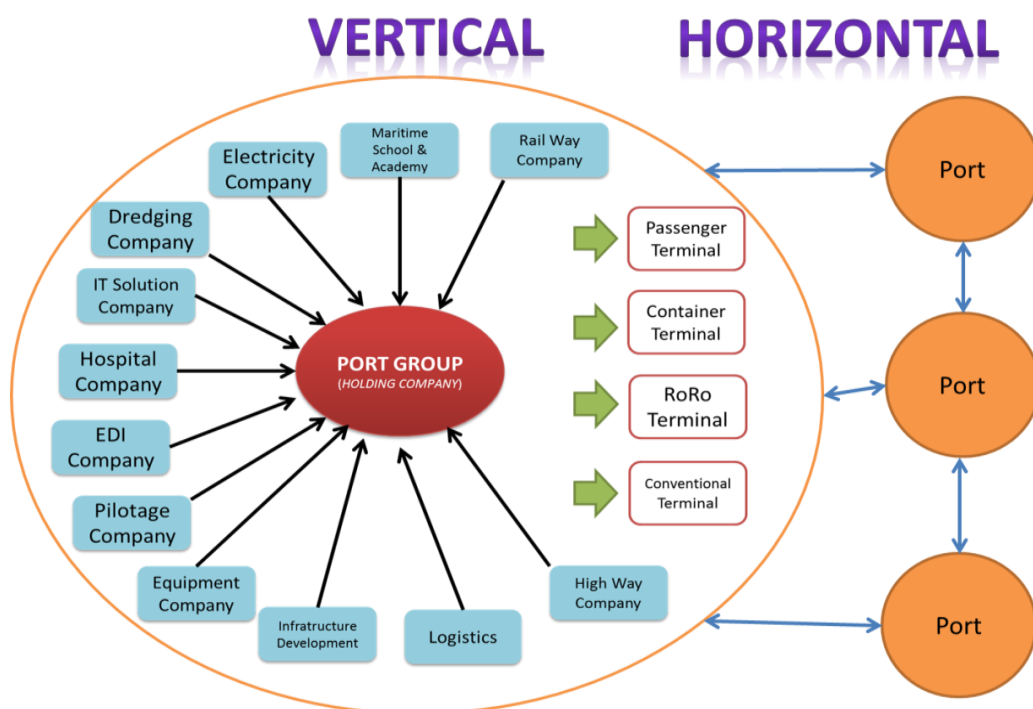


Figure 2.8. Conceptual Framework of Port Holding Company

Source: Author

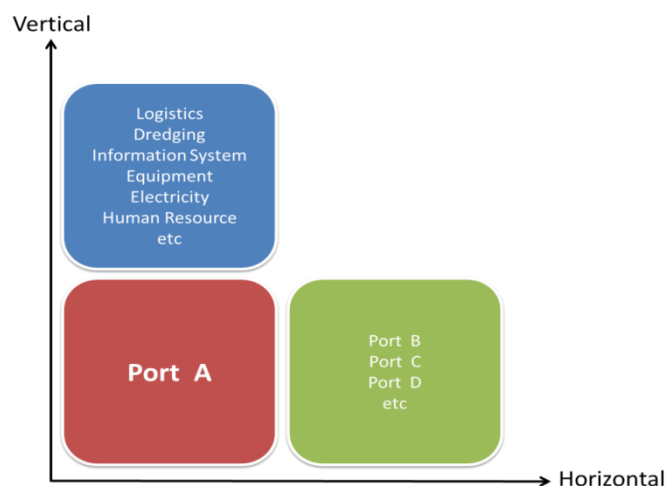


Figure 2.9. Vertical and Horizontal Integration in Port Company
Source : Author

Figure 2.9. shows the Electricity Company, Information Technology Company, Hospital Company, Pilotage Company, Dredging Company etc. constitute vertical integration in ports business, while cooperation with other ports are horizontal integration

2.6. Research Methodology

Acquired data should be processed in some method to get result that applicable to make decision in the research. This research will analyze some corporate strategy that related with economic principles. Porter analysis, SWOT analysis and financial analysis will be used in this research paper to solve the problem in this research, several data and methods will be completed with some stages of analysis.

The research methodology consists of two major objectives:

- 1). Create profitable new business in the scope Vertical and Horizontal Integration
- 2). Analyze the feasibility study of new subsidiary to support business group

To reach the objective, the research will analyze with use several methods as follows:

2.6.1 Marketing Model

The first step in this study is analyzed the potential market and situation in Indonesia to capture business opportunities. It is qualitative review base on market in Indonesia and others economics that related.

1) Porter Analysis

Porter five forces analysis will be used in this research. Analysis of the new business and corporate strategy to develop new business will presented in five forces to determine competitiveness and attractiveness of the business in the market.

a) Threat of new entrants

Potential and attractive markets that generate high profits will attract new companies. New entrants will try to taking the market and will reduce profitability for the company in the market.

b) Threat of substitute products or services

Other similar products that provide an alternative for consumers to choose and switch in the market

c) Bargaining power of customers (buyers)

The power of customers to bargain and negotiated need to noted. The customers who have big power will determine the price. In this situation, the seller company will get thin profit, break even or loss.

d) Bargaining power of suppliers

The power of suppliers to bargain and negotiated need to noted. If only few suppliers of raw materials to the company, so the suppliers have big power to determine the price in the market.

e) Intensity of competitive rivalry

Rivalry of sustainable innovation, technology, advertising and strategy between similar companies will determine the competitiveness of the industry.

2) Strengths, Weaknesses, Opportunities, and Threats (SWOT)

Strengths, Weaknesses, Opportunities, and Threats (SWOT) is analysis technical that will use to evaluate feasibility for create new subsidiaries. *SWOT Analysis* used to determine the position and strategy of the company.

a) Strengths -The advantages of new company compare with the others

- b) Weaknesses - The disadvantages of new company compare with the others
- c) Opportunities - characteristics that will give profit and benefit with proper method
- d) Threats - characteristics that will make some trouble in real competition

2.6.2 Finance Model

1) *Forecasting*

Forecasting is activity to predict what will happen in the future. This study will forecast revenue from existing cost. The forecasting relate with various assumptions related to the action. The condition and situation in the future may be difference with nowadays and it may need new policy.

There are several types of forecasting methods available for calculate future possibility, The forecasting techniques related to operation of existing revenue and cost will be used. Trend Analysis is the most popular forecasting techniques associated with maritime industries. This technique is used along with data from historical data to determine certain trends and fluctuation. Trend lines analysis are a general used technical analysis to forecast investment. The study will use 3 types trend analysis on Ms Excel 2010, namely Linear Regression, Power Estimation and Logarithmic Estimation.

a. Linear

Linear functions used to present high confidence Forecasting or **Boom** or high based. It calculated with around the formula $y = a.x + b$

b. Power

Power functions used to present medium confidence Forecasting or **Normal** or moderate based. It calculated with around the formula $y = a.x^b$

c. Logarithmic

Power functions used to present low confidence Forecasting or **Depressed** or low based. It calculated with around the formula $y = b.LN(x) a$

2) Net Present Value (NPV)

$$NPV = \sum_{k=0}^n \frac{A_i}{(1+r)^i} - C \quad (3.1)$$

where:

c = project life A_i = net cash flows
 r = discount rate C = initial capital expenditure

(Cariou, 2012)

- a) *Positive NPV* ($NPV > 0$), then the project is feasible to be implemented, the subsidiary would give value to the parent company. The cash inflow is greater than the potential cash outflows expected to start and operate the subsidiary.
- b) *Negative NPV* ($NPV < 0$), indicates the project is not feasible to be implemented, the subsidiary would not give value to the parent company. The potential cash outflows are higher than the potential cash flow of the project.
- c) *Zero NPV* ($NPV = 0$), indicates the project would neither gain nor lose value for the parent company. The decision to implement or not, should have other consideration and not only monetary value.

3) Internal Rate Of Return (IRR)

In this research, The internal rate of return (IRR) will be used for measure and compare the profitability of new subsidiaries. The IRR can be used to determine a rank of several prospective business in the market.

$$IRR = Ir + \frac{NPV Ir}{NPV Ir - NPV It} \times (It - Ir) \quad (3.2)$$

where:

Ir = Low Discount Factor It = High Discount Factor
 NPV = Net Present Value

4) Payback Period

The information about duration required to recover the investments costs. The shareholders need to know and expect the recovery the investments costs in the short duration. The company no needs to count Payback period if the result of NPV negative.

$$Payback = \frac{I_0}{R} \quad (3.3)$$

Where :

I_0 = Initial investment amount

R = Amount of return on investment

2.6.3 Human Resource Model

Every corporation may have different organization. It depends on the operational of the company. Structure of organization is created to divide the responsibility in the corporation. It can be as the branch, division, department, and unit. Mintzberg define several kinds design organization, namely *simple structure*, *machine bureaucracy*, *professional bureaucracy*, *divisional structure* and *adhocracy*.

2.6.4 Vertical and Horizontal Operation Model

Synergy between business groups will be discussed with in accordance with the theory of vertical and horizontal integration. The new subsidiary will each meet the needs of supply or demand that will change the cost center into a profit center

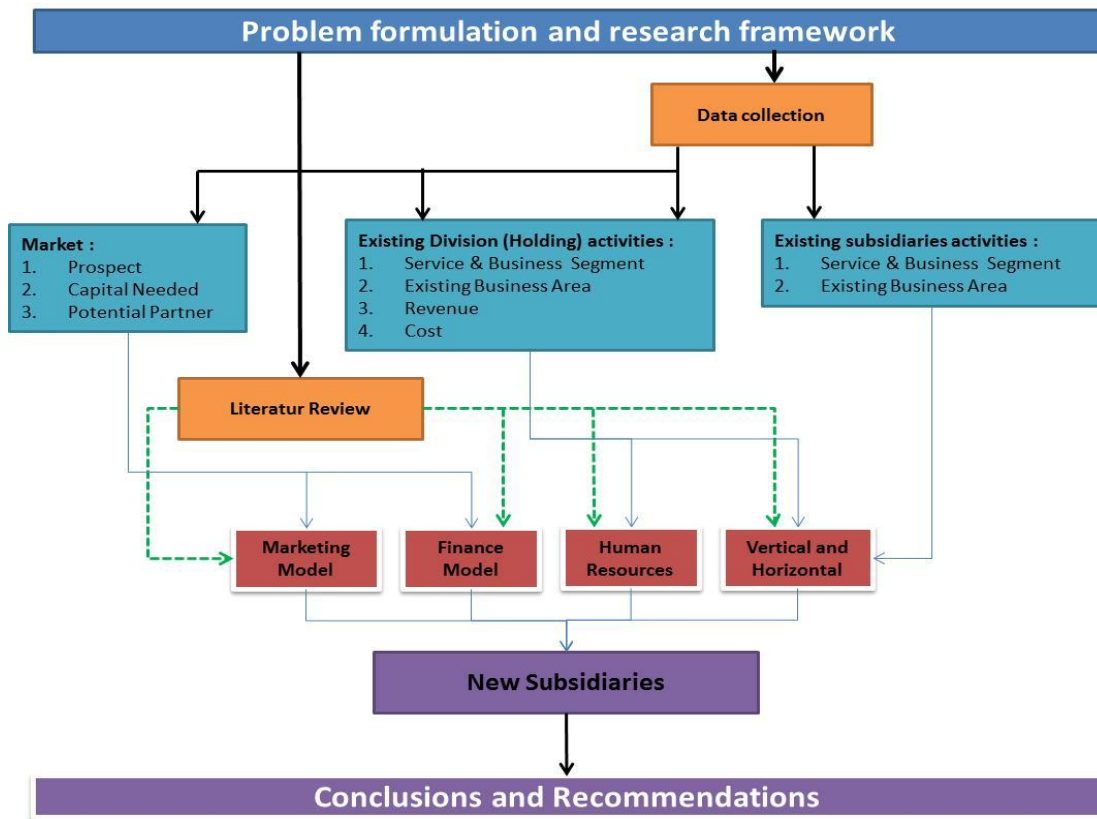


Figure 2.10. Research Methodology
 Source : Author

The study is to assess the feasibility of divisions or business units become subsidiaries. First, we collecting data from existing business units or division that will spin-off become subsidiaries. Second, we analyze four factors, which are market, finance, human resources and vertical and horizontal integration as showed in figure 2.10.

Chapter 3. CURRENT SITUATION AND PROBLEM IDENTIFICATION FOR THE COMPANY

3.1 Company Overview

Indonesia Port Corporation (IPC) as the object of the research is the biggest port company in Indonesia manage 12 ports include port of Tanjung Priok. Port of Tanjung Priok is stated as the biggest port in Indonesia and number 24 container port in the world in 2011 (The Journal Of Commerce, 2012). Moreover, Indonesia port Corporation has 10 subsidiaries/ affiliates.

3.2 Current Situation

Indonesia port Corporation has 10 subsidiaries/ affiliates, namely, Multi Terminal Indonesia (MTI), Jakarta International Container Terminal (JICT), Koja Container Terminal (KOJA), Port Hospital (RSP) and Electronic Data Interchange Indonesia (EDII). In the end of 2012, Indonesia Port Corporation was create 5 new subsidiaries in 2012 namely, Indonesia Car Terminal, Energy Port Indonesia, Equipment Service Port Indonesia, e-Logistics Integration Solution and Port Indonesia Development.

3.3 Illustration

3.3.1 Multi Terminal Indonesia

Multi Terminal Indonesia (MTI) was established on February 15, 2002. It is a spin-off from the Division of Terminal Business under Tanjung Priok branch. The purpose of this company is to maximize potential business and develop the company's competitive advantages as a port service provider. The company has three business segments, i.e. Multi Purpose Terminal, Container Terminal, and Freight Forwarding. Multi Terminal Indonesia was owned 99% by Indonesia Port Corporation (IPC) and 1% owned by Cooperative of Maritime Employees.

3.2.1.1. Multi Purpose Service

Multi Terminal Indonesia seeks to expand service coverage and penetration of the market by responding to customer's need and provide service that safe, fast, and

cheap, and also facilities for serve the Multipurpose ships and handled a non-container stevedoring (Break Bulk, Bulk Cargo, Bulk Liquid). Competitive rates, security and 24 hours service operations per day are the forms of offers by Multi Terminal Indonesia for their customers.

3.2.1.2. Container Service

Regional Harbor Container Terminal Division (RHCTD) is a development of the Multipurpose Terminal. It was built specifically to handle the loading and unloading of containers inter islands. After acquired by Multi Terminal Indonesia, Container Terminal developed into an international container terminal for loading and unloading of containers serving ocean going.

The operation of Regional Harbor Container Terminal Division has been supported by information technology, such as CTOS (Container Terminal Operation System) applications, On-Line systems, and wireless systems. In addition to providing convenience to customers RHCTD also provide tracking information via Short Message Service that contains information about the location of containers, handling cost estimate and vessel schedule on the berth.

3.2.1.3. Logistics Service

Multi Terminal Indonesia not only provision of Container Terminal and Multi Purpose Terminal but also the provision of facilities for logistics activities to handle the export / import, custom clearance, consolidation and distribution of goods, storing and project cargo.

3.3.2 Jakarta International Container Terminal (JICT)

Jakarta International Container Terminal (JICT) was established on April 1, 1999 in port of Tanjung Priok, Jakarta, Indonesia. 48.9% shares in the company is owned by Indonesia Port Corporation (IPC), while Hutchinson Ports Holding Group (HPH Group) from Hongkong holds 51% shares, and the Maritime Employees Cooperative

holds 0.1% shares. The main business of the company operate at the Tanjung Priok port that providing container loading and unloading service (export and import) and also transshipment of containers. JICT is the biggest container terminal in Indonesia that handles more than 2.4 million Twenty foot Equivalent Units (TEUs) per year.

JICT always invest in a sustainable manner, whether the yard and quay expansion or yard and quay equipment in order to provide a good service, along with an increased flow of goods that continue to occur in Port of Tanjung Priok every year.

JICT has been accredited to ISO 9002 standards and the first sterile Terminal with safety, clear, and security in all line of its environment. In the case of service, JICT provide 24 hours service per day, all year round to more than 20 shipping lines that give direct routes to more than 25 countries.

3.3.3 Electronic Data Interchange Indonesia (Edi Indonesia)

EDI Indonesia was established on June 1, 1995 as the first company that developing Electronic Data Interchange services in Indonesia. The Company provides Electronic Data Interchange services that are structured data transfer from one computer system to another computer system to facilitate the switching process of transaction data for business entities. EDI Indonesia also provides Value Added Network (VAN) service that give guarantee of data traffic security, system installation and integration, implementation, training and consultancy. EDI Indonesia is 51% owned by Indonesia Port Corporation (IPC) and 49% Sisindosat Lintas Buana, which is a subsidiary of Indosat (Qatar Telecom Group).

EDI Indonesia has more than 17 years experience in provide solutions to customers that implement Value Added Network/VAN, Consultancy in Information Technology, IT Managed Services, Implementation and System Integration, Software Development, and Training. Furthermore, the company also supports international trading activities.

Government agencies, importers, exporters, state enterprises, shipping companies, logistics companies, retail companies, banks, pharmaceutical companies, automotive and insurance are EDI Indonesia's customer. Such as Toyota, Unilever, Nestle, Hypermart, Philips, Coca Cola, Toshiba, Standard Chartered Bank, Citibank etc.. Some ministries in Indonesia also customers of EDI Indonesia (Commerce, Finance, Health, Posts and Telecommunication). All customers which are multinational companies and ministries, need service that connects with their business partners both at domestic and abroad.

PT EDI Indonesia also develop the business network to some e-business provider companies in Europe and Asia countries, such as China's CIECC, NACCS in Japan, KTNNet in South Korea, InterCommerce in the Philippines, and KGH in Sweden that connected to all Europe Union countries. The cooperation of the interconnection between them, allows the companies in the world exchanging information and documents with Indonesia's business partners are secure and reliable.

3.3.4 Port Hospital

Port hospital (*Rumah Sakit Pelabuhan*) is Indonesia Port Corporation's subsidiary that has service in the health sector. The company is 99.52% owned by Indonesia Port Corporation (IPC) and 0.48% by Cooperative of Maritime Employees. Port Hospital established on August 21, 1971 then acquired by Indonesia Port Corporation (IPC) on May 1999 based on decree from Minister of State-Owned Enterprises of Indonesia number S-206/M- PBUMN/1999 dated April 30, 1999. Port Hospital not only serve patients from the Indonesia Port Corporation Group but also has to serve the general public who need treatment. The company are required not only to create profit but also should be able to provide the best service to all patients.

Nowadays, Port Hospital manage four branch of hospitals which are Port Hospital Jakarta, Port Hospital Cirebon, Port Hospital Boom Baru Palembang, and Port Medical Center Jakarta.

3.3.5 Koja Container Terminal (KOJA)

Koja Container Terminal (KOJA) was established in 1998. The majority shareholding is owned by Indonesia Port Corporation (IPC) at 55%. The remaining 45% of which is owned by Hutchison Port Holding Group (HPH Group) from Hongkong. KOJA give high quality services and satisfied their customer by provided the daily operation of the terminal in 24 hours a day, all year round. TPK Koja develop the berth and add more loading and unloading equipment every year to improve the services

TPK Koja is a joint operation between Indonesia Port Corporation II and PT Ocean Terminal Petikemas which was then transferred to Hutchison Ports Indonesia. The joint operation begun in 1998 and to date the Company's ownership percentage is 55%. Within its available areas, TPK Koja is capable of accommodating up to 6,700 TEUs containers for export. In 2003, TPK Koja extended its terminal's berth by 200 meters and provided more loading and unloading equipment for the purpose of

3.3.6 Indonesia Vehicle Terminal

Indonesia Vehicle Terminal (*PT Indonesia Kendaraan Terminal*) was launched on Nov. 28, 2007 as Business Unit and spin off on 2012 from Indonesia Port Corporation (IPC). Indonesia Vehicle Terminal is a subsidiary engaged in car terminal operator in Tanjung Priok port. The company operated dedicated stream of vehicle ships or Roll On Roll Off (RORO) ships. Indonesia Car Terminal is 99% owned by Indonesia Port Corporation (IPC) and 1% by Multi Terminal Indonesia (MTI).

The development of Indonesia Vehicle Terminal designed to make vehicle handling faster and easier and also with due regard to standards under the ISPS Code. The terminal has 3-meter-high perimeter fence, double-layer plastic dust insulation fences and CCTV system. The newest Information System such as bar codes is used in the operation of the company to support a berth-window system.

