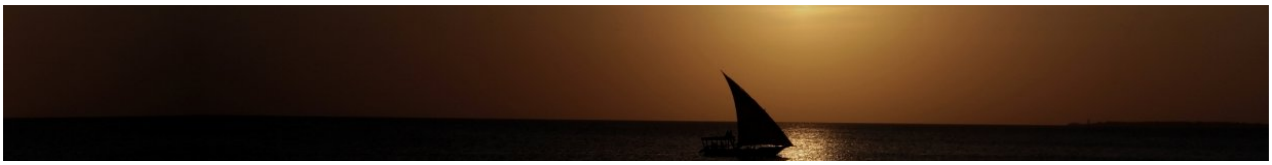

Scenario Planning for understanding Risk in the External Environment

Chapter for
'Enterprise Risk Management: Today's Leading Research and Best Practices for Tomorrow's Executives, 2nd Edition'
to be published by Wiley (early 2021)
Chapter title: 'Scenario Planning as an Enrichment of ERM'

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1 Purpose, scope and practice of Scenario Planning

1.1 What is in a word?

In this chapter the term *scenario* means an *alternative possible future* of the business or policy environment. A set of scenarios is used to explore significant contextual uncertainties that are relevant for an organization. Like many other terms, the word scenario will have different meanings to different people. It comes from a word in the ancient Greek theater context: Σκηνη (skene), which means *stage*. In the performing arts a scenario is a synoptic collage of an event or a series of actions and events. In this context there is usually only one scenario: the one that the script writer or dramatist has selected. In daily life, the word scenario similarly could describe a sequence of actions and events, often with choices involved: if I follow scenario A, I could end up with situation X; if I follow scenario B, the result could be Y.

In business and policy making, the word can be used in a similar way. A 'scenario' could describe what actions an organization can take and what the implications will be. The organization is an actor in such a scenario. It has some influence on the result even though the organization may not be able to fully determine the outcome because of uncertainties along the way. Yet another way the word scenario is used is by referring to different outcomes of some variable. For example, an analyst may be studying the implications of three different oil price scenarios. A central bank may be discussing various inflation scenarios. Such 'scenarios' just consider different possible numeric outcomes for a variable but do not necessarily provide an understanding of the reasons behind these outcomes. Someone may be talking about scenario analysis using a quantitative model. This usually just refers to a practice of changing the inputs and then inspecting the corresponding changes in the outputs of the model. A better word in this context would be sensitivity analysis.

When the term scenario is used in this chapter, this does *not* mean a movie script, a strategic plan, a decision option, one of several possible numeric values or a sensitivity outcome. What is meant is an alternative future: a description of how relevant driving forces and uncertainties in the future external environment may materialize in some logical, coherent way. This does not mean that the other uses of the word scenario are invalid. There are many words with multiple interpretations.

Likewise, the term *Scenario Planning* can also create confusion. Generally, this is interpreted to mean the analysis activity that is associated with developing and using scenarios. It has nothing to do with 'planning a future' but comes from the idea that one can better plan the business if a thorough understanding of the future business environment (using scenarios) has been attained. Equivalent terms are *scenario analysis* and *scenario thinking*. The latter may perhaps better characterize the methodology at hand, but Scenario Planning is the more common term.

1.2 Using scenarios

Scenarios are narratives that describe and communicate different ways in which the future contextual environment of an organization may unfold. It is important to point out that *narratives* are involved. This is a consequence of the fact that the contextual environment is too complex to be fully captured in quantitative models. We therefore need conceptual logic and perhaps intuition. Nevertheless, it is often possible and desirable to underpin scenarios using some form of selective quantitative descriptions, for example by performing historic trend analysis coupled to making quantitative assumptions regarding the different future pathways. Such quantification can make scenarios more meaningful and tangible.

The crux of scenario thinking is that the uncertain future outcomes of various political, economic, regulatory, technological, societal and other developments are considered in their context. The

assumed outcomes of such uncertainties being combined in a single scenario must *hang together* in some logical way. The activity of establishing what is uncertain and what not, the assessment of possible outcomes of the uncertain developments and how these are related, provides the key benefit of a scenario planning exercise: a much better understanding the contextual environment.

Decision makers will benefit from scenarios if they are exposed to them in sufficient detail, and if they are at least partially involved in developing them. Scenarios can be employed to test or design strategies. They can be used to develop frameworks for investment decision making. They can be linked to enterprise risk management concepts.

In this chapter a distinction is made between two types of scenario sets: *exploratory scenarios* and *focused scenarios*. The primary aim of exploratory scenarios is to better understand the future contextual environment of an organization without having a specific decision problem in mind. For organizations that operate internationally this will usually imply that the world at large is in scope (global exploratory scenarios). *Focused scenarios* are more limited (geography, time horizon, topics) and zoom in on a specific decision or issue. Ideally an organization maintains exploratory scenarios and in parallel uses smaller focused scenario planning exercises for specific decisions (if these face contextual complexity). Scenario planners will of course be looking for synergies and consistency between any focused scenario planning exercises and the existing exploratory scenarios. Other organizations may decide that just developing exploratory scenarios is sufficient. Yet others might choose a focused scenario planning approach without necessarily developing 'a bigger picture' first.

1.3 ERM and Scenario Planning

Enterprise risk management aims to manage risks that might affect the enterprise at large. The process steps involve risk identification, assessment and prioritization as well as the development of risk responses. The result is an inventory of relevant risks, catalogued and presented in various useful manners, and a mitigation program including controls. ERM exercises are typically repeated on an annual basis with perhaps quarterly updates.

Scenario Planning is a methodology that attempts to provide insight in 'how things hang together' and considers how the future of the business environment, to the extent relevant, might unfold. Of course, the future is fraught with uncertainties and, hence, risks. The focus of Scenario Planning, however, is not on mitigation and controls but on understanding the complexity of the outside world and, with that, better recognition of the external risks.

In the world of ERM it is increasingly realized that most of the effort expended primarily targets near-term operational risks. Risk management activities are therefore usually confined to the 'ongoing' part of the business cycle and target much less the strategy development and new investment phases. However, most value gains and losses occur because of strategic choices and investment decisions. Whereas operational excellence and the avoidance of mishaps whilst running the business are of course crucial, the long-term longevity of an enterprise is primarily dependent upon making the right investments and other key decisions.

Companies would appear to be much less systematic in dealing with risk related to the future business environment than they are in addressing day to day operational risks through a risk

management approach. The case can be made to combine the rigor of ERM, which is often already in place, with the creativity and insight that the Scenario Planning practice offers.

The ERM process usually starts with the identification of risks. Scenario Planning, of course, has a similar phase exploring the uncertainties and key driving forces in the business environment. Although perhaps first some mutual clarifications will be needed to align terminologies being used, clearly there are synergies to be captured in this initial risks/uncertainties/driving forces identification phase.

