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Strategic Planning for the Oil and Gas Industry

Dr Craig Robinson

Professor Alex Scott

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Edinburgh Business School
Heriot-Watt University
Edinburgh
EH14 4AS
United Kingdom

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Strategic Planning for the Oil and Gas Industry

Craig Robinson BA (Hons) MBA PhD FHEA

Craig Robinson leads the Strategy teaching team and is a Senior Teaching Fellow at Edinburgh Business School. He runs on-campus Strategic Planning and Competitive Strategy seminars, and is the examiner for Strategic Planning and Competitive Strategy.

Craig's research interests are focused on strategy-making processes. His PhD research involved examination of strategy processes and environmental scanning techniques in small, medium and large organisations. He is also interested in oil prices and management processes in the energy industry. He has presented conference research on oil prices and their relationship with management behaviour, and has run strategy development workshops for middle and senior management of large organisations in the oil and gas industry. He is currently writing a series of research papers concerned with environmental scanning and various aspects of strategy.

Craig delivers seminars and simulation exercises for the School at various locations in Europe, Asia, Africa and the Middle East. He is a contributor to the Economics course text, and co-author of two of the oil and gas management courses.

Craig spent most of 2013 as Acting Head of Edinburgh Business School Malaysia at the Heriot-Watt University Campus in Putrajaya. While there, he oversaw the establishment and development of the Edinburgh Business School MBA programme.

Professor Alex Scott MA MSc PhD

Alex Scott is Professorial Fellow and Director of Learning and Teaching at Edinburgh Business School. He is an economist, and has published two books and more than 30 research papers on efficiency in education, efficient use of energy, energy and the environment, and the cost to the taxpayer of government industrial aid programmes.

Alex is a pioneer in developing and carrying out research into new educational techniques, particularly in business simulations. His executive teaching includes running strategic planning sessions for groups of senior managers, widening the perspectives of functional managers, and teaching financial specialists how economies function in today's highly complex and interdependent world.

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Module 1

The Oil and Gas Industry: A Strategic Perspective

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Learning Objectives

When you have completed this module, you should be able to:

- define the oil and gas industry from the strategic perspective;
- demonstrate the types of industry-specific strategic problem encountered on a day-to-day basis; and
- identify the role of structured thought in tackling industry-specific strategic issues.

1.1 Introduction

The core *Strategic Planning* (Core SP) course developed the generic structure within which concepts and models are applied in analysing the strategic process. This generic structure, the strategic process model for which is shown in Figure 1.1, is designed to be applied to any organisation in any industry. The idea behind the Core SP course is that strategy is a complex issue that requires a structured approach to be better understood. Students should have emerged from the course with a more comprehensive and structured understanding of the business world.

What, then, is the role of an industry-specific course such as this? This course, concerned exclusively with the oil and gas industry, takes the generic framework developed in the Core SP course and applies it to a number of different issues in the oil and gas industry. It tackles strategic issues that are relevant to the industry today, and introduces new models, tools and concepts that are uniquely relevant to companies and individuals operating in the oil and gas industry.

The outcome of studying this *Strategic Planning for the Oil and Gas Industry* course should therefore be a wider and deeper understanding of the industry itself, of its peculiarities and of the key strategic issues facing the industry today.

