

DOSSIER

Scenarios Toolkit

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Foreword

This toolkit and manual is intended for practitioners involved in the planning and development of education and training policies, new measures and strategies. The scenario method is most useful for those who need to assess different alternatives in the medium and longer term and have to involve a range of different actors and conflicting issues.

This work is a by-product of a joint Cedefop/ETF project which developed scenarios and strategies in 10 European countries (west and east) and on a comparative European level. It makes available the thinking and experience of the participating researchers and practitioners during the implementation of this important research and development project. The outcomes of the main project were published by Cedefop and are disseminated via the European training village (www.trainingvillage.gr) and its special window on scenarios.

Scenarios can be developed and applied at several levels. This toolkit will provide illustrations of how scenarios can be used in a range of contexts: international (at a global or European level); in national systems (for example in New Zealand and the Russian Federation); at regional or sectoral level (in an industry such as transport); and, at the level of a single institution or organisation such as a government agency, school or college. At each level, the characteristics of the scenarios change and the drivers of change often become more specific as the parameters of the application become more local. Besides showing this range of applications, the publication suggests three main scales of use of the technique: a mini level that uses scenarios to create future perspective, a midi level and a maxi level.

The toolkit was drawn up by a multinational team of authors under the coordination of Tom Leney and Mike Coles from the research and statistics group at the London-based Qualification's and Curriculum Authority (QCA). They were involved in developing the United Kingdom scenarios in the two preceding working phases. Cedefop thanks them as well as the other authors from Germany and Estonia for their contribution and performance.

We do wish this important work an as wide as possible dissemination and do expect that this brochure is contributing to this end.

Dr Stavros Stavrou, Deputy Director

Burkart Sellin, Project manager

Introduction

This *Scenarios toolkit* has been written as a practical guide. It is intended to help people who are attempting to think strategically in complex organisations or systems when the shape of the future appears to be complex and uncertain.

The toolkit is written in 11 sections. These discuss the considerations to bear in mind and explain steps to follow, when people in an organisation or network decide to develop a set of scenarios. The main purpose of developing scenarios is so that they can be used to help develop and investigate effective strategies. Scenarios are thus a useful tool to assist thinking strategically about longer-term forward planning. It is worth stressing that scenarios are well suited to long-term strategic planning, and are often less well suited to short- or medium-term planning. Scenarios come into their own when uncertainties about the future begin to outweigh the certainties.

The scenarios method complements and extends the value of traditional forecasting. It can also be a way of building consensus about the vision and aims of an organisation. In addition, participating in a scenarios exercise can be a positive aspect of staff development. It opens people's minds to future options.

Using the methodology described in the toolkit will help to ensure that scenarios are based on the best available evidence. But the method described is also flexible, and can be adapted to meet the needs of different organisations.

The authors have worked, variously, from their bases in Estonia, Germany and the UK to research and write the *Scenarios toolkit*. This international collaboration is a follow-up of a joint Cedefop/European Training Foundation research project investigating European scenarios and strategies for training and lifelong learning. The project involved researchers from five European Union Member States and from five of the countries joining the Union in 2004. Particular thanks are due to Fons van Wieringen and his staff at the Max Goote Expert Centre at the University of Amsterdam and to Burkart Sellin, who guided a complex project involving research in 10 countries, with both skill and a deftness of touch. Without their influence and active involvement, it is unlikely that the Scenarios toolkit would have been written.

Part 1:
Scenarios – what they are and how they work

Section 1 Strategic thinking

This guide is intended as a toolkit that policy professionals, managers and researchers can use to introduce scenario methods into strategic planning.

Scenario methodology was developed by businesses (Porter, 1985; Ringland, 2002(a)). Its use can be traced to the early 1970s when it was made public by Shell International as the company was recoiling from the shock of the doubling of the price of crude oil (Wack, P., 1984; Buchan and Roberts, 2002; Shell, 2000). The planning methods in use at the time had failed to take account of such dynamic

variables. The scenario method helped to keep the company on a successful course in spite of rapid and unexpected changes in the global market. Scenario planning is used as a practical tool to aid decision making in complex contexts and when future circumstances are uncertain.

A particular dilemma for planners is that it is difficult to settle on a specific way forward when the organisational, social and economic contexts are so unpredictable over a time frame of 10 to 20 years.

