STRATEGIC ALLIANCES IN THE OIL INDUSTRY

by

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JUL 01 1997
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Submitted to the Alfred P. Sloan School of Management
on May 16, 1997 in partial fulfillment of the requirements for
the Degree of Master of Science in the Management of Technology

ABSTRACT

All companies are part of a network of firms that influence each other; thus, as
interdependence grows, the links between them acquire more importance. In the case of
the oil industry, most of the operational activities (usually in the upstream sector of the
business) are performed by specialized service companies and suppliers that have formed
around this industry. The relationships between them have been redefined toward strategic
partnerships and alliances to find a more permanent way to cut costs and at the same time
provide themselves with opportunities to combine capabilities, build enduring and
sustainable competitive advantage, and create value through the entire business.

After reviewing the main changes and challenges facing the oil industry in the last
two decades and the different general approaches it has assumed in order to remain
competitive, this thesis analyzes the alliances between oil producer companies and their
suppliers of good and services, not only as an option to reduce costs and risks and share
rewards, but also as a vehicle of opportunity to enhance capabilities within the industry.

CRINE and NORSOK cost reductions initiatives are presented as examples of how
integration among the different players within the North Sea region oil industry has
contributed to increasing its competitiveness and the influence of these players in the
international context. Considering the importance of Venezuela in the worldwide oil
industry, an analysis of alliances in that country is also made in the context of Venezuela's
recent opening up strategy.

From the different experiences and schemes of alliances among oil producer
companies and their suppliers, some frameworks and guidelines intended to orient the
successful establishment of strategic alliances, are also presented.

Trust, long-term commitment, alignment of purpose, and the ability to work as a
team are necessary to build an alliance. One of the main challenges in a customer-supplier
alliance is to change the common mindset and adversarial attitude that originates from the
competitive bidding process. Among the critical success factors to consider before entering
into strategic alliances are: scope and execution time, partner selection, well-defined goals
and processes, organization of the alliance, compensation, and performance measurement
systems.

Thesis Supervisor: Donald M. Lessard
Title: Epoch Foundation Professor of International Management
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</tr>
<tr>
<td></td>
<td>Bibliography</td>
<td>110</td>
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Dedicating this thesis to my husband would not be enough recognition for the immense support he has given me this year. His continuous encouragement and inspiration helped me to face and overcome the difficult moments and gave me the incentive to keep trying to do my best. He is the co-actor in all my accomplishments. To Victor, my greatest gratitude.

Last but not least, I would like to thank my parents for planting in me the seeds of strong values and principles that have governed my life.
CHAPTER ONE

INTRODUCTION

A series of remarkable changes over the past two decades has altered the face of the oil industry forever, and redefined business strategies for both operators and service companies.

Following the boom years of the late 1970s and early 1980s when activity hit an all-time peak, the oil price collapse of the mid-1980s pushed the industry into a near-term survival mode. The reaction to new economic realities was swift and well-directed. Sweeping changes were implemented, including decentralization, outsourcing, broad restructuring, and cost-reduction programs, among others. Operators reevaluated their business priorities, focused on core competencies and outsourced more to service providers, requesting that they assume greater responsibility for a wider range of field management activities and develop a greater percentage of new technology. In response, the service sector consolidated sharply, restructuring itself into multinational players able to accept these broader responsibilities.

The result of these efforts has been major efficiency and productivity gains within both sectors of the industry and a return to reasonable levels of profitability. Even as oil prices rebounded and remained relatively stable for an extended period during the late 1980s and early 1990s, the industry did not abandon its efficiency and productivity initiatives. Rather, they became central business strategies, reinforced by a renewed emphasis on
quality and value. Business relationships among the different players have been redefined. Examples such as the CRINE and NORSOK initiatives in the North Sea are confirming this trend. Simultaneously, by the mid-1990s, a new era of communications, cooperation and team work have emerged.

Different scenarios (see, for example, Schlumberger, 1997; El Banbi, 1996) project that crude oil demand is growing steadily at between 1.5% and 2% per year from the current level of about 72 million barrels of oil per day (Mb/d) reaching a level of 83 to 87 Mb/d in ten years. Although current production capacity (77 Mb/d) exceeds demand, it has shrunk considerably since the 1970s. This points to a long-term cycle where meeting rising demand will be the industry’s main challenge.

Another future vision (Finizza, 1996) considers that the oil industry will be faced with a supply side characterized by cheap and abundant oil, with continued emphasis on cost reduction and technological changes in the demand side which will foster reductions in oil use.

Both scenarios present big challenges for the oil industry. In any case, the industry must increase its emphasis on maximizing recovery from existing reserves and lowering finding and producing costs for new reserves.

How can these goals be achieved so the production safety margin can be maintained? The industry must build on the foundation of team spirit and cooperation between the different players, governments, operators, and service/supplier companies. All business activities must have a client-centered orientation, fostered through improved communications, more frequent interactions, and growth in alliances and partnerships. While building communication bridges, the roles of the different sectors should remain
separate and distinct, but without inhibiting cooperation, leveraging core strengths among them.

Strategic alliances are considered as a way to reduce costs, increase efficiency, improve quality, and share risks, resources, and technologies. Through alliances, producers and suppliers of services and goods share common goals. More time is spent acting rather than debating, eliminating waste and duplication of effort. Creativity and innovation are sparked by exploiting the diverse expertise of joint teams composed of operator and service company representatives. Technology transfer from R&D to the field speeds up. The operator receives efficient, customized solutions targeted at specific needs and the local environment. But these things do not just happen. They require hard work, dedication, and long-term commitment, reinforced from the top of the involved organizations.

This thesis will focus on the analysis of strategic alliances between oil producer companies and their suppliers of goods and services, not only as a way to reduce costs, risks and rewards, but also as a vehicle of opportunity with which companies within the oil industry can build competitive advantages. It will include both an in-depth review of the abundant literature on this topic and practical insights gained from personal interviews with industry insiders.

Chapter Two presents an overview of the worldwide oil industry. It presents the main changes this industry has been experiencing in the last decades, the driving forces motivating those changes, and the principal challenges it is facing today. It also presents an outlook of oil demand/supply and the role the industry will play to meet those challenges.
Chapter Three introduces some ways oil companies have faced these various challenges in order to be efficient and competitive. Some tools of organizational transformation are presented that have been employed by the oil industry to improve performance and enhance competitiveness. The Learning Organization represents the last block of organizational transformation. Strategic alliances are introduced as an important tool of the learning organization. Then, some concepts of alliances and their motivations and forms are presented.

In Chapter Four the basic characteristics of the CRINE and NORSOK initiatives in the North Sea area are presented. These two initiatives influence the way different players in the oil industry work together. They are examples of efforts to meet the challenges the oil industry is facing in the North Sea region. They also represent an excellent example of how cooperation among governments, policy makers, oil companies, service companies, suppliers, and investment decision makers can come together as a viable option for this industry.

Chapter Five introduces specific examples and schemes of alliances between operator companies and their service and supplier contractors. This information is based on documented alliances found in various technical journals and from interviews with industry insiders.

Chapter Six proposes some frameworks and guidelines to consider when entering into a strategic alliance. This have evolved out of the study of experiences presented in previous chapters, bibliography research, and personal interviews with industry insiders.
Chapter Seven presents general information about the Venezuelan oil industry, its moves toward globalization, the policies it has adopted for opening up the industry in Venezuela, and the role of strategic alliances in its growing process.

Finally, Chapter Eight includes the summary and conclusions, and an assessment of the lessons that have been learned during this enriching and rewarding experience.
CHAPTER TWO
THE OIL INDUSTRY: PRESENT AND FUTURE

INTRODUCTION

A review of the energy resources situation in the world today immediately demonstrates the important role that oil holds. The oil market is important to the international economy by virtue of its size. It represents about 10% of GDP in the United States and about 3% in the OECD. Oil accounts for roughly 10% of world trade, more than any other single commodity.

Unlike other energy forms, oil is a global business. While coal and gas are internationally traded, the amounts traded are small relative to the trade in oil: 53% of oil is internationally traded, while trading amounts to 17% for gas, and 21% for coal.

Oil is also the largest energy form. On a Btu equivalent basis, oil accounts for 40% of primary energy demand, larger than its nearest competitor, coal at 27%. Its proved resource base, over 1 trillion barrels, is large and adequate.

The Organization of Oil Exporting Countries (OPEC) has dominated world oil prices and markets for the past 25 years. However, during the past five years, it has become increasingly clear that OPEC has lost much of the market power it formerly enjoyed. OPEC

---

1 Much of the information for this chapter was adapted from Finizza, 1996 and El Banbi, 1996.
has come under increasing pressure as the result of huge volumes of non-OPEC member oil production, the persistence of "cheating" on production quotas within its own ranks, and the omnipresent threat that Iraq will flood the market with post-sanction crude. All these factors have caused the core OPEC countries' (Saudi Arabia, Kuwait, UAE) market share to decline and the fact is that increasingly, OPEC has relatively little influence on the market price of oil at the present time (Finizza, 1996).

**DRIVING FORCES**

Against this backdrop, the oil industry has undergone significant change in the past ten years, much of which will continue for the next decade or more. The forces that will drive this change are described below.

*New Demand Patterns*

Despite the sizeable amount of trade in oil worldwide, oil has actually lost market share in the past 25 years. The decline can be attributed to the persistence of high prices in the early 1980s, which led to fuel substitution efforts, the fear of supply disruptions which pushed users to seek sources of energy security, and the inroads made by power that is fueled by alternative sources such as gas, coal, and nuclear. The following Exhibit 2.1 shows this trend.
Exhibit 2.1
Composition of World Energy Demand

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil</td>
<td>47</td>
<td>48</td>
<td>47</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Gas</td>
<td>19</td>
<td>20</td>
<td>20</td>
<td>22</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Coal</td>
<td>31</td>
<td>28</td>
<td>27</td>
<td>30</td>
<td>28</td>
<td>27</td>
</tr>
<tr>
<td>Nuclear</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: Finizza, 1996

In 1970, the developed world accounted for 60% of the world's oil consumption; that figure is less than 50% now. Strong, persistent growth in many countries in Asia/Pacific, and the economic opening of a number of formerly planned economies, will likely accelerate the trend toward a larger share being consumed by the developing world. The following Exhibit 2.2 presents this data.

Exhibit 2.2
Shift In World Oil Consumption

<table>
<thead>
<tr>
<th></th>
<th>1970</th>
<th>1990</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>34</td>
<td>27</td>
<td>24</td>
</tr>
<tr>
<td>Western Europe</td>
<td>27</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>Total Developed Countries</td>
<td>61</td>
<td>47</td>
<td>40</td>
</tr>
<tr>
<td>CIS &amp; Eastern Europe</td>
<td>14</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Asia/Pacific</td>
<td>15</td>
<td>22</td>
<td>24</td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
<td>16</td>
<td>21</td>
</tr>
<tr>
<td>Total Developing Countries</td>
<td>39</td>
<td>53</td>
<td>60</td>
</tr>
</tbody>
</table>

Source: Finizza, 1996
Potentially, the most striking future change will be in motor gasoline, the premium product of oil, as a result of environmental concerns to be discussed later. The imposition of requirements for oxygenated (alcohol) fuels has raised the cost structure of gasoline. While electric vehicles have so far proved to be uneconomic and have fallen short of consumer acceptance criteria, the mandate has led to an explosion of technology and engineering to find an acceptable electric vehicle for the road. This technology-forcing, which it has not produced an acceptable battery to date, has produced some innovations that could make the electromotive vehicle (irrespective of the power source) a more desirable vehicle. This development would prolong the oil era, but with lower growth in the premium auto fuel market.

*Intensity of Global Competition*

Global competition, both for investment and for markets, has intensified in the past ten years. U.S. oil production declined in the early 1980s, and the emergence of major non-OPEC suppliers has shifted attention to new frontiers. At the same time, the pattern of oil consumption has moved away from the industrialized world. These forces for change have focused the attention of oil companies on potential new venture areas.

A list of the most attractive countries for new venture areas, compiled by Simon Petroleum Technology (see Exhibit 2.3), include the following countries that were previously off-limits or severely limited:
## Exhibit 2.3
**Most Attractive New Venture Areas**

<table>
<thead>
<tr>
<th>Country</th>
<th>Current Status</th>
<th>Previous Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Upstream</td>
<td>Downstream</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Open (PSCs)</td>
<td>Contemplating deregulation</td>
</tr>
<tr>
<td>Algeria</td>
<td>Open</td>
<td>NOC</td>
</tr>
<tr>
<td>Tunisia</td>
<td>Open</td>
<td>Closed</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Open</td>
<td>Open</td>
</tr>
<tr>
<td>Australia</td>
<td>Open</td>
<td>Open</td>
</tr>
<tr>
<td>Yemen</td>
<td>Open</td>
<td>Closed</td>
</tr>
<tr>
<td>Vietnam</td>
<td>Open</td>
<td>Potential deregulation</td>
</tr>
<tr>
<td>Argentina</td>
<td>Open</td>
<td>Open</td>
</tr>
<tr>
<td>Russia</td>
<td>JV w/NOC</td>
<td>NOC</td>
</tr>
<tr>
<td>Venezuela</td>
<td>Partially open</td>
<td>NOC</td>
</tr>
</tbody>
</table>

**Key:**
- NOC: National Oil Company
- PSC: Production Sharing Contract

Source: Finizza, 1996

### Regulation/Deregulation

In recent years, there has been greater awareness and use of market economics in the oil industry. Many countries had previously instituted controls or regulations to protect their domestic refining industry so as to avoid oil product imports and also subsidize certain consumer fuels, namely, kerosene and LPG for cooking and heating, and diesel fuel for farm use, with motor gasoline cross-subsidizing these below-market price goods.
The implication is that oil pricing at the consumer level will more closely reflect true costs. As a result, oil demand will be rationalized and used more efficiently. Lower oil consumption growth can be expected in many of these countries.