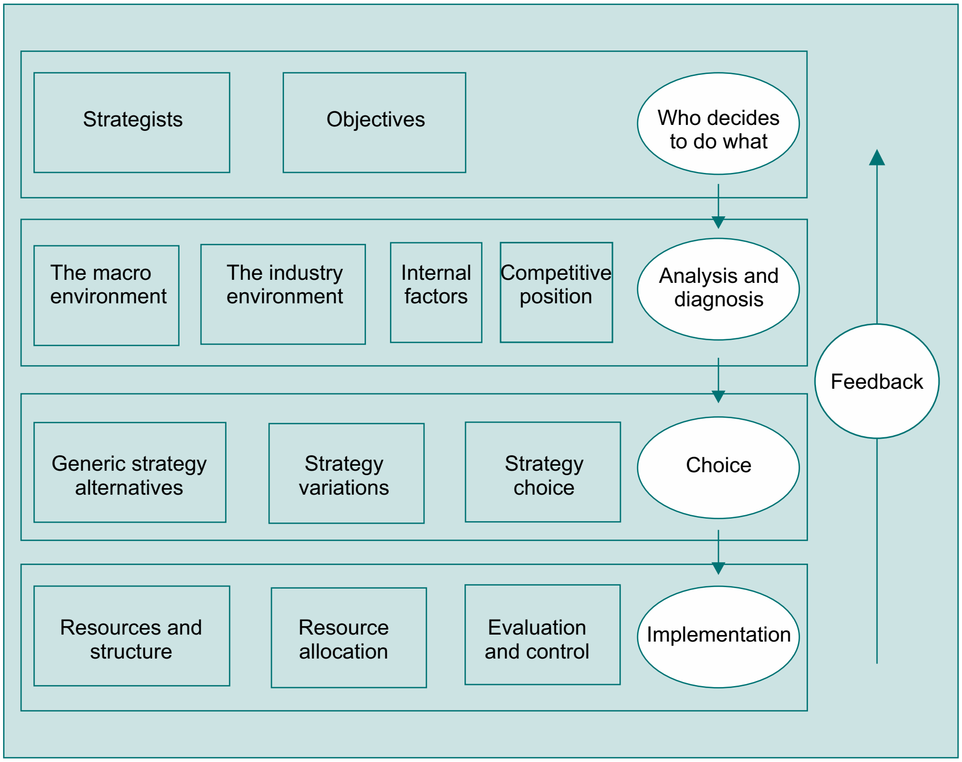

Figure 1.1 The strategic planning process model

The remainder of this introductory module is concerned with the industry context and background information on strategic issues in the oil and gas industry. A brief outline of how the course should be used is provided. This is followed by the introduction of a working model of the oil and gas industry supply chain. This model, alongside the strategic process model introduced in the Core SP course, forms the backbone of this industry-specific course. A number of strategic issues in the industry are then examined, some of which are considered in the context of an oil company decision-making example.

1.2 How to Use This Course

Because this course articulates from the Core SP course, many of the concepts and tools used will be familiar to the reader. We assume from the outset that you recall, understand and are able to use the concepts contained in the augmented process model provided in Core SP Module 8. That said, we also acknowledge that you may wish to refer to the original exposition of a model to refresh your memory from time to time. Thus, rather than repeat the exposition of a particular model or concept, the course has been cross-referenced, citing the module and section in the

Core SP text that is of relevance at a particular time. (Those using electronic versions of the text will find that these cross-references are 'clickable' links.)

As an example, several generic issues that were dealt with in Core SP Module 1 are not repeated here, but are relevant to an exposition of strategy in the oil and gas industry. If you feel that you are unsure of the implications of these, you should review the following topics:

1. The definition of strategy (Core SP Sections 1.2.1, 1.2.2).
2. The three approaches to strategic planning (Core SP Section 1.2.3).
3. The distinction between 'tame' and 'wicked' problems (Core SP Section 1.2.4).
4. The difference between strategy and tactics (Core SP Section 1.2.5).
5. The problem of applying the scientific approach to understanding strategic outcomes (Core SP Section 1.2.6).
6. The definition of strategic thinking (Core SP Section 1.2.7).
7. The distinction between corporate and business strategy (Core SP Section 1.4).
8. The historical development of strategic ideas (Core SP Section 1.5).

