



**A PROPOSAL FOR IMPLEMENTING A BALANCED SCORECARD
MODEL/Framework IN PETROCHINA**

THESIS

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FACULTY OF ECONOMICS
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JAKARTA
JANUARY 2010**

**PERPUSTAKAAN
UNIVERSITAS INDONESIA**



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THESIS

**Submitted to fulfill a part of the requirements in acquiring a
Master of Business Administration degree.**

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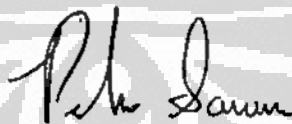
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Preface

Much time, effort and help was consumed in creating this writing. So much of this was consumed that I couldn't be anymore thankful to the friends, family and colleagues that were there to provide me the help and motivation needed to finish this piece. These people are generous enough to sacrifice their time and energy and share their knowledge and experience with me so that I can accomplish this burdensome task. The following are the special individuals who I owe much gratitude to:

1. Mr. Dr. Mohammad Hamsal MBA., as my counselor, who was always patient with my progress. Who always gave me the brightest of ideas when I was not able to progress in the making of this thesis.
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4. To the members of my family, for there is no substitute for their love.
5. To my friends, who always knew what I was going through and always supported me whenever I was in need.

I recognize that this paper is far from perfect, for I am still learning as I grow. Any inputs and / or comments that the reader may have are highly appreciated and accepted.

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Abstract

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In this modern age, businesses face a dynamic environment. There are a lot more factors that must be taken into consideration before making moves to achieve certain strategic goals. One very obvious factor that is never stable is the crude oil price. It is not solely in the power of a company to control fuel price for it takes many aspects into consideration such as customer demands, supply and mother nature itself. With this in mind, a company must be able to perform at peak at all times in order to overcome such volatile conditions. The great amount of volatile factors is just a part of the evolution of industries. Methods of keeping track of performance have evolved as well. The balanced scorecard is the perfect tool to illustrate company personnel the steps that need to be taken on a day-by-day basis in order to perform effectively and efficiently with the aim of achieving company goals. It gives a clear understanding of the actions needed by members of an organization and how it is measured in order to keep track of company performance.

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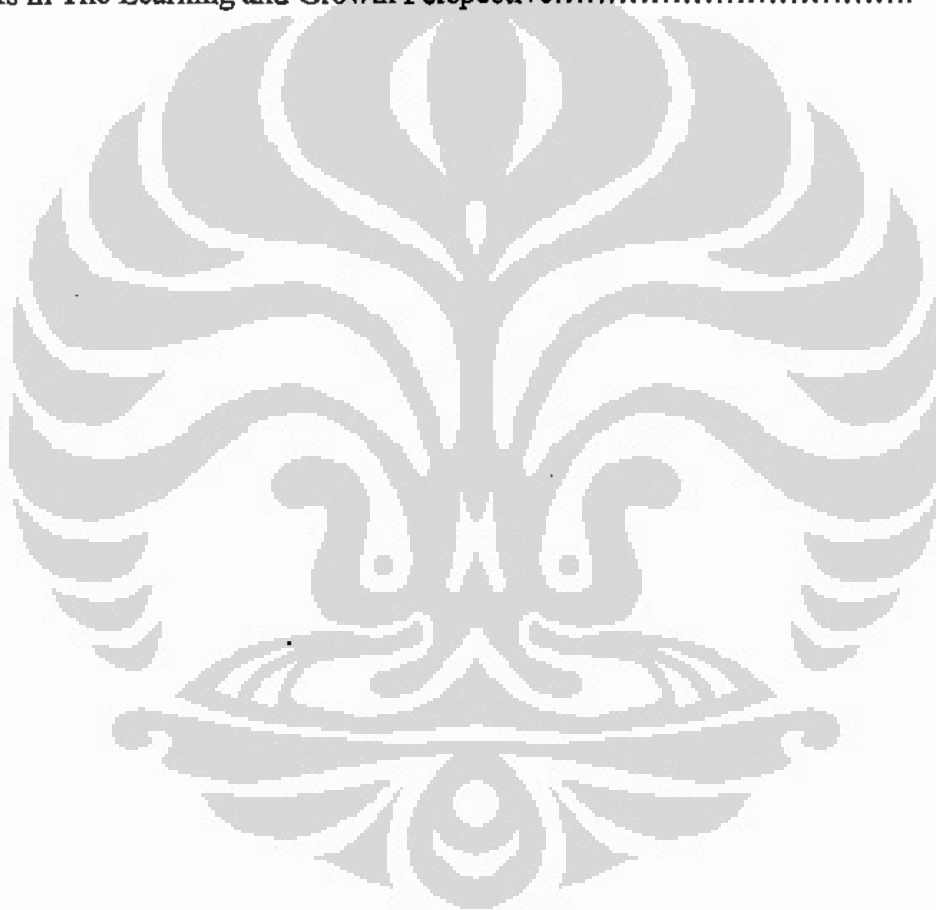
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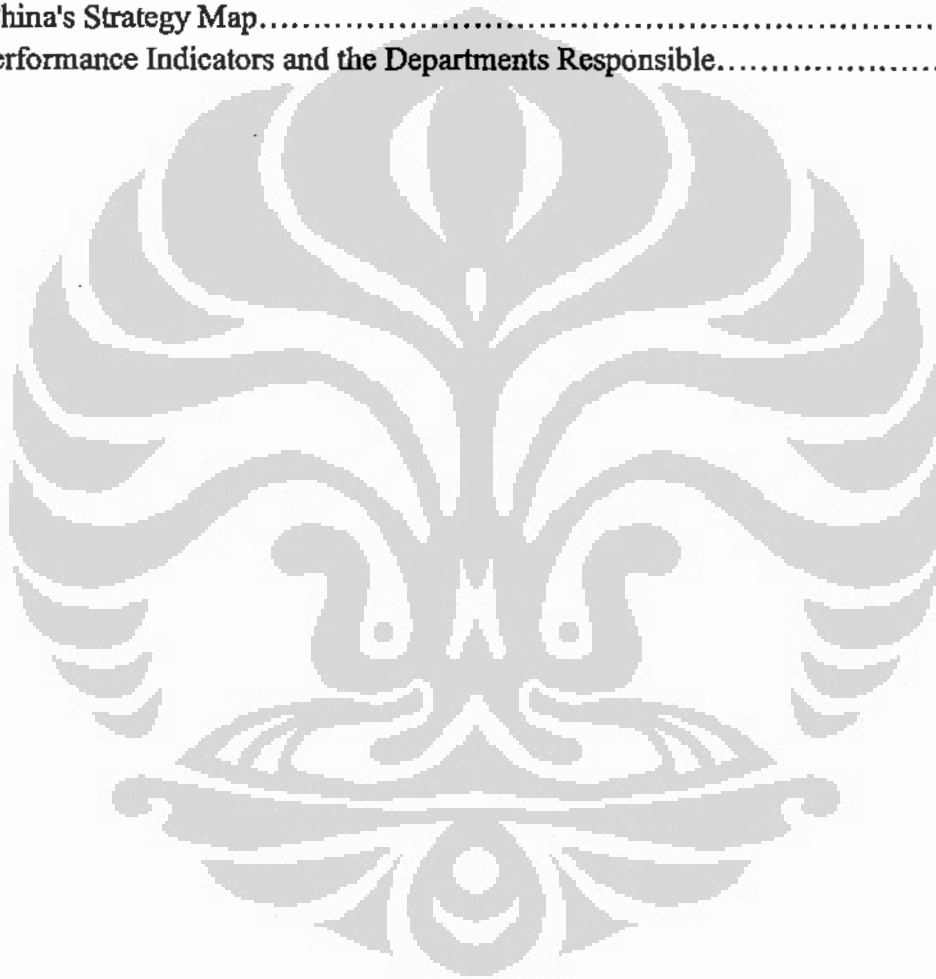
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CHAPTER 1

INTRODUCTION

1.1. Background

In the environment filled with changes and very high competition, organizations must make an extra effort by giving much time, energy, human and financial resources in measuring their performance and achieving corporate goals. In most cases, companies do this but so much of this effort is put to waste because they are not pleased with the results. It is actually a fact that half of the organizations today are making changes in the way they measure performance. What's ironic is that even though many of these organizations realize that measuring performance is an important part of running a business, their system for measuring performance has a difficult time capturing, monitoring and sharing performance information. This is so because businesses over the years have experienced dramatic changes, unfortunately the way the business performance is measured has not changed in proportion. The old system for measuring may have been suitable during the industrial age many years ago. These days, intangible assets are the mechanisms that create value for a company, such as employee knowledge, customer and supplier relationships and innovative cultures. The old measuring system was not designed to measure such assets.

What companies have to face up to these days is finding the tools to calculate or measure the organization's business. One of the most misleading notions of measurement is that it is the end of a certain process. If this can be taken to the next level, measurement is actually the beginning of a process or many processes to come. Let's put it this way, measurement is what determines the path of business. It doesn't only serve as a tool for documentary.

Business needs a measurement tool that can keep up with the rapidly changing conditions. They long for a tool that can show how they are progressing towards the business goals.

The balance scorecard has been created from the history of past measurement tools and serves as to a business just as an assessor of where they stand. The balanced scorecard makes an effort in moving business from the mind set of plain monitoring to measuring. When we have activities measured then it can be managed. From management, the balance scorecard attempts to set a direction for the organization.

- *Monitoring*: The art and science of observing employee behavior and coaching
- *Measurement*: The art and science of gauging, using numbers and metrics, performance to a task.
- *Management*: The art and science of motivating, coaching and enabling individuals and teams in the achievement of an objective
- *Direction Setting*: The art and science of discovering strategic directions that are unique and differentiating in the marketplace, communicating this to all levels in the organization in the form that they can identify and co-relate their day-to-day actions to the goals (Nair, 2004).

Many organizations are afraid of measurements because it represents accountability or justification to lay off employees. In reality, we need to perceive measurement as a way to know where we are positioned and actions that need to be taken in order to achieve company goals. Therefore erasing the fear and creating a feeling for needing such a measurement tool. Action plans are always based on knowledge. Knowledge, by using the balance scorecard, has much purpose and is focused on strategic action. To put it in simple terms, knowledge

(the balance scorecard) is used to interpret corporate strategies into day-to-day action plans and initiatives.

Organizations of all size can fail for so many reasons. In most cases they fail not because of the incorrect strategy but the incapacity to implement the strategy. What is a strategy when we do not have the ability to implement it? The balanced scorecard serves that incapacity.

The balanced scorecard was created with the notion of execution always kept in mind. The creators (Norton and Kaplan) put together a study to evaluate and understand new methods in measuring performance. This is done by creating a method that would not rely on just financial figures but also nonfinancial information, therefore making the tool balanced between. The outcome of the study is the balanced scorecard. A method that converts corporate strategy to objectives that are both actionable and measurable at all levels of the organization.

The art in management is knowing what and how to deploy during the ups and downs of a business. With the balanced scorecard managers are able to determine the drivers of a business (look at the future) and have a quick view of the business's health (the past and present).

The balanced scorecard is mainly centered discovering the nonfinancial causes of the business, along with the economic side of the business as well. These causes are the steps to be taken in striving towards the achievement of the corporate goal. Exhibit 1.1. illustrates where the Balance Scorecard fits into the picture (Nair, 2004).

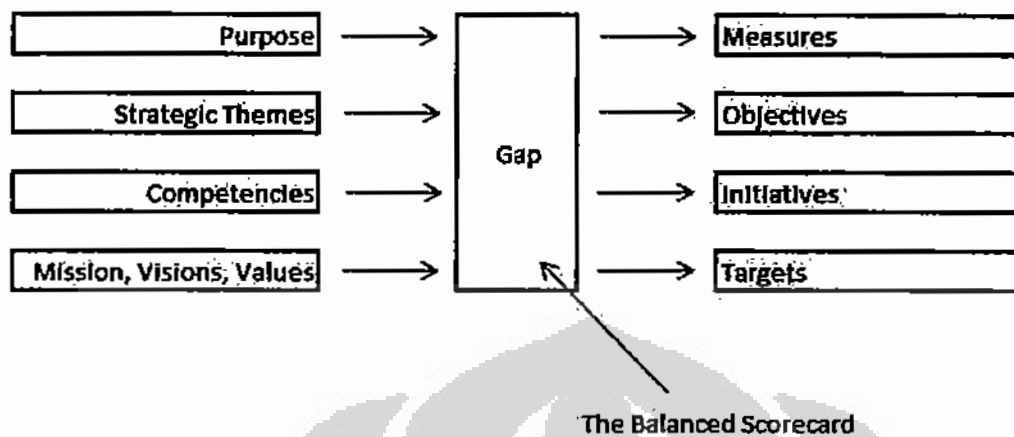


Figure 1.1. Where the BSC Stands

Source: Nair (2004)

In this study, PetroChina Company Limited (PetroChina) will be the object in designing a Balanced Scorecard suitable with the industry it is in.

Petrochina International Companies in Indonesia (PetroChina) was established as a joint stock company with limited liability under the Company Law of the People's Republic of China on November 5, 1999, as part of the restructuring of the China National Petroleum Corporation (CNPC). Petrochina is CNPC's largest holding subsidiary. Its stock equity is listed in Hong Kong, New York and Shanghai.

In 2006, PetroChina's outstanding financial performance, with turnover of 688,978 million Yuan RMB and net profits of 142,224 million Yuan RMB, placed it at the top among public companies in Asia. Asian Finance ranked Petrochina the best Asian company in terms of profitability and third best in terms of corporate governance and management. Petroleum Intelligence Weekly ranked PetroChina seventh in comprehensive ranking of the world's 50 largest oil companies.

Operating in 26 countries and employing more than 400,000 people, PetroChina is engaged in a broad range of petroleum and natural gas-related activities in Africa, Asia, Central Asia, the Americas, and the Middle East.

Indonesia became the location for PetroChina's first and one of its foremost international oil and gas exploration and production ventures when PetroChina Acquired Devon Energy Companies in Indonesia in 2002. Devon Energy had acquired Sante Fe Energy Resources in 2000, which, as Trend International Limited, signed its first Production Sharing Contract (PSC) with Indonesia's national oil company, Pertamina, in 1970.

Investing aggressively throughout the archipelago, PetroChina developed oil and gas production fields in Jambi, Papua, and East Java, and dramatically increased production to 90,000 BOEPD. PetroChina is now one of the vital suppliers of natural gas to Singapore.

PetroChina puts extra effort in emphasizing harmonization in the operations they are engaged in. The Vision: "We aim to maintain harmony between energy extraction and the environment. We seek harmony in our relations with our partners, employees, and customers we serve. We foster harmony with the communities that live in the areas where we operate. We do that because harmony is at the root of good corporate development". Apparently the vision is heavily focused on the environment it works in and the image it creates. This could be very important for sales because PetroChina Indonesia only has activities in the upstream sector.

1.2. Problem Formulation

It is known, currently energy is derived mostly from fossil fuels (oil and gas from underneath the earth). Unfortunately, fossil fuel is a source of energy that has a limit and cannot be renewable. What makes the situation even worse is that the world demand for oil and gas does not decrease. However, according to the Department of Energy and Mineral Resources (ESDM), potential resources in Indonesia is still large. Because of this, competition in this industry is getting tighter as time goes by.

