

Strategic Implication of the Change, from A Korean Oil Co.'s Standpoint

by

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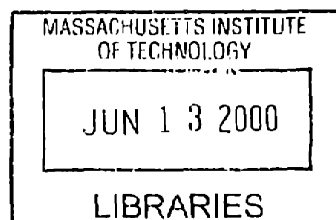
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Abstract

Even though oil industry have been dramatically experiencing the changes such as Super-Merger, deregulation, and liberalization, almost all players share the similar strategies that tend to converge along the same basic dimensions of competitive option. That is Best product strategic position by means of low cost and differentiation to secure market share.

The strategic implication of the change with convergence could be a wake-up call to the Oil Company, which gives opportunity for their further sustainable superior future growth. In order to make full use of these implications, we need more significant innovation on top of conventional wisdom. The Company should adopt Total Customer Solution as their new strategic position in real terms. Toward new business model, they must also bear in mind the crux of strategy, that is strategy is not a vague slogan but a task for all from the top to bottom.

Thesis Supervisor: Arnaldo C. Hax

Title: Alfred P. Sloan Professor of Management

*This THESIS is dedicated
To my Company, my Professor, my Friends, and my Family*

I especially would like to acknowledge Professor Hax who gave me the tools and insight on Strategy. I also would like to appreciate my company and friends who provide me a lot of supports.

*Thanks again, my wife Jung-Shil
and two son Seon-Hyuk and Kwang-Hyuk*

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CHAPTER ONE

INTRODUCTION

Korean oil industry has been facing tremendous changes that have originated from internal and external forces especially since mid-1990s'.

Before the deregulation of the industry started, the industry had enjoyed nearly oligopolistic benefits under government protection. This is not, however, the case any more. Liberalization and growing competition by market mechanism drive the entire players in the industry to establish new business paradigm and strategy. Furthermore this internal changes had been gaining momentum since Korean foreign currency crisis and subsequent its economic downturn.

In addition to the above internal changes, the world oil industry, as an external environment, has been under a way of formulating new landscape among major players. There are two big groups in the world oil industry: one is a group of multinational oil majors, and the others are state-owned or privatized national oil companies from OPEC countries. They are trying to exploit their strength for securing sustainable growth. Sometimes they compete with each other, or sometime cooperate in some business segments. This had been culminated

through the recent mega-merger among multinational oil majors such as BP-Amoco and Exxon/Mobil.

In this ever-changing business environment, Korean Oil Company have to find a new breed of strategic direction, so that they can survive and achieve sustainable growth with superior financial outcomes for all stake holders.

Through this THESIS, first I will try to analyze the following topics, which finally could help us in formulating strategic directions to cope with radically changing business environments:

- ◆ Review about world energy supply and demand situation, in a broader sense, with a narrowed focus on supply and demand in Asian region in which Korean oil industry is.

- ◆ Address the background of the recent trends and changes in world oil industry with their future direction and what do they mean for all the players in the industry.

- ◆ Examine the strategy of major Oil Company and independent player to get some ideas on making strategic direction for the Company. With this regard, do some evaluation of their strategy by revisiting the strategy concept and

pertinent articles.

- ◆ Analyze the Korea oil industry; who are the players, what are they doing for achieving their strategic goals, what are the details and impacts of liberalization for the players and market in the industry.

- ◆ Based on the foregoing review and approach, perform structural analysis for the Korean oil industry as a whole by using Professor Hax methodology.

At the last chapter of this THESIS, I will introduce the concept of Professor Hax Delta Model with the case of companies, covering each position of the Triangle, Best Product, Total Customer Solution, and System Lock-in. With this approach, readers can fully appreciate the beauty of Delta model.

I will also make some assessment about current strategic position on the oil industry that is mainly dependent on conventional theories and business practices. Then, as a final conclusion, I will make recommendation on the strategic direction with its reasoning and some contents of future mission of the strategy for the Company, which will mostly concentrate on creating and changing the new strategic position of the Company, based on Delta Model.

CHAPTER TWO

WORLD ENERGY OUTLOOK

Throughout the whole twentieth century, we have made big progress in our society. Especially we have done so through the economic development in recent couples of past decades. In turn, there is no doubt that energy, such as oil and coal, has been one of the critical drivers for this economic development in the modern world. In light of this growth and its future trends, I am sure that energy is and always will be intrinsic to economic development and social progress, and energy demand continues to grow.

In this chapter, I will review world and East Asian energy demand and supply situation so that we can understand world energy balance and have a big picture for the overall environment of Asian and Korean oil industry. This is particularly important because Asian regions have grown one of the most dynamic markets in terms of energy consumption and also because Korea imports one hundred percent of oil and gas for its economic /social activities.

Given that the purpose of this thesis is to address recent environmental changes of Korean oil industry with their implication and to make some strategic

measures for A Korean Oil Company, I will focus on in particular energy supply and demand in South Asian (Inc. Japan) region and China.

2.1 WORLD ENERGY BALANCE

There are so many uncertainties in projecting future energy demand and supply. The main factors that shape future energy projections are economic growth and population growth, energy prices and fossil fuel supplies and extraction costs in line with technical development. For example, depending on what extent we estimate the economic growths in developing countries like China and India, we may have a completely different story of energy demand and supply. In this chapter, I mainly used the data, assumption and approach by IEA/OECD and in part by EIA/US Department of Energy.

ENERGY CONSUMPTION

World energy consumption will grow by 65 percent between 1995 and 2020 with an annual increase by about 2.0 percent. Among primary energy supply, oil continues to dominate world energy consumption, with transport use for road and air, increasing its share. Coal remains important in power generation because of its low cost in both developed and developing countries. With extending pipelines and facilitating the international transit of natural gas, gas consumption rises to

approach coal consumption by the end of 2020 especially for new power generation. Nuclear power and Hydro power stabilizes or increase, but remain at low levels. The detail energy consumption projections by primary energy supply are summarized as follows:

Table 2-1. Primary Energy Supply

Energy Source	1971	1995	2010	2020	Growth Rate			Shares	
					71-95	95-10	95-20	95	20
Solid Fuels	1503	2347	3269	3947	1.9	2.2	2.1	28	29
Oil	2448	3324	4468	5264	1.3	2.0	1.9	40	38
Gas	899	1810	2721	3468	3.0	2.8	2.6	22	25
Nuclear	29	608	670	604	13.5	0.6	0.0	7	4
Renewables	108	251	379	465	3.1	2.2	2.0	3	4
Total PES	4988	8341	11508	13749	2.2	2.2	2.0	100	100

Unit; M. toe, Annual Average, %

Sources and Note: International Energy Agency, World Energy Outlook 1998. In case of renewables, growth rates in each period stand for those of hydro source

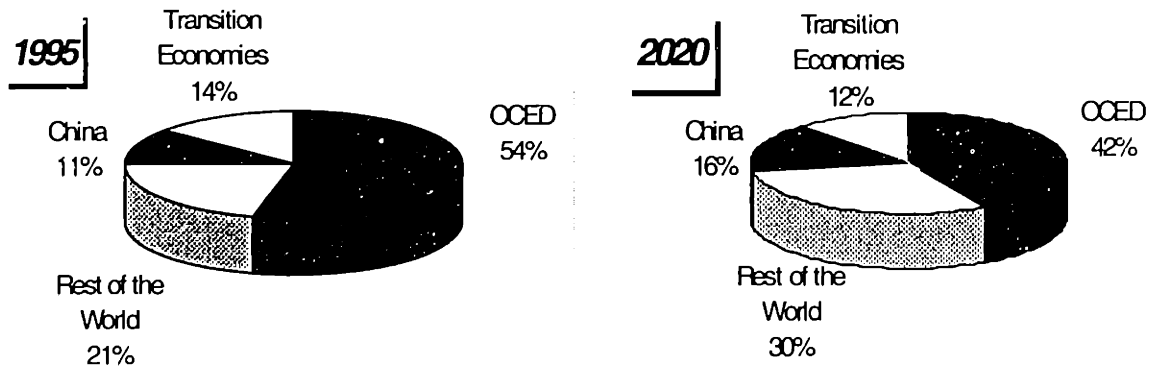
By analyzing the principal purposes (electrical services, mobility, stationary services and fuels for power generation), for which energy is used, against economic activity (GDP), we can understand the main features in energy demand development and the important relationship between energy demand and economic growth.

For the world and OECD regions, electricity consumption and energy use to meet mobility needs closely followed economic growth during the period 1971-1995. On the other hand, fossil fuel for stationary services was strongly influenced by the two oil shocks. Since the late 1970s, most of the increase in the stationary use of fossil fuels has taken place in the developing countries. For the next two decades, demand for electricity and mobility services maintain their past upward trends. Fossil fuel demand for stationary services tends to be flat in the OECD regions, while continues upward in the developing countries and China as industrialization rapidly increases. Energy demand for power generation is closely related to electricity demand, but growth slows as new plant is introduced with higher efficiency.

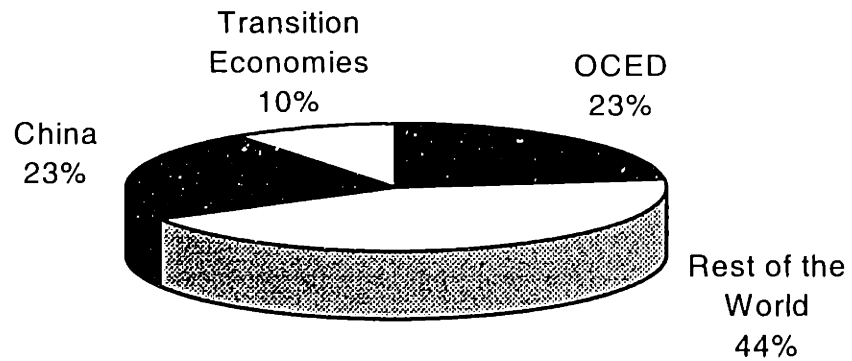
The strongest growth in energy consumption is expected to occur outside the industrialized region, which currently consumes about 40 percents more energy than is consumed by the developing world. By the end of the 2020, energy use in the developing countries is expected to exceed that in the industrialized world. Needless to say, such large increments in energy use in the developing world would have a dramatic effect on world energy markets.

Figure 2-1 highlights the important contribution made by developing countries to the growth in energy consumption between 1995 and 2020.

Figure 2-1. World Primary Energy Supply



Increase in Energy Demand, 1995 to 2020



As shown in the Figure 2-1, China and developing countries account for two-thirds of world energy demand increase over the period.

ENERGY SUPPLY

With the application of new technologies, such as horizontal drilling, and three-dimensional seismic analysis, there is currently widespread agreement that resources are not a key constraint on world oil demand to 2020. Rather more

important are the political, economic, and environmental circumstances that could shape oil supply and demand. It is not, however, uncommon to find “gloom-and-doom” scenarios that the world is imminently running out of oil. The range of 2-3 trillion barrels represents typically the uncertainty of ultimate reserves of recoverable conventional oil. This big allowance is mainly stemming from new discoveries, upward revisions of the reserves estimates for identified field and the impacts of new technologies. The experts differ – some more optimistic and some less so. We have one thing for sure, that is eventually supply falls, given a fixed oil resources.

Based on USGS's estimate of 2,300 billion barrel and the assumption that price increase from \$17 to \$25 (1990) per barrel between 2010 to 2015, Middle East play a key role in world oil supply. Middle East OPEC conventional crude oil production increases its share of total oil supply from 24 percent in 1996 to 48 percent in 2014 and then declines. The production from outside Middle East OPEC falls as a share of total oil supply from 63 percent in 1996 to 33 percent in 2014 and continues falling thereafter. Other oil production rises steadily from 13 percent of total oil supply to 19 percent over the period. Then unconventional oil production expands rapidly in order to balance global demand and supply.

Table 2-2 gives details of production in Middle East OPEC and outside with supplies conventional and non-conventional oil. That indicates a peaking of

conventional oil production could occur in between the years 2010 and 2020. And oil production outside OPEC Middle East would peak before OPEC Middle East production, resulting in a great reliance on OPEC Middle East supply thereafter. Oil production outside of OPEC Middle East peaks within a next few years while Middle East OPEC around 2015. It is obvious that OPEC Middle East production ability will expand to over 40 M. barrels per day by 2010. This means that they are expected to be the principal source of marginal supply to meet future incremental demand.

Table 2-2. Oil Supply

M. barrels per day	1996	2010	2020
Total Demand for Liquid Fuels	72.0	94.8	111.5
Total Natural Gas Liquids, Processing Gains and Identified Unconventional Oil	9.3	15.9	20.1
Conventional Crude Oil			
Middle East OPEC	17.2	40.9	45.2
World excluding Middle East OPEC	45.5	38	27.0
Total Crude OIL	62.7	79.0	72.2
World Liquid Supply excluding Unidentified Unconventional Oil	72.0	94.8	92.3
Balancing – Unidentified Unconventional Oil	0.0	0.0	19.1

Unit: M. barrels per day

Sources: International Energy Agency, World Energy Outlook 1998

With this regard, the recent report, Annual Energy Outlook 2000 from EIA/USDOE has a little different projection. According to the EIA's data, production from countries outside OPEC is expected to show a steady increase, exceeding 45 million barrels per day by the turn of new century and increasing gradually thereafter to more than 56 million barrels per day by 2020. OPEC supply is over 32 million barrels per day by 2000 with increase to more than 55 million barrels per day by 2020. I think that the different projections between the two data clearly reflect uncertainty about the prospects for future production

World natural gas production is not expected to peak until well beyond 2020. Reserves of natural gas are estimated to be equal to 1.9 trillion barrels that is similar, in the magnitude, to the lower end of the range of reserve estimates for conventional oil. And while world demand for natural gas is growing faster than that for oil, it does so from a much lower base. Accordingly world gas supply and demand are balanced up to the 2020, by allocating world net imports to the principal gas exporting regions.

