Chapter One

1965 to 1990: Five Discoveries at Shell

Scenario-based planning has a long history. Its emergence in the organisational world is preceded by its use by the military in war games. It moved into the civil domain through the activities of the RAND Corporation during and after World War Two, and was subsequently developed by the Hudson Institute, created by Herman Kahn after he resigned from RAND. Kahn adopted the term "scenario", with its Hollywood association as a detailed outline of a future movie that was fictional, reinforcing his assertion that he did not make accurate predictions, but stories to explore. The Hollywood link was strengthened when director Stanley Kubrick used Khan as part of the model for his film character Dr Strangelove.

Kahn's most quoted scenario publication was his book *The Year 2000* published in 1967 (Kahn & Wiener 1967). From the late 1960s onwards scenario-based planning took off in the corporate world. Scenario analysis has evolved quite considerably since then. A short history of this evolution will help in understanding the basic principles involved.

Initially scenario analysis was essentially an extension of the traditional "predict-and-control" approach to planning, except that a single line forecast was replaced by a probabilistic assessment of alternative futures, leading to a "most likely" projection. This did not prove a fundamental advance over other forecasting approaches. By the end of the 1960s, the flaws in this approach were widely known. It is important to understand that the scenario-based planning process described in this book has at its core an entirely different central idea. This type of scenario-based planning relies not on probability but on causality. As such it appeals more to the intuitive needs of the typical decision makers in their search for enhanced understanding of the changing structures in society. Shell,

one of the pioneers of scenario analysis, can probably claim to be one of the first and most consistent users of the methodology.

In Shell, interest in scenarios at a more conceptual level arose with the increasing failures of planning based on forecasts in the mid-1960s. Scenarios were initially introduced as a way to plan without having to predict things that everyone knew were unpredictable. Through Pierre Wack, who introduced scenarios in Shell, the early attempts were based on the Kahn philosophy. He suggested that planning must be based on the assumption that something is predictable. If the future is 100% uncertain planning is obviously a waste of time. The primary task therefore is to separate what is predictable from what is fundamentally uncertain. The predictable elements became known as the predetermined elements. The idea of the Kahn scenario approach was that predeterminеds would be reflected in all scenarios in the same predictable way. Uncertainties, on the other hand, would be reflected through the different ways they play out in various different scenarios.

ROBUST DECISION MAKING

These multiple, but equally plausible, futures served the purpose of a test-bed for policies and plans. In Shell, an engineering dominated company, most big future-related decisions are project related. Each project is evaluated economically against a set of, say, two or three scenarios, so two or three performance outcomes are generated, one for each scenario. And a decision on whether to go ahead with the project is made on the basis of these multiple possible outcomes, instead of one go/no-go number. The aim is to develop projects that are likely to have positive returns under any of the scenarios. The scenarios as such are not the decision calculus indicating whether or not to go ahead with a project, they are a mechanism for producing information that is relevant to the decision. Decisions are never based on one scenario being more likely than another; project developers optimise simultaneously against a number of different futures which are all considered equally plausible, and treated with equal weight. In this way both the value and the downward potential of the project are assessed.

Similarly if a particular strategy or plan needs to be evaluated this is done against each scenario. This produces multiple outcome assessments, which are considered by the decision makers. Instead of one picture they look at, for example, three. After more than 35 years of scenario analysis top management in Shell would not want to make do with anything less. They are fully aware that if the quality of a strategic decision has been whittled down to one single indicator, important knowledge about the

fundamental uncertainty in the project has been filtered out. *In this way the first objective of scenario-based planning became the generation of projects and decisions that are more robust under a variety of alternative futures.*

STRETCHING MENTAL MODELS LEADS TO DISCOVERIES

One of the early findings of the scenario planners was that the search for predetermined elements required them to consider driving forces in the business environment in some depth. The need to separate predeterminateds from uncertainties requires a considerable degree of analysis of causal relationships.

The earliest examples of scenarios created by Wack's team are a good example. The first item on the scenario agenda in the early 1970s was, not surprisingly, the price of oil. So planners had to consider what was predictable and what was fundamentally uncertain in the price of oil. That meant they had to examine what drives oil price, and, therefore, the whole question of supply and demand.

Interestingly, in those days the outlook for total demand worldwide was hardly problematic. It was regarded as predictable, growing around 6% every year. This had been a consistent pattern since World War Two and was not questioned. So attention turned to supply. To what extent was this predetermined or uncertain? This involved the question of where the supply would be coming from. Of course the Middle East loomed large in this.