Our societies are increasingly heterogeneous. The pace of sociocultural, technological and organisational change is rapid. The impact of globalisation and the growth of knowledge and information are complex and contradictory; bountiful at times for the winners, often harsh for the losers in a world that appears to be increasingly competitive. Ways of coping with and handling present and future uncertainties have to be found because the steering of education and training systems is necessarily a slow and deliberate process that calls for clear vision, forward-looking strategies and the involvement in change of a wide range of players.

A common management response has been to treat change as incremental: the policy community takes stock of current trends, provision and existing problems, then decides what step to take next. A second response has been to forecast what the future will bring or take a political decision as to what is best, and then set about using strategies to make it come about. Both of these approaches tend to rely on the short term; neither has proved able to take account of the unpredictability of future developments.

The use of scenarios can provide a tool that encourages policy professionals, planners and managers to establish strategies for alternative futures that allow for a clearer understanding of the uncertainties involved. This toolkit will help to identify how a range of alternative, plausible scenarios can be built up by analysing evidence in a systematic way. It will also show how appropriate strategies may be developed for different circumstances.

This guide is a toolkit showing professionals how to introduce scenario methods into strategic planning.

Using scenarios helps to make sense of uncertainties about the future.

While the scenario method has been widely used in business management, there is little published evidence of the use of scenario methodology in education and training. This may be because little use has been made of the method, but it might also mean that the activity that has taken

place has gone unreported. In this toolkit we will present examples of scenarios used in education and training.

This imbalance in the use of scenarios in business as opposed to education and training is unfortunate. There are clear differences in the application of scenarios to publicly funded organisations - geared to spending and providing a range of services - compared to those organisations geared to earning profits by producing artefacts or adding value to processes. The structures and management processes in private and public bodies often differ from one another. The inclusion of examples of the application of scenarios in education and training help managers in education and training to see the pros and cons of using scenario methods.

Using scenarios alongside other, more traditional, techniques helps networks of policy makers and stakeholders to make sense of uncertainties about the future, rather than turn a blind eye to them. In *Scenarios: the art of strategic conversation*, Kees van der Heijden (van der Heijden, 1997) describes how organisations can use scenarios to improve their approaches to policy and strategy development. Van der Heijden identifies the process of scenarios planning as continuous analysis of the likely effects of different strategies against a set of plausible and challenging scenarios. The scenarios work rather like wind tunnels, serving as test conditions that can help to assess the potentials and risks associated with different strategies. Using the scenarios may also help to involve a range of stakeholders in sharing ownership of problems, challenges and solutions.

The scenarios methodology is not a rigid system requiring users to follow a procedure as one would a manual for repairing a mechanical device or making a product. The method needs to be shaped for the particular context in which it is to be used. This is not to say that it is limitlessly elastic and has no rules and principles. The irreducible core of the scenarios method is that it allows the testing of strategies in different futures. These different futures are constructed on the basis of sound evidence, and the best available views of experts.

Scenarios can be developed and applied at several levels. This toolkit provides illustrations of how scenarios can be used in a range of contexts: international (at a global or European level); in national systems (for example in New Zealand and the Russian Federation); at regional or sectoral level (in an industry such as transport); and at the level of a single institution or organisation such as a government agency, school or college. At each level, the characteristics of the scenarios change and the drivers of change often become more specific as the parameters of the application become more local. Besides showing this range of applications, the publication suggests three main scales of use of the technique: a mini level that uses scenarios to create future perspective, a midi level and a maxi level.

In summary, the purpose of the toolkit is to provide stakeholders who have an interest in extending their techniques for forming policy in education and training with a practical guide showing how - and why - they can use scenarios thinking to help improve their organisation's strategy formation, and to build a corporate identity of purpose. If you have not used scenarios before, we suggest that you start by using the toolkit. If you have used scenarios before, you could also refer to a number of other key texts. These are indicated by an * in the reference section. Some of these texts (in particular, Ringland, 2002(a) and Ringland, 2002(b)) contain a range of case studies showing, in some detail, how scenarios have been used.

Key references:

Ringland - *Scenarios in public policy*

Schwarz – *The art of the long view*

Van der Heijden – *Scenarios: the art of the strategic conversation*

Section 2 Why scenarios?