World coal production is estimated enough to meet demand over the period to 2020. The main growth component in coal demand comes from power generation. The long lead-time in construction for power plant will allow the parallel development of supply capacity.

SUMMARY ON WORLD ENERGY BALANCE

The key messages from the forgoing review can be summarized with following details

- Major factors for future growth in energy consumption will be from developing countries of Asia and South America
- Substantial increases in demand are mainly based on fossil fuels
- Resource constraint does not have big impact for the development of energy balances

Also as for the primary energy supply sources, we can make the overall assessment as follow:

Worldwide, oil remains the dominant source of energy with 1.8-1.9 percent annual increase throughout the time horizon to 2020, as it has since 1970. Oil's key role in the transportation sector-where it does not currently have any serious competition from other energy sources-helps to sustain its position among fuel sources. Oil use in the electric power sector is projected to decline in relative terms, but the fast-paced growth of personal transportation, especially in the developing world, will offset any losses in the electricity sector.

Natural gas is expected to be the fastest-growing primary energy source to 2020. Worldwide consumption of natural gas increases by 2.6-3.3 percent per year over the period, nearly twice as fast as oil (1.8-1.9 percent per year) and coal (1.7-2.1 percent per year). Gas is increasingly the fuel of choice for new electric power generation with its superiority from the standpoint of environmental reasons.

Coal use is projected to increase by 1.7-2.1 percent per year. Strongest growth in demand is projected for the developing regions, where coal use increases by 3.0 percent per year over the period. The increase in coal use is attributable mainly to increases in developing Asia—Particularly, China and India for their power plants.

Other energy source like nuclear power is the only primary energy source projected to be decreased by 0.4 percent over the forecast period. Hydroelectricity and other renewable resources maintain 4 to 8 percent share of total energy consumption throughout the projection period. The growth of renewable resources is expected to be restrained somewhat by low fossil fuel prices, which discourage the development of renewable energy sources.

2.2 EAST ASIA ENERGY OUTLOOK

Despite a lot of uncertainty to forecast future energy outlook, it is most likely that East Asia region, especially Asian developing countries and China, will be the most important region in shaping picture for energy consumption projection around the world. It is estimated that China alone will take more than 20 percent of the increase in energy demand over the period to 2020. This particular importance of the region is based on various reasons, from population, economic size to economic growth.

The recent economic crisis, mixed with deepening Japan' recession, in East Asia had a significant effect on the growth of world energy demand because East Asia had, for several years, been one of the few areas in the world experiencing rapid energy demand growth. During the 1990-96 period, total energy demand for East Asian 10 countries (S. Korea, China, Japan, Taiwan, Indonesia, Thailand etc.) grew at an average rate of 5.5 percent per year, compared to the world average of 1.5 percent per year. Without these 10 East Asian countries, world energy demand would have increased by an average of only 0.5 percent per year. The crisis, together with surplus in supply, contributed to the sharp decline in world oil prices from late 1997 through the beginning of 1999. With the economic recovery which has begun, demand growth should accelerate, but not to the levels of the early and mid-1990's.

RECENT TRENDS

In actual term, the above ten East Asian countries consumed 21 percent of the world's (79.6 quadrillion Btu) energy during 1997. Oil is the dominant fuel for each of the countries, with the exception of China. The East Asian countries consumed over 21 percent of the world's oil, 7 percent of the world's natural gas, and nearly 35 percent of the world's coal.

Oil demand growth in East Asia has fueled world oil demand growth over the past few years and experts expect in the long-run that this could resume. In 1998, however, East Asian oil demand growth, which averaged 5.6 percent annually between 1990 and 1996, slowed sharply. Oil demand for this region went from 15.37 million barrels per day in 1997 to 15.40 million barrels per day in 1998, a negligible overall increase. The region's largest oil importer, Japan saw demand fall from 5.71 in 1997 to 5.51 million barrels per day in 1998. In China and S. Korea, demand in this period remained stable with minor increase or decreased by more than 10 percent.

With Japan and South Korea alone representing 71 percent of total world LNG imports, which amounted to 2.86 trillion cubic feet in 1997, the effect on the market has been substantial. Natural gas demand growth in East Asia was reduced in the short term, but in the long-term, regional gas demand is still likely to

grow strongly. Even though it has been relatively less affected by the Asian economic crisis, China, which alone accounted for 29 percent of the world's total coal consumption in 1997 has experienced a problem with oversupply. Short-term coal demand prospects in East Asia have been adversely affected by the region's economic crisis, as general industry, electric power producers, and cement makers scale back production.

LONG-TERM OUTLOOK

Except Japan's slightly less than 1 percent, energy demand in the long term is estimated to grow at 3.7 percent per year over the period 1996 to 2020. Considering the world annual average, 2.1 percent, this is a faster rate of increase than those projected in any other region and will end up total East Asia's share of world energy demand increasing from 26 percent to 33 percent

As shown in Table 2-3, China and Japan is the major consumer in the region. The two country's total demand is more than 60 percent of region's total demand, regardless of time horizon throughout the period.

Table 2-3. East Asia ENERGY CONSUMPTION

Region/Country and Energy Source	1996	2005	2015	2020	Average Annual % Change 96-20
Japan	21.4	23.3	25.6	26.7	0.9
Developing Asia	74.5	106.1	151.0	177.9	3.7
China	37.1	55.0	81.8	98.3	4.1
South Korea	7.2	9.4	13.3	15.4	3.2
Other Asia	30.3	41.6	56.0	64.2	3.8-2.8
Region Total	96.0	129.3	176.7	204.6	0.9-3.7
Total World	375.5	454.3	555.1	611.8	2.1
Oil	24.8	32.4	45.5	50.9	3.0
Coal	38.7	51.5	68.9	82.4	7.4
Natural gas	5.7	13.1	24.8	31.9	3.2
Other	5.3	9.1	11.7	12.8	3.7-3.8
Total(Except Japan)	74.5	106.1	150.9	178.0	3.7

Unit: Quadrillion Btu

Sources and Note: Energy Information Administration (EIA), International Energy Outlook 1999, DOE/EIA-0484 and World Energy Projection System (1999). Regarding the projection for China and Japan by Primary Energy Source, we will address following section.

It is estimated that the trends in primary fuel shares differ from those over the past twenty years because of the efforts by some countries to reduce dependence on imported oil. Although oil is expected to decline in energy share, it will remain the most important fuel source for East Asian countries.

Apart from the China's heavy dependence on coal, energy share of oil in East Asian countries will be around more than half of total primary energy demand in 2020. According to the EIA/USDOE data, oil demand is expected to grow nearly 31 million barrels per day from 17.8 in 1996. This means that East Asia will be one of the major forces driving world oil demand. Economic development in this region is critical to long-term growth in oil markets. The projected increase will strengthen economic relationship between the Middle East and the region.

Reflecting the development of the region's resources, gas is also expected to play a more important role in the energy balance, increasing its present share of primary energy demand from 8 percent to 18 percent in 2020. Gas will be increasingly used for its ability to substitute for oil in a range of usage with its environmental characteristics.

Coal also is expected to maintain its important role in East Asian energy consumption because China has the second largest economy in purchasing parity term, after the States and they are heavily dependent on coal for their energy demand. As a whole, coal's share of primary demand is projected to decline from 43 percent in 1996 to 41 percent in 2020.

CHINA

China is the world's most populous country and has a rapidly growing economy, which has led to increasing energy demand over the past several years. China is the second largest energy consumer, after the United States. Production and consumption of coal, their dominant fuel, is the highest in the world. Future oil demand is also expected to rise and make China an even more significant factor in world oil markets.

China's present level of primary energy consumption is almost equal to 20 percent of the industrialized countries total and 10 percent of the world total demand. Their expected contribution to the increase in world energy consumption is expected to be equivalent to that of the industrialized countries, which accounts for nearly 25 percent of the increase in world demand.

The most striking feature of the Chinese energy market is their extreme dependence on coal. In 1996, coal accounted for more than 75 percent of primary energy supply and around two thirds of final commercial energy consumption. Oil accounted for about 20% with gas and hydro sharing the remainder. Final gas consumption in China is insignificant. This is used mostly for the production of chemicals and fertilizers. The share of electricity in final consumption, slightly higher than 10 percent, is low compared to other countries, reflecting the low stage

of economic development in China. Nearly 75 percent of electricity generation is from coal-fired plants with the bulk of the remainder coming from hydroelectricity.

Primary energy demand in China is expected to grow at 3.6-4.1 percent per annum over the next two decades. This growth rate is lower than that in the period 1971 to 1995, 5.5 percent. Coals are expected to grow the slowest, at 3.1-3.6 percent per annum. As a result, the energy share of the coal in the country is to decline from the 76 percent in 1996 to 66 percent in 2020. But coal remains dominant with the continuing demand for power generation.

Oil demand is projected to grow by 3.8-4.6 percent per annum, resulting in a significant market share increase by 2020. Gas is expected to grow very strongly, at 6.5-11.7 percent per annum, but its share of total primary energy demand remains limited. In order to meet the high electricity demand growth, both nuclear and hydro power plants are expected to increase their shares in the primary energy mix. Over the period, nuclear is expected to grow by 9.2-9.6 percent and hydro and others by 3.7-5.5 percent per annum.

Energy demand in stationary uses of fossil fuels is projected to increase at 3 percent per annum, more than doubling over the period. The main expected change in the residential/commercial sector fuel mix is the rapid penetration of oil and gas at the cost of coal.

In 1995, energy used in transportation was 33 percent of total final energy demand in OECD countries and 23 percent in developing countries as a whole, but only around 9 percent in China. The Chinese demand for mobility is projected to grow broadly in line with GDP over the period. Total demand for mobility is expected to grow at 4.8 percent per annum to the year 2020, more than tripling in this period.

China's electricity demand more than doubled in the last decade and is projected almost to quadruple by 2020. The detail energy balance by demand for energy related services, source and their annual changes are shown in Table 2-4

Table 2-4. Demand for Energy Related Services

Energy Related Services (ERS)	1971	1995	2010	2020	71-95	95-10	95-20
		M. toe			Average annual growth rate		
Electricity	10	68	165	255	8.2%	6.0%	5.4%
Mobility	6	59	130	190	10.3%	5.4%	4.8%
Stationary Use of fuel & heat Total	179	521	850	1079	4.5%	3.3%	3.0%
Solid Fuels	147	409	610	748	4.4%	2.7%	2.4%
Oil	31	80	157	213	4.0%	4.6%	4.0%
Gas	1	13	36	47	9.6%	7.0%	5.2%
Heat	0	19	46	71	-	5.9%	5.3%
TOTAL FINAL CONSUMPTION	195	649	1145	1524	5.1%	3.9%	3.5%

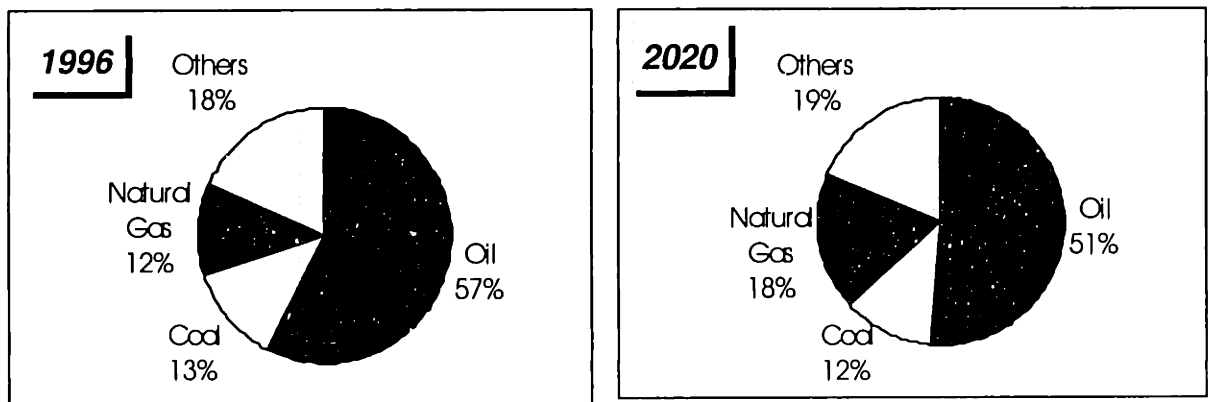
Sources: International Energy Agency, World Energy Outlook 1998

JAPAN

Japan is the world's fourth largest energy consumer, after the States, former Soviet Union and China, and in case of oil the second. They, however import nearly all of their primary energy supply, except coal from abroad. In 1996, the country's dependence on imported primary energy sources is at more than 80%.

The primary energy demand is expected to grow at an annual rate of 0.9 percent over the period 1996 to 2020. The oil share in total energy demand is projected to declines to 51 percent from 57 percent over the period. From the Figure 2-2, we can see the projected change in energy mix between the year 1996 and 2020.