Shell's technical people had concluded that supply availability was predetermined, the resource in the ground was plentiful, and the necessary number of wells could be drilled. But Pierre Wack was not satisfied with that answer. He looked behind it, considering the people who have control over the reserves who would be making the actual production decisions. In the late 1960s these were still the major oil companies, but the producing governments had started to establish their sovereign authority. It was one of Pierre's great contributions to the scenario process that he insisted on looking at the people behind decisions, not just at the technical or macro phenomena. The planners started to wonder whether it would make sense, from the point of view of the producing governments, to continue to supply the increasing quantities required by the oil consumers. They had to conclude that this was sufficiently uncertain to make it worth developing a new scenario. This scenario (one out of six initially) became known as the crisis scenario, in which producing countries would refuse to continue to

increase production beyond what made sense from the perspective of their own cash needs.

When the oil crisis actually occurred in 1973 it became clear that the scenario analysis had put the company on a thinking track where traditional forecasting would never have taken it. Mental models had been stretched well beyond what traditional forecasting would have achieved. Forecasting produces answers, but scenario-based planning had made people ask the crucial questions. Scenario-based planning allowed the company to override the domination of the credible, popular but very wrong imagined future. As Shell's managing director Andre Benard commented: "Experience has taught us that the scenario technique is much more conducive to forcing people to think about the future than the forecasting techniques we formerly used" (Benard 1980). *Better quality thinking about the future became the second objective of scenario-based planning.*

ENHANCING CORPORATE PERCEPTION

Not much later a third powerful effect was observed resulting from using scenario techniques in an institutional context: people who practised scenario-based planning found themselves interpreting information from the environment differently from others around them.

For example, against the background discussed earlier of a crisis scenario in the oil industry, the actions of a group of Shell executives stand out. This group recognised in developments taking place in the Middle East during 1973 some of the elements of the energy crisis scenario they had been discussing earlier. They interpreted persistent signals from that part of the world as an indication of the unfolding of the crisis scenario, and so they made a number of critical strategic decisions. The most important decision was a change in refining investment policies to allow for the possibility that the crisis scenario was in fact playing out. They interpreted the October 1973 events in the Middle East as the confirmation of the causal model in the scenario, on the basis of which they were able to quickly shift their investments. While most of the refining industry needed years to decide that something really fundamental had happened, Shell moved immediately, switching investments well ahead of their competitors. As a consequence of this industry inertia, refining capacity in the industry ran into considerable oversupply, with disastrous consequences for profitability. However, due to Shell's early adaptation of alternative policies they suffered much less from overcapacity and outperformed the industry by a long margin. This later could be shown to have had a fundamental

impact on the way the company as a whole came through the turbulent 1970s and early 1980s.

Other parts of the company, such as the marine transport sector, which had not worked with the scenarios, did not appreciate the depth of the changes taking place and so did not adjust effectively. They continued putting money into more and more tanker capacity until much later, and that part of the business never recovered fully from the losses it incurred as a consequence of the oversupply.

What the scenarios did was to enable Shell's manufacturing people to be more perceptive, appreciate events as part of a pattern they recognised, and so appreciate their implications. As a result of this they were able to respond quickly to events in a way that would have been impossible without the mental preparation of the scenario analysis. This became the third objective of scenario-based planning.

Important in all this is the institutional aspect. Decisions of the type described here are not made by any individual in isolation, but require a considerable degree of institutional consensus or accommodation. The ability to read signals must be institutional: enough people must have jointly acquired the mental model if any action is to result. Only if scenario analysis has become an institutionalised planning tool, embedding the insights in the institutional conversational process, do we see the development of consensus, or at least accommodation, necessary for action. When a company commits to this process, scenarios quickly become part of the institutional language. This is due to the effective way in which a storyline is capable of representing and transferring a complex inter-disciplinary reality to a listener in a simple and effortless way (Allen *et al*. 2002).

ENERGISING MANAGEMENT

A fourth aspect of scenario-based planning emerged later, when top management began using it as a way of influencing decision making down the line through context setting, rather than direct intervention.

Most organisations have formal ''rules of the game'' concerning how important decisions are made, involving top management's approval for significant outlays. A simple change in the rules made at Shell in the early 1980s required the justification of any proposed major project against the set of the going scenarios. This replaced the usual procedure in which such justification was made against a single line forecast of the environment for the project. The result of this was significant. Since the scenarios now provided the context for making key strategic decisions project champions needed to pay attention.

For example, assume that project developers, matching a project against scenario A, find an attractive payout, but against scenario B they find a poor return. They will be reluctant to submit the proposal, as it may be rejected due to the possibility of this poor outcome. The effect of this will be that people will try to modify the project such that the performance under scenario B is improved, aiming, of course, for maintaining the performance under scenario A. The result of this will be a more robust project, one that is likely to be successful under a wider range of circumstances.

What we see here is that the scenarios will influence project development work even before the project is submitted to top management. The scenarios make an impact when the detailed project decisions are made. *This early influence by top management is not exercised by means of direct instructions, but by using scenarios to set the context within which decisions are made down the line.*

SCENARIOS AS A LEADERSHIP TOOL

A further consequence of this is that the interest of top management in the scenario process is reinforced. They will become more involved in the generation of scenarios when these become a powerful contextual tool for influencing the development of projects down the line.

