A Study of Sustaining Growth in Petroleum Industry

by

YongTae Lee

B. S., Chemical Engineering
Seoul National University, Korea 1977

Submitted to the Alfred P. Sloan School of Management and School of Engineering in Partial Fulfillment of the Requirements for the Degree of

Master of Science in the Management of Technology

at the

Massachusetts Institute of Technology
June 2000

Signature of Author : _____
Alfred P. Sloan School of Management
May 15, 2000

Certified By : _____
Henry Birdseye Weil
Senior Lecturer
Thesis Supervisor

Accepted By : _____
David A. Weber
Director, Management of Technology Program

A Study of Sustaining Growth

in Petroleum Industry

by

YongTae Lee

Submitted to the Alfred P. Sloan School of Management and School of Engineering
On May 15 in Partial Fulfillment of the
Requirements for the Degree of Master of Science in the
Management of Technology

Abstract

With slowdown in the growth rate of petroleum product consumption, petroleum business is maturing and becoming commoditized. In maturing industries, cost leadership and operational excellence is important, but it is not sustainable. Inevitably, competition will squeeze margins, even for the cost leaders. In order to sustain growth, companies should continuously explore potential enlargement of its offering vis-à-vis its competitors and customers' expectation.

A set of industry case studies in petroleum, energy utility, steel and airline industries have been performed to identify opportunities for differentiation and to examines how the successful companies manage the innovation in developing sustainable growth strategy. Analysis of industry case study identified some important differentiating factors and approaches. It suggests, in general, that successful companies focus on Customer Solution. The customer solution reflects a shift in strategic attention from product to customer-from product economics to customer economics and customer's experience. To capture a value position and enhance profitability-in other words, to decommoditize the commodity product/service-they redefine its services to reach into the customer's own business to solve more fundamental problems. They segmented the market to better design and deliver tailored, customer-specific services bundled with commodity products. Unless companies are going to compete mainly on price, value-added solutions are a necessity. Innovation, and more importantly effective implementation of innovation, is a prerequisite for a sustainable growth.

In conclusion, I made suggestion for one company to achieve sustainable growth and recommendations for future research.

Thesis Supervisor: Henry Birdseye Weil
Title: Senior Lecturera

ACKNOWLEDGEMENTS

First of all, I would like to thank God for guiding me to study at MIT and helping me throughout the whole course of the MOT program.

Special thanks go to my thesis supervisor, Professor Henry Birdseye Weil, who helped me clarify and amplify many of my thoughts. His understanding of my thesis subject, his insistence on clarity, and his elaboration of the basic ideas have been very helpful in the development of the thesis.

I would also like to thank Professor Jim Utterback for his initial guidance on the subject of my thesis.

I would like to express my appreciation to Program Director David A. Weber for his careful consideration.

I wish to thank the management of LG-Caltex Oil Corporation; Dr. Dong-Soo Hur, Vice Chairman and CEO, and Chil-Nam Son, a former Executive Vice President, who inspired and provided me with the opportunity to study at MIT.

Last-and definitely not least-my gratitude goes to my wife, Myung-Kyu Choi, for her love and support for me during our time apart due to this program. I would like to thank my two children, Jun-Jae, and Min-Young, for staying healthy and studying diligently in my absence.

A Study of Sustaining Growth in Petroleum Industry

Table of Contents

Chapter 1
Introduction

1.1 Background Information

With slowdown in the growth rate of petroleum product consumption, petroleum business is maturing and commoditized. Increasing concern on environment and technological development in non-fossil, alternative fuel could accelerate declining rate of petroleum product consumption. This, coupled with globalization and deregulation of energy industry, leads to intense price competition, which, in turn, results in low product price and low profit margin. According to Standard & Poor's Industrial Surveys[1] (October 7, 1999), the average compound growth rate of operating revenue and net income of five major oil companies over the last five years range between -0.8% and 2.4%, and –24.1% and 2.0% respectively. Also, their return on revenue in 1998 are between 0.3% and 6.8%, far below the industry average.

With the opening and liberalization of petroleum business in Korea, starting from 1996, petroleum companies in Korea are now also facing same challenges mentioned above. In order to cope with these challenges, petroleum companies are now proceeding with various kinds of change initiatives to enhance their competitive advantage and to maintain sustainable growth, among them are, reengineering, de-laying, downsizing, outsourcing, and supply-chain management, etc. While these change initiatives remain important in all areas to achieve the competitive advantage, it seems that they are more or less concentrated on one side of competitive advantage, i.e., cost leadership, and not much on the other side, i.e., differentiation. In maturing industries, like petroleum industry, cost leadership is important, but it is not sustainable. Inevitably, competition will squeeze margins, even for the cost leaders.

In order to sustain growth, companies should continuously explore potential enlargement of its offering vis-à-vis its competitors and customers' expectation. Hence, companies need to be creative and continue to introduce new features that will differentiate their products and services. Doing new things, and doing things in new ways, are essential for company survival and success.

Professor Henry Birdseye Weil[2] of Sloan School of Management at MIT suggests that multi-stage strategy is required. In the near term, petroleum companies should play

commodity game superbly by achieving and maintaining cost leadership. The next step is to become less capital intensive through outsourcing, reduced vertical integration, leasing rather than owning capacity, and making greater use of intermediate product market. And eventually, petroleum companies must redefine the game in key markets by bursting the traditional paradigm. So-called 'transforming innovations' could enable company to achieve radically lower costs, offer novel product or service concepts, successfully differentiate what otherwise would be commodity products, and add higher value for customers. At each stage of strategy increasing customer retention is crucial, and building brand value is the key to customer retention. Innovation is now a prerequisite for sustained superior performance and shareholder value. Effective implementation has become a critical success factor for petroleum companies.

The problem is, their ability to develop new product and service offerings is limited by their experience and ability to manage effective innovation.

1.2 Objective of Thesis

Discovering the ways of successful differentiation is difficult as they are so diverse requiring integration of markets, products, and embedded technologies. Furthermore, business environment and market situation are different for every industry. In this regard, the main objective of this thesis is to identify sources of differentiation and opportunities for new business by benchmarking leading companies in selected industries. It also examines how the successful companies manage the innovation in developing differentiation and sustainable growth strategy.

1.3 Methodology

In order to achieve the objective of this thesis, it,

- Firstly reviews business environment changes surrounding petroleum industry,
- Performs literature review about concepts, tools and practical approaches for differentiation strategy,
- Perform industry case studies in the petroleum and other commodity industry,
- Reviews, through the industry case studies, the trend of differentiation strategy, and explores their implication for petroleum industry,

- Develops generalized framework and suggestions for sustainable growth of petroleum companies.

For the industry case studies, data have been collected mainly from company annual reports, Internet Home Page, articles, and industry survey reports.

1.4 Organization of Thesis

The remainder of this thesis is composed of five sections:

Chapter 2 provides overview on competitive context of, and its implication to petroleum industries.

Chapter 3 provides brief overview of literature on the concepts, tools, and practical approach for differentiation.

Chapter 4 reviews the world's leading petroleum companies-BP Amoco, Mobile, and Shell-, and Enron, British Steel (now Corus) and Virgin Atlantic, as a case study to examine their successful differentiation strategies.

In Chapter 5, I will attempt to analyze the results of case study to identify the opportunities for differentiation and management approach to manage the innovation in developing differentiation and sustainable growth strategy.

In Chapter 6, I will use my conclusion to make managerial suggestion to petroleum companies, especially to my company "LG-Caltex Corporation" and recommendation for future research.

Chapter 2

Overview of Energy and Petroleum Industry

In this chapter, I will firstly review the growth history and future projection of petroleum product demand. I will then review major forces, trend and strategic issues that energy and petroleum industries are confronted with today and years to come. Also, I will briefly review competitive context and major challenges of petroleum industry in Korea.

2.1 Growth History and Projection

Global energy consumption increased from 3,700 to 8,100 million tons of oil equivalent over the 3 decades since 1965, equivalent to 2.6% annually. Over the period, oil use grew approximately in line with the total, and contributed 40% of the total despite the substantial impacts that oil price had on consumption. Gas, on the other hand, increased its share from 17% to 24%, while coal decreased from 40 to 27%.

The role of oil relative to other energy source has not changed in any permanent and fundamental way. However, climate policy may call for a change in historical trends, and this is currently reflected in forecasts of energy future. Because of the potential importance and impacts that the environment, in particular global warming, may have on energy markets, projection about the future of energy generally fall into two categories: projections dominated by environmental concerns, called " Green Scenarios" and other projection, which normally labeled "Conventional Futures".

In Conventional Futures, energy consumption increases from 7,850 mtoe in 1990 to 12,530 mtoe in 2,020, by 1.5% annually. This compares with 1.0% per year to total of 10,550 mtoe in Green Scenario. Relative to historical trends, both projections are low. In the past 3 decades, global total energy increased more than 2.5% annually.

In the Green Scenario, global oil consumption grows by 0.5% per annum from 3,180 mtoe in 1990 to 3,714 mtoe in 2,020. At the end of the forecasting period, oil demand approaches a plateau and further growth in developing countries is offset by a decline in consumption in industrialized countries. For gas, the situation is even less dramatic. Global consumption grows by an annual rate of 1.5% to 2,020 in Green Scenarios, compared to 1.9% in Conventional Future. Gas is less vulnerable to environmental

measures than oil and coal because a number of environmental policies may result in the fuel mix in its favor.

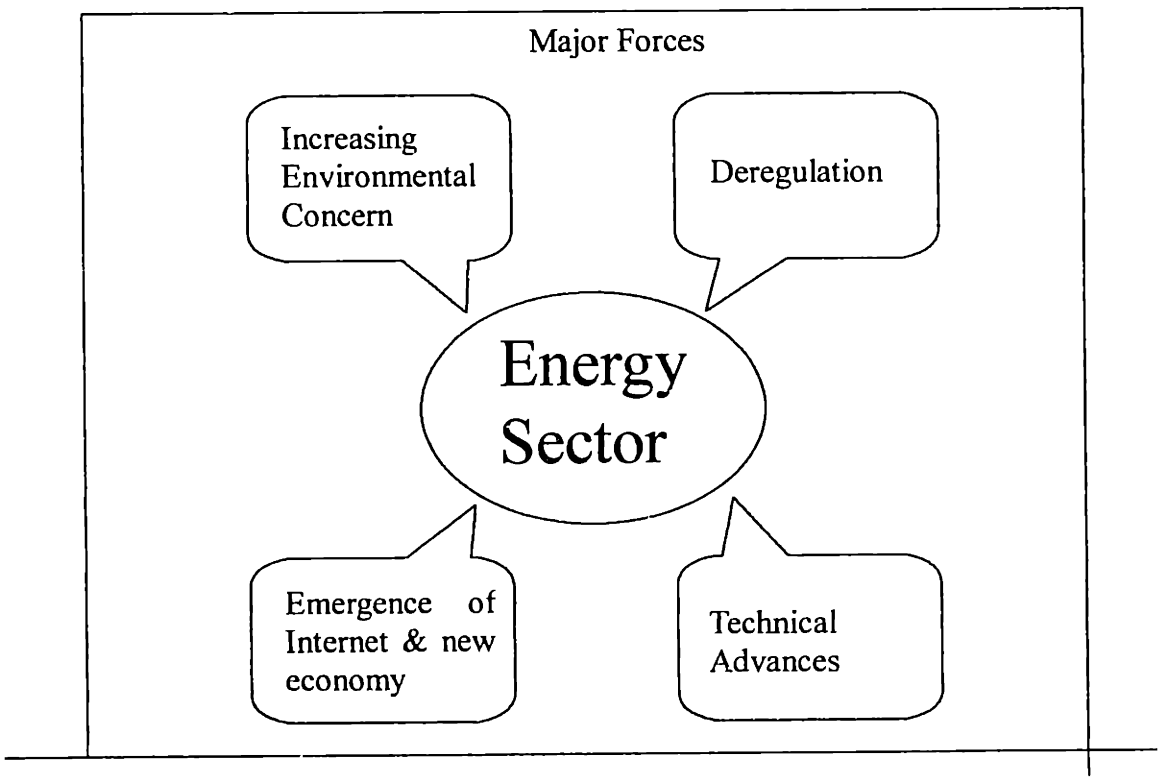
2.2 Forces and Challenges

To understand the complex and often inconsistent policies that energy industry is confronted with today and in the years to come, it is important to keep in mind the major challenges that could easily be transformed into forces capable of undermining the energy sector. Kjell Roland[3], in his article "Petroleum in the Next Century" observed evolution of energy policy agenda which have shaped the direction of energy development, and that energy industry is confronted with today and in the years to come. He observed that three major issues have shaped the direction of energy development since World War II: Reconstruction and industrialization during 1945 to 1960s, Security of supplies during 1960s to 1970s, and Environmental concerns during 1970s to 1980s. Since the mid-1980s, however, the strategic challenges facing the energy sector have gradually become more complex and onerous. In addition to the major unresolved environmental problems related to energy supply and consumption, Kjell maintained that several other political and economical high priority issues with potentially large impacts for the energy industry have surfaced:

- Increasing environmental concern
- Deregulation and competition
- New technological options that will open up for new competitors and challenge the present industry structure
- Regional economic integration, in the European Union, North American Free Trade Association, and Asia-Pacific Economic Cooperation (APEC)
- The transition from planned to market economies in the former communist countries

Among the five issues suggested by Kjell, the first three issues are of special interest for the purpose of this thesis. In addition to these three issues, I would like suggest to add one more strategic issue; ' the development of Internet and communication technologies, and its impact on the emergence of new economy". In the following section, these forces and their implications for petroleum industry will be described.

Figure 2-1 Major Forces shaping energy sector



2.3 Strategic Issues

Increasing Environmental Concern

Increasing environmental concern, especially the threat of global warming, has now moved to the top of agenda in both international and national politics. This, coupled with technological advances in developing non-fossil, alternative energy could completely reshape the future fuel mix and projection for the growth of petroleum product consumption.

Deregulation

Deregulation means transition from highly regulated or planned economies to competitive economies. More people, in more countries, are convinced that markets work better under the relatively free conditions where buyers can decide what and where to buy and companies are free to decide what to make and sell. Many countries are privatizing state-owned companies to unleash the benefits of competition. Domestic markets, at one time safe from foreign invaders, are now happy hunting grounds of giant global corporations as well as global niche specialists. Deregulation will lead to proliferation of players and intense competition. This, coupled with, petroleum

industry's excess capacity in supply (Figure 2-2), will accelerate the commoditization of petroleum business. Commoditization denotes a competitive environment, where product differentiation is very difficult, customer loyalty and brand values are low, competition is based primarily on price, and sustainable advantage comes from cost leadership. According to the Professor Henry Birdseye Weil's[4] research supported by the ICRMOT at MIT, the commoditization is driven by over capacity, which arises from a complex set of causes as follows:

- Over-estimation of demand growth
- Proliferation of players
- Amplification of planning errors
- Lapse of financial constraints
- Dysfunctional regulation
- Impacts of market liberalization

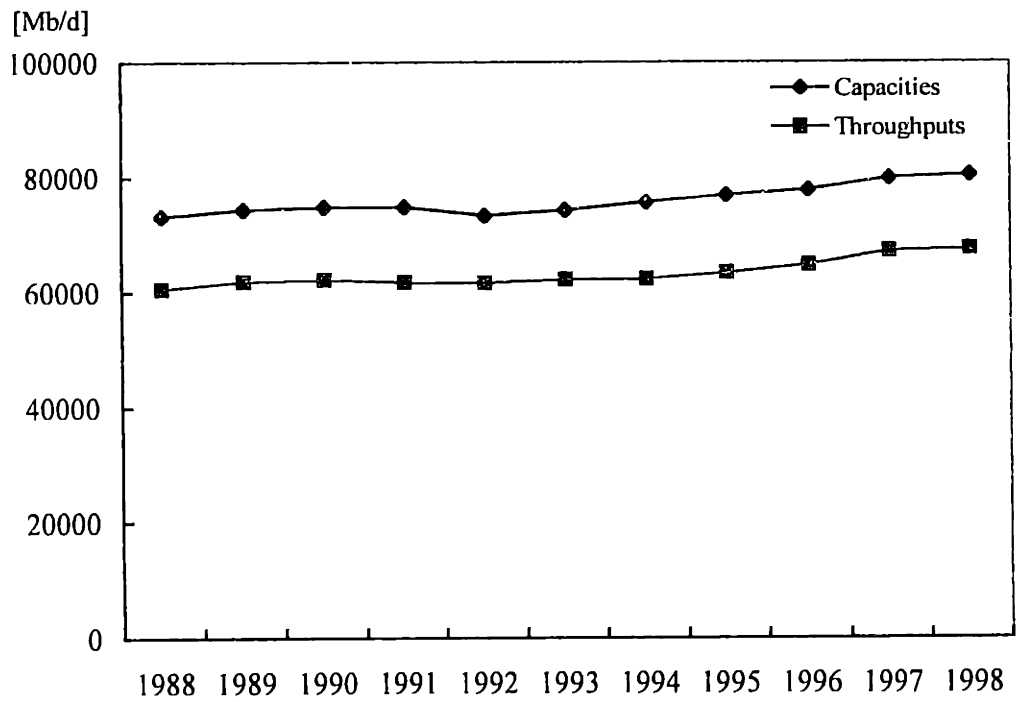


Figure 2-2 Refining Capacity vs Throughputs (source: BP Amoco)