Figure 2-2. Primary Energy Supply, Japan



Annual growth rate for oil, coal and others such nuclear, hydro, etc. remains at less or around 1 percent, while gas is expected to grow at the rate of 2.5 percent over the period 1996-2020. Japan is the world's major importer of LNG, and along with South Korea and Taiwan accounts for about three-quarters of world LNG demands. About half of Japan's energy is used by industry, about one-fourth by transportation, with nearly all the rest going to the residential, agricultural, and service sectors. According to the International Energy Agency (IEA), Japan's energy policy is based on "3 Es:" economic growth, energy security and environmental protection.

CHAPTER THREE

CHANGING OIL INDUSTRY

"CHANGE" and "TRANSFORMATION" It goes without saying that these words have become our day to day business. Everyday we hear the news on merger and acquisition that shape totally different landscape of the certain industry. Furthermore, this is the case for oil industry also. Throughout the evolution of oil industry, we have had some critical turning points:

- From the mid 40's through the 60's, international oil companies played a powerful role in the oil industry, and consequently exerted control over the entire world oil markets.
- In the 70's, OPEC seized control of their own formidable resources, and had a decisive impact on the market.
- During the early 80's, higher oil prices reduced demand and increased production outside OPEC, which led to over-capacity and OPEC's loss of market dominance.
- In the mid-80's and early 90's, we saw the emergence of a highly competitive market, helped by the advent of the spot and futures markets,

which made the price-setting process more transparent.

The above changes, however, can not be compared so pronounced as that we have today, in terms of its scale and impact on the future development.

Because oil industry has operated on a global scale and in a multiplicity of environments, developments in world economy and ever-changing business environment always give big influences on the industry. As such, we are now facing remarkable changes in oil industry, especially since late 90's. If we can make full use of these changes and do the best we can to help shape it for our future benefits, those changes could be converted into a most exciting, a most productive environment for the players in the industry.

In this chapter, I will address recent developments in the industry with their background and projection of future trends. This will give us meaningful common ground to understand universal strategy of major players in the industry. This is also necessary in deciding strategy and competitive positioning for the Oil Company.

3.1 BACKGROUND OF THE CHANGE

The first basic reason for change is the growing importance of consumer

demands and expectations. In today's world, consumers have a big power in value chain regardless of what kind of industry we are in. We have also a lot of players in oil industry. These are dramatically expanding the choice for energy suppliers to many sectors of industry and consumers.

In order to compete successfully, companies will have to focus more than ever on understanding the market, not in terms of whether or not it will grow, but in terms of who the consumer is. What is the consumer buying, how do you distribute to the consumer more than the consumer wants, and how do you, the company, increase your value to the consumer in terms of providing service that is more valuable than simply delivering the commodity material. These trends must be deepening and escalate competition within industry.

The second is the revolution in technology. Information technology enables consumers to access to products from any other part of the world through the internet and e-commerce. With the growth of this method, more and more companies will find themselves on-line, interacting directly with consumers, understanding their needs and wants, turning commodities into customized products and services that meet their demands.

As the global economy being more matured by this technical progress, customers can get more choices while companies are increasingly try to find the

ways to sustain profitability. Technical progress is also dramatically affecting the volumes of energy used and the ways that energy is used. New technology in exploration and production enables manufacturers to maximize efficiency in both increasing reserves and production process. New technologies will reshape the competitive environment in every area; transportation, power generation, storage, monitoring, and use. This technical development affects the industry's future, primarily by making it possible for the consumers to have an unprecedented influence in the design, marketing pricing and ultimate acceptance of the industry's products and services.

The third reason is supply side. While recent oil prices have improved because countries belonging to or aligned with OPEC are holding back a significant amount of production, the global oil surplus still exists, even though the markets do not physically have the oil. Also the growing competition between oil and other fuels will produce continued price and margin pressures. There is some question whether oil can withstand the growing competition from other fuel sources. The growing electric power generation capacity, in particular among North America, Europe and other regions of the world, combined with increasing natural gas resources seeking markets, provides a large energy resource.

Because of the micro-market phenomena mentioned above, the oil industry has experienced an unprecedented series of external and internal challenges

during the past decade. These challenges, including increasing efficient global spot markets and the emergence of innovative financial and risk management products, have destroyed many of the advantages that the major oil companies once enjoyed and rendered many of their strengths less relevant to the marketplace.

Developments during last decade around the oil industry inevitably boil down to the results of reshaping the energy industry's structure, companies' organization, and markets. Those developments urge all the players move toward a future that will be very different from something we have ever seen.

3.2 JOINT-VENTURE, ALLIANCE AND M&A

Just like the cases in almost all companies of certain industry, oil and gas companies like Royal Dutch/Shell, BP, Amoco, Mobil, Exxon, Chevron, Texaco narrowed their focus to the core areas of oil, gas, and chemicals during the first half of the 1990s. The strategies these companies implemented consisted primarily of restructuring their assets portfolio and downsizing to reduce fixed costs. These principles seek to identify and concentrate on businesses with superior performance potential, maximize margins, and minimize fixed costs. This refocusing on core businesses and emphasis on implementing strategies to improve financial performances have dramatically improved the firms' financial results as intended.

UNIVERSAL STRATEGY

Almost all the major companies have been geographically diversified and global for many years. In many cases they are too diversified, according to current views; therefore, much of the restructuring has been geared at pulling back to focus on the areas in which one has a competitive advantage. According to the PIRA Energy Group's analysis, the top ten players; Amoco, ARCO, BP, Chevron, Elf, Exxon, Mobil, RD/Shell, Texaco and Total had shared strategy, which includes the following general business strategic thrusts:

- Be a global, geographically diversified, functionally organized oil and gas company, capitalizing on high-tech ability and financial strength.
- Aggressively manage the asset portfolio, restructure the asset base, focus on core strengths, and leverage them to obtain a competitive advantage.
- Expand high-return core businesses and improve the performance of under-performing businesses primarily by cutting costs.
- Reduce fixed costs by downsizing across all business segments.
- Improve the organization by adopting best practices and benchmarking, reengineering the process, and restructuring the organization.

In case of downstream sector, the following strategy are adopted in addition to the above corporate wide directions:

- Be a leader in each retained market; make established, under performing assets competitive through rationalization, continued cost reduction, and use of synergistic links such as joint ventures with third parties.
- Make selective investment in refining that emphasizes light and specialty products, but target capital mainly on retail.
- Focus there on brand, speed, and convenience; aim to increase non-fuel earnings through multiple product offerings; and partner with established franchises
- Put specialty products in the front line as downstream markets around the world are opened.

Another key features for the companies' strategy is the downstream sector's merger-and-acquisition during 90's. The strategic similarities between companies are even greater in the downstream oil industry than in the upstream sector. Mergers, acquisitions, rationalizations, and alliances are rampant, and the price-setting operation is increasing quickly in scale, in efficiency, and in sophistication.

Apart from the above similarity, industry have experienced some dismantling of the vertical integration between the upstream, downstream, and chemicals segments as major differences emerge among the companies about integration's value. More than 50 percent of above top ten companies explicitly plan to exploit the synergy between the refining and chemical businesses.

Texaco, however, has withdrawn from the chemicals sector-a move that is consistent with its increasing role as owner of a portfolio of shares in regional refining and marketing businesses. And in a more direct challenge to conventional wisdom about downstream segment, Unocal Corp. has exited entirely, unable to find enough value from the synergy, or from stand-alone cost cutting measures.

As for the natural gas, vertical integration is the predominant strategy for the all companies. As has frequently been the case in the past, almost all the companies are making the same business portfolio adjustment roughly simultaneously. During the 90's, it is the addition of power generation, not typically as a new core business but as a natural and complementary extension of the downstream gas business that helps to avoid stranded gas by guaranteeing a market. In this regard, I will re-visit with more details later.

JOINT VENTURE

In the 90's, most leading petroleum companies already have divested themselves of the great majority of what they have classified as non-core assets. The companies, therefore, now are: concentrating on the core assets that will form the basis of their future performance; investing aggressively in high-return businesses, such as most of the upstream sector; and further streamlining or reducing costs in those that are under performing, such as refining and marketing.

These companies turned to joint ventures for the next phase of portfolio restructuring. Through joint venture and alliances, companies want to be provided with a mean of improving efficiency and achieving economies of scale.

All the leading companies are participating in joint ventures, but not all to the same extent. At the low end of the continuum are Exxon and Total; at the opposite side is Shell. Shell has established six substantial joint ventures: two upstream, both with majors; one mid-stream, in natural gas marketing; and three downstream, each either with a major or a national oil company. Each of Shell's refineries is involved in one of its three downstream joint ventures.

As a result of these endeavors, the drive to achieve cycle long cost reductions in the downstream sector that outstrip the fall in the long-term margin has produced some unexpected, large-scale joint ventures, such as BP and Mobil in Europe and Shell, Texaco, and Saudi Aramco in the U.S.

MERGER AND ACQUISITION

The trends of deregulation, privatization, and the opening of formerly closed markets are the driving factor of increased merger and acquisition activity. These trends have increased the size of the market, however the capital and personnel more required competing in this global market, which also challenged even the

biggest firms. On top of these changing industry dynamics, growing pressure to increase share values make merger and acquisition a strategic method throughout the almost all business world, including oil industry.

Through the portfolio reassessment, rationalization and strategic alliance during 90's, players in the industry had achieved improvement in return on capital employed. While returns in the industry have improved in recent years, the results are less favorable when compared with other industry of the S&P 500, according to the analysis Morgan Stanley Dean Witter. They pointed out that one of the critical factors of recent M&A between majors is the deterioration in profit growth for majors, in relation to the S&P 500, since the peak of the last earning cycle in early 90's.

Given that unparalleled global scales are important in attaining superior returns and valuation, they insisted that the Super-major format be expected to become the prototype corporate structure in the integrated oil industry. This movement is also driven by new competitive implication such as the globalization of privatized national oil companies and the rising stature of more-specialized small players.

In part, it is the expansion of state-owned oil companies beyond traditional boundaries that is spurring the trend of industry mega-mergers. However, there is

also the need for oil companies to drive the costs out of doing business, especially in a low oil price environment with roots in an economic downturn that began in Southeast Asia. Companies can't control oil prices, but they can take measures to control costs and protect themselves. They can restructure by becoming involved in mergers, acquisitions, forming alliances, swapping of assets, and selling off non-core businesses.

Under these circumstances, majors should find a strategic method that will allow them to make this kind of competitive framework become more favorable. As much of the potential for achieving sustainable profitability through internal restructuring and joint venture had already realized, next viable options such as mergers and acquisitions is the obvious choice. While the merging of two former competitors is even more drastic step than divestment or joint venture formation, this bold move has been increasingly common in the oil industry during late 1990's.

The last big merger between in the majors occurred in 1985, involving Gulf and Chevron. While the intermediate-term response by the capital market was positive, the longer-term competitive implications were vastly more significant. Chevron acquired a set of investment opportunities that will probably never be available without the merger, with previously disadvantaged positions in both portfolios becoming advantaged when combined. Chevron got excellent position in E&P and chemicals. With Chevron primarily a domestic company prior to the

transaction, they could vault from Mini-Major to major in the aftermath.

Recently, it was started again in Aug.1998 between BP and Amoco with the amount \$57 billion and culminated in Apr.1999 with further merging between BP Amoco and ARCO for the amount of \$27 billion. These moves prompted fast reactions from rivals, pitching Exxon into Mobil's arm worth \$70-\$77 billion and Chevron into talks with Texaco.

Exxon-Mobil and BP Amoco and ARCO, through their mergers or by reorganizing internally, are hoping to cut costs by \$2.8 billion/year and \$2 billion/year respectively. Companies that can find ways to access the high-risk production opportunities in challenging areas at a lower cost will have the best chance for survival. This is why people generally believe that the mergers will continue.

In Europe, France's Total and Belgium's Petrofina also agreed to merge. According to the view of Datamonitor PLC, London, mergers among the petroleum giants and network rationalization will lead to the closure of 20,000 service stations in Western Europe by 2004. The fiercely competitive fuel retail market in Western Europe continues to suffer from low operating margins and stagnant fuel demand.

Under this environment, oil companies are undergoing strategic and

operational change, and many have considered mergers and acquisitions as a means to survive. While the EU requested the break-up of the BP-Mobil refining marketing joint venture as a condition for approving the merger of Exxon Corp. and Mobil Corp. their operational benefits through joint venture encourage other companies to consider a merger or acquisition in the future. By the extensive rationalization, volumes per site have increased substantially, and they have generated huge operational benefits.

GROWING NATIONAL OIL COMPANY

As I mentioned per foregoing section, we have had some significant momentum throughout world oil history. And in the course of the momentum, the governance has been also changed. Once dominated by the giant, private oil companies or the Seven Sisters and then by the Organization of Petroleum Exporting Countries, the industry is going through yet another shift of power as state-owned oil companies move to the top ranks as the largest oil companies in the world.

Also OPEC countries' oil companies are expected to seek a growing market for their oil at a price that will not encourage too much development outside their borders, but provide sufficient profitability to make investment attractive in their own countries while satisfying the revenue needs of their national budgets. And the

trend is one which has been taking place but accelerating. This goes further to the extent integration of producing country companies' downstream in consuming countries.