3.3.7 Indonesia Logistics Community Service (ILCS)

Indonesia Logistics Community Service (ILCS) was established in 2012 with Indonesia Port Corporation (IPC) as the majority shareholding at 51%. The remaining 49% is owned by Telekomunikasi Indonesia. It is cooperation between two Indonesia state owned companies to bring world class logistics system. ILCS provide IT Logistics Solution to support logistics chain in Indonesia.

The purpose if ILCS is to give added value to all logistics players from producer, forwarding, warehousing, shipping, port, transportation to customer. Information Technology is important element to support the quality of supply chain besides warehousing, transportation, port and shipping. The high quality of supply chain will deliver goods with low price and high speed to the customers.

3.3.8 Indonesia Port Energy

Indonesia Port Energy (*PT Energi Pelabuhan Indonesia*) is cooperation between two Indonesia state owned companies to produce and satisfy the needs of electricity in port area. The company is 65% owned by Indonesia Port Corporation (IPC) and 35% by State-owned electricity company (Perusahaan Listrik Negara/PLN). Port Energy Indonesia was established on 2012. PLN and IPC are two state-owned companies, PLN is the biggest and the best company in electricity domains in Indonesia and IPC will consume the goods or services that produce by PEI.

Electricity supply business in the port area is a business that has very promising prospects in Indonesia. To capture the opportunities, Indonesia Port Corporation (IPC) restructure through improvement of existing business segments and the formation of new business segments such as by establishing a subsidiary or business unit quality improvement. As new company, The company have big market especially in port that operate by Indonesia Port Corporation (IPC) and expand the business by take business opportunity in other ports that not operated by IPC.

3.3.9 Equipment Service Indonesia (ESI)

Equipment Service Indonesia (*PT Jasa Peralatan Pelabuhan Indonesia*) was established on May 2012 is 51% owned by Indonesia Port Corporation (IPC) and 49% is owned by Nippon Container Terminals Co., Ltd (NCT) from Japan. The company business segment focusing on repair and maintenance of port equipment.

Indonesia Government pushes all port operators to increase the service in the port and dwelling time should be decreased. Almost all port operator try to increased the productivity of loading and unloading cargo in the port. Buy the proper equipment and the newest is one of solution to increase productivity. In this situation, Equipment service Indonesia (ESI) catch business opportunity. All equipment needs routine maintenance and non routine maintenance. Equipment service Indonesia (ESI) provides routine maintenance to make sure that all equipment will have high utilization and operational readiness operational 24 hours a day 7 hours a week. Non routine maintenance also needs to get fast response to repair the broken equipment.

3.3.10 Port Development Indonesia (PDI)

Port Development Indonesia (*PT Pengembangan Pelabuhan Indonesia*) was launched on 2012 as subsidiary of Indonesia Port Corporation (IPC). Indonesia Port Corporation (IPC) has 99% and 1% is owned by Multi Terminal Indonesia (MTI). Port Development Indonesia (PDI) was set up for boost development of port Infrastructure. High economic growth in Indonesia should be supported by good infrastructure.

There are 3 major projects that are being implemented by the PDI, ie :

4.2.10.1 New Priok Port (Kalibaru Port) in Jakarta, Indonesia

After got 70 years concession permit and the right to continue the operation of the terminal for 25 years from Indonesia Port Authority on August 31, 2012, Indonesia Port Corporation (IPC) start to begin the development of New Priok Port. It is the biggest port project in Indonesia and the project will be held in two phase with an estimated investment value of US\$ 4 billion.

Three container terminals (4.5 million 20-foot equivalent units (TEUs)) and two fuel-product terminals (9.4 million cubic meters of oil and gas products) will be built in the first phase over an area of 195 hectares. In the first phase, Indonesia Port Corporation (IPC) had decided on *Mitsui & Co. Ltd* as investment partner and operation partner that expected to be operating in 2014.

4.2.10.2 *Tanjung Sauh port in Batam, Indonesia*

Tanjung Sauh Port is a project to take part of the big market opportunity in Malacca Strait. It is also an ambitious project to compete with port of Singapore and Tanjung Pelepas in Malacca Strait in the future.

Indonesia Port Corporation (IPC) has Memorandum of Understanding (MoU) with *China Merchants Holdings (International) Co., Ltd* to develop Tanjung Sauh Port. *China Merchants Holdings (International) Co., Ltd* will invest USD 2 billion in the construction of a container and iron ore terminal. The terminal will have capacity for handling four million twenty-foot equivalent unit (TEU) and 100 million metric tons of iron ore.

4.2.10.3 *West Pacific Hub Port – West Papua, Indonesia*

Indonesia Port Corporation (IPC) becomes a leader of consortium to build West Pacific Hub port in Sorong, West Papua. The consortium consists of Indonesia Port Corporation (IPC), *Indonesia Port Corporation IV*, and five shipping companies (*PT Samudera Indonesia Tbk, PT Tanto Intim Line, PT Salam Pacific Indonesia Line., PT Tempuran Emas and PT Meratus Line*).

West Pacific Hub port is a regional hub that will connect Sorong with the eastern part of Indonesia such as Jayapura, Merauke and Bitung and western part of Indonesia such as Jakarta and Surabaya. It also links to other countries such as Papua New Guinea, Timor Leste and Australia.

3.4 Problem case

The establishment of subsidiaries needs to pay attention in several aspects. The feasibility study should be conducted for decide profitable subsidiaries. The bad decisions may result Inefficient subsidiary that not provide benefits for the company as a whole business group.

Indonesia Port Corporation (IPC) has been established for approximately 21 years. During this time, the company has changed from port regulator become Indonesia's largest port operator. Since Shipping Law number 17, 2008 is enforced, IPC is required to transform themselves from land lord to be business entities. With these developments, IPC want to improve the actual work patterns and mindsets to manage and control for those resources owned by organization. Based on survey that made by IPC, the services from IPC are still not meet the customers expectation. Therefore, IPC need to increase the target quality or the targets more emphasis on the achievement of customer satisfaction.

The rapid growth of the company brings the impact to the complex problems, the broader coverage business companies, as well as the amount of responsibility that must be borne. These conditions have an impact to the out of focus or concentration in managing the management of the company, particularly the management of the core activities of the core business or company. That why, the management of IPC have strategy about business unit that have different business procedures should be manage by separate company. Solving strategic management in the form of a new company, so the company is still able to carry out their activities effectively and efficiently. It is common knowledge that the monopoly rights, the bureaucratic pattern and range of control exerted by the state make inefficient to State Owned Companies.

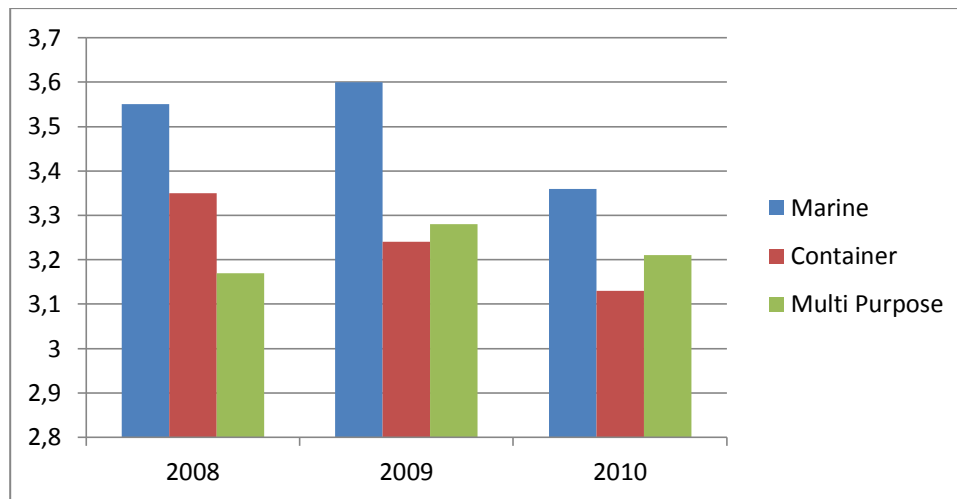


Figure 3.1. Customer Satisfaction Index 2008, 2009 and 2010
 Source : Indonesia Port Corporation

As shown in figure 3.1, the result of Customer Satisfaction Index (CSI) in 2010 is decreased compared with previous years. Marine services has the highest score, which are 3,55 in 2010, 3,60 in 2009 and 3,34 in 2008. Multipurpose services got score 3,17 in 2010, 3,28 in 2009 and 3,21 in 2008 while container services got score 3,35 in 2010, 3,24 in 2009 and 3,13 in 2008.

General speaking, the business unit or division that provides more benefit will have high priority, either services, investment, supervision etc. To solve this problem, management of IPC has several methods for maximize service quality each services. Several potential division or business unit will split as independence corporation so each service will be agile to catch business opportunities. Management of independent subsidiary has the authority to make business decisions with maximum priority based on the core business, both in service, investment and management.

The establishment of a subsidiary should take notice in several aspects such as, market, financial, human resources and operations. Those aspects are indicator so the establishment of subsidiaries deliver more value to the business groups and not inflict a financial loss to the company.

Chapter 4. DATA ANALYSIS AND SOLUTIONS

The data is taken from Indonesia Port Corporation (IPC), both from branch, business unit and head office who develop subsidiaries. The collecting data of division or business unit operation particularly cost and revenue. As for the acquisition using the basic assumption that the acquired company will provide benefits to the company.

4.1. Data Collection

Based on strategic planning, Indonesia Port Corporation (IPC) will set up several subsidiaries engaged in various sectors. Establishment of subsidiaries is expected to improve service and increase profits. The subsidiary will be formed are as follows:

Table 4.1 – Subsidiaries Plans

No	Business	Services	Partner		Type of establishment
			Company Name	From	
1	Indonesia Container Terminal	Container	Indonesia Port Corporation I, III, and IV	Indonesia	Joint venture
2	Maritime and Logistics Training	Education	STC Group	Netherlands	Joint venture
3	Tanjung Priok Multi-Purpose Terminal	MultiPurpose	Multi Terminal Indonesia	Indonesia	Spin Off
4	Marine Service Indonesia	Pilotage	Multi Terminal Indonesia	Indonesia	Spin Off
5	IPC Container Terminal	Container	Multi Terminal Indonesia	Indonesia	Spin Off
6	Indonesia Dredging Corporation	Dredging	-	-	Acquisition
7	New Priok Container Terminal 1	Container	Mitsui & Co. Ltd	Japan	Joint venture
8	New Priok Container Terminal 2	Container	<i>auction</i>	<i>will be selected</i>	Joint venture
9	New Priok Container Terminal 3	Container	<i>auction</i>	<i>will be selected</i>	Joint venture
10	Liquid Product Indonesia 1	Petroleum	<i>auction</i>	<i>will be selected</i>	Joint venture
11	Liquid Product Indonesia 2	Petroleum	<i>auction</i>	<i>will be selected</i>	Joint venture
12	Sorong Container Terminal	Container	Consortium (Indonesia Port Corporation IV, PT Samudera Indonesia Tbk, PT Tanto Intim Line, PT Salam Pacific Indonesia Line., PT Tempuran Emas and PT Meratus Line)	Indonesia	Joint venture
13	Batam Container Terminal	Container	China Merchants Holdings (International) Co., Ltd	PR. China	Joint venture
14	Logistics Park	CDC	KBN Marunda	Indonesia	Joint venture
15	Indonesia Port High Way Co.	Toll Road	Jasa Marga	Indonesia	Joint venture
16	New Priok Container Terminal 4	Container	<i>not yet decided</i>	<i>will be selected</i>	<i>not yet decided</i>
17	New Priok Container Terminal 5	Container	<i>not yet decided</i>	<i>will be selected</i>	<i>not yet decided</i>
18	New Priok Container Terminal 6	Container	<i>not yet decided</i>	<i>will be selected</i>	<i>not yet decided</i>
19	New Priok Container Terminal 7	Container	<i>not yet decided</i>	<i>will be selected</i>	<i>not yet decided</i>

Source : Indonesia Port Corporation (IPC)

Table 4.1 shows 19 subsidiaries that will be created by IPC. It also shows the services, strategic partners, and type of establishment. The subsidiaries will provide several services such as education, container, multipurpose, pilotage and tugs assist, liquid bulk, road toll, cross docking and dredging. Several methods of establishment such as joint venture, spin off, and acquisition are also shown in table 4.1.

Table 4.2 – Subsidiaries Establishments Schedule

No	Business	Plan of Establishment	Progress
1	<i>Indonesia Dredging Corporation</i>	2013	<i>has acquired</i>
2	<i>Indonesia Container Terminal</i>	2013	<i>has operated</i>
3	Maritime and Logistics Training Center, Tanjung Priok Multi-Purpose Terminal, Marine Service Indonesia, IPC Container Terminal	2014	<i>feasibility study</i>
4	<i>New Priok Container Terminal 1, Indonesia Port High Way Corporation</i>	2015	<i>negotiation process</i>
5	<i>New Priok Container Terminal 2 & 3; Liquid Product Indonesia 1 & 2</i>	2016	<i>Auction</i>
6	<i>Sorong Container Terminal, Batam Container Terminal</i>	2017	<i>licensing process</i>
7	<i>New Priok Container Terminal 4, 5, 6 & 7, Logistics Park</i>	2018	<i>Concept</i>

Source : *Indonesia Port Corporation (IPC)*

Based on table 4.2 the establishment's schedule of subsidiaries will be implemented from 2013 to 2018. Indonesia Dredging Co. and Indonesia Container Terminal Co. have been established in 2013. Maritime and Logistics Training Center, Tanjung Priok Multi-Purpose Terminal, Marine Service Indonesia and IPC Container Terminal are on feasibility study stages. New Priok Container Terminal 1 and Indonesia Port High Way Co. are on negotiation stages and will be established in 2015. New Priok Container Terminal 2 and 3, Liquid Product Indonesia 1 and 2 are on auction stages to find the strategic partner and will be established in 2016. Sorong Container Terminal and Batam Container Terminal are on licensing stages and will be established in 2017.

While the other subsidiaries such as New Priok Container Terminal 4, 5, 6 and 7 and also Logistics Park still on design and concept stages.

Nominal data has been converted from Indonesia currency (Rupiah/Rp) to US dollars currency (US \$) and the exchange rate assumed 1 dollar is 9000 rupiah (exchange rate U.S. \$ 1,- = Rp.9.000,-)

4.1.1. Prime Lending Rate

Prime Lending Rate of Corporate Loan and Consumer Loan 2013 in Indonesia is used as assumptions determine discount factor. Table 4.3 and 4.4 presents Prime Lending Rate for Corporate Loan and Consumer Loan. PT.BPD Sulawesi Selatan Dan Barat has the highest prime lending rate for corporate loan with 12,65% while PT Bank Tabungan Pensiunan Nasional has the highest prime lending rate for consumer loan with 18,06%.

Table 4.3. Top 5 biggest Prime Lending Rate for Corporate Loan 2013 in Indonesia

NO	BANK NAME	RATE (%)
1	PT.BPD Sulawesi Selatan Dan Barat	12.65
2	PT Bank Mayapada International	11.37
3	PT Bank Mega, Tbk	11.25
4	PT Bank Mutiara Tbk.	11.00
5	PT. Bank BPD Aceh	10.96

Source : Bank Indonesia

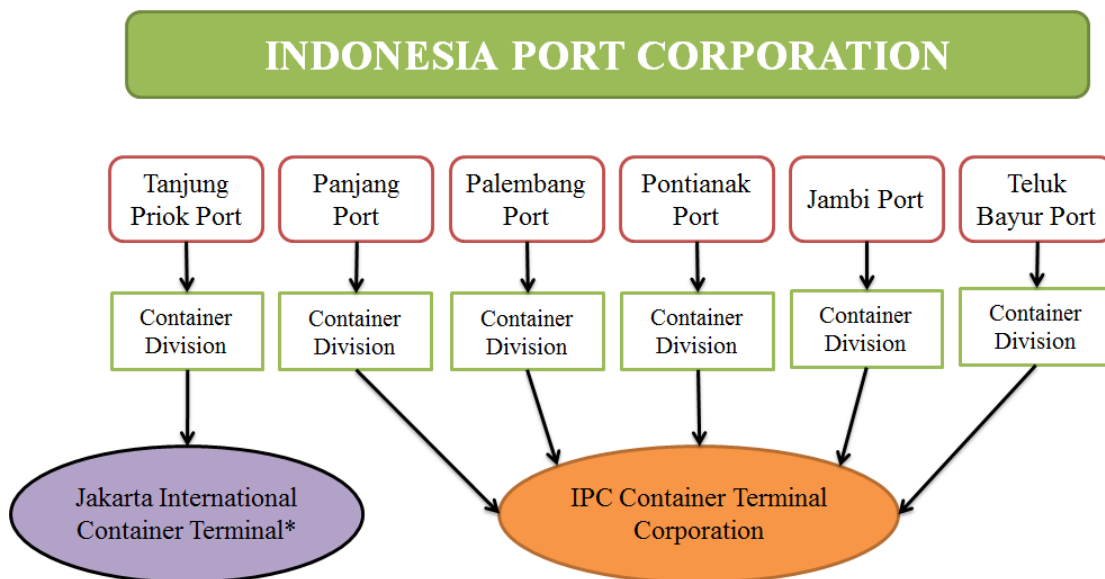
Table 4.4. Top 5 biggest Prime Lending Rate for Consumer Loan 2013 in Indonesia

NO	BANK NAME	RATE (%)
1	PT Bank Tabungan Pensiunan Nasional	18.06
2	PT.BPD Sulawesi Selatan Dan Barat	14.51
3	PT. BPD Papua	12.67
4	PT Bank Mega, Tbk	12.50
5	PT Bank Bukopin	12.50

Source : Bank Indonesia

4.1.2. Data for IPC Container Terminal Corporation

In order to develop container terminal business, diversification is one of several solution that decided by management of Indonesia Port Corporation (IPC). Nowadays, the duty to provide container services performed by container division in Panjang port, Palembang port, Pontianak port, Jambi port and Teluk Bayur port. Container terminal in several port will merged in one company which only focus to provide container services. Previously, container division on Tanjung Priok port separated become independent company namely Jakarta International Container Terminal in 1999 (see figure 4.1).



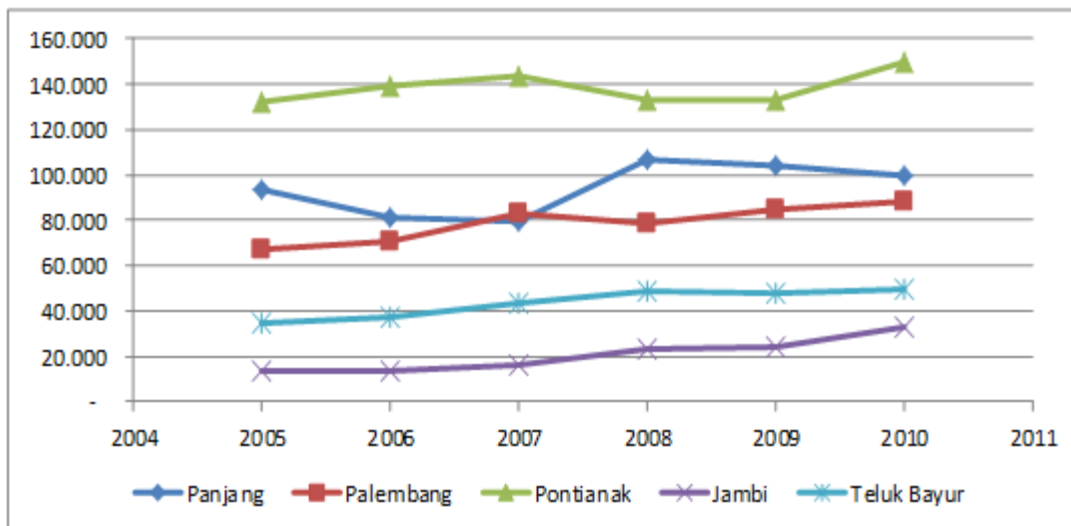
* : Joint Venture Company with HPH Group

Figure 4.1. Concept of IPC Container Terminal Corporation

Source : Indonesia Port Corporation (IPC) and Adapted by Author

4.1.2.1. Container Traffic Flow

Pontinak port has the highest traffic which loading and unloading process reached 150 thousand TEUs in 2010. Panjang port also serves loading and unloading containers above 100 thousand TEUs in 2008 but decreased in subsequent years. Palembang port serve loading and unloading container around 80 thousand TEUs while Teluk Bayur port serve 49 thousand TEUs in 2010. Jambi port has the lowest traffic by serving 32 thousand TEUs in 2010 (see figure 4.2).