Technical Advances

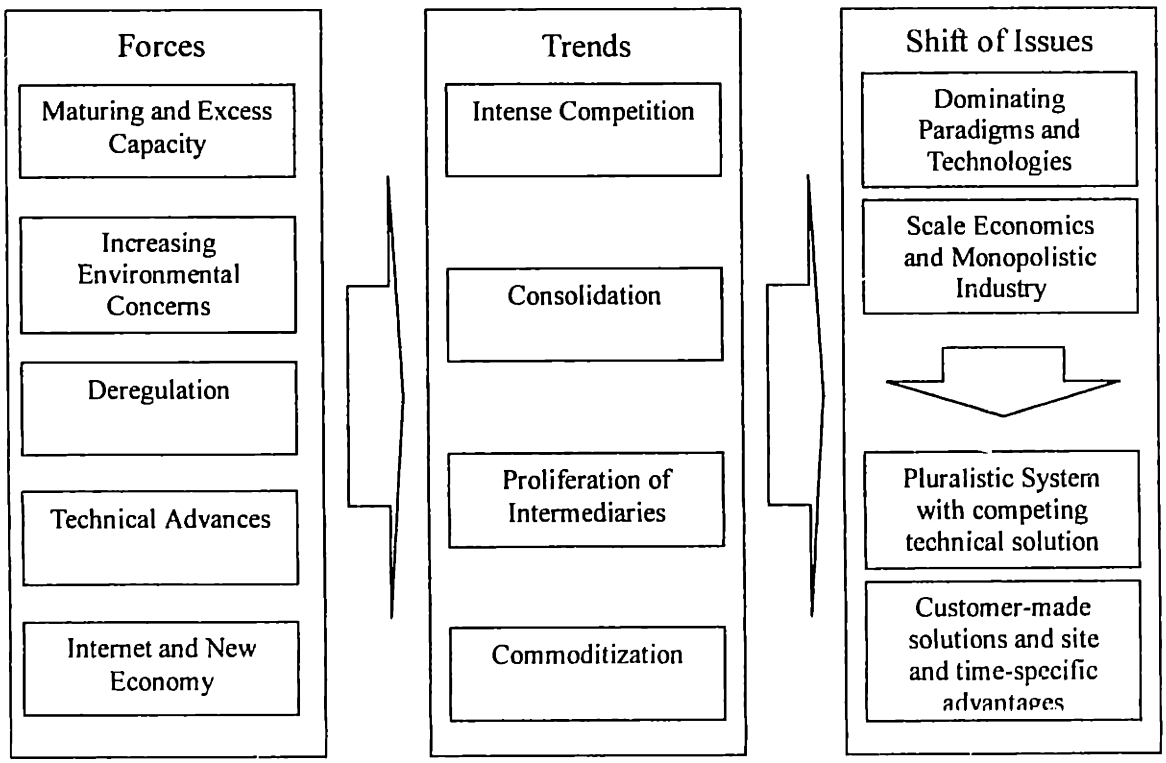
For decades, technological progress has contributed to major productivity gains in energy supplies and improved efficiency in energy use. Technological trends are important not only for technical efficiency in supply and consumption, but also for

industrial structures. New technology has brought to the market new forms of energy such as nuclear power and solar energy. To judge by the current research and development efforts, future energy options may include hydrogen, fuel cells, improved nuclear power designs, and, not least, improvements in conventional technologies that can drastically alter their operational characteristics.

Emergence of New Economy

The Internet has and continue to change the way people live, learn,, work, and do business at a faster and more pervasive pace than computers, PCs, biotechnology, and wireless communication. For entrepreneurs, the Internet is great equalizer, creating equal access and the power to create, identify, and pursue opportunities on an equal footing with the giants. Existing channel of retail sales and distribution are being transformed radically by the Internet, such as Amazone.com and book selling.

Figure 2-3 Strategic Issues challenging energy industry



This new world is also characterized by amazingly rich information environment. Customers will be able to access objective information on competing brands, including

costs, prices, features, and quality, without relying on individual manufacturers or retailers. In most cases, they will be able to specify the customized features they want. They will even be able to specify prices they are willing to pay, and wait for the most eager sellers to respond. The result is a dramatic shift of economic power from sellers to buyers (**Figure 2-3**).

These four developments-increasing environmental concern, deregulation, technological advance, and emergence of Internet and new economy- spell endless opportunities as well as threats to energy/petroleum industry. Energy and petroleum companies should prepare mentally for an energy scene where single-minded strategies or one-dimensional solutions based on past experience will not survive.

2.4 Current Strategy of Major Petroleum Companies

As the refining industry faces increasing competition, low profit margins, and increasing cost, the world leading companies narrowed their focus to the core areas of oil, gas, and chemicals. The financial strategies these companies implemented consisted of primarily of restructuring their asset bases and downsizing to reduce fixed cost. These efforts, to some extent, contributed to restoring financial health of major oil companies, with the critical parameter now being growth rather than downsizing to reduce the cost.

2.4.1 Common Strategy

According to the report[5] prepared by PIRA Energy Group, New York City, all top 10 companies are basing their plans for profitable growth on the same common set of strategic business principles. These principles seek to identify and concentrate on businesses with superior performance potential, maximize margins, and minimize fixed costs. The strategy shared by the top 10 oil and gas companies includes the following business tactics:

- 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 the cost.

- Reduce fixed costs by downsizing across all business segments.
- Improve the organization by adopting the best practices and benchmarking, reengineering the process, and restructuring the organization.

For upstream side,

- Increase the role of gas, moving rapidly down the supply chain both to monetiize the reserves and to ensure capturing integrated margins.

For downstream side,

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

2.4.2 Consolidation

Given the extremely difficult operating environment, it was no surprise that the oil industry is continuing consolidate. What was somewhat startling, however, was that some of the industry's huge, financially sound companies jumped into the actions. The highlight of the consolidation activity was a merger agreement between Exxon Corp. and Mobil Corp. Another deal involving the two international integrated oil companies was acquisition of Amoco by British Petroleum, completed on December 31, 1998, to form BP Amoco plc. The new firm didn't wait long before making its next move, announcing in April, 1999 its intention to acquire Atlantic Richfield Co. (ARCO).

The emergence of the super-majors makes it clear that even the industry's largest companies feel the need to get together to cut costs, partly to brace against the possibility that oil will trade in a lower average price range in the years to come.

The downstream sector's merger-and –acquisition fever potentially can put downward

pressure on long-run refining margins by rapidly increasing the scale, efficiency, and sophistication of the organizations that are, in effect, price setters by virtue of their benchmark status. The reduction in margins could be greater than can be matched by the companies with mature assets, even with joint ventures bolstering their other cost-cutting efforts.

2.4.3 E-business Strategy

With the emergence of Internet-based new economy, petroleum companies are developing E-business strategies to take the benefits with a variety of applications of Internet. E-business strategy of oil companies can be summarized as follows.

E-procurement/Supply Chain Management

Business-as-usual tool, so-called e-procurement, to lower costs and improve efficiency: the big global oil and gas groups take relatively simple steps, such as streamlining procurement practices and the way in which companies deal with suppliers. For example, BP Amoco is initially focusing on shifting its procurement operations to the Internet. It wants 95% of its procurement transactions to be handled electronically by the end of 2000. In certain areas there is a dramatic reduction in the number of suppliers. BP Amoco's recent contract with MCI World on the US to provide global telecommunications services to further its e-business and internet-based businesses replaced 1,000 telecommunications contracts.

Petroleum companies are now also taking various steps to benefit with a variety of applications via the Internet, such as customer service and support, sales and order processing automation, data retrieval, investor relations, purchasing and like.

E-commerce

Electronic exchange of energy product and services: Several global energy companies are initiating e-commerce to establish electronic exchange of energy product and services. For example, Shell and Commerce One have recently announced joint venture to build global Internet market place for the energy industry (B2B Solution). The aim is to establish an electronic exchange to link buyers and sellers of goods and services across the energy industry throughout the world.

In January 2000, Shell and Commerce One also announced a memorandum of understanding to form a joint venture to develop an Internet marketplace for procurement in the oil, gas and chemical industry. BP Marine, FAMM, and Shell also signed agreement to develop a marine-industry-backed portal on the Internet that will feature an auction site and e-mail-enabled transactions for the purchase and sale of marine fuels for sale of marine fuels.

In March, 2000, Chevron, McLane, a subsidiary of Wall Mart, and Oracle announced their intent to create a B2B Joint Venture, RetailersMarkeXchange.com, to offer the first Internet trade exchange designed as a full-service marketplace for all convenience-store and small-business retailers and their suppliers. The new marketplace, planned to go on-line this summer, intends to be the catalyst for revolutionizing the supply chain to the highly fragmented convenience store and small business.

With the advent of E-commerce in all industries, some internet-based energy suppliers using e-business applications are already emerging in some markets, and in some cases they are offering more than just energy to move away from the commodity end of industry to concentrate and reinforce their positions in higher-value areas.

According to industry surveyor, the aim in the mid- stream marketing is to provide total energy solutions to large consumers, largely through aggregating demand. The e-business element would include automation of supply chain transactions, scheduling, and risk management.

- Centrica: In the UK, the gas distribution and trading arm of the former British Gas has re-created itself as a customer service company with a broad offering of products. Its basic strategy is to leverage its position as the dominant gas supplier by offering a range of generally home-oriented services, from financial services to combined gas and electricity packages.
- Essential.com: It is one of the first of a new generation of internet-based unregulated retail marketers of branded energy, as well as other consumer services. Customers can specify their needs and interactive feature then advises them on the services that best fits their profile. Its strategy is to offer a customer a single point of access for a variety of services, ranging from energy to telecommunications and satellite television.
- Southern Califonia Edison: On the Southern Califonia website, customers can

review and pay their bill online, apply for new services, close their account and review its history, obtain energy saving information or a letter of credit.

- HoustonStreet.com: Traders are offered a real-time view of the market, and they can view bids and offers with counter-parties simultaneously. It is an example of a business based on information end of value chain

2.5 Overview of Korean Petroleum Industry

2.5.1 Industry Structure

Petroleum is Korea's main energy source, and the share of petroleum in Korea's overall energy consumption is 60.7 percent. Korea has now five oil refineries, which have their combined crude distillation facilities reaching 2,4388,000barrels per day.

Korea's energy supply-demand structure is very weak as Korea has virtually no energy resources at home. As the end of 1998, Korea's foreign dependency rate on energy stood at 97.3%, and in particular, Korea is fully dependent on imports from abroad for its entire demand for crude oil.

Growth

The domestic demand for petroleum had made great increases until the mid 1990s, encouraged by the expansion of economic scale and the improvement of people's living standards. Recently, however, the growth rate of petroleum consumption has slowed gradually. The growth rate of domestic demand for petroleum products slowed down to 6.5 percent in 1996 from 24.1 percent in 1990.

Table 2-1 Trends of Petroleum Demand

	1990	1991	1992	1993	1994	1995	1996
Consumption (Million BBLS)	356.3	424.7	514.2	546.5	621.7	677.2	721.2
Growth Rate(%)	24.1	19.2	21.1	9.8	10.1	9.0	6.5

source: Korean Petroleum Institute Annual Statistics, 1998.

More recently, demand patterns for petroleum products have changed toward light petroleum and low-sulfur petroleum products, such as gasoline, kerosene and diesel, thus leading to the discrepancy in the supply-demand situation among petroleum products.

Table 2-2 Trends of Consumption Structure for Petroleum Products

	1991	1992	1993	1994	1995	1996	96/91 Growth Rate(%)
Light Oil	58.3	59.5	61.2	61.9	64.0	65.7	7.4
Heavy Oil	31.5	30.0	28.2	27.9	26.2	24.8	-6.7

source: Korean Petroleum Institute Annual Statistics, 1998

Intensity of Competition

There are total 5 integrated oil refining and marketing companies in Korea. The top 2 companies (SK and LG) account for about 65%.

Table 2-3 Refining Capacity by company: Korea

	SK	LGC	SSY	Hyundai	Hanhwa	Total
Refining Capacity (BPSD)	810,000	600,000	443,000	310,000	275,000	2,438,000
Marketing Effectiveness	104	102	95			
Revenue Per Capita (Billion Won)	1.64	1.01	1.39			

Although the number of the competitors is small and market concentration is relatively high, oil industry in Korea is very competitive because there is excess supply capacity

and the demand for oil is expected to grow very slowly. The gasoline demand, source of most profits, is expected to grow only 2 to 3 % per year. Also, there is a seasonal fluctuation in demand for petroleum products. Price wars and excess services often happen in service stations

Because the oil industry is a typical capital-intensive industry, it requires a large investment to build refining facilities. This large investment, coupled with asset specificity, make the exit cost and exit barrier high.

All of the indicators, except number of competitors and concentration of market, represent high competition. This is well represented by low industry profitability (3-4 percent).

Buyer Power

Because petroleum products are standardized products, there are nearly no product differentiation and no switching cost. Also, some large consumers are considering to import the oil products for their own use after the deregulation of oil industry. In view of low switching cost and backward integration of large consumers, the buyer's power is strong.

Supplier Power

Korea entirely depends upon imports for its domestic crude oils. By region, crude oil imports from the middle-east kept rising, and Korea's dependency rate on the middle east for crude oil rose from 57% in 1985 to 77.7% in 1996. Because of continued unrest in the world crude oil market and expansion of crude distillation facilities, the import volume of crude oil on a long- term contract basis has been rising in order to ensure a smooth supply of crude oil. In 1996, imports of crude oil on a long-term contract basis accounted for 68.2% of the overall imports of crude oil. Also, there are tendencies that oil producers seek forward integration. The supplier power is accordingly strong, though its power becomes weaker than before.

Presence of Substitute Product

In case of light fuel oil for vehicle and home use, development of clean energy and alternate energy is very aggressive because of environmental concern. Just as electricity

light replaced kerosene and petroleum product replaced coal product, there is a possibilities of the emergency of alternative energy. The government is also playing a key role in the promotion of substitutes. They are planning to expand the use of LNG for vehicle. Current LNG promotion will affect oil demand in near future. In case of heavy fuel oil, there is still a strong substitute, coal. Although the use of coal is limited, some large consumers, especially electricity companies, are now using coal by installing the desulfurization facilities. Presence of substitute product is medium presently, but is expected to grow significantly.

Entry Barrier

Entry barrier can be divided into two parts: Refining business and Marketing business.

The oil industry is a typical example of economies of scale industries and effect of learning experience is high. Also it requires a large investment to build a refining facility and specificity of assets is high. Accordingly, there is a little possibility of new entrant in the oil refining business.

For the marketing business, the situation is somewhat mixed. Because of high land cost and construction, it is difficult to build storage tanks and service stations. Also, there is long relationship between refiners and retailers. So, it is considered difficult for new entrants to gain access to distribution channel on a larger scale. On the other hand, only 20 percent of service stations is owned by oil companies. So, it is possible to acquire service stations individually. With the de-regulation of oil business, there is a possibility of new entrants in the marketing business. Especially, there is a strong possibility that foreign major oil companies will enter into Korean oil market jointly with domestic sales agents.

2.5.2 LG-Caltex Oil Corporation

Background Information

LG-Caltex Oil Corporation (LGC) was founded in 1967 as a joint venture between Lucky Ltd.(now LG Chemical) and Caltex Petroleum Corporation to manufacture and market the petroleum and related products. LGC started its refining operation in 1969 with refining capacity of 60,000 barrel per stream day (BPSD). Since then, a total of five major expansion projects have been undertaken with a current refining capacity

being 650,000 BPSD. By late 1980s, LGC also entered into selected petrochemical business area and now supply 165,000MTA poly-propylene, and 1,000,000 MTA aromatic products including 650,000 MTA para-xylene. LGC also owns three subsidiary companies, Hoyu Tanker for shipping crude oil, LG Gas for LPG import and distribution, and Kuk-Dong Gas for LNG retail marketing.

In 1998, LGC had sales of $ 7 billion and approximately 2,400 employees. It now operates one integrated refinery encompassing all refining and petrochemical manufacturing facilities, seventeen oil product terminal/depots and approximately 2,690 service stations of which 13 percent is owned by LGC.

In 1994, LGC adapted business philosophy which stated creating value for customers through management based on esteem for human dignity.

Future Challenges

Presently, LGC is facing an important transitional period because of changes in business environment. The most distinct environmental changes affecting future petroleum market include the followings:

- Liberalization of marketing and refining of petroleum products.
- Reinforcement of government regulation on the quality of petroleum products and policy for driving clean energy.
- Economic restructuring covering all economic sectors, both private and public, initiated by government after the 1997 Korean economic crisis.

These environmental changes will provide LGC with both threats and opportunities as summarized in the following section.

Threats

Liberalization of petroleum market and economic restructuring in Korea will bring threats to LGC as follows. Petroleum consumption will gradually slowdown owing to the increase of clean energy consumption such as LNG and development of alternative energy.