Privatization

The industry was rocked when a number of national oil companies were privatized. The resulting firms are proving to be competitive with private oil companies. Examples include: Repsol in Spain, Minol in East Germany, PTT in Thailand, YPF in Argentina, Portugal Oil in Portugal, and TP in Turkey. The countries in which these companies are domiciled, characterized by a monopolistic government presence, have all embarked on a deregulation process that is still incomplete, but moving ahead at the country’s own pace.

Political Transformation/Openness

After the collapse of the Soviet Union and communism, formerly planned economies began a political transformation that has included a gradual opening to Western technology, capital market mechanisms, and corporate business methods. This political transformation is still incomplete, but it is apparent that the process is going slowly and will be subject to some decline before the economies begin to rise again; however, it is not expected that there will be a reversion to the old political means and methods. The future of oil is highly intertwined with this progress.
Cost Reductions/Investments

Oil production costs, particularly in non-OPEC countries, have dropped since the mid-1980s as a result of:

1. the increased and rapid penetration and deployment of exploration and production technology, primarily 3D and 4D seismic, improved water injection techniques, and horizontal drilling,

2. improved organizational and management techniques, such as alliances and pre-engineering project definitions, and

3. improved host country terms, and reductions in tax consequences in the face of lower oil prices.

However, because of production decreases and reduced revenues, the industry often reacts by reducing investment in marginal, hostile, and environmentally questionable areas and instead tends to invest only in lucrative, easy ventures. Exploiting new discoveries in frontier or hostile areas will require larger investments, both financial and technological.

Emphasis on Shareholder Value

In the 1980s oil majors and others undertook a number of projects aimed at enhancing shareholder value. All firms reduced headcount, thus improving the cash flow per employee. Most companies restructured their assets by selling unrelated businesses and consolidated the remaining businesses. Oil firms reduced their total exploration and production expenditures drastically worldwide, shifting the remaining spending to more international arenas. Finally, most companies invested in technical innovations for improving finding, developing, and production costs, as indicated above.
**Environmental Constraints**

Environmental constraints will affect future oil activities. The oil industry has been a target of environmental legislation and regulation, and there is a tendency to place a disproportionate share of the blame for environmental problems on this industry. The rules and legislation have added significantly to the cost of the end product and have imposed sharp costs increases on the refining industry.

A recent American Petroleum Institute (API) study cataloged the total environmental costs being borne by the oil industry (see Exhibit 2.4). By the end of the century, total annual costs could reach as high as $67 billion, a number greater than the present capital expenditures of the refining industry.

### Exhibit 2.4
Environmental Costs Borne by the Oil Industry

<table>
<thead>
<tr>
<th></th>
<th>($ bil/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recent Requirements</td>
<td>7-12</td>
</tr>
<tr>
<td>New and Future Requirements:</td>
<td></td>
</tr>
<tr>
<td>Known Future Costs after 1990</td>
<td>7-20</td>
</tr>
<tr>
<td>Most Likely Costs (1995-2000)</td>
<td>6-14</td>
</tr>
<tr>
<td>Highly Uncertain Costs (1995-2000)</td>
<td>10-21</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14-67</strong></td>
</tr>
</tbody>
</table>

*Source: American Petroleum Institute*

The most notable effect on the oil industry has been the requirement for oxygenated gasoline that went into effect in key non-attainment areas in the United States starting in 1994 (California has its own more stringent standard). The tougher requirements will
impose an additional cost on gasoline. In the same way, new discoveries in environmentally challenging areas will require greater development investments than before.

VISION OF THE FUTURE

Given these forces for change, the outlook for the oil industry is slower growth than in the past even while retaining its relative stature as the largest energy form, but with the continuing trend toward lower market share. Growth will still be highest in developing countries, particularly the Asia/Pacific area.

Fossil fuels will still dominate well into the 21st century, but clear signs of market loss will be seen well before the mid-century mark. Under a set of broad assumptions, oil's market share is expected to decline slowly over time. The following Exhibit 2.5 shows some projections.

Exhibit 2.5
Composition of World Primary Energy Demand

<table>
<thead>
<tr>
<th></th>
<th>1980</th>
<th>1995</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil</td>
<td>47</td>
<td>40</td>
<td>38</td>
</tr>
<tr>
<td>Gas</td>
<td>20</td>
<td>23</td>
<td>24</td>
</tr>
<tr>
<td>Coal</td>
<td>27</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>Nuclear</td>
<td>3</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: Finizza, 1996
The oil industry faces two major trends that are in conflict. First, on the supply side, oil will be cheap and abundant, with continued emphasis on cost reduction. This will be juxtaposed with the trend that technological change on the demand side will foster significant reductions in oil use. Improved chemicals and catalysts, the possibility of widespread adoption of a fuel-celled vehicle, improved fuel efficiency among jet aircraft, and widespread use of energy-saving communications technology will diminish oil's intensity in the economy (Finizza, 1996).

To cope with these forces for change, the oil industry will need to adopt new strategies to take advantage of this geographical diversity and growth. These strategies, although unclear in detail, will move toward more frontier areas and new constructs. Economic rationality suggests that the next century will be the age of global integration of the world's economies, while cultural sensitivity tells us that it will be the century of ethnic demands and revived nationalism. The likely solution is federalism.

The oil industry will mirror this world. The likely response of the oil industry is not to integrate into multinational oil companies as it has done in the past, but to pursue more joint ventures, perhaps with national oil companies and host governments, to form partnerships with local firms that are well-versed on the business conditions of a given country, and thus will be able to form unusual alliances and organize in keeping with the customs of the host country.

To meet future energy demands and add new reserves, the industry has no alternative but to apply the latest state-of-the-art technology, to invest heavily in new ventures, and to cooperate in securing a supply of energy for future generations (El Banbi, 1996).
Traditionally, these efforts require higher oil prices than now exist. The challenge is to do all this while coping with current flat oil prices.
CHAPTER THREE

MANAGING OIL COMPANIES

This chapter will introduce some of the methods oil companies have employed to cope with the challenges involved in becoming efficient and competitive. A number of organizational transformation tools are presented that have been used by the oil industry to improve performance and enhance competitiveness. The concept of the Learning Organization represents the last block of organizational transformation. Strategic alliances are introduced as an important tool of the learning organization. Finally, some concepts about alliances, their motivations, and forms are presented.

ORGANIZATIONAL TRANSFORMATION

As discussed in the previous chapter, the oil industry has encountered many changes and challenges over the last decade. Over time, a number of tools have been created to help meet this challenge. These tools have been developed successively, each building upon the accomplishments of its predecessors. Using the approach presented by Ross and Godley (1996), these tools can be seen as the "building blocks" of organizational transformation (see Exhibit 3.1).
Exhibit 3.1
Building Blocks of Organizational Transformation

Source: Ross & Godley, 1996

All of these building blocks owe much to the original thinking of Peter Drucker, who strove to understand how to obtain benefits from the tremendous hurdles taking place in information technology (in Ross & Godley, 1996).

In fact, most of the building blocks for organizational transformation ultimately depend on the prompt and accurate availability of information. It transforms human and structural systems in ways that process and elevate this information into shared knowledge, leading to better decision making and therefore to better performance, happier shareholders, satisfied customers, and motivated employees.

The first building block, decentralization, was used to help companies break down their traditional functional "stove-pipe" organizations into businesses whose performance could be measured and whose managers could be held accountable for profitability, growth, and return on capital employed. However, it also generated some barriers between

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businesses, as well as conflicts between business and functions appointed as allocated overhead.

Next came techniques of total quality management (TQM), derived from Deming's work on statistical process control, which led to various team-based problem-solving approaches generally applied within a work group. TQM allowed progressive performance improvement, and introduced the concept of teams looking at business problems from a fact-based mindset, but in many cases it also resulted in being very time-consuming with relatively small gains.

Then oil companies moved on to business process redesign (BPR), which used techniques similar to TQM but sought improvement opportunities across organizational boundaries. BPR introduced the notion of process thinking and certainly resulted in step function improvements; but all too often it was used as an excuse for manpower reduction, leaving the workforce demoralized and the organization deprived of strategic direction.

The next methodology, high performance business (HPB), linked BPR to strategic thinking and organization structure, resources, and business processes. HPB provided a framework for aligning BPR with strategic direction, but because companies often sensed that the change was being done to rather than by the organization, improvements were often one-time events.

"Virtualization" took the HPB concept and extended it to the full supply chain, delegating more non-core activities in the chain to third parties through out-sourcing. Virtualization helped companies rethink what they should be doing themselves, and what they could get others to do for them more efficiently. Virtualization has taken the gains further by driving companies to focus on core capabilities, reexamine operator-supplier
relationships, and simplify the entire supply chain. However, many operators are now concerned that they may be losing some key capabilities that in fact define what they are as oil companies.

The last block, the learning organization is seen as a way of consciously embedding processes for continual performance improvement within a company.

Even though each block has produced organizational side effects and has been replaced by a new approach, each has made an important contribution to performance improvement. Each has built on the successes of the preceding approach and remains a valid and useful way of contributing to the transformation and improvement of a company.

These approaches for organizational transformation have all played a positive role in increasing the efficiency of businesses both within and outside the petroleum industry.

THE LEARNING ORGANIZATION

Then, why the learning organization? The learning organization is gaining increasing attention among leading companies. According to Christopher Ross (1996), the learning that takes place in a true learning organization is deliberate, highly connected to company strategy, and anticipatory of challenges and threats to the organization. Hanni (1994) defines a learning organization as one that:

(1) defines specific goals linked to its financial bottom-line performance;

(2) ensures that all actions are directed toward meeting those goals;
(3) remembers how decisions are made (i.e., outcomes are predicted and later compared with actual results);

(4) monitors results accurately;

(5) builds an accessible reservoir of experience; and

(6) uses its experience to improve its procedures in order to "do it better next time".

In the presence of so many factors such as downsizing, mergers and acquisitions, rapid technological advances, and global competition, it is not realistic to assume that people in organizations will consistently move down the new paths their management would like to create. By capitalizing on the distinct capabilities of organizational learning, companies can remove many intangible and powerful obstacles to success and accelerate their progress toward the results they value most.

**LEARNING ORGANIZATION AND ALLIANCES**

Alliances are considered among one of the most powerful learning organizational tools. In an alliance, the entire supply chain effectively becomes a single organization and must be able to learn collectively from its experience. Alliances can be fruitful as new perspectives and approaches are applied to a company's business. Worldwide, alliances and partnerships are becoming an increasingly popular method of cost and risk management, as well as a way to increase knowledge creation among interdependent parties in a business.
Generally speaking, every company is part of a collection of firms that influence each other, so as this interdependence grows, the links between them acquire more importance (Bruce & Shermer, 1993). Consequently, it is not sufficient to strengthen the company as an single unit; rather, the links also need to be fortified and made part of the company’s overall competitive advantage.

In the oil industry, by its nature, those links are critical factors in its operation. In this industry, most of the operational activities (usually in the upstream sector) are performed by third parties (that is, about 60-70% of the budget). They are specialized service companies and suppliers that have grown and developed around the oil industry. In recent years, the relationships between operating companies and suppliers and contractors are being redefined around these issues of decentralization and outsourcing.

In this commoditized industry, building a sustainable source of competitive advantage is difficult. Oil companies have entered a race to cut costs, increase efficiency, and gain market share, and it has become such a tight contest that every contender has reorganized, downside, and rationalized to the point that their cost-cutting programs are beginning to hurt themselves.

In response, many firms are turning to strategic partnerships and alliances to find more permanent ways to cut costs and at the same time provide themselves with opportunities to combine capabilities, build enduring and sustainable competitive advantage, and creating value through the entire business.

In a partnership arrangement, the focus shifts from a customer/supplier relationship to the quality/cost of the total work process. All parties benefit by reducing total cost and removing non-value-added work from the entire enterprise -- not to mention the resultant
learning experience. The examples below show how alliances are beginning to accelerate cycle times and create value for the oil industry and the end users.

- In a broad scenario, within the North Sea Area two cost reduction initiatives have been established: CRINE (United Kingdom) and NORSOK (Norway). These initiatives have created a learning and cooperative environment that has allowed performance improvement and cost reductions.

- According to Arthur D. Little, its experience working with companies in the Gulf of Mexico and North Sea has found a division of responsibilities between operators and service companies, and the services may be packaged for best results for the industry as a whole.

- Similarly, a survey by D. Coolidge (1995) from Unocal Corp., regarding contracting strategies in the oil industry, indicates that alliance-type contracts between operators and service companies have been increasing along the U.S. Gulf Coast with a rate of success of nearly 75%.

Further chapters in this thesis will discuss these initiatives in greater detail as well as examples of other alliances in the oil industry.