No	Port	Teus/Year					
		2005	2006	2007	2008	2009	2010
1	Panjang	93.164	81.545	79.767	106.935	104.175	99.851
2	Palembang	66.996	70.338	82.546	78.469	84.403	87.988
3	Pontianak	132.273	138.991	143.443	132.732	133.419	150.114
4	Jambi	13.319	13.178	16.073	23.267	24.033	32.551
5	Teluk Bayur	34.349	37.700	43.686	48.503	47.633	49.434
	Total	340.101	341.752	365.515	389.906	393.663	419.938

Figure 4.2. Container Throughput in 5 container port
Source : Indonesia Port Corporation (IPC)

4.1.2.2. Tariff

Each port has different rates, where there are dollar rate and rupiah rates. Table 4.5 shows that Panjang port has average tariff US\$ 118,78 because frequently visited by large ships and foreign vessels, so the dollar rate can be applied. While the ports of Jambi, Pontianak and Teluk Bayur collect average tariff 47,37; 90,66 and 48,00 respectively because more often visited by Indonesian-flagged vessels. In the other hand, there are Government policies which Indonesian-flagged vessels were given incentives to protect domestic shipping industries. The following are average rates applied annually that has been convert to US dollar. The average rate means tariff per

Teus and average of application of tariff on US dollar and Indonesia rupiah applied currency.

Table 4.5. Tariff in 5 container terminal (US \$) per 2012

	Panjang	Palembang	Pontianak	Jambi	Teluk Bayur
Tariff	118,78	116,41	90,66	47,37	48,00

Source : Indonesia Port Corporation (IPC)

4.1.2.3. Direct Costs incurred in 5 container terminal

Data of costs in the terminal consists of costs incurred by terminal operator and costs incurred by the customer in 5 container terminal from 2004 to 2010. The direct costs related to the terminal operator are the expenses for providing container terminal services (facilities and equipment).

Table 4.6. Direct Cost of Container Terminal in Panjang, Palembang, Pontianak, Jambi and Teluk Bayur (US \$)

No	Year	Total Cost (US \$)
1	2004	4.317.542
2	2005	5.447.887
3	2006	6.392.529
4	2007	7.167.087
5	2008	7.631.072
6	2009	10.429.760
7	2010	9.953.644

Source : Indonesia Port Corporation (IPC)

4.1.2.4. Investment of IPC Container Terminal Corporation

The investment is calculated accordance the proper requirements. Existing assets assessed based on the book value while investment such as equipment and buildings calculated based on proper needs by department who have expertise. Total investment for the establishment of IPC container terminal is US \$178 million as presented in table 4.7.

Table 4.7. Investment for IPC Container Terminal Corporation (US \$)

No	Asset	Value (US \$)
1	Port Facilities	4.947.469
2	Building	120.000.000
3	Equipment	53.500.000
		178.447.469

Source : Indonesia Port Corporation (IPC)

4.1.2.5. Organization Structure of Container Division

The operation of container terminal is managed by Operation Director. For implementation, Operations Director assisted by Container Head and 2 manager. While, the container operations in branches performed by Division Head and 2 Vice Division Head (see figure 4.3).

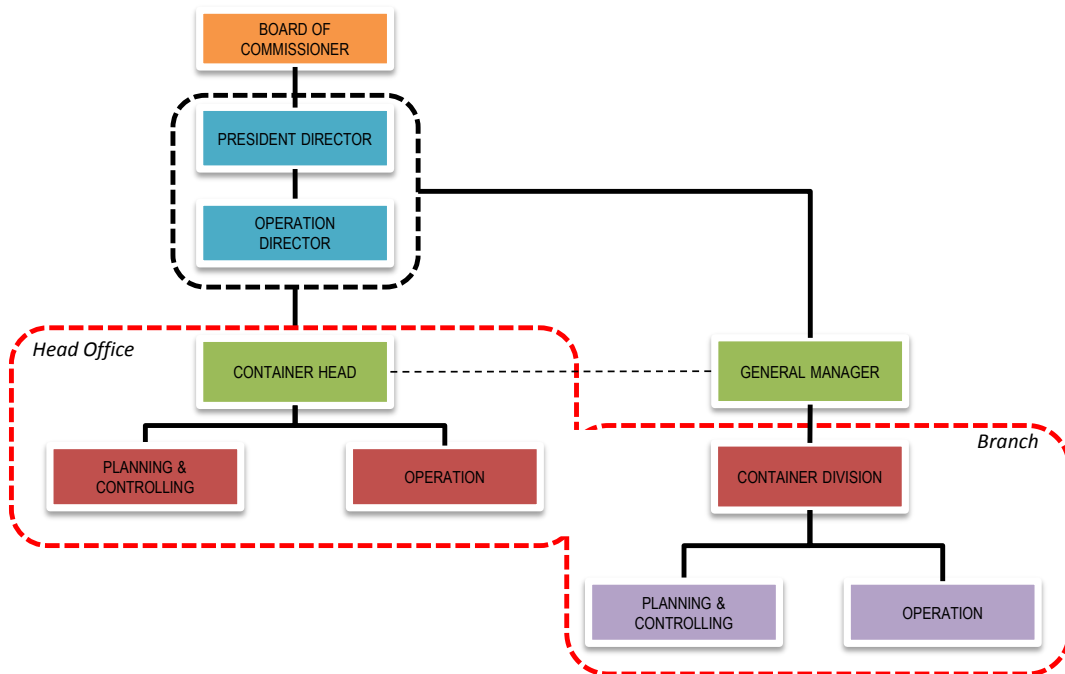


Figure 4.3. Organization Structure of Container Services

Source : Indonesia Port Corporation (IPC)

4.1.3. Indonesia Marine Service Corporation

The development of marine services such as pilotage, towage, anchoring, tug assist etc, Indonesia Port Corporation (IPC) choose diversification growth. 11 from 12 port that managed by Indonesia Port Corporation are mandatory for pilotage. The pilotage

services is to make sure the vessel will be safe through the groove to the berth and vice versa. Nowadays, the duty to provide marine services performed by pilotage division (see figure 4.4).

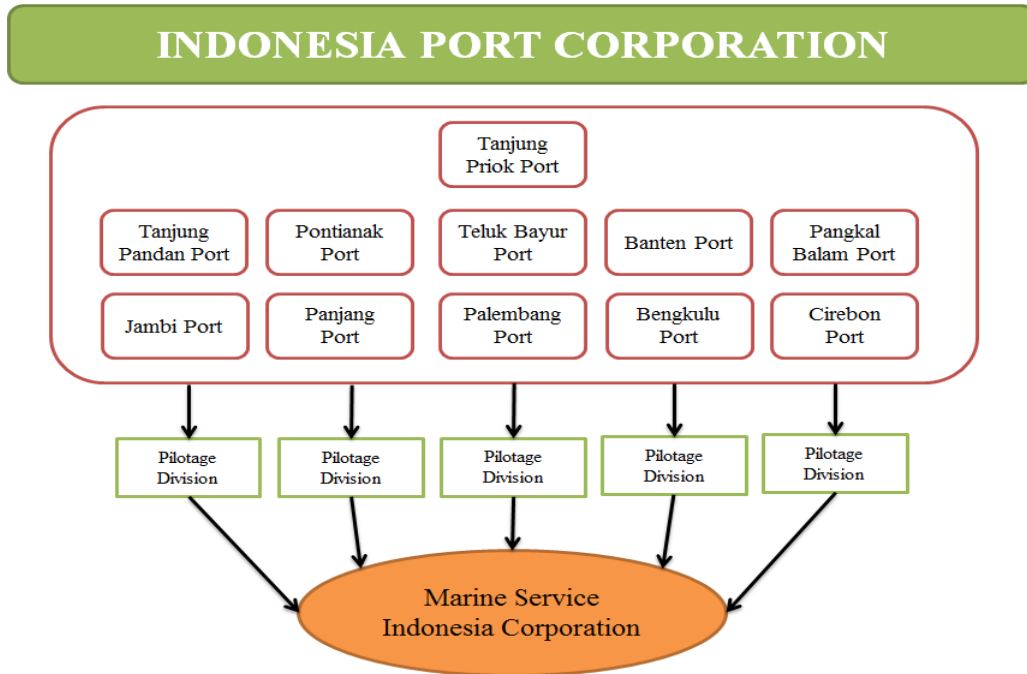


Figure 4.4. Concept of Indonesia Marine Service Corporation
 Source : Indonesia Port Corporation (IPC) and Adapted by Author

4.1.3.1. Investment of Indonesia Marine Service Corporation

The investment is calculated accordance the proper requirements. Existing assets assessed based on the book value while investment such as equipment and buildings calculated based on proper needs by department who have expertise. Total investment for the establishment of Marine Services Corporation is US \$95 million as presented by table 4.8 while table 4.9. shows in details the existing assets which have 33 tugboat, 25 pilot boat and 809 employees

Table 4.8. Investment for Indonesia Marine Service Corporation

No	Item	Value (US \$)
1	Existing Assets	24.001.900
2	Investment of Tugboat	68.000.000
3	Utilities	3.400.000
	Total	95.401.900

Source : Indonesia Port Corporation (IPC)

Table 4.9. Vessels and Human Resources in Pilotage Division

Branch	Vessels		Human Resources			
	Tug Boat	Pilot Boat	Pilot	Rating	Radio Operator	Back Office
Tanjung Priok	15	7	41	243	28	24
Panjang	5	3	7	83	5	13
Palembang	2	4	27	59	6	10
Teluk Bayur	4	2	8	48	5	9
Banten	4	2	7	62	17	6
Pontianak	1	3	17	24	4	1
Bengkulu	1	1	2	15	1	2
Cirebon	1	1	3	9	2	2
Jambi	0	1	7	0	4	3
Pk. Balam	0	0	2	0	0	1
Tg. Pandan	0	1	1	0	0	1
TOTAL	33	25	122	543	72	72

Source :Pilotage Divisions, Indonesia Port Corporation (IPC)

4.1.3.2. Revenue and Direct Costs in 11 pilotage division

Data of revenue and costs in pilotage division consists of costs incurred by marine services from 2004 to 2011 shown in table 4.10. The direct costs related to the marine services are the expenses for providing pilotage, towage, tug assist etc. In 2011, marine services give the highest income which is 40 million while the cost straight down form the 23 million compare with previous years due to the efficiency has been improved.

Table 4.10. – Revenue and Cost of Pilotage Division in 11 branches

Year	Total Revenue (US \$)	Total Cost (US \$)
2004	22.364.180	18.602.853
2005	27.020.698	21.075.132
2006	29.206.298	26.858.654
2007	29.387.801	24.240.782
2008	31.653.954	25.948.316
2009	34.148.755	24.738.853
2010	36.367.125	24.363.160
2011	40.885.973	23.804.260

Source : Indonesia Port Corporation (IPC)

4.1.3.3. Organization Structure of Pilotage Division

The operation of ship services is managed by Operation Director. For implementation, Operations Director assisted by Pilotage Head and 2 managers. While, the marine services operations in branches performed by Division Head and 3 Vice Division Head (see figure 4.5).

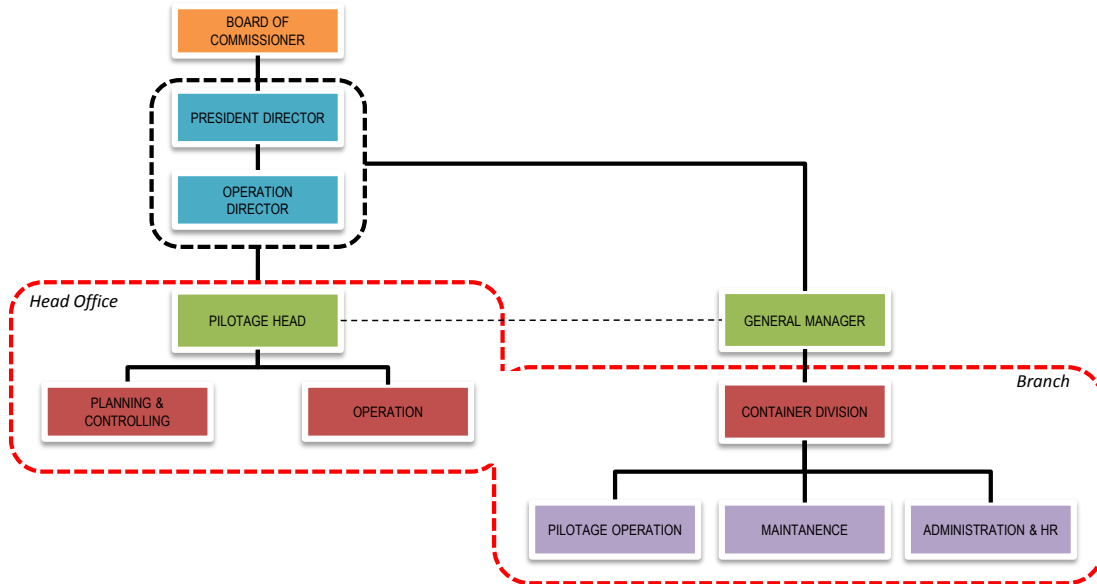


Figure 4.5. Organization Structure of Pilotage Services

Source : Indonesia Port Corporation (IPC)

4.1.4. Data for Tanjung Priok Multi Purpose Terminal

Previously, terminals 1, 2 and 3 in Tanjung Priok port is not managed properly. Indonesia Port Corporation (IPC) only act as land lord and rent it to private sector. After Shipping law number 17, 2008 applied, Board of Director and General Manager Tanjung Priok port decided to manage the fullest. Proper management makes both terminals lead to increased revenue significantly (see figure 4.6).

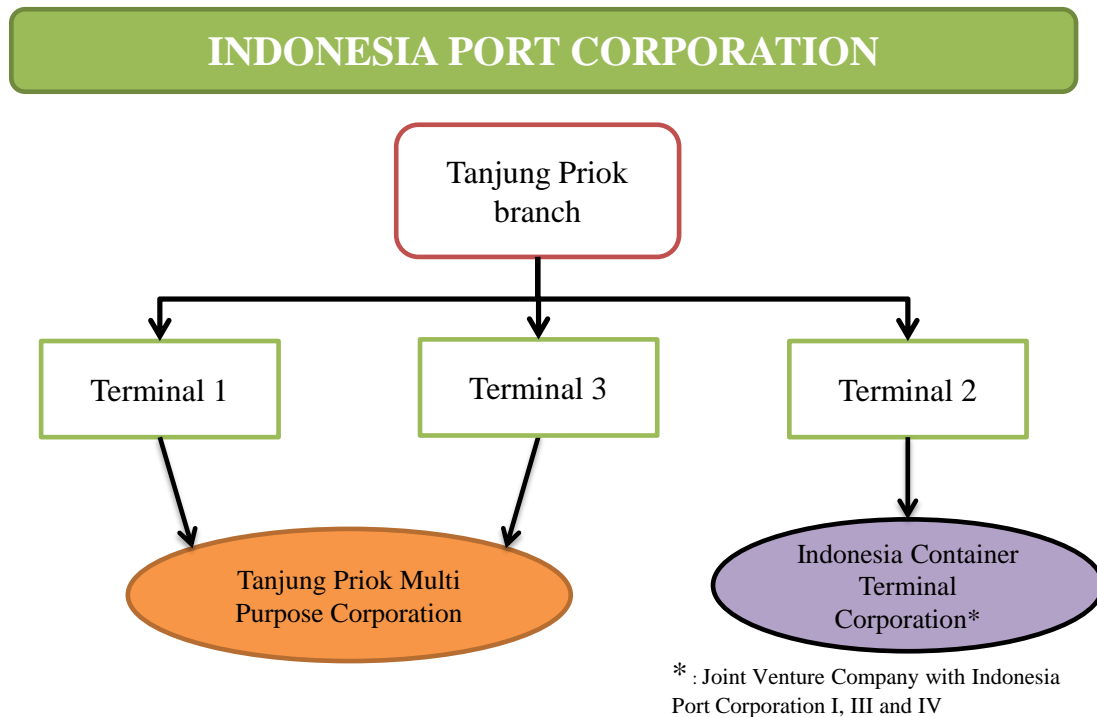


Figure 4.6. Concept of Tanjung Priok Multi Purpose Corporation
 Source : Indonesia Port Corporation (IPC) and Adapted by Author

Terminal 2 has been used as a separate company namely Indonesia Container Terminal (*PT Petikemas Indonesia*). It is joint venture company with the Indonesia Port Corporation I, III and IV. While, terminal 1 and 3 will be created separate companies namely Tanjung Priok Multi Purpose Corporation.

4.1.4.1. Investment of Tanjung Priok Multi Purpose Corporation

The investment is calculated accordance the proper requirements. Existing assets assessed based on the book value while investment such as equipment and buildings calculated based on proper needs by department who have expertise. Total investment for the establishment of Tanjung Priok Multipurpose Corporation is US \$141 million as presented by table 4.11 while table 4.9. shows in details the existing assets which have total area 871.000 m², length of berth 6.515 m², Number of Berth 41, yard size 175.563 m² and warehouse size 34.900 m².

Table 4.11. Investment for Tanjung Priok Multi Purpose Corporation

No	Item	Value (US \$)
1	Port Facilities	30.237.253
2	Equipment	110.000.000
3	Utilities	1.375.000
	Total Assets	141.612.253

Source : Indonesia Port Corporation - Tanjung Priok Branch

Table 4.12. Summary of Multi Purpose Facilities in Tanjung Priok Branch

No	Services	Area (m ²)	Length (m ²)	Number of Berth (berth)	Yard Size (m ²)	Size of Warehouse (m ²)
1	Multipurpose	269.750	2.925	16	92.554	34.900
2	Container	513.750	2.877	19	57.122	-
3	Vehicle	40.000	303	3	8.435	-
4	Passenger	42.500	375	2	14.202	-
5	Heavy Equipment	5.000	35	1	3.250	-
		871.000	6.515	41	175.563	34.900

Source : Indonesia Port Corporation - Tanjung Priok Branch

4.1.4.2. Traffic Flow

Multipurpose facilities has capacity 14,4 million ton/m³ while Loading and unloading process of Multipurpose reached 2,5 million ton/m³ in 2012. The maximum capacity of container is 5,47 million Teus and the realization loading and unloading containers is above 1,6 million Teus in 2012. Terminal 1 and 3 of Tanjung Priok port also serve loading and unloading vehicle around 745 thousand unit with maximum capacity is 1,6 million unit, 505 thousand head with maximum capacity is 960 thousand head and 69 thousand heavy equipment with maximum capacity 78 thousand in 2012. As can be seen in table 4.13, the highest traffic occurred in 2012. Table 4.13 shows the traffic of dry bulk, break bulk, vehicle, liquid bulk, general cargo, passenger, container (domestic and international) and heavy equipment in terminal 1 and 3 Tanjung Priok Branch from 2005 to 2012.

Table 4.13. Traffic of Multi Purpose, Container, Vehicle, Passenger and Heavy Equipment in Tanjung Priok Branch

Year	Multi-Purpose (Ton/M ³)	Container (Teus)	Vehicle (Unit)	Passenger	Heavy Equipment (Unit)
Max Capacity per year	14.400.000	5.472.000	1.620.000	960.000	78.000
2005	1.671.771	987.399	769.093	425.098	60.990
2006	1.911.584	1.093.374	834.663	459.803	62.039
2007	2.256.307	1.209.847	879.684	534.987	63.544
2008	2.285.829	1.456.230	600.459	575.496	65.311
2009	2.112.171	1.135.755	635.897	420.772	63.499
2010	2.242.303	1.200.534	650.962	423.951	64.560
2011	2.379.966	1.443.675	702.876	427.188	65.098
2012	2.527.729	1.654.352	745.889	505.934	69.845

Source : Indonesia Port Corporation - Tanjung Priok Branch

4.1.4.3. Tariff of 5 Services in Tanjung Priok Branch

Each services in terminal 1 & 3 Tanjung Priok have different rates, that shown in table 4.14. The average rate means tariff per Teus for container, tariff per head for passenger, tariff per unit for vehicle and heavy equipment. Tariff of Multipurpose is obtainable from average tariff of dry bulk, break bulk, liquid bulk and general cargo services.