These new giants are no longer operating solely within their own countries but are expanding internationally in efforts to increase revenues and market share. In the US, for example, Saudi Aramco, the world's largest oil company, is part of a three-way alliance with Texaco and Shell for refining and marketing petroleum products on the East Coast and in the Gulf Coast region. Venezuela's PDVSA holds major stakes in the US retail market through its affiliate Citgo Petroleum.

With nearly 25 percent of the US oil retail market now controlled by foreign oil companies, some analysts argue that this competitive expansion activity by the state-owned companies is in part fueling the super mergers going on in the industry today.

This activity is not solely a US based phenomenon, however, as producing nations' state-owned oil companies are "internationalizing" into the downstream operations in other consuming nations as well. For example, Kuwait operates refineries in Europe along with over 6,000 fuel distribution stations under the Q8 trademark. And PDVSA has shares of nine refineries and marketing joint ventures with Germany's Veba and Sweden's Nynas in Europe and the US.

It is expected that some of Middle East producers might further integrate downstream by acquiring regional refining and marketing assets. A global partnership between a refining and marketing specialist like Tosco and either Saudi Aramco or Kuwait Petroleum Corp. could provide a significant U.S. market outlet for these Middle East national oil companies. And this developments allow them to take what is need from under managed or under supplied global refining and marketing assets.

There is no doubt that these trends are growing bigger and bigger, since privatization efforts worldwide continue to reduce the number of state-owned companies. The basic goals of a privatization are largely to generate funds for the government, to improve the quality of services offered, and to show that the government is committed to supporting the private sector. To achieve these objectives, they should be transformed into competitive international oil companies.

3.3 FUTURE DIRECTION

The current developments may help the companies cut costs and sustainable profitability by spreading them over greater areas and taking advantage of greater economies of scale. But economies of scale are not always the answer for all. The industry now has several tiers of companies, including a new "super majors" of three or four companies, including medium, small sized players and niche players.

Future of the oil industry depends on so many complicated factors such global economy, technology progress and political stresses in the Middle East. From the industry standpoint, the developments during past decade portend future direction in two distinctive ways: one is horizontal value chain integration in energy industry, and the other is transformation of companies into total energy service company.

VALUE CHAIN INTEGRATION

The value chain integration of the gas, electricity, and petroleum industries is already-current and future trends, that shape the industry and energy market. These trends will allow new and "reinvented" players to embrace energy market opportunities in a synergistic way. Those also will lead to the emergence of wholesale trading and retail marketing businesses that capitalize on the benefits from bundling or arbitraging multiple energy products.

These trends are based on the following major forces;

- With the deregulation of the gas and electric industries, gas and electricity continue to be traded more and more freely, and sophisticated spot and futures markets have developed quickly
- Improvements in production and transportation technology have made

natural gas more economically viable.

- Because of its beauty from the environment perspective, natural gas has and continues increasingly to become the fuel of choice for new power generation.
- Relatively low oil prices versus stable gas prices and continued poor refining margins.

Through the value chain integration, natural gas and electric power players are seeking to seize bigger and broader opportunities more efficiently and effectively to improve their competitive positions. This is possible in part because the marketing skills and capabilities required to sell gas are similar to those needed for electricity in terms of retail and wholesale marketing. Furthermore transmission and distribution skills such as a stable of skills, provided services, processes, and back-office operations are similar even though gas and electric networks are physically different.

While the ability of integrated petroleum companies to effectively integrate their value chain with gas or electric power opportunities is less today, to extent, than what we see directly between the electric and gas companies, their potential to impact the convergence market space, however, is significant and indisputable.

We have very strong indications that majors such as Royal Dutch/Shell and

Texaco Inc. are ready to step up their involvement in the power generation market and compete at the retail level for distribution of natural gas and electric power. Texaco currently operates about 2,500 Mw of power capacity and has more than 5,000 Mw of power capacity under construction; Texaco also trades about \$3 billion/year in its gas and electricity trading operations. Shell is also aggressively pursuing a "fuel-to-power" strategy to expand its role downstream; it has acquired 50% of independent power producer in the US, controls US gas pipeline Co. and leading gas marketer, and currently sells gas directly to residential customers.

Integration will accelerate and broaden to global scope as the current players rapidly buy each other, and major oil companies buy large electric-gas players. Further, industry experts believe that it is only a matter of time before an oil company such as Shell makes a major electric-gas acquisition. We will also see more global players in electricity, as they move beyond generation into distribution and trading on a worldwide basis.

TOWARD ENERGY SERVICE COMPANY

Future oil company have to become more than the company that find, produce, and deliver commodities such as oil, gas, and electricity. They must become "service" companies to meet more sophisticated needs from customers in a highly competitive marketplace. They play by new rules that focus on:

- Service rather than products: turning commodities into customized services that respond to customer demands, delivering added value.
- Technology: to cut costs, to develop innovative products and services for customers, to deliver better products and services faster.

Oil companies that are successful in the future will be those that become energy service companies. They will have a global perspective, looking to the entire world for opportunities to expand their customer base. They will become as much technology companies as they are energy companies, finding innovations that cut costs and new ways to communicate with customers and discover what they want. They will develop innovative products and services to meet those demands and deliver added values.

The players in oil industry will have learned three key lessons from other industry sectors- including technology, telecommunications, and financial services companies- that have obviously preceded the energy industry through this massive transition:

- Use technology to cut costs; then convert the cost savings into innovative products and services.
- View globalization as an opportunity to expand the customer base and tailor

services to match local needs.

- Turning commodities into customized services with value to customers searching for a better quality of life.

The future is likely to see a few major players emerge - new Seven Sisters - but this new family will probably contain several national oil companies. The role of some current majors could change to that of a strategic partner who is transferring technology and experts in an exchange of fee. The owners of the oil reserves will be less likely to turn over their reserves to foreign partners and will likely pay a fee to the foreign "contractors" to produce the reserves, utilizing their expertise and technology.

In the short-term perspective, there will also continue to be the push for downstream operations in consuming nations as oil-rich countries search for outlets in the retail markets. Consolidations are not limited to the large oil companies but will begin to reach into smaller segments of the industry such as second-tier medium sized oil and gas companies.

CHAPTER FOUR

STRATEGIES OF KEY PLAYERS

Concisely speaking, the essence of strategy is to achieve a superior and sustainable financial performance. Professor Hax gave us an integrative and comprehensive definition of strategy through his masterwork with Majluf. His definition is based on the standpoint that industry and market considerations dictate the dynamics of continuous change, while factors and resource considerations dictate the long-term foundations of the way to compete. According to his unifying point of view, strategy:

1. determines and reveals the organizational purpose in terms of long-term objectives, action programs, and resource allocation priorities.
2. selects the businesses the organization is in, or is to be in.
3. attempts to achieve a long-term, sustainable advantage in each of its businesses by responding appropriately to the opportunities and threats in the firm's environment, and the strengths and weaknesses of the organization.
4. identifies the distinct managerial tasks at the corporate, business, and functional levels.

5. are a coherent, unifying, and integrative pattern of decisions.
6. defines the nature of the economic and non-economic contributions it intends to make to its stakeholders.
7. is an expression of the strategic intent of the organization.
8. is aimed at developing and nurturing the core competencies of the firm.
9. is a means for investing selectively in tangible and intangible resources to develop the capabilities that assure a sustainable competitive advantage.

This chapter will analyze strategy of key players in the industry. Through this analysis, we can get some idea on critical factor for success in this ever-changing industry situation that we already addressed in the previous chapters.

We have so many players throughout the whole industry. In terms of size and scale, we can divide them into integrated super-majors, majors, national oil companies, and downstream only players. Some industry analyst claims that there are two types of strategic group among super-majors and majors. One is refining majors such as ExxonMobil and RD/Shell, and the other oil majors like BP Amoco, Chevron and Texaco according to their assets portfolio. I will choose one each player among super-majors and niche player of refining and marketing companies.

4.1 ExxonMobil

On November 30, 1999, Exxon Corporation and Mobil Corporation formally merged to form Exxon Mobil Corporation. According to their news release, The Corporation will employ an organization structure built on a concept of eleven separate global businesses. In detail, five global upstream companies -Exploration, Development, Production, Gas Marketing and Upstream Research- will be headquartered in Houston along with the Chemical company and the Coal and Minerals company. Four downstream companies -Fuels Marketing, Lubricants & Petroleum Specialties, Refining & Supply, and Research and Engineering- will be based in Fairfax, Virginia.

ExxonMobil has a presence in nearly 200 countries. The company has exploration or production operations in some 50 countries. The company sells fuels and chemicals in about 120 countries, and lubes in almost 200. Major manufacturing facilities for these products are strategically located in 24 countries. Through this merger, ExxonMobil emphasized that they expect the synergies directly attributable to the merger itself to amount of \$3.8 billion annually by year three on a pre-tax basis, which was originally \$2.8 billion.

COMPANY DESCRIPTION

Because of the recent merger, there is no doubt that Exxon Mobil becomes a worldwide number one private-owned player in the petroleum and petrochemicals

industry. ExxonMobil's exploration and production portfolio is a global one, which produces 4 - 4.5 million oil-equivalent barrels of oil and gas per day from 24 countries, with an exploration activities in 48 countries around the world. Proven reserves stand at 21 billion oil-equivalent barrels, about 13 years of production at current levels. As the world's largest non-governmental marketer of gas, ExxonMobil sold gas and LNG in 25 countries in 1998. The company's strength and patent position in gas-to-liquids and high-strength steel technologies can be one of core strength in growing gas market segment.

ExxonMobil's global business operations include supply, marine and pipeline transportation and refining and fuels terminaling. Their supply trading activities handle about 7.5 million barrels of crude and 3 million barrels of product daily, with more than 40 owned and joint venture refineries worldwide with a combined processed input of about 5.6 million barrels a day. The company has more than 40,000 service stations in 118 countries. Of these, approximately one-third are company-owned and about 4% are company-operated. ExxonMobil is one of the industry leaders in basestock manufacturing and sales and in the synthetic lubricants business. It is also the world's largest marketer of finished lubricants and is a major marketer of petroleum specialty products with 1998 combined sales volume over 250,000 barrels a day in 194 countries.

In case of petrochemical business, it is a significant and growing part of the

corporation. Integrated with refineries, the company can employ the most economic feedstocks and run cost-effective operations. They are an integrated manufacturer and global marketer of almost all of petrochemical products, with revenues of about \$15 billion through 21.4 million tons of prime product sales in 1998. ExxonMobil also mine coal and copper on three continents. The coal is used to produce electricity on five continents, and the copper is marketed worldwide. One of its affiliate is the majority owner of the largest electric power generating company in Hong Kong.

As you can see Table 4-1, they are number one players in the industry, in terms of financial performance on top of their size and scale in revenue and operation.

Table 4-1. Profitability Ratio against Industry & Market

	ExxonMobil	Industry	Market
Gross Profit Margin	68.11%	27.81%	46.72%
Net Profit Margin	4.23%	4.10%	5.57%
Return on Equity	18.1%	8.3%	12.3%
Return on Assets	8.4%	3.6%	2.2%
Return on Invested Capital	16.4%	6.5%	6.3%

Sources & Note: Hoover's Co. Information, Industry; Major Integrated Oil/Gas, Market; Approx. 8,000 public companies trading on the NYSE, the American Stock Exchange, and the Nasdaq National Market.

In this page, we can see the overall Worldwide 1998 Facts and Statistics for combined ExxonMobil Corporation.

Table 4-2. ExxonMobil Combined Worldwide 1998 Facts And Statistics

Financial	
Net Income (\$B)	8.1
Total Revenues (\$B)	170
Average Capital Employed (\$B)	82
Capital & Exploration Expenditures (\$B)	15.5
Return on Average Capital Employed (%)	11
Upstream Operating	
Proved Reserves (billions of oil-equivalent barrels)	21.3
Crude/Natural Gas Liquids Production (million barrels per day)	2.5
Gas Production (billion cubic feet per day)	11.3
Crude/Natural Gas Liquids Proved Reserves (millions of barrels)	11.5
Gas Proved Reserves (trillion cubic feet)	58.0
Countries (Exploration or Production)	Approx. 50
Downstream Operating	
Petroleum Product Sales (million barrels per day)	8.8
Service Stations (thousands)	40+
Convenience Stores (thousands)	15
Refinery Thruput (million barrels per day)	5.5
Refineries	44
Countries with fineries	24

Fuels Marketing (number of countries)	Approx. 120
Chemical Operating	
Prime Product Sales (million tons)	21
Revenues (incl. Intersegment) (\$B)	15
Manufacturing Sites	73
Countries with Manufacturing	24
Olefins Capacity (million tons per year)	11.2
Polyolefins Capacity (million tons per year)	6.4
Other Operating	
Employees (thousands)	123
Common Shares Outstanding (billion)	3.5
Business Presence (number of countries)	Approx. 200

THEIR STRATEGY

Given that their businesses have a cyclical nature throughout the time horizon, their strategy focus on keeping competitive advantages at all times. And in order to achieve this mission, they set up the strategic thrusts as follow:

- For the upstream business,
 - (1) Maximize profitability from existing oil and gas production with pursuing all attractive exploration opportunities
 - (2) Make full use of growing natural gas markets

- For the refining, marketing and chemical business,
 - (1) Capitalize on refining integration with chemicals and specialties businesses
 - (2) Increase sales from high-value fuels and specialty products
 - (3) Rapidly develop and commercialize new leading-edge technologies
 - (4) Strengthen returns throughout the business cycle through optimal sub-business mix and reducing costs

Based on the above strategic thrusts that end up maximizing operational effectiveness, ExxonMobil try to capture superior returns. In a nutshell, their strategy could be described as complete vertical integration, full exploitation of technical advantages and continuous efforts in sustaining maximum operational effectiveness.