These background ideas apply across all industries, whether oil and gas, electronics, banking, restaurants or voluntary organisations. Reviewing the issues briefly, it needs to be borne in mind that there is a great deal of confusion regarding what strategy is (topics 1, 2 and 4), that strategy poses some intractable conceptual issues not typically recognised (topic 3), that statistically based research into strategy is largely pointless (topic 5), that strategic thinking involves integrative and evaluative skills that need to be developed (topic 6), that different strategic issues emerge at corporate and business levels (topic 7), and that advances in strategic thinking have been driven mainly by major changes in economic activity (topic 8). The rest of this module is concerned with how some of these ideas apply to the oil and gas industry in particular.

1.3 The Context: Defining the Oil and Gas Industry

The purpose of this section is to explicitly define the oil and gas industry for the purpose of this course and for the other courses in the MBA Oil and Gas Management specialism. The model discussed in this section is the result of a significant amount of research by the authors, involving looking at technical and management data from governments and speaking to those working in and around the industry.

Often, the initial response of those involved in the industry is that it is patently obvious what the industry is: it comprises upstream and downstream activities (i.e. oil and gas is extracted upstream and processed and sold downstream). But that is merely a description; it says nothing about the difference between upstream and downstream markets, what contributes to success upstream and downstream, and why some companies straddle both activities.

As strategists, we are interested in the industry supply chain that identifies the markets through which the product passes on its journey from discovery through to final consumption. This question is initiated by application of the concept of 'vertical integration' (Core SP Section 6.12.3): a company that covers the whole supply chain is vertically integrated and a major strategic issue is the relatedness of the various stages of the industry supply chain. Therefore, the first step is to construct a model of the industry supply chain that identifies the relevant markets at each stage. This model might not accord with the interpretation of a technologist, who will focus on the physical processes involved.

The oil and gas industry supply chain model, presented in Figure 1.2, shows the main business areas of the oil and gas industry as a whole. Anything not represented in this figure is not taken to be part of the industry for the purposes of this course.