Table 4.14. Average Rate of Multi Purpose, Container, Vehicle, Passenger and Heavy Equipment in Tanjung Priok Branch

Year	Multi-Purpose (US \$)	Container (US \$)	Vehicle (US \$)	Passenger (US \$)	Heavy Equipment (US \$)
2012	10,03	46,45	5,76	1,01	2,62

Source : Indonesia Port Corporation - Tanjung Priok Branch

4.1.4.4. Direct Cost in Terminal 1 & 3 Tanjung Priok Port

Data of costs in terminal 1 & 3 Tanjung Priok consists of costs incurred by terminal operator. Table 4.15 shows the direct costs related to the terminal operator are the expenses for providing container terminal services from 2005 to 2011.

Table 4.15. Cost in Terminal 1 & 2, Tanjung Priok Port

Year	Direct Cost
2005	41.427.958
2006	50.532.826
2007	56.206.045
2008	59.686.363
2009	66.882.341
2010	68.958.983
2011	70.559.930

Source : Indonesia Port Corporation (IPC)

4.1.4.5. Organization Structure of Terminal 1 & 3 Tanjung Priok Port

The operation is the managed by General Manager of Tanjung Priok Port. For implementation, General Manager assisted by Deputy General Manager and 3 managers per terminal (see figure 4.7).

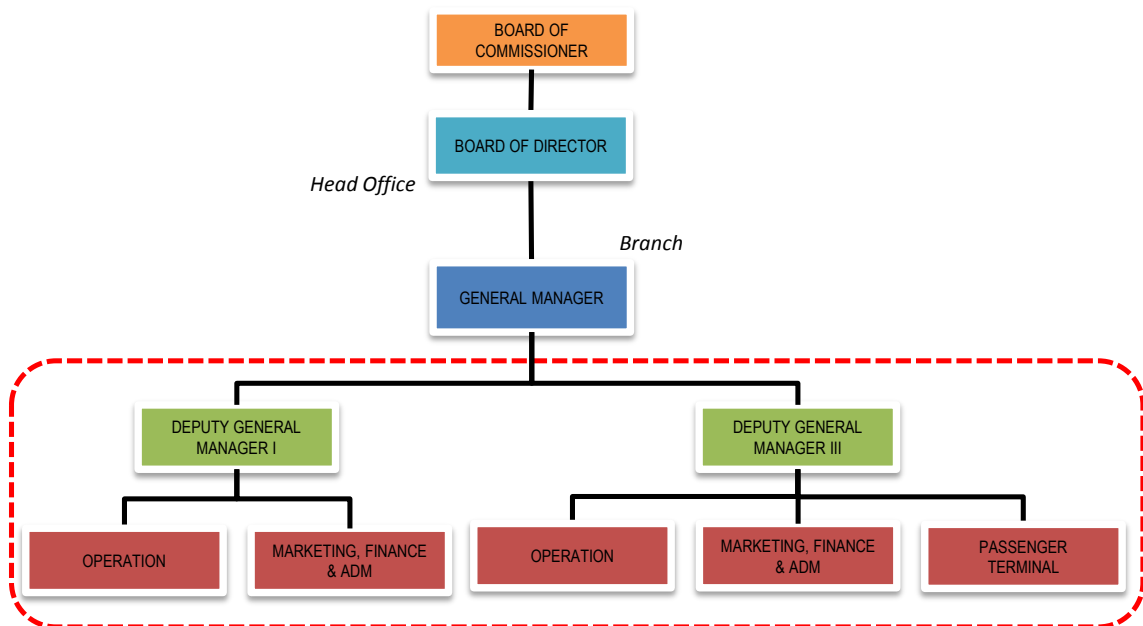


Figure 4.7. Organization Structure of Terminal 1 & 2, Tanjung Priok Port

Source : Indonesia Port Corporation (IPC)

4.1.5. Maritime and Logistics Training Corporation

In order to develop the duty to conduct training for employees, Port Training Center (Pusat Pelatihan Kepelabuhanan) will be spin off. Port Training Center (Pusat Pelatihan Kepelabuhanan) is an education and training center for human resources who work in the port and maritime industry. Based on business strategy port training center should be enhanced become independent business entities in order to develop business (see figure 4.8).

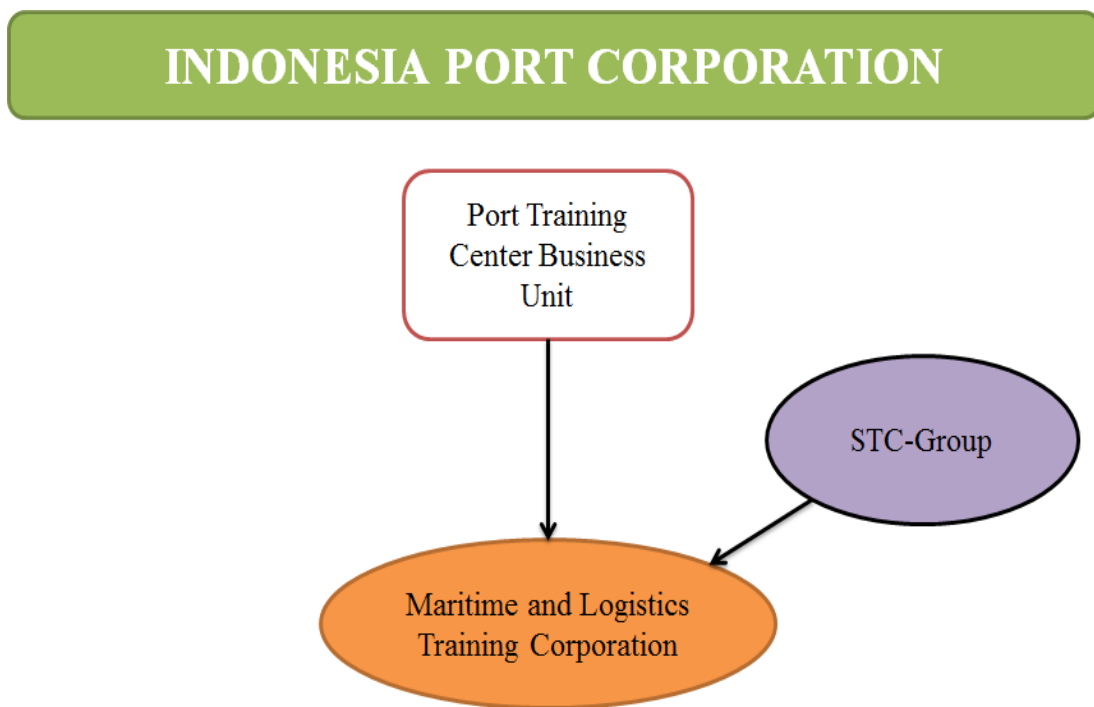


Figure 4.8. Concept of Maritime and Logistics Training Corporation

Source : *Indonesia Port Corporation (IPC) and Adapted by Author*

To ensure the quality of the new company, Indonesian Pot Corporation will establish a joint venture company by cooperating with strategic partners. STC group has been chosen as a strategic partner to succeed in this business plan. The STC-Group is training provider in maritime, shipping, port and transport sector in several countries such as Netherlands, Korea, Vietnam, South Africa, the Philippines, Brazil and Oman. STC-Group offering education, Master's program, certified training, research and consultancy in maritime sector.

4.1.5.1. Investment of Maritime and Logistics Training Corporation

The investment is calculated accordance the proper requirements. Existing assets assessed based on the book value while investment such as equipment and buildings calculated based on proper needs by department who have expertise. Total investment for the establishment of Maritime and Logistics Training Corporation is US \$16,35 million as presented by table 4.11.

Table 4.16. Summary of Maritime and Logistics Training Center's Investments as agreed between IPC and STC

No	Investment	Value (US \$)
1	Building	8.250.000
2	Ship simulator	1.250.000
3	Crane Simulator	1.150.000
4	Part Task Simulator	250.000
5	Technical Training Lab	250.000
6	Safety Training Centre Area	250.000
7	Renovation Existing Building	250.000
8	Information Technology	1.150.000
9	Land Expansion	1.150.000
10	Module (15)	1.700.000
11	License	700.000
	Total	16.350.000

Source : Indonesia Port Corporation (IPC)

4.1.5.2. Training Participant

Several training have been carried out by the Port training center consists of general training and simulator training. Table 4.17 shows the data of training participant in Port Training Center from 2003 to 2012. The participants are employees in maritime companies and mostly are from IPC group. Several general trainings have been held such as Improving Port Performance (IPP) and simulator trainings also have been held pilotage training etc. In 2012, PTC held a several general training with average tariff US\$ 389 per person, while for simulator training offered at US\$ 666 per person.

Table 4.17. General and Simulator Training participant in Port Training Center Unit

No	Year	General Training	Simulator Training
1	2003	2115	80
2	2004	2315	95
3	2005	2453	90
4	2006	2560	95
5	2007	2430	101
6	2008	3180	165
7	2009	4310	250
8	2010	4520	330
9	2011	4760	360
10	2012	4910	620

Source : Indonesia Port Corporation (IPC)

4.1.5.3. Operation Cost

Operation cost in Maritime and Logistics center consist of labor cost, material cost, maintenance cost, administration cost, general cost and lecturer cost in 2012 is US \$ 1,137,790.55. The calculation of operation cost will be supported with inflation on education sector in Indonesia on 2006 to 2012 that shown in table 4.18.

Table 4.18. Inflation of Education Sector

No	Year	Inflation (%)
1	2006	8,13
2	2007	8,83
3	2008	6,66
4	2009	3,89
5	2010	3,29
6	2011	5,16
7	2012	4,21

Source : Indonesia Central Bureau of Statistics

Table 4.19 describe the education costs continue to rise in Indonesia, there are some survey conducted to determine the percentage of tuition fees. Cost of education in Indonesia reached 25% per years. It is the highest percentage compared with Malaysia 2%, Thailand -1% and Philippine 10%.

Table 4.19. Cost of Education in 4 ASEAN countries

No	Country	2000-2009	Per year	Per month
1	Indonesia	227%	25%	2%
2	Philippine	90%	10%	1%
3	Malaysia	17%	2%	0%
4	Thailand	-11%	-1%	0%

Source : Kompas (Published on August 31, 2009)

4.1.4.4. Organization Structure of Port Training Center Business Unit

The operation is managed by Port Training Center Head. For implementation, Port Training Center Head assisted by 3 managers (see figure 4.9).

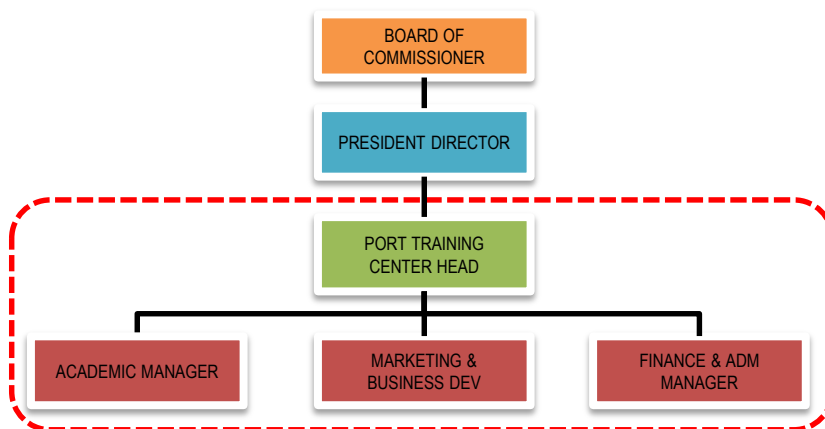


Figure 4.9. – Organization Structure of Port Training Center

Source : Indonesia Port Corporation (IPC)

4.2. Analysis of 4 Subsidiaries

This Sub Chapter will be displayed the analysis of the available data. The analysis in this chapter will consist of :

- Marketing analysis (Porter Force, SWOT analysis)
- The analysis of potential revenue, cost, Net Present Value (NPV), Internal rate of return (IRR) and Payback Period.
- The analysis of human resources.
- The analysis of Vertical and Horizontal operation

For the calculation, author make several assumptions as explained as follows:

- a. Rate used is the average rate because there are similar kinds of services with different rates.
- b. The investments are assessed by competent peoples, The calculation made based on proper operation, both capacity and equipment.
- c. Future tariff for Tanjung Priok Multi Purpose will increase every 3 years except tariff for passenger. Because mostly customers are foreign flagged vessels. Tariff for passengers vessel is assumed to not increase because most of the passengers are peoples with low economy class, besides the development of low-cost flights made tremendous pressure to national cruises
- d. Future tariff for IPC Container Terminal always same because it is difficult to increase tariff, especially for Indonesian-flagged vessels. Tripartite Agreement, between government, associations and IPC is needed. Mostly customer in 5 container terminal are Indonesia shipping companies that have cabotage right.

4.2.1. Marketing Model

4.2.1.1. IPC Container Terminal Corporation

A. Analysis of Strengths, Weaknesses, Opportunity and Threats (SWOT)

a) Strengths

- 1). Experienced in managing several ports especially container terminal
- 2). Have been operate so it does not require adjustment of operational and managerial massively, only adjustments in status from division to subsidiary
- 3). Container terminal has a loyal customers

b) Weaknesses

- 1). The facilities, equipment and information technology need to improved
- 2). The flexibility to develop business segment is limited
- 3). Differences rates service each branches thus creating inconsistency.
- 4). The knowledge and profesionalisme of human resources need to improve

c) Opportunity

- 1). Indonesia is archipelago country so sea transport is the main transportation and container is easy to connected with land transportation.

- 2). In general, global and Indonesia economic conditions is sufficient to support business growth in Indonesia, especially in industrial and trade sectors
- 3). The tendency of container traffic is increasing in worldwide

d) Threats

- 1). The emergence of competitors with similar facilities

B. Analysis of Porter

Porter Analysis used for analyzes Container Terminal industries in the future to identify the industry attractiveness.

a) Threat of New Entrants/Potential Competitors - *Low Pressure*

Entry barriers are relatively moderate for container terminal business. Container terminal business needs huge capital. The majority of market share controlled by old player but after the Shipping Law number 17, 2008 published, several overseas companies want to invest massively on container terminal business in Indonesia. But port investment need long and high commitment from the investor to comply all regulation both central and local government.

b) Threat of Substitute Products - *Low pressure*

Nowadays, a conventional terminal service is substitute cargo handling in the port but conventional terminal services less attractive because container terminal give quick service and secure. It proved by containerized in shipping industries, handling container cargo faster than conventional services. In addition, cargo in containers relatively more secure from damage or loss.

c) The Bargaining Power of Buyers - *Moderate pressure*

Containerized become attractive, several consumer prefer to use container services to send cargo from one port to other port. The shipping companies also offer container services with competitive prices. This phenomenon causes container handling services in the port are needed. However, buyer able to switch to the other container terminal to get better container handling services.

d) The Bargaining Power of Suppliers - *High pressure*

Regarding cargo owner as a king and several competitor in container handling services in the port, therefore, maintaining good relationship with suppliers is crucial for smooth running of the container terminal business in the future. The management of container terminal should offer best services to supplier.

e) Rivalry Among Existing Firms - *High Pressure*

The existing competitors always improve their services to customer and try to increase the market share. The competitors improve the existing facilities with the newest equipment and technology. Moreover, the potential competitors will enter in container business in the future with comparative advantages.

4.2.1.2. *Indonesia Marine Service Corporation*

A. Analysis of Strengths, Weaknesses, Opportunity and Threats (SWOT)

a) Strengths

- 1). Experienced in pilotage services, tug assist, towage, marine logistic etc
- 2). Has been known and has broad market
- 3). Human resources are skilled and experienced

b) Weaknesses

- 1). Need to improve the performance, both in service, operational and financial
- 2). The flexibility to develop business segment is limited
- 3). Not maximize the Information technology that already owned
- 4). The knowledge and profesionalisme of human resources need to improve

c) Opportunity

- 1). Indonesia is archipelago country so sea transport is the main transportation
- 2). Indonesia will have several new ports such as New Priok Port, Sorong, and Batam
- 3). Have a captive market such as IPC-Group

d) Threats

- 1). The emergence of competitors with similar facilities

B. Porter Analysis

a) Threat of New Entrants/Potential Competitors – *Moderate Pressure*

Although requires a business huge capital, expertise and long experience for enter the marine and fleet business, but the port traffic always growth so several potential competitors wish to compete with existing player.

b) Threat of Substitute Products - *Low pressure*

Nowadays, there are no substitute for organize pilotage services which provided by Indonesia Marine Service. International and Indonesia regulation support the obligation of pilotage in several ports and there is no other service that able to use as an alternative.

c) The Bargaining Power of Buyers - *Moderate pressure*

Although several competitors will emerge in this business in the future, but Indonesia Marine Service remains the largest and experienced as pilotage services provider in Indonesia.

d) The Bargaining Power of Suppliers - *High pressure*

The existence of international and local regulations concerning pilotage, port operator should provide pilotage on some mandatory pilotage ports. Supply will always be available, but there are intense competitions to get the supply. Maintaining good relationship with suppliers is crucial for smooth running of the pilotage business in the future. The management of Indonesia Marine Service should offer best services to supplier.

e) Rivalry Among Existing Firms - *High Pressure*

The existing competitors will offer best service with zero accident. Potential competitors also need to note but this business requires expertise and long experience so the competition will come from abroad companies. But sea area in Indonesia very large, causing the market is not yet saturated and competition will not very tight at this time.

4.2.1.3. Tanjung Priok Multi Purpose Corporation

A. Analysis of Strengths, Weaknesses, Opportunity and Threats (SWOT)

a) Strengths

- 1). Experienced in managing ports especially port of Tanjung Priok
- 2). Have been operate so it does not require adjustment of operational and managerial massively, only adjustments in status from branch to subsidiary

b) Weaknesses

- 1). Inadequate facilities and equipment several aspects such as the capacity of the terminal, maintenance management system for equipment, land transportation fleet and equipment support
- 2). The flexibility to develop business segment is limited
- 3). Not maksimize the Information technology
- 4). The knowledge and profesionalisme of human resources need to improve

c) Opportunity

- 1). Indonesia is archipelago country so sea transport is the main transportation
- 2). In general, global and Indonesia economic conditions is sufficient to support business growth in Indonesia, especially in industrial and trade sectors
- 3). The tendency of traffic is increase through the Port of Tanjung Priok

d) Threats

- 1). The emergence of competitors with similar facilities

B. Porter Analysis

a) Threat of New Entrants/Potential Competitors – *Low Pressure*

Port investment required high capital and long duation of payback period. In addition, regulation for establish port company very tight. It need long and high comitment from the investor to comply all regulation both central and local government.

b) Threat of Substitute Products - *Low pressure*

Tanjung Priok Multi-Purpose Corporation will offer several services for handling cargo and the services not have substitute product. Moreover, Tanjung Priok Multipurpose has experienced in port industry.

c) The Bargaining Power of Buyers - *Moderate pressure*

Tanjung priok port is the biggest port in Indonesia, and several port operator companies are operate in this port. Customer have power to choose best services from the operator companies in Tanjung Priok port. But for customer who needs specific services will not have power to switch from Tanjung Priok Multi Purpose Corporation to other port operator companies.

d) The Bargaining Power of Suppliers - *High pressure*

Regarding cargo owner as a king and several competitor in cargo handling services in the port, therefore, maintaining good relationship with suppliers is crucial for smooth running of the container terminal business in the future. The management of container terminal should offer best services to supplier.

e) Rivalry Among Existing Firms - *High Pressure*

The existing competitors always improve their services to customer and try to increase the market share. The competitors improve the existing facilities with the newest equipment and technology. Eventhough, the potential competitors will enter in container business in the future with comparative advantages.

4.2.1.4. Maritime and Logistics Training Corporation

Mostly port business is depend on newest technology and the productivity of human resources. In this opportunity, Indonesia Port Corporation want to create best human resources in maritime sectors. The needs of labor with high skills and wide knowledge continues to increase.

The recruitment in Indonesia Port Corporation (IPC) is designed for recruit individuals most competent but the individual may not consistent throughout their careers. Such as changes in technology, infrastructure, procedures, competition, knowledge and innovation, as well as the demands that are placed on certain jobs in the port industry. Such changes could also create jobs and new disciplines for the traditional port industries. So all labor need to get training for improvement.