With the liberalization of oil business, there is a possibility that major oil companies will enter the Korean oil market. They are expected to initially enter the marketing area

through M&A or strategic alliance with existing refiners, independent chain dealers and Hypermarket chains. Also, there is a possibility that large consumers will import oil products for their own uses. All these possibilities signal fierce competition among oil refiners at home and against foreign companies.

Dealers will attempts to take marketing initiatives in place of refiners and, as part of economic restructuring resulted from the 1997 Korean economic crisis, there is a possibility of merging between refiners.

Opportunities

With the liberalization of oil business, government regulation on the price of petroleum products and profit of refiners has been removed. This will provide refiners with an opportunity to pursue maximum profit through operational efficiency and differentiation in product and service.

Also, growing concern on the environmental issues and privatization of public sector will provide LGC to reposition its business as an integrated energy supply company.

Chapter 3

Literature Review on Innovation and Differentiation

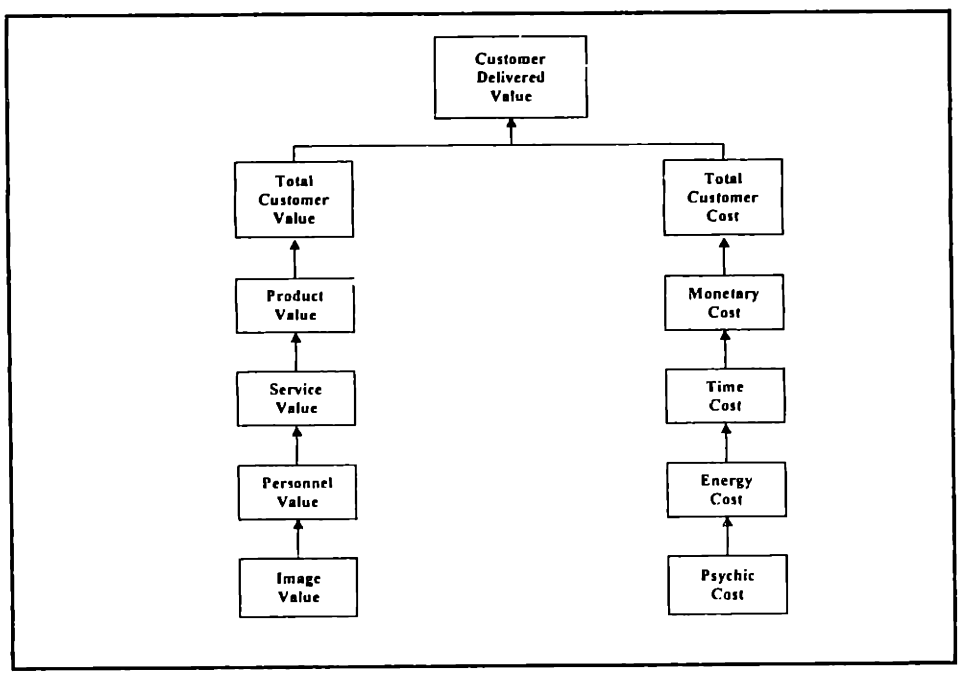
In this chapter, brief overview of literature on the concepts, tools, and practical approach for differentiation will be presented.

3.1 Concepts and Tools

Today's companies are facing their toughest competition ever. Companies can outperform the competition if they deliver high customer value. Over 35 years ago, Peter Drucker observed that a company's first task is "to create customers." But today's customers face a vast array of product and brand choices, prices, and suppliers. How do customers make their choices? The premise is that customers will buy from the firm that they perceive offers the highest customer delivered value.

Customer delivered value is the difference between total customer value and total customer cost (Figure 3-1). Total customer value is the bundle of benefits customers expect from a given product/service. Total customer cost is the bundle costs customers expect to incur in evaluating, obtaining, using, and disposing of product or service.

Figure 3-1 Determinants of Customer Delivered Value[6]



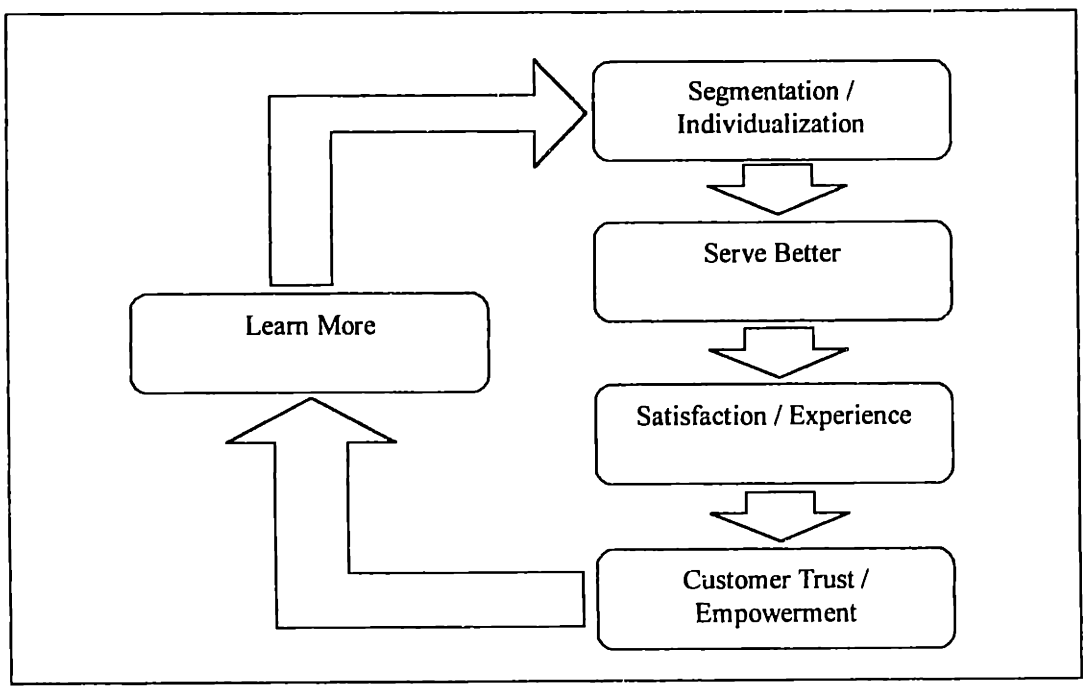
Whether the buyer is satisfied after purchase depends on the offer's performance in relation to the buyer's expectation. In general:

Satisfaction is a person's feeling of pleasure or disappointment resulting from comparing a product's perceived performance in relation to his or her expectation.

As this definition makes clear, satisfaction is a function of perceived performance and expectations. If the performance falls short of expectations, the customer is dissatisfied. If the performance matches the expectations, the customer is satisfied. If the performance exceeds the expectations, the customer is highly satisfied or delighted.

Many companies are aiming for high satisfaction because customers who are just satisfied still find it easy to switch when a better offer comes along. Those who are highly satisfied are much less ready to switch. High satisfaction or delight creates an emotional bond with the brand, not just a rational preference. The result is customer loyalty (Figure 3-2).

Figure 3-2 Customer Relationship Proposition



Differentiation

The differentiation is the act of designing a set of meaningful difference to distinguish the company's offering from competitors' offering. All products, both goods and services, can be differentiated because customers purchase much more than the product.

Even for the most mundane commodities, differentiation will be possible through innovative bundling of difficult-to-duplicate, value-added services with commodity products. Careful thinking through how, why, and when the product or service is used often add ideas for ways to accentuate value that were not initially obvious. In addition, as Porter mentioned, the 'drivers' of differentiation listed below may spark other ideas for sources of improvement[7]

- Product Quality
- Product Variety
- Bundled Services
- Timing and Delivery

More specifically, a company can differentiate its marketing offering along five dimensions: product, services, personnel, channel, and image (Table 3-1).

Table 3-1 Differentiation Variables

Product	**Services**	**Personnel**	**Channel**	**Image**
Form	Ordering Ease	Compentence	Coverage	Symbols
Features	Delivery	Courtesy	Expertise	Media
Performance	Installation	Credibility	Performance	Atmosphere
Conformance	Customer Training	Reliability		Events
Durability	Customer Consulting	Responsiveness		
Reliability	Maintenance and repair	Communication		
Repairability	Miscellaneous			
Style				
Design				

Source: Marketing Management by Philip Kother, Prentice Hall, New Jersey[6]

There are, however, endless ways of differentiating factors, limited only by the creativity of firms engaged in providing them. The key is to avoid narrow thinking

about traditional ways of thinking, and broaden eyes in key markets by busting the traditional paradigm. So- called 'transforming innovations' could enable a company to achieve radically low costs, offer novel product or service concepts, successfully differentiate what otherwise would be commodity products, and add higher value for customers.

3.2 Practical Approach

There is a growing body of literature focusing on management of innovation and systematic approach to differentiation

One stream of research has focused on identifying factors affecting the survival of firms and sources of innovation. Among these studies,

James Utterback's study[8] of innovation history of several industries, such as typewriters, transistors, disk drives, and so on, introduced the concept of dominant design and architectural innovation, which came to be used by all survival manufacturers. Especially, he suggested that entering an emerging market with architectural innovation, which is combination and creative synthesis of existing components, may be less risky than entering an established market with new, higher-performance component technology.

Von Hippel's search[9] for the sources of innovation identified the important role that is often played by the users, and suggested the tool-kit for user innovation. He mentioned that it is often very costly for firms to understand users' needs deeply and well. Furthermore, the task of understanding user's needs is growing ever more difficult and time-consuming as firms increasingly strive to learn about and serve the unique needs of "market of one," and the pace of change in markets and user needs grows ever faster. In order to overcome this difficulty, he suggested, on the basis of patterns evolving in a few high-tech fields, an entirely new approach for the organization of product and service development. In this new approach, manufacturers transfer key need-related innovation tasks to users after equipping them with appropriate "toolkits for user innovation."

Also, Henry Birdseye Weil's research[10] on the financial service industry identified effective customer information management as the primary source of competitive

advantage. He developed a positive relationship proposition in which customer information management drives a dynamic model of relationship value.

A separate stream of research has focused on developing a systematic approach to innovation and differentiation. For example,

Ian C. MacMillan and Rita Gunther McGrath[11] proposed a two-part approach that can help companies continually identify new points of differentiation and develop the ability to generate successful differentiation strategies. The first part, "Mapping the Consumption Chain", designed to capture the customers' total experience with a product or services. This step involves identifying, for each major market segments, all the steps through which customers pass from the time they first became aware of the product to the time when they finally have to dispose of it or discontinuing using it. The second, "Analyzing Your Customers' Experience", show managers how directed brainstorming about each step in the consumption chain can elicit numerous ways to differentiate even the most mundane product or services. This step involves considering how a series of simple questions- what, where, who, when, and how- apply at each link in the consumption chain.

Marc H. Meyer and Arthur DeTore[12], by applying product platform concept to service businesses, also proposed an integrated approach to service development, comprising of market segmentation, service platform design, and competency measurement. The first part, market segmentation analysis, involves examining the structure of a market as perceived by customers or users to understand the nature of demand for regions of that segmented market spaces. The second part, service platform design, involves developing service platforms, which the authors define as common design rules and implemented subsystems that form a common structure from which a stream of derivative products can be efficiently developed and produced. The third part, competency measurement, involves identifying the firm's core competencies, cohesive sets of skills and techniques used to design, develop, distribute, and support a firm's products and services.

In order to help companies systematically pursue value innovation, W. Chan Kim and Renee Mauborgne[13] have researched companies that have created such fundamentally

new and superior value, and suggested in their article, "Creating New Market Value", six basic approaches. They maintained that creating new market space requires a different pattern of strategic thinking. They suggested that companies can find unoccupied territory that represents a real breakthrough in value by looking across the conventionally defined boundaries of competition-across substitute industries, across buyer groups, across complementary product and service offerings, across the functional-emotional orientation of industry, and even across time.

Looking across Substitute industries: In the broader sense, a company competes not only with the companies in its own industry but also with companies in those other industries that produce substitute products or services. In making every purchase decision, buyers implicitly weigh substitutes, often unconsciously. Rarely do sellers think consciously about how their customers make trade-off across substitute industries. Often, however, the space between substitute industries provides opportunities for value innovation.

Looking across Strategic groups within industries: Just as new market space often can be found by looking across substitute industries, so can it be found by looking across strategic groups. The term refers to a group of companies within an industry that pursue a similar strategy. Strategic group can generally be ranked in a rough hierarchical order built on two dimensions, price and performance. Most companies focus on improving their competitive position within a strategic group. The key to creating new market space across existing strategic groups is to understand what factors determine buyers' decisions to trade up or down from one group to another. Champion created new market space by offering decisive advantage of both strategic groups.

Looking across the chain of buyers: In most industries, competitors converge around a common definition of who the target customer is when in reality there is a chain of "customers" who are directly or indirectly involved in the buying decision. The purchasers who pay for the product or service may different from the actual users, and in some cases there are important influencers, as well. While these three groups may overlap, they often differ. When they do, they frequently hold different value. Individual companies in an industry often target different customer segments-large versus small customers, for example. But an industry typically converges on a single buyer group.

Sometimes there is a strong rationale for this focus. But often it is the result of industry practices that have never been questioned. Challenging an industry's conventional wisdom about which buyer group to target can led to the discovery of new market space. By looking across buyer groups, companies can gain new insights into how to redesign their value curves to focus on a previously overlooked set of customers. Many industries afford similar opportunities to create new market space. By questioning conventional definitions of who can and should be the target customer, companies can often create new ways to create value.

Looking across complementary product and service offerings: Few products and services are used in a vacuum; in most cases, other products and services affect their value. But in most industries, rivals converge within the bounds of their industry's product and service offerings. Untapped value is often hidden in complementary products and services. The key is to define the total solution buyers seek when they choose a product or service. A simple way is to do so is to think about what happens before, during, and after your product is used. Companies can create new market space by zeroing in on the complements that detract from the value of their own product and service.

Looking Across Functional or Emotional Appeal to Buyers: Competition in an industry tends to converge not only around accepted notion of the scope of its products and services but also around one of two possible bases of appeal. Some industries compete principally on price and function based largely on calculation of utility; their appeal is rational. Other industries compete largely on feelings; their appeal is emotional.

Yet the appeal of the most products and services is rarely intrinsically one or the other. The phenomenon is a result of the way companies have competed in the past, which unconsciously educated consumers on what to expect. Companies' behavior affected customers' expectations in a reinforcing cycle. No wonder market research rarely reveals new insights into what customers really want. When surveyed, customers echo back; more of the same for less. Companies often find new market space when they are willing to challenge the functional-emotional orientation of their industry. Emotionally oriented industries offer many extras that add price without enhancing functionality. Stripping those extras away may create a fundamentally simpler, lower-priced, lower-

cost business model that customers would welcome. Conversely, functionally oriented industries can often infuse commodity products with new life by adding a dose of emotion- and in so doing, can stimulate new demand.

Looking across Time: All industries are subject to external trends that affect their businesses over time. Looking at these trends with the right perspective can unlock innovation that creates new market space. Most companies adapt incrementally and somewhat passively as events unfold. Whether it's the emergence of new technologies or major regulatory changes, managers tend to focus on projecting the trend itself. But key insights into new market space rarely come from projecting the trend itself. Instead they arise from business insights into how the trend will change value to customers. By looking across time-from the value a market delivers today to the value it might deliver tomorrow- managers can actively shape their future and lay claim to new market space. Three principles are critical to assessing trends across time. To form the basis of a new value curve, these trends must be decisive to company's business, they must be irreversible, and they must have a clear trajectory. Many trends can be observed at one time, but usually only one or two will have a decisive impact on any particular business. Having identified a trend of this nature, managers can then look across time and ask themselves what the market would look like if the trend were taken to its logical conclusion. Working back from that vision of a new value curve, they can then identify what must be changed today to unlock superior value for buyers.

Professor John A. Weber of Notre Dame also developed the following framework, which he calls gap analysis, to guide the search for identifying possible "breakthrough" ideas and growth opportunities.

- Natural change in the size of industry market potential
- New uses or new user segments
- Innovative product differentiation
- Add new product lines
- Stimulate nonusers
- Stimulate light users
- Increase the amount used on each use occasion
- Close existing product and price gaps

- Create new product-line elements
- Expand distribution coverage
- Expand distribution intensity
- Expand distribution exposure
- Penetrate substitute position
- Penetrate direct competitor's position
- Defend firm's present position

Finally, it should be emphasized that all products can be differentiated to some extent, but not all brand differences are meaningful or worthwhile. A difference is worth establishing to the extent that it satisfy the following criteria:

- Important: The difference delivers a highly valued benefit to a sufficient number of buyers.
- Distinctive: The difference is delivered in a distinctive way.
- Superior: The difference is superior to other ways of obtaining the benefits.
- Preemptive; The difference cannot be easily copied by competitors.
- Affordable: The buyer can afford to pay for the difference.
- Profitable: The company will find it profitable to introduce the difference.