Multinational oil companies developed scenarios for the future environments they might operate in when the conventional forecasting techniques in use at the time failed to anticipate the rapid increase in oil prices in the 1970s. Shell International, in particular, developed the use of scenarios in order to provide an additional planning tool that could take better account of the complexity and unpredictability of the economic, social and political environments in which the organisation had to plan.

Talking in analogous terms of modern cities at the turn of the millennium, the mayor of Chicago expressed this degree of uncertainty vividly:

'Cities are fast-moving things. The conventional wisdom even of the immediate past is not a good guide even to the immediate future.' (The Economist, 2000, p. 63)

The conditions for an optimal use of scenarios are probably the following:

- (1) there is uncertainty about how the future will unfold;
- (2) it is difficult at present for most people who are involved in policy formation to think outside the box of day-to-day requirements, and current decisions and problems;
- (3) complex organisational structures exist with many stakeholder interests. It is recognised that a range of players should be involved in the process of strategy formation, yet there is no clear sense of purpose or consensus;
- (4) leaders and stakeholders are willing to devote some valuable time and resources in an attempt to identify a more strategic, long-term approach to solving problems;
- (5) managers want to develop ways of planning that can involve a wide range of people in the organisation or network in decision-making. They might want to achieve this across the spectrum of an organisation or network in order to build a more sustainable corporate identity.

Organisations that have a sense of common identity or community spirit are likely to be productive settings for developing scenarios work, and to make use of the outcome of the scenarios process for testing strategies. However, organisations where there is a lack of common purpose can also benefit from the application of the method. It is widely reported that the process of developing scenarios and testing strategies helps stakeholders to develop collaborative planning skills. Even if the results of a particular scenarios exercise do not successfully identify strategic options, it is likely to be the case that the process of thinking

The scenarios method is based on evidence and engages participants in ongoing review.

about different futures and alternative strategies creates a common sense of purpose. This helps to create a forward-looking culture.

Experience of development of scenarios for the European project *Scenarios and strategies for VET and lifelong learning* (Sellin, 2002; van Wieringen et al, 2001) demonstrate that the process can add a valuable dimension to identifying and meeting challenges for education and training systems. Similarly, scenarios were used in Estonia in the early days of independence in the 1990s, to help shape decisions on which strategic approach to education and wider social development should be pursued.

There is clear evidence that the construction of scenarios and their intersection with strategies has been found to be a useful planning tool; however there is also evidence that it is not used in isolation from other planning tools. In Section 5 we will say more about the value of the scenarios methodology in relation to other strategic tools such as forecasting, Delphi, benchmarking and SWOT analysis, in both the short- and long-term aspects of policy development.

Unlike certain other approaches to policy formation, the scenarios method is based on evidence, engages the participants in continuous review and takes into account the uncertainties in external environments. Strategies are also kept under review. At the risk of oversimplification, we can contrast two models for leading change.

Processes of change management		
	Short-term, incremental change	Long-term, strategic change
(1)	Problems are identified in the here and now	Problems are identified in the here and now
(2)	Custom and practice or political intentions identify or impose the change agenda	Evidence is gathered from experts, and networks are involved in the agenda for change
(3)	End points are identified	Factors likely to influence change are used to model different futures
(4)	Short-term strategies are developed and implemented	Strategies for achieving longer-term goals are constructed and implemented
(5)	Plans succeed or fail. In the case of failure, a new cycle begins	Impact evaluation: strategies are adjusted continuously as the future unfolds

The point of the strategic change model is that it brings in a process for planning that keeps alternative combinations of strategies under consideration as the environment for their deployment changes. Organisations that use the methodology often find, in practice, that the process of scenarios development is of value itself and sometimes as important as the evidence produced for strategic planning.

Experience of using the scenarios method shows that as stakeholders use scenarios to develop strategy, some people find particular scenarios more attractive than others. These tend to become an end in themselves. In other words, people try to develop only the strategies that might make the particular scenarios come about. They become absorbed with their most desired future, instead of developing strategies that could be effective in different scenarios. Generally scenarios are developed through analysis and by taking a combination of drivers of change into account. It is to be expected that some of the main drivers operate independently of the actors shaping the strategies. Thus, almost by definition, it is no easy task to make a particular scenario come about. It follows that a test of a good scenario is, therefore, that it should reflect the broad contexts that could possibly come about and is not bound to the strategic possibilities open to the particular players, or to dependent variables.