Nowadays, The duty to conduct training for employees conducted by a business unit that is Port Training Center (Pusat Pelatihan Kepelabuhanan). It is an education and

training center for human resources who work in the port and maritime industry. Based on business strategy port training center should be enhanced become independent business entities in order to develop business.

A. Analysis of Strengths, Weaknesses, Opportunity and Threats (SWOT)

a) Strengths

- 1). Experienced in cooperation with international institutions
- 2). Reliable competence in port and maritime sector
- 3). Supported by experienced experts as instructor and teacher

b) Weaknesses

- 1). The condition of facilities and school buildings inadequate right now
- 2). Modules and literatur of education program have to updated
- 3). Existing simulator need to upgrade (old technology)
- 4). Simulator equipment for training loading and unloading have to added.
- 5). Port & logistics education center less well known and less attractive in the market

c) Opportunity

- 1). Indonesian regulations which contained in Shipping law number 17. It is extension of International rules about port workers have to certified
- 2). Special assignment from Ministry of Transportation for mandatory training about port
- 3). The need of human resources who have port and logistics expertise

d) Threats

- 1). Regulations make foreign companies allow to provide similar services
- 2). Existing Education institution has market share

B. Analysis of Porter

Porter Analysis used for analyzes Maritime & Logistics industries in the future to identify the industry attractiveness.

a) Threat of New Entrants/Potential Competitors - *High Pressure*

Entry barriers are relatively high for the maritime and logistics education. It proven by the other institutions that already have majors and offers skills in the

field of port and logistics. The existing schools in Indonesia had high competitiveness especially in giving maritime and port education. Ex sailor become teacher or facilitator in some existing education provider. Moreover, cooperation with overseas universities also best way to reached high quality of education. The new maritime and port schools should have competitive qualified material to compete with existing training center.

b) Threat of Substitute Products - *High pressure*

Strong and tight competition make every similar business entities offer new services and products with different methods. There are many kinds of training of information-based products that can be obtained on-line. People can find knowledge from internet and online training about maritime and logistics from overseas provider. This kind product will offered with low price but still maintaining quality.

c) The Bargaining Power of Buyers - *Low pressure*

Although so many competitors or will appear, but Maritime and Logistics Training remains the first place that offers studies specific in port. Maritime and Logistics has a lot of high class facilities, simulation, internship, and real field studies. World class academics shown with Teacher, instructor, lecturer, professor who have world class qualification from STC-Group. Experienced practitioners from Indonesia Port Corporation (IPC). High qualified graduates make the companies looking for workers will not doubtful to recruit.

d) The Bargaining Power of Suppliers - *Low pressure*

Many educational institutions will offer similar services to consumers, but only a few institution will give assurance to offer high qualification after graduation. Scholarship from IPC-Group (Corporate Social Responsibility Program) be appeal become student in maritime and logistics training.

e) Rivalry Among Existing Firms - *High Pressure*

In this situation, Maritime and logistics institute have to all out, the competitors more experienced, reputation and alumni that give influence to the market. Accreditation and awards become target to be achieved and will increased the grade of the institute.

4.2.2. Finance Model

4.2.2.1. IPC Container Terminal Corporation

A. Total Revenue on 5 Container Division

a) The Forecasting of Container Traffic Flow

The prediction of revenue based on the container traffics and the container traffics per Teus will be done in the three ways (depressed, normal and boom). Container traffics data from 2005-2010 are using for predict traffic in the future. The forecasting of container traffics from 2013 to 2028 described in figure 4.10, 4.11, 4.12, 4.13 and 4.14.

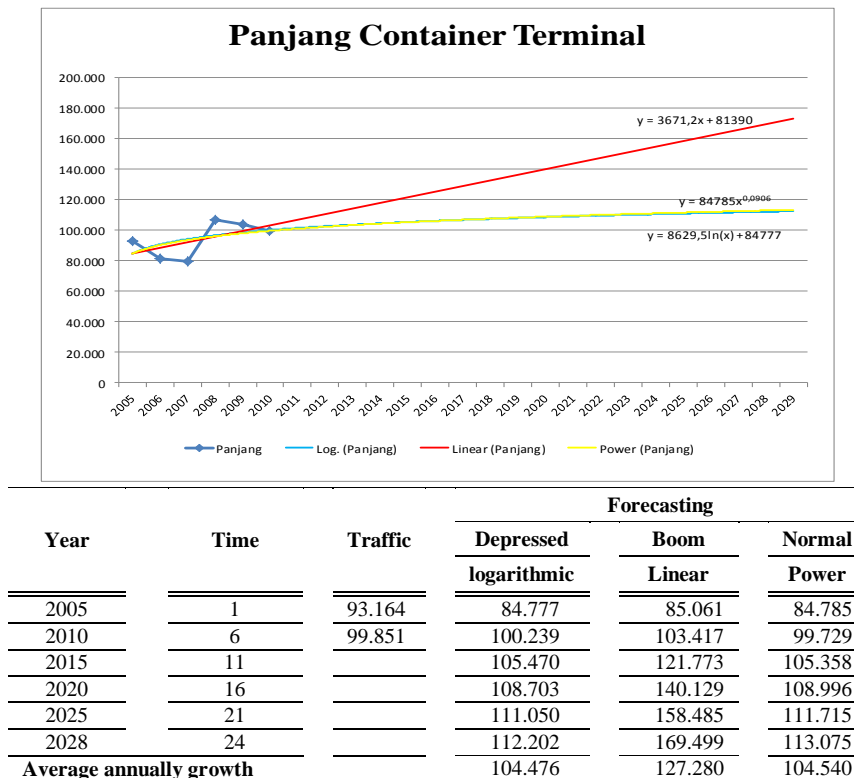
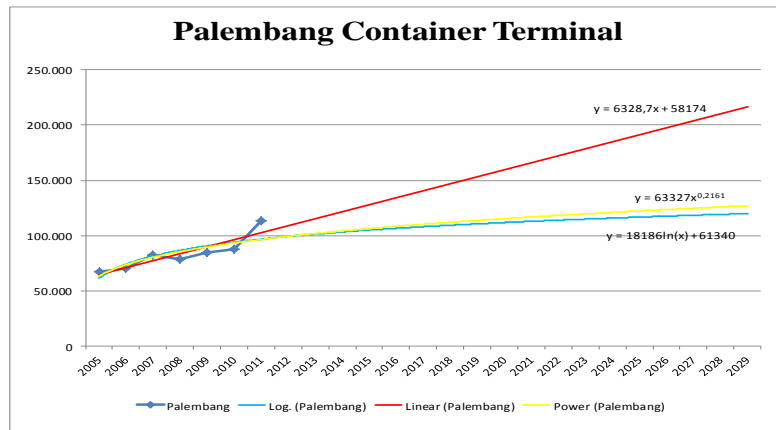
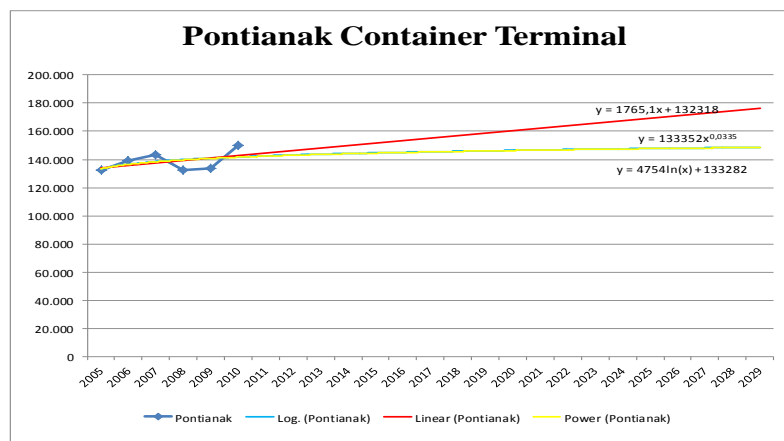


Figure 4.10. Forecasting of Container Traffic in Panjang Port
Source : Author Calculation



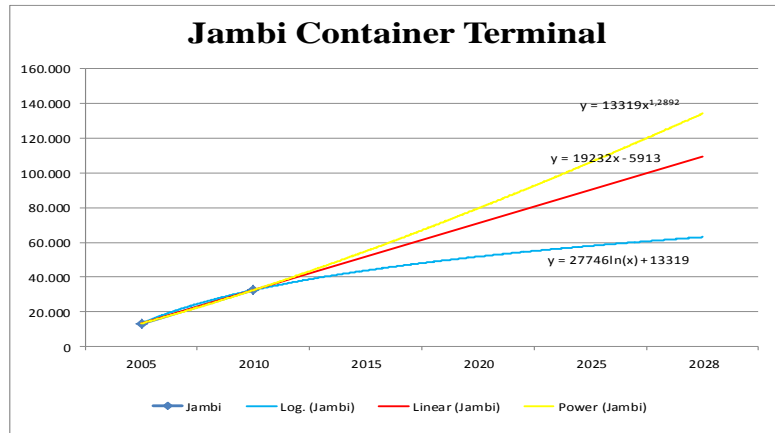
Year	Time	Traffic	Forecasting		
			Depressed logarithmic	Boom Linear	Normal Power
2005	1	66.996	61.340	64.503	63.327
2010	6	87.988	93.925	96.146	93.271
2015	11		104.948	127.790	106.325
2020	16		111.762	159.433	115.292
2025	21		116.708	191.077	122.270
2028	24		119.136	210.063	125.850
Average annually growth			102.853	137.283	105.215

Figure 4.11. Forecasting of Container Traffic in Palembang Port
Source : Author Calculation



Year	Time	Traffic	Forecasting		
			Depressed logarithmic	Boom Linear	Normal Power
2005	1	132.273	133.282	134.083	133.352
2010	6	150.114	141.800	142.909	141.601
2015	11		144.682	151.734	144.506
2020	16		146.463	160.560	146.331
2025	21		147.756	169.385	147.671
2028	24		148.390	174.680	148.333
Average annually growth			144.134	154.382	144.002

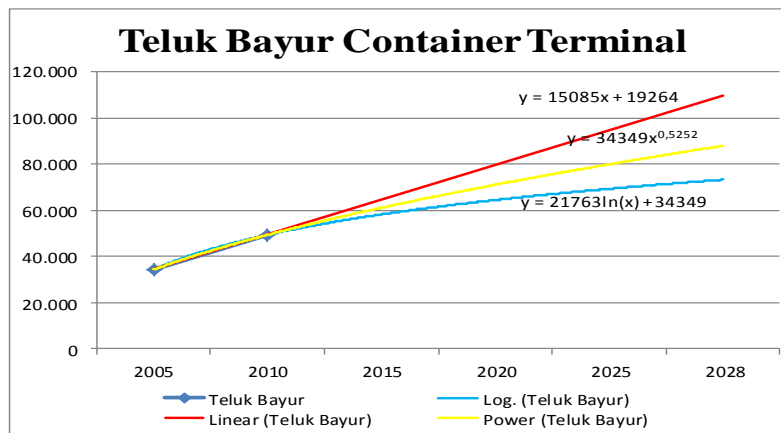
Figure 4.12. Forecasting of Container Traffic in Pontianak Port
Source : Author Calculation



Year	Time	Traffic	Forecasting		
			Depressed logarithmic	Boom Linear	Normal Power
2005	1	13.319	9.510	10.695	11.184
2010	6	32.551	27.310	30.112	27.229
2015	11		33.332	49.529	36.792
2020	16		37.054	68.946	44.316
2025	21		39.755	88.363	50.724
2028	24		41.082	100.013	54.201
Average annually growth			32.187	55.354	37.252

Figure 4.13. Forecasting of Container Traffic in Jambi Port

Source : Author Calculation



Year	Time	Traffic	Forecasting		
			Depressed logarithmic	Boom Linear	Normal Power
2005	1	34.349	33.527	35.691	33.894
2010	6	49.434	49.906	51.411	50.298
2015	11		55.447	67.131	57.483
2020	16		58.872	82.851	62.430
2025	21		61.358	98.571	66.284
2028	24		62.578	108.003	68.263
Average annually growth			54.394	71.847	56.887

Figure 4.14. Forecasting of Container Traffic in Teluk Bayur Port

Source : Author Calculation

b) Total Revenue in 5 container terminal

For determine total revenue, author choose normal/moderate calculation because the container terminal already exist and operate properly. The total revenue from 2013 to 2028 are calculated by totalize revenue in Panjang port, Palembang port, Pontianak port, Jambi port and Teluk Bayur port that displayed in table 4.20.

$$\text{Total Revenue} = \text{Traffic} \times \text{Tariff}$$

Table 4.20. Total Revenue of Container Terminal

	Tariff (US \$)	2014	2016	2021	2026	2028	Max Capacity
Panjang	118,78	104.453 12.406.374	106.192 12.613.009	109.597 13.017.379	112.187 13.325.035	113.075 13.430.495	360.000
Palembang	116,41	104.157 12.124.448	108.343 12.611.683	116.812 13.597.592	123.506 14.376.710	125.850 14.649.596	288.000
Pontianak	90,66	144.045 13.058.443	144.928 13.138.445	146.629 13.292.646	147.901 13.407.956	148.333 13.447.095	324.000
Jambi	47,37	35.091 1.662.137	38.417 1.819.652	45.671 2.163.255	51.909 2.458.748	54.201 2.567.319	144.000
Teluk Bayur	48,00	56.289 2.701.661	58.596 2.812.383	63.269 3.036.678	66.967 3.214.153	68.263 3.276.358	288.000
Total Revenue		41.953.063	42.995.172	45.107.550	46.782.602	47.370.862	

Source : Author Calculation

B. Total Cost in 5 Container Division

a) Operation cost

For determine cost per year in 2014-2028, author also choose normal/moderate calculation because the container terminal already exist and operate properly (see table 4.21).

Table 4.21. Forecasting of Total Cost

Year	Time	Traffic	Forecasting		
			Depressed logarithmic	Boom Linear	Normal Power
2004	1	4.317.542	3.634.600	4.322.300	4.089.400
2006	3	6.392.529	6.971.855	6.330.100	6.672.135
2011	8		9.951.320	11.349.600	10.329.433
2016	13		11.426.147	16.369.100	12.824.273
2021	18		12.414.682	21.388.600	14.825.489
2026	23		13.159.291	26.408.100	16.536.573
2028	25		13.412.579	28.415.900	17.162.544
Average annually growth			10.682.502	16.369.100	12.179.168

Source : Author Calculation

b) Depreciation of Asset

Accordance to accounting principles applied in Indonesia Port Corporation (IPC), the depreciation calculation of fixed assets use straight-line method. Book value of Existing Assets (Quey) is used as initial investment and investment in bulding and equipments.

$$\text{Annual Depreciation Expense} = \frac{\text{Cost of Fixed Asset} - \text{Residual Value}}{\text{Years (Life time of Asset)}}$$

1) Existing Assets (Quay) :

Several assets will be transferred accordance the book value to new subsidiary. The revaluation report stated that the life time of asset is able to adjusted become 50 years. Based on accounting principles applied Indonesia Port Corporation (IPC), depreciation of quay is 50 years. In this calculation, the residual asset is assumed US \$ 3.463.228 (35 years) and the depreciation 15 year. Residual asset will be recalculated with new investment in 2029.

$$\begin{aligned} \text{Annual Depreciation Expense} &= \frac{\text{US\$ 4.947.469} - \text{US\$ 3.463.228}}{15 \text{ year}} \\ &= \text{US\$ 98.949 / year} \end{aligned}$$

2) Investment of Equipment :

By assuming the life time asset 15 years and no residual value, the depreciation is calculated with the formula.

$$\begin{aligned} \text{Annual Depreciation Expense} &= \frac{\text{US\$ 53.500.000} - \text{US\$ 0}}{15 \text{ year}} \\ &= \text{US\$ 3.566.667 / year} \end{aligned}$$

3) Investment of Building :

By assuming the life time asset 15 years and no residual value, the depreciation is calculated with the formula.

$$\begin{aligned} \text{Annual Depreciation Expense} &= \frac{\text{US\$ 120.000.000} - \text{US\$ 0}}{15 \text{ year}} \\ &= \text{US\$ 2.400.000 / year} \end{aligned}$$

$$\begin{aligned} \text{Total Depreciation Expense} &= \text{US\$ } 98.949 + \text{US\$ } 3.566.667 + \text{US\$ } 2.400.000 \\ &= \text{US\$ } 6.065.616 \end{aligned}$$

C. Cash Flow or Proceeds

Cash flow or proceeds is Earnings After Taxes (EAT) plus amortization or depreciation of initial capital, where Earnings After tax is Total Revenue deducting Total Cost and Taxes. Based on Indonesia tax rules in Indonesia, tax income for corporate is around 25% that shown in table 4.22.

$$EAT = \{Total\ Revenue - Total\ Cost\} - \{(Total\ Revenue - Total\ Cost) \times Tax\}$$

Table 4.22. Cash Flow of IPC Container Terminal

No	Year	Total Revenue (US \$)	Total Cost (US \$)	Earnings	Earnings After Tax (EAT)	Amortization (US \$)	Cash flow (US \$)
	2013						
1	2014	41.953.063	17.870.975	24.082.088	24.082.088	6.065.616	30.147.704
2	2015	42.492.618	12.374.930	30.117.688	30.117.688	6.065.616	36.183.304
3	2016	42.995.172	12.824.273	30.170.899	22.628.174	6.065.616	28.693.790
4	2017	43.466.112	13.254.833	30.211.279	22.658.460	6.065.616	28.724.076
5	2018	43.909.694	13.668.657	30.241.037	22.680.778	6.065.616	28.746.394
6	2019	44.329.342	14.067.452	30.261.889	22.696.417	6.065.616	28.762.033
7	2020	44.727.854	14.452.655	30.275.199	22.706.399	6.065.616	28.772.015
8	2021	45.107.550	14.825.489	30.282.061	22.711.546	6.065.616	28.777.162
9	2022	45.470.374	15.187.007	30.283.367	22.712.525	6.065.616	28.778.141
10	2023	45.817.976	15.538.123	30.279.852	22.709.889	6.065.616	28.775.505
11	2024	46.151.763	15.879.635	30.272.128	22.704.096	6.065.616	28.769.712
12	2025	46.472.953	16.212.244	30.260.709	22.695.532	6.065.616	28.761.148
13	2026	46.782.602	16.536.573	30.246.029	22.684.522	6.065.616	28.750.138
14	2027	47.081.634	16.853.175	30.228.459	22.671.344	6.065.616	28.736.960
15	2028	47.370.862	17.162.544	30.208.318	22.656.239	6.065.616	22.656.239

Source : Author Calculation

D. Net Present Value (NPV)

The following are the calculation of Net Present Value (NPV).

$$NPV = \sum_{k=0}^n \frac{Ai}{(1+r)^i} - C$$

where:

$$n = 15 \text{ years}$$

$$r = 12,65\%$$

$$C = \text{US \$ } 178.447.469$$

$$16.824.623 = \sum_{i=0}^{15} \frac{Ai}{(1+12,65\%)^i} - \text{US\$ } 178.447.469$$

NPV < 0 = the subsidiary is feasible to be implemented and give value to the parent company

E. Internal rate of return (IRR)

The following are the calculation of Internal rate of return (IRR)

$$IRR = Ir + \frac{NPV Ir}{NPV Ir - NPV It} \times (It - Ir)$$

where:

$$Ir = 12,65\%$$

$$It = 18,06\%$$

$$NPV Ir = 16.824.623$$

$$NPV It = -26.454.004$$

$$14,75\% = 12,65\% + \frac{16.824.623}{16.824.623 - (-26.454.004)} \times (18,06\% - 12,65\%)$$

F. Payback Period

Based on the calculation, the payback period of IPC Container Terminal is 5 years.