ERM subsequently is systematic in assessing the risks, assigning risk owners, considering mitigation options or actions and, where relevant, controls. Usually things are recorded in a repository, e.g. a spreadsheet or a digital platform. Scenario planners may be less disciplined and like to focus on creatively discussing the interrelationships between the external uncertainties and drivers. They have lively debates and record their thoughts on flip charts, hexagons, diagrams and by means of short story lines.

A case could be made to blend enterprise risk management practices with Scenario Planning:

- Descriptions and assessment of the risk categories that pertain to the broader contextual environment might serve a starting point for a scenario planning exercise.
- Any work done in identifying causal relationships is of direct use in scenario planning work.
- Risk monitoring programs, to the extent these target issues in the contextual environment, can feed into (or can be blended with) a horizon scanning system that scenario planners might want to implement.

For such an approach to succeed, risk managers will need to take a longer-term perspective than they usually do (i.e. multiple years), develop a keen eye for upsides along with downsides and understand how risk and uncertainty features in strategy development and decision making. Clearly, the objective of a scenario planning project is different from ERM. But there are overlaps and synergies. An organization could benefit from having both.

1.4 Historic and current practice

The origins of Scenario Planning go back to the US military after the Second World War. Herman Kahn is considered a pioneer of Scenario Planning through work he did at the RAND Corporation particularly in the early 1960s.

Royal Dutch Shell is a company well known for its scenario planning (Kuper and Wilkinson, 2014). In 2012, this Anglo-Dutch company celebrated the anniversary of ‘40 years of Shell Scenarios’. Pierre Wack, the founding father of the scenario planning practice in Shell, led the scenario team in the early 1970s. A famous episode concerns the Shell 1973 Scenarios, which included the possibility of higher oil prices and an energy crisis. When the oil crisis hit in October 1973, Shell was better prepared than its competitors. Another significant period was the period preceding the fall of the Iron Curtain, when Peter Schwartz, author of The Art of the Long View (Schwartz, 1991), was head of the scenario team. The disintegration of the Soviet Union had indeed featured in the Shell Scenarios of the 1980s. In the 1990s, globalization and liberalization were key

themes. In the first decade of this century, considerable focus was put on the topic of climate change. The latest Shell Scenarios, 'Mountains and Oceans', were published in 2013 (with an additional scenario 'Sky' in 2018).

In Singapore, Scenario Planning has been an important contributor to the governance of the city-state since 1991. In 1995, a formal Scenario Planning Office ('The Office') was set up. As a small country, Singapore has no influence on the global events to which its successful economy has huge exposure. Hence it is particularly important for Singapore to be prepared for a range of possible global and regional developments. A new set of scenarios is developed approximately every five years. Such exercises are also used to engage with the staff within the administration on strategic matters. The Office has an active practice of horizon scanning to early on identify global issues that may affect the country.

Scenario Planning has specifically been of interest to the energy sector as its long-term investments have a more than average exposure to geopolitical, macroeconomic and environmental uncertainties. Another company that has embraced Scenario Planning as a strategic tool is Equinor, formerly named Statoil, a Norwegian company. This company has implemented an interesting practice that is distinctly different from Shell's approach. Although Equinor has been using the scenario method a little longer, since 2015 three global scenarios are maintained and updated on an annual basis. In the core these scenarios remain the same, presumably reflecting the consideration that the thinking about long term global trends should retain some stability (Website Equinor, Energy Perspectives). A similar practice has been adopted by the International Energy Agency although the scenarios published by this institute differentiate themselves from those developed in the private sector by the objective to study the impact of policy measures on the energy system. This means that assumptions around other key uncertainties such as global economic growth are kept constant across scenarios (Website International Energy Agency, World Energy Outlook). Another institute that publishes scenarios for the energy sector is the World Energy Council (World Energy Council, World Energy Scenarios).

International organizations in the general political and macroeconomic arena that have adopted scenario planning as a strategic tool are for example the OECD (Website OECD, Futures Thinking) and the World Economic Forum (Website World Economic Forum). In addition, there are national scenario planning initiatives in various countries.

There are only a few academic institutions that conduct research in the domain of Scenario Planning. Some examples are (Website University of Oxford, Oxford Scenarios Programme) and (Website Colorado State University, Scenario Planning Institute).

Clearly, the crises of 2008 and 2020 have contributed to the realization that it is not good practice to assume a steady state future and only work with a single base outlook for planning and strategy purposes. It can be observed that various economic institutes and consultancies increasingly move towards publishing multiple scenarios, also for the shorter term, rather than a single outlook. Often, however, the emphasis in such outlooks is on the numbers: different possible outcomes for e.g. global economic growth. Although such quantification is of course essential, the true benefits of scenario exercises are obtained by the insights generated about the interconnections between fundamental driving forces and trends.

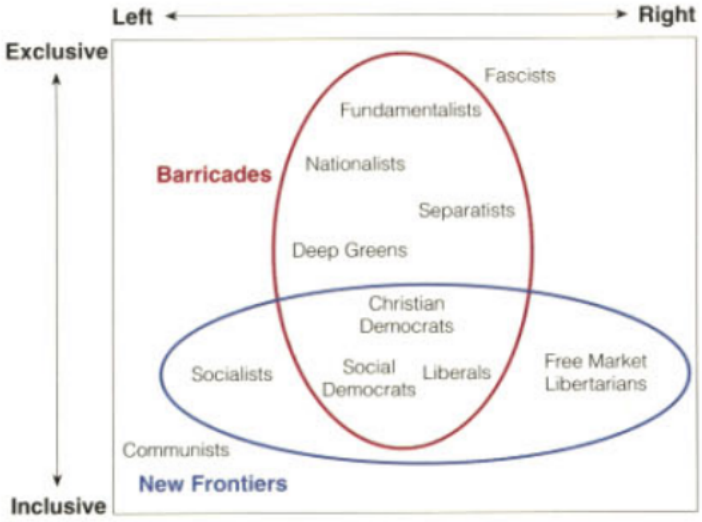

Figure 1: A diagram in the Shell 1992 Scenarios showing the possible fragmentation of the political spectrum under 'Barricades'.

1.5 Learnings from the Shell practice

As Shell has been practicing scenario planning since 1971 and has systematically offered the scenario documents to the public domain, it is possible to look back and reflect on the assumptions and considerations at the time and compare these to actual developments.

