Land Transport Regulation 2040
Scenario planning fact sheet

Introduction

A scenario is a narrative of a possible future or aspects of a possible future. Scenarios are not predictions about the future but are similar to simulations of some possible futures. They are used for exploring the future and, as a tool for decision making, they can highlight the differences from the present and reveal the choices (and their potential consequences) available to decision-makers and organisations.

> The objective [of scenarios] *is not to get a more accurate picture of the world around us but to influence decision making inside the mind of the decision maker. The objective of good scenarios is better decisions not better predictions.* [Peter Schwartz, cited in Evans 2003]

Using scenarios as an analysis method is probably one of the main concepts and most widely used methods in longer term strategic planning. The term 'scenario' was introduced by Herman Kahn in the 1950s in connection with military and strategic studies conducted by the Rand Corporation. Kahn used the term for issues related to US public policy, international development and defence.

Using scenarios is a technique that is suited to considering a number of factors where the degree of uncertainty is high – for example, where trends for future development or growth are uncertain. The scenario planning process can also stimulate strategic thinking, creativity, communication and organisational agility, thus improving general strategic capability. It is also a tool that allows for the co-creation of potential futures by organisations or collaborative groups.

Both public and private sector organisations have used scenario planning for a wide array of functions. The public sector relies mainly on scenario methodologies when it has to define planning activities (for example, it was used in the past for defence planning) and to delineate alternatives for policies. Almost all industries (especially multinational companies) use scenarios to develop their business strategies.

For example, the development of scenarios allows new insights into the opportunities and risks involved in making decisions about public transport that would have major consequences for the development of a region over the next few decades.

Main characteristics

Scenarios can help decision-makers to think in a disciplined way about the future when making decisions. The method helps the decision-maker to consider the range of plausible futures, to articulate preferred visions of the future, and to use what is learned during the scenario development process in the formal decision-making process. It also helps to stimulate creativity and to break from the conventional focus on present and short-term problems.

- One of the purposes and uses of scenarios is to help decision-makers anticipate the context in which they have to act in terms of what is inevitable, what is certain (or not) and what they can or cannot control.

- Scenarios also allow organisations to test how potential strategies and actions might work in a variety of future circumstances and to investigate how 'robust' strategies are across multiple scenarios.

The scenarios must stand up to critical examination including the structure and the reasoning they use. Only then is there a chance that they will contribute to decisions and actions. To be effective, scenarios must focus on:

- plausibility – they must fall within the limits of what might conceivably happen
- consistency – the combination of logics in a scenario must not have any built-in inconsistency that could undermine the credibility of the scenario
- differentiation – they should be structurally different, meaning that they should not be so close to one another that they become simply variations of a base case
- decision-making utility – each scenario, and all scenarios if they constitute a set, should contribute specific insights into the future that will lead to the decision focus that was selected
- challenge – the scenarios should challenge the organisation's conventional wisdom about the future.

Using these criteria it is usually possible to quickly select the few scenarios that are most worthy of development. Some possibilities may be eliminated because their combinations of logic are thought to be implausible or inconsistent. Others can be eliminated because they would not offer any significantly new insights to the decision making.

Qualitative and quantitative scenarios

Qualitative scenarios can have a richness that is not bound by quantitative methods. They can explore relationships and trends for which little or no numerical data are available, including shocks and discontinuities; they can more easily incorporate motivations, values, and behaviour; they can create images that capture the imagination of those for whom they are intended. (COST, 2002)

Qualitative scenarios are descriptive stories about one or more potential future states, and they may be built upon, or contain, indicators of specific changes, but they usually describe a situation in narrative terms. They are usually called 'models' and are built up from specific variables that are modelled through mathematical and statistical methods to identify potential future states.

Qualitative scenarios are often used in conjunction with quantitative modelling to both describe a future state (for example, in terms of a user's experience) while also describing the future in tangible terms that can be quantified in some detail.

Types of scenarios (variations)

Thinking about the future can seem daunting because it contains large elements of the unknown. Having a framework helps to ensure that the scenarios are logical, relevant and

credible. In addition to logic, scenario development also requires a degree of imagination and intuition. Scenarios can combine several approaches and a mix of inductive and deductive reasoning; a variety of specific techniques can also be used within these primary approaches. This is explained further below.

Inductive method scenarios (*bottom up*):

This approach builds step-by-step on the data available and allows the structure of the scenarios to emerge by itself. The overall framework is not imposed; the story lines grow out of the step-by-step combining of the data. This presents a requirement to identify commonalities across the 'stories' – *after the fact* – for purposes of reporting the scenarios.

Deductive method scenarios (*top down)*:

With deductive scenarios, the analyst attempts to infer an overall framework to start with, after which pieces of data are fitted into the framework wherever they fit most naturally.

The inductive and deductive methods are the preferred approaches in situations where scenario building deals with the specific decision and/or question that has to be tackled, or where scenario building is already embedded in the thinking style of an organisation.

Normative scenarios (*How can a certain end state / target be reached or avoided?*):

Often called 'backcasting' or a 'pre-mortem', this type of scenario development process starts with developing one or more preliminary views of a possible future and then looking backwards from that point to describe the types of decisions, conditions and events that might have led to it from the present.

Alternative scenarios (*What might happen?)*:

These begin with the present as a starting point and move forward to the future by asking 'what if' questions about implications of possible events outside familiar trends. Data about the past and present is used as a key input, bearing in mind the possible, plausible, probable and preferable changes that might occur.