Chapter 4

Industry Case Study

In this chapter, a set of industry case studies in petroleum and other non-assembled, commodity-type product/service industries have been performed. In case of petroleum industry, three major, integrated oil companies, BP Amoco, Shell and Mobil, were selected in view of their leading market position. Three other companies, Enron, British Steel and Virgin Atlantic, were selected from energy utility industry, steel industry, and airline industry respectively in view of their reputation for innovative marketing offering. Among three petroleum companies, I surveyed BP Amoco in more detail than the other two companies in view of its leading position in the USA Petroleum market and innovative approaches identified in the preliminary screening stage.

4.1 BP Amoco

4.1.1 An Overview of BP Amoco

BP Amoco is one of the top three integrated energy companies in the world, having operations in about 100 countries on six continents. Its business is in oil and gas exploration and production; the refining, marketing and supply of petroleum products; and manufacturing and marketing of petrochemicals. As of December 1, 1998, BP Amoco had sales revenue of $108 billions. An overview of BP Amoco is presented in Table 1 below.

Table 4-1. An Overview of BP Amoco

Financial
Total Revenues: $108 biilion
Net Income: $6.4 billion
Capital Employed: $53 billion
Market Capitalization: $143 billion (at 1 December 1998)
Upstream Operating
Proved Reserves: 14.8 billion barrels of oil equivalent (58% oil, 42% gas)
Crude/Natural Gas Liquid Production: 1.9 million barrels of crude oil
Gas Production: 5.7 billion cubic feet
Crude/Natural Gas Liquid Proved Reserves: 9317 million barrels
Gas Proved Reserves: 32767 billion cubic feet

Countries (exploration/production) : 24/18 countries

Downstream Operating

Petroleum Product Sales: 4.4 million barrels

Service Stations: USA 15,500; rest of world 11,500

Refinery Throughput: 2.8 million barrels of crude oil a day

Refineries: 18 (7 in USA, 11 in the rest of world)

Countries with Refineries: 12 countries

Chemical and Solar Operating

Chemical Revenues: $13 billion a year

Chemical Plant Capacity: 23 million tonnes of products a year

Solar Revenues: $144 million a year

[All figures for 1997, unless otherwise stated]

Source: BP Amoco Financial and Operating Data

4.1.2 A Brief History of BP

BP's origins go back to May 1901, when a wealthy Englishman, William Knox D'Arcy, obtained a concession from the Shah of Persia (now known as Iran) to explore for and exploit the oil resources of the country.

In the company's first six decades, its prime focus lay in the Middle East. But from the late 1960s the center of gravity shifted westwards, towards the USA and Britain itself. The BP of today is an international company, having operations in about 100 countries. The following chronicle the major development of the company from its early days through to the present.

The birth and Early Years of BP (1901-1914)

In May 1908, After several years of exploration in Persia without success, Reynolds and his helpers struck oil in commercial quantities at Masjid-i-Suleiman in southwest Persia. It was the **first commercial oil discovery** in the Middle East, signaling the emergence of that region as an oil producing area.

In 1909, the **Anglo-Persian Oil Company** (as BP was first known) was formed to develop the oilfield and work the concession.

In 1914, agreement was reached between Anglo-Persian and British government that Anglo-Persian supply the British government with fuel oil and the British government

injected £2 million of new capital into the company, receiving in return a majority shareholding and the right to appoint two directors to Anglo-Persian's board. In later years, the government shareholding was reduced and -- apart from a tiny residual holding-- ended in 1987.

Post-World War I and II development

Further expansion followed in the decade after World War 1. **New marketing methods** were introduced with curbside pumps replacing two-gallon tins for the distribution of motor spirit (or, gasoline). In 1926, it established international chain of marine bunkering stations, and began to market aviation spirit.

In 1921-1924, new refineries also came on stream in South Wales, Scotland, and Australia.

Exploration was carried not only in the Middle East, but also in the other areas, such as Canada, South America, Africa, Papua and Europe.

In 1935, the company was renamed the **Anglo-Iranian Oil Company**.

During the post-World War II reconstruction of Europe, the high demand for the oil enabled Anglo-Iranian to expand its business greatly. Crude oil production from the company's Iranian oilfields kept Iran at the top of the league of Middle East oil producing countries.

Meanwhile, Anglo-Iranian entered the field of petrochemicals. An agreement with the Distillers Company in 1947 resulted in joint company, later to become known as **British Hydrocarbon Chemicals.** A second petrochemical complex was built at Bagian Bay in South Wales in 1961.

In 1951, Iranian government passed legislation **nationalising** the company's assets in Iran, then Britain's largest single oversea investment, and the company's operation in Iran were brought to a halt. After the three years of intensive negotiations, the crisis was resolved by the **formation of a consortium**, which, by agreement with the Iranian government, re-started the Iranian oil industry in 1954. Anglo-Iranian, which was renamed **The British Petroleum Company** in 1954, held 40% share in the consortium.

In 1952, the company commissioned its first **lubricating oil plant**.

Expansion in the 1960s and 1970s

For BP, The 1960s saw the commissioning of new production interests in Abu Dhabi (1962) and Libya (1966). On the garage courts (or, gas stations) of Europe, BP was the first major oil company to offer its customers service through **blender pumps**. It was also first with **banknote-acceptor pumps**, which offered the benefit of paying at the pump with paper money, and all-plastic prefabricated service stations.

In 1965, BP scored the first success in British waters when it found the West Sole gas fields. The search for oil spread farther north, and in 1970 BP discovered the **Forties field**- the first major commercial field in the UK sector.

Meanwhile, in Alaska, BP was rewarded for ten years' exploration effort when, in 1969 it announced a major oil discovery at **Prudhoe Bay** on the North Slope. When it became clear that, BP owned part of the biggest oilfield in the USA, BP decided that its Alaskan oil could best be handled by a well-established US refining and marketing company. Accordingly, it entered an agreement with the Standard Oil Company of Ohio in August 1969. Under the agreement, **Standard** took over BP's leases at Prudhoe and some East Coast downstream assets that BP acquired in 1968. In return, BP acquired 25% share of Standard's equity.

The 1970s was the decade of the two great oil **price shocks** (1973 and 1979/1980) that were to have serious effects on the world's economies. It was also a decade when major oil companies saw a decisive change in their old concessionary relationships. Like its major competitors, BP lost direct access to most of its supplies of OPEC oil as the OPEC countries took control of production and prices. In 1979, BP suffered further blows when its assets in Nigeria were **nationalises** and its supplies from Kuwait cut back. By 1980, its sales were down again.

The entire oil industry was affected by the events of the 1970s. But thanks to BP's large investment in areas outside the Middle East, the company showed that it could survive. In 1975, BP pumped ashore the first oil from the **North Sea**'s UK sector when it brought the Forties field on stream. Since the early 1980s, BP has also developed many more oil and gas field in the North Sea, Alaska, and Arctic. Today, BP's other oil and gas producing countries include Abu Dhabi, Australia, Columbia, Norway and Papua New Guinea.

Diversification and Divestments

The upheavals of the 1970s led BP to put increased emphasis on diversification into new areas of activity. The first industry which BP entered was the **nutrition**. From the mid 1970s, it became involved in animal breeding and consumer food and related products. As a result of the purchase in 1986 of the US company, Purita Mills, BP Nutrition became one of the world's largest feed millers.

Another industry which BP entered in the mid-1970s was **minerals**. BP expanded its mineral interest considerably in 1980, when, it bought Selection Trust, the British-based mining finance house.

The 1970s also saw the start of the build-up of BP's **coal** business. By 1989, about half the group's coal operations were in the US, the remainder being in Australia, South Africa and Indonesia, with some coal trading in Europe.

Meanwhile, in the 1960s, BP had become involved in the information technology industry through its acquisition of **Scicon**.

During the early 1980s, however, BP's refining, shipping and chemicals operations were suffering the effects of industry-wide over-capacity and economic recession. Consequently, BP cut back its refining capacity, particularly in Europe, so that by the end of 1988, it was left with five main refineries in the region, compared with 16 in 1981.

In chemicals, BP had augumented its interests substantially when, at the end of 1978, it acquired European assets from Union Carbide and Monsanto. But the difficult trading environment that emerged shortly afterwards led BP to make severe cuts in its operations Between 1980 and 1984 it **closed a number of chemicals plants** and withdrew from certain products.

The year of 1987 and 1988 were dominated by three historic events in BP's development: the **acquisition** of the 45% of the **Standard Oil**, the sale by the British government of its remaining holding in BP, and the **acquisition of Britol,** the UK-based oil exploration and production company.

After the diversification of the 1970s and early 1980s, BP found that it experienced mixed success in managing its new businesses. Towards the end of the decade, in a change of strategy, BP decided to concentrate on its core, hydrocarbon-based activities. To that end, it began a series of divestments. In early 1989, BP sold its subsidiary,

Scicon, and so withdrew from the computing service industry. BP also sold its mineral business **to RTZ** in 1989. Similarly, most of **BP Coal** was sold in 1989 and 1990.

Responding to Change

In 1989, BP launched a campaign to introduce a strong corporate identity, featuring a restyled BP shield and an emphasis on the color green. At the same time, BP's explorers began to focus their skills more and more on the regions of the world that for political or technical reasons remained unexplored, such as **Columbia and the deep water areas of the Gulf of Mexico.**

And in all its operations, BP maintained its policy of striving to be an industry leader in environmental standards. BP also introduced, in a program called Project 1990, major changes in its organization and way of working to improve efficiency and flexibility.

4.1.3 BP Amoco Strategy (Refining and Marketing)

BP Amoco's strategy in the refining and marketing segment, according to company's presentation, can be summarized as follows.

- Growth by increased volumes, increased convenience sales and an increased presence in developing markets,
- A large reduction in refining cover for marketing
- A significantly reshaped portfolio,
- A reduced cost base.

Specifically, in Retail, BP Amoco is recognizing two distinct segments: marketing of branded fuels and the convenience marketing of fuel, merchandise, food and services directly to consumers. The sale of fuel remains fundamental to attracting a wider consumer base. However fuel margins no longer justify the level of capital historically required. BP Amoco plan to de-capitalise non-strategic assets, to invest in convenience marketing which delivers higher returns. The market for convenience products is growing more rapidly than that for fuel. In the key markets, BP Amoco have thousands of well-located properties with customer access, which provide the platform for convenience marketing expansion.

In Commercial, BP Amoco aim to attract more business customers through innovation

in multi-product offers, cleaner fuels, packaged with a range of value-adding services and solutions. BP Amoco develops customer services that include value-added activities such as risk management and technical services.

In Refining, BP Amoco is planning to limit their refining coverage to the areas where BP Amoco have advantage in supplying markets most competitively, or where it can supply the range of clean fuels or where it has some other unique integration value. As an outcome of the strategy, BP Amoco's refining cover is targeted to decline from the current 90 per cent to the range of 60-70 per cent by 2001.

BP Amoco is also planning to reposition its whole portfolio for growth. They plan over $3 billion worth of divestments, including a high-grading of nearly $1 billion in retail positions alone to focus on convenience marketing in key target markets.

BP Amoco is trying to continue its effort to achieve significant cost reductions to outstrip a margin decline of 1-2.5 per cent per annum with a reduction in total costs of around 17 per cent.

4.1.4 Performance

Table 4-2 lists the financial performance indicators for BP Amoco over the last three years

Table 4-2 Comparison Data

Profitability Ratio	Company	Industry	Market
Gross Profit Margin	--	29.30%	46.85%
Net Profit Margin	4.51%	3.89%	5.59%
Return on Equity	9.5%	8.6%	12.0%
Return on Assets	4.7%	3.7%	2.2%

Growth Rates	Company	Industry	Market
12-Month Revenue Growth	71.5%	17.4%	10.7%
12-Month Net Income Growth	19.6%	17.2%	14.0%
36-Month Revenue Growth	7.2%	(9.0%)	9.7%
36-Month Net Income Growth	(3.0%)	(23.1%)	9.1%

Source & 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.

4.1.5 Products Differentiation

Among the petroleum products, Gasoline is the major source of creating revenue and profit. The key performance characteristics, other than price and accessibility, that are important to the customers, I think, are mileage per gallon and ability to start. These performance characteristics are in part related to the Octane Number of gasoline, but more related to the engine technology. Accordingly, there are not much differentiation in gasoline products among oil companies. Environmental concern, on the other hand is getting increasing public attention. In this connection, BP Amoco is considered to focus on **cleaner fuel** as part of their product differentiation and brand value. BP Amoco recently announced " The 40 Cities Program, with which BP Amoco is planning to supply cleaner fuels in more than 40 of the world's most polluted cities by the end of 2000

Also, it was reported that BP Amoco launched a **high-octane, led-free gasoline** in UK in September, 1999, to cart to many older vehicles on European's road that are not able to run on existing unleaded gasoline.

4.1.6 Service Differentiation

BP offers a range of card options tailed to the needs of product/customer segmentation. For consumers of gasoline products in USA, BP offers several card options aimed at providing the convenience of charging gas and paying at the pump, and travel discounts as follows.

- **BP Gasoline Card**: This card is designed for charging gas at BP stations, and provide other features, such as the convenience of revolving credit, Pay at the Pump and no annual fee.
- **BP Horizon Card**: This card gives cardholders convenient charge privileges at BP stations, plus travel discounts at selected hotels, car rentals, and air reservation. 20% rebate on oil changes at BP stations, plus a special toll-free number for travel reservations.
- **BP Visa Card**: This card gives cardholders all the benefits of a Visa card plus a 3% rebate on BP gasoline charges and a 1% rebate on purchases made with BP Visa cards.
- **BP PrePay**: This card is just for purchasing convenience. It is like a phone card,

but for gas.

- **Amoco Motor Club**: This card, as a membership card, offers various kinds of Roadside Assistance, Discounting on travel-related hotel and rental car, Path Finder, and Special Protection Benefit.

For the business customers of gasoline in USA, BP's card services are designed to provide fleet management services for customers as follows.

- **BP Fleet Manager I**: This card, targeted for business customers with limited number of fleets, tracks automotive expenses and provides concise billing/reporting services to help customers control fleet operating costs, identify inefficient vehicles and eliminate the need for driver expense report.
- **BP Fleet Manager II**: This card, designed for business customers with large number of fleets, provide more detailed management reporting services, such as purchase tracking and details, as well as a summary report to calculate mileage and vehicle totals. It also provides discounts on fuel, oil, tires and other vehicle necessities. (In USA, BP fuel cards and Amoco fuel cards are not yet integrated, and Amoco fuel cards, which has similar features, are available separately.)

In Europe, BP offers more customized card options (BP Agency, BP Plus, BP Plus with Bunker Option, BP Plus Europa, BP Supercharge and BP Onestop) to provide flexibility of coverage in terms of network, pricing and product/service options. BP's fuel cards, using a pioneering windows software package called **BP Plus Control**, provide card management, vehicle management, driver management, fuel management and reporting services to help customers manage their fleet/drivers and identify areas for cost saving and improvements. In addition, BP provides on-line service to help customers through web. A list of the current on-line services is as follows.

- **Price Report**: This report, designed for international travelers, gives an overview of current fuel prices at popular European service stations.
- **Network Guide**: This service provides an up to date view of the main BP Fuel Card accepting sites and their facilities. Customers can look up sites through their address or via a map.
- **BP Plus Contact**: This allows customers to send a simple e-mail to their fleet using

mobile phones.

- It also provides on-line **travel guide** and links to the most relevant sites for fleet operators (road, news, time-table and hotel information).

Distillate Fuels

In the distillate fuel market, I couldn't find any significant effort to differentiate their products and service offerings. One thing I located is **on-line ordering** service provided by BP Fuels Marketing Limited, which is part of BP Oil UK Limited. BP Fuels Marketing Limited supplies heating fuels to domestic and commercial customers throughout the UK, and they opened the web site which allows domestic customers in England, Scotland and North Wales to order heating fuel over Internet.

Aviation and Marine Fuel

Air BP is part of the BP group, marketing aviation fuels, lubricants and specialist services around the world. They sell more than 5 billion gallons of fuel at around 1,400 locations in some 87 countries. Air BP manages their airline sales and marketing activities through an international network of Account Holders, each responsible for a portfolio of airline customers. In order to differentiate their product offering, Air BP first segmented their aviation fuel market into Airlines, Business Air Crafts, General Aviation and Airports, and provides tailored, customer-specific services and contract terms bundled with their products as follows.

- Price Risk Management (Airlines)
- Regular Updates on Aviation Fuel Market
- Tailored and customer-specific pricing and contract terms
- Information about Airport Taxes and Duties worldwide
- Dedicated 24 Hour Fueling Response service
- Multi-currency Sterling Card (Business Air Crafts)
- Flight Advisory service in cooperation with Jeppesen Trip Planning Services
- Flight Card (General Aviation)
- On-Airfield Equipment
- Comprehensive Training program
- Consulting service on Aviation Fueling Equipment Design and Operation (Air Port)

In addition, Air BP provides **Jet engine Simulation** and **Weather Forecasting Software** on their Web Home Page.

BP Marine markets a comprehensive range of marine fuels and lubricants. It also provides various customer-specific services bundled with their bunkering fuel product. Among them, the salient features are as follows.

- **Enercare** (Lubricant Analysis service): Enercare is a three-level analysis service giving advise and guidance on the condition of working lubricants as well as information on machinery operation and maintenance requirement.
- **Port to Port Software**: Port to Port instantly calculates the shortest sea distance between ports taking the hard work out of route calculation. Alternatives, ETA's, and bunkering requirements are all incorporated and the route can be displayed on a world map.