Strategic alliances are gaining in importance worldwide for many reasons, ranging from access to markets or technologies, to reduction of costs or risk. They may also develop as a method of survival or simply as a way to remain aligned with recent industry developments. As Kanter (1994) states: "Alliances between companies, whether they are from different parts of the world or different ends of the supply chain, are a fact of life in business today" (p. 34).
A strategic alliance combines specific areas of the business of two or more firms. This trading partnership should be established to enhance the effectiveness of the competitive strategies of the partners by complementing a beneficial trade of technologies, skills, services or products among them (Yoshino & Rangan, 1995). Alliances should be established to enhance capabilities already in the firms which, while they may not produce economic value by themselves, can be put to use in productive activity. Capabilities have to be assigned to a project and consciously combined with other resources (Gomes-Caceres, 1996).

Some Definitions

Alliances are created for a variety of reasons and can take a variety of forms, as well. Thus, there are many interpretations of the term and consequently a variety of definitions among authors.

According to Lorange & Ross (1992), one way to define strategic alliances is to look at the continuous scale between transactions on the free market ("market") and total internalization ("hierarchy"). This scale is represented in Exhibit 3.2 and outlines the degree of vertical integration within the trading partnership.
Definitions in this scale are defined as ventures that range from a wholly-owned organization (on the left side) to the free exchange of good and services (on the right side).

An alternate definition, according to Contractor and Lorange (1988), utilizes the same scale but takes into account the degree of interdependence between the firms. The same strategic alliance options presented in Exhibit 3.2 are classified from "high (hard-to-reverse) interdependence in the wholly owned organization (i.e., mergers and acquisitions) to "low" (easy to reverse) in the informal cooperative venture.

Another approach is suggested by Kanter (1994), who states that cooperative arrangements between companies range along a continuation from "weak and distant" to "strong and close". At one extreme, "mutual service consortia", similar companies in similar industries pool their resources to gain benefit that would otherwise be too expensive to acquire alone (e.g. access to an advanced technology).
At mid-range, in joint ventures, companies pursue an opportunity that needs the capability from each of them (e.g., the technology of one and the market access of the other). The joint venture might operate independently or link the partners' operations.

The strongest and closest collaborations are value-chain partnerships, such as supplier-customer relationships. Companies in different industries with different but complementary skills, join their capabilities to create value for ultimate users. Commitments in those relationships tend to be high, the partners tend to develop joint activities in many functions, operations often overlap, and the relationship creates substantial change within each partner’s organization.

Yoshino and Rangan (1995), however, offer a set of characteristics that they consider necessary and sufficient to consider the relationship a strategic alliance:

- The two or more firms that unite to pursue a set of agreed-upon goals remain independent subsequent to the formation of the alliance.
- The partner firms share the benefits of the alliance and control over the performance of assigned tasks.
- The partner firms contribute on a continuing basis in one or more key strategic areas such as technology, products, and so forth.

Returning to the oil industry and considering the importance of these various relationships for the oil companies (producers) and the different contractors and suppliers of good and services in the upstream sector of the business, the rest of this thesis will focus on those type of partnerships.

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CHAPTER FOUR

CRINE and NORSOK INITIATIVES IN THE NORTH SEA

This chapter gives a general description of the basic characteristics of the CRINE and NORSOK initiatives in the North Sea area. These two initiatives have significantly influenced the way the different players in the oil industry work together. They are examples of the efforts that have been made to meet the challenges facing the oil industry in the North Sea region. These initiatives are an excellent example of how cooperation among governments, policy makers, oil companies, service companies, suppliers, and investment decision makers can produce a truly viable option for this industry.

CRINE INITIATIVE

In June 1992, the CRINE (Cost Reduction Initiative in the New Era) initiative began to be developed by the private sector of the United Kingdom petroleum industry represented by the United Kingdom Offshore Operators Association (UKOOA). The reason for conceiving such an initiative was continuing and growing concern about the future of the North Sea region as an oil and gas production area. The following reasons justified that concern:

- recently discovered oil fields in the area had less reserves than expected;
- development and operational costs continued to increase; and
it was expected that the price of oil on the international market would remain low to moderate over the medium/long term.

In September 1992, a formal working structure was created with the objective of identifying and establishing critical issues and mechanisms that would reduce significantly North Sea development and operational costs. This was the foundation for the CRINE initiative.

CRINE’s principal goal was to reduce operational costs by 30% during the first three years, thereby allowing regional oil recuperation levels to improve by approximately 50%. CRINE’s working structure has several groups that were set up to make recommendations within the following areas:

- government regulations,
- standardization of design norms, engineering, equipment uses, and quality specifications,
- standardization of contractual agreements,
- identification of strategies to drive the needed cultural change that would enable the CRINE initiative.

The activities of these groups are coordinated by a steering group that includes general managers from the different operational companies that work in the United Kingdom petroleum sector. The initiative is building a foundation for establishing a new operational philosophy in the oil and gas industry of the North Sea region, thereby allowing the different participants to improve, on an ongoing basis, various operational practices, while sharing the risks and rewards among them.
CRINE's Vision Statement

We are committed to establishing an oil and gas business culture that demonstrates performance improvement through a continuous learning process that benefits all participants. (CRINE, 1996)

The following comment about CRINE's mission also appeared recently:

We live in a world where the supply of oil and gas is expected to outstrip demand for many years to come and, with oil company planning being done on $14-$16 barrel (and some pundits predicting a possible price of $10 barrel), world-wide competition for investment funds continues to be fierce. So, the obvious necessity for keeping the cost of finding, developing and producing oil and gas at levels that make our business safe, efficient and competitive, continues. (Curtis, 1996)

Since its inception, CRINE has had a dramatic effect on the safety, efficiency, and economics of North Sea oil and gas field development and operation. Very significant cost reductions have been demonstrated on numerous projects as a direct consequence of, for example, reduced duplication of effort, the move to standard designs and construction methods, the rationalization of documentation, and the use of functional specifications. From the contractor's perspective, such specific initiatives must inevitably submit to the law of diminishing returns. However, on the positive side, a culture of cost reduction is now firmly rooted in the industry and will continue to influence all their thinking and actions.

Advances in Technology

Over the years, the North Sea has probably seen the application of more new or improved technology than any other oil and gas province in the world. It is an indication of the resolve of the industry to capitalize on new ideas, that they are already seeing
engineers making use of virtual reality techniques to improve the design and facilitate the fabrication and installation of offshore production facilities.

CRINE has focused more on surface technology than the equally important sub-surface. In this area advanced drilling techniques will continue to drive down the costs of field development. Logging while drilling presents an excellent opportunity to reduce the cost per barrel, enabling formation data to be collected during the drilling phase, reducing time and improving efficiency, and allowing what is known as "pay zone steering", whereby the wellbore always maintains the reservoir. Coiled tubing applications will increase, reducing the cost and time taken for workovers. Multilateral completions will become more common, enabling two or more branches off the same wellbore to reach out to different zones/reservoirs. The combination of such techniques provides enormous potential for cost savings and efficiency gains.

These cost reduction efforts through the innovation processes, technology transfer processes, and new operational practices, will continue with greater emphasis. These processes will be joined by regional governments that have shown a willing to work together with the operational companies to create and maintain the right mechanics, oriented to assuring that the North Sea remains a significant non-OPEC oil source.

The following are the principal identified key technologies in the cost reduction process and the incidence measurement:

- **Seismic**: has increased the probability of finding petroleum by 40% and at the same time achieved a 30% decrease in drilling costs.
• **New drilling methods**: the new drilling methods of extended and horizontal drilling have allowed 40-60% development and infrastructure cost reduction in closest oil reservoirs.

• **Subsea production**: requires lower exploitation costs for marginal oil system reservoirs located close to existing infrastructure.

• **Floating production**: allows lower exploitation costs of oil reservoir systems located far from existing support infrastructure.

• **Construction sea units**: 30-40% reduction in cost construction over current construction units due to innovation processes.

• **Platforms design**: new platforms design that allows 1,000 ton/platform structural steel reduction equivalent to $40 million.

**Emerging Business Relationships**

Gaining the maximum benefits from technology depends on its effective application, which in turn depends on the quality of the relationship between the main players in the industry -- the operators, contractors and major suppliers. The development of this relationship is the key to the continued prosperity of this industry.

Strategic alliances for major capital projects, and partnering during the operational phase, have proved of immense worth in maintaining the competitiveness of the North Sea, enabling the development of fields previously seen as uneconomic and prolonging the life of mature assets. A whole new set of terms to describe this kind of arrangement -- gainshare, win-win and risk-reward -- has entered the offshore vocabulary. The key to the success of these arrangements has been well-documented. They enable the project interfaces
to be managed more effectively and they remove unnecessary constraints on cooperation, enabling contractors and suppliers to obtain a far greater appreciation of the operator’s requirements and ensuring that all involved on the project are aligned and focused on the same goals. At a minimum, they generate an innovative atmosphere. The creative application of existing technology by multidisciplinary teams, often drawn from several companies and stimulated by this kind of environment, has resulted in considerable cost savings on a number of projects both in the capex (capital expenditures) and opex (operational expenditure) phases.

The following projects have been executed utilizing the most representative alliance forms considering CRINE best practices.

**Cleeton Compression Project Alliance**

The Cleeton Alliance is a team of companies with a common goal to achieve outstanding success for the project (BARMAC, British Petroleum, Dresser-rand, Trafalgar John Brown, and SHL Seaway Heavy Lifting). It was formed in 1994 to add a compression platform to the existing facilities located 30 miles northeast of the Humber statuary. In 1988, at the conception stage, it was expected that the cost would be £100 million and for the development to be commercially attractive it was necessary to find ways of making cost reductions. At present, the target cost is £33 Million (67% cost reduction).

Project firsts include:

- the first project to have a supplier as a full participant in an alliance;
- the first project to fully utilize life-cycle techniques to set and link CAPEX and OPEX gainshare;
• the first BP project to involve major modification to an existing operating platform on an alliance basis and under an existing safety case based on a pre-Cullen design;
• the first project to make use of common working practices arising out of the CRINE initiatives.

These firsts have been managed in a project culture where CRINE principles have been fully exploited to achieve outstanding success.

**CATS Terminal Expansion Project**

Project team vision:

We are committed to expanding the Central Area Transmission System to provide facilities setting the global standard for safety, operating flexibility, reliability and cost, while creating positive environmental impact. We do this through extraordinary performance, communication and successful partnerships, utilizing the innovation and full potential of all project participants. (CRINE, 1996)

The Central Area Transmission System (CATS) has undertaken a major expansion of its onshore processing facility, and expects to set a new global standard for onshore terminal projects in the process. CATS is Britain’s newest North Sea transportation and processing system and the first to bring offshore natural gas directly to a major industrial heartland. CATS provides a common infrastructure system for fields which on their own may not have been able to support the construction of dedicated transportation and processing facilities.

Operated by Amoco in partnership with British Gas, Amerada Hess, Phillips, Agip and FINA, and completed in 1993, the system can carry in excess of 1.6 billion cubic feet
of gas per day from fields in the central area of the North Sea via a 36 inch diameter, 255 mile-long pipeline to Teeside.

In 1994, work began on a major new project to expand the existing CATS terminal to provide processing facilities for 600 million cubic feet of gas per day. Due to be completed in September 1997, the expansion will allow CATS to feed gas via a new pipeline link directly into the National Transmission System for wider market distribution. In line with the objectives of CRINE, the project is producing significant cost savings enhancing safety, environmental performance and future plant reliability.

Savings are being made in a variety of areas, including equipment selection, compressor configuration and construction costs. The savings are projected to come not only during design and construction but also over the plant’s full life-cycle of operation. The contract includes an incentive-program that shares future cost savings between the CATS group, the contractor and the contractor’s employees.

Those and other achievements involved in the initiative CRINE have contributed significantly to securing the future of the U.K. oil and gas industry. The UK is now seen as the world leader in cost reduction, giving companies involved in the UK oil industry a substantial competitive edge. In the same way, this initiative is influencing the operational practices in the worldwide petroleum industry. The CRINE initiative has set a historic milestone in the international petroleum industry’s future evolution.

**CRINE effects**

At the regional level (North Sea), CRINE has had fundamental effects. In Norway the NORSOK initiative evolved with similar philosophical characteristics to the CRINE but
with more ambitious cost reduction goals. In the same way, Denmark and The Netherlands have identified the need to establish comparable initiatives.

Another influence in the area of international operations is in the fact that U.S. companies are reviewing the U.S. anti-monopoly law limitations in the application of some of the recommendations included in the CRINE initiative.

NORSOK INITIATIVE¹

The NORSOK initiative was started in the summer of 1993 by Finn Kristensen, the Norwegian Minister of Industry and Energy. He established the Development and Production Forum for the Petroleum Sector, with top managing directors of the oil and gas industry, including the politicians and authorities concerned.

The cost of exploration, development and operation was escalating to an alarming level, while the price of oil was dropping. Exploratory drilling in the last few years had found few discoveries of larger fields, while many small discoveries were uneconomical to develop with current technology.

The main goal for the Forum was to identify potential cost improvements in field developments and petroleum policies that would make the Norwegian Continental Shelf (NCS) more competitive with other petroleum-producing provinces and thus attract further investment. Two subsidiary objectives were formulated when NORSOK was launched:

¹ Much of the information for this section was adapted from information found on the NORSOK Internet Web page (http://tcvnet.mo/norsok/)
• a 40-50% reduction in cost and lead time over the next five-year period, based on best practice in 1993.