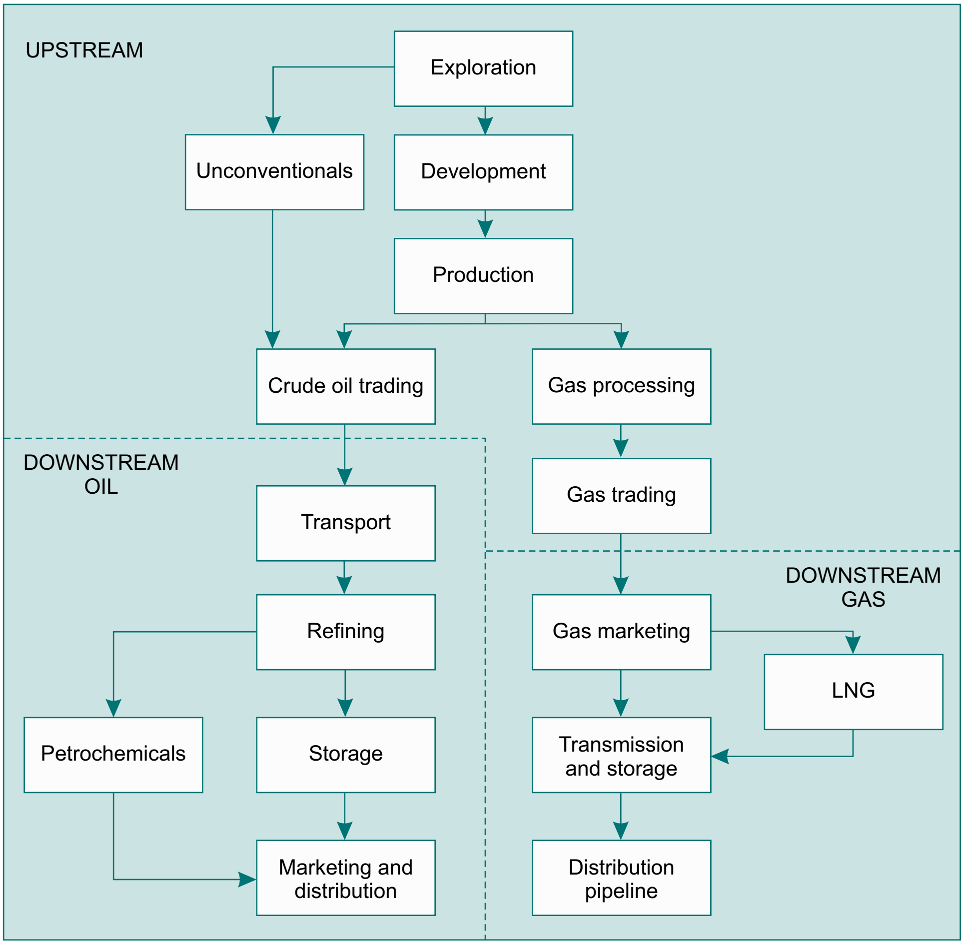

Figure 1.2 **The oil and gas industry supply chain model**

Managers in the industry often talk of upstream, midstream and downstream activities, but this level of division is not detailed enough for our purposes. Here, we divide the industry into **three sectors** as follows:

- the *upstream* sector, concerned with the finding, extraction, initial processing and trading of both oil and gas;
- the *downstream oil* sector, concerned with transporting, refining and marketing a large variety of oil-based products; and

- the *downstream gas* sector, concerned with marketing and transporting gas to end consumers.

Each of these three sectors contains various **stages** that group together logically. Thus our model of the oil and gas industry contains only three sectors but 16 distinct stages that are of interest. The details of each sector, along with its strategic characteristics, are examined further in Module 5 of this course. The sectors and stages of the model will be referred to consistently throughout the remainder of the course.

What will emerge later in the course about this model is that the stages in each sector can in some ways be very similar, while their strategic characteristics are markedly different. This means that the characteristics of the individual stages of the supply chain, and how the product moves from one to the next, become more important than the distinction between more general upstream, midstream and downstream issues. Specific questions that now emerge, developed by thinking quickly through the strategic process model, include the following.

- What chief executive officer (CEO) characteristics are most appropriate for each stage?
- How does the impact of certain political, environmental, social and technological (PEST) factors vary along the chain?
- Are there different competitive forces at each stage?
- Are market growth rates similar across stages, or do they differ?
- Is extending operations across more than one stage likely to result in economies of scope?
- What are the returns at each stage of the supply chain and what determines these?
- Which generic strategy is most appropriate at a given stage?
- What company structure is most appropriate at each stage?
- How should performance be measured at different stages?

Already, by looking at this by-no-means-comprehensive list of questions, it can be seen that, by applying structure to a complex question, a deeper level of insight can be found.

By way of an example, in Core SP Section 1.1 it was demonstrated that a new product launch would be liable to fail if any of the six core disciplines were not applied effectively. This generic example related to any industry, but an industry-specific interpretation of the roles of the core disciplines can be gained by considering a new product launch in two stages of the oil and gas industry supply chain: one from the upstream sector and another from the downstream oil sector (*see* Table 1.1).

Table 1.1 **Core business disciplines in the oil and gas industry**

Core course	Introduce new exploration technique	Launch a new petrol variant
Organisational Behaviour	Convince operatives of need to change technology; employ different scientists	Ensure that salespeople have the incentive to promote it
Economics	Is this the right time in the oil price cycle to invest?	What is the price elasticity of demand?
Marketing	Does the new technology enhance the brand image?	How will the product be positioned in the portfolio?
Finance	What is the effect on gearing?	What is the effect on rate of return?
Accounting	What is the breakeven?	Can the relevant costs be identified?
Project Management	There can be no quality trade-off	Ensure it is available countrywide

The two product launches exhibit different arrays of critical factors relating to each discipline. No doubt industry specialists would think of other factors, but the importance of the generic disciplines is again highlighted. The important issue is that while the answers may be industry-specific, the questions are generic. The rest of this course will use the supply chain model developed in this section, in conjunction with the strategic process model, to propose and answer useful and, we hope, interesting strategic questions about the oil and gas industry.

