



# Practitioner's Guide:

## Scenarios



### Scenarios

#### Brief Description



A scenario forecasts the future state(s) of a system based upon assumptions about interactions and external conditions. It is developed from a description of the present conditions and an extrapolated forecast of the future conditions. The forecast is based on the external constraints to change, and the likely interactions between system variables in the progression from the current conditions to some future state.

Scenario analysis is an interactive process engaging a group in a process of identifying key issues, *creating and exploring* scenarios in order to learn about the external environment and/or integrating the insights into the decision-making of the organisation. The free-format approach enables the exchange and synthesis of ideas and encourages creative thinking.

A scenario may be either a **state scenario** for a single point in the future or a **transient scenario** tracing the evolution of the system over time.

Scenarios may be employed to:

- ▶ identify and clarify major issues for debate among policy makers and interest groups
- ▶ formulate a narrative and dynamic behaviour of a social system
- ▶ provide inputs for techniques such as gaming
- ▶ provide a framework for normative forecasts of desired future conditions

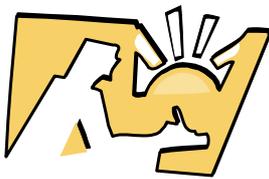
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### Proposed Main Users

Regional planners, district planners, project planners, industrialists, corporate planners, etc.



### Purpose of the Method



Scenario analysis originated as a military planning tool after the Second World War. Since General Electric and Royal Dutch/Shell adopted the practice in the late 1960s, the approach has been used regularly in strategic decision support in commercial organisations. Since then the application of scenario analysis has diverged to many sectors of the business community from ICT to beverages, consumer durables to financial services. In the past two decades, government institutions have also increasingly adopted scenario analysis in strategic policy making processes. The use of scenario analysis has traditionally been for planning purposes. In the past fifteen years, however, this has become more diffuse. Nowadays its application varies from planning to teambuilding, vision development to conscience raising and communication.

A typical feature of contemporary scenario analysis is the involvement of decision-makers and important stakeholders in the scenario development process. The involvement may be limited to a single interview, but it can also involve participating in several workshops that may run for several days at a time. Scenario analysis involves two elements: the construction of alternative scenarios relevant to a particular organisation and the integration of the content of these into the organisation's decision-making. Scenarios are developed in sets of usually three or four to study how an organisation or one of its strategic options would fare in each future set. Although many business, governmental and consulting organisations have developed their own particular approaches to crafting scenarios, in general the scenario learning methodologies incorporate each of the following elements into the scenarios:

- ▶ driving forces are forces that shape and propel the story described in a particular plot.
- ▶ logics provide the explanation of why specific forces or players behave as they do.
- ▶ the plot contains a story that connects the present to the end state.
- ▶ the end state is a description of what would happen at the end point of the time horizon.

The method was designed to challenge the mind-set of participants by developing plausible alternative futures, and establishing a dialogue between members usually from within an organisation. It facilitates the free-ranging exchange of ideas, perceptions and concerns. Scenario analysis is an aid to understand how the world might unfold and how that understanding can be used in strategic planning for an organisation.

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#### Advantages



- ▶ Scenarios help illuminate the interaction of psychological, social, economic, cultural, political and military dimensions in a form that permits understanding many such interactions at once.
- ▶ They are especially useful for policy decisions.
- ▶ Scenarios help stimulate and discipline the imagination
- ▶ Scenarios generally have illustrative and pedagogical value for the decision maker.

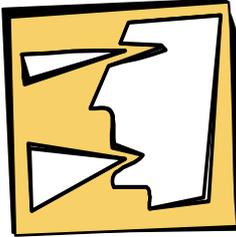
#### Limitations



- ▶ It is a formidable task to take into account and successfully predict the interplay of the various dimensions (e.g. social, political, etc.).
- ▶ Scenarios suffer from uniqueness; they represent only the views of those experts who constructed them, and there is no guarantee that the future is accurately predicted.

### Scenarios

#### Principles & General Procedures



The scenario technique generates a narrative description of the future state(s) of the system. The format is the *base system state* description and one or more *intermediate images*, together with a description of the *external context* and the *driving forces* behind the forecasted changes.

One or more scenarios may be constructed: several alternative state scenarios for a single point in time, or, one (or perhaps two) transient scenarios, which forecast the effects of different policies on the evolution of system conditions. Decision makers and interested parties may compare these scenarios for review.

#### Main process:

The first element of scenario analysis is an interactive team process of creating building blocks for the scenarios. This process is generally carried out in a two-day workshop away from the usual working environment. The second element, the development of compelling scenario stories from this initial material through background research exploring the implications of the stories is less participatory by nature and usually performed by a small team of scenario analysts. In view of the focus of the current report on participation, we will concentrate on the scenario workshops themselves.

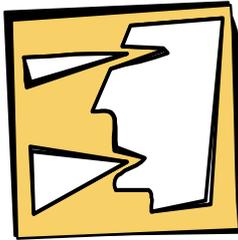
The first step in the process is to identify the key issues or questions relevant to the organisation and the time frame associated with the focal issue(s). This is followed by a brainstorming exercise to surface ideas associated with the issues under concern. From this brainstorming, driving forces and key trends are identified by clustering the brainstorm ideas into common themes. Often these are social, cultural, technological, economic, environmental and political, featuring the most significant events in the external environment; they will drive the plots of the scenarios and determine their outcome. A variety of procedures is developed for arriving at scenario plots from the key trends and driving forces. In general in the following way:

- ▶ the driving forces and key trends are prioritised to determine those that are most important and uncertain;
- ▶ these provide the themes for the plots;
- ▶ a variety of scenario plots is then created from this limited number of selected themes;
- ▶ once the themes are identified the group completes each scenario – tracing the narrative line from a beginning to an end.