• Good results have been obtained from work with safety and environmental protection on the NCS, and Norway’s oil industry can reasonably be described as one of the safest in the world.

The consequences of this initiative were expected to be a continuation and prolongation of North Sea activities, with continued employment and commercial activities in the oil and gas industry. This industry currently provides substantial income to Norway, so it was as much a political issue as an industrial matter.

**The NORSOK Process**

The Forum agreed on overall goals and strategies for the improvement process. A steering committee was established to set specific targets and manage the work groups that were set up to make recommendations within specific areas. A key success factor was that the work groups, the steering committee, and the Forum were established with participants from the government, oil companies, suppliers and contractors. Exhibit 4.1 illustrates the NORSOK structure.

Equally important was that top line management positions were engaged in the various work groups. This line management involvement meant that recommendations agreed in the work groups could be implemented immediately in ongoing development projects and operations.
Exhibit 4.1
NORSOK Initial Structure

Development and Operations Forum
Chairman: Minister of Industry and Energy
CEO's: Industry and Authorities

Steering Group

Workgroups:
• Cost analysis and benchmarking
• Standardization
• Operator and supplier relations
• Information and documentation
• Base and transport activities
• Health, Safety, and Environment
• Policy issues

Source: NORSOK Web page

In February 1995, seven reports were presented with more than 150 recommendations. The reports were the result of teamwork and cooperation within the petroleum industry and gave the group ownership for the entire content of the reports. The recommendations included frame conditions from the authorities, cooperation between oil companies and suppliers, standardization, HSE, information and documentation.
A secretariat was established to implement these recommendations. This secretariat will be operative until May 1997 when all major recommendations are expected to be implemented in existing or permanent organizations.

Today, three years after the NORSOK idea was introduced, the goals have already been met in several areas of the petroleum industry. As a matter of fact, some companies admit that the 50% cost reduction ambition was to low.

To visualize some of the results of the NORSOK process, the following three different areas are presented as examples: documentation, development costs, and project execution time.

**Documentation** - Measured in the form of number of specifications issued from the oil companies, it has been reduced by a ratio of 1:20 compared to a few years ago. The main reason for this is that a detailed case-by-case descriptions is being replaced by a set of common technical standards and working practices. These standards are more functional, thus leaving it to the supplier to design and document his own product. Another important factor is that the NORSOK process has led to a critical evaluation of all documents. Through this process all non-value-adding documents are removed.

**Reduction of development costs** - Between 30% and 50% reduction has been achieved by implementing work processes and cooperation models that allow for creativity and innovation in all aspects of the project development:

- innovative development concepts
- new project execution strategy
• early involvement of the supply industry.

*Project execution time* has also been reduced dramatically as a consequence of the NORSOK process. This is illustrated by the Valhall wellhead platform (Norway 1996). Compared to previous projects in Norway, the project execution time for these types of projects has been reduced from 22 to 10 months.

An international benchmarking done by API shows that the execution time and development cost realized by the Valhall project are among the best in the world -- at "pace-setting levels."

The following section will presented more in greater detail the major changes in the Norwegian petroleum industry:

• new petroleum act
• new business models
• integrated teams and incentive contracts
• the NORSOK standards
• the NORSOK success factors

*New Petroleum Act*

To achieve a fundamental change in an industry, everyone involved -- directly or indirectly -- has to change attitude and work practices. This also applies to all governmental bodies with the power to influence the performance in the industry.
To encourage a more efficient industry, the Norwegian authorities have updated the Petroleum Act to facilitate parallel activities, less documentation, and more flexibility in the relinquishment of acreage.

Based upon the new Petroleum Act, the Norwegian petroleum directorate (NPD) presently is initiating a major revision of all regulations governing the petroleum industry. In general, the new rules and regulations will lead to more flexibility, faster decisions processes (2-6 weeks), and less documentation for approving a new field development.

**New Business Model**

The NORSOK process has led to the development of a new business model and work processes. The model focuses on the chain of tasks and activities that is necessary to bring a discovery from the state of "commercial discovery" to a producing field.

In the old model, the value chain was split into several phases. Each phase was managed and manned separately. After completion of each phase, the project was evaluated and decisions were made whether to continue or to stop the project. The supply industry was involved at a later stage when the project was documented and described in detail.

In the new model, a core management team of highly qualified managers is set up early in the process. This management team assumes total responsibility for all activities necessary to bring the field into production in the most cost efficient manner. This includes all activities, beginning with defining the business concept and ending with a field in production. Based upon agreed strategies, the team is empowered with the necessary decision authority to accomplish its assignment.
To ensure that the suppliers’ competence in designing and constructing offshore facilities is utilized, the suppliers are brought into the project at an early stage. This is done by integrating personnel from the operator and the suppliers in the same project organization. Personnel are chosen based on the man best fit for the job.

**Integrated Teams and Incentive Contracts**

Until now, the contract models have been based upon well-defined tasks and interfaces. In the new business model, suppliers are involved when the project is not yet well-defined. As a matter of fact, they are involved in defining the project. This new way of working has led to the development of new contract models that focus on establishing common goals and incentives between customer and supplier. This is achieved by defining a target sum and letting the customer and the supplier share the reward if the project is executed cheaper than the target. By this mechanism both the customer and the supplier have an interest in developing the project in a cheap and efficient manner. All new projects in Norway are currently working in line with this contract model.

**The NORSOK Standards**

An important element in achieving improvements in the Norwegian industry is the introduction of common norms and specifications. The Norwegian oil companies and the supply industry have worked together to establish a common set of standards and working practices, the so-called NORSOK standards. These standards replace the internal, and quite often detailed, specifications for each oil company. This allows for simplification and
rationalization in the supply industry because the industry meets the same requirements regardless of which oil company is placing the contract.

From the supply industry's perspective, they now have to deal with only 130 common standards instead of the previous 1500-2000 different operator-specific documents!

The NORSOK standards are international in the sense that whenever an adequate international standard exits, whether API, ISO, CEN, or others, these standards are referred to. All NORSOK standards are easily available on the Internet. At this moment, more than 200 persons from 40 companies are actively involved in improving and updating the NORSOK standards.

**The NORSOK Success Factors**

The NORSOK process implies a fundamental cultural change in the industry, including extensive learning and readjustments. There is full agreement about this and the areas in which the industry has to concentrate to further improve the processes. These areas are referred to as the NORSOK success factors: value adding, simplification, global view, learning, standardization, teamwork, openness, and courage. These success factors have initiated the greatest results until now in the NORSOK process. Learning and improvement processes have continuously been on the agenda in the industry and many of the results would have been obtained anyway. However, the coordinated efforts and openness have offered the whole industry a quantum leap forward which otherwise would have been reserved to some particular companies.

In the opinion of some Norway industry insiders there is a new climate for cooperation and team performance. Despite the general knowledge that this method of
project execution reduces manhours and ultimately the need for employees, there is a generally positive attitude in the industry. One of the major reasons for this is that if they do not find a cheaper way to build the offshore facilities, there will be nothing to build. The oil and gas that is produced would not cover the capital expenditures for the production facility. This lifecycle cost perspective is very well understood these days.

The NORSOK initiative seems to be exceptional with respect to the involvement from the authorities and the unions. The authorities has applauded the results and have, through their participation, been instrumental in framing conditions that have made it possible to reduce project lead times by several months. It is especially worth mentioning the revision and simplification of the governmental field approval procedure, known as PDO (plan for development and operation), which makes it possible for the oil companies to engage the supply industry at an early stage in the field development process. As Jonstein Ravndal, President of the NORSOK Secretariat, said: "The challenge is to create the arena for trust throughout the entire industry".

**SUMMARY**

CRINE and NORSOK have been successful in reducing North Sea upstream costs thereby enabling it to sustain production and prolong the life of the region. Both realized that they were living a survival mode situation in the region, and that they needed to change dramatically the way they were operating.
The following Exhibit 4.2 shows the average operational costs reductions (1993-94) that have been realized in the North Sea area as a result of these initiatives:

<table>
<thead>
<tr>
<th>AREA</th>
<th>1993</th>
<th>1994</th>
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<tbody>
<tr>
<td>United Kingdom</td>
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<td>Norway</td>
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One common factor regarding their success is that both initiatives enjoy the presence of an organization that acts as a leader and integrator: the UKOOA (UK Offshore Operators Association) in CRINE, and the Minister of Industry and Commerce in NORSOK. Both appointed and involved all the players in the clear objectives of the project from the outset. Commitment from the top management of oil and gas companies, including politicians and authorities, played a key role. The working structure in each case was linked to the processes they needed to improve and optimize. They set very precise milestones in cost reductions and process enhancement which allowed them to visualize the improvements and evolution of the process. The follow-up process was complemented with communication programs that fostered a learning environment. All those factors together have created a culture of cooperation and innovation in the region.
CHAPTER FIVE

ALLIANCES IN THE OIL INDUSTRY

This chapter presents some specific examples and schemes of alliances between operator companies and their services and supplier contractors. This information is based on alliances documentation found in technical journals and from interviews conducted with company managers.

INTRODUCTION

As indicated in previous chapters, one characteristic of the oil industry is that 60-70% of its expenditures are related to the acquisition of goods and services. Thus, each oil company (operators/producers) has a network of service and supplier companies that represent a key part of their operations. Any effort to improve these relationships and enhance efficiency in common areas will be reflected in greater capabilities within the industry and among its players.

There are numerous ways to establish alliances, but through all of them run some common processes that represent the key issues regarding success and goals achievement for the involved parties. Among these issues are: partner selection, alliance organization,
risk/reward sharing system, payment schemes, performance improvement measurements, and alliance control. These aspects will be discussed in the alliances that are presented below.

Additionally, there are some basic activities that make up the principal sources of expenditures in the oil industry. The alliances presented below exemplify those areas.

**DRILLING ALLIANCES**

Drilling expenditures account for 50-80% of total exploration costs and 40-70% of total oil field development costs (Gahan, et al., 1995). So, major efforts have been done regarding reduction costs in this area. The use of integrated drilling services and alliance-type contracts has become economical and more practicable for many operators and service companies worldwide (Deffarges, et al., 1994). The alliance-type contract may provide a better balance of risks and rewards shared equally among all operator and contractor parties than many standard day rate and turnkey contracts.

Continued weak oil prices and higher drilling costs because of deeper and less-accessible reservoirs, greater safety and environmental requirements, and increased material and equipment costs have created a strong drive to increase both effectiveness and efficiency. Clearly, a different approach to the drilling process is required.

Purchasing decision strategies and policies are being developed with a view toward total life-cycle cost and partnership rather than solely on purchase price. There is an emphasis on cost reduction for both equipment and drilling services through the following:

- Earlier and broader involvement of suppliers and service companies.
- helps stimulate new thinking if an integrated team approach (operator and suppliers) is adopted in which all parties work together to develop a solution for the well or drilling program. This process may result in breaking conventional oil company wisdom.

- Standardization of equipment or contractual arrangements

- brings benefits in terms of increased interchangeability of spare parts and reduced inventories and creates a greater opportunity for co-management of maintenance, refurbishment, and inventories. Clearly, by using standard equipment and letting the supplier manage inventory, the oil company can share in some of the scale economies made by the supplier that offers the same service to a number of other oil companies.

- Co-management of maintenance, refurbishment, inventory, and freight

- Elimination of low value added activities.

- Third-party testing, unnecessary operator supervision, and other low-value-added activities can be targeted for elimination through increased partnership.

Alliances Types

A broad classification of these alliances in the oil industry is presented by Coolidge (1995). According to his analysis, there are basically four types of alliances practiced in the petroleum industry today. In the first type, a customer (operator) makes agreements with a set of approved or preferred vendors in hopes of reducing his purchasing or
administrative costs, improving quality, or increasing communication and efficiency. This arrangement can be modified to include a first/second call status where the vendors will be used according to their preferred status. This method is popular for commonly used items such as rental tools and supplies.

In the second type, a customer commits 100%, or a significant portion, of his business to a single vendor for a specific product or service. In return, this sole supplier usually offers better price discounts or commits to increased quality or special working obligations, such as sharing risks, technologies, etc.

Integration of services is the goal of the third type, in which an alliance is formed between a customer and several suppliers in hopes of increasing communication, efficiency, and reducing costs. These suppliers agree to align goals, share risks or technologies, and work closely with each other to increase efficiency and communication. Exhibit 5.1 illustrates this type of alliance.

Exhibit 5.1
Integration Services Alliance

Source: Deffarges, et al., 1994
The fourth type, which is the most controversial, involves a customer forming an alliance with a single integrated supplier that has a wide range of services and products as well as the capabilities of assuming a significant portion of the engineering or planning involved to execute a project. These suppliers are also usually asked to share a substantial portion of the risk.

There are two main variations of these controversial alliances with major integrated service companies: the single vendor and the lead contractor. In the single vendor alliance, the major service company serves as the coordinator of activities between the operator (customer) and the various service groups (wire line, cementing, etc.). The operator retains control of all decision making and management of daily activities. Discussion with specialists from each service group is usually required for detailed planning and execution. Exhibit 5.2 illustrates this relationship.

Exhibit 5.2
Single Vendor Integrated Service Alliance

Source: Defforges, et al., 1994
In the lead contractor alliance, the major service company is responsible for coordinating the completion and well servicing activities, and the drilling contractor is responsible for coordinating the drilling activities (Exhibit 5.3).