1.4 Strategic Issues in the Oil and Gas Industry

If you were to ask oil industry managers what they think are the strategic issues facing companies in the industry, you would get a list of questions that might include the following.

- When will the oil price stop being so volatile?
- Where is the oil price likely to go next?
- How will the increasing importance of unconventional resources affect the industry?
- What are the advantages of being vertically integrated?
- How will concerns about the environment and the increasing prevalence of renewable energy affect the industry?
- What are the characteristics of a successful oil CEO?
- What impact is the increasing difficulty of access to resources likely to have on the industry?
- Why are margins so different upstream and downstream?

These are clearly important issues, but where did they come from? Are they really the most important issues facing companies in the oil and gas industry? What criteria can be used to determine which of these are strategic questions? The student with an understanding of the Core SP course might frame a series of questions in a more structured form, such as the following.

- What objectives do different companies have?
- What CEO characteristics are optimal for different companies?
- What are the major likely events in the macro environment?
- What is happening to competition?
- What are a company's strengths and weaknesses?
- What strategy is likely to result in competitive advantage?
- How can strategy be implemented effectively, given industry conditions?
- Do companies learn, or are they always in reactive mode, given market volatility?

This list will be immediately recognisable as comprising questions derived from the strategic process model. It does not consist of randomly selected issues (partly influenced by current events), but addresses the robustness of the strategic process in individual companies. It is a structured set of questions that recognises that the important issues facing a company in the industry relate not so much to the industry-specific ones, such as price volatility, as they do to the capability of the company to perform effectively in the particular economic environment.

If this student were then to be asked for a more detailed set of issues, it would be a simple matter for him or her to refer to the augmented process model and produce a list, possibly of overwhelming magnitude, that included the original list and many more. Then the scene would be set for finding something out about strategic planning in the industry.

1.5 The MythicOil Company

In Core SP Module 1, the Mythical company portrayed a series of events that are typically encountered in everyday business. Without an understanding of strategic planning, it was impossible to impose a structure on the events or to identify analytically what was going on. A similar series of events can be characterised for the MythicOil company, but this time it should be possible to have insight into what has happened and be equipped to interpret the events.

The MythicOil company comprises:

- ten production-sharing agreements in different parts of the world, four of which are operated and six of which are non-operated;
- a small seismic exploration vessel (the *Medusa*), which is typically leased out;
- a large refinery in a medium-sized city; and
- a local chain of filling stations in that same city.

The CEO has the same three questions as did Mythical's CEO.

- How well are we performing?
- What should we be doing in the future?
- How can we achieve successful change?

This time, do not read the events like a story, but attempt to identify relevant concepts and ideas, and think in terms of the process model structure. The scenario presented is fictional but serves as a useful introduction to strategic thinking in the industry.

1.5.1 How Well Are We Performing?

CEO's statement to the board

The company has been making a profit for the past three years, but a recent fall in the oil price has led to reduced margins. Three of the operated production platforms need upgrading and are costly to run, while it is becoming increasingly difficult to lease out the *Medusa* because of the run-down in exploration generally, and the tendency for the on-board hardware to fail. But our refinery and filling stations are making as much money as ever. I need more facts before deciding what to do, so I am instructing the top team to prepare brief executive reports.

Accounting report

The company is currently making a 10% return on assets. The *Medusa* is draining cash and profitability would be increased by selling it. We became cash-rich over the last few years because of the high oil price, but now we are dependent on our downstream business to generate cash. In fact, our cash-flow position is not good because of current expenditure on upgrade investment. Our gearing is now 60% and so I feel we should suspend investment.

Marketing report

My main function is to maintain the brand image of our filling stations, and find customers for the excess production of our refinery. Our margins are continually being squeezed and we did not seem to benefit much from the high oil price over the past few years.