Identifying the key uncertainties as well as the ‘safe bet’ trends in the environment is an important part of this process. So, too, is the identification of the factors shaping, driving and stalling change. This should encourage the key players to consider how a wide range of strategies and policies might play out in a range of circumstances.

Those who have applied scenario-building methods to education and training have experienced a number of problems. Our intention is also to cover these with the reader. For example, linking strategies to scenarios may result in only rather generalised outcomes. Following on from this, organisations often find it difficult to work out how to institutionalise the outcomes of scenarios exercises as part of their planning.

The process of scenarios development can be as important as the evidence produced for strategic planning

2.1. Definitions

For clarity, it is probably helpful at the outset to suggest definitions for three terms: scenarios, strategies and the concept of the ‘art of the long view’ or the ‘strategic conversation’.

Key words

Scenarios

A scenario is an internally consistent view of what the future may turn out to be (Porter, 1985).

Strategies

A strategy is a policy or pathway for achieving broad aims and objectives (Hindle, 2001, pp. 167-8).

Strategic conversation

This is the strategy process that needs to come into play as you move from a short-term to a longer-term perspective. It involves discussion and interaction between a range of players about possible futures (See Schwarz, 1996; Van der Heijden, 1996).

Section 3 The ‘metaphoric’ power of scenarios

This section describes some of the scenarios that organisations have developed for specific purposes. They are all taken from education, training or lifelong learning. The scenarios cover a range of levels, from a local, regional or sectoral focus, through scenarios for training at national levels to international scenarios that OECD and European agencies have developed. All have the common purpose of helping stakeholders, planners and strategists to think laterally and in a practical way about the future of learning, education and training. We also use them to illustrate some of the main considerations that may be brought into play when building scenarios and exploring related strategies.

Sometimes, the method used to develop the scenarios as a tool to explore strategic options is elaborate; at other times, it is quite simple.

This section outlines sets of scenarios that focus on different aspects of education, training and lifelong learning.

3.1. Single organisations

Scenario building can be a powerful tool that helps an organisation to envisage and plan its future role or niche in a fast-changing environment.

An example of how a university in USA has developed scenarios to generate new thinking and to help plan its own strategy is provided below.

3.1.1. University of Michigan – the challenges of competition and digital technology for the university

The University of Michigan in the USA has published on its web site an amusing and challenging set of four scenarios for the university and for learners in 2010. You can see the scenarios on <http://www.si.umich.edu/V2010/home.html#indexmap>.

The metaphor used is based on the four pointers on an ancient map: south/north and west/east. These pointers form the two key axes on which the scenarios are constructed: (i) competition in a learning market within and outside the university sector; (ii) the impact of digital literacy.

The competition axis represents the spectrum of challenges to the university's traditional role. At the low end (south) there is competition among universities, but the competitive environment is much as it is today. At the high end the field has become wide open. It is no longer Yale versus Harvard; it is Yale versus Microsoft.

The digital literacy axis represents the degree to which information technology has transformed both the skills required of the student, and the nature of knowledge creation and

dissemination within the university. At the low end (west), the idea of literacy and the processes of knowledge creation and dissemination are - at least within the walls of the university - much the same as today. At the high end, however, students are expected to be fluent in creating digital documents that communicate through text, graphic, sound, and video; the university has become almost virtual.

The University of Michigan scenarios, which can be explored on the website, are called:

North West	Not just for college students
North East	Can't happen here
South West	Millennium fizzle
South East	New wine in (fewer) bottles

Here, the purpose of the scenarios is to stimulate thought and discussion as to how changes in the learning market and in the use of digital technology may impact on learners and universities over the next decade.

3.2. Regions and sectors

Policy-makers have used scenarios as a planning tool at sectoral and regional levels. Two examples follow.

The first example is based on scenarios work conducted in North Rhine/Westphalia (a federal region, in north Germany). Scenarios were developed and used to describe a strategy that could take into account key social and economic factors in the dynamic expansion of electronic and information technology in the 1990s.

The second example draws on the UK's problem in planning for emerging skills and qualifications needs in particular sectors. Scenarios were also developed for three transport industries; these were set alongside the outcomes of more traditional forecasts to add an extra dimension to anticipating future skills and qualifications needs in the transport sector.