Recent Activities

In September 17, 1999, BP Amoco, Tokheim Corporation, and Radiant System Inc. announced that they have joined forces on a new dispenser package that would include a Microsoft Windows CE architecture[14]. The open, Windows CE-based architecture of the pump electronics enables the retailers to deploy Internet-enabled, multimedia software that gives the consumer a much richer experience at the dispenser. Moreover, the dispenser can communicate with legacy point-of-sale systems and with the corporate wide-area network, so new services, promotions, and electronic payment options can be efficiently distributed throughout a global retail network. They expect that there will be a strong interest from petroleum retailers that use of the **multimedia dispenser** and the Internet to provide electronic coupons, promotional messages, local weather information, traffic reports, sports scores and lottery results. They further expect that it would improve consumer's experience when buying movie tickets, ordering food and performing other functions.

4.1.7 Findings from BP Amoco Case Study

From the case study on BP Amoco summarized in the preceding sections, several

findings can be drawn as follows.

- BP Amoco's product differentiation strategy focused on supplying cleaner fuels as represented by its "The 40 Cities Program".
- BP Amoco segmented the market mainly by consumer and business customers and are delivering tailored, customer-specific services bundled with products. For the business customers, especially, BP Amoco is focusing on developing customer relationship by offering customer solution through packaged customer-specific services.
- BP Amoco also provides a variety of customer information management services using card and on-line services. Although other major oil companies also provide similar card services, BP Amoco's card services provide more extensive customer information management services.

In summary, BP Amoco's service offerings can be categorized into followings: Charging and Paying Convenience, Cost/Profit Benefit, Fleet Management, Travel Planning, Price Risk Management, Asset Management, and customer-specific information.

4.2 Mobile

Mobile, before merger with Exxon, was No.4 integrated petroleum company and had No. I share of gasoline sales in USA market.

4.2.1 Overview

Exxon Mobil, the Irving, Texas-based company was formed when Exxon bought Mobil, both are descendants of John D. Rockefeller's Standard Oil. Exxon Mobil is the world's largest oil company, ahead of Royal Dutch/Shell and BP Amoco. Worldwide, Exxon Mobil is engaged in oil and gas exploration, production, supply, transportation, and marketing. It has proved reserves of 21 billion barrels of oil equivalent. Exxon Mobil has major oil and gas holdings in Europe and in the US and eastern Canada. It is looking for new opportunities in West Africa, both onshore and offshore; in Russia and the Caspian Sea; and in South America.

Exxon Mobil's refining capacity exceeds 5.5 million barrels per day, and the company

sells refined products under the Exxon, Esso, and Mobil brands at some 40,000 service stations worldwide. The company produces and sells petrochemicals, including olefin, polyolefin, and paraxylene, and mines coal and other minerals.

4.2.2 History

Exxon's 1999 acquisition of Mobil reunited two descendants of John D. Rockefeller's Standard Oil Company. Rockefeller, a commodity trader, started his first oil refinery in 1863 in Cleveland. Realizing that the price of oil at the well would shrink with each new strike, Rockefeller chose to monopolize oil refining and transportation. In 1870 he formed Standard Oil, and in 1882 he created the Standard Oil Trust, which allowed him to set up new, ostensibly independent companies, including the Standard Oil Company of New Jersey (Jersey Standard); Rochester, New York-based Vacuum Oil; and Standard Oil of New York (nicknamed Socony).

Initially capitalized at $70 million, the Standard Oil Trust controlled 90% of the petroleum industry. In 1911, after two decades of political and legal wrangling, the Supreme Court broke up the trust into 34 companies, the largest of which was Jersey Standard. Walter Teagle, who became president of Jersey Standard in 1917, secretly bought half of Humble Oil of Texas (1919) and expanded operations into South America. In 1928 Jersey Standard joined in the Red Line Agreement, which reserved most Middle East oil for a few companies. Teagle resigned in 1942 after Congress looked into a prewar research pact giving Farben of Germany patents for an essential lead in aviation fuel in exchange for a synthetic rubber formula (never received).

The 1948 purchase of a 30% stake in Arabian American Oil Company, combined with a 7% share of Iranian production bought in 1954, made Jersey Standard the world's #1 oil company at that time. Meanwhile, Vacuum and Socony reunited in 1931 as Socony-Vacuum. Shortly thereafter, Socony-Vacuum adopted the Flying Red Horse (Pegasus -- representing speed and power) as a trademark. The fast-growing, diversifying company changed its name to Socony Mobil Oil in 1955 and became Mobil in 1976.

Other US companies still using the Standard Oil name objected to Jersey Standard's marketing in their territories as Esso (derived from the initials for Standard Oil). To end the confusion, in 1972 Jersey Standard became Exxon, a name change that cost $100 million. Nationalization of oil assets by producing countries reduced Exxon's access to

oil during the 1970s. Though it increased exploration that decade and the next, Exxon's reserves shrank.

Oil tanker Exxon Valdez spilled some 11 million gallons of oil into Alaska's Prince William Sound in 1989. Exxon spent billions on the cleanup, and in 1994 a federal jury in Alaska slapped Exxon with a $5 billion fine. (Exxon filed an appeal in 1997.)

The oil industry was increasingly consolidating, and in 1996 Exxon merged its worldwide oil and fuel additives business with that of Royal Dutch/Shell. In 1997, under FTC pressure, Exxon agreed to run ads refuting past claims that its premium gas enables car engines to run more efficiently. The next year CEO Lee Raymond upset environmentalists when he publicly questioned the global warming theory. After a run of PR disasters, Exxon tried to save its image by raising money to save the world's tigers.

Still, Exxon was unstoppable. It acquired Mobil for $81 billion in 1999; the new company had Raymond at the helm and Mobil's Lucio Noto as VC. To get the deal done, Exxon Mobil had to divest $4 billion in assets. The company agreed to end its European gasoline and lubricants joint venture with BP Amoco and to sell more than 2,400 gas stations in the US. Exxon Mobil also announced plans to cut 14,000 jobs -- about 12% of its workforce by 2002.

In 2000 Exxon Mobil sold 1,740 East Coast gas stations to Tosco for $860 million. It also agreed to sell its 130,000 barrel-per-day refinery in Benicia, California, plus 340 service stations, to Valero Energy for about $900 million.

4.2.3 Product Differentiation

Mobile Diesel Power Plus is a special brand of diesel fuel offered by Mobil for better low- temperature performance, better fuel economy and better lubricity using additives. According to Mobil, Mobil Diesel Power Plus will feature special winterizing components that help provide reliable low-temperature operability reducing fuel gelling, fuel line and filter plugging, and cold filter plugging point (CFPP). Also, road tests conducted by Mobil demonstrated that fuel economy improvement of up to 4% can be achieved with cleaner injectors by using detergent additized diesel and Mobil Diesel Power Plus help the vehicle get more mileage out of every gallon by keeping injectors clean. Also, Mobil maintained that some low sulfur diesel fuels offer less lubricity

protection to critical engine parts, that can mean costly maintenance and downtime resulting from premature wear of fuel injectors and high-pressure fuel pumps. Mobil Diesel Power Plus can help avoid these costs by offering superior lubrication protection for equipment.

4.2.4 Card Services

Mobil, like other major oil companies, offers various fuel card options as follows.

- Mobil Business (for small businesses)
- Mobil Fleet Card (large businesses)
- Mobil Credit Card
- Mobil Go Card (pre-paid card)

Mobil's fuel card service offerings are basically similar to other oil companies. Mobil, however, recently introduced differentiating card service called **Speed Pass** card in St.Louis in January, 1999. Mobil SpeedPass card, a system similar to electronic payments at the toll booths, is like a personal key to getting in and out of the station faster. Just by pointing the Mobil SpeedPass at the pump, the SpeedPass is linked to a major credit card or check card customer already have, so the gas is charged automatically. Mobil also provides virtual pay option, called **E-Bills**, for receiving and paying the bills online.

4.2.5 Risk Management Service

Mobil is offering fuel price risk management services for heating and diesel fuel, **Mobil Risk Management Program,** which is similar to risk management services being offered by BP Amoco to its aviation fuel.

Mobil's Risk Management Program is a "wet" barrel contract purchase program for No.2 Heating oil and Diesel fuel that gives business customers complete control over product cost for a specified period of time.

4.3 Shell

Once and future oil king Royal Dutch/Shell Group is making king-sized changes in the face of a consolidating industry. The Anglo/Dutch entity, based in London and The

Hague, is the world's second-largest oil and gas group after losing the crown to Exxon Mobil. Royal Dutch/Shell of which holding company Royal Dutch Petroleum owns 60% and "Shell" Transport and Trading, 40%, is cutting its $8 billion exploration budget and restructuring to stay competitive.

Gone are the decentralized committees that ruled the company's byzantine monarchy; they are replaced by divisional chiefs that report to CEO Mark Moody-Stuart. Even its main US subsidiary, Shell Oil, no longer acts as an independent entity.

Shell is aggressive in its effort to take advantage of technology in their marketing and service offering. Shell, within its Research and Development center, is operating separate organization to develop and track marketing-related technology.

4.3.1 Overview

The oil giant has holdings in more than 1,700 active companies in some 130 countries. It has proved reserves of more than 10 billion barrels of oil equivalent; most of the group's crude is produced in Nigeria, Oman, the UK, and the US. Royal Dutch/Shell has interests in 60 refineries worldwide and sells fuel through its 50,000 service stations. The company also has oil transportation and solar power development businesses.

Royal Dutch/Shell is divesting under-performing assets, including its international coal operations. The group is trimming chemical assets to concentrate on major cracker products, petrochemical building blocks, and large-volume polymers. It plans to combine some of its petrochemical assets with those of BASF, to form a massive plastics producer.

4.3.2 History

In 1870 Marcus Samuel inherited an interest in his father's London trading company, which imported seashells from the Far East. He expanded the business and, after securing a contract for Russian oil, began selling kerosene in the Far East. Standard Oil under-priced competitors to defend its Asian markets. Samuel secretly prepared his response and in 1892 unveiled the first of a fleet of tankers, all named after seashells. Designed to transport kerosene in bulk (Standard's was in cans), the ships pumped their cargo into storage tanks Samuel had built at key ports.

Rejecting Standard's acquisition overtures, Samuel created Shell Transport and Trading

in 1897. Meanwhile, a Dutchman, Aeilko Zijlker, struck oil in Sumatra and formed Royal Dutch in 1890 to exploit the oil field. Young Henri Deterding joined the firm in 1896 and established a sales force in the Far East. Deterding became Royal Dutch's head in 1900 amid the battle for the Asian market. In 1903 Deterding, Samuel, and the Rothschilds created Asiatic Petroleum, a marketing alliance. With Shell's non-Asian business eroding, Deterding engineered a merger between Royal Dutch and Shell in 1907. Royal Dutch shareholders got 60% control; "Shell" Transport and Trading, 40%.

After the 1911 Standard Oil breakup, Deterding entered the US, building refineries and buying producers. Shell products were available in every state by 1929. Royal Dutch/Shell joined the 1928 "As Is" cartel that fixed prices for most of two decades. Disturbed by Deterding's pro-Nazi sentiments, management persuaded him to step down in 1936. The post-Deterding Royal Dutch/Shell profited from worldwide growth in oil consumption. It acquired 100% of Shell Oil, its US arm, in 1985, but shareholders sued, maintaining Shell Oil's assets had been undervalued in the deal. They were awarded $110 million in 1990. After 1990's Persian Gulf crisis, Shell sold a major California refinery to Unocal in 1991 and its US coal mining unit to Zeigler Coal in 1992.

Management's slow response to two 1995 crises -- environmentalists' outrage over the planned sinking of an oil platform and human rights activists' criticism of Roya Dutch/Shell's role in Nigeria -- spurred a major shakeup. It began moving away from its decentralized structure and adopted a new policy of corporate openness.

In 1996 Royal Dutch/Shell and Exxon formed a worldwide petroleum additives venture. Shell teamed up with Texaco in 1998 to form Equilon Enterprises, combining US refining and marketing operations in the West and Midwest. Similarly, Shell, Texaco, and Saudi Arabia's Aramco combined downstream operations on the US's East Coast and Gulf Coast as Motiva Enterprises.

As the oil industry slumped and rivals merged, Royal Dutch/Shell cut costs and closed its head offices in the UK, the Netherlands, France, and Germany in 1998. It also began cutting its chemical business by 40%, and in 1999 it laid plans with BASF to combine the two companies' petrochemical assets into a giant plastics producer. It also sold properties in the Gulf of Mexico to Apache for $743 billion. That year Royal Dutch/Shell and the UK's BG plc acquired a controlling stake in Comgas, a unit of Companhia Energetica de Sao Paulo and the largest natural gas distributor in Brazil, for

about $1 billion.

4.3.3 Product Differentiation

Shell markets premium gasoline, **Shell Velocity**, designed for motorist.

Shell also deliver **Racing diesel** developed by the racing service team of Shell Global Solutions. Racing diesel helped MAN Nutzfahrzeuge AG win the 1999 truck manufacturers' cup. MAN confirmed that the specially developed diesel gave power performance benefits of around 5% to the engines of the Truck Center Hauser super truck team.

4.3.4 Card and other Services

Shell, like other petroleum companies, provides various kinds of fuel card services as follows.

- Shell Credit Card/Shell Select Member Card
- Shell Master Card
- Shell Fleet Card
- Shell Prepaid Card
- Shell Motorist Club Card
- Prepaid Phone Card

Shell's fuel card service generally provides more extended services to meet the needs of motorists. For example, Shell Select Member Card provide cash access to **Plus ATM** in the USA, and cash advance and prepaid airline ticket up to worth $ 1,000 in case the customers lose their credit card or airline tickets when they travel. **Shell Motorist Club Card** also provides 24-hour roadside assistance service and insurance coverage for the people in the vehicle.

Shell, through its Shell Fleet Services, has recently introduced **Shell VevicleMinder**-a Window-based software for commercial fleets. The software helps maintenance managers simplify their record-keeping, reduce costs and control expenditures related to their fleet maintenance operations. An outsource provider of commercial fleet product and service options in the areas of preventive maintenance, fueling and asset management information services, Shell Fleet Services is offering VehicleMinder in

partnership with Squarerigger, a fleet maintenance software company.

Shell is also planning to introduce several marketing innovations as follows.

- **Smart Pump**; an automated pumping system so the motorists won't have to leave the car by allowing a robostic arm to open the fuel and dispense fuel through a specific cap.
- **Easy Pay:** Shell is also introducing Easy Pay, like Mobil's Speed Pass, to enhance the speed of transaction.
- The other marketing innovation, which Shell is considering to introduce, is Shell **Tirechecker**. It is a new, and free service that helps customers make sure their tires are properly inflated. By driving through the specially marked lane, Shell Tirechecker will let the customers know if tires need inflation.

4.3.5 Consulting Business

Shell, through its international technology business company "**Shell Global Solutions**" delivers integrated services that add to customer's bottom line. Working primarily in the oil, gas and process industries Shell gives a competitive edge by helping to optimize plant and process performance, formulate and develop products, and manage operational safety and environmental challenges more effectively

4.4 Enron

Enron has expanded during the 1990s, transforming Enron from a gas pipeline company into a global energy powerhouse. Enron's gas history and PGE have helped Enron refine its game plan as it tackles deregulating energy markets.

Enron, for four years running, was named by Fortune magazine "America's Most Innovative Company", and last year one of the "100 Best Company in America." Enron also wins the award "Energy/Commodity Derivative House of the Year-1999" offered by Risk magazine. Sales & Marketing Management's annual survey ranked Enron's sales force as the best in the nation for 1999'

4.4.1 Overview

Enron Corp., an Oregon corporation, is an energy and communications company with headquarters in Houston, Texas. Enron's operations are conducted through its subsidiaries and affiliates. Enron's business is:

- the transportation of natural gas through pipelines to markets throughout the United States
- the generation, transmission and distribution of electricity to markets in the northwestern United States
- the marketing of natural gas, electricity and other commodities and related risk management and finance services worldwide
- the development, construction and operation of power plants, pipelines and other energy related assets worldwide
- the development of an intelligent network platform to provide bandwidth management services and deliver high bandwidth applications.

Enron has done an end run around its energy rivals. During the last three years Enron's revenue have grown at an annual growth rate of 45 %.

Enron is looking to score more points. Its communications arm is building a national fiber-optic, Internet protocol-based network. It also has plans to create a market for the trading of communications bandwidth. Enron's purchase of the UK's Wessex Water (now part of Azurix) led the company into the international water market. Enron also owns 13% of its oil and gas exploration and production spin-off, EOG Resources.

Table 4-3: Profitability Ratio against Industry & Market

	Enron	Industry	Market
Gross Profit Margin	14.54%	19.15%	46.52%
Net Profit Margin	2.55%	2.30%	5.46%
Return on Equity	12.5%	7.7%	12.1%
Return on Assets	3.0%	1.5%	2.2%
Return on Invested Capital	5.7%	2.9%	6.2%

Source & 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.