The following chart shows actual productions of the top 10 oil companies in Indonesia for year 2007:

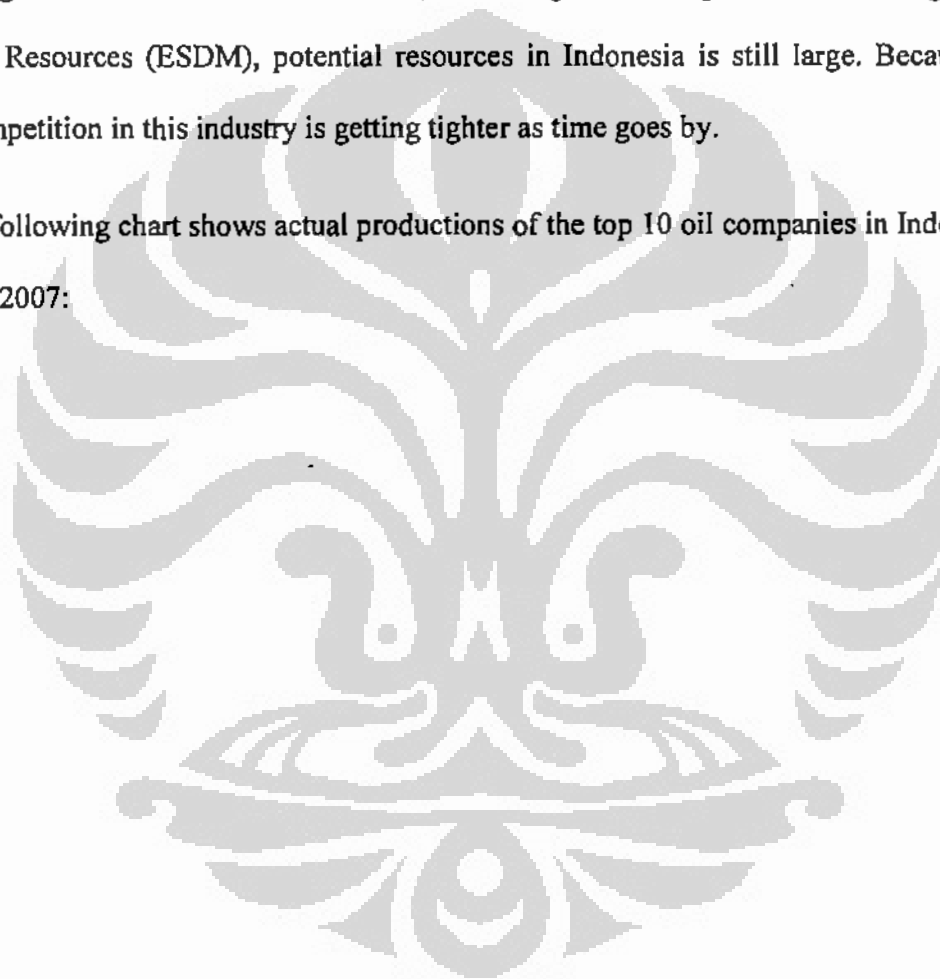


Table 1.1. List of Average Production

No.	Company Name	Average Production	Percentage
1	Chevron Pacific Indonesia	461,769	48.38%
2	Pertamina	108,233	11.34%
3	Total E&P Indonesia	88,517	9.27%
4	CNOOC SES	51,119	5.36%
5	ConocoPhillips Indonesia	50,747	5.32%
6	Medco E&P Indonesia	41,624	4.36%
7	Petrochina	38,781	4.06%
8	BOB PN- PT Bumi Siak Pusako	23,576	2.47%
9	BP West Java	22,110	2.32%
10	Vico	15,597	1.63%
11	Others (40 contractors)	52,325	5.48%
		954,398	100%

Source: *Dirjen Migas* (2008)

With tight competition in mind, oil companies must figure out a way to produce oil in a way that is efficient and effective in order to step away from the crowd and become a leader.

Aside from the tight competition, one external factor that seems to always be an issue is the volatility of crude oil price. The instability of the crude oil price is very dangerous to the company cash flow. Company cash inflow is derived from the production of oil multiplied by the crude oil price. Cash outflow is from the total expenditures and tax. Logically, the company would have a negative cash flow if inflow is lower than outflow. Expenditures can be easily controlled by management by making operations more

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efficient. However, it is the crude oil price that is difficult and out of the control of the company. In December 2008, crude oil price reached \$38 per barrel which made the cash inflow of the company much lower than when the crude oil price was \$134 per barrel in July. With that in mind, it is crucial to know whether or not the company is running its operations efficiently or not. This is where the balanced scorecard plays a significant role. Even though the company may not have the power to control oil prices, they can at least control corporate key performance indicators in order to optimize the company's performance.

A tool such as the balanced scorecard is an urgency to Petrochina because production and in the most efficient and effective way is critical in order to stay ahead of the competition. Even though there are various natural external factors, there has to be a way to keep internal factors the maximum. So, no matter how unsupportive the external factors may be, Petrochina can still be optimal in performance.

1.3. Objectives of the Study

Of course this writing can be put into various use, depending on the profession of the reader. From a personal stand point, the writer has a few goals of his own in making this piece of work useful. In general, the writer created this paper bearing in mind that the goal of the study is to help company management realize inefficient activities and help obtain correct key performance indicators in order to maximize company performance. The author hopes this will be achieved by using the balance scorecard method.

Furthermore, the writer created this piece in order to contribute to Petrochina in finding a way to make oil production and other business processes much more effective

and at the same time efficient. By doing this Petrochina is hoped to be able to maximize performance no matter the circumstances such as a volatile oil price. The goals of this writing are to aid the following activities of a company:

- Develop Key Performance Indicators for Petrochina International to create effectiveness and efficiency.
- Develop clear goals in each balanced scorecard perspective for Petrochina International.
- Keep track of performance using lagging and leading indicators in order to maximize performance despite the instability of crude oil price.

1.4. Benefit of the Study

- **For the Company**

The company takes benefit from this paper because the result of this paper could be used as a proposal for implementing the balance scorecard for this company has not implemented the method.

- **For the writer**

The writer takes benefit from this paper because the results of the process of this writing helps to give a better understanding of the company the writer works for.

- **For the reader**

This writing can be used for many purposes depending on what the reader needs. As a student, the writing can be used to help the student prepare for the working world after he/she graduates. If the reader is an employee at an office that has not implemented the balance scorecard, this writing can be used to give ideas to make a

proposal for the office the reader works for. As a manager for a company, it can be used to compare current performance measurement tools used by the company the manager works for.

1.5. Research Methodology

In composing this writing, the writer used the following methods:

- Literature study

The literature study was done to build a fundamental knowledge on the theory studied.

- Field study

The writer interviewed and had several discussions with the staff involved in creating the data. The writer read and analyzed the data given by these staffs.

- Analysis

With the data given, the writer selected the most important data that can be properly used in the implementation of the balanced scorecard.

1.6. Writing System

Chapter 1: Introduction

This is the introductory phase of the writing. The main focus of this chapter is to prepare and give a broad prediction of what will be discussed in the subsequent chapters.

Chapter 2: Theoretical Background

This chapter is heavily focused on the theory used for the analysis and study. It focuses on the four perspectives used in the balance scorecard and how each KPI in each perspective connect. The four perspectives are (1) Learning and Growth Perspective, (2) Internal Business Process Perspective, (3) Customer Perspective, (4) Financial Perspective.

Chapter 3: Company Profile

This chapter discusses about the company as the object of the writing. It contains the general company profile such as history, mission & vision and operations.

Chapter 4: Data Analysis

This chapter discusses how the theory as the subject is implemented on the company as the object of the study. Various key performance indicators will be formulated based on the suitability between each perspective.

Chapter 5: Conclusion

The conclusion consists of recommendations based on the result of the study.

CHAPTER 2

LITERATURE REVIEW

2.1. The Impact of Environmental Turbulence

Changes in the industry's business environment alter methods in formulating a strategic plan of an organization. In the last quarter for the twentieth century, macroeconomic disequilibrium, exchange rate instability, the surfacing of newly industrializing countries marked the start of economic instability. Since economic and market forecast is very essential in running a business and also fundamental in preparing a strategic plan, the inability to predict demand, prices, exchange rates and interest rates characterizes a difficult challenge to a company's inability to plan.

Experimental evidence shows the formal and informal strategic planning processes coexists. Most large companies maintain their own certain form of formal strategic planning. Annual surveys by various organizations state that business techniques consistently discovers strategic planning as the most popular and most used tool of any management tool. However, most strategic decisions appear to be made outside of the original strategy plan (Grant, 2003).

Though environment turbulence can disturb and disarrange a business and the formulation of a strategy, there are still ways an organization can anticipate this instability. A very common and beneficial method is by creating various scenarios. Multiple scenario planning does not mean we are predicting the future but to imagine alternative views of the future in the form of clear and distinct configurations of key

environmental variables – price, demand etc. Abandoning a forecast with one certain scenario in favor of forecasts with multiple viewpoints means that we also abandon plans of a single scenario in favor of multiple strategy alternatives. Creating multiple scenarios results the creation of option values.

Another technique an organization can anticipate uncertainty is by focusing on long-term aspects. If uncertainty prevents planning in a detailed sense, then strategy is primarily focused on navigation of short-term plans and goals. Uncertainty means that strategy has to be less concerned with specific actions and the more with an established direction (vision and mission) meaning that actions must reconcile and adjust after turbulence and recoordinate with the overall strategic decisions. This indicates that long term strategic goals must be determined, expressed through a 'vision' and 'mission', and committed to a strategic intent rather than just specific actions.

2.2. The Balanced Scorecard

The balanced scorecard offers top managers with a complete structure that interprets a company's vision and strategy into a logical set of performance measures. Many companies have mission statements to pass on values and beliefs to employees.

Using measures that are not monetary to show a companies performance is nothing new. Many key ratios (whether monetary or not) can be found in running a business or an organization in the public sector. The difference lies in focusing on certain measures – few enough to keep track of – and using these measures to achieve and communicate the organization's strategy for the sake of development. The measures in

the scorecard is balanced between the various factors that need to be considered (Olive, Roy & Wetter, 1997)

Mission statements are usually inspires us to get up and do something. They provide tremendous energy and motivation to the people of the organization. It's also important to keep in mind that mission statements and mottos are not enough. This is so because many leaders have visions that are too difficult to share or communicate to the organization. There is a need for translating an individual vision to a shared vision.

Even if it is shared, the organization (particularly for those who are on the frontline) usually either has a difficult time understanding what they should be doing on the daily basis in order to achieve the vision or does not know how what they are doing everyday contributes into achieving the company goals. On that note, we could say that there is a large gap between the vision and mission and the employee's day-to-day actions.

Employees and middle managers need to think strategically because all organizations face new challenges. Many of these organizations rely on their employees to help strengthen current ways of doing thing and create new ones. Now this is where the balance scorecard takes place. The balanced scorecard interprets the mission into easily understood objectives and measures that can be executed on the daily basis. These measures are divided into four groups in which they are all connected through a cause and effect chain (later discussed). The balanced scorecard is a key tool for communicating the mission and strategy because it uses measurements to inform

employees about the drivers of daily successes and ultimately achieving the company goal (Huff et al, 2009).

Initially people would probably think that the balance scorecard is a tool to control activities and measure past performance, because that's what most management tools usually do. The balance scorecard is much different. The balance scorecard is used to communicate strategy, to express the strategy of the business, to make it easier to understand and transparent from knowing how actions are contributing into the pursuit of the company goal (Nair, 2004).

Robert Kaplan and David Norton (2004), the founding fathers of the balanced scorecard, divides the tool into four perspectives (financial, customer, internal business process, learning and growth) that are all connected by cause and effect.

The financial perspective. What are the financial goals that need to be achieved to realize the strategy of the company and ultimately the mission and vision? Measuring revenues and expenses is very important in achieving company goals. Unfortunately, organizations tend to forget where these revenues and expenses are derived from. They don't pay much attention to the link between the financial facts to the nonfinancial strategy of the company. This perspective gives respect to the linkage.

The customer perspective. What are the objectives that are customer centric that must be achieved in order to attain the company goal? Usually, the customer perspective is pictured as a set of objectives the company must attain in order to increase customer acquisition, acceptance and loyalty (Nair, 2004). In order to achieve this, product and /or services of an organization must be thought as something valuable to them.

The internal perspective. People tend to think that companies fail because they have the wrong strategy. This isn't fully true because when you think about it strategies are derived through careful analysis. Strategies are always for the better. Therefore, it is just a matter of execution. If the execution is right then there shouldn't be any problem. Organizations fail because they lack the "know how" to achieve the tactics that make up the strategy. The internal perspective reminds us that these tactics must be properly determined to make sure that the customer and financial objectives are attained. The internal process, background, culture and procedures are what create value to the customers of the targeted market. Most of the time, before a company executes a balanced scorecard, the habits are difficult to break or change for the goals in the internal perspective to be achieved and eventually customer and financial perspectives. These organizations must align their habits in order to be successful, and this perspective of the balanced scorecard helps them align the habits with the company goals. Therefore, if the organization can the correct internal characteristics and determine ways to execute them correctly, they will most likely to win over the market share.

The learning and growth perspective. It's hard to believe that the company human resource is where it all starts. After all, that's why they call it human resource. Unfortunately the training and development of the human resource is always the first to be cancelled in a company in which the budget is decreasing (Nair, 2004). When a company is in crisis, the extension of the company capabilities is cut off. This whole time, companies usually act conservatively during rough times and during good times erratically grow during good times. The goals viewed in the learning and growth perspective prevents this fluctuative behavior. This perspective the base of all the four

perspectives and it is also a reminder it is this basis that creates results in the goals of the internal perspective, the customer perspective then ultimately the financial perspective. In most cases learning is not only done by how lessons are taught but also by how well these lessons are accepted by the employees and then implementing them for the sake of the company success. Some examples of learning and growth issues could be:

- Training and development of managers and manager candidates.
- Access to information among the teams in an organization.
- Employee motivation.

Activities in the learning and growth perspective are well defined in all organizations. These activities are measurable and linked to other productivity measures. In other words, the measures in the learning and growth perspective are what determine the results of the goals of the other perspectives discussed earlier. This perspective reminds us the relevance of the activities in it to the continued success of the organization.

However, before determining the KPI's in each perspective it is necessary to make an analysis to figure out what types of KPI Petrochina needs. For example, if Petrochina were to be a growing company with many challenges then most of the KPIs would have to be those that are related to growth. If Petrochina was a company that is already significant in size and/or has a respectful share in the market (with minimum threat), then this would mean that Petrochina would want to have KPIs that concentrate on sustaining its size and perhaps make an effort in becoming cost efficient.

2.3. Porter's 5 Forces Model

The model of the Five Competitive Forces was developed by Michael E. Porter. Since that time it has become an important tool for analyzing an organizations industry structure in strategic processes.

Porter's model is based on a piece of information that a corporate strategy should meet the opportunities and threats in the organizations external environment.

This model identifies five competitive forces that shape every industry and every market. These forces determine the intensity of competition and therefore the profitability and attractiveness of an industry. The objective of corporate strategy should be to modify these competitive forces in a way that improves the position of the organization. Porter's five forces model supports analysis of the driving forces in an industry. Based on the information derived from the Five Forces Analysis, management can decide how to influence or to exploit particular characteristics of their industry.

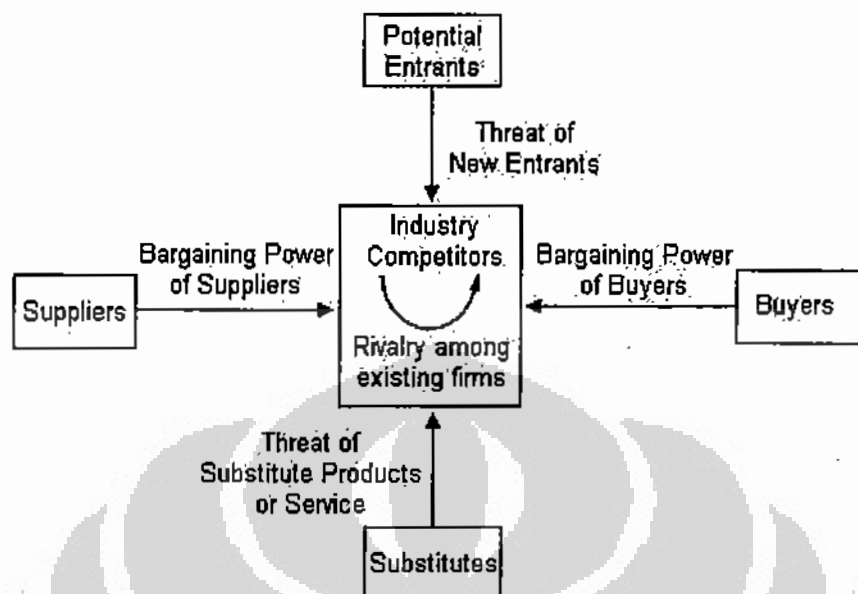


Figure 2.1. Porter's 5 Forces Model

Source: Porter (2005)

2.3.1. The Degree of Rivalry

The intensity of rivalry, which is the most obvious of the five forces in an industry, helps determine how much value created by an industry will deteriorate because of competition.