An interesting set of scenarios was published in 1992, covering the period 1992 to 2020 (Shell Global Scenarios 1992 – 2020). The preamble of these Shell 1992 scenarios recognizes that, following the fall of the Berlin wall, the world was at the dawn of a huge wave of globalization, liberalization and technological development. These would be the major driving forces shaping the world in the next three decades (as from 1992). Two scenarios were articulated: 'New Frontiers' and 'Barricades'. 'New Frontiers' describes a world in which the benefits of globalization and free trade would be seized by most countries, leading to substantial economic growth, particularly in the emerging markets. Companies from developing countries venture across the globe, problems are addressed cooperatively, interdependence is the norm. In 'Barricades', people resist liberalization because they fear that they will lose their jobs, power, autonomy, traditions and identity. There are 'forgotten groups'. Markets are restricted, trade agreements are bilateral rather than multilateral, physical barriers are erected to discourage migration. The political spectrum in 'Barricades' is very different from the situation in 1992 (and from 'New Frontiers') as substantial fragmentation is foreseen, with an exclusive-inclusive axis added to the classic left-right scheme through radical greens and in particular nationalistic, populistic parties coming to the stage (Figure 1). The Shell 1992 Scenarios constitute a remarkable narrative exhibiting visionary foresight. Indeed, in reality the nineties up to say the financial crisis of 2008 resembled more or less the 'New Frontiers' scenario, after which a transition to a world with many 'Barricades' elements ensued (at the same time a number of important developments, for example issues in the financial system, were not covered in these scenarios).

Learning: The Shell 1992 Scenarios show that it is possible to recognize that a certain base line future trend (in this case globalization, liberalization) may over time evoke a counter reaction (in this case nationalism, protectionism).

Yet, in the Shell follow up scenarios that were published in 1995 and 1998, a 'Barricades' reaction to globalization was no longer considered plausible. In 1995 the mantra TINA was introduced ('There Is No Alternative'), meaning that there was no alternative for globalization and liberalization. In the document of 1998 it is stated that *'..we saw that Barricades was a story appropriate for only a very small part of the world. The forces of what came to be known as TINA were simply too strong to resist*.' What happened? One must assume that the Shell scenario planners, like everyone else in the upbeat era of the nineties, were so influenced by the zeitgeist promoting relentless liberalization that they could no longer imagine that globalization would encounter any resistance.

Learning: People's minds will often be biased by the dominant prevalent thinking. The challenge is to conceptualize alternate, but still plausible, pathways that are quite different from the existing consensus.

Whereas the financial system does not feature in the Shell 1992 and 1995 scenarios, in the Shell 1998 scenarios this topic suddenly appears. In one of the scenarios strong regulation of the financial sector is introduced. In another scenario the global order is less collaborative and more volatile, quite prone to financial crises, notably towards the end of the first decade of the 2000s (!). Clearly, the Asian financial crisis in 1997 must have inspired Shell's scenario planners to pay due attention to this driving force, whereas in prior scenarios this topic did not feature at all.

Learning: It takes a crisis to plan for the next crisis. The challenge is to explore potential crises without experiencing one first.

Following further scenario publications in 2001 and 2004, in 2007 Shell issued a set of two scenarios that specifically zoomed in on the climate change issue and the future of the energy system. 'Scramble' reflects a focus on national energy security. 'Blueprints' paints a world where broader fears about lifestyle and economic prospects forge new alliances that promote action in both developed and developing nations. In the preamble of the publication three so called 'hard truths' were presented:

1. The world's prosperity is growing rapidly and with it an insatiable demand for energy.
2. The conventional resources are finite and will struggle to keep pace with demand growth.
3. The world needs to reduce carbon emissions to combat climate change.

A quote from the Shell 2007 Scenarios publication: "By 2015, growth in the production of easily accessible oil and gas will not match the projected rate of demand growth." Whereas the two other hard truths fully stood the test of time, the supply issue only partly evolved in the way predicted. By 2014 the oil price had dramatically fallen after indeed a period of strongly rising demand driven by the emerging economies. The main culprit was the spectacular and hardly foreseen development of shale oil and gas production in the United States which triggered price actions by the large producers in the Middle East.

Learning: The 2007 Shell Scenarios put the topic of climate change up for discussion in a powerful way. The potential tensions described are current reality. The technique of presenting 'hard truths' carries risks. Although it is both useful and tempting to make bold statements about certainties (in order to focus on the remaining uncertainties) it is prudent to limit their assumed validity in time.

These examples illustrate some learnings that can be captured from lookbacks. Such reflections are useful for future scenario planning exercises.

For a detailed account of the historic Shell scenario practice one is referred to (Kuper and Wilkinson, 2014). A biography of the founding father of Scenario Planning in Shell, Pierre Wack, can be found in (Chermack, 2017). Current and earlier Shell scenario planning documents are published on the company's website (Website Shell, Shell Scenarios).

2 Methods for scenario development

2.1 Introduction

The result of a scenario development project is a set of narratives that describe and communicate different ways in which the future contextual environment of an organization may unfold, to the extent possible and where relevant underpinned by quantifications.

Box 1

Peter Schwartz in 'The Art of the Long View' quotes these steps in developing scenarios:

- Identify focal issue or decision
- Driving forces in the local environment
- Driving forces in the macro environment
- Rank by importance and uncertainty
- Select scenario logics
- Flesh out the scenarios
- Consider the implications for strategy or decision
- Select leading indicators and sign posts

Kees van der Heijden, in his book 'Scenarios, the Art of Strategic Conversation', implicitly arrives at these components of a scenario development project (there is not a structured process given):

- Define purpose
- Set the 'scenario agenda': establish which areas in the business environment are relevant
- Set up the scenario team
- Frame, generate ideas using workshops, interviews and 'remarkable people'
- Perform historical studies
- Study the driving forces and their interrelationships
- Perform scenario structuring

The development of such a set of scenarios needs to be managed as a project. The team will need to know what it is going to do, how this will be done, who will be involved, how long it is going to take, how much time and money can be spent. This requires a project plan. Various

sources have different lists of steps that a scenario project needs to go through. Some examples are given in Box 1.

Other sources than Schwartz and Van der Heijden (Box 1) may have yet other proposed schemes that can be followed in a scenario project. There is not a generally accepted, fixed recipe. Of course, the process to be followed will strongly depend on the purpose and type of scenario exercise which, as we have seen, can differ widely.

For simplicity, the following broad brush components in a scenario development project are offered for reference:

- Define purpose and scope
- Develop an understanding of the current status
- Explore uncertainties and driving forces
- Structure the possible outcomes into two to maximum five scenarios
- Develop story lines and analyze the implications

Scenario development projects as conducted at Shell may take one to two years. The effort will involve studies, interviews, workshops, engagements with many external parties, modeling and quantitative analyses. This can be expensive. At the other end of the spectrum, a scenario exercise can consist of a brainstorming session of half a day. In such a case, gathering of new information cannot be included. One has to rely on the knowledge and insights already available with participants in the exercise, which then becomes a structured elicitation and discussion process aimed at aligning and blending existing insights into a few scenarios that can be used to address an urgent decision problem.

2.2 Purpose

A scenario planning exercise can have multiple purposes. In this chapter the focus is on the use of scenarios for decision making and strategy development, indirectly or more directly. Other objectives may be:

- Engagement and public debate. Scenarios can greatly enhance discussion on perhaps contentious issues or policy decisions.
- Bridging gaps between parties with different views or interests.
- Analysis of the external environment solely for knowledge development purposes, for example in academia.