3.2.1. North Rhine/Westphalia: scenarios for the socially sustainable development of technology

In the late 1980s, the public authorities responsible in Germany for the work-based system of continuing training used scenarios to complement more traditional approaches to anticipating training needs. The guiding idea behind the project was that education and training play a fundamental role in the process of ‘social shaping of work and technology’.

The task was to identify approaches to training that would lead to a socially sustainable way of harnessing the rapid changes taking place in technology. Working in the federal state of North Rhine/Westphalia in the vocational fields of electronic and information technology, Heidegger and Rauner (1997) developed three scenarios, each consisting of three sub-scenarios. The sub-scenarios concentrated on the following environments:

- the development of work and labour;
- the development of technology;
- the development of vocational education and training.

The purpose of using the scenario method was to bring more clarity to planning for an uncertain future, and to make the trade off between evidence-based and ad hoc policy decisions more transparent. Strong emphasis was placed on the scenarios as a means to achieve consensus or at least a common understanding of the future. Since then, the idea of the ‘social shaping’ of work and technology has become common currency in many official policies and decisions at regional and national levels. In particular, this goal was adopted by the standing conference of the Ministers for Education (KMK) of the German Länder on curricula for vocational schools. It is, for instance, part of the approach to open, dynamic core occupations, a compromise that retains the *Berufsprinzip* of clearly defined occupational profiles, while at the same time introducing modular elements into vocational curricula.

3.2.2. The UK transport sector: scenarios alongside traditional tools to anticipate qualifications needs

Working with UK’s Transport Skills Alliance from late 2001 to 2003, Leney and McKinnon (2002) developed four broad scenarios for the transport sector, then carried out a survey and a series of interviews with a wide range of key transport sector stakeholders to establish plausible, challenging scenarios for three industries within the sector. They were able to take as a starting point the scenarios presentations that the UK government’s Department of Trade and Industry (DTI) had developed for 2010/20. Given that qualifications planning is often wedded to the here-and-now and current practices in the short term, it was hoped that the scenarios exercise would help develop thinking on how to identify and meet longer-term needs.

The major influences are often outside the parameters that we control

An employers group responsible for identifying qualifications requirements in the motor industry concluded that:

- ‘Scenarios are useful for “what ifs” – anticipating needs: you are trying to second-guess.’
- ‘The exercise promotes more lateral thinking before you go on to plan.’
- ‘A lot of the major influences can be outside the parameters that we control.’
- ‘The scenarios would be useful for individual steering groups within the industry. They would help you keep ahead of the game.’

The synopsis of the UK meta-scenarios for transport follows:

Scenario 1: world markets

This is a high economic growth scenario. People aspire to individualistic lifestyles and affluence, to the exclusion of wider social goals. Globalisation is thought to be the best way to achieve these goals. Society operates on the principle of minimal government. Government and EU regulation, though accepted in some respects, is distrusted by the majority of people. Services are privatised wherever possible. There is a sharp increase in the volume of road, air and rail traffic. Increased movement of people and goods has created the right conditions for high levels of investment in transport, at least for some parts of the sector. Employees are now expected to have the skills to be effective in the marketplace, and to be mobile.

Scenario 2: national enterprise

This is a medium growth scenario. People aspire to high levels of wealth and welfare, but would like to see the provision of more equal opportunities and a better environment. Most people believe these values are best achieved through active UK public policy, with a degree of international cooperation. In this scenario, it proves hard to reconcile economic and social objectives. Markets operate through a mixture of external and self-regulatory mechanisms. In transport policy the ‘low investment versus high environmental protection’ conundrum remains difficult to resolve. Government seeks to up-skill the workforce, but many firms see this as a laudable yet impracticable aspiration.

Scenario 3: global responsibility

Economic growth has been stable, and relatively high. People now aspire to high levels of welfare alongside personal affluence: there is a strong commitment to diverse communities with shared values, more equally distributed opportunities and a better environment. People and politicians believe that these objectives are best achieved through active public policy and European cooperation. Social objectives are met mainly, but not exclusively, through public investment and provision. Government and the EU have placed social and environmental concerns high on the agenda, alongside a determination to establish an eco-friendly, integrated transport system. Training and access to higher levels of skills and competence are seen as more-or-less a shared responsibility of employers and the public sector, and a right (and responsibility) of individuals.