4.2.2.2. Indonesia Marine Service Corporation

A. Total revenue in 11 Pilotage Division

The expected of total revenue change according to different economic states. There are 3 alternatives to forecast the participant from 2013 to 2028 i.e. Boom, Normal, Depressed (see table 4.23). In calculation, author use normal forecasting to determine traffic in the future because the pilotage division already exist and operate properly

Table 4.23. Forecasting of Total Revenue in 11 Branches

Year	Time	Traffic	Forecasting		
			Depressed	Boom	Normal
			logarithmic	Linear	Power
2004	1	22.364.180	21.156.700	23.317.700	21.998.400
2009	6	34.148.755	34.974.570	34.834.200	34.838.922
2014	11		39.649.029	46.350.700	40.701.691
2019	16		42.538.627	57.867.200	44.809.313
2024	21		44.635.753	69.383.700	48.047.696
2028	25		45.980.348	78.596.900	50.246.116
Average annually growth			39.049.420	50.957.300	40.713.651

Source : Author Calculation

B. Total Cost in 11 Pilotage Division

a) Operation cost

Table 4.24. Forecasting of Total Cost in 11 Branches

Year	Time	Traffic	Forecasting		
			Depressed	Boom	Normal
			logarithmic	Linear	Power
2005	1	18.602.853	20.127.200	21.695.790	19.954.000
2010	6	24.738.853	24.961.905	24.564.740	24.981.018
2015	11		26.597.441	27.433.690	26.953.838
2020	16		27.608.476	30.302.640	28.250.531
2025	21		28.342.235	33.171.590	29.230.502
2028	25		28.702.543	34.892.960	29.724.082
Average annually growth			26.286.601	28.294.375	26.700.249

Source : Author Calculation

To determining future traffics, used normal forecasting that give mid-level optimistic analysis. The power forecasting method is chosen as the normal forecasting to predict operation cost from 2013 to 2028 (see table 4.24).

b) Depreciation of Asset

Accordance to accounting principles applied in Indonesia Port Corporation, The accumulated depreciation calculation of fixed assets with the straight-line method. Book value of Existing Assets is used as initial investment and also adding Tug Boat.

$$\text{Annual Depreciation Expense} = \frac{\text{Cost of Fixed Asset} - \text{Residual Value}}{\text{Years (Life time of Asset)}}$$

1) Existing Assets :

By assuming the life time asset 15 years and no residual value, the depreciation is calculated with the formula.

$$\begin{aligned}\text{Annual Depreciation Expense} &= \frac{\text{US\$ 24.001.900} - \text{US\$ 0}}{15 \text{ year}} \\ &= \text{US\$ 1.600.127 / year}\end{aligned}$$

2) Investment of Tug Boat :

By assuming the life time asset 15 years and no residual value, the depreciation is calculated with the formula.

$$\begin{aligned}\text{Annual Depreciation Expense} &= \frac{\text{US\$ 68.000.000} - \text{US\$ 0}}{15 \text{ year}} \\ &= \text{US\$ 4.533.333 / year}\end{aligned}$$

3) Utilities :

By assuming the life time asset 15 years and no residual value, the depreciation is calculated with the formula.

$$\begin{aligned}\text{Annual Depreciation Expense} &= \frac{\text{US\$ 3.400.000} - \text{US\$ 0}}{15 \text{ year}} \\ &= \text{US\$ 226.667 / year}\end{aligned}$$

$$\begin{aligned}\text{Total Depreciation Expense} &= \text{US\$ 1.600.127} + \text{US\$ 4.533.333} + \text{US\$ 226.667} \\ &= \text{US\$ 6.360.127}\end{aligned}$$

C. Cash flow or proceeds of Marine Service

Cash flow or proceeds is Earnings After Taxes (EAT) plus amortization or depreciation of initial capital, where Earnings After tax is Total Revenue deducting

Total Cost and Taxes. Based on Indonesia tax rules in Indonesia, tax income for corporate is around 25% that shown in table 4.25.

$$EAT = \{Total\ Revenue - Total\ Cost\} - \{(Total\ Revenue - Total\ Cost) \times Tax\}$$

Table 4.25. Cash Flow of Marine Service Investment

No	Year	Total Revenue (US \$)	Total Cost (US \$)	Earnings	Earnings After Tax (EAT)	Amortization (US \$)	Cash flow (US \$)
	2013						
1	2014	40.701.691	31.393.606	9.308.086	9.308.086	6.360.127	15.668.212
2	2015	41.620.664	31.713.838	9.906.826	7.430.119	6.360.127	13.790.246
3	2016	42.484.348	32.009.548	10.474.801	7.856.100	6.360.127	14.216.227
4	2017	43.299.965	32.284.438	11.015.527	8.261.645	6.360.127	14.621.772
5	2018	44.073.355	32.541.419	11.531.936	8.648.952	6.360.127	15.009.079
6	2019	44.809.313	32.782.818	12.026.494	9.019.871	6.360.127	15.379.997
7	2020	45.511.829	33.010.531	12.501.298	9.375.973	6.360.127	15.736.100
8	2021	46.184.263	33.226.119	12.958.144	9.718.608	6.360.127	16.078.735
9	2022	46.829.473	33.430.888	13.398.585	10.048.939	6.360.127	16.409.065
10	2023	47.449.910	33.625.938	13.823.972	10.367.979	6.360.127	16.728.106
11	2024	48.047.696	33.812.207	14.235.489	10.676.617	6.360.127	17.036.743
12	2025	48.624.680	33.990.502	14.634.178	10.975.634	6.360.127	17.335.760
13	2026	49.182.484	34.161.519	15.020.965	11.265.723	6.360.127	17.625.850
14	2027	49.722.539	34.325.868	15.396.671	11.547.503	6.360.127	17.907.630
15	2028	50.246.116	34.484.082	15.762.034	11.821.526	6.360.127	11.821.526

Source : Author Calculation

D. Net Present Value (NPV) of Marine Service

$$NPV = \sum_{k=0}^n \frac{A_i}{(1+r)^i} - C$$

where:

n = 15 years

r = 12,65%

C = US \$ 95.401.900

$$\text{US\$ } 5.786.714 = \sum_{i=1}^{15} \frac{A_i}{(1 + 12,65\%)^i} - \text{US\$ } 95.401.900$$

NPV < 0 = the subsidiary is feasible to be implemented and give value to the parent company.

E. Internal rate of return (IRR) of Marine Service

$$\text{IRR} = I_r + \frac{\text{NPV } I_r}{\text{NPV } I_r - \text{NPV } I_t} \times (I_t - I_r)$$

where:

$$I_r = 12,65\%$$

$$I_t = 18,06\%$$

$$\text{NPV } I_r = 5.786.714$$

$$\text{NPV } I_t = -17.926.180$$

$$13,97\% = 12,65\% + \frac{5.786.714}{5.786.714 - (-17.926.180)} \times (18,06\% - 12,65\%)$$

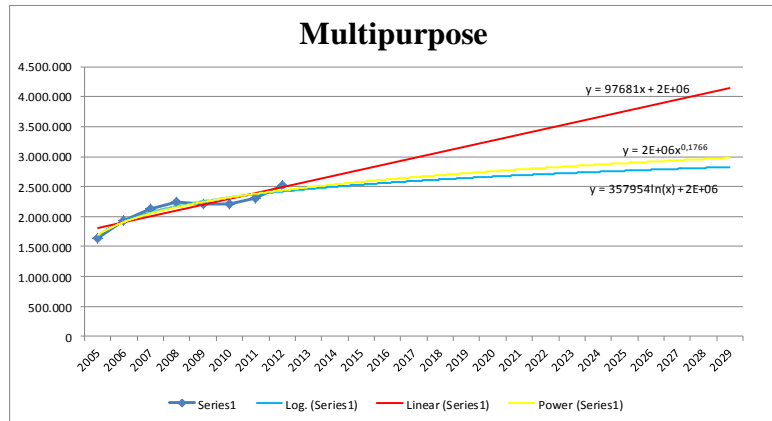
F. Payback Period of Marine Service Corporation

In order to calculate the payback period of Marine Service Corporation formula of the given investment is 6 years.

4.2.2.3. Tanjung Priok Multi Purpose Corporation

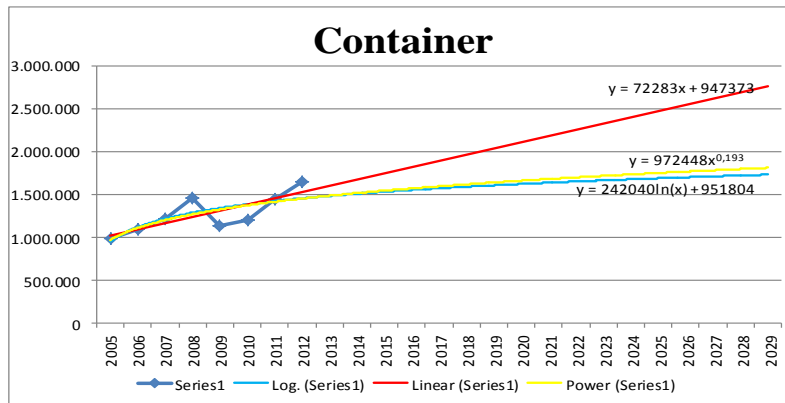
A. Total Revenue in Terminal 1 and Terminal 3

The prediction of revenue based on the traffics that occurred in terminal 1 and 3 Tanjung Priok branch. The traffics of multipurpose, container, vehicle, passenger and heavy equipment will be calculated in the three ways (depressed, normal and boom). Data from 2005 to 2011 are used for predict traffic in the future. The forecasting of multipurpose, container, vehicle, passenger and heavy equipment traffics from 2013 to 2028 described in figure 4.15, 4.16, 4.17, 4.18 and 4.19.



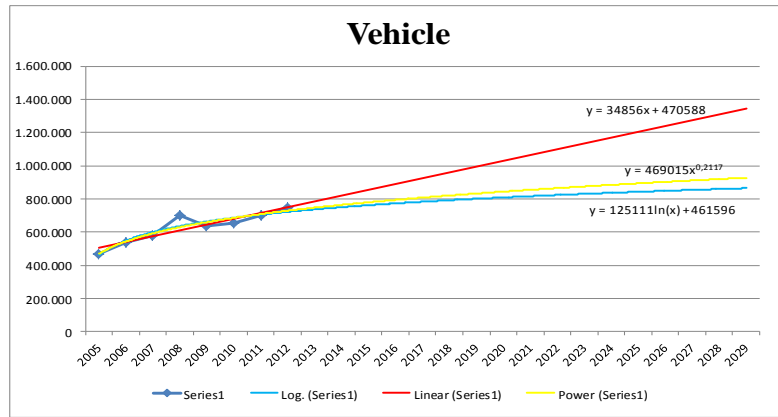
Year	Time	Traffic	Forecasting		
			Depressed logarithmic	Boom Linear	Normal Power
2005	1	16.440	1.675.600	1.670.834	1.689.300
2011	7	23.050	2.372.139	11.695.835	2.382.051
2016	12		2.565.072	20.050.002	2.619.933
2021	17		2.689.749	28.404.170	2.786.147
2026	22		2.782.039	36.758.337	2.915.940
2028	24		2.813.184	40.100.004	2.961.093
Average annually growth			2.492.691	20.885.419	2.552.774

Figure 4.15. Forecasting of Multi Purpose Traffics Tanjung Priok Branch
Source : Author Calculation



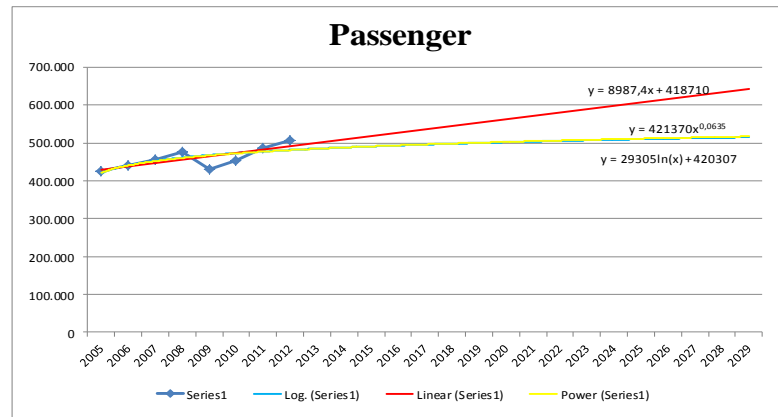
Year	Time	Traffic	Forecasting		
			Depressed logarithmic	Boom Linear	Normal Power
2005	1	987.399	951.804	1.019.656	972.448
2011	7	1.443.675	1.422.792	1.453.354	1.415.697
2016	12		1.553.251	1.814.769	1.570.899
2021	17		1.637.555	2.176.184	1.680.131
2026	22		1.699.960	2.537.599	1.765.851
2028	24		1.721.020	2.682.165	1.795.755
Average annually growth			1.576.348	1.995.477	1.606.186

Figure 4.16. Forecasting of Container Traffic in Tanjung Priok Branch
Source : Author Calculation



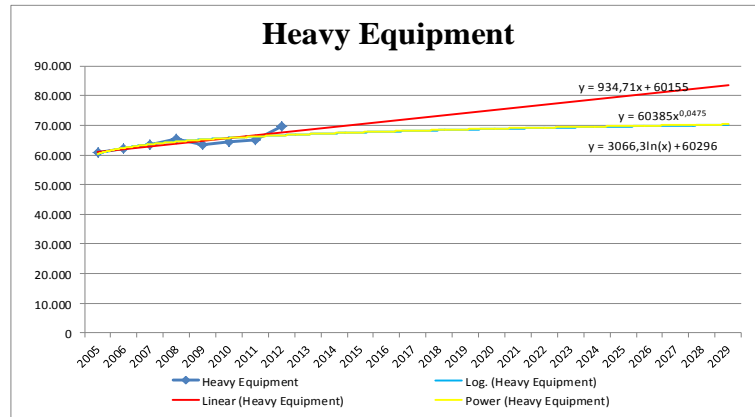
Year	Time	Traffic	Forecasting		
			Depressed logarithmic	Boom Linear	Normal Power
2005	1	469.093	461.596	505.444	469.015
2011	7	702.876	705.051	714.580	708.099
2016	12		772.485	888.860	793.687
2021	17		816.062	1.063.140	854.423
2026	22		848.319	1.237.420	902.355
2028	24		859.205	1.307.132	919.131
Average annually growth			747.187	906.288	771.029

Figure 4.17. Forecasting of Vehicles Traffic in Tanjung Priok Branch
Source : Author Calculation



Year	Time	Traffic	Forecasting		
			Depressed logarithmic	Boom Linear	Normal Power
2005	1	425.098	420.307	427.697	421.370
2006	2	439.803	440.620	436.685	440.331
2011	7	487.188	477.332	481.622	476.790
2016	12		493.127	526.559	493.391
2021	17		503.334	571.496	504.426
2026	22		510.890	616.433	512.752
2028	24		513.440	634.408	515.593
Average annually growth			487.201	531.053	487.733

Figure 4.18. Forecasting of Passenger Traffic in Tanjung Priok Branch
Source : Author Calculation



Year	Time	Traffic	Forecasting		
			Depressed logarithmic	Boom Linear	Normal Power
2005	1	60.990	60.296	61.090	60.385
2006	2	62.039	62.421	62.024	62.406
2011	7	65.098	66.263	66.698	66.233
2016	12		67.915	71.372	67.950
2021	17		68.983	76.045	69.084
2026	22		69.774	80.719	69.935
2028	24		70.041	82.588	70.225
Average annually growth			67.295	71.839	67.350

Figure 4.19. Forecasting of Heavy Equipment Traffic in Tanjung Priok Branch
 Source : Author Calculation

For determine total revenue, author choose normal/moderate calculation because the container terminal already exist and operate properly. The total revenue from 2013 to 2028 are calculated by totalize revenue of multipurpose, container, vehicle, passenger and heavy equipment that displayed in table 4.26. We assumed that tariff for multipurpose, container and vehicle will increase every 3 years and for passenger and heavy equipment remain same because passengers of ship are economic class while heavy equipment also not has high traffic (see table 4.26).

Table 4.26. Forecasting of Revenue in Terminal 1 & 2 Tanjung Priok Branch

		2013	2023	2032
Multipurpose	Tariff	10,03	11,61	13,44
	Revenue	2.490.153	2.841.415	3.042.810
Container	Tariff	46,45	53,77	62,25
	Revenue	1.483.620	1.664.476	1.758.331
Vehicle	Tariff	5,76	6,67	7,72
	Revenue	746.792	874.780	949.621
Passenger	Tariff	1,02	1,02	1,02
	Revenue	484.460	508.001	520.665
Heavy Equipment	Tariff	2,63	2,63	2,63
	Revenue	67.028	69.450	70.741
Total		98.861.297	129.025.960	158.396.568

Source : Author Calculation

B. Total cost

a) Operation Cost

For determine cost per year in 2014-2028, author also choose normal/moderate calculation because the terminal 1 and 3 already exist and operate properly.

Table 4.27. Forecasting of operation cost in Tanjung Priok Branch

Year	Time	Traffic	Forecasting		
			Depressed	Boom	Normal
			logarithmic	Linear	Power
2005	1	41.427.958	39.686.400	45.041.600	41.223.700
2006	2	50.532.826	51.014.227	49.701.100	50.297.057
2011	7	70.559.930	71.487.631	72.998.600	72.059.311
2016	12		80.296.235	96.296.100	84.114.717
2021	17		85.988.472	119.593.600	92.957.794
2026	22		90.202.070	142.891.100	100.097.280
2028	24		91.624.063	152.210.100	102.628.409
Average annually growth			76.991.605	98.625.850	81.368.538

Source : Author Calculation

b) Depreciation of assets

Accordance to accounting principles applied in Indonesia Port Corporation, The accumulated depreciation calculation of fixed assets with the straight-line method. Book value of Existing Quay is used as initial investment and also adding several equipment. Previously, Tanjung Priok Branch not have adequate to serve customer. Tanjung Priok Branch as land lord and rent it to stevedoring company. After Shipping Law number 17, 2008, The status of Tanjung Priok Branch have been change as operator.

$$\text{Annual Depreciation Expense} = \frac{\text{Cost of Fixed Asset} - \text{Residual Value}}{\text{Years (Life time of Asset)}}$$

1) Quay :

By assuming the life time asset 50 years and no residual value, depreciation has been running for 36 years and economic value is remaining 14 years.

$$\begin{aligned}\text{Annual Depreciation Expense} &= \frac{\text{US\$ } 30.237.253 - \text{US\$ } 0}{50 \text{ year}} \\ &= \text{US\$ } 604.745 / \text{year}\end{aligned}$$

2) Equipment :

By assuming the life time asset 15 years and no residual value, the depreciation is calculated with the formula.

$$\begin{aligned} \text{Annual Depreciation Expense} &= \frac{\text{US\$ 110.000.000} - \text{US\$ 0}}{15 \text{ year}} \\ &= \text{US\$ 7.333.333 / year} \end{aligned}$$

3) *Utilities :*

By assuming the life time asset 15 years and no residual value, the depreciation is calculated with the formula.

$$\begin{aligned} \text{Annual Depreciation Expense} &= \frac{\text{US\$ 1.375.000} - \text{US\$ 0}}{15 \text{ year}} \\ &= \text{US\$ 91.667 / year} \end{aligned}$$

$$\begin{aligned} \text{Total Depreciation Expense} &= \text{US\$ 604.745} + \text{US\$ 7.333.333} + \text{US\$ 91.667} \\ &= \text{US\$ 8.029.745} \end{aligned}$$

C. Cash flow or proceeds of Tanjung Priok Multi Purpose

Cash flow or proceeds is Earnings After Taxes (EAT) plus amortization or depreciation of initial capital, where Earnings After tax is Total Revenue deducting Total Cost and Taxes. Based on Indonesia tax rules in Indonesia, tax income for corporate is around 25% (see table 4.28).

$$EAT = \{Total Revenue - Total Cost\} \times \{(Total Revenue - Total Cost) \times Tax\}$$

Table 4.28. Cash Flow of Tanjung Priok Multi Purpose Investment

No	Year	Total Revenue (US \$)	Total Cost (US \$)	Earnings	Earnings After Tax (EAT)	Amortization (US \$)	Cash flow (US \$)
	2013						
1	2014	100.616.133	87.856.223	12.759.909	12.759.909	8.029.745	20.789.655
2	2015	107.289.850	90.069.937	17.219.912	17.219.912	8.029.745	25.249.657
3	2016	108.828.867	92.144.462	16.684.406	12.513.304	8.029.745	20.543.049
4	2017	110.251.832	94.099.132	16.152.699	12.114.524	8.029.745	20.144.269
5	2018	117.119.956	95.949.347	21.170.609	15.877.957	8.029.745	23.907.702
6	2019	118.419.520	97.707.589	20.711.930	15.533.948	8.029.745	23.563.693
7	2020	119.640.259	99.384.131	20.256.128	15.192.096	8.029.745	23.221.841
8	2021	126.796.313	100.987.539	25.808.774	19.356.580	8.029.745	27.386.325
9	2022	127.940.142	102.525.038	25.415.103	19.061.328	8.029.745	27.091.073
10	2023	129.025.960	104.002.785	25.023.174	18.767.381	8.029.745	26.797.126
11	2024	136.527.448	105.426.072	31.101.376	23.326.032	8.029.745	31.355.777
12	2025	137.563.012	106.799.484	30.763.528	23.072.646	8.029.745	31.102.391
13	2026	138.553.457	108.127.026	30.426.431	22.819.823	8.029.745	30.849.568
14	2027	146.442.436	109.412.213	37.030.223	27.772.667	8.029.745	35.197.667
15	2028	147.399.344	110.658.154	36.741.190	27.555.893	7.425.000	27.555.893

Source : Author Calculation

D. Net Present Value (NPV) of Tanjung Priok Multi Purpose

$$NPV = \sum_{k=0}^n \frac{A_i}{(1+r)^i} - C$$

where:

$$n = 15 \text{ years}$$

$$r = 12,65\%$$

$$C = \text{US \$ } 141.612.253$$

$$\text{US\$ } 20.114.461 = \sum_{i=1}^{15} \frac{A_i}{(1+12,65\%)^i} - \text{US\$ } 141.612.253$$

NPV < 0 = the subsidiary is feasible to be implemented and give value to the parent company

E. Internal rate of return (IRR) of Tanjung Priok Multi Purpose

$$IRR = Ir + \frac{NPV Ir}{NPV Ir - NPV It} \times (It - Ir)$$

where:

$$Ir = 12,65\%$$

$$It = 18,06\%$$

$$NPV Ir = 20.114.461$$

$$NPV It = -19.631.607$$

$$15,39\% = 12,65\% + \frac{20.114.461}{20.114.461 - (-19.631.607)} \times (18,06\% - 12,65\%)$$

F. Payback Period

In order to calculate the payback period of Maritime and Logistics training center formula of the given investment is 6 years.