The intensity of rivalry is influenced by the following industry characteristics:

1. A larger number of firms increases rivalry because more firms must compete for the same customers and resources. The rivalry intensifies if the firms have similar market share, leading to a struggle for market leadership.
2. Slow market growth causes firms to fight for market share. In a growing market, firms are able to improve revenues simply because of the expanding market.

3. High storage costs or highly perishable products cause a producer to sell goods as soon as possible. If other producers are attempting to unload at the same time, competition for customers intensifies.
4. Low switching costs increases rivalry. When a customer can freely switch from one product to another there is a greater struggle to capture customers.
5. Low levels of product differentiation is associated with higher levels of rivalry. Brand identification, on the other hand, tends to constrain rivalry.
6. High exit barriers place a high cost on abandoning the product. The firm must compete. High exit barriers cause a firm to remain in an industry, even when the venture is not profitable. A common exit barrier is asset specificity. When the plant and equipment required for manufacturing a product is highly specialized, these assets cannot easily be sold to other buyers in another industry.

2.3.2. The Threat of Product Substitution

In this model, the threat of substitutions refers to products in other industries that can substitute the use of crude oil. To an economist, a threat of substitutes exists when a product's demand is affected by the price change of the substitute product.

The threat that a substitute product pose to an industry's profitability depends also on the price-to-performance ratio to which customers can turn to satisfy the same needs. Another factor that threatens the profitability is the switching cost of switching to the substitute product.

2.3.3. Bargaining of Buyers

The power of buyers is the impact that customers have on a producer. Generally, when a buyer has a significant amount of buying power, the relationship to the industry is near to what to an economist refers to as a monopsony – a market in which there are many suppliers and one buyer. In reality, pure monopsony rarely happens but there is always some kind of lop-sidedness in a relationship between a producing industry and its buyers.

Buyers are powerful if:

- Buyers are concentrated – there are a few buyers with significant market share
- Buyers purchase a significant proportion of output – distribution of purchases or if the product is standardized
- Buyers possess a credible backward integration threat – can threaten to buy producing firm or rival

Buyers are weak if:

- Producers threaten forward integration – producer can take over own distribution / retailing
- Significant buyer switching costs – products not standardized and buyer cannot easily switch to another product
- Buyers are fragmented (many, different) – no buyer has any particular influence on product or price
- Producers supply critical portions of buyers' input – distribution purchases.

2.3.4. Bargaining of Suppliers

Supplier power is a mirror image of the buyer power. As a result, the analysis of supplier power typically focuses first on the relative size and concentration of suppliers compared to industry participants. A supplier's ability to charge customers different prices in line with differences in the value created for each buyers usually means that the market is characterized by high supplier power and at the same time by low buyer power (Porter, 1998).

Suppliers are strong if:

- There is a threat to integrate forward with suppliers
- Suppliers are concentrated
- There is a significant cost to switch suppliers.

Suppliers are weak if:

- There are many competitive suppliers and the product is standardized
- Purchases are commodity products
- There is a threat by the purchasers to integrate backwards
- Purchasers are concentrated

2.3.5. Threats of New Entrants

How much power a company has in an industry also depends on the threat of how easily a new player can enter the competition. If it costs little in time or money to enter the market and compete effectively, if there are few economies of scale in place, or if the industry has little protection for key technologies, then new competitors can quickly enter

the market and weaken a company's position. If an industry has strong barriers to entry, then the company can maintain a favorable position and take fair advantage of it.

2.4. Cause and Effect

Developing an organizational structure that effectively supports the firm's strategy can be challenging, especially because of the uncertainty about cause-effect relationships in the structures elements (procedures, reporting relationships etc.) are properly aligned with one another, this structure facilitates effective implementation of the firm's strategies (Hit, Hoskisson & Ireland, 2007).

A well designed balanced scorecard should describe the strategy of the company very clearly through the objectives that are linked in a strategy map and measures that are chosen for the perspectives in the balanced scorecard.

Here is a very simple example of cause and effect: Let's say a company would like to pursue a strategy in growth. Therefore, in the financial perspective, what is measured is revenue. Because of this, you figure that what leads to revenue growth is customer loyalty because loyal customers that provide repeat business will result in greater revenues. So this company measures customer loyalty in the customer perspective. On that note, the company asks itself; how will we achieve high levels of customer loyalty? The answer to this question is the internal process of an organization. The company believes that customer loyalty is driven by the company's ability to continuously be innovative and bring new products to the market. Therefore the company decides to measure product development cycle times in the internal process perspective. Finally the company must figure out what drives an improved cycle time. Investing in employee

training on new development ideas may lower the development cycle times and is then measured in the learning and growth perspective of the balanced scorecard. The linkage of all the activities being measured in the four perspectives is done by a set of “if-then” statements: If we increase the training, then cycle times will lower. If cycle times are lower, then customer loyalty will increase. If customer loyalty increases, then revenue will grow.

The ability of a strategy map in showing a cause and effect relationship helps many organizations see their strategies in an interconnected, integrated and systematic way (Kaplan & Norton, 1996). It is one of the best ways top management and front line employees can understand what the company strategy is. However, beyond just understanding, it provides a foundation for the management system for implementing strategy effectively.

The balanced scorecard defeats the limitations of only relying on financial measurement systems by clearly explaining the process that creates value by intangible assets and its important role in a company. The balanced scorecard illustrates the linkage between the intangible assets that is able to attain tangible assets of customers and financial outcomes from the strategy.

2.5. Financial Perspective

Building a balanced scorecard should encourage an organization to link their financial objectives the organization’s strategy. The financial objectives determine the objectives and measures for the other three perspectives. The balanced scorecard should be able to easily explain the organization’s strategy that links to the financial processes,

customers, internal processes, and finally employees. In most organizations, financial themes fall into one of the three categories if not all; increasing revenues, reducing cost and/or increasing productivity and enhancing asset utilization (Carpenter & Sanders, 2007).

2.5.1. Business Stage

Financial objectives can differ depending on what stage the organization is in. For simplicity, we break down the stages into three groups (Kaplan & Norton, 1996):

- Growing Stage
- Sustaining Stage
- Harvesting Stage

Businesses that are in growth are obviously in the early stage of their life cycle. They have products and services that have much potential for increasing revenue. In order to take advantage on this potential, the organization must invest much of its assets and resources in order to grow. Businesses in the growth stage may even end up with a negative cashflow because the investments being made in this stage may take up more cash outflow than the revenue that can be generated with the current product and service with the current customers. Therefore, usually the average organization would measure the percentage growth rate in revenues and sales growth

In most cases businesses are usually in the *sustain* stage. These businesses, ideally, attract investments and even reinvestments but are still required to earn high

returns on the capital invested. Businesses in the sustain stage are expected to maintain their share in the market and even increase it.

Most businesses in the sustain stage will use financial objectives that are related to profit. This objective can be shown in measuring operating income and gross margin. The measures used for this type of business are related to income earned to a certain level of capital invested in the business; these measures may be return-on-investment, return-on-capital-employed.

When businesses have reached a mature stage in their life cycle, it means that it has reached the *harvest* stage. Businesses in this stage focus on returning the investments in that were made in the growth and sustain stage. They no longer need much investment – just enough to maintain equipment and capabilities, not to expand and develop new capabilities. The main goal is focused on the cash inflow of the company. Some examples of financial objectives for a business in the harvest stage would be cash flow and reductions in costs (Kaplan & Norton, 1996).

2.5.2. Strategic Themes for the Financial Perspective

For each of the three stages just discussed above, there are three strategic financial themes (Kaplan & Norton, 1996):

- Revenue growth and mix
- Cost reduction/productivity improvement
- Asset utilization

Revenue growth and mix means that the company will try to expand products and services offerings, most likely try to reach new customers and markets, modify the

product and services. The most common revenue growth measures for both the growth and harvest stage of business would be sales growth percentage and market share. The cost reduction and productivity objective aims for efforts in lowering costs of products and services and productivity with the available resources. For the asset utilization theme, managers try to decrease working capital levels needed to support the business activities. This theme also makes extra effort in maximizing utilization of the assets by directing activities to resources that are not used optimally, using limited resources more efficiently and getting rid of resources that were not providing significant return.

The following figure shows a 3 by 3 matrix between the three business strategies and the three financial themes.

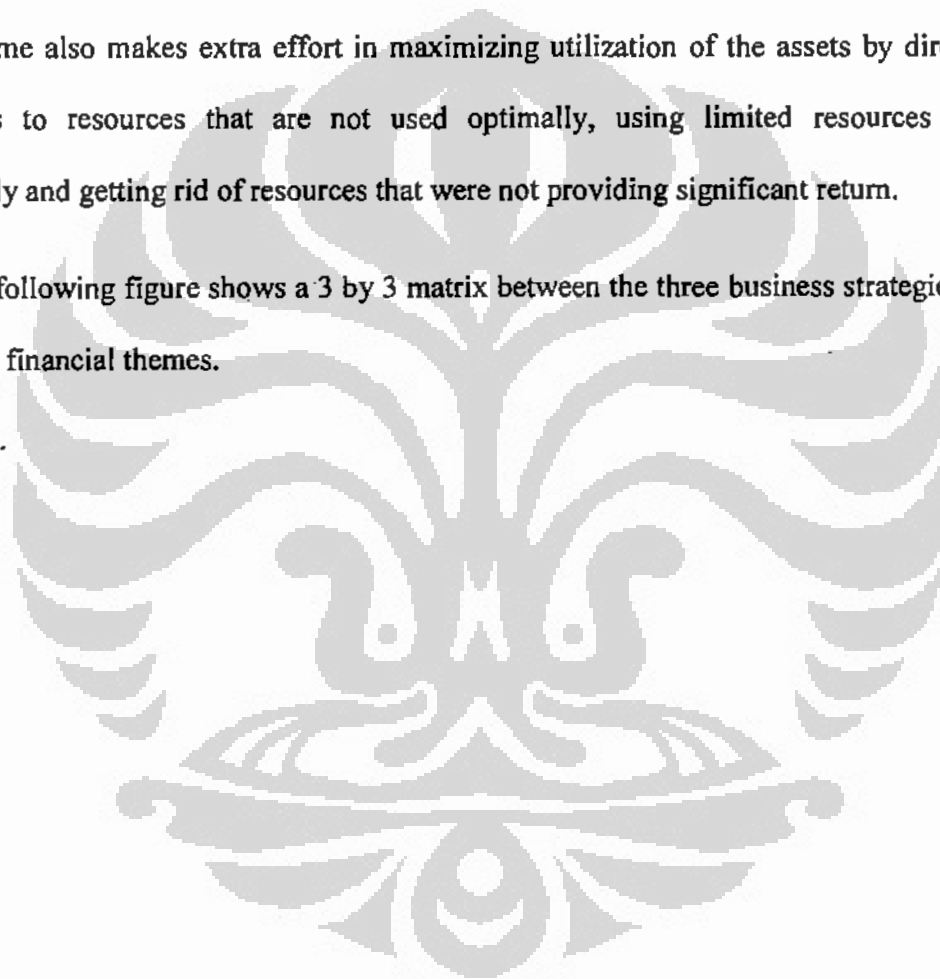


Table 2.2. Strategic Theme Combined with Business Strategy

		<u>Strategic Theme</u>		
		Revenue Growth and Mix	Cost Reduction;/ Productivity Improvement	Asset Utilization
<u>Business Strategy</u>	Growth	Sales growth rate by segment	Revenue / Employee	Investment (percentage of sales)
		Percentage revenue from new product, services and customers		R&D
	Sustain	Share of targeted customers and accounts	Cost versus competitors'	Working capital ratio
		Cross-selling	Cost reduction rates	ROCE by key asset categories
		Percentage revenues from new applications	Indirect expenses	Asset utilization rates
		Customer and product line profitability		
	Harvest	Customer and product line profitability	Unit costs (per unit output, per transaction)	Payback
		Percentage unprofitable customers		

Source: Nair (2004)

2.6. Customer Perspective

In the customer perspective, the company must choose the customer and market as their target. This target will be a source in order to achieve objectives in the financial

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perspective. In the customer perspective, companies measure factors such as customer satisfaction, loyalty, retention, acquisition and profitability (Kaplan & Norton, 1996). It allows a company to identify and measure the value proposition they will deliver to the targeted customers. This value proposition is the driver or indicator to achieve satisfaction, loyalty, retention acquisition and profitability.

In the past, companies would mainly focus on the internal processes, heavily focusing on the performance of their products and the innovation. But these companies did not realize that their competitors would focus on what the customers' needs were and not solely on the internal process. In other words the internal process would be adjusted and aligned to what the customer wanted or needed (David, 2009), therefore taking the advantage. Because of this, companies are now moving from focusing from not only on the internal performance on the products but also on the external factors such as what the customers prefer. So, if businesses are to be successful in the future companies not only must create high quality products but also be able to create products in which the customers value.

Companies that try to provide everything to everybody in the market end up being a nobody. Out of all of the customers, businesses must choose a certain market segment that has the most potential to compete in. Then, identify what can be proposed to the targeted segments and with the value proposition, objectives and measures can be determined for the customer perspective.

When a business has identified the market to compete in, it is ready to decide on what objectives and measures to use. Usually companies have two layers of measures

they keep track of. The first layer that every company measure is referred as the *core measurement group*. Measures in this layer typically consist of Market share, customer retention, customer acquisition, customer satisfaction and customer profitability. The second set of measures represents the drivers of the first set of measures. They answer the question, what must the company do in order to achieve satisfactory results in the first set of numbers (Huff, Floyd, Sherman & Terjesen, 2009).

Market share shows how much proportion of business the organization has in the market. Market share is simple and uncomplicated once the targeted customer group or market has been determined. Industry groups or associations, government statistics and other sources usually provide the estimates of the total market size and the share.

In *customer acquisition*, businesses generally have an objective of increasing their customers in a certain market. The customer acquisition measures how much an organization attracts new customers. Customer acquisition can be measured by the number of new customers or total sales to new customers.

Customer retention measures how well a business holds on and maintains relationships with its customers. This is important to keep track of, obviously, because it is one way of keeping the existing customers and eventually increase the number of customers as well. Once a company is able to identify its customers, it can easily keep track of customer retention. Besides customer retention, it is also key to measure the customer loyalty by the growth of business with these customers.

Customer satisfaction calculates the level of satisfaction of a given customer. While customer acquisition and retention is met by meeting customer needs. Customer

satisfaction tells how well a company is performing. Customer satisfaction is always key and it is never overstressed.

Customer profitability measures how much profit a customer generate. Just because an organization achieves high numbers in the measures of market share, customer acquisition, customer retention and customer satisfaction, it does not mean that a company making the maximum amount of profit with these customers. It's clear that companies should want more than just happy customers but also customers that are profitable. This is where the financial measures play an important role in reminding a company from being obsessed with a customer when that particular customer is not profitable. Not all the time when a customer is satisfied and happy an organization is taking in profit. Sometimes a particular customer and its demand can take up so much resource that it may require the business to increase prices to pay off the resources that are used to satisfy the customers (Niven, 2006).