Professor Hax classify major benefits of vertical integration into four categories in his masterwork:

- (1) cost to internalize economies of scale and scope, and avoid transaction costs,
- (2) defensive markets power that provides autonomy of supply and demand, as well as protection of valuable assets and services,
- (3) offensive market power, which allows access to new business opportunities, new forms of technology, and differentiation strategies, and
- (4) managerial advantages. On the other hand, we

do also have deterrent factors for integration such as cost from capital and overhead investment, flexibility loss, balance penalties from underutilized capacities and unfulfilled demand, and administrative penalties.

The firm can integrate vertically when they have and fulfill a number of conditions simultaneously: complementary assets are specialized, the appropriability regime is weak, specialized assets are critical and the cash position allows for an investment. As a whole, it seems to me that ExxonMobil fully enjoy benefits from vertical integration based on the strategic thrusts outlined above while John Stuckey and David White claim that the strategy is too expensive, risky, and difficult to reverse for two reasons. First, very often objectives are not realized. Second, quasi-integration like joint venture, alliance and technical licensing can be far superior to full integration.

All the players in the industry including ExxonMobil are price takers from the crude oil price change standpoint. ExxonMobil secure sustainable performance through vertical integration. In 1998 they got an 11 percent ROCE which was materialized by offsetting bad performance in upstream through high performance in marketing, refining, chemical business, etc.

Because of commodity nature of oil industry, ExxonMobil also make every effort to improve operational effectiveness throughout whole business. Porter:

claims that operational effectiveness is not strategy while both are essential superior performance, and they work in very different ways. He said, "Strategy is about being different. It means deliberately choosing a set of activities to perform and deliver a unique mix of value differently than rivals do".

It is not easy to follow Porter's recommendation for oil industry players, except competitive advantages stemming from technology and assets portfolio rationalization that are not easy to capture. In case of ExxonMobil, they have been trying to capture customer need via customer and business program. They have various types of cards that target both final end-users and corporate customers. Also they (Exxon) have introduced a line of "Driver-Friendly" products and services under the 'Tiger market' with Mobil 'On the Run'. One of interesting service is 'Speed Pass' from Mobil that allows pass holder have fuels without using cash or credit cards. I am afraid, however that 'Speed Pass' does not have big impact in attaining competitive advantage for them.

All the foregoing efforts focus on improving speed and convenience for customers at their marketing level, so as for them to retain customers. The problem is, however that almost all of these breeds of activities are easily replicated among the players, even in Asian countries such as Korea and Japan. Consequently ExxonMobil with other majors have no alternatives but to formulate 'Best Product' as their strategy. Needless to say recent merger is also closely related to operating

synergies and capital productivity improvements.

ExxonMobil's core strengths for attaining their strategic goals are:

Diversity of their businesses;

- Leadership position in deep-water exploration with production and exploration acreage.
- Focused on maintaining highly efficient, technologically up-to-date refineries with good locations and are integrated with lubricant or chemical manufacturing facilities.
- Worldwide base of branded service stations, as well as Exxon's and Mobil's global brand recognition.

Worldwide Presence;

- Large positions in several of the world's key markets, including North America, Europe and Asia-Pacific. Through this core competence they can also offset Asia-Pacific region's lagging by strong earnings in Latin American, the United States and Europe region.

Drive to improve operations;

- Relentless stress expense management, operational efficiency and investment selectivity.

- Careful management of operating costs with the growing volume of business

Financial strength and flexibility;

- Easy to capitalize on financial market and affluent cash flow, based on credit rating, that keeps financing costs in favorable level.

Leading technologies;

- Continuous investment on research and development.
- Technology advantage that allows holding the costs essentially flat throughout the time horizon.
- Being on the cutting edge in next generation fuel, petrochemical manufacturing process and catalyst.
- Contribution to profitability during industry down cycles.

4.2 TOSCO

According to the Reuters, the largest independent U.S. oil refiner and marketer, Tosco announced on Mar. 01, 2000 that they have completed transaction to buy ExxonMobil East Coast marketing assets for about \$860 million.

The acquisition consists of a system of approximately 1,740 service stations, including Mobil-branded stations from Virginia to New Jersey and Exxon-branded

stations from New York through Maine. Tosco also acquired the exclusive right to use the Exxon or Mobil brand in each of the respective markets for at least 10 years, as well as associated supply arrangements and undeveloped properties.

Tosco Chief Executive and Chairman Thomas D. O'Malley said "Tosco looks forward to adding this high-quality retail system to our existing refining and retail base, establishing Tosco as a major marketing presence on the East Coast, stretching from Florida to Maine". He also added "The Northeast and Mid-Atlantic retail locations were a good fit with Tosco's 450,000 barrels per day East Coast refining system and distribution system".

Here we can see one of Tosco's growth strategies. Throughout the Company history, they have been pursuing acquisition strategy as a main factor for their growth in stead of grassroots investment.

In mid 70's, they purchased Phillips Petroleum's West Coast assets that made Tosco the largest supplier of petroleum products to independent marketers on the West Coast. The company made a strategic move in 1991 to expand its East Coast operations by moving headquarters to Connecticut, and acquired Exxon's refinery in New Jersey on 1993 with subsequent buying BP's gas stations in the Pacific Northwest and Northern California and the Northeast in 1996. (It agreed to sell back the right to use the BP brand in the northwestern US in 1999.).

Furthermore Tosco purchased Circle K and Unocal West Coast assets that included three California refineries, about 1,300 West Coast gas stations in 1996 and 1997 respectively. Though these acquisition processes, Tosco ended up selling about \$65 million of under-performing terminals, retail outlets, and land.

COMPANY DESCRIPTION

Tosco is the US's leading independent refiner and marketer, ahead of Ultramar Diamond Shamrock and Sunoco. Tosco also owns the second-largest convenience store chain in the US, behind 7-Eleven. The Company has seven refineries, five in California and Washington, two in New Jersey and Pennsylvania, which process approximately 950,000 barrels per day with 21 company-controlled wholesale terminals and Lubricant blending and packaging.

Tosco's retail division is one of the largest operators of company-controlled convenience stores in the United States. In 1998, the Company has network of over 5,000 retail outlets in 38 states. 2,400 of which are company-controlled and operated, primarily in the Sunbelt under the Circle K brand, sold approximately 4.5 billion gallons of gasoline and diesel fuel, and over \$2 billion in convenience store merchandise. The remainders are 1,300 company-controlled, dealer-operated retail outlets, 1,100 independently owned retail outlets 250 franchised retail outlets under the BP, Union 76, Exxon, and Mobil brand names.

Besides Refining and Marketing, Tosco announced on Feb.1999 that Tosco and Union Carbide entered into a MOU to create a 50-50 joint venture to manufacture and market polypropylene. According to the plan, 775 million pounds a year polypropylene plant will be located at Tosco's Bayway refinery in Linden New Jersey, and completed in early 2001. Tosco will run the polypropylene plant, which will use the Unipol PP process licensẽd from Univation Technologies. Union Carbide will market the plant's output. (The companies said that the formation of the joint venture is subject to negotiations and board approvals) Currently, Tosco is a merchant propylene producer and is said to supply their entire product with Huntsman polypropylene business. In case this plan goes further, Tosco becomes a newcomer to chemical industries and takes minor step toward forward integration.

The Tosco has achieved higher profits than any of their independent competitors. Moreover in the Table 4-3, we can see their financial performance data that give us some comparison on good return, compared with industry, R&M and Integrated Oil firms.

Table 4-3. Profitability Ratio against Industry & Market

	Tosco	Industry2	Market	Industry1
Gross Profit Margin	17.56%	23.93%	46.72%	27.81%
Net Profit Margin	3.08%	1.4%	5.57%	4.10%
Return on Equity	23.2%	5.1%	12.3%	8.3%
Return on Assets	7.3%	1.5%	2.2%	3.6%
Return on Invested Capital	12.8%	2.9%	6.3%	6.5%

Sources & Note: Hoover's Co. Information, Industry 1; Major Integrated Oil/Gas, Industry 2; Oil & Gas Refining/Marketing, Market; Approx. 8,000 public companies trading on the NYSE, the American Stock Exchange, and the Nasdaq National Market.

I think key attributes to these good returns are low unit cost of production, price competitiveness, good location and service, and I address details in the following pages.

TOSCO's STRATEGY

Given that integrated oil companies are some of Tosco's competitors in the field of refining and marketing business of the industry, it is clear that they have lesser flexibility in responding or absorbing market and environmental changes. As we review in ExxonMobil case, fully integrated firm may leverage upstream performance to that of downstream business or vice versa. However this is not the case for Tosco. Fortunately it is accepted by and large that there are not small

number of dominant players in the refining and marketing business. This may give Tosco both opportunities and threats.

Under the circumstance, the first Tosco's strategy that I noticed is growth through acquisition. It is interesting that most of what Tosco acquire is purchased from integrated oil firms. This has been a key matrix of growth throughout the Tosco history, irrespective of refining, retail marketing and convenience store business. Recent deal with ExxonMobil for East coast marketing assets culminates their acquisition strategy rather than grassroots investment, which ends up making them a major petroleum products producer and seller on both coasts.

The second strategy is that they do everything to maximize refining margin. Refining margin is the difference between the cost of a barrel of oil and prices of products. They keep trying to maintain costs low. Here is the article on this point. Feb.29 Wall Street Journal said "Tosco is known for acquiring refineries from major oil companies and then running them harder. After taking over Exxon's Bayway refinery in 1993 in Linden, New Jersey. Tosco increased daily production by 33%, which lowered costs by 40% to about \$2.50 a barrel. Last year, when the rapid drop in oil prices and then a soaring rebound buffeted refiners, Tosco earned \$296.9 million on revenue of \$14.4 billion." Another factor for their refinery running more efficiently is various usages of different crude-oil feedstocks. This has been possible through process optimization and upgrading facilities.

For example, Trainer Refinery in Pennsylvania, acquired in a shutdown mode in Feb. 1996 and started up by Tosco in May 1997 after an approximately \$100 million modernization and upgrading project, includes fluid catalytic cracking unit, hydro-cracking unit and hydro-desulfurization units. The facility enables them to process broad range of crude oils into a high percentage of light refined petroleum products. This breed of configuration is almost similar to the rest of Tosco refineries. Another example for the strategy to have low cost is Bayway and Trainer refinery location that have ready access to marine, rail, and truck transportation and product distribution pipelines, giving them considerable flexibility to change their raw material input and product output to respond to changing market conditions.

Third strategy is successful forward value chain integration that means Tosco manage their retail network in a different way from the standard business model. Tosco operate their retailing business as separate systems, with separate management teams and objectives. In an effort to focus on maximizing retail business profitability, particularly in high-margin, non-gasoline sales, Tosco acquired the Circle K, and they coined the concept "Selling Zone". That is from the curb to the gas pump, to the store.

Their "Selling Zone" slogan says, "All in One-with leading brands that offer a potent combination of convenience and quality". The convenience stores benefit

not only from the sales of gasoline but also from increased customer traffic in the store occasioned by gasoline purchase. Their strategy to this point is very unique, because for them the gasoline is a platform of increasing customer traffic, not the reason for existence of the site. We can define the importance of this strategy as building a new business model, based on outward-looking and customer-oriented approach. Tosco choose, in stead of traditional model-selling the volume to load the refinery, to focus their retail site on meeting customer needs.

In the article "Creating New Market Space" by W. Chan Kim and Mauborgne, the authors pointed out that most companies focus on matching and beating their rivals and as a result, their strategies tend to converge along the same basic dimensions of competition. Such Companies share an implicit set of beliefs about "How we compete in our industry or in our strategic group" They share a conventional wisdom about who their customers are and what they value, and about the scope of products and services the industry should be offering. The more that companies share this wisdom, about how they compete, the greater the competitive convergence.

The authors claim that creating new market space requires a different pattern of strategic thinking. These are:

- (1) Looking across Substitutes Industries; Companies consciously think about how their customers make trade –offs across substitutes industries

- (2) Looking across Strategic group within Industries; To understand what factors determine buyers' decisions to trade up or down from one group to another
- (3) Looking across the Chain of Buyers; By reviewing buyers group, redesign value to focus on a previously overlooked set of customers
- (4) Looking across Complementary Product and Service Offerings; To define the total solution buyers seek when they choose a product or service
- (5) Looking across Function or Emotional Appeal to Buyers; To challenge the functional-emotional orientation of their industry
- (6) Looking across Time; Follow up new trends with right perspective

Tosco' strategy in marketing and retail business are grounded on the finding new market space through above summary especially item one and four.

To maximize customer satisfaction, Tosco also have Gasoline and Commercial Cards that allow clients to have accounting need for fuel usage of their fleets vehicle, and pay for snacks and beverages, car washes, car maintenance, and other conveniences. All of these systems are backed up by Tosco' information technology and infrastructure such as POS network, that monitors production network operations, defines new marketing needs, and oversees the development of these process and services.