Scenario 4: local stewardship

Economic growth averages out at a low annual level. People have begun to aspire to sustainable levels of welfare and income, identifying with locally networked communities. Markets are strongly regulated as government seeks to ensure more equally distributed opportunities and a high quality local environment. Public policy aims to promote small-scale and regional economic activities, and acts to constrain large-scale markets and technologies. In some parts of the UK, local communities are strengthened as new local or regional systems of governance develop. The development of the transport system has slowed down, while innovation now concentrates on using new technologies and ingenuity to provide low cost and environmentally friendly outcomes, often based on local or regional networks. Innovative skills for local networks and small-scale entrepreneurship are given priority.

Source: Leney et al, 2002

3.3. Countries

There are several recent examples where scenarios have been used to sharpen the planning process for national education or training systems. Rapidly changing countries such as Estonia and Finland provide good examples. Here we provide two contrasting cases, the use of scenarios to look at future developments in education in New Zealand and in the Russian Federation.

3.3.1. New Zealand

In 1999, the Ministry of Education in New Zealand commissioned work on scenarios for the future of the school curriculum (Ministry of Education NZ, 2001). These scenarios explored the purposes of the curriculum and the shape it might take in different contexts (scenarios). The chief purpose of the development was to stimulate discussion on the kind of school curriculum policy which would serve New Zealanders best. Following the formulation of the curriculum alternatives a similar project took place to consider the manageability of the school curriculum. Four scenarios were created.

Scenarios for the New Zealand school curriculum

1 It's a matter of content specification

There are fewer documents but they are so much more detailed in specification

2 It's a matter of regulation, accountability, compliance

Especially the way schools were expected to comply with new legal requirements

3 It's a matter of increasing demands on schools

Pressures to include more and increase emphasis e.g. legal studies, enterprise education, financial literacy, etc.

4 It's a matter of structures, tradition and practice

Schools are trying to accommodate the new curriculum within established timetables and departmental structures

For each of these four scenarios a response to the scenario was created which was positive and negative. In a sense these responses are part of the scenario because they stimulate discussion. They are also first steps towards strategy development.

An example of responses to the first scenario

• Remove some content:

Who decides?

What goes?

What are the possible implications of these things going out?

• Make more time and/or use time more efficiently

• Increase teacher knowledge

• Increase effective curriculum integration

• Simplify structure of curriculum

• On the other hand ...

We should expect more of students and teachers.

Other countries have curricula with eight learning areas or 12-15 subjects including additional languages.

Why should we expect less of NZ teachers/students?

**Scenario C for education in the Russian Federation:
State-led search for competitiveness**

Macroeconomic variables

Intermediary variables

Moderate protectionism;
control of capital flows

Monetisation and extension of
domestic market

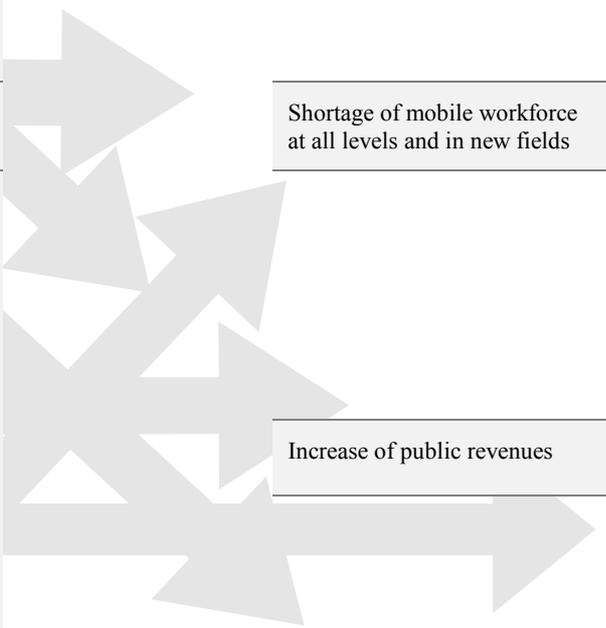
State-led strategies:
simultaneous creation of poles
of development and of the
institutional preconditions of
market economy:

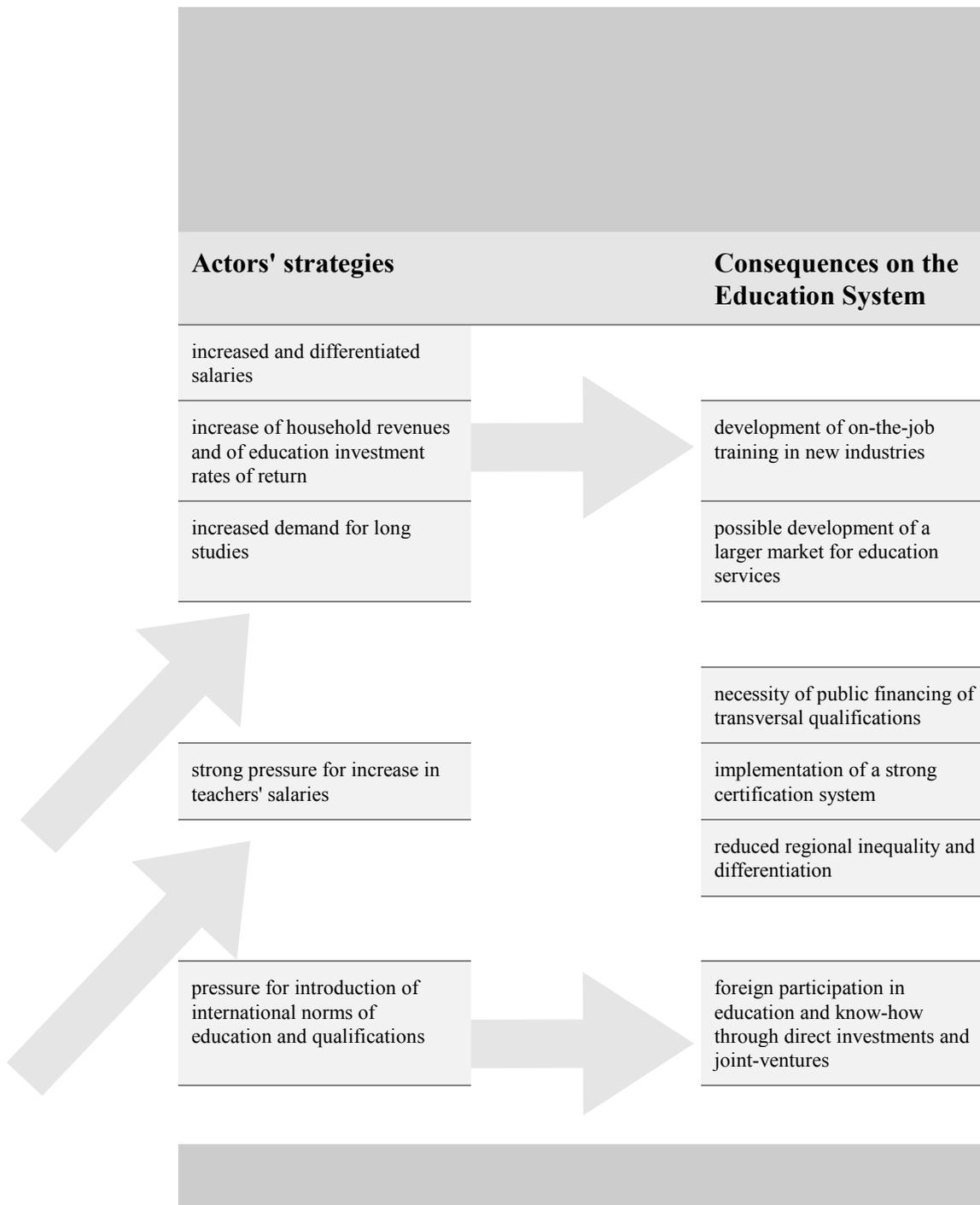
- Public/private association
for the creation of high
technology poles of
development
- Development of modern
legal, banking, fiscal
systems ...
- Creation of the
infrastructure required for
the development of
networks of small/medium
private enterprises around
high technology poles of
development
- Rapid development of
diversified services linked
to new industrial
development
- Attraction of foreign capital
and joint ventures

Shortage of mobile workforce
at all levels and in new fields

Increase of public revenues

Mixed public and private
investment in research-
development and higher
education





3.3.2. The Russian Federation

In the late 1990s, the European Commission established a TACIS project with the Russian Federation to identify the need for further reform of the management and funding of education in Russia. Given the extreme uncertainty following the economic crisis of 1998 and the equally uncertain impacts that this might have on the social and educational fabric over a period of time, the EU and Russian analysts decided to develop a set of scenarios to help to understand what the social impact and education policy implications of the economic crisis and its aftermath might be (Ministry of Education for the Russian Federation, 2000).