4.2.2.4. Maritime and Logistics Training Corporation

A. Total Revenue in Maritime and Logistics Training

a) Forecasting Training Participant

Using the last 10 years data, obtained with 3 alternatives as following :

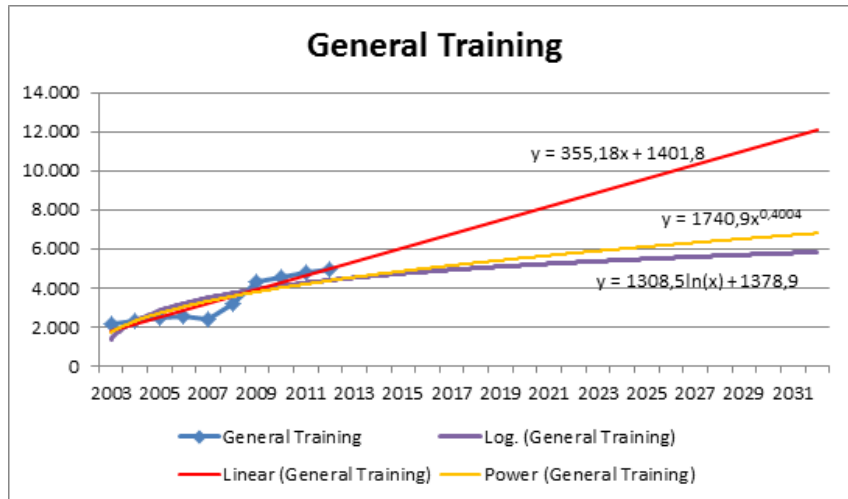


Figure 4.20. Forecasting of General Training Participants

Source : Author Calculation

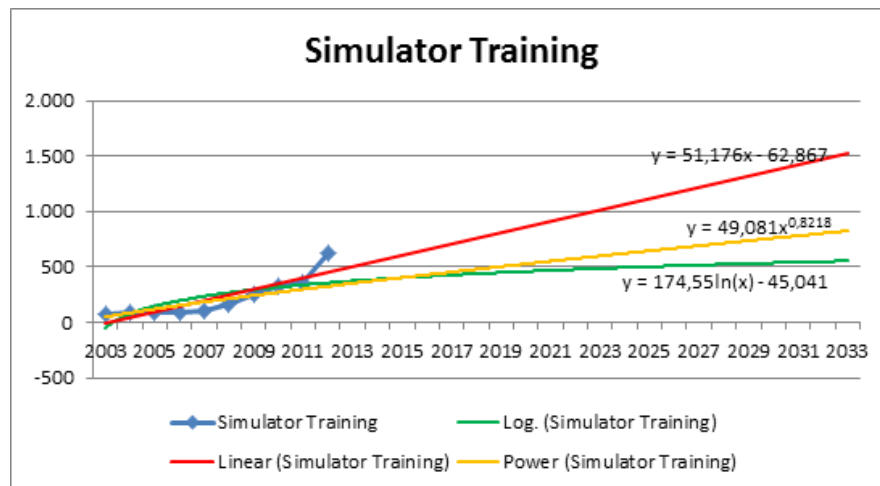


Figure 4.21. Forecasting of Simulator Training Participants

Source : Author Calculation

b) Tariff :

Author use average of increasing education cost in 4 countries in ASEAN are used as assumptions to determine the increasing of tariff. The tariff calculation not use education cost survey in Indonesia directly, Because the increase rate per year too high so the income calculation would be too optimistic. In addition, law of demand also as consideration to forecast tariff in the future.

$$\begin{aligned} \text{Average of increasing education cost} &= \frac{20\% + 10\% + 2\% + -1\%}{4} \\ &= 9\% \text{ per year} \end{aligned}$$

Assumed rates will increase an average of 9% per year so General training US\$ 389 x 109% = US\$ 424 Simulator training US\$ 666 x 109% = US\$ 726. The prediction of revenue based on training participant in port training center. The number of participant will be calculated in the three ways (depressed, normal and boom). Data from 2003 to 2012 are used for predict traffic in the future. The forecasting of total revenue from 2013 to 203 described in table 4.29.

$$\text{Total Revenue} = \text{Number Of Participants} \times \text{Tariff}$$

With these assumptions in the calculations is obtained as follows :

Table 4.29. Forecasting total Revenue of Port Training Center

Year	Participant General Training	Tariff each Participant (US \$)	Total Revenue from General Training (US \$)	Participant Simulator Training	Tariff each Participant (US\$)	Total Revenue from Simulator Training (US \$)	Total Revenue (US \$)
2013							
2014	4.547	424	1.927.523	352	726	255.684	2.183.206
2019	5.283	652	3.445.784	479	1.117	535.260	3.981.044
2024	5.891	1.003	5.911.633	599	1.719	1.029.796	6.941.429
2029	6.417	1.544	9.907.832	714	2.645	1.888.466	11.796.298
2033	6.795	2.179	14.810.464	803	3.733	2.998.391	17.808.855

Source : Author Calculation

B. Total Cost in Maritime and Logistics Training

To calculate total revenue and total cost of cash flow, we need to make several assumptions as explained as follows:

a) Operation Cost :

Average inflation in the education sector is used as assumptions to determine the increasing of operating costs.

$$\begin{aligned}\text{Average Inflation of Education sector} &= \frac{8,13 + 8,83 + 6,66 + 3,89 + 3,29 + 5,16 + 4,21}{7} \\ &= 5,74\% \text{ per year}\end{aligned}$$

b) Depreciation of Asset

Accordance to accounting principles applied in Indonesia Port Corporation, The accumulated depreciation calculation of fixed assets with the straight-line method:

$$\text{Annual Depreciation Expense} = \frac{\text{Cost of Fixed Asset} - \text{Residual Value}}{\text{Years (Life time of Asset)}}$$

1) Building :

By assuming the life time asset 20 years and no residual value, the depreciation is calculated with the formula.

$$\begin{aligned}\text{Annual Depreciation Expense} &= \frac{\text{US\$ 8.250.000} - \text{US\$ 0}}{20 \text{ year}} \\ &= \text{US\$ 412.500 / year}\end{aligned}$$

2) Ship Simulator :

By assuming the life time asset 10 years and no residual value, the depreciation is calculated with the formula.

$$\begin{aligned}\text{Annual Depreciation Expense} &= \frac{\text{US\$ 1.250.000} - \text{US\$ 0}}{10 \text{ year}} \\ &= \text{US\$ 125.000 / year}\end{aligned}$$

3) Crane Simulator :

By assuming the life time asset 10 years and no residual value, the depreciation is calculated with the formula.

$$\begin{aligned}\text{Annual Depreciation Expense} &= \frac{\text{US\$ 1.150.000} - \text{US\$ 0}}{10 \text{ year}} \\ &= \text{US\$ 115.000 / year}\end{aligned}$$

4) Part Task Simulator :

By assuming the life time asset 10 years and no residual value, the depreciation is calculated with the formula.

$$\begin{aligned}\text{Annual Depreciation Expense} &= \frac{\text{US\$ 250.000} - \text{US\$ 0}}{10 \text{ year}} \\ &= \text{US\$ 25.000 / year}\end{aligned}$$

5) Technical Training Lab :

By assuming the life time asset 10 years and no residual value, the depreciation is calculated with the formula.

$$\begin{aligned}\text{Annual Depreciation Expense} &= \frac{\text{US\$ 250.000} - \text{US\$ 0}}{10 \text{ year}} \\ &= \text{US\$ 25.000 / year}\end{aligned}$$

6) Safety Training Centre Area :

By assuming the life time asset 10 years and no residual value, the depreciation is calculated with the formula.

$$\begin{aligned}\text{Annual Depreciation Expense} &= \frac{\text{US\$ 250.000} - \text{US\$ 0}}{10 \text{ year}} \\ &= \text{US\$ 25.000 / year}\end{aligned}$$

7) Renovation Existing Building :

By assuming the life time asset 20 years and no residual value, the depreciation is calculated with the formula.

$$\begin{aligned} \text{Annual Depreciation Expense} &= \frac{\text{US\$ 250.000} - \text{US\$ 0}}{10 \text{ year}} \\ &= \text{US\$ 12.500 / year} \end{aligned}$$

8) Information Technology :

By assuming the life time asset 10 years and no residual value, the depreciation is calculated with the formula.

$$\begin{aligned} \text{Annual Depreciation Expense} &= \frac{\text{US\$ 1.150.000} - \text{US\$ 0}}{10 \text{ year}} \\ &= \text{US\$ 115.000 / year} \end{aligned}$$

$$\begin{aligned} \text{Total Depreciation Expense} &= \text{US\$ 412.500} + \text{US\$ 125.000} + \text{US\$ 115.000} + \\ &\quad \text{US\$ 25.000} + \text{US\$ 25.000} + \text{US\$ 25.000} + \\ &\quad \text{US\$ 12.500} + \text{US\$ 115.000} \\ &= \text{US\$ 855.000} \end{aligned}$$

C. Cash flow or proceeds of Maritime & Logistics Training Co.

Cash flow or proceeds is Earnings After Taxes (EAT) plus amortization or depreciation of initial capital, where Earnings After tax is Total Revenue deducting Total Cost and Taxes. Based on Indonesia tax rules in Indonesia, tax income for corporate is around 25% (see table 4.30)

$$EAT = \{Total Revenue - Total Cost\} \times \{(Total Revenue - Total Cost) \times Tax\}$$

Table 4.30. Cash Flow of Maritime & Logistics Training

No	Year	Total Revenue (US \$)	Total Cost (US \$)	Earnings	Earnings After Tax (EAT)	Amortization (US \$)	Cash flow (US \$)
	2013						
1	2014	2.474.841	2.127.123	347.717	347.717	855.000	1.202.717
2	2015	2.796.990	2.200.125	596.865	596.865	855.000	1.451.865
3	2016	3.152.951	2.277.316	875.635	656.726	855.000	1.511.726
4	2017	3.546.323	2.358.937	1.187.386	890.540	855.000	1.745.540
5	2018	3.981.044	2.445.241	1.535.803	1.151.852	855.000	2.006.852
6	2019	4.461.428	2.536.498	1.924.930	1.443.697	855.000	2.298.697
7	2020	4.992.207	2.632.992	2.359.215	1.769.411	855.000	2.624.411
8	2021	5.578.574	2.735.023	2.843.551	2.132.663	855.000	2.987.663
9	2022	6.226.228	2.842.910	3.383.319	2.537.489	855.000	3.392.489
10	2023	6.941.429	2.526.988	4.414.442	3.310.831	855.000	3.735.831
11	2024	7.731.050	2.647.612	5.083.438	3.812.579	425.000	4.237.579
12	2025	8.602.640	2.775.158	5.827.482	4.370.612	425.000	4.795.612
13	2026	9.564.491	2.910.023	6.654.468	4.990.851	425.000	5.415.851
14	2027	10.625.710	3.052.628	7.573.082	5.679.811	425.000	6.104.811
15	2028	11.796.298	3.203.416	8.592.882	6.444.661	425.000	6.869.661
16	2029	13.087.241	3.362.858	9.724.383	7.293.288	425.000	7.718.288
17	2030	14.510.601	3.531.449	10.979.152	8.234.364	425.000	8.659.364
18	2031	16.079.624	3.709.715	12.369.910	9.277.432	425.000	9.702.432
19	2032	17.808.855	3.898.210	13.910.645	10.432.984	425.000	10.857.984
20	2033	19.714.263	3.672.523	16.041.740	12.031.305	425.000	12.031.305

Source : Author Calculation

D. Net Present Value (NPV) of Maritime & Logistics Training Co.

$$NPV = \sum_{k=0}^n \frac{Ai}{(1+r)^i} - C$$

where:

n = 20 years

r = 12,65%

C = US \$ 16.350.000

$$US\$ 6.236.167 = \sum_{i=1}^{20} \frac{Ai}{(1+12,65\%)^i} - US\$ 16.350.000$$

$NPV < 0$ = the subsidiary is feasible to be implemented and give value to the parent company

E. Internal Rate Of Return (IRR) of Maritime & Logistics Training Co.

$$IRR = Ir + \frac{NPV Ir}{NPV Ir - NPV It} \times (It - Ir)$$

where:

$$Ir = 12,65\%$$

$$It = 18,06\%$$

$$NPV Ir = 6.236.167$$

$$NPV It = -2.092.262$$

$$16,70\% = 12,65\% + \frac{6.236.167}{6.236.167 - (-2.092.262)} \times (18,06\% - 12,65\%)$$

F. Payback Period

In order to calculate the payback period of Maritime and Logistics training center formula of the given investment is 8 years.

4.2.3. Human Resources Model

Human resources is one of the company's capital to succeed and best organization structure chosen for operate the company. Based on Indonesia law number 40, 2007 about the limited company/joint-stock company, there are 3 organs for operate subsidiary. The organ of company consist of General Meeting of Shareholders, the Board of Directors, and the Board of Commissioners.

General Meeting of Shareholders will choose Board of Directors and the Board of Commissioners. Board of Directors are persons who authorized and responsible for running the company. Board of Commissioners are persons who in charge of supervising and give advice to the Board of Directors. Here is an organization structure to operate subsidiaries :

- 1). *Professional bureaucracy* used in IPC container terminal, Indonesia Marine Service Co. and Maritime and Logistics Training Co. The model will chosen

because has advantage of operating cores. The design has specialized tasks with highly trained and efficient. (see figure 4.22, 4.23 and 4.25)

2). *Divisional structure* used in the Tanjung Priok Multi Purpose Co. The model will selected because Tanjung Priok Multi Purpose Co has several services on Tanjung Priok Port that is multi-purpose, container, vehicle, passenger and heavy equipment. This design gives full responsibility to division manager for handles the services and results-oriented. (see figure 4.24)

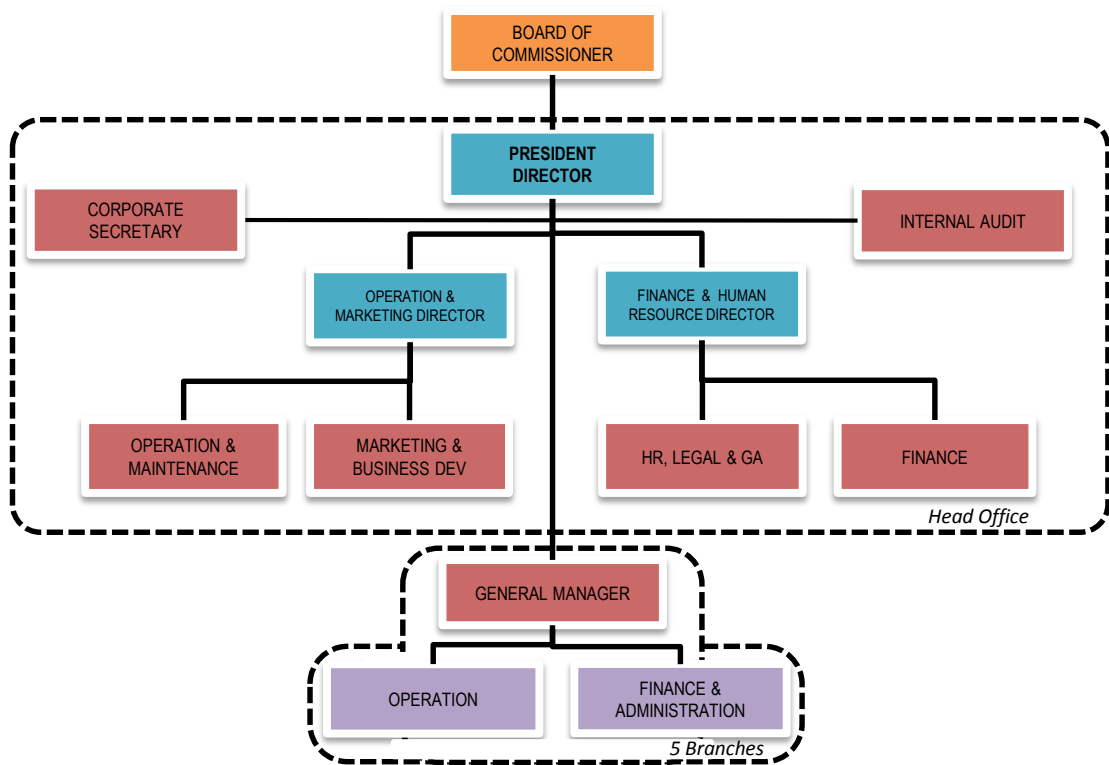


Figure 4.22. Organization Structure for IPC Container Terminal Corporation Co.
 Source : Author