When scoping scenarios, it is critical to spend time on discussing the purpose of the scenario exercise. Is it only to inform the company strategy development process, or is it also the intention to use the scenarios for engaging authorities for example? The answer to this question will not only influence the content of the scenario project but also the way in which the materials will be developed and the style and tone of the narratives to be written.

2.3 The focal question

In many decision processes or project management approaches it will be required to carefully articulate the objective. It should be no surprise that this also applies to a scenario development project. Often there is not a specific decision or focus issue that requires urgent analysis. Such scenario projects are meant to explore the future business environment in general terms across a range of dimensions. Nevertheless, it will be useful to spend some time on articulating the objective and to share and discuss this with those involved within the organization.

If the scenario exercise is not a standalone project but part of a broader decision process, then clearly the purpose statement or focal question must be properly related to the frame of the decisions to be made.

2.4 Defining the scope

Based on the focal question the scope of the scenario exercise needs to be defined in some more detail. This will involve three dimensions: the geographic area, the themes to be covered and the time horizon.

Geographic area

This can range from the world to a city or the direct surroundings of a facility. The area should encompass territory where relevant forces or activities take place (or originate from) that might have a bearing on the focal question.

The themes

These are the categories of topics and trends to be studied by the scenario exercise. It is useful to consider such themes first in broad terms. For example, themes could be ‘political developments’, ‘macroeconomics’, ‘the regulatory environment’, etc. By first identifying the relevant themes the scope of the scenario project can be narrowed whilst at the same time one does not get lost immediately in a detailed discussion of specific topics.

The time horizon

The outlook to be covered needs to be constrained in time, ranging from a few years to say 20-30 years. If the time horizon would go beyond that, things would become too speculative. Nevertheless, in the Shell scenarios of 2013 for the climate change related discussion the time horizon was extended to 2100. The reason was that the impact of emission mitigation measures would only be seen over the very long term.

2.5 Understanding the present

Although scenarios are about the future, first some analysis should be devoted to what has happened in the past. The purpose is to understand how things hang together, to make sense of the complexity of the external world and to genuinely get to grips with the root causes of key developments. The rationale is that although trends and patterns may change and evolve over time, their interrelationships often do not, at least not over the period to be covered by the scenarios. For a start, this can apply to numerically expressed economic variables. As an example, the exchange rates relative to the US dollar of oil producing countries show some degree of historic correlation with the price of oil, e.g. Canada, Australia, Russia, and others. Such relationships, when identified, can be used when considering economic developments for these countries. However, one must distinguish between correlation and causation[1]. Exchange rates are influenced by many factors. Therefore, extrapolation into the future of such interrelationships needs to be done with consideration. As with trends that can be expressed numerically, also qualitatively articulated relationships will survive over a long period. History has shown, for example, that in times of strong protectionist policies there will be less economic activity and growth. A more 'left-wing' oriented government will usually increase taxes and favor state directed activities over the free market. High debts may lead to a financial crisis. Corruption leads to suboptimal governance and will have a detrimental impact on economic performance of countries. There are many similar notions that have been experienced in the past and that constitute valuable relationships or 'if-thens' that can be used, with care, in scenario thinking.

It is of interest to dig deeper and identify the fundamental driving forces that are at the root of perhaps several related developments. When we consider the financial crisis of 2008, it is often argued that this was caused by the greedy bankers or by the subprime housing market in the USA. These were perhaps symptoms, but not root causes. The underlying fundamental driving force was the architecture of the credit based global financial system that had evolved over time.

Another phenomenon to look for when reflecting on the past is what could be called the 'pendulum movement'. If at some point a new direction is being taken (by a government, multiple governments, society or business), this may become an undisputed and sacred new belief of 'how things should be done', especially after initial successes. Subsequently such a belief is relentlessly pursued, without much consideration for the unintended consequences. At some point such damaging consequences become clear and the direction is reversed, possibly overshooting again towards the other extreme. In the western world, for example, we have seen welfare-state oriented policies in the 1960s and 1970s with its suffocating effects being followed by relentless liberalization as from the 1980s and the 1990s with its damaging overshoots in places in the other direction.

Historic analysis is thus an important, and sometimes neglected, phase in the scenario development process. This should be aimed at recognizing relationships between trends that may be assumed (with care) to remain more or less constant, it involves understanding the fundamental driving forces and uncovering potential pendulum movements. It is an effort in which the right expertise needs to be accessed.

[1] For example, when considering the apparent historic correlation between the Australian dollar and the global oil price it is not to be assumed that the latter drives the former. Rather, the spectacular growth of China after 2000 has impacted the oil price (along with other factors) but has also impacted export levels of resource rich countries such as Australia.

2.6 Phenomena: variables, developments and events

A next step is the identification of relevant future variables, developments, issues, and events that could feature in a scenario planning exercise: phenomena, to be understood as 'things that will manifest themselves'. Once they are captured in scenarios they may also be called 'scenario-elements'. This identification phase can be compared with framing in the decision analysis methodology and the risk identification exercises that are common in ERM. In corporate practice it may be advisable to explore the synergies between these activities or, perhaps even better, combine them. In Scenario Planning the focus will be on the phenomena that will shape the future business environment and that will influence, one way or another, the fortunes of an enterprise or project. Often, the way the various phenomena will play out is uncertain. That is why the term 'uncertainties' is used as well. But not everything is uncertain. Therefore, it is preferred to use the term *phenomenon* as a place holder for all things under consideration, uncertain or not, changing with time or not.

The following phenomena-types can be distinguished:

Phenomenon	**Definition**	**Examples**
Time dependent variable	A quantity that varies as a function of time.	Oil price, inflation, economic growth, population
Time dependent development	A non-quantifiable phenomenon that can change over time. Quantification is not possible or useful.	Populism, environmental awareness, social cohesion, individualism
Event	Something that happens at a specific time or over a specific period. Usually there is no quantification involved.	Elections, crisis, war, invention

Time dependent variables or developments can also be called trends, although usually the term trend is associated with variables that only gradually change with time ('a trend is a trend until it bends').

Phenomena can have different behaviors in time:

Variables (quantitative)	**Developments (qualitative)**
Linear	Gradual
Non-linear	Suddenly rising or decreasing
Volatile	Unsteady

Not all phenomena have equal weight in scenario exercises. There will be a few most important, or primary, phenomena. These are also called the *fundamental driving forces*. They can be interpreted as phenomena that evolve (more or less) autonomously and that will impact other phenomena. Often there is reciprocity. Although having their own momentum, fundamental driving forces will be influenced by other driving forces as well. If the Shell 1992 scenarios are taken as an example once more, then clearly *globalization* and the *rise of the emerging economies* were taken as fundamental driving forces (but with different possible outcomes). These have had their own strong momentum, but also influenced each other. The uncertain cost outlook for solar energy was, along with other topics, also touched upon in these scenarios, but this phenomenon should, for example, not be considered a *fundamental* driving force in that context. The way solar technology will evolve, however, could be a fundamental driving force in a scenario

exercise that a power transmission company may wish to conduct in the current timeframe. The choice of phenomena to be included and specifically the selection of fundamental driving forces entirely depends on the purpose and scope of the scenario exercise.