**Exhibit 5.3**
Lead Contractor Integrated Service Alliance

![Diagram of lead contractor alliance]

Source: Coolidge, 1995

This form of an integrated service alliance gives both the drilling contractor and the major service company more control of their operations but usually requires them to assume more risk as well.

Some operators have provided the conceptual well design but allow their partners to handle some or all of the actual well design, planning, and execution. These operators hope that both the drilling contractor and service company will be more efficient in executing their operations when they are given more control of the operation.
Even though these alliances between operators and services and supplier companies were established to illustrate typical arrangements in drilling activities, it is applicable to any other activity in the industry.

One interesting experience in drilling alliances was one that ARCO established in the North Sea area three years ago (Bullard, 1997). They analyzed their drilling process and detected some unsatisfactory situations. They realized that for a typical well they could have as many as eighty contractors involved. This situation required a great deal of time from their engineers in bidding and administrative contractual activities and coordinating contractors. This resulted in duplication of activities, rework, and low value-added activities which added to increased costs and productivity decreases.

After analyzing different options, they agreed to establish a long-term partnership with five contractors. The criteria used to select the contractors were:

- best company performance in each activity
- best resource for the job
- best cost/effective technology
- competitive in their field
- willing to establish long-term relationship and work in a team environment.

Based on these criteria, they chose Baker Hughes, Anchor Drilling Fluids, Schlumberger Wireline & Testing, Anadrill (to test especial tool), and some rig contractors. ARCO provided project management and engineer skills.

As a fundamental issue for success in the alliance, the first thing they did was to obtain the commitment of top management in each company and then the rest of the personnel involved in the alliance. ARCO and their partners agreed to plan and budget each
well together, aligning clear goals and sharing risk/reward schemes. This is a time-
consuming activity but in their experience the rewards have been worthwhile.

They agreed to share the savings obtained in each well, based on the budget previously
fixed among them, in the following proportion: 50% to ARCO and 50% distributed evenly
among the contractors. Technical personnel from each company worked together, some
located in ARCO's offices.

After the first year they have achieved a 50% cost reduction and one of the best
drilling rates in the North Sea area. Along with these achievements, they also accomplished
improvements in many processes and engineering efficiency. They are considering
implementing this program in other areas.

PRODUCTION-ENHANCEMENT ALLIANCES

Production-Enhancement projects are creating changes in business relationships
between oil and gas and services companies. The most successful projects are building
partnerships. Producer companies are asking service companies to share the risk while
supplying services to enhance well performance.

The bidding process is being replaced with partnerships because more benefits can
be obtained. In the typical "low-bid" scheme, the operator plans the project, designs the
job, and distributes the job specifications to several suppliers to bid the services and
materials. In many cases, the operating company selects the supplier on the basis of the
lowest price. This type of arrangement gives little incentive to the service company to
enhance production. If the job goes as required, the service company considers the job a success. However, the job may not have achieved the expected production increases for the operating company. Project profitability and continuous quality improvement can be compromise in this scenario.

The alliance/partnering business arrangement becomes an excellent option to achieve continuous improvement. Coupled with incentives to the project worker, this new approach may be the best solution to achieving maximum performance and total-project cost optimization.

The main objective of the production-enhancement project is to identify existing wells that have the largest potential yield for return on investment with a treatment that increases the well's production and/or ultimate recovery.

In this new business agreement approach, the producer company involves the service company in project planning and job design and focuses the service company on similar success measurements (e.g., a targeted production increase at an optimized cost). Additional incentives can be established and agreed on that will allow the service company a bonus for exceeding the targeted production-enhancement goals or penalties when goals are not attained. This establishes a "win-win" business environment by placing the service company as a value-added provider.

**Well Selection Process**

Because the well selection process is a critical factor in this type of alliance, the following recommendations have been successfully applied in several production
enhancement projects in the U.S. gulf coast, south and west Texas, and Michigan (Coble, et al., 1996). The flow chart (Exhibit 5.4) shows the process relationships and their owners.

Exhibit 5.4
Production Enhancement process flow chart and process owners

Source: Coble, et al., 1996
1. **Establish Project Objectives:** The first step in the process is to establish a clear understanding of the expectations of both the oil company and the service company. Project objectives, limitations, and financial arrangements need to be defined to ensure complete agreements and project success. The ownership of existing and developed technology needs to be addressed. With a master service agreement in place that addresses liability and loss issues, many partnerships do not require a formal contract. A project team must be assembled, and all members must know their area of responsibility and authority. The payment scheme, usually a shared risk/reward system, has to be established and agreed on. Special attention must be given to make the plan a benefit for all by preventing it from becoming a competitive event.

2. **Gather and Review Data:** Data gathering can be a time-consuming and costly part of the project. Data is often located in many different places, including databases kept by individuals. Usually, the producing company’s geoscience and production personnel will have the required data. Individual well data are more difficult to gather and are very important for selection and prioritization of well candidates. In reviewing the data, identification of existing problems is crucial to making the best decision with regard to selecting and prioritizing well candidates.

3. **Analyze Well Performance vs. Reservoir Quality:** A geoscience team normally analyzes the data, establishes the selection criteria, and provides a list of possible well candidates. This team is preferably populated by employees of both companies. The number and disciplines of team members depend on the requirements.
4. **Selection and Prioritization of Well Candidates:** The selection of well candidates depends on the type of treatment required to improve production. The comparisons are relative and depend on having a reasonable understanding of current reservoir behavior and field operations. The treatment types generally fall into three categories: simulations, conformance, or recompletions/workovers. The selected well candidates require careful evaluation by the proper field personnel. The purpose of these evaluations is to ensure the best return on investment with the lower risk of failure.

5. **Review Job Histories:** An important phase in ranking wells is to take into account past job histories and develop an understanding of the technologies used to perform these treatments or jobs. This is crucial to improve future operations. Personnel build on successes and learn from failures. This process is done by the field operations team that has the local knowledge and previous documented results.

6. **Design Jobs/Treatments:** Jobs are designed with past histories as a starting point. Procedures are constructed on the basis of theoretical studies with well/reservoir data and current best practices that use recent proven technology. In a partnership, specific treatments are designed for each well. Generic designs for the field/area are not longer used. The service company can add value to the project through its expertise, proven technology, and practices that have worked in other similar areas. The field operation team should include personnel from R&D to ensure the latest techniques and technologies are implemented. The team should also have laboratory personnel who can analyze rock and
fluid samples to ensure compatibility. Specialized software is used to design stimulation treatments and predict the production improvement resulting from the treatment.

7. **Perform Jobs/Treatments:** The job/treatment performed by the service company would not be affected by implementing a partnership. The biggest impact of partnerships occurs before and after the job/treatment is performed.

8. **Monitor Cleanup and Results:** After a treatment has been performed, the well should be monitored during cleanup. The manner in which a well is allowed back in production is critical to obtaining optimum performance. Cleanup times need to be taken in account when determining the production increase used in the payback scheme.

9. **Document Results and Continuous Process Improvement:** The parameters to be measured and documented need to be agreed on early in the project. A common database should be established and personnel assigned to update it. The data will be used to improve processes continuously, to lower total-project costs, and to improve profit margins for all companies involved.

Besides well selection, Coble et al (1996) considered some critical factors in these type of alliances. Among them are:

**Partner Selection:**

This is a key issue in establishing a successful business arrangement. The traditional adversarial atmosphere in contracting must be changed to focus on total-system cost and
value added. Producing companies focusing on individual prices are not ready for partnering and for working in an alliance business environment. In the same way, services companies that are not willing to take risks are not ready for this new business arrangement. Potential partners must be open to new business methods, willing to build teams, understand quality-improvement programs, and be committed to work together to improve work processes and reduce duplication.

**Payback Schemes:**

As well as many other aspects regarding alliance managing, the commercial aspects have to be agreed on up front. The idea is to reward the service company for improving the profitability of the oil company and to penalize it if the agreed-on production and total project cost goals are not achieved. The level of risk must be equivalent to the reward available if the goals are achieved.

The following are two possible methods:

*Method 1:* For individuals or group of wells, a market price is paid for a target production rate. If this rate is exceeded, a bonus greater than the fixed market price is paid for the job. If the target rate is not achieved, then a discount is applied to the service company as a penalty. Exhibit 5.5 illustrates a well-payback scheme.

*Method 2:* This methods of payback is applicable when an existing field-decline rate is agreed on. A percentage of the production increase resulting from the treatments is paid to the service company for a specified time to pay for the service work. Exhibit 5.6 illustrates the field-payback scheme.
Exhibit 5.5
Well Payback Method

Source: Coble, et al., 1996

Exhibit 5.6
Field Payback Method

Source: Coble, et al., 1996
Performance-Measurement Systems

These are critical for evaluation of partnerships. The variables to be measured must be mutually established early in the project. If a variable cannot be measured, it cannot be managed or improved. Measures are related to job performance, production improvement, and project cost. Preferable is to use existed measurement systems adapted to the project. Productive time may be wasted developing elaborate systems.

FRACTURING ALLIANCE

The alliance presented is a fracturing alliance initiated in 1990 between Chevron and Schlumberger Dowell with the goal to develop California’s Lost Hills field (Klins, et al., 1996). This is a type of field development alliance with an important technological development (R&D) component involved.

California’s Lost Hills field offered a high production potential applying hydraulic fracturing treatments to its low permeability diatomite reservoir. Motivated by the significant volume of oil in place in this reservoir, Chevron assembled a self-directed project team to review investment opportunities. This group concluded that a significant number of wells remained to be drilled and the net present value of the Chevron Lost Hills asset could be significantly enhanced through reductions in drilling and fracture stimulation costs. Additionally, this reservoir had unique and poorly understood properties which required additional technical evaluations and changes in the basic fracture stimulation design available at that time.
The project team recommended development of a long-term relationship with a single fracturing service company to accomplish the full potential of the field.

The following information illustrates the alliance implementation, structure, and results:

**Partner Selection**

Chevron conducted field performance evaluations of several fracturing service contractors between 1988 and 1990. The main criteria were job execution, job monitoring, environmental and safety performance, and services and material costs. In this way, Schlumberger Dowell was chosen as the alliance partner and both companies began working together to develop the formal alliance document and other structuring issues.

**Alliance Organization**

The key components of the alliance structure (Exhibit 5.7) are the following:

- An alliance steering committee, which sets the overall direction.
- Two alliance managers (company/supplier).
- Two alliance team activities coordinators (company/supplier).
- Two additional members (company/supplier).
- Technical teams, which continuously improve fracturing design and field development through production and reservoir evaluation.
- Quality-improvement (QI) teams, which develop and administer performance metrics systems through continuous process improvement.
The foundation of the alliance structure was the five concepts of quality. Both company and contractor personnel attended group team-building sessions where they developed a mission statement, long-term objectives and discrete responsibilities for the major alliance teams: the alliance steering committee and the alliance coordinators.

**Alliance Steering Committee Responsibilities:**

- Develop mission statement.
- Plan and budget (short and long term).
- Empower alliance coordinators and other ad hoc teams, such as technical teams.

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Source: Klins, et al., 1996.
• Develop "gain-sharing" compensation process between company and contractor.

• Develop environmental, safety, and performance goals.

• Evaluate alliance financial performance and communicate to upper management.

• Recommend or approve changes to the alliance.

Alliance Coordinator Responsibilities:

• Make "on-site" decisions concerning alliance financial and operational matters.

• Interface with company and contractor engineering and operations staff.

• Develop optimum drilling and fracturing stimulation schedule.

• Establish and monitor “service quality improvement” metrics.

• Spearhead technical and quality improvement ad hoc teams to achieve continuous improvement.

• Develop and implement training programs for personnel of both companies.

The technical team works on long-term issues that are beyond the scope of the alliance coordinators' responsibilities. The quality improvement team, also known as the total cost of ownership (TCO) team, is a cross-functional team represented on all levels and with the goal of taking the value of the alliance to the next level. It will look beyond current alliance control to the total cost of well development.
Performance Monitoring

A metric system was developed and associated processes to measure the alliance performance. Two different groups of metric were developed.

Service Quality Index (SQI): This was designed to measure each fracture stimulation treatment in terms of environmental, safety, equipment, and personnel performance. This is compared with an "ideal" (or as designed) within certain allowable performance ranges. Through measures the alliance steering committee can identify improvement opportunities and recommend process changes.

Performance Metrics: This was developed to measure the financial impact of the alliance on total fracturing expenses. These values are used in the compensation process. It is the most direct way of measuring how performance improvements impact stimulation costs. These metrics are rigorously monitored, evaluated and communicated through the alliance partners’ reporting processes.

An additional system is used to monitor and evaluate the physical parameters (e.g., pressures, rates, and volumes) observed during each treatment. This information is stored in a database and use to improve fracturing stimulation design.

Compensation

It took two years to establish an equitable method of sharing the savings generated through the process improvements. A compensation equation was established as follows:
company invoice rate = (market adjustment factor) x (volume adjustment) x (performance adjustment)

where:

Market adjustment factor = the 12-month running average of the North American "lower 48 rates" average fracturing invoice amount divided by the full "book" price.

Volume adjustment = a fixed value from 0 to 1 which is related to the value of the significant annual volume of fracturing activity performed by the contractor.

Performance adjustment = a weighted average calculation involving the annual percentage reduction of the two performance metrics presented above. This factor is greater than one in the event that net savings are realized on an annual basis. The effect of this factor is to reward the contractor by relatively increasing the amount of book price paid by the company for future work (gain sharing).