Economic report

The oil price increase in recent years was caused by increased growth in India and China – but now that India and China have stalled, and production has increased in both the USA and the Middle East, the future for oil looks more settled. I predict that the oil price will now remain relatively low for several years at least. There will be a reduced demand for exploration, but it is a good time to invest in more production platforms at a reduced price.

Production report

The main production effort is to get the oil out of the ground and feed it to our refinery; it cannot take all our production, so we have to sell about half our output on the world market. We shall not be able to keep production at current levels for much longer because of the maintenance issues that we have not yet dealt with.

Manpower report

There is a shortage of production engineers, which is a further threat to future production; not enough new graduates are interested in being thought of as oil people. The staff turnover in the filling stations is very high and we are constantly struggling to get sufficient people just to keep the business operating.

CEO's summary

A year ago, we were all upbeat because of the high oil price, but now it looks like we have a lot of weaknesses.

1.5.2 What Should We Be Doing in the Future?

CEO's statement

There are three broad strategies that we could follow: first, we could carry on doing the same things as in the past, and hope that the oil price recovers; second, we could expand all our activities and look for scale economies; and third, we could combine the second option with expansion into new markets to diversify our activities. I have had some informal discussions with Easy Distribution, who carry the output of our refinery and would welcome a friendly takeover because of cash-flow problems. This would give us a relatively painless entry into transportation.

Accounting report

If we try to follow a strategy of diversification, we shall quickly run out of cash, because the payback period of buying Easy Distribution is quite long. Furthermore, return on investment and capital employed will be adversely affected, and this is likely to affect our share price, perhaps making us susceptible to takeover, never mind our taking over Easy Distribution. Because of our high gearing, it will be very expensive to raise additional debt. I think the idea of taking over another company is far too speculative and is not a realistic option. Instead, I think we should cut back on all unnecessary expenditure in order to trim costs.

Marketing report

Acquiring Easy Distribution will improve our distribution channels, but I think our real future lies in establishing a new filling station chain in another city using our established brand.

Economic report

Given the prediction on the oil price, this is not a good time to undertake expansion.

Production report

Acquiring a transport company does not help. It simply adds more complexity to our operations.

Manpower report

> We shall need to learn how to manage a different type of employee.

CEO's summary

> We are in danger of doing nothing other than react to changes in the market. I see the acquisition of Easy Distribution as a real opportunity, because it stands to reason that the more of our supply chain we control, the better off we shall be. The notion of expanding the filling stations is attractive, because it capitalises on the brand.

There are clearly different views on what course the company should pursue. For example, the accountant is opposed to expansion because of the weak financial structure; the marketing department is in favour of expansion because of optimism concerning future prospects for a diversified company; the economics department is averse to expansion because of macro conditions. The CEO's job is to arrive at a decision that will be supported by the functional managers, since without them nothing can be made to work; the CEO must acknowledge the fact that while each of the functional managers is able to offer a reasoned exposition of how things are and what the company should do, each is preoccupied with his or her own viewpoint. The process by which the decision is arrived at would be a story in its own right, but suffice it to say that the management team is persuaded by the CEO's vision and agrees to pursue an expansionary, diversified strategy.

1.5.3 How Can We Achieve Successful Change?

The CEO sets the functional managers to work to prepare a programme for change. Based on their understanding of what needs to be achieved in their individual areas, the team arrives at a five-point plan, as follows.

1. Attempt to attain a higher degree of competitive advantage in existing products and step up replacement investment.
2. Improve resource planning by introducing 'just in time' techniques and coordinating more closely with marketing.
3. Improve market intelligence and improve economic analysis.
4. Introduce more rigorous control systems to monitor company performance.
5. Communicate company goals to everyone; develop an incentive system and company culture, so that individuals can identify with the company's objectives.

1.5.4 Strategy and Crises

Why do managers in the oil industry find it so difficult to get together to devise and implement company strategy? Imagine that the outcome of the strategy discussions is circulated on Wednesday. By Friday, the following incidents have occurred.

