



Scenario Planning Overview

Scenario Planning has been used in a variety of applications. The methodology grew out of post World War II military planning efforts. U.S. Air Force planners tried to predict what opponents might do and prepare alternative plans. The approach was later adapted by Herman Kahn (one of the RAND Corporation military planners) as a business-planning tool. In the 1970's, Royal Dutch Shell planners led by Pierre Wack, borrowed ideas from these war-gaming scenarios to create a number of unique 'alternative futures' (Schwartz, 1991).

The Royal Dutch Shell planners found several significant events that would affect the price of oil in the future. These included:

- The U.S. was beginning to exhaust its oil reserves.
- American demand for oil was steadily rising.
- The emerging Organization of Petroleum Exporting Countries (OPEC) was showing signs of flexing its political muscle

The planners predicted that price increases would likely occur prior to 1975 as old oil price agreements were renegotiated. The planners prepared two scenarios. The first represented conventional Shell wisdom that the oil price would stay reasonably stable. The second looked at the more plausible future – an oil price crisis sparked by OPEC. These scenarios were met with relative ambivalence by management. So the planners further outlined the full potential implications of possible oil price rises. The end result took the form of a series of fictional future narratives that described world oil trends and their outcomes. In the end, it guided Shell's decisions and helped management respond quickly. In the following years Shell became the second largest oil company and number one in profitability. Scenario planning further evolved in 1987 when Peter Schwartz and a number of colleagues formed the Global Business Network to widen the application of scenario planning to non-governmental organizations and governments. Schwartz published a scenario planning book entitled "The Art of Long View" in 1991. This was followed by numerous other books on the topic (Van der Heijden, 1996; Fahey and Randall, 1997; Pinkham, 1998; Ringland, 1998; ManyWorlds Inc., 2001; Schwartz, 2004). One of the great values of scenario planning lies in its articulation of a common future view to enable more coordinated decision-making and action. In order to reach this common future view, scenario planning requires an understanding of the driving forces and trends facing an enterprise.

Scenario planning can result in a reasonably accurate prediction of the future (such as the Royal Dutch Shell planners predicted). However, predicting the future is obviously fraught with uncertainty. Nonetheless, the consideration of future scenarios helps managers develop more robust strategies that are (ideally) flexible enough to adapt to unanticipated future events. Strategies that are successful in multiple future scenarios will better position the utility for success in whatever the future holds.

Ultimately, scenario planning is a group process, which encourages knowledge exchange and



development of a mutual deeper understanding of central issues important to the future.

The Scenario Planning Road Map

Scenario planning can be approached in a number of ways. Typically the steps follow the process described below but can be modified as needed.

Step 1: Frame the Question/Issue

The initial step is to identify the central question or issue that will be assessed.

Step 2: Identify and Rank the Driving Forces

Driving forces can be identified through a brainstorming session to generate a list of driving forces that have a bearing on the central questions. Many of the driving forces are related to the various questions identified in Step 1 while others become evident through the group's discussions. One key is to initially capture all ideas without trying to gauge their relative importance at this stage of the process. The planning group seeks to generate as complete a list as possible. In some cases additional "off-line" research is done on the identified trends. White papers can be written where appropriate.

Once the list of driving forces is established, the planning group evaluates each one. The driving forces are ranked based upon their relative importance versus their relative uncertainty with respect to the central questions.

Each driving force is then plotted on a graph of these characteristics. The driving forces of greatest interest are those that are both very important and highly uncertain.

Step 3: Identify and Rank the Critical Uncertainties

The planning group reviews these driving forces to determine which critical uncertainties are appropriate to frame the scenario matrix. This step forms the fundamental basis for the balance of the scenario planning assessment. In theory, almost any number of critical uncertainties could be identified and used. However, as the number of critical uncertainties increases, the number of resulting future scenarios increases exponentially. Therefore, the planning group is careful to be selective and focus on things that are of the greatest importance and uncertainty. The critical uncertainties, upon further deliberation, are condensed into two critical uncertainties (usually), which form the axes of a 2 x 2 matrix.