The second set of measures basically measures the customer value proposition. Customer value proposition is the driver in achieving superior results in the first set of measures. The second set of measures is categorized into three categories – product / service attributes, customer relationship, image and reputation.

Product and service attribute measures how well the products or services function; either by its price or by its quality.

Customer relationship aspect can include the delivery of the product or service to the customer and how a customer feels about making a transaction with the company. Some examples of making high quality relationships with a customer can be through

trained employees – employees who are proactive in satisfying customers or convenient access for 24 hours (Kaplan & Norton, 1996).

The image and reputation elements are intangible factors that attract customers to a company. Through advertisements and high quality of a product and service, companies can create high customer loyalty.

2.7. Internal Business Process Perspective

In this perspective, top management tries to figure out ways to make internal processes capable of achieving the objectives of the previous two perspectives. This can only be done after the objectives in the financial perspective and customer perspective has been determined.

Each business, of course, has a unique set of internal business processes in order to achieve the financial results and value to the customers. However, if we look at all of the internal business processes out there, we can conclude that these processes can be categorized into three following major groups (Kaplan & Norton, 1996):

- The innovation process
- The Operations process
- Postsale service

2.7.1. The Innovation Process

In the innovation process, business researches the needs of the customers and then creates the products or service that will meet the customer needs and/or demand. The operations process is the stage where the actual product or service is produced and then

delivered. Generally, the goal in this process is to achieve operational excellence and cost reduction. The third process is the services after the initial sale of the product or service. In some cases, companies emphasize the postsale service because it plays a significant role in achieving the internal business process objectives. This is so because the product or system they sell is so sophisticated and complex that customers may actually be using that product or service in an inefficient and ineffective way. Therefore companies can step in to provide training for example. Product maintenance and repairs is also part of the postsale service as well.

In the past not much attention was paid to a measurement system for the development and design process of a product. This was because of several reasons. Traditionally, performance measures were heavily focused on manufacturing and operational processes, not research and development. The reason for this was because research and development wasn't considered as something important when compared to day to day operations. Much of the company's financial resources were spent on regular operations rather than R&D. The key to success was very simple – cost efficiency. Logically this was so because competition wasn't very tight and everything was just kept simple. Today, with so much competition and each competitor trying to look for an advantage, the rise for the need of R&D is important.

Needless to say, the relationship between input (such as salaries, equipment and material) for a research and design process and the output (ground-breaking products and service) is somewhat weak and uncertain when you compare to those of manufacturing and operational processes (Moore, 2005). This is so because excellence in the operational processes is cost efficiency and when cost efficiency has been achieved, it can easily be

detected and measured in a matter of seconds. As for research and development, excellence is the success of the sales of a new product and / or how it compares to the competitors'. Obviously this can only be evident after a greater amount of time. However, difficulty of measuring the input to output of a research and development should not discourage an organization in coming up with objectives in such a crucial process.

In some cases, the research and development activities are treated as a supporting role, not as a significant factor in creating value in a company. However, over the past years it has been realized that research and development plays an important role for a business, particularly in the internal business process perspective of the balanced scorecard. As a matter of fact, in this day and age it is much more important to have excellence in the innovation processes rather than the operational (day by day) processes (Mass, 2005).

Innovation should be emphasized because it leads to higher value of the company in the long run. The process identifies new markets and customers then continues on to developing new products and services which enables them to satisfy these new customers in this new market. As for the operational process, companies are only able to maintain the existing customers because nothing new is being created in this process.

The innovation activities can be broken down into two categorize. The first one is the market research where the managers identify the size and the preferences of the customers. In addition, while undergoing the research, managers can brainstorm new ideas in looking for new markets therefore creating new opportunities to supply this new

market. The success of the research determines the success of the second category in the innovation process, which is the development process. It is important because it provides input for what to develop (Gulati, Oldroyd, 2005).

2.7.2. The Operations Process

This part of the internal business process heavily focuses on the receiving of customer order to the delivery of the service or product ordered by a customer. Naturally, because this is operations, it tends to put emphasis on the efficiency, consistency and timeliness of the delivery to the customers (Kaplan & Norton, 1996).

Traditionally operations tend to be in such a repetitive manner that many management techniques can be applied to control customer order receipt and processing delivery processes. Also by tradition, operational efficiency has frequently been measured by financial measures such as standard costs, budgets and budget variances. As time goes by, because of these financial measures, many actions were accidentally implemented that were highly unnecessary, not to mention costly. Example, switching from supplier to supplier looking for cheaper prices and that eventually led to poor quality that usually come with cheaper prices and uncertain delivery times. Having that in mind, many companies have "modified" the financial measurement tools with measurements of quality and cycle time. It has been concluded that operations can be measured in three ways. First is process time measurement. Here the time it takes to process a customer order is measured. The start of a process and the end of one can vary. It can start as soon as a customer order is received to as late as the production on the order or batch has been started. On the other side, it can end as soon as when the

production of the order has been completed to as late as when an order is received by a customer. Second is process quality measurement. In most cases process quality is measured by yields in which the ratio is the number of good items produced to the number of good items entering the process. Third is process cost measurement. A popular way in measuring cost is by using the activity based costing method. It is a costing model that identifies activities in an organization and assigns the cost of each activity resource to all products and services according to the actual consumption by each.

In general, the activity based costing mechanism along with the process time and process quality measurement will provide three important aspects to shape effective internal business processes.

2.8. The Learning and Growth Perspective

The fourth perspective of the balanced scorecard consists of objectives and measures for the learning and growth perspective. The objectives established in the previous three perspectives determine the objectives that must be achieved in the learning and growth perspective. Because of that, the objectives set in this perspective are the basis in accomplishing the goals in finance, customer and internal processing perspectives. The objectives in this perspective are key in attaining excellence for an organization.

The balanced scorecard gives emphasis to how important it is to make investments such as equipment and research and development. Unfortunately equipment and research and development alone are not adequate to sustain excellence of an organization. Investments on what utilizes equipment and research and development

optimally must also be made in order to maximize results of a company. This investment can be broken down into three groups – (1) Employee capabilities, (2) Information system capabilities, and (3) motivation, empowerment and alignment (Kaplan & Norton, 1996).

2.8.1. Employee Capabilities

Employee capabilities is actually broken down again to three different groups; (1) employee satisfaction, (2) employee retention and (3) employee productivity. Having satisfied employees is logically a prerequisite of better production (in quality), responsiveness, quality, and customer service. In most cases, companies measure employee satisfaction with surveys of randomly selected employees. Subjects asked in an employee satisfaction survey can normally include (Kaplan & Norton, 2001):

- Involvement with decisions
- Recognition for doing a well job
- Access to information to do a good job
- Continuous encouragement to be creative
- Support from staff functions
- Overall satisfaction with the organization

Employee retention aims to retain employees that the organization has interest on. In order to capture this objective, organizations must make long term investments. Therefore resignations of employees would represent a loss in intellectual capital. This intellectual capital carries the value of a company and the knowledge of the

organizational process. Ideally, they should also carry the sensitivity of the customer needs. In general employee retention is measured by the percentage of key staff turnover.

The goal in employee productivity is to produce as much output as possible with a given amount of employees. The way this is measured is simple and managers have two ways in generating good results. The first is by increasing the numerator (the revenue) or by decreasing the denominator (the number of employees).

2.8.2. Information Systems Capabilities

Let's say the organization was given the luxury of highly capable employees. Even with this, employee potentials are still not being exploited if the information system of a company is poor. Employees who directly interact with customers need accurate and on-time information on the relationship of the customer with the company (Hitt, Hoskinson & Ireland, 2007). This may likely include information of profitability of the customer. These employees should also be equipped with information on what type of customer the employee is dealing with regarding to the market segment. This is important because it determines on what type of approach the employee should use and how much effort should be made in order to satisfy that customer. On the other side, employees who are not on the front-line need quick and accurate information as well on the product and services provided. This feedback will enable employees to eliminate flaws and unnecessary costs and therefore improving quality of the product or service offered. Information systems can be measured by the percentage of processes with real-time feedback available and percentage of customer-facing employees with on-line access to information about customers.

2.8.3. Motivation

Now, even the most skilled people with access to the most technologically advanced tools could not be enough to contribute to success if the employees are not motivated in the best interest of the company or if they are not given the chance to make decisions and take actions as their initiative. Therefore the third factor that we must take in consideration is employee motivation and initiative (Merton, 2005).

Managers can measure motivation of an employee in many ways. A simple and commonly used method is by measuring the number of suggestions made by an employee. This measure reflects the continuing participation of employees in improving the performance of the organization. This measure can be reinforced by supporting measures such as the number suggestions implemented which helps keep track of the quality of the suggestions and it also lets the work force know that their suggestions are valued by the company.

2.9. Office of Strategy Management

Strategy at many companies are totally disconnected to how execution is done. Even though strategy has been determined by management, there has to be a unit (or department if you will) that is dedicated in coordinating the strategy and the execution of the strategy. A unit that helps in making a bridge between what needs to be done and how it is done. Kaplan and Norton calls this unit the Office of Strategy Management (Kaplan & Norton, 2005).

Although management of all companies always hopes for the best, sometimes these companies don't achieve what is targeted. Those who achieve their target are

mostly likely the ones who have established a new unit at the corporate level to manage all activities that are related to strategies, an *office of strategy management* as Kaplan and Norton calls it.

It may just seem like a new name for an old strategy planning unit. But the two have totally different functions. The function of the old planning unit was to facilitate the annual strategic planning process but takes minimal or no leadership role in making sure that the strategy gets executed. Companies that have achieved better than others recognize that effective strategy execution needs communication of corporate strategy, ensuring that enterprise-level plans are translated into the plans of the business units and departments, executing pieces of strategy initiatives to accomplish the grand plan; and aligning employee competency / competency development plan, and their incentives, with the corporate strategic objectives (Kaplan & Norton, 1992).

Successful companies also realize that the strategy must be tested and adjusted to keep up if not stay ahead of the competition. Office of strategy management becomes the center for coordinating all these tasks. It does not do all the work of an organization but it facilitates and makes sure the process of strategy execution is carried out appropriately as one unit across the enterprise.

The exhibit "The Old Strategy Calendar" illustrates the strategy calendar at a typical company. The calendar starts about halfway through the year when the CEO and executive team gather to explain their strategic vision and update the strategy. Afterwards, similar processes take place in each business units and functions; led by unit heads and senior managers. At around the end of the third quarter, the finance team

finalizes the budget for corporate and business units. At the end of the year, the HR team assesses the employee annual performance and coordinates the setting of professional goals and programs for development. During the year, different teams and units have performance reviews and the knowledge sharing.

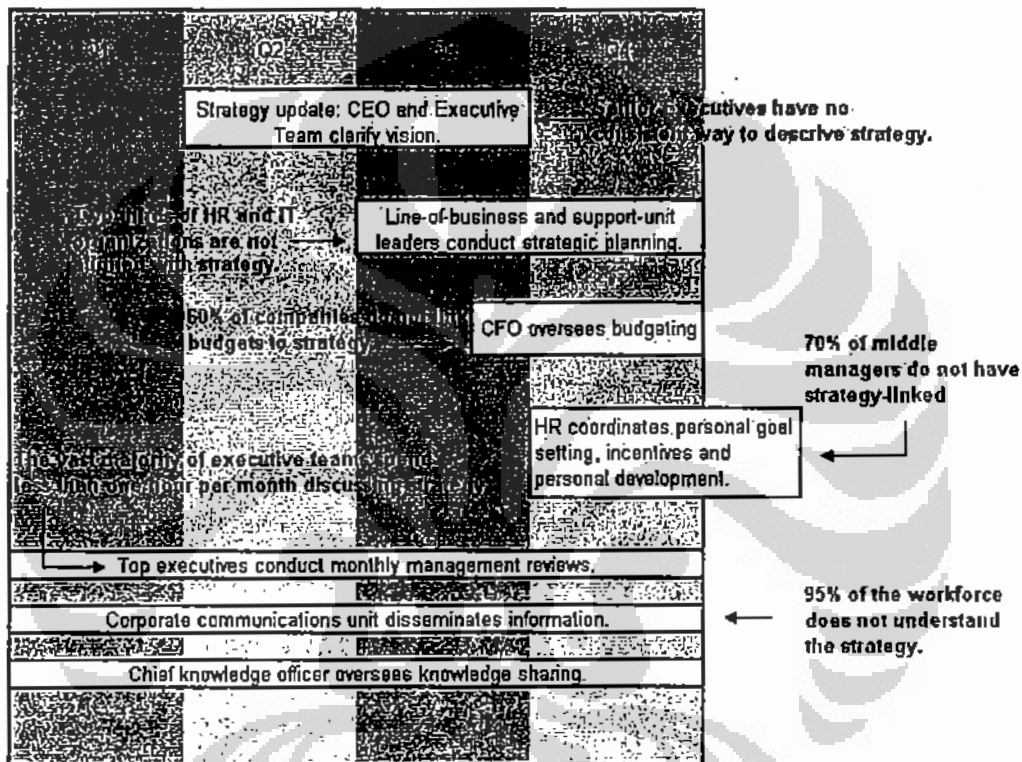


Figure 2.1. The Old Strategy Calendar

Source: Kaplan, Robert & Norton, David (2005)

The problem with this is that the activities are carried out in isolation and without the guidance of a certain unit responsible in synchronizing the strategy with the activities. The segregation of responsibilities is what creates the gap between the strategy and the processes, systems and human resources. 67% of the organizations surveyed shows that organizations are not arranged in a line with business unit and corporate strategies; HR

and IT plans do not support the corporate and business units' actions. Around 60% of these organizations have budget that are aligned with the corporate strategies. Incentives for the human resources are also not aligned; 70% of the compensation of middle managers and more than 90% of frontline employees are not linked to the success factors of the organization strategy.

Below is the new strategy calendar that shows activities that a properly established OSM are involved in during the year.