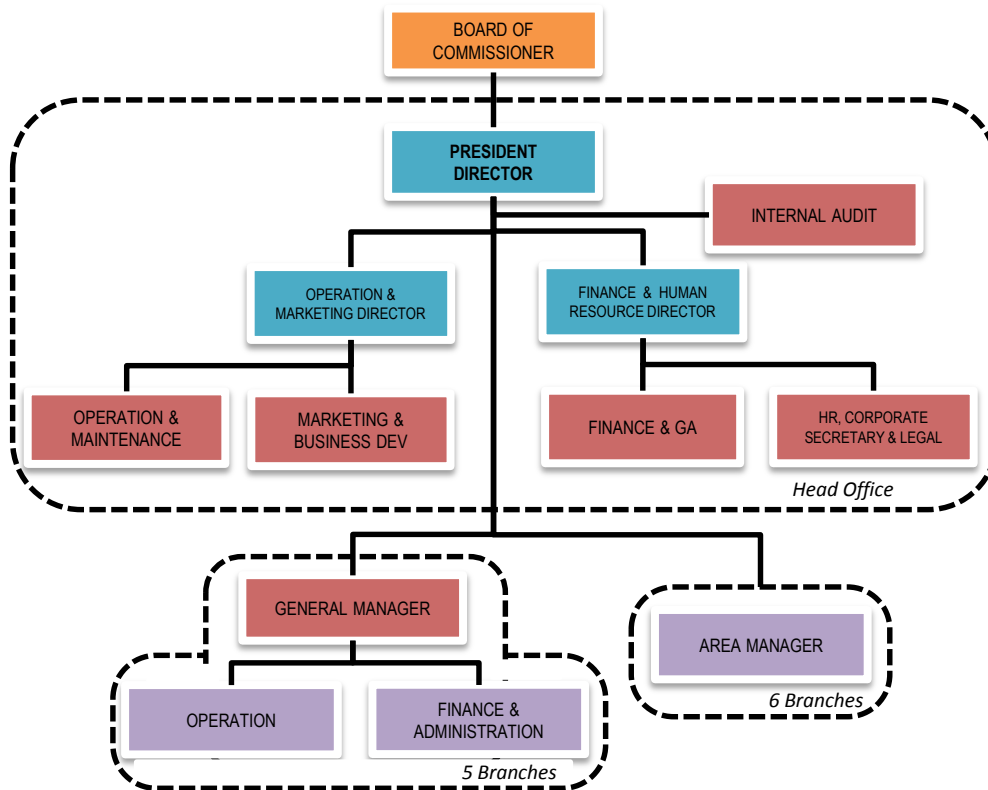


Figure 4.23. Organization Structure for Marine Service Co.
 Source : Author

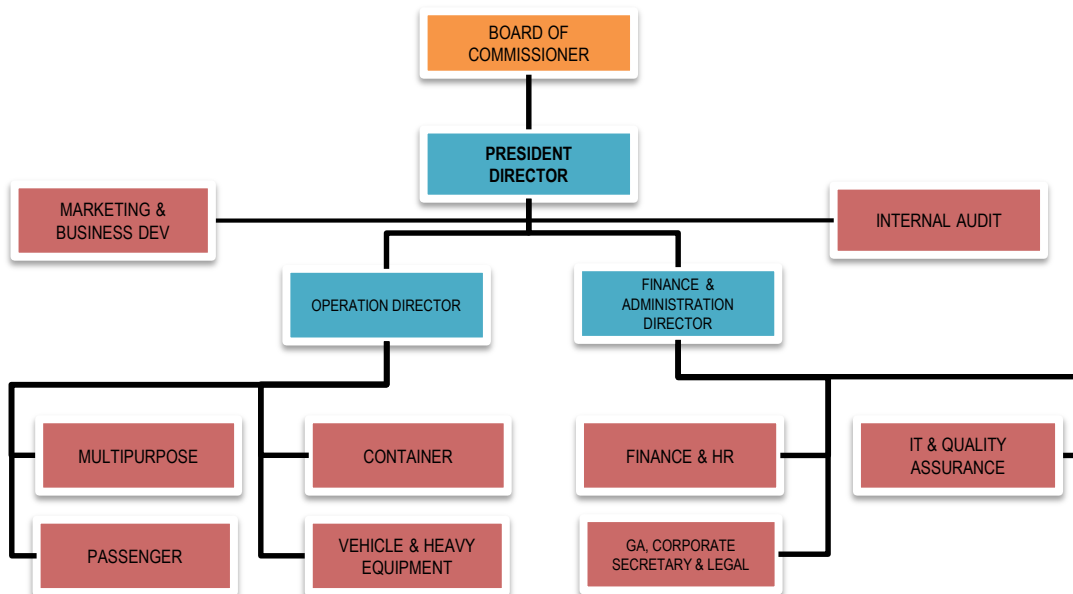


Figure 4.24. Organization Structure for Tanjung Priok Multi Purpose Co.
 Source : Author

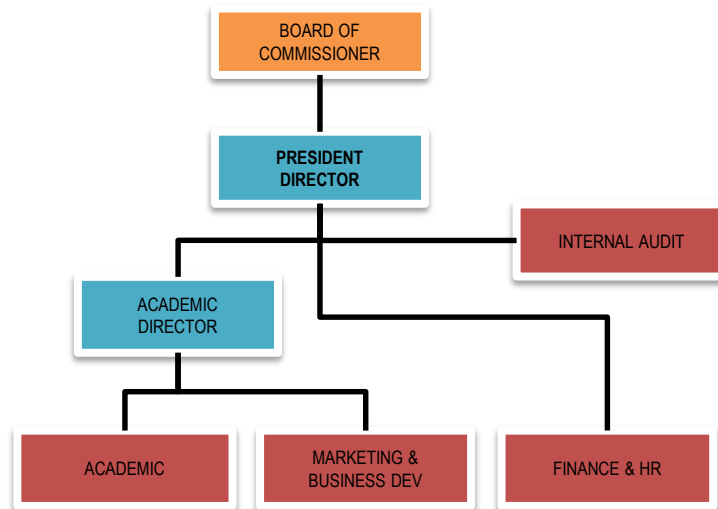


Figure 4.25. Organization Structure for Maritime and Logistics Training Co.
Source : Author

The organization structure mentioned above, should be done several stages in line with the increasing of corporate activities and workloads. So the cost of human resources will not increase rapidly while effective and efficient performance not yet achieved.

Nevertheless, there are several options to for fulfill the needs of employees in the new subsidiary organization structure as above. Here is a solution that can be used:

1. Hire Indonesian Port Corporation (IPC) and representatives of other shareholders employee who has outstanding performance with the criteria:
 - a. Board of Directors and Board of Commissioners filled by senior management from Indonesian Port Corporation (IPC).
 - b. Manager filled by manager, assistant manager or supervisor.
 - c. Supervisor filled by experienced staff or clerical.
2. Employee's status as a new subsidiary :
 - a. Professional recruitment for fulfill Director or Manager position. (see table 4.31)

Table 4.31. Salary Guide 2011/12 in Supply Chain & Logistics Industries

Position	Experience (year)	Salary Range/year (US \$)	
		min	max
Logistics Manager	6-10	31.000	48.000
Supply Chain Manager	6-10	43.500	65.000
Finance manager	6-7	32.000	40.500
Shipping Manager	6-8	36.500	43.500
Commercial Director	6-15	80.000	145.000
Operations Director	6-15	65.000	130.000

Source : Kelly Services Indonesia

- b. *Management Development Program*. It is fresh graduates recruitment program to create managers in the future. This kind recruitment patterns for bachelor graduates has successfully applied in famous companies.
3. Outsourcing to a certain position that is not the core business of the company as are allowed by law number 13 of 2003 concerning employment

4.2.4. Vertical and Horizontal Operation Model

Service quality is the goal that must be achieved in operation. Subsidiaries should be able to improve services than just a profit-oriented. Under Shipping Law No. 17 of 2008, Indonesia Port Corporation (IPC) group change from regulator to operator. Therefore the mainset have to change from authorities to business entities. Even though, The operations of each division or business unit which will change become Subsidiaries have been running well but effective and efficient performance are needed to improve and also the service quality to customers. Management of IPC would like to make specialization or experts in their field. Board of directors of each subsidiary will focus to improve core business services and will be supported by other subsidiaries such as :

- 1) Maritime & Logistics Training Corporation (Vertical Integration)
 - a. **Demand** : Holding & all subsidiaries of IPC Group *except* Port Hospital
 - b. **Supply** : Port Hospital

- 2) IPC Container Terminal Corporation (Horizontal Integration)
Supply: Marine Service Indonesia, Indonesia Dredging Corporation, Equipment Service, Indonesia Logistics Community Service, Port Development, Indonesia Port Energy, Port Hospital and Marine & Logistics Training
- 3) Tanjung Priok Multi-Purpose Corporation (Vertical Integration)
Supply: Marine Service Indonesia, Indonesia Dredging Corporation, Equipment Service, Indonesia Logistics Community Service, Port Development, Indonesia Port Energy, Port Hospital and Marine & Logistics Training
- 4) Marine Service Indonesia Corporation (Vertical Integration)
Supply: Port Hospital

4.3. Solution

Based on this study, the subsidiaries concept is feasible to implemented. The company's strategies that made by board of director IPC already precise. Four subsidiaries are feasible to created in 2014. The following are result that will be used to create subsidiaries :

1. IPC Container Terminal Corporation feasible become subsidiary of IPC which will manage five container terminals in Panjang port, Palembang port, Pontianak port, Jambi Port and Teluk Bayur port. The company will focus on container services that has been trusted by many Indonesian and foreign companies to managing containers, both international and domestic. Establishment IPC Container terminal will be done through separation process (Spin-Off) of five container divisions.
2. Based on Shipping Law number 17, 2008, the task of pilotage should be done by Port Authorities and and may be delegated to eligible business entities. Indonesia Marine Service Corporation feasible become subsidiary of IPC which will manage eleven pilotage division in Tanjung Priok port, Panjang port, Palembang port, Pontianak port, Cirebon port, Banten port, Pangkal Balam port, Tanjung Pandan port, Bengkulu port Jambi Port and Teluk Bayur port. The company will focus on pilotage and tug services that has been trusted by many Indonesian and foreign companies. Establishment of Indonesia Marine Service

Corporation will be done through separation process (Spin-Off) of eleven pilotage divisions.

3. Tanjung Priok Multi Purpose Corporation feasible become subsidiary of IPC which will manage two terminal in Tanjung Priok port. The company will focus on multi purpose services in Tanjung Priok, that has been trusted by many Indonesian and foreign companies. Establishment of Tanjung Priok Multi Purpose Corporation will be done through separation process (Spin-Off) of two multi purpose terminal.
4. Maritime and Logistics Center Corporation feasible become subsidiary of IPC which will manage training center facilities. The company will focus on education services. It is joint venture corporation with strategic partner namely STC-Group. STC-Group is training provider in maritime, shipping, port and transport sector in several countries such as Netherlands, Korea, Vietnam, South Africa, the Philippines, Brazil and Oman. Establishment of Maritime and Logistics Center Corporation will be done through separation process (Spin-Off) of port training center in Jakarta

Chapter 5. CONCLUTION AND RECOMMENDATION

5.1 Conclusion

The existence of a feasibility study of the establishment of subsidiaries will show that the existing condition is not efficient considering the large number of business segments of Indonesia Port Corporation (IPC). Priorities scale and complex bureaucracy in State Owned Company will make Indonesia Port Corporation (IPC) has difficulty to maximize all business opportunities.

Therefore, IPC has made a strategy to establish several subsidiaries every year gradually. Each subsidiary will focus on one services for satisfy customers. Establishment of a subsidiary should take notice to several aspects such as market, financial, human resources and operations.

The research focus on business unit and division that potentially become independent corporation in 2014, obtained the following results :

1. By using marketing approach, the candidate of subsidiaries has dominate the market in the port that managed by IPC and has the potential grow in the future. In addition, the subsidiaries also have opportunities to expand the market that not been controlled by IPC without go through the bureaucratic style of State Owned Corporation.
2. Financial approach, provide several indicators that show that the subsidiary was established with a decent following details:

	NPV	IRR	Payback
IPC Container Terminal	16.824.623	14,75%	5 Year
Tanjung Priok Multi-Purpose	20.114.461	15,39%	6 Year
Maritime & Logistics Training	6.236.167	16,70%	8 Year
Indonesia Marine Service	5.786.714	13,97%	6 Year

Four candidate of subsidiaries give positive NPV. The IRR are greater than the interest rates on corporate loans, and the payback period is relatively short for port business where port business is long-term investment.

3. Human resources is a key success of subsidiaries to stay alive, grow and sustainability in the future. The organization structure must be made based on applicable regulations in Indonesia, bolster the services, and support quick strategic decision.
4. The operation of the divisions / business units that will changed to be subsidiaries has been running well. Establishment of a subsidiaries is expected to improve the operating performance. The board of directors of subsidiary only focus on one business which is the core business of the company. Additionally, The subsidiaries synergies within the scope of vertical and horizontal integration will ensure supply or demand. The conglomeration will improve the operation performance.

The analysis of this study indicate that the establishment of subsidiaries will provide more value for the business group. Formation of several subsidiaries within the scope of vertical and horizontal integration will ensure supply and demand among business groups. Performance of the subsidiary will be more efficient and will be more agile in making decisions in taking business opportunities. The creation subsidiaries in the scope of vertical and horizontal integration will transform cost center into profit center.

5.2 Recommendation

This study is limited on feasibility of the company become independent business (subsidiary). Further research needs to be done for financing the capital expenditure. General Meeting of Shareholder will decide financing method for capital expenditure. Indonesian government encourage state owned companies to do Initial Public Offering (IPO) for financing the capital expenditure, improve Good Corporate Governance, transparency, efficiency etc (several research about IPO of Indonesia State Owned Enterprises have been done). IPO and bank loans are highly

recommended for IPC Container Terminal Co., Indonesia Marine Service Co. dan Tanjung Priok Multi Purpose. But the IPO should retain majority shareholder, IPC should owned more then 51% of shareholder. While bond financing and bank loans with collateral from both shareholders (IPC and STC Group) recommended for Maritime & Training Center Co. With the increasing performance of the companies will increase the revenue of shareholder from dividends (IPC) and taxes (government).

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Appendix 1 Calculation of IPC Container Terminal Corporation

No	Year	Cash flow (US \$)	PAYBACK PERIOD	DF 12,65%	PV	DF 18,06%	PV
					PROCEEDS 1		PROCEEDS 2
	2013		(178.447.469)		-		-
1	2014	30.147.704	(148.299.765)	0,888	26.762.276	0,847	25.535.918
2	2015	36.183.304	(112.116.461)	0,788	28.513.191	0,717	25.959.879
3	2016	28.693.790	(83.422.671)	0,700	20.072.170	0,608	17.437.314
4	2017	28.724.076	(54.698.595)	0,621	17.836.978	0,515	14.785.464
5	2018	28.746.394	(25.952.202)	0,551	15.846.282	0,436	12.533.417
6	2019	28.762.033	2.809.831	0,489	14.074.482	0,369	10.621.917
7	2020	28.772.015	31.581.847	0,434	12.498.328	0,313	9.000.172
8	2021	28.777.162	60.359.008	0,386	11.096.816	0,265	7.624.752
9	2022	28.778.141	89.137.150	0,342	9.851.038	0,224	6.458.590
10	2023	28.775.505	117.912.655	0,304	8.744.017	0,190	5.470.099
11	2024	28.769.712	146.682.368	0,270	7.760.548	0,161	4.632.388
12	2025	28.761.148	175.443.515	0,239	6.887.028	0,136	3.922.590
13	2026	28.750.138	204.193.653	0,213	6.111.311	0,116	3.321.267
14	2027	28.736.960	232.930.613	0,189	5.422.556	0,098	2.811.913
15	2028	22.656.239	255.586.852	0,168	3.795.071	0,083	1.877.786
PV-PROCEED					195.272.092		151.993.465
INITIAL INVESTMENT					178.447.469		178.447.469
NET PRESENT VALUE					16.824.623		(26.454.004)

Appendix 2 Calculation of Indonesia Marine Service Corporation

No	Year	Cash flow (US \$)	PAYBACK PERIOD	DF 12,65%	PV	DF 18,06%	PV
					PROCEEDS 1		PROCEEDS 2
	2013		(95.401.900)		-		-
1	2014	15.668.212	(79.733.687)	0,888	13.908.755	0,847	13.271.398
2	2015	13.790.246	(65.943.441)	0,788	10.866.999	0,717	9.893.876
3	2016	14.216.227	(51.727.214)	0,700	9.944.679	0,608	8.639.249
4	2017	14.621.772	(37.105.442)	0,621	9.079.778	0,515	7.526.428
5	2018	15.009.079	(22.096.364)	0,551	8.273.667	0,436	6.543.953
6	2019	15.379.997	(6.716.366)	0,489	7.526.084	0,369	5.679.886
7	2020	15.736.100	9.019.734	0,434	6.835.633	0,313	4.922.409
8	2021	16.078.735	25.098.469	0,386	6.200.151	0,265	4.260.197
9	2022	16.409.065	41.507.534	0,342	5.616.983	0,224	3.682.636
10	2023	16.728.106	58.235.640	0,304	5.083.172	0,190	3.179.940
11	2024	17.036.743	75.272.383	0,270	4.595.613	0,161	2.743.191
12	2025	17.335.760	92.608.143	0,239	4.151.151	0,136	2.364.338
13	2026	17.625.850	110.233.994	0,213	3.746.662	0,116	2.036.170
14	2027	17.907.630	128.141.623	0,189	3.379.102	0,098	1.752.263
15	2028	11.821.526	139.963.149	0,168	1.980.184	0,083	979.787
PV-PROCEED					101.188.614		77.475.719
INITIAL INVESTMENT					95.401.900		95.401.900
NET PRESENT VALUE					5.786.714		(17.926.180)

Appendix 3 Calculation of Tanjung Priok Multipurpose Corporation

No	Year	Cash flow (US \$)	PAYBACK PERIOD	DF 12,65%	PV	DF 18,06 %	PV
					PROCEEDS 1		PROCEEDS 2
	2013		(141.612.253)		-		-
1	2014	20.789.655	(120.822.599)	0,888	18.455.086	0,847	17.609.397
2	2015	25.249.657	(95.572.942)	0,788	19.897.252	0,717	18.115.484
3	2016	20.543.049	(75.029.892)	0,700	14.370.482	0,608	12.484.081
4	2017	20.144.269	(54.885.623)	0,621	12.509.119	0,515	10.369.084
5	2018	23.907.702	(30.977.921)	0,551	13.178.982	0,436	10.423.749
6	2019	23.563.693	(7.414.228)	0,489	11.530.713	0,369	8.702.152
7	2020	23.221.841	15.807.613	0,434	10.087.378	0,313	7.264.023
8	2021	27.386.325	43.193.938	0,386	10.560.493	0,265	7.256.238
9	2022	27.091.073	70.285.011	0,342	9.273.538	0,224	6.079.967
10	2023	26.797.126	97.082.137	0,304	8.142.847	0,190	5.094.017
11	2024	31.355.777	128.437.914	0,270	8.458.131	0,161	5.048.786
12	2025	31.102.391	159.540.305	0,239	7.447.653	0,136	4.241.900
13	2026	30.849.568	190.389.873	0,213	6.557.579	0,116	3.563.797
14	2027	35.197.667	225.587.540	0,189	6.641.668	0,098	3.444.094
15	2028	27.555.893	253.143.433	0,168	4.615.795	0,083	2.283.877
			PV-PROCEED		161.726.715		121.980.647
			INITIAL INVESTMENT		141.612.253		141.612.253
			NET PRESENT VALUE		20.114.461		(19.631.607)

Appendix 4 Calculation of Maritime & Logistics Training Corporation

No	Year	Cash flow (US \$)	PAYBACK PERIOD	DF 12,65%	PV PROCEEDS	DF 18,06%	PV PROCEEDS
					1		2
	2013		(16.350.000)		-		-
1	2014	1.202.717	(15.147.283)	0,888	1.067.659	0,847	1.018.734
2	2015	1.451.865	(13.695.418)	0,788	1.144.099	0,717	1.041.647
3	2016	1.511.726	(12.183.692)	0,700	1.057.498	0,608	918.681
4	2017	1.745.540	(10.438.152)	0,621	1.083.939	0,515	898.501
5	2018	2.006.852	(8.431.300)	0,551	1.106.265	0,436	874.987
6	2019	2.298.697	(6.132.603)	0,489	1.124.850	0,369	848.917
7	2020	2.624.411	(3.508.192)	0,434	1.140.023	0,313	820.942
8	2021	2.987.663	(520.529)	0,386	1.152.078	0,265	791.607
9	2022	3.392.489	2.871.960	0,342	1.161.282	0,224	761.366
10	2023	3.735.831	6.607.792	0,304	1.135.208	0,190	710.165
11	2024	4.237.579	10.845.370	0,270	1.143.075	0,161	682.319
12	2025	4.795.612	15.640.982	0,239	1.148.338	0,136	654.050
13	2026	5.415.851	21.056.832	0,213	1.151.227	0,116	625.649
14	2027	6.104.811	27.161.644	0,189	1.151.955	0,098	597.356
15	2028	6.869.661	34.031.305	0,168	1.150.714	0,083	569.369
16	2029	7.718.288	41.749.593	0,149	1.147.683	0,070	541.847
17	2030	8.659.364	50.408.957	0,132	1.143.025	0,059	514.919
18	2031	9.702.432	60.111.389	0,117	1.136.892	0,050	488.687
19	2032	10.857.984	70.969.373	0,104	1.129.423	0,043	463.230
20	2033	12.031.305	83.000.678	0,092	1.110.935	0,036	434.768
PV-PROCEED					22.586.167		14.257.738
INITIAL INVESTMENT					16.350.000		16.350.000
NET PRESENT VALUE					6.236.167		(2.092.262)

1. Discount Factor 12,65% in 2014 :

$$DF = \frac{1}{1 + 12,65\%^{(2014-2013)}}$$

2. Discount Factor 18,06% in 2014 :

$$DF = \frac{1}{1 + 18,06\%^{(2014-2013)}}$$