To summarize, the initial identification phase of a scenario project will involve:

1. Identifying the relevant themes
2. Within the themes, identify the relevant phenomena: the scenario-elements
3. Characterize the scenario-elements (quantifiable/non-quantifiable trend or event, linear, non-linear, volatile)

2.7 Exploring the outcomes

Once the scenario elements of relevance have been identified, the potential outcomes can be explored. The first step is to establish which scenario-elements can be considered so called pre-determined, a concept that was introduced by Pierre Wack, the founding father of the scenario planning practice in Shell. These are scenario-elements the outcome of which for all practical purposes can assumed to be known. If it is possible to constrain certain phenomena using well-founded beliefs, then this provides focus. For example, in the Shell 1992 scenarios it was assumed that a wave of liberalization policies would flush the world; there was (rightfully) no room for the possible consideration that governments across the world would soon change their mind and, for example, move towards state-led economies. Yet, as we have seen in Section 1.5., it is also possible to wrongfully exclude certain outcomes: in the Shell 1995 scenarios there was no room for a backlash to globalization (TINA – there is no alternative – but there was). Another example: in typical global scenario projects population growth is usually considered a pre-determined element. There is some variability in the predictions but for most scenario purposes these are immaterial.

For scenario-elements that have uncertainty it will be required to think through the potential range of outcomes. This may for example be done by making assumptions using expert elicitation. For some variables, data science techniques and modeling may be needed. In all cases, judgement is involved. If trends are extrapolated or assumptions are made based on historic data, assuming that these will be representative of a future state is still a judgement call.

On the one hand the potential outcomes of the scenario elements should not be too narrow and for example exclude outcomes that are not popular, on the other hand it is not productive to end up with wild fantasies that may be entertaining but have no relationship with realism. The requirement is that considered outcomes of uncertain scenario elements are *plausible*. One of the purposes of Scenario Planning is to enrich the perspectives of decision makers. By presenting scenarios of the future that challenge the status quo or imply unthought-of opportunities, decision makers may reflect differently on strategy options. Therefore, the assumptions about outcomes of scenario elements need to be bold and creative. But if they stretch too far then scenarios will lose credibility and thus effectiveness.

When considering alternative outcomes of scenario-elements one will be informed by the work that has been done in the phase ‘understanding the present’. The insights in correlation and

causation, the pendulum effect, the recognition of counter reactions and other artefacts will guide the articulation of possible outcomes.

The next challenge is stringing together the outcomes, whether expressed as numeric quantities or by using qualitative descriptions, to arrive at a coherent set of assumptions that logically 'hang together'. This is the essence of Scenario Planning.

2.8 Constructing scenarios

In a simple situation of five scenario-elements with two possible outcomes for each element, the total number of combinations is 32, way too many. Hence, a logical selection needs to be made of a limited number of representative scenario narratives that together span the range of uncertainty. In this section some common approaches for this purpose are briefly touched upon, followed by a recommended alternative in Section 2.9.

The deductive method

The best-known approach for scenario development is based on the selection of two critical uncertainties. This is done by developing a list of uncertainties/driving forces as described above and plotting them against two axes: degree of uncertainty and the impact on the business or relevance to the focal question articulated. The two scenario-elements with the greatest combination of uncertainty and impact are selected. For both critical uncertainties two potential outcomes are identified, leading to four combinations. The quadrants form the basis of four scenarios to be developed. Other scenario elements are then folded into the structure of these four skeleton scenarios in some logical way. If one thus encounters a set of four scenarios it is likely that a deductive approach has been followed. It will be of interest to explore the critical uncertainties on which the scenario set has been founded.

Although a strictly applied deductive approach is simple and structured, it is also somewhat mechanistic. It forces the development of exactly four scenarios. It may be that one of the combinations of outcomes of the two critical uncertainties is not very plausible. There is less room to pay adequate attention to how things hang together. Some organizations therefore choose other methods to arrive at scenarios. Nevertheless, if there is limited time and if there are clearly two dominant uncertainties, then the deductive approach can work.

Box 2
The deductive method in Finance: growth and interest rate
A scenario approach that is often used in the financial sector is to consider four scenarios as follows: high and low economic growth vs high and low interest rate (or inflation). This yields four combinations. High growth is favorable for stock values, a low interest rate is favorable for the value of bonds. Each quadrant will constitute a distinctly different backdrop for the investor and may lead to a different weighting of the portfolio, with the combination of low growth and a high interest rate for example representing a 'nightmare' scenario. Such a scheme can serve as a useful template to frame some critical parameters driving the value of financial assets. However, it is not a good starting point to understand the underlying drivers that will shape the state of the economy going forward. The economic growth and interest rate are phenomena that result from a myriad of factors and influences. If one would like to (try to) understand those, it is better to look for the fundamental driving forces of 'the system'.

The inductive method

Induction, on the other hand, is a process of reasoning by which a general conclusion is drawn from experience or experimental evidence. For building scenarios, the inductive method implies that one just starts somewhere and develops the thinking and logic behind the scenarios iteratively. Below is an example of steps which can be taken to build scenarios in this way:

- Identify developments and events that could occur in the future within the themes.
- Identify pre-determined trends.
- Identify uncertainties (trends or event outcomes) and, for each uncertainty, multiple scoping outcomes (and hence multiple data points per uncertainty).
- Cluster the data points that seem to logically belong together and order them chronologically.
- Take each cluster and develop it into a storyline. Reflect.
- Revise clusters and outcome as needed, re-order, add elements as required.
- Revise the narratives etc. until the storylines are fully internally consistent.

The challenge of the inductive approach is that it is iterative and unstructured, which implies that the process often needs multiple rounds to improve the scenarios before a satisfactory result is achieved.

The incremental method

The incremental method takes an existing forecast or static base scenario as a starting point. This approach can be used in situations where scenario development is not an established practice and a lot of effort may have already gone into the development of a forecast (or 'the official future').

The steps to take include:

- Assess which major issues and threats can be identified in relation to 'the official future'.
- Assess which are the most important (other) uncertain variables.
- Build one scenario per major issue, choosing possible outcomes that can logically be strung together as deviations from the official future.

The number of major additional issues will be restricted to no more than say three to avoid ending up with too many variations. The disadvantage of the incremental method is that the overall perspective provided is heavily biased towards the base scenario. There is less room for considering the interconnections between key trends.

The event-driven approach

The event-driven approach aims to identify several events as branching points towards possible alternative futures. For example, for the purpose of developing a set of country scenarios it may be considered that the election of a new president or government might be a branching point for possible directions that the country may evolve towards.