In order to materialize their strategy, Tosco believe that Management is knowledgeable, professional and enthusiastic. They have lean corporate organization structure that means empowerment and autonomy of division manager level, giving their employee high motivation with entrepreneurial operation. In retail, their competitive factors are site location with ease of access, brand awareness with customer royalty, and store management with production selection, pricing, hours of operation. All these competitive edges have functioned in more synergistic ways, combined with Tosco' low pricing strategy, marketing and promotional program, large scale merchandising and purchasing power, and customer focused management with ongoing listening to voice of customer.

CHAPTER FIVE

KOREAN OIL INDUSTRY

Korea is famous for one of the fastest growing and most successful economies in the world. Throughout the period of economic development plans, started in early 1960's, Oil industry has been playing an important role in its economic growth. In 1998, Korean oil industry took 6.9 percent share of GNP with the sales amount of about \$25.7 billion. The basic weakness of Korean oil industry, however, is that it has been grown, mostly focusing on downstream with the very minor upstream activity. With no domestic reserves, Korea has to import all of its oil needs. BP Amoco Statistical Review reports that Korea, in 1998, is the fourth largest crude oil importer with the second for liquefied natural gas and the sixth largest oil consumer in the world.

Since the first production start-up in 1964, Korean oil industry now has the crude oil processing capacity, 2,488,000 barrels per day with five refineries, which is the fifth in the world. While there were five players in the industry before the Asian crisis, only four players remain now through industry restructuring process and merger. More importantly, two national oil companies from Middle East have taken the ownership of S-Oil (former Ssangyong Oil) and Hyundai Oil respectively.

Just like we have had the global trend of M & A among majors, Korean oil industry did so, which means that the landscape of oil industry changed a great deal.

In this chapter I will review Korean oil industry situation, and address the impact of restructuring and changes in regulation. Also I will conduct environmental scan at the industry level by using the method of professor Hax' pragmatic approach. This will allow us to understand and capture the major external forces that are impacting the future profitability of the Oil Company.

5.1 INDUSTRY OVERVIEW

Oil is expected to maintain its dominant role in energy consumption over the period of year 2000, having 54.9 percent of share of primary energy demand in 1998. According to the data by Korean Ministry of Commerce, Industry and Energy, annual increase in oil consumption from 1988 to 1995 had been more than 10 percent. In 1996 and 1997, it was 9 and 3.8 percent, followed by a steep down and up, minus 15.2 and 8.8 in 1998 and 1999. These data tell us that current oil consumption recovered to the level of those before Asian crisis.

While oil demand had been increased by more than 10 percent over the period 1998 –1999, the trend is expected to be slow down and increase by 2.3 percent per year from 2000 to 2010, based on the Long-term projection by Korea

Energy Economics Institute. On the other hand, the share of oil in primary energy supply will decrease to 51.4 percent in 2010 from 54.9 in 1998. This is mainly because of increasing role of LNG and nuclear in power generation.

As the fourth largest crude oil importer, Korea had imported about 820 million barrels in 1998. More than 75 percent of oil come from OPEC Middle East while government and domestic players tried to diversify supply sources. Furthermore, import quantity, based on self-exploration and production, is less than 1 percent. Korea's more than 99 percent reliance on foreign suppliers made Government put a high priority on a policy of securing and diversifying the sources. Korea has developed a strategic petroleum reserve, currently equivalent to a 65-day supply, with the target of 90-day.

WHO ARE THE PLAYERS

There had been five major players in oil industry before 3rd quarter 1999, however through consolidation and sell-offs process now four players, the largest one own by local corporation, the second, joint venture with US firm and third and fourth governed by National Oil Company. Besides these players, there are some independent distributors and big dealers, who own or have the control of a number of gas station. From the standpoint of value chain of the industry, they play almost equivalent roles of wholesale marketers and jobbers in the US system. In

case of kerosene and diesel distribution channel, small-scaled sales shops also sell the product to the final consumers for their stationary purpose. Considering the power of these peripherals in the value chain, backward integration does not likely happen in the short term, while they have some bargaining power against major players because of the competition.

Table 5-1. Companies Details by Major Players

	SK	LG-Caltex	S-Oil	HD	IN
Established	Oct 1962	May 1967	Jan 1976	Nov 1964	Nov 1969
Stake Holder	At first Gulf, sell-off in '80	50% Caltex	ARAMCO & Have control	UAE, IPIC & Have Control	At first Union, Sell-off in '83
Processing Capacity	810K	650K	443K	310K	275K
Upgrading Capacity	30K HC & 50K FCC	70K FCC	30K HC & 33K FCC	34K HC & Coker	--
Business Scope	Oil, Gas, Petrochem & Baseoil	Oil, Gas, Petrochem	Same as SK w/o Gas	Same as LG	Same as LG

Note: HD= Hyundai Oil, IN= Former Hanwha Energy & Now under HD control, IPIC= Abu Dhabi International Petroleum Investment Corporation

FCC= Fluid Catalytic Cracking, HC= Hydro Cracker, Unit: Barrel per day

On the Table 5-1, I summarize each of four major players detail such as processing and upgrading capacity, business scope, etc. first.

In addition to the compliance with environmental regulations, upgrading

facilities are mainly targeted to meet growing demands for lighter products and to minimize production costs by using multiple feedstock mixes including heavy crude. In the real term, oil industry in Korea has more processing capacity than their nameplates total 2,488K B/D, which means that there is currently over capacity for about 30 percent above the total domestic demand. As a result, major players have been facing keen competition and have to find a way to export their surplus to Asian market such as China, Japan, etc.

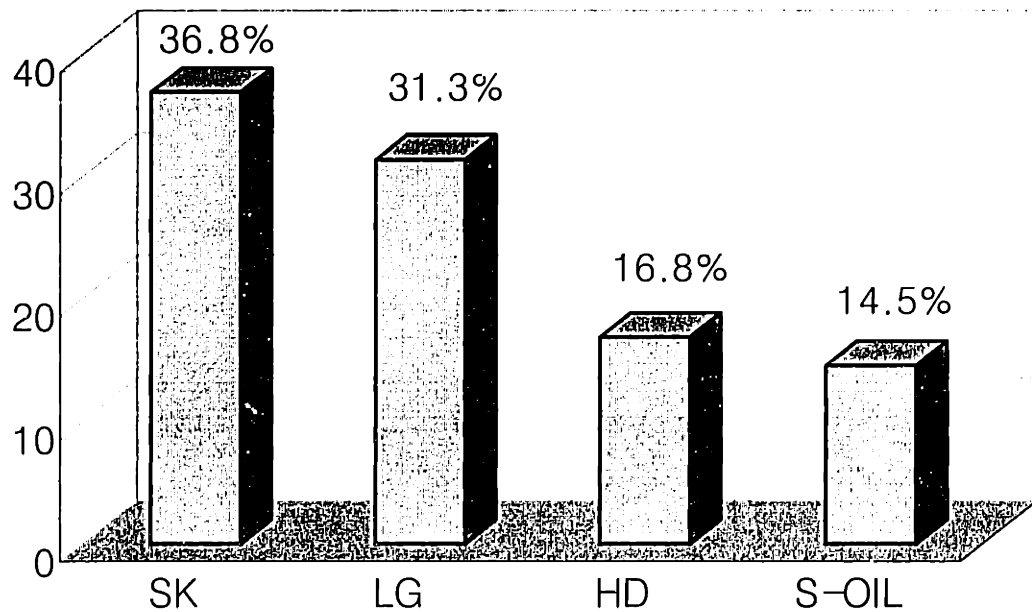
As for marketing, Korean oil industry has distribution value chain in retailing, so called “pole sign system”. That is a compulsory trademark system by law that makes a gas station to sell the products from the same Oil Company as the retail brand. In other words, if gas station has Exxon brand, they should sell only the products from ExxonMobil not from Tosco, etc. The system plays a critical role in tightening the relationship among oil companies, independent distributors and gas station under the circumstance that the level of forward integration of oil companies in retail outlets is about 10 percent in the total number of gas station.

Through the course of M&A and liberalization of the industry, the pole system could function in two different ways. In some cases, it might be a barrier to new entry. In other case, it could be a chance for new entrant, since it is likely that independent station will try to change pole sign during restructuring process. This is why major players have continued to try enforcing the relationship with their

affiliated stations.

Figure 5-1 and Table 5-2 shows market shares of each player, in term of gasoline sales revenue and the number of affiliated gas station.

Figure 5-1. Market Share of Major Players (1999.12)



Sources: Korea Petroleum Association

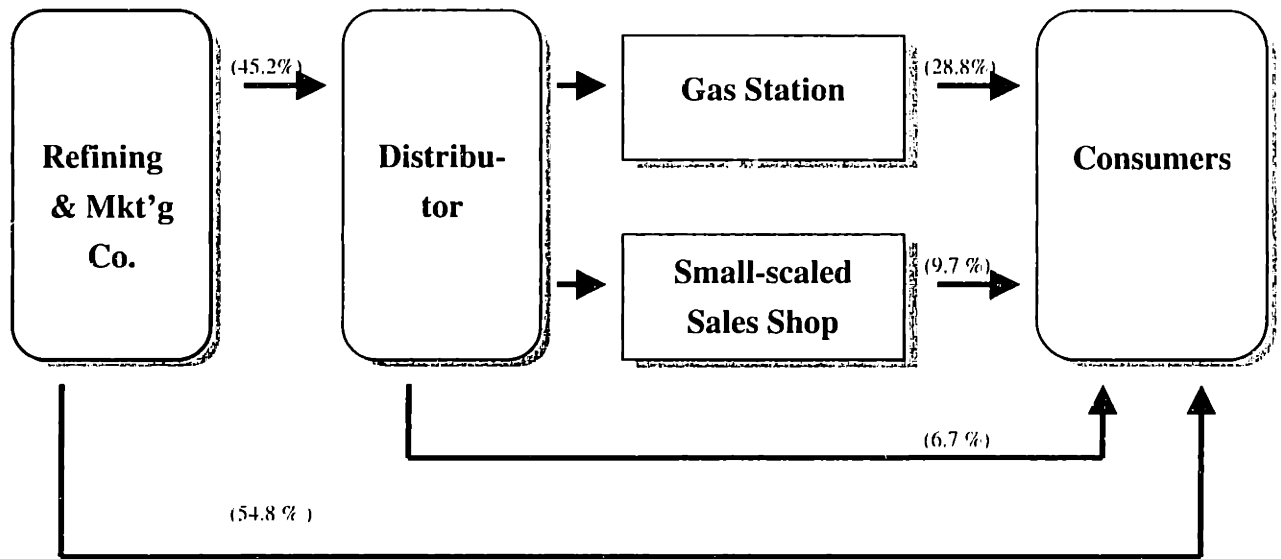
Table 5-1. The Number of Service Station by Major Players (1999.12)

	SK	LG-Caltex	HD	S-Oil
The Number of Service Station	3,761(37.15%)	2,719(26.85%)	2,267(22.39%)	1,378(13.61%)

Sources: Ministry of Commerce, Industry and Energy, Korea

In Figure 5-2, I draw the distribution channel from oil companies to final customer, in order to understand and highlight value chain in Korean oil industry.

Figure 5-2. Distribution Structure of Korea Market (1999.06)



Sources: Ministry of Commerce, Industry and Energy, Korea

STRATEGY AND PERFORMANCE

All players in the industry are very vulnerable to the impact of environmental changes due to the following reasons:

- Crude oil and its related expenses compose about 80 percent of cost of sale, which means players have some limitations in choosing optimal strategy
- While average refining cost is lower than those of Japan and Singapore,

level of upgrading is low, that is important to be more flexible and profitable

- The players are intrinsically vulnerable to foreign currency risk and have big financial cost burdens, because of high debt ratio
- Without vertical integration between upstream and downstream, they have less competitive advantage than multinational major
- Narrow marketing margin, in line with neck or nothing competition

Under the circumstances, some player set up “competitive price and high quality” as their key strategic thrust. It is obvious, however, that convergence in strategy among the players is another distinction in Korean oil industry. They are trying to cut corners through restructuring and downsizing. They make every effort to meet customer needs by building brand royalty through a customer retention program such as incentive card, convenience store business, and car care service at the retailing level. Besides these efforts, some of players also integrate vertical and horizontal value chains to achieve total customer solution in terms of energy service provider.

When we apply Porter’s strategic dimensions, my observation is that SK choose vertical integration with some technological leadership as their strategic option, while S-Oil try to put them cost position with price policy and product quality, and Hyundai brand identification. As he said, the scope for strategic differences along a particular dimension depends on the industry. Because of

commodity distinction of oil industry, it is not easy to find a certain number of strategic groups in Korean oil industry.

As a whole, we can define the strategy of major players in three ways:

- (1) Fully exploit economies of scale, by means of optimal refinery operation and cutting costs in every aspect.
- (2) In preparation for the threats from new entrants, strengthening customer relationship and satisfaction by giving them a maximum benefits possible
- (3) Continue to diversify crude oil supply source and to find new target markets for their refined products and petrochemicals

During 1998 when was the peak period of recession from foreign currency crisis, the industry had managed surprisingly well in securing good financial performance. Table 5-3 shows us the results in that period.