Cash flow

> Production on two of our operated joint ventures has been disrupted. This means that cash flow for the next six months will be negative.

Memo from Accounting Department to CEO: In view of the additional cash-flow strains that the proposed strategy changes will involve, the strategy changes should be shelved.

Filling station invasion

One of the oil majors has announced its intention to expand its filling station chain into MythicOil's market.
Memo from Marketing Department to CEO: All marketing resources will have to be diverted to meet this challenge for the next few months; the strategy changes should be shelved.

Headhunted

The finance director has been headhunted.
Memo from Finance Department to CEO: In view of the many complex financial issues that will be raised by the proposed strategy, we must have a finance director of experience and vision. Until we can recruit a replacement, the strategy changes should be shelved.

Upgrade investment cost overruns

Memo from Production Department to CEO: The investment required in the obsolete platforms is much more than originally estimated. We need to re-evaluate our options, but, given the turmoil in the Finance Department, this will not be possible for some time. The strategy changes should be shelved.

Labour relations

The first attempt at communicating the new strategy was disastrous. No one was willing to buy into the notion of expansion at a time when costs are being cut.
Memo from Personnel Department to CEO: We need the active cooperation of key personnel and it will take time to get them on side. The strategy changes should be shelved until such time as we can achieve progress on this front.

Experiences such as this are common in the oil and gas industry. This is partly due to the fact that it is a volatile industry, with significant fluctuations in short-term returns, while there is a dominant task culture that leads to a focus on short-term issues. In Core SP Module 1, a similar scenario was presented as being more or less intractable. But it should be immediately apparent that the underlying problem for MythicOil is that the strategic process is not robust.

A brief application of the process model shows the following.

- *Strategist.* The strategist prevaricates and is reactive.
- *Objective.* There is no clear business definition.
- *Macro environment.* The economist focuses on the oil price only.
- *Industry environment.* There is little understanding of competitive forces.
- *Internal analysis.* Internal strengths and weaknesses are poorly understood.
- *Competitive position.* There is no discussion of competitive advantage accruing from vertical integration.

- *Generic options.* A corporate generic choice of expansion has been taken on dubious grounds; the basis of competition at the business level is branding, but the advantage of the branding is vague.
- *Variations.* The acquisition is based on shaky logic.
- *Choice.* The choice process is focused on the CEO, who does not pay much attention to analysis.
- *Resources and structure.* The structure of the organisation is not well understood in terms of a unified supply chain.
- *Resource allocation.* There are no criteria for allocating resources.
- *Monitoring and evaluation.* Only vague reference is made to control systems.
- *Feedback.* The memos all give the same message: abandon the plan.

Strategy occurs in a dynamic setting, but despite the almost breathless succession of events, it is possible to structure what has happened and start to identify how to resolve the problems that emerged in the strategic process. The fact that the agreed strategy could be so easily thrown off course by any one of several events is indicative of how sensitive the organisation is to external or unexpected events.

1.5.5 Elements of Strategic Planning

A number of necessary elements of strategic planning were identified in Core SP Section 1.3.7, as follows.

- *Structure.* The team did not think in terms of concepts, but focused on events and description.
- *Analysis.* There was no attempt to understand what any factor really meant by applying concepts or models. Conclusions were arrived at on the basis of personal opinion.
- *Integration.* The CEO made no attempt to take account of trade-offs and constraints, such as the problem of gearing, when arriving at his strategy.
- *Control.* There was no mention of how it would be known whether the strategy was working or not.
- *Feedback.* There was plenty of feedback, but no mechanism for making constructive use of it.

It emerges clearly that MythicOil's managers need education in strategic planning. The potential benefits from strategic planning education were outlined in Core SP Section 1.6; it is probably easier to see when something is missing than when it is present.