Compensation is re-evaluated on a quarterly basis, and changes are implementing immediately.

Results

This alliance has been effective at reducing investment cost per stock-tank barrel of reserves developed. Unit fracture costs have been reduced 40% since 1988, while production has increased 160%, allowing both companies to improve profitability. Many improvements have helped to increase field oil production and lower fracturing costs.
Among them are included process improvements as stimulation treatment design in basic fracturing design, polymer type and gel loading, additives, proppant ramp modification, and pad volumes. In operational improvements can be mention central-site fracturing, water-supply system, high-pressure fracturing line, activity scheduling and logistics, and fracturing equipment.

**SUMMARY**

The types of alliances presented in this chapter give some idea of the different ways to establish commercial partnerships between operators and services/supplier companies performing main activities in the upstream oil business sector. These arrangements are different from the usual low-bid scheme, where the operator plans and designs the scope of the project or activity and, among several qualified suppliers, bids the job. With the traditional approach, the winner -- usually selected on the basis of lowest price -- performs the job as was requested. If the job is finished as required, the service company considers the job a success even though the operator has not achieved the anticipated operating results. Under this scheme, the focus is basically oriented to the cost of the service instead of the value the exchange can add to the process. In addition, during the execution of the job, a lot of energy is concentrated in administrative, control, and payment issues, thus diverting the attention of technical personnel from other important matters.

The key issue is to analyze if, by the nature of the exchange, the integration of processes and knowledge can be achieve continuous improvement and at the same time
reduce costs and execution time. If this is the case, alliances offer advantages not available in normal low-bid situations.

Among the main benefits of alliances as compared with those low-bid processes are:

- Establishment of common goals during the joint planning process.
- Sharing of knowledge, experience and, in some cases, leveraging technology.
- Optimization of common processes and elimination of waste-reducing administrative procedures.
- Additional incentives to the contractor by sharing risks and rewards.
- Development of a foundation for innovation and collaboration.
- Service company becomes a value-added provider.
CHAPTER SIX

FRAMEWORK AND GUIDELINES
FOR STRATEGIC ALLIANCES

This chapter presents some guidelines and frameworks when considering a strategic alliance. These were derived from the experiences discussed in the previous chapters, as well as from library research and personal interviews with industry managers.

INTRODUCTION

As discussed in previous chapters, alliances may have different motivations and take a variety of forms. However, a common thread in most alliances is that it should be established to improve efficiency and productivity by:

- reducing costs
- avoiding redundant activities, and
- sharing skills and access to leveraging technology.

In addition to these benefits, alliances are distinguished from other kind of contracts by their ability to enhance and leverage core capabilities in the partners' organizations.

It should be understood that an alliance is much more than a change in commercial terms between organizations. Rather, it is the result of two or more parties making a
decision to enter into an agreement based on a common set of objectives which, through joint planning, execution, and evaluation, provide not only economic benefits to all concerned but also strength of capabilities, often without regard for corporate boundaries.

In the case of the oil industry, those capabilities can be associated with activities the industry usually performs through contracts with third parties or acquisitions of good and services.

Following the different blocks of organizational structure analyzed in Chapter Three, we can see that the industry has accentuated the use of outsourcing as a way to center its attention on core capabilities and optimized processes. This trend allows the industry to focus its attention on real value-added activities as well as obtaining cost reductions.

However, in some cases, the oil companies have abused this approach by outsourcing activities or giving arm-lengths contracts that are intrinsically related to their core activities, in this way losing important knowledge that helps to leverage core capabilities.

Based on these concerns, some criteria has been developed to help make the choice between entering into an alliance or into some other kind of trading relationship. Further, a series of important guidelines are offered that are intended to ensure a high rate of success once a decision has been made to enter into an alliance.

**WHY AN ALLIANCE? (ALLIANCES VS. OTHER TYPES OF CONTRACTS)**

Along the examples analyzed previously, it is obvious that trust, long-term commitment, planning, constant communication, and the ability to work as a team are
necessary to build an alliance. Consequently, time is required to build those attributes in the relationship. In the case of the relationship between operator or producer oil companies and their services and supplier companies, time is also important to change the typical win/lose approach which the bidding process has usually established in this relationship.

**Consideration #1**: The time involved to deliver the service or supply. Is this project of sufficiently long duration to be of benefit to the parties, or even if the project duration is short, will the project be repeated a sufficient number of times to benefit the parties?

Besides time, an analysis should be done to determine if the activity execution will also bring an associated increase of value-added intrinsic to the integrated form of cooperation. These could be process improvements, developments of new technologies, learning experiences related to core capabilities that both organizations are interested in building upon, among others.

**Consideration #2**: To what degree will the execution of this activity help my organization to strengthen its core capabilities?

The following framework (Exhibit 6.1) was created in order to combine these two considerations and to offer a more convenient option in each case.
Exhibit 6.1
Decisions to be Made When Entering Alliances

As a consequence, the alliance is likely to be the best option if both the activity duration and the degree of relation with their core competencies are high. In the other combinations, another type of arrangement is preferable.

Besides these considerations, the level of risk associated with the activity must be pondered. Exhibit 6.2 illustrates the risk profile versus the contractual basis and degree of cooperation in the case of drilling alliances.
Exhibit 6.2
Comparison of Contract Types

Degree of Cooperation
- Traditional adversarial contracts
  - Increased cooperation
    - One service on one well (full tendering)
    - Preferred suppliers for each service on one well or series of wells
    - Full range of services for series of wells by few preferred suppliers
    - Full range of services for life-cycle several wells

Contractual basis
- Increased reward
  - Day rate bonus
  - Day rate
  - Performance incentives
  - Day rate plus bonus
  - Alliance
  - Performance incentives

Risk profile
- Service company
  - Drilling contractor
  - Operator
  - Increased risk sharing
  - Day rate
  - Incentive
  - Alliance
  - Turnkey

Source: Deffarges, et al., 1994

At one extreme under day rate-type contracts, nearly 100% of the risk lies with the operator. As one moves toward incentive contracts, more of the risk (and reward) falls to the main contractor. Under a turnkey arrangement, most of the risk and potential reward lies with the main contractor and is not share with either the operator or the subcontractors (Deffarges, 1994). In any case, common objectives must be agreed on in advance with the right level of incentives to ensure that all parties benefit from the relationship.
Regarding the type of alliance, the following recommendations should be considered:

- When flexibility and control are important, the reduced vendor alliances provide more freedom to choose among suppliers, as the exchange is mostly transactional and generally the prices are highly competitive.

- When quality is essential, the operator must be willing to invest in the vendor most likely to meet the quality standards desired, which will usually result in improved profitability in the long run.

- When standardization is desired, sole supplier alliances are also very useful.

- Integrated service alliances are helpful primarily to increase communication and efficiency in activities where detailed collaborations can yield to significant savings, such as with horizontal drilling programs or field development programs. These alliances will usually be successful when the benefits of collaboration outweigh the costs for the partners to build competence in their peripheral products or services. They are also useful to acquire technologies in areas where the operator company lacks knowledge or experience.

From the interviews it is recommended that consideration should be given to the use of an interdisciplinary team to conduct those evaluations.

Once the decision to enter in an alliance is made, the following guidelines will be useful for designing agreements that protect and supplement core competencies.
PARTNER SELECTION

This kind of alliance is often customer-driven. Usually, the customer is larger than the supplier. However, further the considerations are applicable to both sides of the relationship.

The basic technical and economic considerations applicable in any kind of commercial relationship are applicable to this case. All potential participants must meet traditional requirements related to contractors. The oil industry has a register of contractors which states their qualifications, which will be helpful in identifying potential candidates. Additionally, it is essential to identify partners with high-growth potential, well-established business relationships, and a compatible organizational culture for better team building.

Working in an integrated organization requires "gentle values" which are not easily quantifiable. This applies in particular to inter-personal skills.

It is a tremendous challenge to evaluate these criteria objectively and credibly. Some useful considerations could be:

• Commitment demonstrated by the potential partner in meeting earlier contractual obligations and handling disagreements in connection with changes and related consequences.
• The company's business ethics and morals; what values and norms does the partner have in his relations with subcontractors and cooperative partners?
• Documented aptitude to achieve improvements.
ALLIANCE ORGANIZATION

In addition to maintaining alignment of purpose, retaining senior-level commitment, and establishing a solid basis in trust, it is also necessary for each partner and each person involved in managing the alliance to have clear roles and responsibilities that are set out within a well-defined accountability framework. It is not enough to enumerate responsibilities and to assign names to them. A team structure is an absolute requirement.

An executive steering team, consisting of senior managers and executives from each partner company, is recommended to oversee the strategic direction of the alliance and to make final decisions on the nature and structure of joint initiatives.

Working under the executive steering team, a cross-company, cross-functional core team should be established which serves as the operational arm of the alliance. This team, in turn, manages and sets the direction for a number of sub-teams that focus on specific target areas. The characteristics and number of these teams will depend on the type of alliance and its objectives.

Responsibilities and accountabilities must be clearly delineated, both at the team and individual levels. In addition, a clear communication path should spell out who needs to be consulted and who needs to be informed in all major decision processes.

During this initial phase of the alliance relationship, it is helpful to participate in activities that help to build a team environment and communicate ground rules. A good example was presented in Chapter Five, in the fracturing alliance between Chevron and Schlumberger, in which all the personnel involved in the alliance attended group team-building sessions. At the same time, those sessions accelerated the time required for
the teams to develop mutual trust, the key foundation of any successful long-term relationship (Klins, 1996).

Although laying out this framework may at first seem tedious, and may even appear somewhat bureaucratic, such detailed planning has an enormous payoff. It avoids confusion, eliminates unnecessary conflict, and fosters cooperation, trust, and understanding among team members.

ALIGNMENT OF PURPOSE: GOALS AND OBJECTIVES

Top-management alignment with the goals and objectives of the alliance and long-term commitment to work in a team environment are fundamental from the outset. Partners must communicate clear expectations and leave room for changes. This should be seen as a long-term dynamic process.

In alliances involving two partners (contractor-supplier) it is important to understand the need to change the usual behavior in low-bid contracts. If more than two parties are involved, usually some of them may be competitors in other areas. This situation must be exposed clearly from the beginning. The parties must commit a different behavior in this relationship.

This type of win/win attitude at the senior management level is an absolute necessity if an alliance is to endure. This kind of commitment impacts the entire organization, enhancing the creation of a cultural shift toward greater cooperation and teamwork from all involved.
ALLIANCES AND THE VALUE CHAIN

Many companies enter alliances without a full grasp of the potential such a relationship might offer. Many alliances rely too heavily on relationship issues and commercial terms instead of focusing on integrating their technical processes successfully. The link among technical processes and the operating partner's roles can add demonstrable real value to the relationship. The most effective way to form an alliance is through a detailed description and improvement of the technical processes involved. Improving the technical process, not segregating individual companies' contributions, is the focus of the relationship. For example, the operator can benefit by discounted prices and secure supply, and the supplier can benefit from long-term contracts. However, without improvement in the process the industry as a whole is no richer. This is much like dividing up a pie. Slicing the pie differently does not create more pie (value). Only increasing the size of the pie creates additional value. An alliance might add value, however, if the partners find more profitable uses for their management time and effort, best equipment, and top personnel, then the alliance will eventually fail (Ford, et al., 1996).

An alliance must also be stable, all members must have incentives to remain in this relationship. An alliance is stable if the other commercial options available to the parties involved are less attractive than the alliance relationship.

Exhibit 6.3 builds a graphical representation of where real value is created, illustrates the value chain theory, and demonstrate the concepts of real value and stability.
A detailed and thoughtful analysis of the sources of value in the processes integration and stability creation within the alliance are fundamental in a successful venture.

In the experience of Amoco Production Co., an effective system which integrates information, functions, and processes effectively, allows the supply chain partners to focus on their assigned tasks and not waste time worrying about who is going to do what when. The key requirements for supply-chain success are (1) a complete description of the processes at hand, (2) communicating the value of all tasks in the process, and (3) applying organizational learning principles (Johnson & Randolph, 1995).

**COMPENSATION SYSTEM**

The establishment of a fair and unbiased method of compensation within an alliance is a difficult task. It depends on the type of activities involved and the measurability of the
outcomes, risk and performance. It is recommended that the incentives associated with the compensation system be tied to clear and distinct project milestones.

The examples of alliances presented in previous chapters show different types of compensation systems. An incentive program bases a share of the contractor's compensation on one or more performance measures, such as the following examples:

**Time-Based Incentives:** Rewards are earned when a specific task is completed within a benchmark time frame. For example, X% of the saved day rate is earned if the task is completed under the benchmark time frame. Disadvantages are that the speed of the service may not correlate to its quality (e.g., safety issues), a ceiling may be reached on the potential improvement, and establishing benchmarks may be difficult.

**Quality-Based Incentives:** Rewards are based primarily on the quality of the service, which may include any of the sub-activities performed within the alliance. An advantage of the quality-based program is the priority to create the best conditions for enhance performance, although quality-based results may be difficult to accurately measure and results may not be immediately quantifiable.

**Safety- and Environment-Based Incentives:** Usually a bonus system is established which rewards strong performance in the areas of safety and environmental compliance. For example, a bonus may be awarded if no time was lost from accidents over a specific time period. A benefit of this safety emphasis is that work cycles are faster and costs are lower when no accidents occur.