Table 5-3. Sales Results and Profitability Ratio

	LG	SK	S-Oil	HD	HANWHA
Sales Revenue	\$ 6.55 Bil.	\$ 9.15 Bil.	\$ 4.91 Bil.	\$ 2.96 Bil.	\$ 1.94 Bil.
Operating Income	\$ 516.1 Mil.	\$ 719.5Mil.	\$ 428.3 Mil.	\$ 92.6 Mil.	\$ 167.0 Mil.
Net Income	\$ 195.0 Mil.	\$ 95.8 Mil.	\$ 224.7 Mil.	\$ 72.3 Mil.	(\$ 66.9) Mil.
Gross Profit Margin	15.94%	13.24%	12.95%	8.70%	14.97%
Net Profit Margin	2.98%	1.05%	4.55%	2.44%	(3.45%)

ROE	17.94%	2.79%	17.05%	8.45%	(14.55%)
ROA	6.29%	4.30%	6.72%	3.09%	3.67%

Note: SK, S-Oil & Hanwha(Now Hyundai) are listed, LG & HD are not public. E.R.= K. Won 1207.8/DLRS The above ration calculated based on the Financial Report as of Dec. 31, 1998. In order to get ROA, the formula, Operating Income (1- tax rate)/Assets, being used.

In case we scrutinize the financial reports in detail, the other side of this performance has, however, that key factors for good performance are in part coming from low interest rate and foreign currency gain. This is a typical good example of " How important exchange rate and interest rate are to all the players ", on top of improvement on operation of refining and marketing or " How vulnerable they are to these two factors ", which are basically originated from total dependence on foreign raw materials.

5.2 LIBERALIZATION TREND

Prior to the government started to deregulate and liberalize the industry under the WTO system, major players had long enjoyed the oligopolistic structure and the protection of government by Petroleum Business Law. In Oct. 1998, the government, under financial pressure from currency crisis, decided to fully lift a ban on foreign investment to refining industry, which was originally planned to do so from Jan. 1999.

As a result of this move, and on going industrial restructuring effort to

overcome economic downturn, Hanwha energy, the fourth player before the crisis, had been acquired by Hyundai oil giving them the third largest refining capacity. Later Hyundai have in turn ended up selling of a 50 percent of their share to UAE IPIC, which means they are under control of National Oil Company. Right after this deal, S-Oil, price leader and one of the largest exporter, have been also under the umbrella of ARAMCO through the stake deal among ARAMCO, French firm Paribas and Ssangyong International in Nov. 1999.

As we do have the global trend of M & A between super majors, Korean oil industry is rapidly moving toward the new era of market mechanism. This situation drives oil companies to foster new business paradigm and strategy under the overall unfavorable business conditions such Asian economy recession, over capacity in Korea, sluggish demand and severs competition, threat of new entrants, and shrinking margins.

CHRONOLOGY OF LIBERALIZATION

In order to minimize shock from deregulation, the government had established the schedule in revising the Petroleum Business Law and Foreign Capital Inducement Law. Followings are details of deregulation in chronological order.

- *Jan. 1994*: Monthly price adjustment system; price being changed in line

with the move in a price of crude oil and Singapore spot markets and exchange rate. Under this, there is still some degree of government involvement in deciding price

- *Jan. 1997:* - Complete price liberalization; price by players' own discretion
 - Free export and import under certain qualification
 - Freeing new entry to petroleum distribution business
 - Permission to direct transaction between refiner and gas station instead of previous rule, refiner→ distributor→ gas station
- *May 1998:* Allowing new entry to retail business for foreign firms
- *Oct. 1998:* Allowing new entry to refining business for foreign firms

EFFECT OF THIS CHANGE

There is no doubt that we may have whole new picture of the industry regardless of in what kind of value chain of the industry we are. Something like M & A and restructuring already happened, and further much more we have to come.

For the time being, international majors take stance like 'Wait and See' since Korean industry oil already saturated with severe competition among current players. They, however, find a way first to make alliance with relatively big independent distributors, so that they can make full use of trading power and price advantage. This is more likely the case for the business aiming to relatively large-

scale industry end users. After this, they make direct investments to distribution channel or further backward viewing the market changes.

On the hand, current major players are trying to have strategic alliance with competitors for sharing some logistic facilities, together with an effort of strengthening direct distribution channels. We will also have growing presence of cherry pickers that have expertise in petroleum trading and marketing. Some big independent distributors keep chasing opportunity for backward integration to the level of products supplier by specializing trading function or partnership with overseas players that have same strategic intents.

Regarding the price, domestic price will be decided in the long run, based on the imported parity scheme, landed cost and other expenses plus margin. In retail area, business model for gas station will be more diversified to prepare for growing competition. That will be increasing participation in ancillary business such as C-store, light scale car maintenance, banking service via ATM and new type of courier service. Some independent gas station would like to take this situation for their profit in the midst of competition among major players.

5.3 ENVIRONMENTAL ANALYSIS

In the previous section of this chapter, I briefly review Korean oil industry

situation, so that we can capture some sense on the future threats and opportunities, faced by all the players. Now I will do more systematic analysis on the industry, based on the methodology presented by Professor Hax and Majluf through their masterwork, and in part Porter's framework for structural analysis of industry as a whole. By doing this, we can appreciate the behavior of competitors and understand the level of attractiveness of the industry in which the players are.

When we refer to oil industry in general, that covers whole industry value chain to a retail outlet from oil fields. Since in Korea exploration and production have, however, very minor portion in industry, I will assess the industry in terms of refining and marketing only. With this analysis and the contents described in chapter 3 and 5, the Oil Company might establish their strategic thrust to cope with ever-changing business situation.

INTENSITY OF RIVALRY AMONG COMPETITORS

As for the Korean oil industry, industry growth, exit barriers, the share of fixed cost, and the concentration and balance among competitors are the key determinants of this force. For the time being we might maintain four players in the industry despite the industry is open to new entrants. This means we are in mildly attractive situation for the factor, balance and concentration among competitors. On the hand, regarding fixed costs and industry growth, I think these factors are

mildly unattractive because fixed cost is very high from a start-up to the certain stage of getting profits, and the growth also started being slow as we review in previous section.

Even though we can change the ownership of an oil company, we can not completely close or idle a refinery operation, that ends up the fact that we have a high barrier to exit. This is not only because there are large amount of tangible assets but also because strategic position the industry have in the economy. This is another factor that deteriorates industry attractiveness. The other factors such as product differentiation, switching costs, and brand identity are not either in attractive situation. The major reason for this assessment is grounded on we basically supply commodity products.

Consequently, in my opinion, it might be concluded that the industry are in mildly unattractive situation for the current players, in light of foregoing assessment. This is also the case for those of who are trying to enter.

THREAT OF NEW ENTRANTS

In the course of restructuring and liberalization, two oil companies have been under control of National Oil Companies. As Porter pointed out, I think we could view this situation as entry even though no entirely new entity is created, since they

can use their huge resources to cause a shake-up. This force refers to the causality by new comers who bring new capacity and resources with a desire to gain market share. Often threat of entry depends on the barriers to entry, that incumbent players have placed.

The factors, we can apply with our analysis, for this force include intensity of capital requirements, ease of access to distribution channel, critical raw material, relevance of learning effect, and economies of scale. Refining is a typical capital intensive industry, and marketing in Korea is also required a huge amount of cost for players to secure distribution network. Accordingly these two factors can be considered highly attractive for current players.

The remainders are also in very attractive level except access to distribution channel. As I mentioned in the foregoing section, the extent of distribution channel integration for the companies is about 10 percent. This can be considered that access to channel is easy for new entrants. In the real term, however, it costs a lot of money because of competition.

In my opinion, we can describe this force as highly attractive for current players with the some company's resources being required. When we adopt the scheme proposed by Porter, described the relationship between entry barriers and exit barriers, I think Korean oil industry now in high barriers of both entry and exit.

That means high, but possibly unstable and/or risky profits situation.

THREAT OF SUBSTITUTES

For this force we have to think about the factors such as availability of close substitutes, user's switching cost, price-value trade offs between the originals and substitutes, and aggressiveness of substitute producers. Substitute products refer to the other products that can perform the same function or benefits as the product of the industry. In our industry, we think other fossil fuels, renewables, nuclear, and natural gas.

As we see in chapter 2 and previous section, there is growing demand in natural gas. It starts, however, at lower level and we need more infrastructures to make full use of gas. I think that for the time being natural gas can not replace the role of oil. We have also continuous research and development on the alternate sources of energy like solar, wind, and fuel cell. But in term of economic value, the incentive for those sources still is not big. Accordingly we have the consensus that any alternate source of energy can not generate, at a competitive price, the amounts enough to meet demand and replace the function of oil.

We can conclude that the industry are in mildly attractive situation for this force while we have ongoing efforts to find a way new and environment friendly

energy sources.

BARGAINING POWER OF BUYERS

Porter indicates that buyers compete with the industry by forcing down prices, bargaining for higher quality or more services, and playing competitors against each other with all the expense of industry profitability. Professor Hax describe, however, buyer as the most important constituency of the firm, to be treated not as rivals, but as the depositories of a long-lasting, friendly relationship based on performance and integrity. I believe that when we analyze the factors like number of important buyers, buyers' backward integration, switching cost, and contribution to quality or service of buyers' products, we should approach and treat them on Hax's perspective.

In Korean oil industry, we have three different types of buyers. They are independent distributor, industry user, and final user. Power of buyers has increased a lot in recent years since competition among the players had been getting more severe. As a result, we have a number of important buyers, which means that we have both threats and opportunities, neutral. Switching cost and possibility of backward integration are low. This is also the mixture of highly unattractive with highly attractive situation.

Regarding a contribution to quality or service and costs of buyers' products, it

is in the mildly unattractive. For the petroleum products, buyers tend to expend the resources necessary to shop for a favorable price and purchase selectively. They are more price sensitive and request more favorable terms that might deteriorate industry attractiveness. For example, in case of independent distributors and retail outlets, the industry give them a financial and marketing supports for them to have competitive advantage. Other factors such as availability of substitute and forward integration are in highly or mildly attractive.

My conclusion for this force is neutral. Even though bargaining power of buyers has increased in recent years in line with the deregulation and subsequent competition, there is no big threat of available substitutes and backward integration.

BARGAINING POWER OF SUPPLIERS

In oil industry, suppliers often exercise their power by trying to reduce production and consequently increasing price. This is the case, high crude oil price, now we have experienced. Because the industry can not immediately transfer cost increase to the buyers, powerful supplier can squeeze profitability out of industry. Thus this force is a mirror image of the power of buyers.

For the Korean oil industry, the most important factors are suppliers' threat of

forward integration, total industry cost contributed by suppliers, and availability of substitute for suppliers' products. In my opinion, these three factors are in highly unattractive situation. Other factors like number of important suppliers, switching costs, and importance of the industry to suppliers' profit could be concluded mildly attractive.

My conclusion for this force is mildly unattractive because mildly attractive factors do not have heavy weight in Korean oil industry's profitability.

OVERALL ASSESSMENT

Professor Hax pointed out that we have to take into account the fact that not all forces are equally important and the dynamic nature of industry structure, when we make a final analysis. For example, he stress the importance of information technology development, given that a company can use IT to build barriers to entry, to build in switching costs, to completely change the basis of competition, and/or to generate new product.

Among the five forces, I think that both bargaining power of buyers and intensity of rivalry among competitors is the most critical factors for Korean oil industry. Therefore in light of this priority, the oil industry are in the middle of mildly unattractive and neutral situation. The reasoning for this is not only because the

forces of new entrant and seller's power can be likely to change in future and it is highly unpredictable but also because the world keep trying to find new alternate.

CHAPTER SIX

DELTA MODEL AND RECOMMENDATION

In the foregoing chapters, I review current trends and changes in both world and Korean oil industry including energy supply and demand situation, and also address possible future trend and universal strategy of the industry, in coping with these changing environments and intense competitive pressure. In addition, I analyze some of players' strategy, whose performance are better than those of the other players, and do structural analysis for Korean oil industry.

I find that almost all players, except some niche players, share the similar strategies that tend to converge along the same dimensions of competitive option; inexorable axiomatic operational effectiveness, economies of scale, focus on core business by way of portfolio reshaping, and consolidation through merger and acquisition.

Some industry analysts argued that the characteristics of the industry and markets constrain the degree of strategic options available. They attribute low level of distinctive strategies to the maturity of demand growth, the volatility of crude oil price, the growth in consumer power, and relentless pressure of investment to

assets. As Porter claimed, should we be in profitable industry to achieve superior financial performance? Is this really true? In my opinion, the answer is in the negative.

We have many good examples of companies that show admired value creation for their stakeholders in a mature or so called "bad industry", while their competitors are stagnating. Moreover, when we see the PC industry where a number of players fail to capture value despite its rapid growth, it becomes clear that good industry does not guarantee a superior performance.