- *Fit with organisational objectives.* The individual managers could not see where they fitted into the business definition and there was little evidence of cooperation among the management team members: each focused on his or her own area.
- *Contribution to plan.* None of the managers had any idea of how they could contribute to the overall plan once they ran into a problem.
- *Understand the role of strategy.* Changes in their own circumstances led the managers to suggest abandoning the strategy rather than how to keep it on track.

This is indicative of a need to embed some understanding of strategic planning in the organisation, so that managers can gain an understanding of their role and can make valuable contributions from their perspective.

It also emerges from the example that there is a requirement to understand the oil and gas industry as a whole. The CEO proposed to expand into unfamiliar areas of the industry supply chain without realising that the characteristics of the distribution business are different. Therefore, there is a need for managers in the industry to understand the entire industry supply chain, the types of company operating in the industry and the relationship between the different supply chain stages. That is the primary purpose of this course.

1.6 Course Outline

The discussion in this module has raised a number of strategic issues that are relevant to managers in the oil and gas industry. All of these, and many more, will be addressed in the remaining seven modules of this course. A brief outline of each is as follows.

- **Module 2** is concerned with the type of strategists one comes across in the industry. The core of this module is a comparison of the characteristics of two famous former CEOs of international oil and gas companies, chosen for their contrasting characters and approaches to strategic management.
- **Module 3** examines company objectives in the oil and gas industry, dealing with ideas such as business definition, mission statements and corporate social responsibility (CSR). The discussion in this chapter uses Centrica, the UK integrated gas company, as the core example.
- **Module 4** is concerned with the macro environment in the oil and gas industry. A historical examination of the oil price, leading indicators and industry drivers are examined. PEST analysis is used to pick up on salient aspects of the oil and gas industry macro environment.
- **Module 5** looks at competitive conditions in the oil and gas industry, using the industry supply chain model provided in Section 1.3 of this module as a basis for a detailed analysis of competitive conditions in different parts of the industry. The dynamics of the oil price and the gas price, and the relationship between the two, are examined in detail because of their importance throughout the industry supply chain.
- **Module 6** provides a detailed analysis of a set of historical annual accounts from a large integrated oil and gas company. This is an attempt to apply financial and strategic analysis to an integrated company to demonstrate how internal analysis can be carried out on one's own organisation and on competitors using published information.
- **Module 7** sets out the strategic options open to organisations in the oil and gas industry. The choice of generic business strategy is constrained by the nature of the industry supply chain stage in which the company operates; corporate strategy and strategic variations, in terms of both directions and methods, are not.

Common approaches in the industry, such as vertical integration and acquisition, are examined in detail.

- **Module 8** is concerned with strategy implementation in the industry. Structures, feedback systems and control mechanisms are all examined in detail. Towards the end of this module, the strategic process is used to pick up common issues and observations by the authors about the industry.

The general approach in all modules is to analyse real companies and situations, to demonstrate how to apply models and develop strategic analysis in the oil and gas industry. It is not claimed that the answers provided are definitive; industry specialists may interpret information in a different way or may arrive at different conclusions – which is, of course, perfectly acceptable provided that the underlying logic is sound.

To make things more difficult, the external environment is continually changing, so today's questions may not be the same as tomorrow's. It is necessary, then, to bear in mind the fundamental problem of strategic analysis: there is no definitive answer to any strategic question. That is what makes the world so perplexing and causes many people to shy away from strategy and concentrate instead on questions to which answers can be found. That said, it is this complexity that makes strategy such an interesting topic for study.

There is a structure of thought embodied in the process model that can be applied to another structure – the industry supply chain – to address the many strategic issues that confront decision-makers. That is the thinking behind this course.

Learning Summary

This module has introduced the ideas, philosophy and approach to be taken in the Strategic Planning for the Oil and Gas Industry course. The industry supply chain model has been developed and will be discussed in further detail throughout the rest of the course. Some key strategic issues in the oil and gas industry have also been introduced.