2.9 A hybrid method

As the various approaches touched upon in the previous section all have their disadvantages, it is useful to consider a hybrid. A good approach is to first look for a set of say four to six most important uncertain factors. This resembles the deductive approach but allows for more than two critical uncertainties. It is important not to default to the uncertainties that are in effect dependent variables (or 'output uncertainties') such as economic growth or inflation when considering for example macroeconomic scenarios. The aim is to identify the fundamental driving forces that are believed to jointly shape the future environment.

The next step is to explore the possible outcomes of these driving forces and combine these in a logical way. This resembles the inductive approach. There will thus be some iteration involved. The number of scenarios that will result can very between two and perhaps a maximum of five. An example of the key driving forces for global scenarios that will be relevant in the current and next few decades is provided in Box 3.

Box 3
A set of global driving forces for the 2020s to 2040s: The Big Five
It was concluded earlier (see Section 2.6) that the two driving forces that seem to have underpinned the Shell 1992 Scenarios were 'globalization/liberalization' and 'the rise of the emerging economies'. It can be argued that these are still in play and that the way these forces further evolve will shape the 2020s and later. If one would like to construct new scenarios for the next two to three decades one could default to taking these two uncertainties and apply the deductive method. A much richer perspective is obtained if the set of driving forces is extended to other dimensions as well. We could consider the following three additional fundamental driving forces: climate change, technology and the global financial system. Climate change is already impacting the lives of many and will continue to do so. There is still a big question as to how effectively the world will respond to this challenge, which will be the implications for the energy system and how this will affect the balance of power. In the last two decades we have seen the rising importance of digitization, the internet and the dominance of Big Tech. Artificial intelligence is emerging as a key technology. Already for decades the total global debt compared to GDP has been rising and the financial crisis of 2008 has not put an end to that. There can be little doubt that the debt topic will resurface from time to time, with major implications for the economies and the geopolitical constellation.
It is therefore proposed that the global environment say in the 2020s through 2040s will be shaped by the following 'big five' driving forces:

- In which form will globalization move forward, and which governance model will be dominant?
- How and at what pace will the emerging economies develop, in particular China and India?
- How will the world deal with climate change?
- What impactful technological developments will we see (internet, AI, other) and what will be the technology market structure?
- How will the global financial system and the debt issue evolve?

This selection does not mean that other developments are not important. It is argued that if one would like to understand how the world order will evolve in the next decades, these are they key forces to consider. They will be relevant for any organization working globally. Other topics can be factored in depending on the purpose of a scenario project.

2.10 Quantification

Scenario Planning is a heuristic approach for getting to grips with the complexity of the future business environment, with all its uncertainties and risks. This, however, does not mean that quantification is not important. Where possible and relevant scenario exercises should be underpinned by selective quantitative modeling. Many scenario publications will therefore include tables and diagrams with the behavior of key quantities in the future. These outlooks will thus depend on the assumptions that are made within an articulated scenario and some model should be available that translates these inputs to the target variables.

Data science techniques will assist with understanding historic trends and correlations between relevant variables. Again, it will be important to differentiate between correlation and causation. Such relationships can sometimes be extrapolated, with care. Many disciplines will have their own models to calculate key indicators from various input assumptions: economics, epidemiology, demographics, energy, etc.

System dynamics is a method that allows modeling of variables as a function of time whilst considering reciprocal relationships. For example, a commodity price impacts the demand, but the demand also impacts the commodity price.

Another approach that can be used in the context of Scenario Planning is agent-based mod-

eling (ABM). This is a computational model for simulating the actions and interactions of autonomous agents (both individual or collective entities such as organizations or groups) with a view to assessing their effects on the system. Sometimes it may be sufficient to just rely on expert judgement to include some quantitative characterization of certain developments.

The sophistication of a quantification effort associated with a scenario planning project will depend on its purpose as well as on the time and budget available. As indicated, quantified underpinning is often needed for scenarios to make sense, but not always. It is perfectly possible that an entirely qualitative scenario exercise can yield insights that are sufficient for a decision to be taken or a strategy to be developed.

2.11 Communication

Irrespective of the approach used it is generally considered useful to present scenarios as provocative and memorable stories. Ideally, these would link current events and circumstances to possible future developments. The stories will describe trends (“economic growth is strong”, “the population gradually shrinks”) but may also contain events (“the euro zone breaks up”, “Mr. X is re-elected as president”). Such events would be included to illustrate the trends that constitute the scenarios, or to signify certain branching points. This story telling is aimed at bringing the futures to life and trigger the imagination of the scenario consumer. Sometimes short cartoon videos are part of the communication pack.

Although this approach in reaching an audience has its merits, there are certainly caveats to watch for. Firstly, one will find that published reports describing scenarios are lengthy documents that take time to digest and may not be remembered very well. Secondly, a liberal use of fabricated events and evolutions may be illustrative and colorful, the question is whether these may not detract from the purpose of the scenarios: understanding the fundamental driving forces.

For decision makers and other professionals with limited time it may be better to constrain the description of scenarios by using broad brush charcoal stripes rather than a fine pencil suggesting undefendable accuracy. The focus should be on the fundamental driving forces, explaining how these might pan out and how they influence each other. A way to do that is by presenting a table with brief descriptions of how the driving forces would feature under each scenario. An example is provided in Box 4. Narratives remain important but should be short.

Lastly, it is always good to invent catchy names for scenarios.

Box 4
A table to characterize possible global scenarios 2020 – 2045 using the 'big five' driving forces.

Using the hybrid approach explained in Section 2.9, three global scenarios have been articulated by considering different outcomes for the 'big five' and combining these in a logical way.

Dunia (Arabic for 'world') assumes a return to strong globalization tendencies and a collaborative spirit. It may to some extent be considered the successor to 'New Frontiers' in the Shell 1992 Scenarios.
Patria (Latin for 'fatherland') assumes increasing nationalistic reflexes and is the successor to 'Barriers' in the Shell 1992 Scenarios.
Territoria (Latin for 'territories') is a world in which regional communities are dominant and power is dispersed.

Scenario name	Dunia	Patria	Territoria
Globalization	Return to globalization as it was evolving before 2008. Elites seek more intense connection and cooperation.	Strong focus on national interests. Elites continue to be important but are concerned about national identity.	Dispersion of power. National borders blur, focus is regional. Some but not all separatist movements succeed. Elites lose influence.
Emerging economies	China emerges, possibly following an internal crisis, as the new world leader with a modernized governance and collaborative attitude.	Inward looking policies across the board. Growth is slower. Emerging countries suffer from protectionism and have less access to technology.	Countries have problems with minorities, slowing the economy, but do have access to technology. Overall global growth is volatile and uneven.
Climate change	Climate change is addressed cooperatively. The energy transition is a global project.	Some countries act on climate change, but many do not. Energy policies focus on security of supply, implying partial synergies with renewable resources.	Some regions are very creative and successful in reducing carbon and are an example for others. But globally the achievement is mixed. Self sufficiency is pursued for ideological reasons.
Technology	Global technology landscape with a few dominant players; this is reluctantly accepted as all benefit from lower transaction costs.	Big Tech faces resistance from governments and lose out against national initiatives. Fragmented and competing technology developments.	Big Tech is out of favor with the public at large and loses market share. Many regional IT (and other) initiatives gain ground. Shareware concepts thrive.
Global finance	Debt issues persist, new global financial crises occur. Ultimately SDR becomes the global currency replacing the US dollar.	The US dollar remains the global currency. Financial crises are local and contained.	Central banks lose influence. Regional digital currencies and trading systems abound.