Step 4: Create the Scenario Matrix/Compass

Two critical uncertainties are used to create a matrix of possible futures. The quadrants defined by the combinations of the critical uncertainties are the possible base futures or scenarios to be assessed. Once the scenario matrix is created, the planning group envisions each of the possible futures identified. This begins with developing a description of each. Each scenario is framed and described to be unique and clearly understood by all participants.



Step 5: Create Paths to the Scenarios

Each characterized scenario is a future that could come to pass. The planning group plots a pathway to each of these futures based upon its specific characteristics and issues. The pathways include individual elements such as public, political, and research/technological programs as well as various construction projects that may need to be sequenced over time to achieve the envisioned future. The pathways are developed independently from one another and are based solely on realizing each unique future. Nonetheless, similarities and overlaps do occur among the individual pathways developed. This commonality among the pathways is the essence of the final step.

Step 6: Identify the Common Elements

The ultimate result of the scenario planning process is the identification of common elements. These are projects and programs that are present on all or many of the individual scenario pathways. This commonality indicates that such projects and programs will be useful under a wide range of possible futures. As a result, such elements are more likely to be viable as the future unfolds.

Step 7: Identify Signposts

In addition to common elements, “signposts” are identified which are developing conditions that signal the coming to pass of a particular scenario. Signposts can be helpful where the cost of action to address a scenario is high and the probability of the scenario occurring is low. Monitoring for the signposts can provide early warning to the planners.

Applications

One of the great values of scenario planning lies in its articulation of a common future view to enable more coordinated decision-making and action. In order to reach this common future view, scenario planning requires an understanding of the specific examples where Mr. Means has provided scenario planning services include:

- **Water Research Foundation Strategic Assessment of the Future of Water Utilities, 2002.** Thirty-five national water utility leaders were gathered and presented with multiple potential future water utility scenarios. The scenarios were crafted after in-depth research regarding the trends and drivers facing water utilities. Strategies for success in all the scenarios examined were developed in facilitated workshops. The scenario planning was widely hailed by participants as productive and provocative.
- **Metropolitan Water District of Southern California (Metropolitan), 2007.** Metropolitan was facing a significant capital expenditure related to the implementation of ozone treatment technology at two large treatment plants. Scenario planning was used to define the critical trends (source water quality management and drinking water regulations) to frame multiple potential future scenarios. The value of ozone was measured in these hypothetical future scenarios and the group concluded that implementation of ozone was beneficial in all four of the scenarios envisioned.



- **City of Calgary, Canada, 2007.** A basic scenario planning exercise was conducted for the City of Calgary Water Department. Driving forces and critical uncertainties were defined and discussed by the senior management group and will be considered in their next three year business plan.
- **Water Environment Research Foundation (WERF), 2008.** The WERF Board of Directors used scenario planning to identify funding strategies for the WERF research agenda.
- **Madison Metropolitan Sewerage District, 2008.** Scenario planning was used to inform a wastewater master plan for Madison, Wisconsin. Both internal and external stakeholders were engaged in the process.
- **Beaufort Jasper Water Supply Authority, 2008.** Scenario planning to develop an integrated resources management plan for the Hilton Head, South Carolina area.
- **Denver Water Integrated Resources Plan, 2008.** Ed Means was retained “behind the scenes” to consult and guide the conduct of scenario planning with the staff and Board of Directors.
- **Ohio River Valley Water Sanitation Commission, 2009.** The Ohio River Valley Water Sanitation Commission (ORSANCO), was established on June 30, 1948 to control and abate pollution in the Ohio River Basin. ORSANCO is an interstate commission representing eight states and the federal government. Member states include: Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Virginia, and West Virginia. The Board used scenario planning to chart a future course on the organization’s role and financing of the commission.