**Gain Sharing:** Together, the client and alliance members select a formula for sharing in the overall cost reduction of a project over a budget previously agreed. Another method is based on production increase, in which the incentive is paid per incremental increase in
production versus a benchmark measurement. This kind of incentive is usually related to the level of risk associated in the activity.

**Financial Performance:** A bonus is awarded if specific activities are performed for less than the predetermined cost benchmark. Emphasis is placed on the overall team effort and on how resources can be shared and optimized.

Before the alliance starts, it is recommended that the method or combination of methods that will be used are defined. Considering that the alliance is a long-term dynamic process, the compensation system must be periodically reviewed to ensure equality for all the alliance members. Additionally, the level of risk associated with each activity and the compensation method must be considered. This must be a balanced situation in which level of risk/reward sharing is comparable.

**PERFORMANCE MEASUREMENTS**

The key to success in any project lies in the quantifiable improvement or measurement of predetermined standards. A properly designed set of measures will do more to ensure continuous improvement and attain goals than any other process.

The measurement system must be designed to meet specific alliance needs as well as the partners' own measurement systems. It is preferable to use an existing measurement systems that can be adapted to the project. Productive time may be wasted developing another more elaborate systems. They will be the foundation and support for:

- compensation methods
• how processes improvement impact costs
• Identification of improvement opportunities and process changes
• Evaluation of alliance performance
• Keep valuable and historical information for future projects

The measurement system must be monitored, evaluated, and communicated. The goal is to integrate information, functions, and processes effectively. They must be linked with the alliance information system.

Although the development, maintenance, and evaluating of the alliance performance metrics can be a time-consuming activity, the work put into the measurement system usually yields to significant and worthwhile results.

SOME CONCERNS

There are some major concerns observed in the development of supply-customer alliances that must be considered. Among them are:

Sharing of Confidential Information

Decisions on how to handle this issue should be established on a need-to-know basis and be project-specific. Several oil companies allow service-company personnel access to production and reservoir information to help optimize overall field management. However, this must be established as part of the initial consideration in the alliance formation process.
Fear of Losing Key Employees

This situation could occur as the result of differences among partner companies’ compensation systems, and the issue should be addressed early in the project to forestall such possibilities where possible and create balance among them.

Loss of Project Control

This is an individual concern and can be overcome by focusing on overall project performance. Well-implemented measurement systems are fundamental to support this control.

Competitive Market Structure

Small to mid-size suppliers that lack a wide range of services or products, often have difficulty competing against the major service companies in these alliances. Be careful not to eliminate the smaller, innovative companies (market niche) from the service sector. They are often responsible for developing many new products and services and for keeping prices competitive. Even if the alliance is in place, a limited portion of work should be reserved for the niche companies to provide either higher-quality or lower-cost services.

Loss of Freedom

Many customers believe that alliances are their management’s way of interfering with their freedom to select the optimum mix of value in terms of performance, quality, service, and price. However, a trade-off must be considered in selecting the best option. Alliances should be formed to build competence, not dependency.
External Receptiveness to Creating and Using Alliances

Some oil companies establish "Agreements for exploration and exploitation of hydrocarbons" with oil producer countries. The host country may sometimes constrain these agreements by establishing subcontracts with sole or preferred suppliers. The local government or authorities may demand that all the required acquisition of goods and services be put out to bid. Oil companies must be aware of this situation and demonstrate to the host country the benefits of establishing alliances. Adequate documentation and historical information are useful.
CHAPTER SEVEN

THE VENEZUELAN OIL INDUSTRY

This chapter presents general information about the Venezuelan oil industry, its moves toward globalization, the policies it has adopted for opening up the industry in Venezuela, and the role of strategic alliances in its growing process.

PETROLEOS DE VENEZUELA, S.A. (PDVSA)

Petroleos de Venezuela, S.A. (PDVSA), a parent company that is the property of the Republic of Venezuela, is charged with the development of petroleum, petrochemical, and coal industries. Its main objective is planning, coordinating, supervising, and controlling the activities of its subsidiaries, both in Venezuela and abroad. Its principal and unique shareholder is the Republic of Venezuela, represented in the board of directors by the Minister of Energy and Mines. It is controlled by the Organic Law Reserving to the State the Industry and Commerce of Hydrocarbons.

PDVSA was founded in 1975 with initial capital of $595 million, when the Venezuelan government was preparing to nationalize its most important industry, petroleum. At that time, the Venezuelan oil sector was redefined into three administrative levels, each with clearly defined objectives, structures, and systems. The Ministry of Energy and Mines
was responsible for the formulation of policy. The second level is occupied by PDVSA, which functions as the holding company of the nationalized petroleum industry. It is charged with strategic planning, coordination, supervision and control of its subsidiaries. The subsidiaries, in turn, constitute the third level, and they are responsible for executing the plans and programs of the oil industry.

When the company began operations in 1976, it took legal and physical control of all foreign oil companies, becoming a holding company that controlled 14 operating units, all located in Venezuela. The foreign oil companies were renamed, and together with the existing state-owned company, all became operating subsidiaries of PDVSA. The 14 operators were eventually merged into four, and finally to the three Venezuelan operating companies that exist today: Lagoven, S.A.; Maraven, S.A.; and Corpoven, S.A.. Over the years, PDVSA also added coal and petrochemical affiliates in Venezuela, and partly or wholly owned assets outside the country. The three operating affiliates of PDVSA were structured as vertically integrated companies, each with its own corporate and commercial identity. Through these operating subsidiaries, PDVSA engages in all aspects of the petroleum industry, including the exploration and production of crude oil and natural gas (upstream operations) and the refining, marketing, and transportation of crude oil and refined products (downstream operations). These activities are complemented by refining companies abroad, directed towards USA, Europe and Caribbean markets.

Other subsidiaries of PDVSA are:

- Pequiven, responsible for the petrochemical business through direct operations and joint ventures,
• Carbozulia, in charge of the commercial development of the Guasare coal fields in western Venezuela;

• Intevep, the industry's research and development institute;

• Bariven, which handles overseas material and equipment purchases;

• Bitúmenes del Orinoco (BITOR) which produces, transports and markets Orimulsion®, with subsidiaries that market the product in the United States, Great Britain, and Japan;

• CVP is in charge of coordinating and controlling activities related with risk exploration in new areas and hydrocarbon production under profit sharing agreements;

• Deltaven, a marketing company which integrates and coordinates all the activities related with the Corporation's retail domestic marketing;

• PDV Marina, the subsidiary in charge of national and international marine transport operations;

• Palmaven, responsible for providing technical assistance to the agricultural sector;

• SOFIP, recent PDVSA's investment fund;

• PROESCA (Productos Especiales, C.A.), recently created to promote associations in the area of industrialization of hydrocarbons;

• CIED, the International Center of Education and Development, which is responsible for training national and international oil sector's human resources;
• Interven which is in charge of the control and coordination of downstream operations overseas (subsidiaries and affiliates in U.S. and Europe);

• PDV America with headquarters in New York, through which deals investments in U.S.;

• CITGO Corporation and also 50% interest of The UNO-VEN Company, in partnership with the UNOCAL Corporation, for distribution in the U.S.;

• In Europe, PDVSA, through its subsidiary PDV Europe BV, located in the Hague, Netherlands; has 50% part of both Ruhr Oel GmbH in Germany and AB Nynäsh Petroleum in Sweden, in joint ventures with Veba Oel AG and Neste Corporation;

• In London, its PDV UK subsidiary, which is a marketing intelligence office;

• In the Caribbean, specifically Curacao, PDVSA operates with Refinería Isla both in the refinery and storage terminal areas through a long-term lease agreement. Bonaire Petroleum Corporation, N.V. (BOPEC) and Bahamas Oil Refining Company (BORCO), are subsidiaries which operate storage terminals in Bonaire and the Bahamas.

Venezuela exports over 2.3 million barrels per day of crude and products, close to 70% of which go to the United States, PDVSA's largest market. Most of its products in this market are sold by PDVSA's CITGO subsidiary, the third-largest gasoline supplier in the U.S., and the largest in terms of the number of sales outlets. Strategic downstream investments have helped the Corporation to increase its market position for refined products in the Atlantic Basin. PDVSA is also making significant efforts to increase placements in Central America, South America and the Caribbean region.
PDVSA's net profits for 1996 were of 4.5 billion dollars, a 390% increase over 1995. Crude and condensate production capacity reached 3.4 million barrels per day, 7% higher than that of 1995 and a record high for the last 25 years. (First Annual Shareholders meeting 1997).

Venezuela has the largest resource base outside the Middle East and the sixth largest in the world. This includes proved crude oil reserves in excess of 64 billion barrels and the Orinoco Belt, a giant heavy and extra-heavy crude oil and natural bitumen field in central Venezuela, which contains 1.2 trillion barrels of hydrocarbons in situ, of which 270 billion barrels are economically recoverable using existing technology. Combined conventional reserves and the Orinoco belt total over 334 billion barrels, the largest hydrocarbons reserves in the world. Additionally, Venezuela has natural gas reserves total over 140 trillion cubic feet and proved reserves in the Guasare coal mines exceed 6 billion metric tons.

**VENEZUELA'S OPENING UP STRATEGY**

The opening of the oil industry to private capital, within the limits imposed by current legislation, appears to be the only short-term route available for sustaining investments and growth in the Venezuelan oil sector. Growing international market opportunities and the huge Venezuelan hydrocarbon reserve base are the fundamental driving forces that attract direct foreign investment into the economy. This opening process complements PDVSA's overseas downstream investment strategy.
Among the commercial schemes including in this process of opening the Venezuelan oil industry are: operating service contracts to reactivate and develop mature oil fields; strategic associations for crude production in the Orinoco Belt, and the development of natural gas offshore and exploration and production (E&P) profit-sharing agreements. These three type of arrangements will be further explained. PDVSA has also signed joint-ventures for the development of Orimulsion® production units and agreements with private companies in the coal and petrochemical sectors.

Operating Agreements

These agreements were designed to increase PDVSA’s production capacity in a timely manner by introducing private investment capital and new technology which may result in new discoveries in mature oil fields. Starting in 1992, PDVSA has successfully completed two rounds of international bidding for the operation of 14 inactive or marginal oil fields, which currently are in operation.

PDVSA and its operating subsidiaries Corpoven, Lagoven and Maraven have announced during 1996 the Third Operating Agreement Round, covering twenty areas in the Eastern and Western Venezuelan basins. A lot of interest has already been expressed by companies in anticipation of this announcement. A total of 259 companies pre-qualified in the Third Operating Agreement Round, 129 are Venezuelan companies and the remaining 130 are foreign. The areas in this round have been selected to appeal to a wide range of companies, from the small to the very large. Five of the twenty areas are being reserved
exclusively for Venezuelan operators, which will be free to form joint ventures with international companies in bidding for the areas. This will provide a significant opportunity not only for existing Venezuelan oil and service companies, but also for new ventures formed especially for this round. The successful companies may will become the core of a newly emergent Venezuelan domestic exploration and production company sector.

Under these Operating Agreements the successful company or consortium will be required initially to evaluate and then present a plan to undertake, on behalf of the affiliate, the rehabilitation, reactivation and ongoing development of the area in question. Contractors will be compensated by a single per-barrel fee on incremental production gained from the areas. The fee offered is expected to compete effectively with other oil provinces for the industry's capital, to provide fair returns to the state, the PDVSA affiliates and the contractor, and to encourage investment at all stages of the project cycle. Awards to companies or consortia will be made on the basis of the highest cash bid (the "Factor de Valorización", or FDV). Bidding is expected to take place in mid to late May, 1997.

Strategic Associations

Since the beginning of the process of opening the oil market, the Venezuelan Congress has approved various strategic associations.

The Cristóbal Colón Project for the development of offshore natural gas resources in Eastern Venezuela; the Maraven-Conoco, and the Maraven-Total-Statoil-Norsk Hydro associations for the production and upgrading of extra-heavy crude from the Orinoco Belt.
Corpoven, a PDVSA's subsidiary, has also signed a letter of intent with ARCO-Texaco-Philips with the objective of producing and upgrading extra-heavy crude from the Belt, with a goal production of approximately 189 thousand barrels per day of 9° extra-heavy crude from Hamaca, located south of El Tigre, in the State of Anzoátegui. PDVSA's subsidiary, Lagoven, carries out an association with Mobil-Veba Oel, the Cerro Negro I Project which contemplates to produce, improve, refine and commercialize 120 thousand barrels of virgin extra-heavy crude per day, from the Orinoco Belt.

Exploration and Production Profit-Sharing Agreements

This option represents Venezuela's most extensive offering of this type of private investment since nationalization twenty years ago. Starting in 1995, PDVSA completed a first bidding round process and is currently offering ten additional exploratory areas in Venezuela for oil exploration and development activities with private partners. During the first process, investors from the U.S., Germany, Japan, UK, France, Canada, Argentina and Venezuela, were the winners of PDVSA's exploration bidding round of ten untapped areas. Eight of the ten areas on the auction block were bid on. The maximum profitability bonus "PEG" was established at 50% on five of them. To declare the winner in cases of tie, bonuses were offered in four areas. The total of the bonuses reached US$244.9 million and represented immediate income for the country. During the round, 29 offers were received from a total of 44 companies comprising 23 consortia. In the eight winning areas, 14 companies from eight different countries participated. These winners will sign profit-
sharing contracts and set up joint ventures with PDVSA’s affiliate, CVP. The PDVSA unit will own as much as 35% of the joint venture stock, with the remainder held by foreign partners.