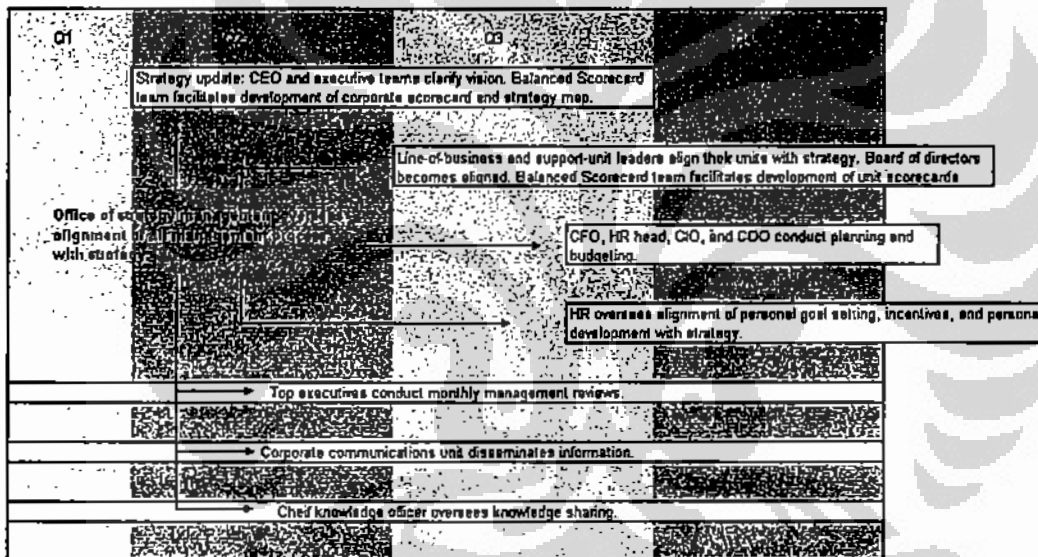
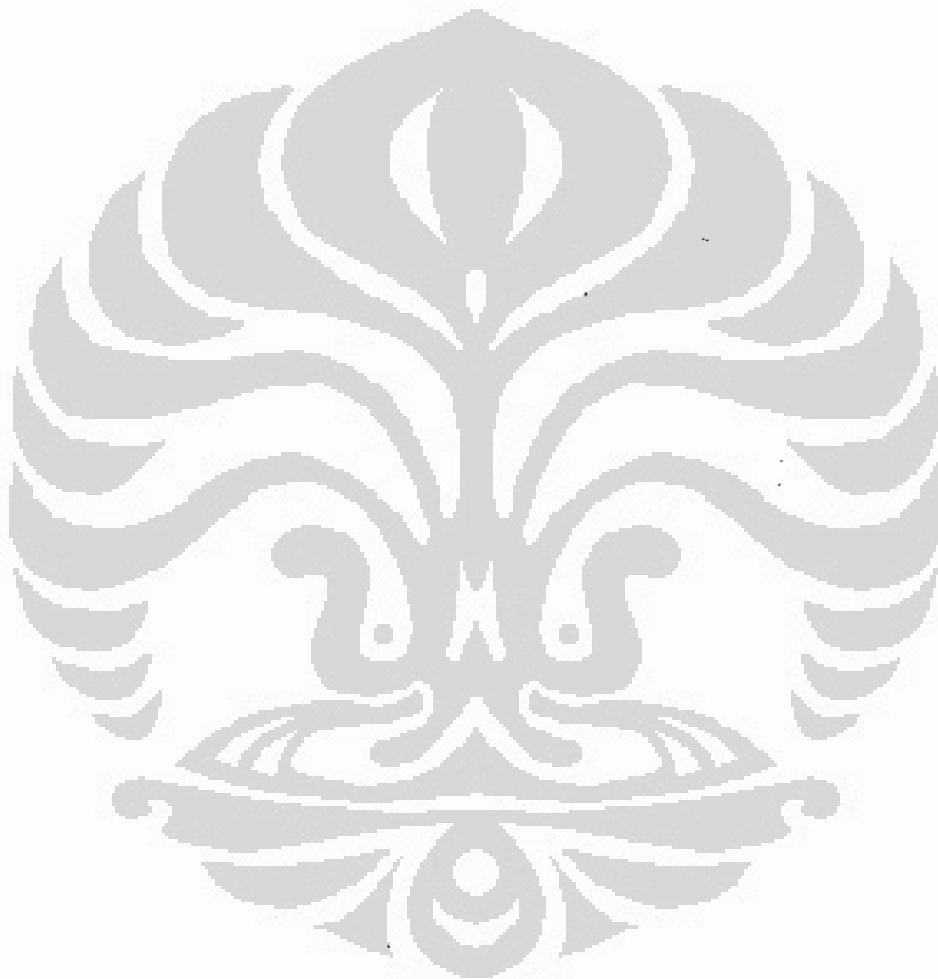


Figure 2.2. The New Strategy Calendar

Source: Kaplan & Norton (2005)

The strategy cycle starts around the second quarter when the OSM starts to create a strategy and update the scorecard for the organization. After this strategy meeting, the OSM starts to align the organization with the enterprise goals. Before the end of the third quarter, coordination is made with finance to bring plans from the unit level aligned with the budget. Subsequently by the beginning of the fourth quarter, the OSM will work with

HR on aligning the competency development and the alignment of employee incentives with the scorecard objectives. While all of these activities are conducted the OSM also continuously control and learn; review and communicate strategy to different levels, manage initiatives and share best practices throughout the organization.



CHAPTER 3

COMPANY PROFILE

3.1. The Industry

The petroleum industry includes the comprehensive processes of exploration, extraction, refining, transporting (usually by oil tankers and pipelines), and marketing petroleum products. The largest volume products of the industry are fuel oil and gasoline (petrol). Petroleum is also the raw material for many chemical products, including pharmaceuticals, solvents, fertilizers, pesticides, and plastics. The industry is usually divided into three major components: upstream, midstream and downstream. Midstream operations are usually included in the downstream category.

Because Petroleum is energy, it is vital to many industries, and is of importance to the maintenance of modern civilizations; as a result it is a critical concern for many nations. Oil accounts for a large percentage of the world's energy consumption, ranging from 32% for Europe and Asia, up to 53% for the Middle East. The world consumes 30 billion barrels (4.8 km³) of oil per year, with developed nations being the largest consumers. 24% of the oil produced in 2004 was consumed in the United States (**Energy Information Administration, 2006**). Found at <http://www.eia.doe.gov/pub/international/iealf/tablee2.xls>). The production, distribution, refining, and retailing of petroleum (upstream, midstream and downstream) taken as a whole represents the world's largest industry in terms of dollar value.

The following diagram illustrates the flow of oil.

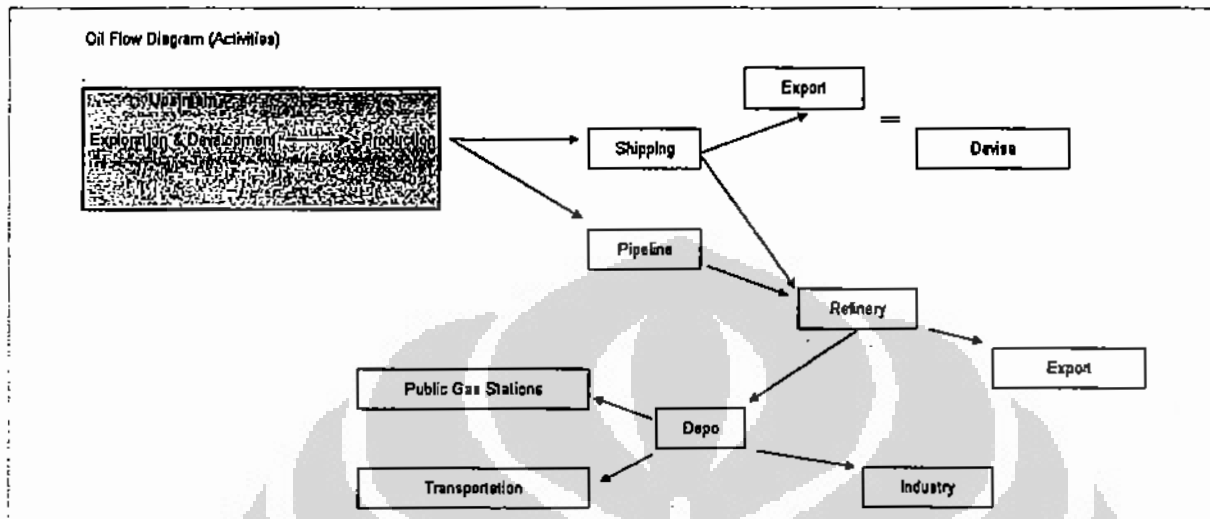


Figure 3.1. The Flow of Oil

Source: Petrochina (2008)

3.2. Company Profile

3.2.1. The Jabung Block in Sumatra

When Petrochina took over the PSC covering the Jabung Block in the Jambi Province of central Sumatra, earlier exploration efforts had yielded oil and oil plus gas discoveries at North Geragai and Makmur, as well as at North Betara, Northeast Betara, and Gemah.

North Geragai and Makmur were in production since 1998. Petrochina invested in two NGL (natural gas liquids) plants at North Geragai to extract liquids, LPG (liquid petroleum gas), and condensate from the gas produced from North Geragai and Makmur fields. Together the fields now produce 2,700 barrels of oil, 30 million cubic feet of sales gas, 650 barrels of condensate, and 1,100 barrels of LPG daily.

The oil zones in North Betara, Northeast Betara, and Gemah went into production in 2000. To process the liquid-rich gases flowing from these fields, Petrochina invested in the Betara Gas Processing Facilities, completed in 2005. These extensive processing facilities include offshore LPG refrigeration and storage, as well as crude and condensate terminals, from which Petrochina can ship products to either domestic or overseas markets. Each day the Betara Facilities can process up to 250 million cubic feet of raw gas into 100 million cubic feet of sales gas, 10,000 barrels of condensate and 1,380 MT (metric tons) of LPG.

Thanks to PetroChina's long-term investment in facilities and processing plants, the Jabung Block now produces 59m000 BOEPD of oil, condensate, and gas. Cumulative production totals more than 56 million barrels of oil, 9 million barrels of condensate, 1.2 million metric tons of LPG, and 450 billion cubic feet of gas. Since gas sales to Singapore began in 2003, PetroChina has supplied more than 130 billion cubic feet of gas to Singapore Power. With the North Geragai natural gas processing plant and the Betara Gas Processing Facilities in place, the Jabung Block is set to meet gas sales requirements for Singapore and other markets for at least the next twenty years.

3.2.2. The Bangko Block in Sumatra

PetroChina took over the PSC covering the Bangko Block in Jambi and South Sumatra Provinces. Tests on the block's Gambang-1 discovery produced 116 BOPD with small amounts of gas. Based on the results of two more wells drilled in 2005, PetroChina estimates the Gambang field holds 55 billion standard cubic feet (BSCF) of natural gas.

Convinced of the Bangko Block's potential, PetroChina conducted an aggressive 306 km 2-D seismic survey before drilling six delineation wells in 2003-2004. This resulted in two more discoveries at Piano and West Piano. Two delineation wells tested at 4.8 million and 14 million standard cubic feet of gas per day.

At the end of 2006, another exploration well at Kenong tested at a total gas flow rate of 14 million cubic feet of gas per day. PetroChina will drill a second delineation well in the Kenong field before it prepares development plans.

With attractive structures still to drill, PetroChina is preparing drill sites in Siter and Organ to test the potential of the block. By generating new reserves, PetroChina plans to augment oil production at the West Piano field.

3.2.3. The Tuban Block in East Java

The Tuban Block covers an area that has been the subject of scrutiny for more than a century. The Dutch first explored it in the 1930s. The block's Mudi field came on line in 197. Oil is extracted, processed, transported and stored for export in a floating oil barge moored 18 km off the coast of East Java. Petrochina now produces 3,500 BOEPD from 18 wells in the Mudi field. Ever seeking to delineate wider reserves.

The year 2001 marked the discovery of the Sukowati field. After taking over the Tuban Block JOB< PetroChina tested and put the first two Sukowati wells in Production in 2004. The field initially yielded 7,000 BOEPD. Sure of the field's further potential, PetroChina drilled another four wells. All four were viable and PetroChina immediately put them in production. With seven wells in production, the Sukowati field produces 24,500 BOEPD. PetroChina will

continue its hunt for hydrocarbons in the block by drilling five more exploration wells over the next two years.

The wise acquisition of the Tuban Block gave PetroChina the opportunity to demonstrate its ability to deliver an outstanding five-fold increase in production from the Mudi and Sukowati fields from 5,000 BOEPD in 2004 to 28m000 BOEPD in early 2008. PetroChina operates both fields under a mutually profitable JOB contract with Pertamina. In April 2008, PetroChina and its partners celebrated the production of Tuban block's 50 millionth barrel of oil.

3.2.4. Salawati and Kepala Burung Blocks

When Petrochina took over the Salawati basin Block in 2002, production from the block's 234 wells had dropped from a peak in the 1970s of 100,000 BOPD to 4,500 BOPD (barrels of oil per day). Cleverly seeing new potential in the block PetroChina daringly drilled seven exploratory wells in 2004. The risk was rewarded with a 100 percent success rate heralding the discovery of the Wakamuk field. PetroChina rapidly put all seven wells in production. The Wakamuk field now produces 700 BOPD.

Helped by this discovery and other measures, we PetroChina effectively reversed a declining trend and increased production in the Salawati Basin by forty percent from 4,500 to 6,300 BOPD. Now PetroChina is drilling four more cost-efficient development wells to extend the Wakamuk field's promising reserves. PetroChina will also drill three exploration wells in the nearby Walio Block to seek out hydrocarbon-hosting structures.

Existing production facilities in the Salawati Basin block, which include the Kasim Marine Terminal capable of storing 1.8 million barrels of oil and sufficiently accommodating oil

tankers up to 950 feet in length, give PetroChina a great cost advantage when bringing new fields on line.

PetroChina's second Papua venture is an interest in a Joint Operating Body (JOB) contract with Pertamina covering the Salawati Kepala Burung Block. After evaluating discoveries originally made in 1974, PetroChina acted swiftly by bringing the TBA and TBC oil and gas condensate fields on line in 2006. Together the TBA and TBS offshore fields produce 2,900 BOEPD of oil and gas condensate.

Since production began in 1973, the Salawati basin and Salawati Kepala Burung properties have produced 334 million barrels of oil and 30 million barrels of oil respectively.

3.2.5. Environment, Health, and Safety

To minimize potential hazards and shield the environment from harm during the production process, PetroChina controls its environmental, health and safety risks with a comprehensive EHS (environment, health and safety) management system. We believe that we can only eliminate hazards if our employees are well trained and strictly adhere to a 12-point Plan-Do-Check-Act system.

Ever mindful of the environment, before and after PetroChina undertakes any activity such as seismic testing, exploration drilling or production start up, PetroChina conducts comprehensive environmental assessments. PetroChina carries out rigorous environmental management and monitoring, environmental impact assessments and environment risk assessments.

PetroChina supports the development and use of clean energy and environmentally safe products.

3.2.6. Community Development

Harmonious partnerships with local governments and communities in the areas where Petrochina operates are crucial to success. PetroChina's community development programs foster a vibrant and vital interaction between PetroChina and the people whose lives we touch.

Working hand-in-hand with local government, PetroChina supports government development objectives. Petrochina distributes cattle to smallholders in Jambi. The cattle breeding and fattening program provides farmers with training and cattle through a credit-in-kind plan. After the cow has a calf, the farmer can keep the cow. Petrochina's smallholder economic development programs also provide hand tractors, palm seeds, rubber tree seeds, and vegetable seeds to improve smallholder yields, as well as roe for fish farming, capital for basket weaving and other home industries.

PetroChina's social and public infrastructure programs include building and renovating schools, providing roads and electricity to open up remote areas, and providing low-price gas to local electricity generation plants. PetroChina's community health programs supplement the nutritional needs of children under five. Medical assistance programs provide free surgery, such as procedures for the elderly. Education and cultural programs deliver much needed scholarships to gifted students who cannot afford higher education, and badly needed textbooks to stock school libraries. To foster harmony in the communities where we operate, PetroChina provides materials to build and renovate mosques, churches, and community halls.

Reaching out to community groups is a commitment PetroChina holds on to. Operating in a dynamic region, PetroChina is always ready to provide emergency assistance and disaster relief when needed. PetroChina understands that a thriving community is one that is supported by its environment, therefore, PetroChina does its utmost to support basic human needs, founded in a strong dedication to its people, partnerships, and purpose.

3.2.7. Corporate Structure

Petrochina, located in Jakarta, plays a role as the holding company for its subsidiaries that operates in each of their regions, or usually referred to as blocks. The holding company is lead by its President Director and each of the blocks has their own General Managers in which they all report to the President Directors. Divisions that are categorized as corporate are lead by Vice Presidents.

The following table illustrates how the company is structured.

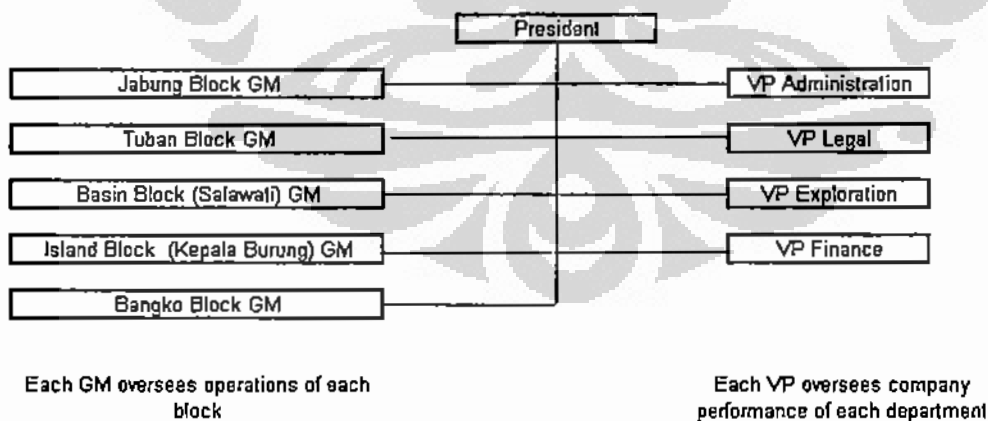


Figure 3.2. Corporate Structure

Source: Petrochina (2009)

3.2.8. The Company Operational Flow

The Oil and Gas industry is generally divided categories; upstream and downstream.