4.4.2 History

Enron traces its history through two well-established natural gas companies -- InterNorth and Houston Natural Gas (HNG). InterNorth began in 1930 as Northern Natural Gas, a Nebraska-based gas pipeline company. By 1950 it had doubled capacity, and in 1960 it started processing and transporting natural gas liquids. The company was renamed InterNorth in 1980 and bought Belco Petroleum three years later. InterNorth also helped build the Northern Border Pipeline to link Canadian fields with US markets.

HNG, formed in 1925 as a South Texas gas distributor, started developing oil and gas properties in 1953. It bought Houston Pipe Line Company in 1956 and Valley Gas Production in 1963. HNG sold its original distribution properties to Entex in 1976. In 1984 HNG, faced with a hostile takeover attempt by Coastal, brought in former Exxon executive Kenneth Lay as CEO. He refocused HNG on natural gas and added Transwestern Pipeline (California) and Florida Gas Transmission. By 1985 HNG operated the only transcontinental gas pipeline.

In 1985 InterNorth bought HNG for $2.4 billion, creating the US's largest natural gas pipeline system. Lay became CEO of the new company, called Enron (the first name choice, Enteron, was dropped after its meaning, "alimentary canal," was discovered), and the company moved its headquarters from Omaha to Houston. Laden with debt, Enron sold off portions of Citrus Corp. (owner of Florida Gas Transmission, 1986), Enron Cogeneration (1988), and Enron Oil & Gas (1989). The company bought Tenneco's natural gas liquids and petrochemical operations in 1991. The next year Enron and three partners acquired control of a 4,100-mile pipeline in Argentina. Enron bought several gas businesses from gas giant Williams in 1993 and, as electricity markets worldwide began deregulation, began its power marketing business.

In 1997 Enron bought its own electric utility, Portland General Electric. (Two years later Enron grew tired of waiting for Northwest deregulation and agreed to sell PGE to Sierra Pacific Resources for $2 billion in cash and $1.1 billion in debt and stock). In 1998 Enron began power trading in Australia and became the first electric power marketer in Argentina. It also gained control of a Brazilian utility. The company continued to build its US portfolio in 1998, buying interests in power plants near New York City from Cogen Technologies. Seeping into the international water market, in 1998 the company acquired UK firm Wessex Water and formed Azurix, a global water business, to own and operate

its water and wastewater assets. Enron took Azurix public in 1999, retaining a 69% stake. It traded most of its stake in Enron Oil & Gas (now EOG Resources) for cash and the natural gas company's properties in China and India. It also joined with SK Group to distribute and market natural gas in South Korea.

In 2000 Enron inserted itself into the entertainment industry, albeit indirectly, with the opening of the Houston Astros' new baseball park, Enron Field, and with an investment in the nation's first indoor snowboard facility. It also began developing its first power plant in Canada, in Ontario.

4.4.3 Product and Service Offering

Enron try to extend their business beyond the physical commodity over to total energy solutions such as energy management, facility management, risk management and financial service. The main features of their product and service offerings are as follows.

Risk Management

Enron offer various risk management tools to protect the customers from price hike and weather-related consumption change as follows.

- **Swaps** are privately negotiated financial contracts in which two parties agree to exchange, or "swap," specific price risk exposures over a predetermined period of time. They are "over-the-counter" instruments that are customized to meet a particular set of needs. By locking in prices, producers and consumers gain greater control over the variable revenues and costs inherent in their businesses.
- **Caps and floors** are options which provide the right, but not the obligation, to enter into a long or short position at a specified price. Caps and floors are similar to swaps since they provide price protection at a predetermined level. However, caps and floors are different from swaps in that they allow producers and end users to benefit from favorable price changes. The buyer of the cap or floor pays an up-front cash premium for this price protection. With cap and floor purchases, all risks are predefined; the premium paid for the option will always be the maximum "loss" or "cost" incurred by the buyer.
- **Collars** provide energy producers and end users with price protection by limiting extreme market moves, forcing prices to move within a defined range. Costless

collar are partially "paid for" by giving up a portion of a favorable price change. No cash premium is involved for costless collars. For energy producers, collars offer floor protection on commodity sales prices. For energy end users, collars offer cap protection on commodity supply prices. In many ways, collars are similar to swaps, but they allow for greater flexibility through some market responsiveness.

- **Hedging basis risk** is an important component of any risk management strategy. Basis represents the price differential between commodity prices at different geographic locations. Hedging margin risk helps energy producers and end users who find their margins increasingly under pressure due to price volatility.
- **Hybrid strategies** combine the basic building blocks of swaps and options to create highly structured financial products that energy producers and end users can use to meet specific hedging objectives. These more customized products, sometimes called "hybrids," can take on a variety of forms. The more common hybrid products include **Participating Swaps, Participating Collars, Swap Options**. Other applications include **double-up** or **double-down swaps, extendable** or **cancelable swaps, cross-commodity indexed swaps** and **options,** and many others. Given the over-the-counter financial tools and expertise currently available, it is possible to construct solutions to address virtually any combination of volumetric, pricing, time, and seasonal specifications. This nearly unlimited degree of flexibility is what makes these tools so useful and attractive to energy producers and end users alike.

Energy Outsourcing Solution

Enron provide total energy and facility management outsourcing services to enable commercial and light industrial companies, schools, universities, and other institutions to reduce capital costs and limit their energy risk at one or multiple sites. Its **Strategic Energy Solutions** are designed to reduce client operating costs and enhance their client's ability to focus on their core business. Strategic Energy Solutions include:

- **Energy Information Management**: Correction of utility over-billing, Reduced administration costs through payment of a single bill and Improved power quality
- **Commodity Management**: Direct supply and sourcing in open markets, Tariff arbitrage and utility representation, and Risk Management

- **Energy Asset Management:** Reduced commodity consumption, Reduced demand charges, Lower capital investment, and Lower maintenance costs
- **Facilities Management:** Increased labor productivity, Lower costs through application of best practices, Reduced administration and purchasing costs
- **Capital Management:** Competitive cost of capital, Favorable accounting treatment Lower transactional costs through use of master agreements

Financial Service

Enron also offer a full range of financial services. When appropriate, they invest in their customers to strengthen their customer's capitalization and allow them to pursue new business opportunities.

Networking and E-business

Enron is applying its special skills to Internet, too. Enron Communications' **Intelligent Network** technology enables businesses to speed data, voice, and video over the web. They also see opportunities in bandwidth trading, where standardized products will enable companies to efficiently buy and sell bandwidth capacity.

Enron has also recently launched **Enron Online** to link its various products directly to customers. The services will allow customers to see real-time prices for a range of mainly energy-related products.

- Enron Energy Services is providing integrated power quality solutions, **Power Protection PlusSM** program, that aim to lower customer's operating costs and enhance productivity. Enron offer the convenience of a single point of responsibility for Financial Impact Analysis, power quality analysis, Solution Alternative, Technical Cost and Benefit Analysis, design, engineering, construction, maintenance, monitoring/verification, and customized financing. It is designed to enhance company's productivity by reducing unwanted downtime and operational losses resulting from power quality problems. No up-front payments are required, preserving customer's capital budget. Instead, customers simply share with Enron part of monthly savings realized by improved power quality, thereby creating a positive cash flow. Enron's risk-managed offering states that if its solution fails to provide the agreed-upon level of uptime, customer don't pay. Customers reap the

benefits of increased uptime, while Enron absorbs the risk of power quality equipment performance.

- Enron also offers on-line energy information services, **Enron EnergySense** software, to let customer make informed decisions and effectively manage energy usage and internal operations on a near real-time basis. The Enron EnergySense solution provides instant access to energy data, allowing customers to: Identify abnormal energy usage, Detect periods of maximum power usage, Observe energy use trend, and Establish energy benchmarks.

4.5 British Steel(now Corus)

4.5.1 Overview

British Steel (now Corus) has become the world's #3 steel-maker with its purchase of Dutch rival Koninklijke Hoogovens. London-based Corus makes and distributes steel products, including stainless steel, coated and uncoated strip products (hot-rolled coil, cold-reduced coil sheet, metallic), tubular products, and wire rod, which are used in construction, car-making, and mechanical engineering. The company also produces aluminum. Corus has been battered by cheap imported steel from Asia and Eastern Europe and by the strength of the British pound in comparison to other currencies. The company has trimmed its workforce about 10% over two years. The low price of steel has driven the company into its consolidation with Koninklijke Hoogovens; further expansion into European and US markets is in the works. British Steel is aggressively differentiating their steel products by producing special engineering steel products and offering customized services tailored to market segments, especially automotive and construction industries.

4.5.2 History

It took decades of aggressive government regulation of the UK steel industry to hammer out British Steel. The process began with price-control measures in the 1930s and in 1950 the Labor government followed up by nationalizing steel producers on the grounds that they represented an unduly powerful oligopoly. A Conservative government took over in 1951 and sold most of the nationalized firms, primarily to their former shareholders. In place of nationalization, an Iron Steel Board -- with the power to set

maximum steel prices and with the final say on large investments -- was formed.

The presence of price controls and an ever-present chance of re-nationalization discouraged capital investment. Even so, technological innovations such as continuous casting and oxygen-based production enabled UK steel-makers to double production between 1945 and 1960. Meanwhile, competition from European producers stiffened, as did competition from a rebuilt Japan. To add to the UK steel industry's woes, demand began slacking off in the 1960s.

In 1964 the Labor Party, which was committed to re-nationalizing steel, returned to power. It passed the Iron and Steel Act of 1967, nationalizing about 90% of the UK's steel-making capacity under a new holding company, British Steel Corporation (BSC). However, specialized, nonintegrated companies and re-rolling companies remained freestanding, allowing them to benefit from price controls on BSC steel. BSC consisted of 14 crude steel companies' assets with a 475,000 ton annual capacity. The government compensated shareholders based on stock market values, paying much more than the companies were worth. To make matters worse, the companies' return on capital was a meager 3.7%. BSC began consolidating its small, outdated facilities into larger works with advanced equipment. In the midst of a huge investment program, the mid-1970s' energy crisis hit and steel demand fell; the company began closing its outdated mills. A 1980 strike cost BSC a large chunk of its market share and showed that steel requirements could be met through imports. That year the European Commission (EC) established production limits to reduce the steel glut. It also decided to regulate the amount of state aid steel producers could receive. By the end of 1980, BSC's workforce had been reduced to about 130,000 people --half its size when the companies were nationalized in 1967. During the 1980s BSC disposed of about $1 billion in non-core assets to focus on efficient steelmaking. State aid to European steel producers was largely prohibited in 1985 and the EC's quota system ended in 1988.

The British Steel Act of 1988 privatized BSC, and British Steel was born. The company recorded big profits in 1990, but then a recession hit and British Steel suffered two years of losses before returning to profitability in 1994. The next year the company announced plans to expand its operations in emerging markets such as Asia, Central Europe, and Latin America. In 1996 British Steel sold about 6,000 tons of rails to Latin America. The next year it built a steel plant in Alabama -- its first outside the UK -- and

sold its British Steel Forgings unit, which made components for the aerospace and automobile industries. In 1998 British Steel joined other steelmakers in asking the EC to investigate Asian steel dumping. Stiff competition and a strong domestic currency caused the company to suffer a loss for fiscal 1999. That year British Steel paid $2.4 billion for Dutch steelmaker Koninklijke Hoogovens (it owns 95% and is buying the rest). At the same time, British Steel became Corus, a name chosen because it has no significant meaning in any language.

4.5.3 Product/Service Offering

Corus supplies variety of innovative solutions to a range of markets through their own research & Development and partnership with customers. For auto market, for example, Corus provides comprehensive product range including conventional and high strength coated and uncoated steels, engineered to meet the most complex and demanding specifications. Corus's effort is directed at optimizing material applications in cars right before from the design stage. Corus also provides full support package covering co-operation in every phase of vehicle development and production. Several of their product/service offering which best represent their approaches are presented below.

- **Shaped Steel Blanks** for auto industry: British Steel is one of the largest supplier of special engineering steels used in the manufacture of automotive components. Working closely with the automotive industry, British Steel provides finished, forged and machined components, from crankshafts and hubs to axle beams, brake parts, gears, transmission and suspension parts. British Steel has also pioneered the preparation of **shaped steel blanks** to first stage manufacture. Tailored-made blanks are constructed from multiple sheet components. The sheet components are joined using laser or resistance welding. In contrast to conventional methods the application of tailor-made blanks, by using the right thickness and grade of material, offers auto-makers the several advantages of simple logistics with corresponding cost saving, improved passenger safety, and more efficient use of material with cost saving.
- **Sheets with different surface finishes** for Domestic Appliances: British Steel is trying to supply advanced technology steels to help the manufacturers increase the

productivity, improve the performance of end product and add consumer appeal with different surface finish. Research & Development. In turn, this Centre closely cooperates with customers in product development. Recent innovations include Protact, a polymer coated packaging steel produced in the Belgium plant, and Le Carr", a square food can concept needing less material and shelf space and enhancing the image of canned food.

- British Steel has led the European market in increasing the use of structural steelwork in construction by offering a well-established **advisory service** to architects and consulting engineers. New products, processes and systems are offered to customers. British Steel supplies broad range of products for construction industry including piling for foundations, tubes and sections for structural frames, plates for bridgework, metallic and organic coated steels for cladding, roofing and internal partitions, profiled sheets for cladding and roofing systems and **Surebuild** steel framing for domestic housing. Research, development and **education programmes** have brought major reductions in the cost of steel frames resulting, for example, in the development of the fast-to-build and cost-effective **Slimflor** system and new, low cost methods of achieving required levels of corrosion and fire resistance. British Steel's specialist design teams work with architects and consulting engineers to promote the most effective use of steel.
- British Steel, through its international consulting arm "British Steel Consultants limited (BSCOS), provides the full range of **consultancey services** to steel industries throughout the world, including: Management Consultancy, Project Management, Human Resource & Organization Development and Technology Transfer.
- British Steel launched Packaging Recyling System, **CanRoute**, in June 1999 specifically to address the challenge of household collection of steel cans. Corus Steel Packaging Recycling developed the initiative in partnership with the company's ferrous supplies department and invited its major ferrous scrap suppliers to act as agents for CanRoute.
- Corus, has recently unveiled a radically new advisory service for the Construction Industry by announcing the opening of its new construction advisory unit, the **Corus Construction Centre** The Corus Construction Centre has been set up as a

definitive information source for designers and users of steel in the construction business. It is aimed to provide a fast, efficient, 'one-stop' technical support service across all construction and construction-related products and applications. The new multi-access support service replaces the former product-based support structure which often necessitated specifiers and users having to deal with numerous advisory points throughout the company. Ian Cox, head of new center, says: "This re-alignment of the former British Steel's technical support will be instrumental to the new company's objective of building 'partnerships' and the essential trust with designers and purchasers of steel which will be vital to our future as one of the world's top three steelmakers."

In summary, British approach for differentiating their products and service offerings can be summarized as follows.

- British Steel spends GBP 50 million per annum on R&D, and employs 750 people in this area. As well as maintaining R&D activity in areas such as process control and environmental improvement particular drive has been taking R&D activity to the interface with customers' activities in all key market sectors. Specifically, the strategy has been to engage with customers at the concept phase of product design in order to aim to ensure that the most appropriate steel product is specified for the car, can or building concerned.
- Market and Product Segmentation
- Innovative engineering solution in partnership with customer and concurrent engineering.
- Customized and tailor made services.
- Creation of new application through basic research, materials and product development and education
- While making efforts to develop the new product applications, British Steel also try to find new opportunity in **service businesses**, such as consulting and educational services.

4.6 Virgin Atlantic

Virgin was named finest Transatlantic Airline by Travel Weekly for the 11th consecutive year, from 1988 to 1999. Virgin also won many other awards the travel industry has created over the past years. What did Virgin do to merit so many prestigious honors and won customer satisfaction? 'We didn't want to get into the transportation industry. We're still in the entertainment industry-at 25,000feet," says Richard Branson, chairman and CEO of Virgin group. The airline was the first to offer seat-back videos, and it provides on-board manicures, massages, and magicians-and not just for first-class passengers.

The Virgin brand is closely identified with Branson's flasy, daredevil personality, and this, too is a point of differentiation for the airlines. Branson's publicity stunts, such as trying to circumnavigate the glove in a hot air balloon, give the airline a certain cachet.

4.6.1 Overview

It used be that air travel was regarded as s commodity. In 1978 deregulation kicked off an era of fierce competition. It also opened the way for some upstart "Davids" to differentiate themselves and steal passengers from airline "Goliaths". Virgin Atlantic, founded in 1983 and now the UK's second largest scheduled airline, is one of the airlines that have been particularly successful at distinguishing themselves.

Virgin Atlantic is part of Branson's Virgin Group, made of more than 200 media, travel, and entertainment businesses, which operate under the prominent Virgin brand.

The airline operates 27 planes from its main hub at London's Heathrow airport; its route network has expanded from its original London to New York service to include more than 20 destinations in Asia, the Caribbean, Europe, South Africa, and the US. Virgin Atlantic has shaken the industry. Rather than competing solely on price, Virgin offers entertainment and creature comports. Virgin Atlantic try to provide passengers with something unique and its facilities, products and services are designed to challenge the conventions of airline. Virgin Atlantic earned $ 129 million on sales of $ 1.4 billion in 1998.