The follow up to the workshop output involves a period of interim research and reflection, writing up the scenarios and exploring their implications. The important driving forces, trends and uncertainties are researched.

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#### Key definitions:

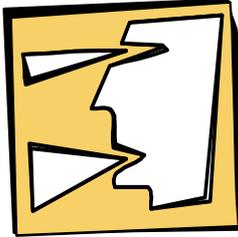
- ▶ A **system** is a collection of components, which interact to achieve a common function
- ▶ A **state scenario** describes conditions and events (the state of the system and the external context) at an single future point in time
- ▶ A **transient scenario** forecasts the changes in and the alternative action on a system at various stages in the evolution of the system
- ▶ The **dimensions** of a system are collections of its attributes, where each collection represents a major aspect of the system (e.g. political, economic, etc.)
- ▶ The **attributes** of a system include the elements of components of the system and the interrelationships among them
- ▶ A **goal** is a value judgement that satisfies one or more needs e.g. "to promote equality in schooling"
- ▶ **driving force** is an attribute of a system which causes changes in the system state over time
- ▶ The **base system state** is the set of current conditions, which describe the characteristics of the scenario
- ▶ An **intermediate image** describes the state of the system after a time interval
- ▶ The **external context** represent the constraints on the base system

#### Important assumptions:

A scenario is constructed by extrapolating future conditions from present conditions and foreseeable driving forces for change. Consequently, a fundamental assumption concerning dynamic system behaviour is implied: a system exhibits current conditions that are the result of all the previous current and prior forces on the system. However, social systems are self-organizing and anticipatory, and the current system state may be influenced by anticipated future conditions. According for these factors in scenario construction requires that the analyst be aware of the possible effect of anticipated action on the future state of the system

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### Basic steps:

#### 1. Construct the base system state

- ▶ Identify the major sub-groups in the base system
- ▶ Identify the attributes of the sub-groups
- ▶ Choose one of the attributes as the driving force for the change in the system

#### 2. Identify the external context

- ▶ Formulate the hypotheses about the constraints on change in the base system state
- ▶ Consider constraints that may change during the time span of the system

#### 3. Develop the progression to the first intermediate image

- ▶ Identify the trends in the interaction between attributes of the base system for the time intervals (5-10 years)
- ▶ Identify any changes in the external constraints for the time interval
- ▶ If the alternative or competing trends are likely, construct an intermediate image for the time  $n...$  for each major trend

#### 4. Construct the intermediate image

- ▶ Using the dimensions and attributes identified in step 1, describe the likely system state or conditions at time  $n...$
- ▶ Take into account the forces for change, the external constraints and the trends internal to the system

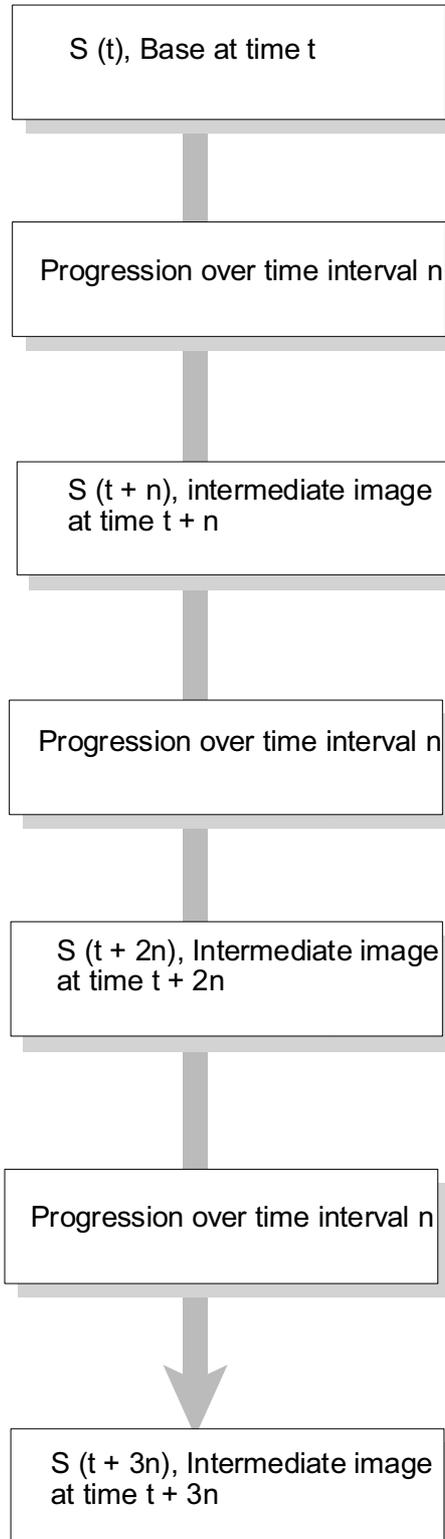
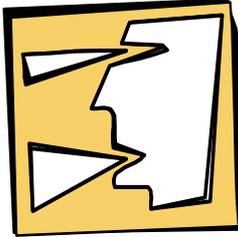
#### 5. Repeat step 3 & 4 until the desired time span has been covered

- ▶ The last intermediate image becomes the new base system state
- ▶ To progress to the next intermediate image, consider changes for the interval time  $n..$  to time  $n+...$
- ▶ End the scenario with the last intermediate image

If a normative scenario is being developed, the procedure in step 4 is inverted. Instead of predicting intermediate image, the analyst tries to identify the alternative action or policies that are necessary to achieve the desired system state. This is typically an iterative process, where the first one set of policies, the external trends of the system and the external context are used to forecast a likely progression. The discrepancy with the normative system state is then used to indicate alternative policies until the desired and the predicted intermediate image merge.

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