The upstream category includes activities in searching for and the recovery and production of crude oil and natural gas from below the earth's surface. The upstream sector can also be referred as the exploration and production (E&P) sector.

In the upstream sector, operations are mainly in the searching for potential oil and gas underground or underwater, drilling of exploratory wells and finally the operating the wells that recover (pump) and bring the crude oil and/or raw natural gas to the surface of the earth.

The following diagram illustrates the general flow of operations of Petrochina as an oil company in the upstream sector:

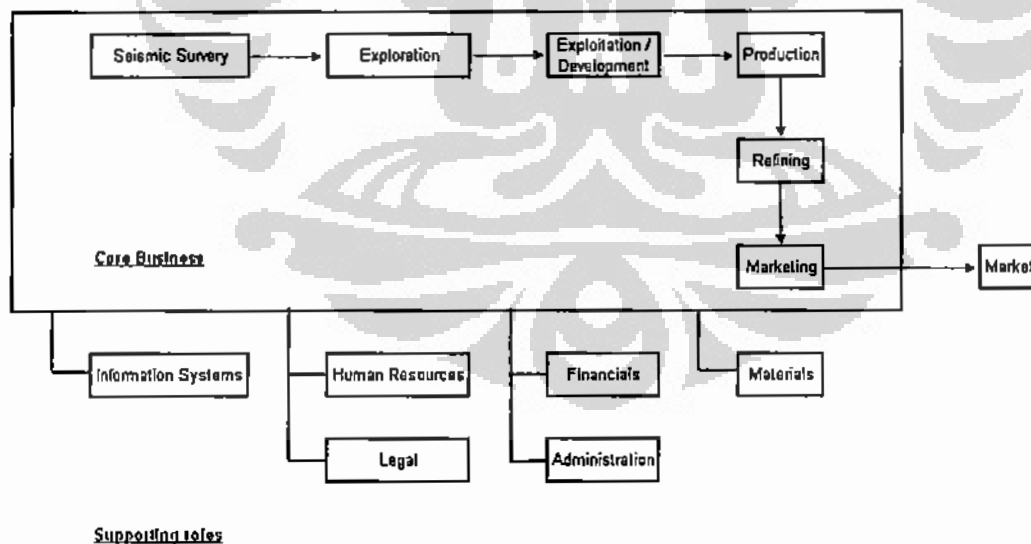


Figure 3.3. The General Flow of Operations

Source: Petrochina 2009

1. Seismic Survey and Exploration

Let's imagine we're standing in the middle of a big prairie. Except for sky, all we see in any direction is flat, dry land. Underneath this flat ground, there could possibly be oil. But, as we slowly scan the landscape, nothing on the surface indicates the presence of oil. This is the same problem faced by those who make their living trying to find oil. People who explore for oil and gas traps are called exploration geologists and geophysicists. Their main job is to find subsurface traps that could contain oil. One of the sciences that geophysicists use in their search for oil is seismology.

Seismology is the study of vibrations in the earth. The vibrations take the form of sound waves. For instance, an earthquake creates sound vibrations that can be studied by seismology. Sound vibrations can also be made in studied on the surface of the earth. Man-made sounds can help geo-physicists find oil.

To understand these special sounds and how they're used to find oil, we shall look at a simple comparison. Most of us have experienced the sound of our voices coming back to us from the face of a cliff or building. The sound travels through the air, bounces off the cliff or wall, and returns back to us as an echo. The use of seismology to explore for petroleum traps is based on the same principle, but it is somewhat different.

In seismic exploration, geophysicists are looking for traps buried deep beneath the surface. So, the sound has to travel not through air but through rock. Also, the sound has to have the right characteristics to go through thousands of feet of rock and back up to the surface.

Further, the seismic work of a geophysicist usually covers many miles of surface area in order to increase the chances of finding a potential oil reservoir.

If results from the seismic survey are satisfactory, then exploration drilling is done in order to take samples of the sediment that indicated high levels of hydrocarbon. The sample is then put into analysis to figure exactly how much hydrocarbon is trapped in the region the sample originated from.

If the results of the sample analysis are not satisfactory then the well is plugged and abandoned because the well is predicted to be not economical because the amount of money used for the next and previous stages would have cost more money than generated.

2. Exploitation / Development Drilling

After the seismic and exploration stage is a success the next stage is development drilling in which this is done in order to extract oil out from under the earth's surface. In development drilling, fluids that flow out from under the surface are to surely have high levels of hydrocarbon whether it is crude oil or natural gas.

For as long as the well is put into production, constant services known as well service operations must be done in order to maintain the flow of oil. In addition to that, well service operations function to maintain / improve well productivity and extend the life of a development well.

3. Production

After the exploration and development stage, the next stage is the production stage. As long as the pressure in the reservoir remains high enough to have oil flowing naturally out to the surface, the only tool needed is a production tree, which is a type of regulator that controls the pressure, flow of the oil to the flowline that leads to the storage.

Over the lifetime of the well the pressure in the reservoir will logically begin to decrease. When this happens there are various methods in order to lift oil out of the ground artificially. These methods can include the use of beam pumps, electrical submersible pumps, water injection, natural gas reinjection and gas lift.

4. Refinery

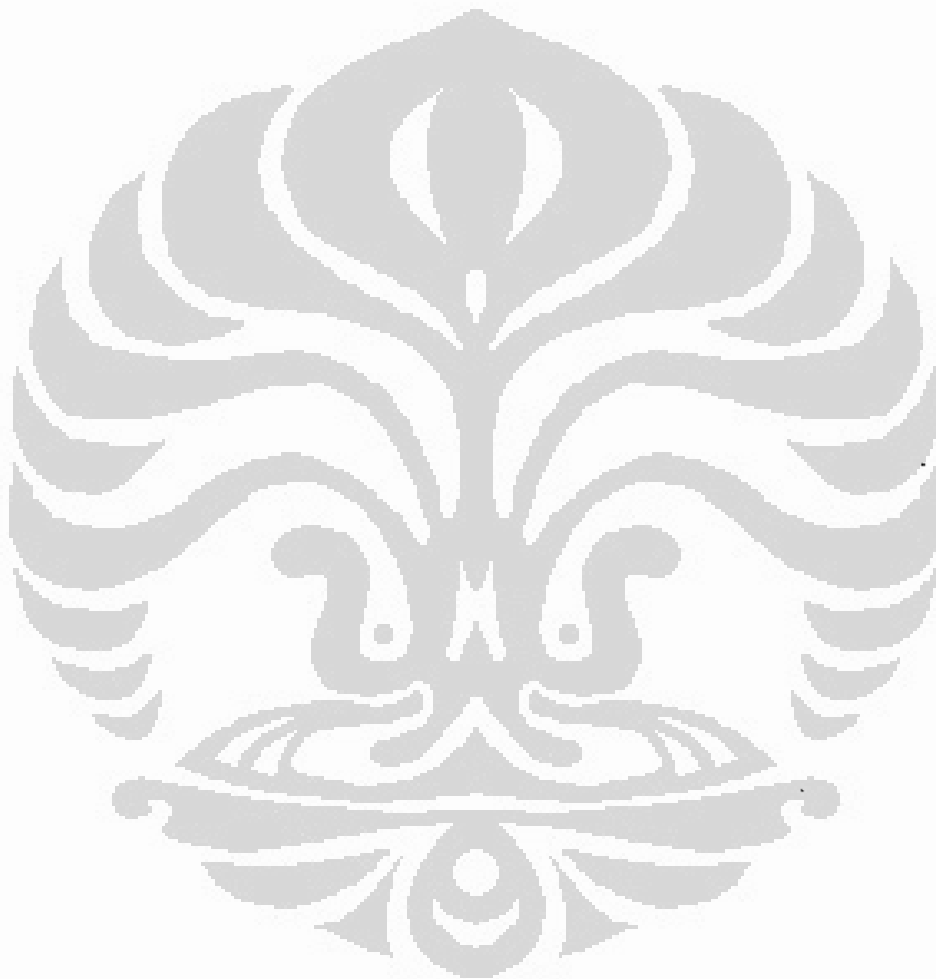
Refinery is a stage in which crude oil extracted in the previous stage is processed and refined into more useful petroleum products, such as gasoline, diesel fuel, asphalt base, heating oil, kerosene, and liquefied petroleum gas.

5. Marketing

Petrochina operates in the upstream sector of the oil and gas industry, therefore, buyers are chosen through tenders. Sales, or usually referred to as “lifting”, of crude oil and gas are done in accordance with contracts between Petrochina and its buyers.

Petrochina consumers are both foreign and domestic. The domestic consumer, *Pertamina*, buys gas in the form of propane and butane. Besides *Pertamina*, another local company, *Tanjung Jabung Power*, also buys gas from Petrochina but on a smaller scale.

Petrochina's foreign consumers come from Singapore. *Kemel Oil* buys crude oil in which it is transported by an oil tanker and GSPL Singapore who buys gas from Petrochina in which the gas is transported by a pipeline.



CHAPTER 4

DATA ANALYSIS

4.1. Importance of a Strategy Map

The key to executing a strategy is to have the employees in the organization understand the strategy determined – including the important but confusing processes in which intangible will be an input for tangible outcomes. Unfortunately when attempting to implement business strategies, top executives only give limited descriptions of what they should do and why those tasks are important to the organization. Without clearer and more detailed information, many companies have failed in executing their strategies. Logically, how can employees carry out a plan when they don't even understand it? Organizations need the balanced scorecard and the key performance indicators to communicate both the strategy and the processes and system that will help the implement the strategy.

The strategy map provided later helps Petrochina in implementing the strategy. It gives the employees clarity in how their jobs are connected to the overall objectives of the organization, helping them to work in an organized fashion toward Petrochina's goals. The maps provide visual representation of Petrochina's critical objectives and the crucial relationships among them that helps achieve organizational performance.

Strategy maps helps Petrochina by illustrating objectives for growth in revenue; which customer market generates profitable growth; value propositions that will help company attain customers for doing business at higher margins; how to create innovation

and excellence in products, services, and processes; and required investments in human resources and information systems to help generate growth.

Strategy maps show the cause-and-effect links; how specific improvements can result in desired outcomes – for example, how enhanced employee capabilities will increase customer retention and ultimately increase Petrochina's revenue. From a wider perspective, a strategy map helps Petrochina how to convert its resources (whether they are tangible or intangible) into tangible outcomes.

In order to determine the proper strategy and subsequently determine the measures for the balanced scorecard for Petrochina, two methods of data analysis were used to figure out where Petrochina stands in the industry. It is important to know the external factors that have an influential impact on Petrochina and what Petrochina has (internally) to protect itself from negative factors and also to take advantage of opportunities. The first method used was the Michael Porter's Five Forces analysis and the second being the S.W.O.T. (strength, weakness, opportunities, threat) analysis. These methods will be further elaborated in the following paragraphs.

4.2. Porter Five Forces Analysis

There is a growing interest in the study of the forces that have an influence to an organization, especially those that can be connected to provide competitive advantage. Porter's five forces analysis is an outline for an analysis of these forces for a certain industry and business strategy. A business must understand the forces and energy of its industry and market to compete effectively in the marketplace. Porter believes that the forces which that create competition are derived from the interaction of five different

forces acting on a business. These forces are the rivalry among existing firms and the threat of new entrants the market, also the forces of supplier power, the power of buyers and the threat of substitute products or services. It is believed that the intensity of competition is determined by the relative strengths of these forces (Hitt, Hoskisson & Ireland, 2007).

4.2.1. The Degree of Rivalry

What is important here is the number and capability of the competitors of a particular industry. If the number of competitors is numerous, and they offer equally attractive products and services, then organizations will likely have little power in situations. To put it another way, If suppliers and buyers don't get a good deal from a certain organization, then they will go elsewhere. On the other hand, no-one else can offer what a certain organization is offering, then this organization will have a tremendous strength. In many industries, this factor is the most influential to competition (Huff, Floyd, Sherman & Terjesen, 2009). Competition between existing players is likely to be high when:

- There many players of the about the same size.
- Players have similar strategies
- There is not much differentiation between players and their products, therefore, there is no competition.
- Low market growth rates
- Barriers for exit are high (e.g. expensive and high specialized equipment are required)

4.2.1.1. Where Petrochina Stands in the Rivalry

Though there are many players in the oil and gas industry, players in the industry have varied in size. There are those with a small production target and there are those with a high production target. Production target is determined by the Supervising Board for Oil & Gas called "BPMigas". However, little output is a result of little input. In this case, if production target is small, therefore budget is small as well – vice versa. Every player in this industry basically has the same strategy, which is to produce as much crude oil and gas as much as possible. Because what is being produced is "crude" oil, there is not much differentiation. If crude oil were to be processed, crude oil would fall into the downstream oil & gas industry. The exploration and production of oil and gas are the only activities that fall into the upstream industry, which is the industry that Petrochina is in. Barriers for exit are high because very expensive and highly specialized equipment are required to produce and explore oil and gas. Petrochina competes in an industry where rivalry is extremely high.

4.1.2. The Threat of Substitution

The threat of substitution is affected by the ability of the market in finding similar but more attractive products and services. If substitution is accessed easily and viable, then this threatens your organization (Fred, 2009). The likelihood of a customer switching to a different producer depends on the price, performance and switching costs of the substitution.

4.2.2.1. How well Petrochina Stands Against Substitutions

Although there is a growing number of substitutions, they are still imperfect and incomplete. Thus far, there are no other substitution that can provide the amount of energy as much as crude oil. The petroleum industry provides around 40% of the globe's energy and the largest commercial enterprise. It is the most flexible and convenient fuel. Without petroleum is also the provider of other industries such as automobile, and tourism. Oil is also more than just energy. Refined oil can be used for more making clothes, pesticides, paint, medicine and thousands of other products. Threat against substitutions is very small.

4.2.3. Buyer Power

Buyer power is determined by how easy it is for buyers (the market) to influence price down. Price can be driven by the buyers in various ways, such as the little amount of buyers or the importance of a buyer or even the cost of switching from the certain organization to a product or service of another. Another case in which buyer power is high is if there are a large number of undifferentiated products from various suppliers (Carpenter & Sanders, 2007). To put it to the extreme when a buyer is strong, the relationship to the producing industry is near to what is called monopsony – a market in which there are many suppliers and one buyer.

4.2.3.1. Buyer Power of Petrochina

Even though differentiation of crude oil is low, the buyer power in this industry is low as well. This is so because buyers are acquired through a bidding process, therefore the candidate with the highest offer wins the tender and a contract is made between Petrochina and the buyer. However, as long as the buyer is not attached to a contract, switching cost is very low and of course they are free to look for a different supplier.

4.2.4. Supplier Power

Suppliers of raw materials, components, labor and services (such as expertise) can be taken as an advantage to overpower a firm. These suppliers may refuse to work with a firm or charge expensive for resources suppliers are able to provide. Some examples where a supplier has much power are when switching costs are high, the industry of the buyer is not a key market of the supplier, and there are not many substitute suppliers (Moore, 2005).

4.2.4.1. Supplier Power of Petrochina

Supplier power of Petrochina does not have much power, for suppliers of Petrochina are acquired through a bidding process. In this case, there is no such that as a supplier refusing to work with Petrochina. Once a winner of the tender has been determined a working contract is then created between the new supplier and Petrochina. However, switching costs of a supplier is low, as long as they are not attached to a contract with Petrochina.