Although Virgin Atlantic has been undergoing some turbulence (it's slashed fares, and profits have taken a hit because of fierce competition on the North Atlantic routes), the carrier has continued to expand.

4.6.2 History

Before Virgin Atlantic Airways was even a twinkle in Richard Branson's eye, another upstart UK airline -- Laker Airways -- took on British Airways (BA) and the other big boys of transatlantic air travel. Entrepreneur Freddie Laker launched the Skytrain in 1977, a no-frills carrier flying between London and New York. Rivals eventually cut their fares and drove Laker Airways out of business in 1982.

UK lawyer Randolph Fields decided he could succeed where Laker failed. He brought in former Laker executive David Tait and capitalist wunderkind Richard Branson (whose Virgin Group was emerging as a major media company) to provide capital for a new airline, tentatively named British Atlantic Airways, which came into being in 1983.

Branson had begun building his empire in the 1970s. In 1970 he founded a London record business, named Virgin because Branson was a novice (and not only in business); in 1973 he started the Virgin record label and became a millionaire. He was 23.

In the early 1980s, despite BA pressuring regulators not to allow other airlines to fly from Heathrow, Branson put his fortune and his flare for publicity behind the airline, which was renamed Virgin Atlantic. In 1984 the airline was rewarded with a route between Gatwick and Newark airports (instead of Heathrow and JFK), and it bought a used Boeing 747. The carrier's maiden flight in 1984 carried a planeload of pop stars and journalists. In 1985 the firm set up Virgin Cargo and Virgin Holidays, a package holiday business. The next year Virgin Atlantic launched London-Miami service and bought another 747.

Arranging to buy more jets, the firm won a license to fly to Boston (1987), more licenses for service to Los Angeles (via New York) and Tokyo (1988), and one for a Singapore route (1989). Virgin Atlantic secured regulatory approval to fly from London's top airport, Heathrow, in 1991; it quickly added flights from Heathrow to Los Angeles, New York (JFK), and Tokyo and began transferring its other flights to Heathrow. But the heavy costs of keeping Virgin Atlantic aloft and its ongoing battle with BA forced Branson to sell the Virgin Music recording franchise in 1992.

To BA's chagrin, in 1993 Virgin Atlantic won a $5 million libel settlement following a long campaign of dirty tricks by the giant carrier against Virgin Atlantic -- including fake rumors of impending bankruptcy and Branson's drug use. He split the money with

his employees and immediately launched an antitrust suit in the US (dismissed in 1999, but Virgin Atlantic said it would appeal). In 1994 Virgin Atlantic collected $4 million from BA to settle claims that BA had done sloppy maintenance on Virgin Atlantic aircraft.

The airline continued to add routes: Heathrow-Hong Kong (1994) and Heathrow-Johannesburg (1996). A 1995 code-sharing agreement with Delta ended just two years later and was replaced with a similar agreement with Continental.

In 1999 Singapore Airlines agreed to pay about $960 million for a 49% stake in the airline. Virgin Atlantic also made plans to add a route to India and start a low-fare carrier in Australia in 2000.

4.6.3 Product and Service Offerings

Virgin Atlantic is extremely dedicated to making travel easy and enjoyable, and making sure all passengers' needs are catered for. Their innovative service offerings cover the whole course from ground transportation, to check-in, to clubhouse and lounge, to in-flight entertainment and meal, to in-transit, and to arrival. They also provide all details of special arrangement and services tailored to specific customer segment, ranging from business travelers, to passengers on vacation, to group travelers, to students and to those requiring special assistance such as passengers with limited mobility, pregnants, dietary, nervous flyers, and kids. Their innovative service offerings are unlimited..

The salient points of product and service offerings of Virgin Atlantic are as follows (several services are offered to limited travel class).

- **Ground Service/Drive Through Check-In**: Virgin provides transportation services to and from the airport with complementary chauffeur driver car. If passengers are leaving London in a hurry, they also provide special **'LimoBike"** which is fast and fun. In conjunction with chauffer driver car service, they also have Drive Through Check-In, which takes a little over a minute. After passengers are picked up, details are forwarded to the Drive Through Check-In via the car onboard computer and, when passengers arrive, a boarding card will be waiting for passengers.
- Club House Lounge: In addition to general service offerings provided by the other

airline companies, Virgin provides hair cut and manicure before departure, or relaxing massage in the **Virgin Touch Salon**. Virgin try to make their Clubhouse and lounge havens of relaxation.

- **On-board massage and bar**: Virgin also provide a massage on board from their Inflight Beauty Therapists. If passengers want to stretch their legs, they can take short walk to the bar or just fall asleep in the sumptuously comfy seat.
- **In-flight Entertainment**: Virgin offers various services to make sure there are something to entertain absolutely everyone during their flight. Passengers enjoy their own seat back television with up to 21 channels, a superb choice of meals, and a modern, comprehensive amenity. Each plane features at least eight of the very latest movie release and a wide range of TV on offer. There is a special programming for kids as well as channels dedicated to music, comedy, and drama. They've got a treat in store with Nintendo and PC games on tap on most planes.
- **Special Assistance**: Virgin provides tailored services to those requiring special assistance, such as kids, passengers with limited mobility, dietary, pregnants, nervous flyer, and group travelers. Virgin tries to make sure all passengers' needs are catered for making flying easy and enjoyable. For example, Virgin provides all details of arrangements for passengers with limited mobility at the airport and onboard. For nervous flyers, Virgin also provides one-day courses to help people overcome their fear. For dietary, they provide various kinds of meals on request to cater for dietary needs of passengers. Children are also provided with their own television channel, kids pack and lunch box.
- **Arrival Lounge**: Virgin Atlantic has opened its first arrival lounge, called **Revivals**, at Heathrow airport. It is designed to provide everything a passenger could need to awaken, revitalize and prepare for their day ahead after a long-haul flight. Revivals offers shower rooms, a Virgin Touch salon, business area and lounge, and bar area. Show rooms are provided in three different layouts catering to all passengers whether they are single travelers, a family or have special needs.

As companies struggle to find something which gives them a competitive edge in this increasingly commoditized society, they are turning to one of the greatest untapped assets, their own employees. Marketers are recognizing that getting your staff to act as

brand ambassadors is one of the few things competitors cannot directly copy. But doing this at a time of business upheaval wrought by the combined forces of globalization and technological change is not easy. It involves a lot more than mere mission statements. What counts are your company's values, and planting those values into employees' hearts and minds.

It's Richard Branson, who was once designated by a UK poll as the man Britons trust most to update the Ten Commandments (after the Pope and Mother Teresa).

Chapter 5

Analysis of Case Study

As a case study, I investigated the differentiation strategies of the six leading companies, BP Amoco, Mobil and Shell from petroleum industries, and Enron, British Steel and Virgin Atlantic from energy utility, steel and airline industries respectively. In general, all the companies surveyed focus on customer solution reflecting a shift in strategic attention from product to customer-from product economies to customer economies and customer's experience. They segmented the market to better design and deliver tailored, customer-specific services bundled with commodity products. However, there are some differences in the implementation intensity level of differentiation strategy.

5.1 Opportunities for Differentiation

Based on the case study, I have observed some differentiation strategies of each company and identified opportunities for differentiation as follows.

Petroleum Companies

Petroleum companies provide a variety of customer services coupled with various fuel card and information management systems. Major oil companies are introducing more technology-based card services to enhance the gas charging and paying convenience. At the pump, they are experimenting use of the multimedia dispenser and the Internet to provide electronic coupons, promotional messages, local weather information, traffic reports, sports scores and lottery results. Petroleum companies segmented the market mainly by consumer and business customers and are delivering tailored, customer-specific services bundled with products. For the business customers, especially, they are focusing on offering Fleet Management solutions.

Their service offerings are generally directed at followings.

- Convenience of fuel charging and paying at pump station
- Reducing administration cost (business customers) by simplified billing, electronic data exchange and fleet management software
- Easy Ordering by on-line purchasing/billing
- Special Rewards and/or discounts for fuel for loyal customers through various fuel card system. They also offer discounts on travel related services, such as hotel,

airline, and car rental through membership card system.

- Customer Consulting and Information Management, such as travel planning, and energy cost management
- Price risk management and pricing options (BP Plus, Air BP and Mobil)

Table 5-1 presents detailed differentiation factor used by petroleum companies.

Table 5-1 Differentiation Factors by petroleum companies

	BP Amoco	Mobil	Shell
Product Performance	-High Octane Gasoline (for old car) -Cleaner Fuel	-Mobil Diesel Plus (for low temperature)	-Shell Velocity -Racing Diesel
Fuel Card-consumer (Fuel Card, Credit Card and Debt Card)	-Revolving Credit -Pay at the pump --Volume Rebate -Travel Discount (car rental, hotel, air reservation)	-Revolving Credit -Pay at the pump -Volume Rebate -SpeedPass -Travel Discount (car rental, hotel, air reservation)	-Revolving Credit -Pay at the pump -Volume Rebate -EasyPay -SmartPump -Travel Discount (car rental, hotel, air reservation)
Fuel Card-member	-Roadside Assistance -Travel Guide -Special Protection Benefits -Travel Discount	-Roadside Assistance -Travel Guide -Special Protection Benefits -Travel Discount	-Roadside Assistance -Travel Guider -Special Protection Benefits -Travel Discount
Fuel Card-commercial	-Concise Billing and Reporting -Regular Management Information -A choice of Network Option -Flexible Invoicing Option -Competitive Pricing Option -Breakdown cover and Maintenance/Service Option	-Concise Billing and Reporting -Regular Management Information -A choice of Network Option	-Concise Billing and Reporting -Regular Management Information -A choice of Network Option -Maintenance Cost Control (FleetMinder)
Price Risk Management	-Risk Management (aviation fuel)	-Risk Management (distillate fuel)	
Information	-Fuel Price Up-date		
Customer Training	-Training		
Consulting	-Technical Consulting (aviation facility)		-Technical Consulting (Shell Solution) -Management and IT consulting (Shell Service Int'l)

Enron

Enron try to extend their business beyond the physical commodity over to total energy solutions such as energy management, facility management, risk management and financial service. They are de-commoditizing the commodity products with innovative energy-solution package. Enron is, in many ways, transforming the whole energy business as they try to develop products and services that really pinpoint energy problems and provides solutions. they redefine its services to reach into the customer's own business to solve more fundamental problems

Enron is offering wide variety of risk management and financial services for customer choice and to meet specific needs of customers.

British Steel

British Steel (now Corus), on the other hand, try to differentiate their products by engineering solution. They segmented their market more narrowly and offer more customized product tailored to specific market segmentation and application. They, through their in-house research and development and partnership with customers, offer special engineering products to create new application and to help customers reduce their processing cost. With its recent offering of consultancy services and opening of Corus Construction Center, British Steel is trying to move beyond the product-based business to service business.

Virgin Atlantic

Virgin Atlantic's differentiation strategy is very diverse. They try to treat all passengers on individual basis and to meet all needs of passengers from physical needs, to social, to psychological needs. They also continuously add new service features to improve their service offerings. As the airline services become commoditized, they try to provide memorable experiences to customers. As B. Joseph Pine II and James H. Gilmore maintained in their article[15], 'Welcome to the Experience Economy', experiences are a distinct economic offering, as different from services as services are from goods. Today consumers unquestionably desire experiences, and more and more businesses are responding explicitly designing and promoting them. As services, like goods before them, increasingly commoditized, experiences have emerged as the next step in what we

call the progression of economic value. From now on, leading –edge companies-whether they sell to consumers or businesses-will find that next battleground lies in staging experiences. This transition from selling services to selling experiences will be no easier for established companies to undertake and weather than the last great economic shift, from the industrial to the service economy. Unless companies want to be in a commoditized business, however, they will be compelled to upgrade their offering to the next stage of economic value. Commodity are fungible, goods are tangible, services intangible, and experiences memorable.

In summary, differentiation factors identified with industry case study are summarized in Table 5-2 on the page 73.

5.2 Differentiation Strategy

Due to limited access to company's internal organization and business processes, I couldn't fully assess how successful companies manage the differentiation strategies through to achieve sustainable growth as well as operational excellence through effective innovation. Based on the analysis of case study and related literature review, I could draw some common management approaches employed by the surveyed companies to achieve sustainable growth through differentiation as follows.

- In general, companies that are most successfully proactive with change are those that have *redefined* the game in the key market and bursted the traditional paradiem. Their leaders constantly look up from what they're working on to see what's going on in the world, and they take advantage of what they see. They are on the lookout for all kinds of shifts-major and subtle-and for changes in products and services preferences that they imply. They also recognize that leveraging knowledge-using existing knowledge about customers to create a keener awareness of market trends-makes good business. They question the conventional way of doing business and seek to change the *threats to opportunities*. One clear example of exploiting environmental change understanding the market place is *Enron* that has helped weather derivatives and energy-management outsourcing become a fact of energy business. Enron is, in many ways, transforming the whole energy business as they

try to develop products and services that really pinpoint energy problems and provides solutions.

- Successful companies focus on *Customer Solution.* The customer solution reflects a shift in strategic attention from product to customer-from product economics to customer economics and customer's experience. A company might offer a broad bundle of products and services that satisfy most, if not all, the customer's needs. *Fleet management* and *Enron's Energy Management* service have built value by 'vertically" expanding its service scope into activities previously performed by the customers. *Convenience store* (petroleum companies) and *Weather Derivatives* are examples of expanding "horizontally" across a range of related products and services to reduce complexity for the customer. Again, engineering products offered by *British Steel* are examples of customer solution targeted to specified segment to reduce processing cost of customer.

- Companies developing successful differentiation from their competitors and thereby achieving profitable growth *continuously* seek ways to make improvements in their products and services, as well as enhance their relationship with customers. Competition produces a continuous round of new product attributes. If a new attribute succeeds, several competitors soon offer it. Customer expectation is progressive. This fact underlies the strategic importance of a maintaining the lead in introducing new attributes. Each new attribute, if successful, creates a competitive advantage for the firm, leading to temporarily high-than-average market share and profits. *Virgin Atlantic* has continuously introduced new and improved service offerings by re-modeling its lounge and cabin, and providing customized services.

- *Segment Customers.* They seek to divide a large, heterogeneous group of customers into smaller units defined by unique needs, purchasing characteristics, or other criteria such as economic and demographic factors. They tailor product offerings to ever smaller segments, often making the direct appeal to a single customer (*Virgin Atlantic).* When appropriate, they *partner* with complimentary product suppliers to create great value for customers (*petroleum companies*). Fierce competition today

forces companies to be more flexible and creative in their dealings with customers to give them what they exactly want.

- Make refinements in existing products and services, *partnering with customers* either on their premises or company's when possible. They share information with customers and get them involved in early stage of product design and engineering. *British Steel* does more than just listen to its clients. It directly involves them in the development and design of new refinement of products.

- *Train employees*, especially those who will sell the products and services, to know everything they need to know about the market, the item they are selling, and the customers to whom they are selling. *Enron's sales force* is role model of superior selling, which is why the company stands at number one among S&MM's top 25 sales force. Enron, with its segmenting and targeting exercise, affectionately referred to as *Bear Trap*, forces the sales team to be precise about the prospects it pursues, and why it pursues it. The goal of that was to involve the whole company with sales people providing market insight, analysts providing market research, and experts in engineering providing their opinions.

Table 5-2 Differentiation Factors by all companies surveyed

	BP Amoco	Mobil	Shell	Enron	British Steel	Virgin Atlantic(1)
Product Performance	High Octane Gas.	Mobile Diesel Plus	Shell Velocity Racing Diesel		Shaped Steel	Interior design On-line
Product Featuring	-Cleaner fuel				Different Finish	Ground service
Convenience -Ordering - -Charging -Invoicing	On-line (Card and Heating Oil) Pay at the pump Invoicing Option (Business)	On-line (Card) Pay at the pump (Speed Pass) On-line Billing	On-line (Card) Pay at the pump (Easy Pay)	Online		Drive through check-In Customized rewarding Virgin Touch Salon
Rewarding	Volume rebate	-Volume rebate	-Volume rebate			On-board massage and bar
Information	-Fuel Price up-date -Travel Inf.	-Travel Inf.	-Travel Inf.	-Energy price		In-flight entertain.
Customer Solution -General Admin. -Maint -Energy Manage. -Facility Manage. -Price Risk Manage. -Information Manage. Training	Fleet manage. - Optional pricing term (Aviation Fuel) Training (Air BP)	Fleet manage. Optional pricing term (Distillate Fuel)	Fleet manage. FleetMinder	Outsourcing solution Facility Energy Facility Energy/ Weather derivative Energy information management	Training	Special assist. for kids, dietary, limited mobility, pregnant, nervous flyer Arrival lounge
Consulting/ Education	Technical consulting (Air BP)		Technical consulting IT/Manage. consulting		Technical/ Manage. consulting Center)	

Note 1. Virgin Atlantic's service offerings are not grouped into differentiation factors.