Interestingly, in the day-to-day practice it quickly became apparent that this could work only if scenario planners are fully conscious of their role as intermediaries. When scenario planners start following their own agendas the resulting scenarios are quickly experienced as less relevant in the organisation. This in turn leads to reduced interest from the top, a signal that is quickly perceived in the organisation, isolating the scenario-based planning effort even more. If this reinforcing loop takes hold a point is reached quickly where the context-setting role of scenarios becomes ineffective.

In Shell, top management use scenarios to provide leadership to the organisation. For example, in 1989 (Kahane 1992a) top management became concerned that the company as a whole needed to renew their approach towards environmental issues. They considered the general attitude too defensive, and felt it was important that the company should rethink this. As a consequence one of the 1989 scenarios described a world in which environmental factors developed in such a way that only companies responding positively could survive. As a consequence this issue was on the agenda whenever a project with significant environmental aspects was considered.

Box 1 The Shell 1990 scenario process – using scenarios to communicate new ideas to the company

By the late 1980s top managers at Shell were particularly concerned with environmental issues. Protecting the environment had become a powerful movement in the whole world. Shell was usually finding themselves on the defensive, based on good scientific evidence and engineering logic but not necessarily in tune with the world. The Shell top management found this unsatisfactory. They would prefer the company out in front, considered progressive, fighting for a better world instead of being seen as defending the old order. However, it was not initially very clear how to project this message in the company. They could not instruct the company to drop good scientific and engineering practice, and become irrational! So they decided to use scenarios as one of the ways to communicate their idea to the company. They asked for a scenario where the world goes "seriously green", which became known as the "Sustainable World" scenario. It was a very interesting and dramatic scenario, but based on intense systemic analysis and fully arguable and plausible. Shell had a policy that every big investment project submitted to top management had to be economically evaluated against all current scenarios. Since the green scenario was one of these every manager who wanted to submit an investment proposal was forced to think through how his or her "pet project" would be able to survive in a green world.

They were successful in significantly influencing several projects in this way. However, the culture was not sufficiently affected, as we saw later, when Shell faced the infamous Brent Spar issue. It later transpired that the decision-making process had been done very carefully, and even had included a scenario with significant pushback by societal pressure groups. Even so, on balance the management team had decided to go for the scientifically preferred solution and accept this risk. The decision having been taken the implementation was handed over to operators and the management's attention turned somewhere else. When difficulties started to develop it took management some time to re-engage with the project. The operators initially wanted to deal with the problems themselves and did not immediately turn to management for further guidance. Unfortunately things were moving very fast and precious time was lost in making a fundamental response to the situation that had arisen.

Scenarios are an important part, but only a part, of transforming an organisational culture. We need to look at scenarios in a broader context that includes the total organisational learning system. Also the operators down the line need to be part of it.

Scenario thinking now underpins the established way of making decisions at Shell. People throughout the company, dealing with significant decisions, normally will think in terms of multiple, but equally plausible futures to provide a context for decision making. This is known as focused scenario thinking. Focused scenarios are not directly related to

the global scenarios used by top management to establish the overall strategic framework. They are of a more ad hoc nature, developed by departments to aid in lower-level decision making. The company is satisfied to let scenario analysis take place at different levels in this way without trying to connect these efforts formally. What matters at Shell is the thinking process rather than the bureaucracy of planning.

The distinguishing feature of the scenario culture is that it has invested in assumptions, values and mental models. Tools and techniques are secondary. However sophisticated the tools, if there is no significant effect on assumptions, values and mental models, people will quickly fall back into the old habit of asking "Tell me what will happen." In contrast in a true scenario culture people will understand both deep structure as well as fundamental uncertainty, and deal with the day-to-day issues accordingly. Strategic thinking and strategic tools in Shell have co-evolved in the company. Better tools have created more effective thinking, and enhanced conceptualisation has created room and demand for superior tools.

The account of Shell's experience illustrates the fundamental point that scenario-based planning is vital to the normal day-to-day management task (Kirkland 1987). It is not a new management fad, an episodic special activity, a disruption of the normal flow of activities, but a way of thinking which penetrates the institutional mind and eventually affects all activity. It is based on a number of basic assumptions that in Shell are considered just common sense:

- Possessing sound strategies reduces the complexity of the management task rather than adding to it. Investing time in structuring the strategic debate will pay off many times over in increased efficiency of dealing with the day-to-day issues managers face.
- Discussing strategy is a natural part of any management task, and not the exclusive domain of specialists.

There is nothing unusually difficult in good strategy, even in the context of acknowledging fundamental uncertainty, if based on common sense thinking.