4.2.5. Barriers to Entry / Threat of Entry

It is not only the current rivals that pose a threat to the players in the industry; the possibility of new firms entering the game affects competition. Theoretically, any firm should be able to enter and exit into a market. However, industries have certain characteristics that protect profit in the market and restrain additional rivals from entering the market (Grant, 2003). These are barrier to entry.

The following are examples barriers to entry:

- Government:

Although the main role of a government in a market is to preserve competition through anti-trust actions, government may also restrict competition by granting monopolies.

- Patents and Proprietary Knowledge:

When ideas and knowledge that give competitive advantage are patented, no other organization may use this patent; thus, preventing the entrance of new competitors.

- Asset Specificity:

Asset specificity is the degree to which an asset can be used to produce a different product. When an industry requires technologically advanced assets, potential entrants are hesitate to commit to acquiring specialized assets that are difficult (if not able) to sell or converted into other uses if the initial business fails.

4.2.5.1. Barriers to Entry in Petrochina's Industry

The threat of new entrants is low because barriers to entry include high capital cost, economies of scale, distribution channels, proprietary technology, environmental regulation, geopolitical factors, and high levels of industry expertise needed to be competitive in the areas of exploration and extraction of crude oil. Thus, it is very hard for new players to enter the market.

4.3. The Strengths, Weaknesses, Opportunities and Threats Analysis

The SWOT analysis is a powerful tool for understanding an organization's strengths and weaknesses while also looking for opportunities and anticipating threats. For an organization, the SWOT analysis can help an organization create and maintain a niche in the market.

What makes this tool popular is that it is uncomplicated; however it can help an organization discover opportunities to exploit. Also with its "incomplexity", an organization is able to understand where their weakpoints are and anticipate the threats that may threaten these weakpoints. Moreover, when an organization is able to determine a SWOT of a competitor then distinguishing this organization will be much easier and a more accurate strategy can be made to take the advantage.

4.3.1. Petrochina Strength

Petrochina has 6 producing blocks which are located in Madura, Jabung, Bangko, Tuban, and two in Salawati. This is a strength to Petrochina because technical risks can be spread. For example, if source of power is inadequate, operations will still continue in the

five blocks. As for if a company only has one block and that block has inadequacy of power, therefore operations would not be possible. From the economics side; in some cases a block can have with a high budget compared to how much that block is producing oil can be considered as not economical. It would not make sense if the block were to stay operational if the amount of oil produced cannot cover the budget that needs to be spent. If this were to happen to one of the blocks (or even two) blocks of Petrochina, the other blocks would still be able to cover the uneconomical block.

4.3.2. Petrochina Weakness

As mentioned before, Petrochina has six blocks. If we were to assume that another company had only one block but produces the same amount of oil as the six blocks of Petrochina, then Petrochina would have the disadvantage. This is so because Petrochina would not be as efficient as a company operating one block. Inefficiency in most cases is related to costs; one example of high costs due to a large amount of blocks is man power. Because Petrochina has several blocks, each block has to have their own set of professionals such as geologists, geophysicists or drilling engineers which obviously would cost more than a company that only has one block.

4.3.3. Petrochina Opportunities

Petrochina has many opportunities that awaits in the industry it competes in. If Petrochina can understand that they have much more opportunities than threats, they should be able to grab a bigger share of the market. Most of these opportunities have been discussed earlier in this chapter.

In the oil and gas industry, Petrochina does not face much threat from substitute products. Substitutes such as nuclear power, solar and wind etc. are still too uncommon. Yes there is a possibility that a buyer can switch to another oil and gas supplier but buyers are acquired through tenders, meaning that there are plenty of buyers out in the market. Once a buyer has been determined they are bonded by a contract for a certain number of years - the same for suppliers.

Suppliers are acquired through a tendering process also meaning that there are many suppliers in the market who are ready to offer their services or product. New entrants are always reluctant to enter this market because investments are very expensive. Starting from rigs to trained professionals, plus the cost of drilling wells can be in the range of millions of dollars.

4.3.4. Petrochina Threats

The only threat that Petrochina must anticipate is that it produces a product that does not have any differentiation if compared to other crude oil producers, after all it's "crude oil". If a buyer does not succeed in buying oil and / or gas from Petrochina, they can easily switch to another producer without much cost. Switching from one producer to another for a buyer can be done quickly because nobody has anything unique about their crude oil. However, the product that Petrochina produces does not have much differentiation but neither do the competitors.

Below is a table summarizing the SWOT analysis explanation above:

Table 4.1. SWOT Table

Strengths	Weakness
<ol style="list-style-type: none"> 1. Technical risks spread 2. Uneconomical blocks can be covered by economical blocks 	<ol style="list-style-type: none"> 1. Cost inefficiency due to separated location of each block 2. Higher budget is needed also due to separated location of blocks
Opportunities	Threats
<ol style="list-style-type: none"> 1. There is no substitute for crude oil and gas 2. Many suppliers and buyers and both are acquired through a bidding process 	<ol style="list-style-type: none"> 1. Low switching costs of buyers 2. No differentiation in product produced

Source: BPMigas (2009)

4.4. Measurements in the Financial Perspective of the Balanced Scorecard for Petrochina

Petrochina must invest in expensive and highly technological assets in order to produce oil. What makes it even worse is that Petrochina has many blocks. This significant amount of blocks has a negative affect on the cost; such as labor, the amount of assets that must be bought for each block etc. If Petrochina can reduce the capital expenditures, Return on Assets will automatically increase and help create a large margin between cost and revenue.

The Financial Measurement for Petrochina will be Return on Asset. Return on asset can act as a lagging indicator. As for the leading indicator, Petrochina should use a Production forecast to have a broad picture of how much revenue will be acquired and budget to also get an idea of how much money will be spent for the year for assets and operational expenses.

These measurements require various departments of Petrochina to provide information. The calculation of Return on Assets will be provided by the Finance Department. Oil Production Forecast will be provided by the Production Engineers of Petrochina. Budget is provided by the Budget and Planning Department.

The following diagram is an outline of the Key Performance Indicators and the department responsible for preparing them:

Table 4.2. KPIs in the Finance Perspective

Finance			
Lagging Indicator:	Department Responsible:	Leading Indicator:	Department Responsible:
Return on Asset	Finance	Production Forecast Budget	Production Engineering Budget & Planning

Petrochina (2009)

4.4.1. Return On Assets

The return on assets ratio mainly shows how valuable a company's assets are in generating revenue. This number shows what the company can achieve with the assets it has. Actual production is needed to produce this ration, for actual production is multiplied by the current oil price in order derive gross revenue.

The goal of this KPI is to indicate the performance how well the company chooses its assets. It gives an idea of whether or not the company is investing on the correct assets to generate return.

4.4.2. Production Forecast / Budget

Although production forecast can change periodically, production forecast is a powerful leading indicator because it gives an accurate prediction of how much oil and gas will be produced for the current year. Usually a forecast is not much different from the actual production. There are many factors that can have an affect on the production forecast, depending on the situation on the field and in administration.

Production forecast and budget have a very strong relationship together. Other than cost control, the main idea of having a budget is to have a plan. A budget explains what is planned and what will be executed in the form of money. One a plan has been made, the engineers can make a prediction of how much oil can be produced.

The goal of the production forecast and the budget is to give a broad idea of how much revenue the company will generate during the year. This is possible because the budget reflects what will be executed during the year for a budget is principally a plan for the year. From that a production forecast can be made according to this one year plan.

4.5. Measurements in the Customer perspective of the Balanced Scorecard for Petrochina

In order to achieve the goals in the financial perspective, measurements in the customer perspective must be satisfactory. Measurements in the financial perspective are

tied directly to the measurements in the customer perspective, particularly for the measurement of revenue. Of course, as long as there is a buyer there will always be a constant flow of revenue. Otherwise Petrochina will have no one to sell its oil and gas to.

Leading indicators that can lead to high results in the financial perspectives could be the acquisition of customers, customer retention and customer satisfaction. The acquisition of customers can be measured by how quickly a tendering process can take or how many tender processes Petrochina must conduct in order to acquire a buyer. Retention of a customer can be measured by how long the period of a contract between Petrochina and the customer. Customer satisfaction can be done several ways; by a written survey or by taking the time to conduct an interview between a current customer and Petrochina. A lagging indicator could be percentage of market share.

The leading indicators (customer acquisition, customer retention, customer satisfaction) are indicators that the marketing department of Petrochina has easiest access to. The marketing department has sufficient amount of data to calculate and determine the numbers for this KPI for they are the department that creates contracts between Petrochina and its customers. The lagging indicator (market share) should be attained by a third party. Petrochina does not have a specific department that functions as a researching unit computing Petrochina's share in the market.

The following diagram is an outline of the Key Performance Indicators and the department responsible for preparing them:

Table 4.4. KPIs in the Customer Perspective

Customer Perspective			
Lagging Indicator:	Department Responsible:	Leading Indicator:	Department Responsible
Market Share	Marketing	Customer Acquisition	Marketing
Third-Party Oil Trading Volume	Marketing	Customer Retention	Marketing
		Customer Satisfaction	Marketing
		New Reserves	Exploration

Petrochina (2009)

4.5.1. Market Share and Third-Party Oil Trading Volume

Market share in the oil and gas industry refers to how much oil and gas is produced compared to how much oil and gas is produced by other companies. Obtaining information on market share can be by a done a service company specializing in obtaining market information.

Third-party oil trading volume has the objective of showing how much it is selling to the customers. Logically if this KPI is high then the Market Share KPI should be high as well.

The goal of this key performance indicator is to give the company an idea how well it is doing against its competitors. It is a lagging indicator and it may consume time to determine results, however it is useful information that shows whether or not the company is lagging or leading against other players in the industry.

4.5.2. Customer Acquisition / Retention / Satisfaction

Customer acquisition all depends on how the marketing division of Petrochina is able to attain a candidate (buyer) through a tendering process. The quicker the process the

sooner Petrochina will be able to start selling oil and / or gas to the buyer. The goal of this KPI is to indicate how well the company captures the market and how quick they are to sell the product they produce.

EHS audit scores play a little role in acquiring a buyer by setting a certain image. A high EHS audit score would represent a well maintained business process on the field, therefore making the buyer more interested in committing to a contract with Petrochina.

Retention depends on how long the agreement will be between Petrochina and the Buyer. Petrochina has contracts to sell its oil and gas ranging from 1 year to as much as 20 years. A simple way of calculating customer retention is by dividing the number of years of a certain contract by the longest contract Petrochina has with a buyer. The customer retention KPI has the objective of showing the company how well it holds and maintain its customers. This is useful information because the longer customer retention the longer the company is able to generate revenue.

Customer satisfaction depends on Petrochina's ability to keep producing the amount of oil and gas according to the amount that is agreed between Petrochina and the customer (buyer). In order to keep the buyer satisfied, Petrochina must not "under lift" (produce less than how much is agreed to be sold to the buyer). If for any reason Petrochina does not produce enough oil and/or gas to be sold to a customer, Petrochina must pay a penalty that has been agreed on in the contract between Petrochina and its buyer. The goal of this KPI is to indicate the performance to the company of how well the company is doing in making the customer happy. Sensibly when a customer is satisfied, the KPI of customer retention should be high as well.

Because the product that Petrochina sells is just plain crude oil and/or gas (which is not a complex product), there is virtually no need for post sale service. As long as the buyer receives the amount of oil and/or gas agreed in the contract there should not be any complaints from the buyer/customer.

4.5.3. New Reserves

New reserves is a leading indicator that shows a general idea of how well the customer acquisition KPI will do. Most likely, if Petrochina has reserves it will continuously be able to acquire more and more customers to sell oil and/or gas.

4.6. Measurements in the Internal Business Process Perspective of the Balanced Scorecard for Petrochina

Measurements in the Customer perspective are linked to the measurements in the Internal Business Process Perspective. If Petrochina can achieve high numbers in this perspective, theoretically they will be able to achieve high measures in the customer perspective as well. The two measurements Petrochina should use are the safety audit scores and actual production (the amount of oil and gas produced). Safety audit scores are results of Environment, Health and Safety (EHS) audit. A high EHS audit score not only proves that processes in the field are done in accordance with proper procedures, but also it should be able to help Petrochina image towards customers and ultimately attract these customers into buying crude oil and / or gas. If EHS audit scores is a leading indicator, the lagging indicator should be the production of barrels of oil. The more we produce then the more that Petrochina has to sell to customers. Oil and gas production is indeed a lagging indicator, meaning that there is a very complex and technical process in order to

have results in this measurement. Because of the high level of complexity, we are not going to get into detail on this matter.

Measurements in the Internal Business Process are under the responsibility of the Environment, Health and Safety Department (EHS). The EHS departments have routine schedules to go to the field and conduct EHS audits. The other measurement, actual production, is under the responsibility of the production engineers. Production Engineers keep monthly actual reports of oil production.

The following diagram is an outline of the Key Performance Indicators and the department responsible for preparing them:

Table 4.4. KPIs in the Internal Business Process Perspective

Internal Business Process Perspective			
Lagging Indicator:	Department Responsible:	Leading Indicator:	Department Responsible:
Actual Production Production Cost	Production Engineering Finance	EHS Audit Scores	EHS

Petrochina (2009)

4.6.1. Actual Production

Actual production depends on the skills and experience of the employees that are on the field in employed on the site. If these employees are skillful and experienced, they are more likely able to know how to handle any given situation and therefore able to produce more. Another factor that affects actual production is the facilities provided – which relates the budget. An employee can be skillful and experienced but without the right equipment, they are going to be able to produce. Obviously, in general, the goal of

this KPI is to indicate how well internal business processes is executed. It gives an exact idea how well the company is performing its core business. This will also give a reflection of how much revenue will be generated.

4.6.2. Production Cost

Even though production cost is a lagging indicator, it is the clearest indicator of how the company is doing financially and on the field. This KPI shows how much money is needed to produce one barrel of oil. The goal of this KPI is to indicate how efficiently the company is in executing company business which is to explore and produce oil and gas.

4.6.3. EHS Audit Scores

EHS audit scores obviously depends on the employee skills and experience. If employees do not have sufficient skills and experience, the people at the HRD must be initiative in giving these employees appropriate training to fulfill the needs for skill and experience. The amount of employees is also important in order to keep operations safe. Operations on the field must have a sufficient amount of workforce to keep these activities safe. There for employee retention is important.

In every executives' mind it is not only important for the company to grow but also the way the business is done, particularly if the business is oil and gas exploration and production. This refers to responsible business practices which is assessed by conducting EHS audit. A high EHS audit score can help Petrochina in maintaining a spot n the Dow Jones Sustainability Index, the leading corporate environmental indicator. The

goal of the satisfactory EHS audits core is to give an impression to customers how well the company abides the industry environment, health and safety standards.

4.7. Measurements in the Learning and Growth Perspective for Petrochina

The foundation of the balanced scorecard lies in the learning and growth perspective. Once again, the measures in the perspective of internal business process are affected by the measures in the perspective that is the foundation of it, learning and growth. Logically if Petrochina wanted to achieve high numbers in the internal business processes, the people who conduct these processes are (the employees) would sensibly have to be in a state of happiness and / or satisfaction. If not, this may compromise the performance of employees and ultimately decrease results in the internal business perspective.

The three important aspects that should be considered to be measured are employee satisfaction, employee retention and employee productivity. Employee satisfaction can be determined by conducting a survey that measures:

- Involvement of employees in making decisions
- Recognition for doing a good job
- Access to sufficient information to do their job well
- Active encouragement to be creative and initiative
- Overall satisfaction with company

If results from the survey are high, then it is safe to conclude that the employees in the company are satisfied. Employee satisfaction is a good leading indicator of the other two lagging indicators. Employee retention measures for how long Petrochina can hold on to its employees. Employees should be considered important to Petrochina because they carry the knowledge and skill to perform jobs and organizational processes. The actual value of Petrochina lies within the human resources. Employee retention should be measured by monitoring the key employee turnover.