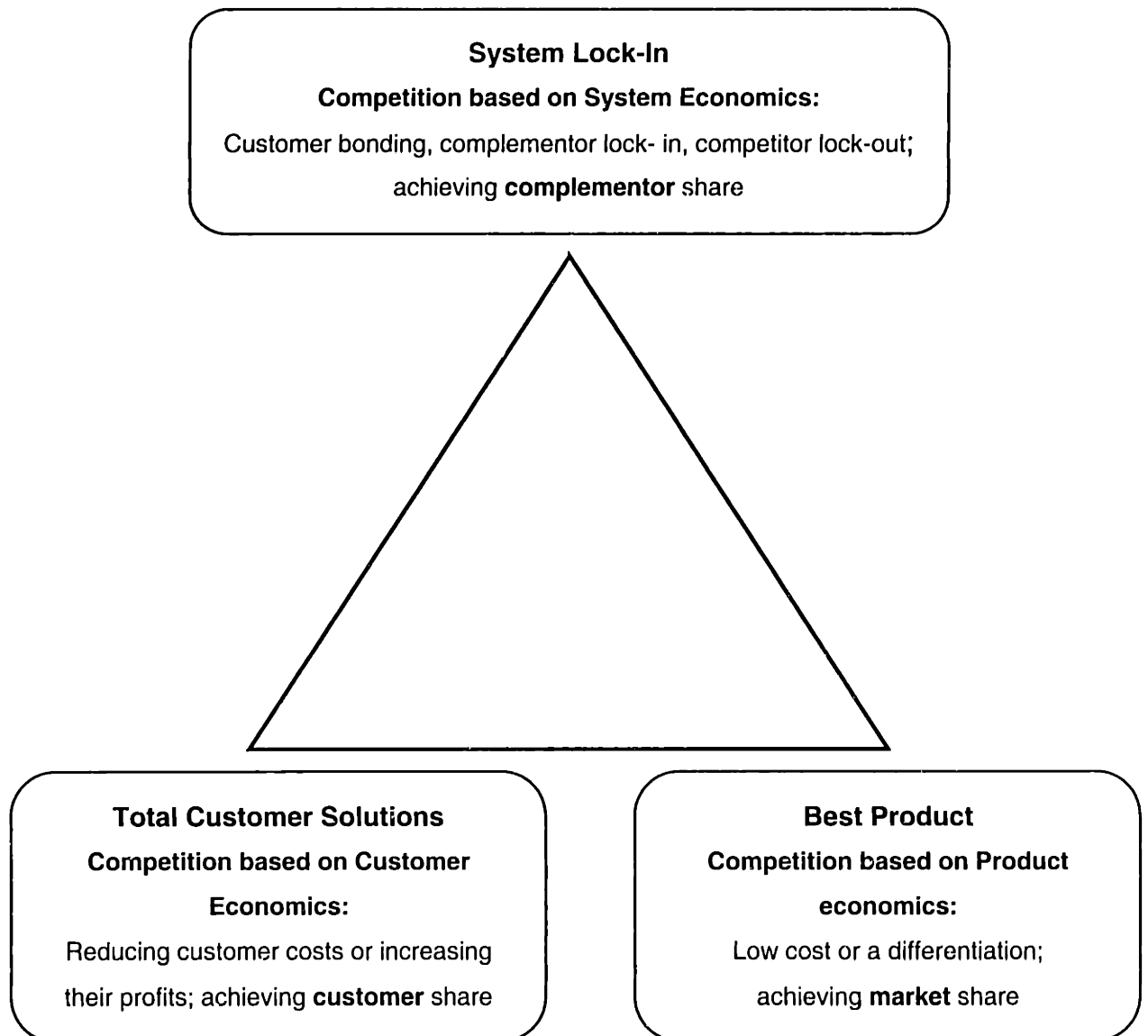
Under these circumstances, we need more significant strategic innovation on top of conventional strategic option. Here we have the Delta Model, introduced by Professor Hax, as the expanding strategic options.

6.1 DELTA MODEL

In the Delta model as an integrated new framework for strategy, we have the three quite distinct alternatives, offered by the Triangle, Best Product, Total Customer Solutions, and System Lock-In for the developing strategic position and vision. The three alternatives in the Triangle give us a contrasting set of options from where to begin to reflect on the strategy of the business.

As we can see in the Figure 6-1, each option concentrates on different strategic thrusts: Best Product for low cost and differentiation, Total Customer Solutions for strong bonding with customer, and System Lock-In for attracting and retaining complementors.

Figure 6-1. The Triangle, three Distinct Strategic Positions



BEST PRODUCT

The Best Product positioning based on the conventional form of competition through value proposition of product economics. The firms in this position are trying to focus on improving efficiency of their internal processes and the supply chain around the products and benchmarking competitors. In this option, information technology such as Enterprise Resource Planning (ERP) plays a key role in securing low cost. Professor Hax describes the model as "This is the business model that emerged from the industrial era. It is the default strategic option for majority of firm today".

Southwest Airlines is a good example of well-conceived Best Product strategy achieved through an unrelenting product economics and differentiation by way of shuttle and no frills service. They concentrated all their activities on delivering low cost, convenient service for particular route. Through fast turnarounds at the gate, they are able to maximize usage of fleet and provide frequent departure with fewer aircraft than competitors. Southwest does not offer hot meals, baggage handling, or premium classes of service. Automated ticketing at the gate encourages customers to bypass travel agents, allowing them to avoid commissions. A standardized fleet of aircrafts builds up the efficiency of operation and maintenance.

TOTAL CUSTOMER SOLUTIONS

This strategic option is based on creating a strong bonding with the customer. Rather than servicing faceless customers, customer solution players try to understand and learn more about each customer so as to provide customized solutions. They put together a bundle of products and services aimed at solving a wide array of customer needs. Consequently, Players in Total Customer Solutions make efforts to focus on value proposition of customer economics. Players try to exploit synergy among the firm, customers, and suppliers value chain, and to benchmark customers. E-commerce through the INTERNET greatly facilitates realizing close linkage with customers and firms.

There are three major ways to achieve a Total Customer Solutions position: the first is by redefining the relationship with the customers in a way that creates previously unknown customer utility. The second is by pursuing horizontal breath, which means bonding through bundling. This can be done via acquisitions, partnerships, and alliances. The third method is through vertical penetration. This substitutes for activities the customer currently performs with more efficient ways.

As for this position, we have the case of Chevron's natural gas division and one of its complex delivery chains. Their value chains are as follows: Chevron uses a pipeline company to carry gas to a local distribution company (LDC). The LDC

pipes the gas to a chemical company, which uses it to manufacture a leaching agent. The chemical company then sells this agent to a Colorado gold mine where it is used to extract gold. Through a series of workshops with the chemical company, the Chevron learned several significant things about their delivery chain and their ultimate customer, the mining company.

For example, Chevron found that the gas delivered to the chemical company picked up impurities in the common carrier pipelines. Working with impure gas made the leaching agent more expensive and lowered the manufacturing yield. They also found that the people at the gold mine were afraid of handling the toxic leaching agent, particularly during transportation from the chemical company. In process of the case, several viable proposals for action and for increased profits were made. One Chevron engineer has suggested that the chemical company create its own pure-gas pipeline, bypassing the common carrier lines altogether. An alternative option involves a joint effort between Chevron and the chemical company- or Chevron, the LDC, and the chemical company- to install a gas-cleaning unit at the chemical company's gas access point. An even more radical proposition entails producing the leaching agent right at the gold mine. By pulling a gas line all the way to the gold mine, Chevron could solve both the manufacturing yield and the hazardous transportation issues.

SYSTEM LOCK- In

In the System Lock-In strategic position, players concern about all the meaningful players in the system, who contribute to and enhance economic value in the industry in which the firms are. For this option, bonding plays the most important role with the value proposition of system economics. In addition to the normal value chain like buyer, supplier, and new entrant, they are particularly concerned with nurturing, attracting, and retaining the complementors that end up the synergy of the system value chain.

Complementor is not a competitor but a provider of products and services that enhance our own offering. According to the definition by Brandenburger and Nalebuff, A player is your complementor if customers value your product more when they have the other player's product than when they have your product alone. And a player is your competitor if customer value your product less when they have the other player's product than when they have your product alone.

In order to attain competitor lock-out and customer lock-in through the increase of complementors share, player has to obtain a comprehensive integration in an open system among all of the key system players especially complementors. Also player must capture the full ownership of the standard allowing the appropriation of the major share of value made by the system.

Microsoft and Intel including INTERNET portal like AOL and Yahoo are typical examples for this strategic option. In the financial industry, Visa and MasterCard established proprietary standards through an open system to all key players- the banks, consumers, and merchants. As a result, they have more than 80 percent of the cards in circulation. Consumers prefer the cards accepted by the majority of the merchants, and vice versa.

Depending on what our strategic option is, rivalry can be replaced by bonding that ends up giving us different point of view for customers and complementors. The Delta model gives us another deep insight for competitive positioning. It can expand our analysis to the value chain of all of the external relevant parties from the internal value chain of our own business. If we choose the Total Customer Solutions option, we look for the proper integration of our value chain with the key suppliers and customers, searching for complementary assets that substantiate and enrich the relationships.

As a result, choosing one of the forgoing strategic positions will greatly influence all the remaining process of strategy formulation through the Delta Model. This includes the way to compete, the development of the competencies, the strategic agenda, the organizational structure, the nature of the processes, and the character of the metrics and feedback. The Delta model as a unified framework allows us to have more concrete ideas and process on strategy.

6.2 RECOMMENDATION

STRATEGIC POSITIONING

In my opinion, the Company currently operates in the mode of Best Product, generally based on a low cost in refinery operation and differentiation in marketing activities. Given that loyal customers and personalized service are key success factors of the Company, their business model should be re-positioned from Best Product to Total Customer Solutions by leveraging current market shares to deepening the customer relationship through bonding.

In the long run, the Company also makes every effort to find a way to achieve System Lock-In through the methods such as improving the brand royalty among consumers and system integration with complementors like independent retailers. The major purpose of this strategic repositioning is to create sustained barriers to involvement of competitors and new entry. I believe that once formed, this position will not be easy to replicate because of the switching costs and learning effects, and thus discouraging competitive entry to our whole customers.

MISSION OF THE COMPANY

After we finish establishing the strategic positioning, we then define the

mission of the Company that contains two sets of information. First, is a clear definition of current and future expected business scope that describe products, markets, and geographical coverage of the business within a reasonable time horizon. Second is the selection of competencies that uniquely distinguish our business from others in the same industry.

Product & Service Scope

Current: Commodity products such as gasoline and refinery products, including petrochemicals with minor product-related services in lubricants and petrochemicals.

Future: Broad scope of energy products and related customized services offered by bundling energy products and adding value through outsourcing, and financing and risk management skills.

Challenges: Scope of horizontal breath and its extent sufficient to capitalize on bundling the products, human resources that have expertise in handling volatility of energy price, supply, and demand, and innovative thinking to adopt new business model, energy service provider.

Market Scope

Current: focus on refinery product users and primarily concentrated marketing activities on independent retailers and industry consumers.

Future: whole value chain of energy users, redefine market segments based on

this new scope of value chain and high profit producing opportunities: including high volume energy user in the other industries, who requires energy product bundling and supportive services.

Challenges: tough business environment from intense competitive pressure, developing information technology and infrastructure to improve customer benefits, and developing flexible marketing tactics to capitalize on newly defined different segments.

Geographic Scope

Current: highly focus on domestic markets.

Future: make full use of Asian energy market as a whole, preparing and trying to stretch to global markets place through the participation in virtual space such as INTERNET business.

Challenges: level of openness and supply and demand situation in Asian markets competitive advantage as a global player.

Unique Competencies

Current: one of the dominant players on local petroleum market, finishing groundwork for improving internal effectiveness by adopting ERP and continuous restructuring, partially having vertical and horizontal integrated value chain, and management drives to innovation.

Future: focus on customer relationship management by way of developing lean

structure, new corporate culture like entrepreneur-ship, and completely aligned information technology to customer needs and new business model.

Challenges: reluctant to have significant strategic innovation and subsequent isolated initiatives, tendencies to focus on developing internal value proposition, and to maintain fast familiar business model, and competitor imitation.

DEVELOPING UNIQUE CUSTOMER VALUE PROPOSITION

As I addressed in the previous chapters, key distinctive strategic position of the major players is industry-wide convergence, where almost every players is following very much the same strategy, that ends up the increased commodity syndrome with the lowest cost value proposition. I am sure that the strategic implication of this convergence is the wake-up call that gives opportunity for the Company to exploit the gaps between what commodity players provide, and what customers really want and are willing to pay for. And this can be done by way of Total Customer Solutions business model, on top of low cost and differentiation.

How can the Company develop the Value?

- Based on the *FUTURE* mission, the Company redefines its segmentation and targeting customers with sheer understanding of customers' needs and their potential values to the whole supply chain.

- In order to deliver value to targeted customers, the organizational structure should be optimized in a way that fosters the formation of cross-functional teams, and gives them more power and accountability.
- Through education and/or outsourcing outside the oil industries, the Company keeps trying to secure high-qualified human resources, and give them a greater managerial autonomy, entrepreneurial culture and incentives.
- Key definition of the metrics should be value creation to customer and profits rather than volume and market share.

One last thing the Company must keep in mind is that strategy is not a vague slogan but a job for all from the top to bottom, as Professor Hax points out. Since planning is a key responsibility of the line managers, the whole key managers in the organization must carry out this task in order to set up the new strategic positioning, mission, and strategic thrusts successfully. It also needs a strong leadership of senior management group with a sense of urgency and dissatisfaction with the current status, and a consensus within the Company that conventional approaches can not make any future success. The process should be also dynamic to cope with ever-changing business environments. Through the scopes and new mindset as outlined in this chapter, a substantive strategy can be formulated for the Company.

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