In the new exploration and development proposal (second bidding round), PDVSA foresees that these activities will be carried out under the terms of exploration risk contracts and profit-sharing agreements covering development, production and marketing of crude oil and natural gas.

In summary, with the Venezuelan opening oil strategy the operational players in the Venezuelan oil industry today are:

- The three operational affiliates Corpoven, S.A., Lagoven, S.A., and Maraven, S.A.
- Fifteen Operating Agreements and 20 more in the bidding process
- 8 profit sharing agreements and 10 more in the bidding process
- 5 strategic associations

Exhibit 7.1 illustrates the principal players and their location.
- 3 Operational Affiliates
- 8 Profit Sharing Agreements
- 15 Operating Agreements
- 5 Strategic Associations
- 20 Additional Areas (in bidding process)

Fig. 7.1 Venezuelan oil industry players
STRATEGIC ALLIANCES

As can be seen, the Venezuelan petroleum environment has changed dramatically. The amount of total investment (approx. $30 billion in the period 1996-2002) and the number of different foreign companies operating in the country are modifying the way this industry used to work.

Many foreign companies as well as their usual services companies and suppliers are coming to work in Venezuela. This situation represents a big challenge for the domestic companies, which until now have demonstrated be efficient and have support the oil industry growth in Venezuela. However, a new era is beginning, an era where the competitive pressure and the daily benchmarking are occurring. As an example, companies as Shell and British Petroleum, which are among the founders members of the CRINE initiative, are now establishing operations in Venezuela.

Additionally, the worldwide oil industry has been transforming and as was presented in previous chapters, the industry players have been using new tools and schemes in order to remain competitive and face the challenges the whole industry is experiencing.

Against this background and considering the ambitious growing plan PDVSA has (to increase production capacity from 3.7 million barrels a day in 1997 to 6.3 million barrels a day in 2006), within PDVSA and its affiliates have launched the ECO (Esfuerzo Compartido de Optimización) initiative. This initiative seeks to establish new ways to operate among the different players within the Venezuelan oil industry. The key elements involved are: mutual trust, team work, communication, risk sharing, and simplification. The main areas of application are: cooperation among operators (foreign and domestic),
long-term services and supply contracts, strategic alliances between operators and supplier companies sharing risks and rewards, and alliances in specific projects to activate execution and decrease costs.

Therefore, the relationships between operators and the service sector needs to be redefined. Among the main reasons motivating this change are:

- The service sector needs to be strengthened, basically the domestic one. On one hand, it represents one of the principal supports in the development of PDVSA's ambitious plan. On the other hand, being oil the principal element in the Venezuelan economy, a stronger and more competitive service sector contributes with this process.

- The current contraction process, based primarily on the low-bid scheme, has contributed with the erosion of integration and cooperation process among the players. Also, the administrative control processes are deviating a high percentage of technical personnel effort.

- Joining efforts among companies located in the same region to use common services, rationalizing support activities and obtaining cost reductions as a consequence.

- The encouragement of development, transfer, and mass use of technologies among the different players and business areas.

Besides the common considerations establishing strategic alliances considered in previous chapters, in the Venezuelan case the following are some particular areas of attention:
Regarding contracting processes for supply of good and services, PDVSA’s affiliates must follow a National Bidding Law created to assure public knowledge, broad competitiveness, and domestic participation in each process. The formation of alliances requires consideration of compatibility with this law, otherwise change: need to be addressed or proposed.

Administrative and control procedures need to be revised to yield the required flexibility when working within alliances.

Related to tax issues, the law allows special considerations for activities to be developed in the Orinoco belt area. Risk-sharing schemes contemplated in alliances as well as the activities related to joint technology development, may consider requesting exemptions.

Considering proved benefits obtained from alliances, the exploration and services contracts should include special terms that will encourage the formation of alliances.

Consideration should be given to the inclusion of small and mid-size suppliers’ participation in alliances with major service companies as a way of keeping a competitive market structure and transferring knowledge and experience among participants. Remember, alliances should be formed to build competence, not dependence.

Within the ECO initiative, and different from the CRINE and NORSOK cases, PDVSA seems to play the integrator and leading role in all the changes. Through its affiliate companies, PDVSA is initiating profound changes in its relationships with suppliers, contractors, and partners. However, the integration of the remaining sectors (government,
unions) to this process is crucial to obtain long-term and sustainable benefits in the national
economical transformation development.

In addition, technology is a key element in the creation of competence and
differentiation of a company from competitors, and is fundamental in the cost reduction
process for discovering new reservoirs and keeping the existing ones productive. Thus,
technology development and creation through the continuous improvement of processes as
an important derivative from alliances must be considered.

The technology strategy in the Venezuelan petroleum industry in recent years has
been characterized by the allocation of a high amount of resources oriented to the
development of technologies as a purchaser (16%) and as a follower (75%). Under this
scenario, the arrangement of strategic alliances must also be considered as a fundamental
technology transfer model.
CHAPTER EIGHT
SUMMARY AND CONCLUSIONS

The summary and conclusions presented herein are based largely on information gathered from personal interviews with oil industry insiders as well as on the interpretations and discussions in previous chapters.

As stated in the Chapter One, this study analyses strategic alliances between oil producer companies and their suppliers of goods and services. In the oil industry, by nature, most of the operational activities, basically in the upstream sector, are performed through contraction with third parties (60-70% of budget). In recent years, along with some organizational transformations adopted by the oil industry (decentralization, outsourcing and others), the relationship between oil companies and their suppliers and contractors is being redefined.

As Bruce and Shermer (1993) argue, every company is part of a collection of firms that influence each other, so as this interdependence grows the links acquire more importance. Consequently, in the case of the oil industry, it is not sufficient to strengthen the company as a single entity; it is also necessary to fortify those links and made them part of the company's competitive advantage.

This commoditized industry is facing challenges and changes due to steadily lowering prices, higher production costs, new demand patterns, environmental constraints, and other factors explained in previous chapters. These scenarios demand that the industry
increase its emphasis on maximizing recovery from existing reserves and lower finding and producing costs for new reserves.

Strategic alliances between oil producer companies and their contractor have arisen as one response to reducing costs, increasing efficiency, improving quality, and sharing risks, resources and technologies. At the same time, in the ground of the learning organization, as an organizational transformation approach, within an alliance the entire supply chain effectively becomes a single organization and must be able to learn collectively from its experience. In other kind of commercial arrangement, as in the arm-length contracts, most of the knowledge needed to leverage core capabilities is lost in the process.

So, many firms in the oil industry are turning to strategic partnerships or alliances to find more permanent ways to cut costs and at the same time provide themselves with opportunities to combine capabilities, build enduring and sustainable competitive advantage, and creating value through the entire business.

According to a survey by Daniel Coolidge from Unocal Corp. (1995) of 200 operators, contractors, and service companies in the U.S. oil industry, customer-supplier alliances in this industry are usually beneficial and have an average success rate of 73%. This type of alliance is the most challenging alliance to manage.

Among the main conclusions of Coolidge’s survey are:

- The rate of alliance formation activity is increasing among 68% of the respondents; only 3% reported a decreasing activity level.
- Sole supplier alliances had a higher success rate than integrated service alliances. In almost every case, alliances seem to be slightly more successful for suppliers than for customers.
- Alliances are largely customer-driven (60% were initiated by the customer, 31% were formed through mutual agreement, and 9% were initiated by the supplier).

- A performance incentive program was included in 49% of the alliances reported. Several customers reported that those programs are difficult to manage or are a constant source of controversy.

- The reason for forming alliances varied greatly between customers and suppliers. Cost reduction was not included as a survey option in order to identify other important reasons. The primary reason for forming customer/supplier alliances were to improve communication or efficiency and to increase the quality of products and services. Most customers also formed alliances to share risks or resources and to gain technology or expertise. Most suppliers formed alliances to satisfy their customers and expand their markets. Contrary to alliance trends in many other industries, gaining technology was not the most important reason for alliances in the oil industry.

- The performance measurement used most often was decreased costs or expenses. Increased efficiency, which includes lower administrative expenses, was the second most common measurement. Quality measurement was not measure as much as expected.

Based on the survey results, on the analysis of the experiences presented in previous chapters, and on the library research, it can be concluded that the establishment of customer/supplier alliances in the oil industry requires the consideration of some critical success factors as well as an awareness of several pitfalls. The following summarize some recommendations.
CRITICAL SUCCESS FACTORS

The success of an alliance is based largely on mutual trust, constant communication, and the ability to work as a team. One of the main challenges in the customer-supplier alliance is to change the common mindset and adversarial aptitude originate by the competitive bidding process, where the principal attention is oriented to the purchase price rather than to the value of the exchange. It is necessary to understand that an alliance is much more than a change in commercial terms between organizations. A different approach must be assumed. The following issues are considered critical success factors entering in this kind of relationship:

♦ The project or activity to be executed through the alliance must have an adequate scope and execution time sufficient to allow the creation of attributes needed among the partners (trust, team environment) and to justify start-up expenses. Some experts establish a life-cycle between 2 and 5 years as a minimum.

♦ When selecting partners, it is recommended that partners be identified that have with high-growth potential, well-established business relationships, and a compatible culture organization for better team building. Previous experience in other commercial arrangements is important. Regarding the ideal number of partners, a useful criteria is the minimum number of partners needed to account for 80% of total costs. Too many partners can increase
alliance administrative costs and can create imbalance of power (Ford, et al., 1996).

♦ **Alignment of goals**: All partners must have clearly defined, mutual goals to ensure they understand what each party wants and requires from the relationship. These goals must fit strategic objectives of the partners, so they want to make the alliance works. Top management and long-term commitment are fundamental from the outset. Alliances should be formed to build competency, not dependency. Open and honest communication is the key to understanding and acceptance.

♦ **Well-defined process**: Expanding the project’s goals to include all the steps required is the function of process mapping. This stage requires enough detail to ensure all redundancies are eliminated from the process, identifying the real sources of value. All partners must work together in this exercise from the outset. It must be leave room for changes, the alliance is a long-term dynamic process.

♦ **Alliance Organization**: Along with the process definition, a clear team organization must be established. An executive steering team to oversee strategic direction along with a cross-functional core team as the operational arm of the alliance and to set the direction of specific sub-teams are recommended. In addition, a clear communication path should be defined.
♦  **Compensation System:** An important success factor is detailing the incentives to be awarded to the partners and the benchmarks to which those incentives are tied. The compensation system must be periodically reviewed to ensure equality for all of the alliance members.

♦  **Performance measurements:** Successful alliances build in methods to analyze performance throughout the process. Performance-related tools are needed to measure the success of the achievements against the goals established at the onset of the alliance. The measurement system must be designed to meet specific alliance needs and the partners' own measurement systems. This includes ensuring that analysis is tied to the original goals, learning through continuous improvement and documenting the knowledge. Numerous feedback loops are built into the process to enhance communications and help retain learning.

♦  **Define an exit strategy:** This process is a mechanism for ending the alliance when it is still operating in a positive mode. This relates back to well-defined goals and appropriate incentives. When the alliance reaches its natural winding-down point, it needs a procedure to end the project cleanly or to transition to a new field or project.

CRINE and NORSOK have been successful in reducing North Sea upstream costs, sustaining production, and prolonging the life of the region. They have created a culture
of cooperation and innovation in the North Sea area. They are also influencing the way oil industry players work in other areas and they are an important example of the many ways to reduce costs and at the same time learn collectively and continuously improve.

One important factor regarding their success is that both initiatives share the presence of an organization that acts as a leader and integrator, besides a clear working structure, alignment of goals, and follow-up process.

In the Venezuelan oil industry case, PDVSA seems to be the likely leading organization pursuing a similar initiative. In fact, the ECO initiative has been launched within PDVSA. Because PDVSA is the state-owned oil company, and its affiliates were the only contractors of goods and services, the initial stage of this initiative was oriented to the optimization and enhancement of the contracting process and commercial relationships with their suppliers and partners.

The federalist structure of PDVSA, even though has benefited the company through the competitive spirit among its affiliates, has in some way resulted in duplication of efforts and overlapping of some common activities. So, within this first stage, PDVSA should emphasize some of the synergistic efforts initiated early among affiliates.

Regarding other sectors, the private sector, unions, government, they should be integrated actively within this effort, with the objective of consolidating the economic development that an increase in the oil activity is generating in the country.

Additionally, and considering the new business activity associated with the development of the Orinoco belt and the variety of companies working in the same area in a long-term basis, there is an array of opportunities to promote joint efforts and strategic
alliances pursuing process improvements and development of new technologies in the area.

A learning environment and a different culture can be gestated in this area.

**FINAL THOUGHTS**

Strategic alliances in the oil industry, if they are well managed, can become a competitive tool to face the future challenges. Each oil company is comprised of a network of services companies and suppliers that are key components in its operations. As long as oil companies strengthen those links and receive the full potential from the learning experience they can offer, the industry can be more competitive and profitable.

Alliances can also establish the foundation for technological breakthroughs which, in the oil industry, can take years to develop and seem to be more of a continuous improvement on existing capabilities. This may be reached through successfully implemented alliances.

Additionally, corporate management has been looking to alliances to re-engineer their companies as a way to improve long-term profitability and avoid repeating some unproductive merger and reorganization activities,
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