The third indicator (which is a lagging indicator) is how productive an employee is, employee productivity. Although this is a lagging indicator, Petrochina is able to determine whether or not the amount of people employed in the company is efficient and / or effective. Cost is also be related to this and therefore creating a direct link to the measures in the financial perspective.

Measures in the Learning and Growth Perspective are under the responsibility of the Human Resources Department. HRD should have the task of analyzing this data through the research by employee survey. HRD should logically be the party that has the employee turnover rate throughout all the departments of Petrochina. Finally employee productivity can be collaboration between HRD and the Finance department, in which the HRD would have the total amount of employees and the Finance department would have the total revenue. This calculation can either be done yearly or monthly or even monthly – depending on the accuracy of employee productivity desired.

The following diagram is an outline of the Key Performance Indicators and the department responsible for preparing them:

Table 4.5. KPIs in the Learning & Growth Perspective

Learning & Growth			
Lagging Indicator:	Department Responsible:	Leading Indicator:	Department Responsible:
Employee Retention	Human Resources	Employee Satisfaction	Human Resources
Employee Productivity	Human Resources		

Petrochina (2009)

4.7.1. Employee Productivity

As mentioned before, employee skills depends on the experience of the employee itself. If for any reason the skill of a certain employee is not adequate, HRD must be able to provide the sufficient and appropriate training to fulfill the requirements of a competent employee.

Skills of the company employees can be reflected by how much the company can produce. Employee productivity is generally calculated by dividing revenue by the amount of employees. The goal of this KPI is to show how well the working force executes their jobs.

4.7.2. Employee Retention

Long-term, loyal employees carry the value of a company, knowledge or operational processes and (ideally) compassion in making a customer satisfied. Therefore employee is also to be considered as capital. Employee retention is generally measured by the percentage of key staff turnovers. This KPI aims to indicate how long an employee is willing to stay at the company.

4.7.3. Employee Satisfaction

Petrochina can measure employee satisfaction by a very typical way – conducting a survey. This survey can be conducted periodically (monthly, quarterly and/or yearly) for randomly chosen employees. Aspects that may be included in the survey can be:

- Involvement with decisions
- Recognition for doing a good job
- Access to sufficient information to do the job well
- Active encouragement to be creative and use initiative
- Support level from staff functions
- Overall satisfaction
- Employee Benefits (Salary, Medical Benefits)

The purpose of this KPI is to show how satisfied employees are in the company. Employee satisfaction is an important factor of how well the company performs. After all, a company produces because of its employees and when the employees are satisfied, it is a leading indicator of how well a company will do in its business.

4.8. Strategy Map of Petrochina

The following is a summary of all the key performance indicators for each perspective. They are aligned on top of each other starting from the Learning & Growth

Perspective and ending at the Finance Perspective in order for the cause and effect linkages to be apparent.

Petrochina Strategy Map:

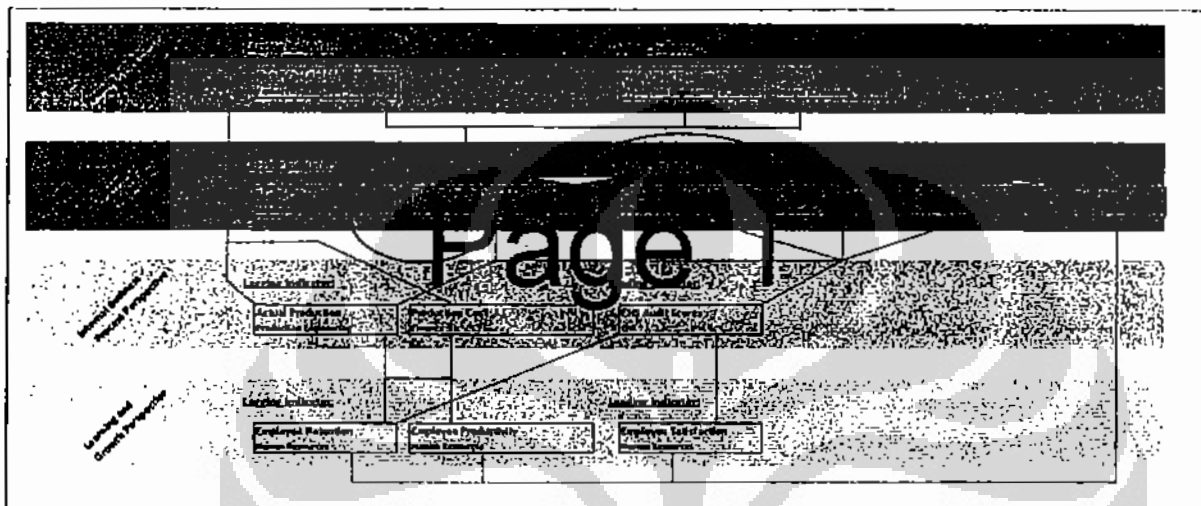


Figure 4.1. PetroChina's Strategy Map

Petrochina (2009)

4.9. Cause and Effect of The Company Strategy Map

The strategy map starts out with the indicators in the Learning and Growth Perspective. When an employee is happy or satisfied with the benefits and facilities provided by the company the company is most likely be able to perform at a satisfactory level. This is so because employee satisfaction will lead to employee retention which is important because the amount of employee needed must be sufficient to be able to produce at a maximum level. Employee productivity is a lagging yet important indicator that gives an idea of how well employees are performing.

The internal Business Process Perspective keeps a track of three KPI's – Actual production, production cost and EHS audit scores. A maximum amount of production is generated only if there is enough employees employed on the job. This is why employee retention is important. Production cost is automatically dropped when employee productivity increases. Employee productivity has a strong correlation with employee skills and experience, therefore the human resource function should make sure employees have appropriate training and / or recruitment should be carefully done. A satisfactory EHS audit score can be achieved when employees are comfortable with its surroundings and satisfied with the facilities provided by the company. Usually a low audit score correlates to the mental attitude of an employee, therefore when an employee mentality is positive, operational activities on the field will most likely meet standards of EHS.

KPI's in the customer perspective mainly measures how interested a customer would be and how much of the market share Petrochina has. New reserves reflect that Petrochina has a sufficient amount of oil and/or gas to keep supplying the customer, therefore this is a helpful indicator for the customer to whether or not to decide to sign an agreement with Petrochina. A customer would not want to be in an agreement with a supplier if there are signs that the supplier will be low on stock in the future therefore an indicator for New Reserves was made for this perspective. New reserves can act as a sign that the company has an abundant amount ready to be sold while actual production can act as a portfolio to show the consistency of the company in producing oil and gas. EHS mostly affects how quickly customers are acquired. Presumably a customer would want to have an agreement with Petrochina if the company is able to meet EHS standards. Retention depends on the agreement – again if Petrochina has a significant amount in its

reserves, most likely a customer would want to have a longer contract with the company. The other customer KPI measures customer satisfaction. The main action in order to keep a Petrochina customer happy is by always meeting the production amount agreed in the contract signed between the company and the customer. Under-lifting will always cause a customer to be unsatisfied. The gas and oil amount traded to customers significantly depends on the amount of actual production. Obviously the more produced, the more available to be sold to a third party. Finally, in the customer perspective the market share which acts as a lagging indicator gives a general idea of how well Petrochina is doing in the industry. Market share is also dependent on how much oil and gas is produced. You can't have a large portion of the market if you cannot produce products and vice versa.

To conclude, in the financial perspective, the two leading KPI's are Budget and the Production forecast. The budget can act as a clue for how much the company will spend for the current year. Because a budget is basically a plan for the one year expressed in funds, engineers can use the budget (which shows what will be executed for the year) to make production forecasts. A production forecast will show how much will be expected to be produced for the year and therefore a gross revenue or a predicted return on assets can also be predicted for the year. The lagging indicator used for the financial perspective is the Return on Assets. This KPI was chosen because Petrochina has to invest on a large amount of capital in order to operate in the field. Return on asset essentially depends on the net income (which is basically actual production multiplied by oil price) and the amount of assets the company has.

All in all, the KPI's for each perspective must be made clearly and be easily calculated. This is key in making the balanced scorecard work because the base of the balanced scorecard are the employees who execute the activities.

4.10 Implementation of the Proposal

Implementation of the balanced scorecard will require teamwork because key performance indicators are spread through out the organization. The following chart illustrates what departments are responsible for providing information on which key performance indicator:

Table 4.2. Key Performance Indicators and the Departments Responsible

Finance Perspective			
Lagging Indicator:	Department Responsible:	Leading Indicator:	Department Responsible:
- Return On Assets	- Finance	- Production Forecast Budget	- Production Engineering - Budget & Planning
Customer Perspective			
Lagging Indicator:	Department Responsible:	Leading Indicator:	Department Responsible:
- Market Share	- Marketing	- Customer Acquisition - Customer Retention - Customer Satisfaction	- Marketing - Marketing - Marketing
Internal Business Process Perspective			
Lagging Indicator:	Department Responsible:	Leading Indicator:	Department Responsible:
- Actual Production	- Production Engineering	- EHS Audit Scores	- EHS
Learning & Growth Perspective			
Lagging Indicator:	Department Responsible:	Leading Indicator:	Department Responsible:
- Employee Retention - Employee Productivity	- Human Resources - Human Resources	- Employee Satisfaction	- Human Resources

Petrochina (2009)

CHAPTER 5

CONCLUSION & RECOMMENDATION

After analyzing the facts, the following are conclusions and recommendations that should be taken into consideration in making a corporate strategy, therefore ultimately be successful in competing in the industry of the exploration and production of oil and gas.

5.1. Conclusion

Strategic planning practices have evolved dramatically over the past two decades due to challenges in formulating a strategy in unstable conditions. Strategic planning processes have become more decentralized, less staff driven, and more informal, while strategic plans themselves have become more short-term, more goal focused.

However, even through volatile conditions, Petrochina has the advantage of owning several blocks. This can be an advantage because technical risks can be spread which has been discussed in chapter 4. Also in a case in which one of the blocks is uneconomical, the other blocks that are still economical can cover the costs of a block that is not economical.

As discussed in chapter 1 (one) the objective of this writing is to provide a guideline in achieving effectiveness and efficiency. Petrochina can use the balanced scorecard to achieve such effectiveness and efficiency because the balanced scorecard is able to:

- Clarify and update strategy,
- Communicate strategy throughout the company,

- Align unit and individual goals with strategy,
- Link strategic objectives to long-term targets and annual budgets,
- Identify and align strategic initiatives, and
- Conduct periodic performance review to learn about and improve on strategy.

With the balanced scorecard every perspective clearly has its own goals represented by the KPI's in each perspective. Keeping track of performance in order to achieve these goals should be the responsibility of a certain personnel in the respectful department. If necessary there should actually be a department solely responsible of keeping track of performance and the KPI's in the balanced scorecard as discussed in chapter 2 two in the "Office of Strategy Management".

As a conclusion, building a Balanced Scorecard itself is a useful experience to Petrochina for Petrochina not yet developed one. With this framework the company will receive a deeper understanding of what drives its business and the cause and effect relationships between the KPIs in each perspective. The balanced scorecard will help Petrochina align its management processes and focuses the entire organization on implementing long-term strategy on a day-to-day basis – which is where the real benefit is realized.

5.2. Recommendations

Unfortunately because of the significant amount blocks, costs are very high. High costs are mainly due to the significant amount of labor that must be employed. To put it in simple terms, the amount of labor Petrochina must employ is 6 times as much as a company that has only one block. This is because for each block certain functions are

needed. Because of this, it is recommended that the employees that are located at the head office to be downsized. Employees that are responsible for one block should be pushed to be responsible for multiple blocks.

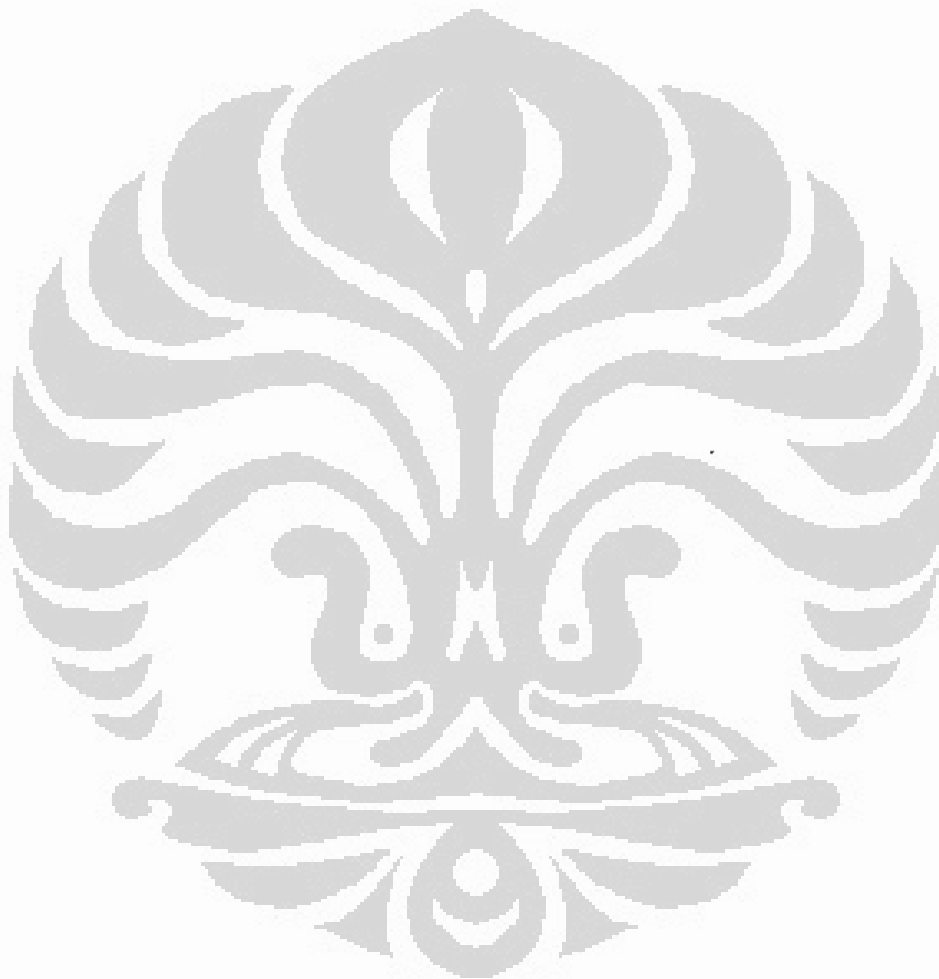
Another weakness of Petrochina is that it has a high employee turnover. Action needs to be taken in coming up with an idea in motivating and / or new benefit packages. After all, achieving high KPI results in the Financial Perspective starts with the KPIs in the Learning and Growth Perspective.

If Petrochina considers and actually implement the mentioned recommendations, hopes for cutting down costs are possible. With costs cut, ultimately higher returns will be possible. With a higher return, Petrochina will have additional funding for further investments for expansions. Expansions can also lead to an increase of oil and gas production which will also lead to a higher market share. Higher market share would mean that return is higher and so on; the cycle just repeats itself automatically.

In order to achieve this, the balanced scorecard must in an appropriate manner. The main goal of the balanced scorecard (which will also help to achieve the goals of Petrochina) is to measure and control:

- Petrochina must determine the goal of the balanced scorecard – which is to measure and control.
- Then Petrochina must determine the target of each KPI and make sure in recording the results.
- Finally control the performance, re-think the business (if necessary) and it's goals.

Petrochina has a bright future. This is believed because of various external factors such as the rise on the demand of crude oil and gas. With much of the opportunities and strengths not yet taken advantage, Petrochina has a possibility of multiplying the success of the company in the future.



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