Dunia and Patria are two strong archetype scenarios that (more or less) build on various earlier scenario sets as for example published by Shell and Equinor. Additional scenarios can be considered. Territoria is an example; one can also think of the return of power blocks, similar to the pre-1989 era.

In the linked narratives a richer discussion must be included (but not *too* detailed), also touching on other issues. It must not be expected that reality will precisely follow one of these scenarios but that the actual future may have elements of all three, be it to different degrees.

3 Scenario Planning, strategies and decisions

3.1 Using exploratory scenarios

A reason that organizations hesitate to adopt the scenario planning approach is that the focus is often on the 'output uncertainties' and not on the fundamental driving forces. In that way scenarios do not help in understanding the system. Another reason is that the scenario planners can get lost in storytelling and fabricated events. Thirdly, it may be unclear how to operationalize scenarios for decision making. We have a set of interesting scenarios of the future business environment. Now what?

First and foremost, the purpose of scenarios is to calibrate the minds of decision makers, to address their biases (Meisner, Wulf, 2012). This was already recognized by Pierre Wack, the founding father of Scenario Planning in business, in the 1970s. The point he made was that every

person has a what he called 'micro-cosm': a perception of reality. He referred to the real world as the 'macro-cosm'. He continued by stating that for senior executives one would expect that his or her micro-cosm is a reasonable image of the macro-cosm (otherwise they would not have progressed to the top of the organization). But not always! By exposing senior decision makers to scenario thinking they will be able to absorb alternative pathways of things happening in the future which they would ordinarily not be considering. In other words, it is a way for executives to address cognitive biases. In Shell, for example, scenarios have been instrumental in instilling the realization that the climate change topic will over time have a profound effect on the energy system (the first scenarios in which climate change prominently feature date back to 2007). In this way scenarios have an indirect role in decision making. Not so much as a direct consideration that can be pointed to in every decision, but as a continuous influencer of the mental models of the senior echelon in an organization. If one furthermore realizes that those who participate in a scenario planning exercise get much more out of it than passive consumers, it goes without saying that, to the extent possible, senior executives should be part of the scenario development process. This may be accomplished by interviews and partial participation in workshops.

Another way a set of scenarios can be brought to bear in strategy decisions is by what Kees van der Heijden coined as 'wind tunneling'. This involves contrasting several alternative strategies available to an organization against the respective scenarios of the future business environment. For example, after the publication of its scenarios 'Mountains' and 'Oceans', Shell embarked on an internal exercise looking at two alternative strategies: 'Become a broad energy company' and 'Focus on oil and gas'. The implications of each strategy were explored under both scenarios. Such an approach serves as a template for analysis and insightful discussion. It can be taken further by including scoring techniques (for example addressing opportunities and risks) or more detailed, selective quantifications. This should never lead to a mechanistic procedure to end up with the best and only remaining strategy option. The latter will always remain a judgement call by decision makers. However, the process decribed may provide the hooks for adjustments to a strategy, eliminate one or two of them or inspire new options.

The longer-term exploratory scenarios can also serve as a reference for designing quantitative evaluation parameters for individual investment decisions. When analyzing potential investments, companies will conduct cash flow and profitability analyses. These require a range of general assumptions, depending on the business sector, regarding future commodity prices, costs, interest rates, inflation, taxes, etc. Usually larger companies will aim to standardize such input parameters where possible to make decision parameters comparable between investment projects. Future scenarios can serve as contexts against which these general assumptions are made. This means that for each investment it would be clear how it would fare under the different scenarios.

3.2 Focused scenarios

Whereas exploratory scenarios assist with decision making in a pervasive way, focused scenarios are aimed at a specific investment decision or some targeted strategy. The focal question could be "will we invest in this opportunity (or this sector)?", "shall we commence business operations in this country?" or as simple as "shall we move office to another building". If there are considerable external uncertainties that could impact the outcome of the decision and which are difficult to quantify, then one may consider some scenario thinking regarding the external environment. For this, one can largely follow the concepts as provided in Section 2, suitably

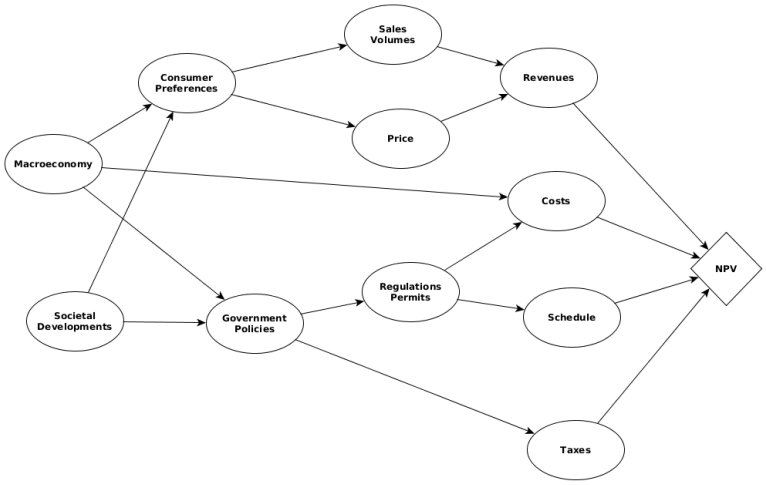

Figure 2: Example of an influence diagram for a generic investment opportunity

scaled. For focused scenarios there is a tool which is specifically useful (although it can also be employed for exploratory scenarios): the influence diagram. This tool is sometimes applied in decision analysis to map out the relationships between quantitative variables in a model. It is, however, also particularly suited to show the interrelationships between driving forces and other uncertain factors that are in play for a scenario planning exercise. The idea is that one starts with the key decision variable or objective function on which the decision will primarily be based (multiple decision objectives can be accommodated as well). The decision objective is drawn at the right-hand side of the diagram after which one works the way back to map out the factors and drivers that will directly and indirectly influence the decision objective. In Figure 2 an example is shown where we have used the net present value of some imaginary investment opportunity as the key decision metric.

From such an influence diagram more clarity is obtained about the external factors that are in play for a specific decision problem and how they hang together. This will assist in identifying the fundamental driving forces around which the scenarios may be constructed using the approach discussed in Section 2.9.

Another step that will be useful in the development of focused scenarios is to use any insights that may be obtained from more wide-ranging exploratory scenarios if these are available.