Archetype scenarios:

Archetypal stories are used to provide a starting point for four alternative futures. This approach helps to ensure that each narrative is diverse as well as internally consistent, and explores four potential and plausible futures. Archetypes have been widely used and have a standard 'storyline'. The descriptions below of how these stories normally flow are adapted from the Australian Academy of Science (2015) and Townsend (2014).

> **Growth:** Stories of this type are generally about continuation and growth of current trends. This includes growth in domains such as economics, science, technology and cultural complexity. Other factors that might grow or expand are population, the size of urban settlements or agricultural areas, or of the amount of resources used. Growth could also be in terms of advancements in health or even democratic engagement. This scenario is about the (sometimes exponential) continuation of present trends and behaviours. Radical changes in behavior or resource usage would be considered under other scenarios.

Restraint: Stories of this type focus on encountering and responding to resource-based limits to growth. It typically involves exercising discipline to address undesirable outcomes – generally slowing growth to 'live within our means', whether this is environmentally focused or not. In addition to sustainability, restraint can also apply to taking collective responsibility for matters such as economic equity and poverty reduction. It is more than 'doing without' and could mean anticipating and preparing for future limits. Undesirable 'restraint', where the strong beliefs of one part of the population are imposed on or used to exclude other parts of society, can turn into a collapse scenario. Scenarios involving fundamental changes to society's behaviour or values usually fall under 'transformation'.

Collapse: Stories of this type are about the loss of many valued aspects of society. It is a future where conditions deteriorate from present levels, and critical systems can fail. A collapse scenario might emerge because good intentions didn't work out (for example, resource depletion while pursuing economic growth, or resource protection leading to economic decline). Collapse might also result from direct destruction or from shocks and emergencies such as a severe global financial crisis or pandemic. The deciding factor in how bad a collapse scenario can get is whether society is prepared for the shock and whether it results in eroding people's wellbeing.

Transformation: Stories of this type are about fundamental changes from the current state of society for the better. It is caused by a disruption to current patterns, values or behaviour, with the development of new ones. Transformations might also result from significant technological changes and/or major changes in culture, attitudes, policies and practices. It can include growth. The difference between transformation and a typical growth scenario is that present trends are discontinued and growth emerges from a totally new regime based on innovation and new behaviour. In essence, transformation occurs due to radical changes to core features of today's world for the better.

Incremental approach for scenarios:

In situations where major stakeholders are attached to what they believe is the 'official future', the incremental approach is used. In the incremental approach the 'official future' is often the starting point. The scenario-building team tries to identify flaws in the official future, and to develop alternatives that convincingly challenge the official future. Alternatively, the team will develop scenarios as excursions from this to explore the other plausible futures.

Incasting for scenarios:

Since the mid-1970s, the Hawaii Research Centre for Futures Studies has been using an 'incasting' technique for scenario development. In this process, participants are presented with pre-done scenarios to explore.

- The scenarios are deliberately written very generally, and participants are asked to add details to the scenarios using their imaginations and the rule of logical consistency to the described characteristics of each scenario. With organisations, participants may be asked to consider how they would redefine, reinvent or otherwise transform their mission, activities, services or products to succeed in the conditions of each scenario.

- This futures method is designed to increase the flexibility with which people plan for the future, and to increase their creativity in making use of both opportunities and challenges emerging from change.

Types of futures

While it can be tempting to just focus on probable and preferable futures, plausible futures can help prompt new insights by taking a wider view. The five types of futures described by Voros (2003) (see Figure 1) can be helpful to illustrate the difference and are included below. They are:

1. **potential futures** – alternative futures in general, including those we cannot even begin to imagine
2. **possible futures** – all the kinds of futures we can possibly imagine
3. **plausible futures** – futures that could happen according to our current knowledge
4. **probable futures** – futures that are considered likely to happen
5. **preferable futures** –what we want to happen based on subjective value judgments.

Judgment of what is possible, plausible, probable, or even preferable, will differ between people and over time. This is what makes discussions about scenarios so engaging and important. It is these discussions that can generate rich insights into the future and inform today's decisions. The Land Transport Regulation 2040 scenarios focus on plausible futures.

Figure 1: Five types of futures
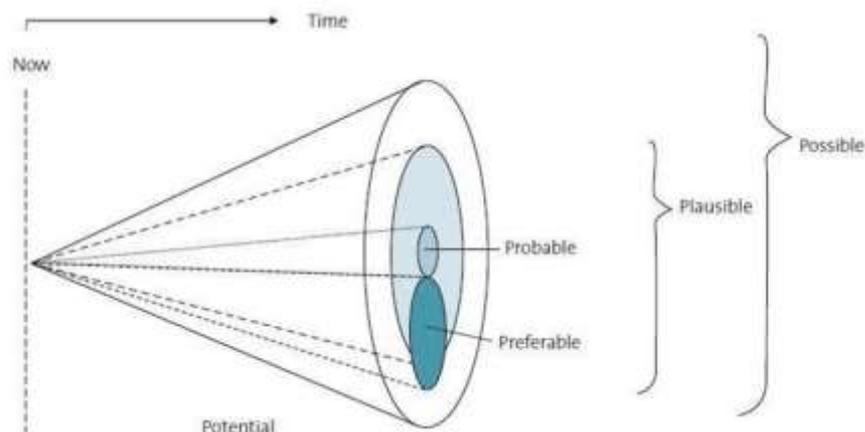
Source: Voros, 2003

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