Chapter 6
Conclusion

In this thesis, I studied sustaining growth strategy for petroleum companies. As the rate of sales growth slows down, the petroleum business is entering a stage of relative maturity. The sales slow down creates over-capacity, which leads to intensified competition. Given the difficult situation, achieving and maintaining cost leadership is essential, but insufficient for sustained growth. Companies need to differentiate itself offering more value to customers than competitors offer.

I explored these matters in four parts. Firstly, I reviewed the competitive context of and its implication to petroleum industry from a global standpoint. Second, I reviewed literature to discover the basic concepts, tools and practical approaches to developing differentiation strategy. Third, I surveyed six leading companies as case studies, three from petroleum industry, one from energy utility industry, and two from steel and airline industry. I analyzed the case study results and come to a conclusion. Last, I will make suggestions for a petroleum company and future research.

From the analysis of case study, various kinds of differentiating factors employed by case study companies have been identified (Table 5-1 and 5-2). In general, all the companies surveyed focus on customer solution reflecting a shift in strategic attention from product to customer-from product economies to customer economies and customer's experience. To capture a value position and enhance profitability-in other words, to decommoditize the commodity product/service-they redefine its services to reach into the customer's own business to solve more fundamental problems. Enron, for example, question the conventional way of doing business and seek to change the *threats to opportunities*. Enron also created new businesses by leveraging knowledge-using existing knowledge about customers to create a keener awareness of market trends. All the companies surveyed also segmented the market to better design and deliver tailored, customer-specific services bundled with commodity products. Unless companies are going to compete mainly on price, value-added solutions are a necessity. Innovation is a prerequisite for a sustainable growth.

Customer solutions, but, has multiple dimensions. It's an entire array of customized goods and services that can often cut across organizational boundaries within company

and boundaries beyond the company. Effective implementation requires cultural change. Top management commitment and clarity on direction is essential. So is having mechanism to enhance communication across organizational hierarchy as well as among employees.

In conclusion, I would like to suggest followings for companies to sustain profitable growth through differentiation and customer loyalty.

My suggestion is divided into two parts: suggestion for a company and suggestion for further research.

6.1 Suggestion for a Company

In today's world, sales and profits are essential if one wants to stay in business, but to be truly competitive in today's market, an organization looks to other key measures of success. I am convinced, through this thesis work, that one of the most important measures is *customer satisfaction*, and that satisfaction and its end result, *loyalty* rest primarily on the degree to which customers are involved in the entire ownership (which, of course begins even before someone makes an actual purchase). Perhaps the key element that defines a good business relationship is *trust*. Best-practice companies seem to capitalize on the major benefit of strong relationships. A strong relationship results in trust, which results in better communication-the life-blood of world-class process performance. Trust needs more than reliability. It is grounded in the belief that two parties pursue compatible goals and hold like-minded values. If strong relationships are based on trust, they are enhanced by clear, purposeful communication that is shared by all parties.

Lesson learned from this thesis can help those companies become more competitive in their business dealings with customers, especially when they understand that, in essence, business is most simply defined as "people in relationships, performing processes." *People* means human beings with a strong desire to be successful, *relationships* means key stakeholders relationships (customer, employee, supplier, owner, society), and *processes* means the steps performed to achieve a desired result. In this connection, I would like to suggest that companies take following actions on a company level.

- Set clear *vision* of business and customer-focused *culture*. Value-added customer

solutions are a necessity, especially in a commercial market. Customer-solution approaches are the best means to erect barriers and strengthen customer loyalty. Solutions involve more than product and services; it's an entire array of customizes goods and services that can often cut across organizational boundaries within and beyond the company. But effective implementation will require a cultural change in how employees interact internally across functions as well as externally with customers. It also requires increasing levels of trust and communication between themselves and customers. Top management commitment and clarity on direction is essential. As John Browne, CEO of BP Amoco, emphasized in his interview by Steven E. Prokesch of Harvard Business School[16], its role is to provide strategic directives, to encourage learning, and to make sure there are mechanisms for transferring the learning..

- Establish *cross-functional* and l*earning organization.* A company should focus not on business functions such as product development, manufacturing, and order processing, but on customer-focused, cross-functional process. A company should recognize that each major customer service process results from a thoroughly orchestrated effort by everyone in a company to do what is necessary to satisfy a customer's needs from the beginning to the end of the buyer's experience. That effort requires communication to enhance information sharing through learning organization. BP Amoco, with its flat organization, entrepreneurial business units, and virtual team network, is starting to foster the learning and tie people's jobs to creating value[16]. BP Amoco, through its own approach to innovation, called 'Innovation Colloquium', has also demonstrated its ability to come together and discuss in an open, non-defensive manner the challenges that face the corporation.

- Establish *best-practice business processes* to create excellence in customer relationship by *benchmarking companies beyond oil industry.* Companies should view business processes as consisting of a series of steps towards a particular objectives-customer service, for example, or pollution prevention. The steps one business takes to deliver customer service may differ in superficial ways from those practiced by another, but they are essentially same. The process view cuts across

internal functional barriers, which means that it allows managers for the first time to see their companies whole, without the impediments of divisions and job titles and particular products. It enables them to map each process, examining each step along the way, precisely targeting where improvements can be made. In general, processes for identifying, developing, and retaining customers should include, as a minimum, the followings.

-Understand the market and customers
-Design of product and services
-Delivery of product and services
-Provide customer services
-Manage customer information
-Monitoring and auditing service performance

In summary, I would like to present one framework to integrate my suggestions above. This framework is based on the theory of how service firms compete.[18,19,20] The starting point is the service-profit-chain (Heskett 1994)[21], which links customer satisfaction and loyalty and profitability to employee satisfaction and loyalty, productivity, and service value. Leadership and business performance was addes because of their importance. Other influence includes Arthur Anderson's work[22] on bench marking processes and results in the customer-focused solutions.

This framework outlines a set of linkages between various areas of management practice and firm performance. Each of these linkages is further described below.

Leadership drives whole service delivery process. Good leadership emphasizes the importance of both customer and employee. Its outcomes will be motivated staff, and services that meet customer needs and are delivered at high quality.

Leadership contributes to a customer- and service-oriented organization and culture. The effective management of people, particularly service contact personnel, provides them with the support necessary to service customers. The outcome of an effective organization and culture will be high employee loyalty and morale.

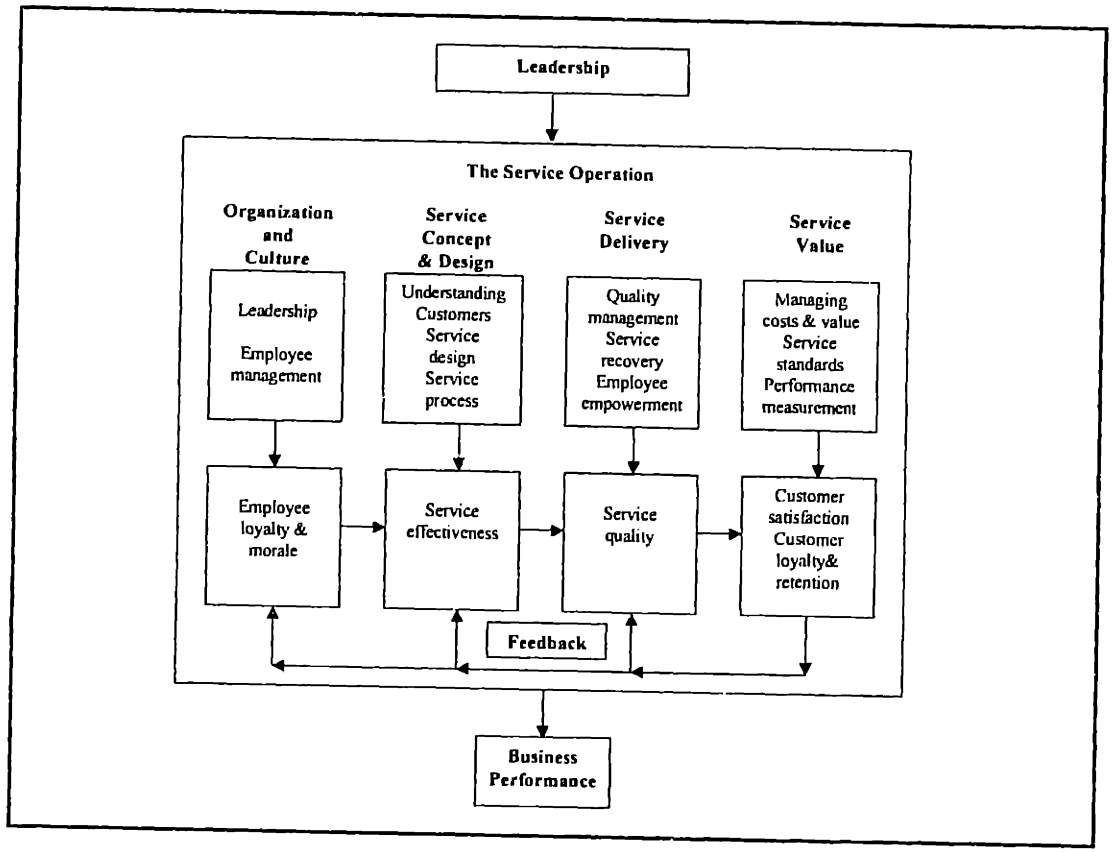
Service concept and design is central to good service. Elements include understanding customer needs, designing the service concept to meet customer needs and provide

differentiation from competitors, and designing the service delivery process to support the service concept. A well-designed service concept results in effective service performance.

Service delivery includes practices associated with quality management, service recovery, and employee empowerment. Its mission is to deliver a high quality service at low cost. Even a well-designed service will not meet the needs of customers unless it is delivered well; therefore service delivery process must include appropriate process for managing and responding to customer complaints and problems. Good service delivery process coupled with customer-oriented employee deliver service quality through a motivated, customer-oriented and satisfied workforce.

Service value as perceived by customers is created by a well-designed service delivery system supporting a service concept that addresses customer needs and is executed with high productivity. Value is created by satisfied, loyal and productive employees. Important elements of service value include how well the organization manages costs and value and sets service standards. A well-managed service organization sets demanding standards and ensures that these are met through performance measurement.

Figure 6-1 Overall Service/Profit Chain



Measuring performance through customers' eye is important. British Airway, for example, have created customer advocates in several key places in their organization: brand management organization; marketplace performance unit; customer relation department. They, through 10-member unit, also track some 350 measures of performance.[23]

On an individual innovator's level, I would like to suggest followings.

- Analyze the trend around and its implication to your business. *Understanding the market* is much more than understanding the customer. Also, transforming another company's success into one of your own requires a thorough understanding of all aspects of the market you are trying to reach, both external and internal. For the petroleum companies, *deregulation* and *environmental awareness* is expected to have an huge impact.
- Keep track of technology, especially *Internet* and *communication technologies*, development. Technology has changed every aspect of the oil business. Three-and-four-dimensional seismic studies, horizontal drilling techniques, and computer technologies allow oil companies to find and produce more oil at a lower cost, which is a big reason the price of energy has remained so low for nearly a decade. In refineries, high-tech process controls and new catalysts help oil companies get more high-valued products at less cost from each barrel, while other scientific advances enable them to maker cleaner-burning gasoline. At the retail side, especially at dispensing pump, technology is also changing the very essence of what customers find in modern service station. Gasoline stations increasingly are a locus for an array of *time-compressing conveniences* and services. By using *information technology* to identify the wants and needs of individual customers-and adding convenience stores, fast-food outlets, and other amenities, gasoline station is becoming exiting environment, and one that is as fast-changing as the Internet. Recently, several oil companies installed ATMs at many of its company-owned stations and use its *satellite systems* to communicate with financial institutions. They are convinced that these can also be used to print out directions for motorists, and as a point of purchase for tickets to entertainment events.

- Practice the systematic approaches, for example, "*New Point of Discovering Differentiation*" and "*Creating New Market Place*", presented in the literature review section would be helpful to identify the opportunities for differentiation. *Analysis of differentiation strategy*, which is presented in the Industry Case Study, would provide additional insights specific to oil companies.

In addition to general suggestions summarized above, I would like to suggest that LG-Caltex Oil Corporation take following immediate actions.

- Firstly establish the IT infrastructure and improve the Web-page to provide on-line services/information and develop data-base marketing. Then develop on-line ordering, billing system.
- Segment the business customers by industry type and size and establish sales account for each of segmented business customers. Develop and offer the Fleet Management services as a first step. In order to better understand customer needs and to develop the customer solution, train sales account with so-called segmenting and targeting exercise, like Enron's Bear Trap.
- Reinforce R/D activities toward creating service value for customer.
- At the service station, technological development enhances the convenience and speed of fuel charging and payment. Review the introduction of Pay at the Pump card and Speed card system. Service stations are becoming major source of providing one-stop shopping, information, and even memorable experiences to customers. With the booming of on-line shopping, service stations are becoming major delivery network. These opportunities should be explored.
- Invest in installing fuel-upgrading facilities to produce environmentally-friendly products, like low-sulfur gasoline.
- Keep track of technological development for alternative automobile fuels.

5.2 Suggestion for further research

My thesis work suggests that one of the superior ways to reach the goal of complete customer focus and satisfaction is to *study the actions currently being undertaken by companies of many different sizes that are flourishing in many different industries.* By examining the history and refinement of each basic universal process, managers at any

company in any industry can discover more innovative and effective ways of solving their current business problems and responding to their customer needs. In my thesis, I could identify some sources of differentiation and management approach employed by the companies. I couldn't, however, fully investigate specific processes due to limited access to company's internal processes. Using more extensive interview and investigating company's business processes, one could identify more specific processes to reach the goal of customer focus and satisfaction.

Closing my thesis, I would like to add my last word: A company who is proactive, *with a sense of urgency and paranoid*, rather than reactive with the forces of change will create value itself and its customers. " *There are no matured industry. There are only matured ways of doing business.*"

Bibliography

1. Standard and Poor's Industry Survey, Energy: Industrial, July 15, 1999.
2. Henry Birdseye Weil: Innovation: *A Critical Success Factor for BP*, Review, BP Amoco, October-December, 1997
3. Kjell Roland: Petroleum In the Next Century: *Five Complex Forces Could Chang Structure of Industry*. Oil & Gas Journal, April 13, 1998.
4. Henry Birdseye Weil: *Commoditization of Technology-Based Products and Services*: A Generic Model of Market Dynamics, unpublished research paper, MIT Sloan School of Management
5. Pira Energy Group: *Common Financial Strategies found among top 10 Oil and Gas Firms*, Oil & Gas Journal, April 20, 1998.
6. Philp Kotler: *Marketing Management*, Prentice Hall, New Jersey.
7. Michael E. Porter: *Competitive Advantage: Creating and Sustaining Superior Performance.* The Free Press, 1985.
8. James M. Utterback: *Mastering the Dynamics of Innovation.* Boston, MA: Harvard Business School Press, 1994.
9. Eric von Hippel: *Toolkits for User Innovation.* Sloan Working Paper #4058, Cambridge, MA, February, 1999 and Eric von Hippel, Stefan Thomke, and Mary Sonnack. *Creating Breakthrough at 3M.* HBR, Boston, MA, September-October, 1999.
10. Henry Birds Weil and Elisabeth Endicott Weil: *The Road from Dependency to Empowerment: The Destination is Worth the Journey.* August 18, 1999.
11. Ian C. MacMillan and Rita Gunter McGrath: *Discovering New Points of Differentiation.* HBR, Boston, MA, July-August 1997
12. Mark H. Meyer and Arthur Detore: *Product Development for Services.* Academy of Management Executive, 1999, Vol. 13, No. 3.
13. W. Chan Kim and Renee Mauborgne: *Creating New Market Space*, Harvard Business Review, January-February 1999.
14. National Petroleum News, October, 1999
15. B. Joseph Pine II and James H. Gilmore: *Welcome to the Experience Economy*, Harvard Business Review, July-August 1998.

16. Steven E. Prokesch, Unleashing the Power of Learning: *An Interview with British Petroleum's John Browne*, Harvard Business Review, September-October, 1997.
17. Richard N Forster and Sarah Kaplan McKinsey & Company: *Achieving profitable growth through innovation*, Review, BP Amoco, October-December, 1997
18. C. A. Voss, K. Blackmom, R. Chase, E. L. Rose and A. V. Roth: *Service Competitiveness: An Anglo-US Study*, Business Strategy Review, Spring 1997.
19. Gabriel R. Bitran and Maureen Lojo: *A Framework for Analyzing Service Operations*, European Management Journal, Vol. No. 3, September, 1993.
20. Gabriel Bitran and Maureen Lojo: *A Framework for Analyzing the Quality of the Customer Interface*, European Management Journal, Vol. No. 11, December, 1993.
21. James L. Heskett, Thomas O. Jones, Gary W. Loveman, W. Earl Sasser,Jr., and Leonard A. Schlesinger: *Putting the Service-Profit Chain Work*, Harvard Business Review, March-April 1994.
22. Robert Hiebeler, Thomas B. Kelly, and Charles Ketteman, Best Practices: *Building Your Business with Customer-Focused Solutions*, Simon & Schuster, 1998
23. Steven E. Prokesch, Competing on Customer Service: *An Interview with British Airway's Sir Colin Marshall*, Harvard Business Review, November-December, 1995.