3.3 Probabilities

An interesting question is whether probabilities can be assigned to scenarios. A decision maker may ask, when exposed to a set of scenarios of the future business environment, which one should be considered the most likely. Professionals from the field of Decision Analysis may argue that scenarios are useless unless probabilities can be assigned. On the other hand, Scenario Planning practitioners will often adamantly oppose anything that comes close to assessing the likelihood of scenarios. They argue that this will detract from the purpose of Scenario Planning

(understanding the driving forces) and that if a particular scenario is labeled as the most likely, decision makers will forget about the uncertainty and focus their attention on a 'base case' as a sole foundation for further decision making. Of course, there is merit in all perspectives. As usual, the answer is: it depends.

For exploratory scenarios the reasoning should be that indeed it is not meaningful to assign probabilities. The primary purpose of such scenarios is to develop a better understanding of the business environment. They usually have a long time horizon. That means that any observations that may be made in the current reality, in support of any probability assessment, are hardly relevant. Secondly, such scenarios would normally cover a wide range of topics. As we have seen in the discussion about historic scenarios, the way reality pans out is often some mix of possible pathways sketched out in the respective scenarios. Thirdly, there is the danger of gravitating towards the most likely scenario.

For focused scenarios it is possible to take a different perspective. If the time horizon for some of the key issues covered is limited and the number of uncertain scenario-elements is small, then it may well be possible to make an attempt to arrive at credible probabilities (or: relative weights). With that, the scenario exercise may become more meaningful as the connection can be made with typical decision analysis techniques. One can describe the value and profitability of an investment opportunity, or the viability of a strategy, against the background of a few scenarios of the business environment. If credible relative weights can be presented, this will sharpen the decision-making process. It may be possible and useful to capture the scenarios in a decision tree, for example.

For assigning relative weights to scenarios, use can be made of the technique 'Analysis of Competing Hypotheses', abbreviated ACH. Each scenario is thus considered a hypothesis to be assessed. The essence of this approach is that pieces of evidence are collated from observations in the current reality. These can be events observed, opinions heard, discussions, considerations and other facts. These elements of evidence are rated regarding their reliability and relevance. Subsequently, an assessment is made of the consistency of each piece of evidence with each scenario. This yields a matrix of the hypotheses as columns against a list of evidence elements as rows. Each matrix element indicates the degree of consistency of the evidence with each scenario. This may be expressed using qualifications such as for example 'somewhat consistent' or 'very inconsistent'. Alternatively, a numeric rating scale may be used. Such assessments need to be executed by a group of experts who may bring different perspectives to the discussion.

By considering the assembled evidence per individual scenario, an overall impression is obtained of its degree of consistency with the real-world evidence. This is the basis for a judgement call by the group regarding the likelihood or strength of the scenario. A scenario can, after discussion, be given one of the following labels: extremely strong, very strong, strong, weak, very weak, extremely weak.

This set of judgement calls can subsequently be converted to numeric relative weights using an algorithm as described in Box 5.

Box 5
If experts are assessing their confidence in various hypotheses (or scenarios) as possible future outcomes, they characterize their perception of each scenario (hypothesis) with one of the qualifications expressed in the first column in the following table:

Qualification	ω
Certain	∞
Extremely strong	32
Very strong	16
Strong	8
Weak	4
Very weak	2
Extremely weak	1
Excluded	0

In making such a judgemental assessment they consider the aggregate evidence and its consistency with each scenario. The weight of a scenario k is then calculated as:

$$W_k = \frac{\omega_k}{\Sigma(\omega_i)}$$

Example:
Scenario A: strong
Scenario B: very weak
Scenario C: weak
$\Sigma(\omega_i) = 8 + 2 + 4 = 14$
Weight Scenario A = 8 / 14 ≈ 55% (rounded to nearest 5%)
Weight Scenario B = 2 / 14 ≈ 15%
Weight Scenario C = 4 / 14 ≈ 30%
This approach is based on Fechner's law (see Wikipedia Weber-Fechner).

4 Embedding Scenario Planning practice

4.1 Addressing external risks and uncertainties

If an organization is exposed to external risks and uncertainties that have a bearing on its strategy towards the future, it should consider implementation of scenario thinking. A possible implementation strategy can be as follows. It can start small with a few knowledgeable professionals who jointly consolidate their existing thoughts and perspectives into a few scenarios, also for example building on existing published resources. This work can be extended by desktop studies and, as a next step, by consulting relevant domain experts. Once the team has sufficiently mastered the scenario planning approach and the resulting scenario materials are reasonably mature and robust, it will be time to involve the decision makers. Without their buy-in and support any further efforts will not make much sense. It will be required to test their susceptibility to broaden their thinking by absorbing the insights from the scenarios, but also to explore if they are willing to contribute and be involved in any future scenario development activity, to the degree practical. For example, in Shell every scenario planning project starts with interviewing dozens of decision makers regarding their thoughts, fears and questions about the future business environment.

Assuming support of the senior echelon, the scenario work can be expanded upon and further consideration will need to be given to the type of scenario planning exercises that will be entertained. Will the emphasis be on exploratory scenarios or a few focused scenario projects, or

both? The way the scenarios will be used needs to be top of mind from the start. Clarity should be provided as to how scenarios are embedded in decision making processes. In Section 3 some possibilities in this respect have been explored.

4.2 Links to existing disciplines

Scenario planning activities will overlap with topics that existing departments or teams already focus on, although likely through a different lens. One may think of groups that are involved in strategy, decision support, risk management and other similar functions. Of course, it should not be the intention to create yet another silo in the organization. Rather, the implementation of Scenario Planning can evolve as a multi-disciplinary activity with perhaps a few part time subject matter process experts and a broader range of professionals from different disciplines who provide content input. All must collaborate to map out the connections with existing processes and analysis methodologies. In Section 1.3. some examples have been given where Scenario Planning and ERM may intersect. Similarly, the fit with strategy, decision support and other groups will need to be explored.

4.3 Horizon scanning

Once a scenario planning practice in some form has been established, further sophistication in the use of scenarios can be attained by horizon scanning. This involves a pro-active activity of monitoring trends, events and other signals in the business environment and subsequently consider how these relate to the available scenarios. This is sometimes done in an ad hoc fashion, but some organizations take a very systematic approach. For example, they may have a long list of categorized observables that are kept up to date with regular intervals. This will promote discussion and allows these signals to be understood against the background of the thinking that has already been done for the purpose of scenario building.

4.4 Concluding remarks

A scenario planning practice in the way described in this chapter can be a valuable asset for an organization. It provides a platform for a structured discussion of the uncertain future business environment, and thus the external systemic risks. It will promote exploring possible trends and making logical connections between them. It can help decision makers adapt their perceptions of the ‘macrocosm’ using the insights provided. Combined with horizon scanning, it can provide a lens through which observed events and developments in the outside world can be rapidly understood and acted upon. This will allow an organization to operate with agility. In that way, the scenarios live up to their characterization of being ‘memories of the future’.

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