Based on key macro-economic drivers, three scenarios were identified.

Scenarios for the education system in the Russian Federation	
Scenario A	Economic uncertainty and stagnation
Scenario B	State-led industrial recovery under protectionist policies
Scenario C	State-led search for competitiveness

The social, political and educational ramifications of the scenarios were then illustrated in a chart. The approach used in this instance was more deductive than in the other examples cited in this section of the toolkit, and served to indicate a range of independent and dependent variables effectively. By way of illustration, scenario C is shown on the previous page.

3.4. European Union and groupings of countries

In 2002 the European Commission developed a set of five scenarios to help explore plausible alternative economic and social contexts that may develop in Europe over the next decade. Implicitly, these link to current European policies on employment, education, training and lifelong learning.

In a second example, the French government also researched scenarios for analysis of how social policies might develop at the European level.

The third example concerns vocational education and training and lifelong learning. In 2002 Cedefop and the European Training Foundation (ETF) completed a research project

developing scenarios and strategies for VET and lifelong learning in 10 European countries and at the European level, for 2010.

3.4.1. The work of *Cellule prospective*: five scenarios for the development of Europe

Shortly before the end of the 20th century, the European Commission established a scenarios project, whose purpose was to arrive at scenarios that would provide a series of coherent and plausible images of how Europe may have developed by 2010.

Several defining criteria were selected as a starting point: governance; social cohesion; economic adaptability; enlargement and the international context. The scenario group conducted a series of interviews, then high-ranking decision-makers attended workshops to develop the scenarios (Bertrand et al., 1999).

The scenarios have implications for education, training and lifelong learning policies, and are summarised briefly below.

The European Commission’s scenarios	
Scenario 1: the triumph of the market	The scenario is characterised by the dominance of economic liberalism and the free exchange of goods and services. Europe, whatever values and standards it seeks to achieve, is hardly different from the rest of the world, which is dominated by the tough mechanisms of a single global market.
Scenario 2: a hundred flowers bloom	The scenario a decade hence is typified by growing paralysis (and, probably, corruption) of the major public and private institutions. Europeans withdraw in social terms to the local and micro level, and to a primarily informal economy entailing a duplication of initiatives, with no logical connection.
Scenario 3: divided responsibilities	Against a background of positive economic development, a metamorphosis of public sector services takes place. These factors engender policies that regenerate and renew the social and industrial fabrics.
Scenario 4: the developing society	This scenario depicts a society undergoing extensive transformation in respect of socioeconomic and political developments. This time the prevailing drive is for economic, social and environmental sustainability: ecological and human development values prevail. A basically workable new form of humanism emerges, and this paves the way for an ‘immaterial and global renaissance’.
Scenario 5: the turbulent neighbourhood	Europe weakens economically and politically, and this occurs in a context of sudden and turbulent geo-political developments, both in the east and in the south. Growing tensions and conflicts cause a European Security Council to be almost entirely concerned with questions of security and defence.

These scenarios were a stimulus to discussion of values, goals and objectives.

3.4.2. The European social scenarios

In a separate exercise - in preparation for the French presidency of the European Union in 2000 - an expert working group developed four scenarios for Europe, focusing on employment and social security. The working group comprised civil servants, consultants, researchers and representatives of employers' organisations and the trade unions. The French government took the view that, for some time, the economic and monetary policies of Europe had been developing without much reference to the social dimension, so the task of the workshops was to develop scenarios in relation to a 'Social Europe'. The scenarios were intended to assist European policy formation.

Workshops focused on specific problems. How can social solidarity be achieved in the new environment of economic and monetary union? What new models for industrial relations may appear? What may be the future role of markets in the individual Member States and in the EU? What part will the social partners play? The group built up the scenarios to reflect the following uncertainties:

- whether or not national social systems would continue to develop in relative isolation from one another;
- whether or not the systems of industrial (occupational) relations would converge;
- whether or not national social security systems would be complemented in future by a specific European benefits system.

Workshop discussions with high-ranking researchers, civil servants and decision-makers resulted in the identification of four plausible scenarios for a 'Social Europe'. These hinge first on whether social cohesion remains different from country to country and, second, on whether European industrial relations and social systems show strong signs of convergence. The French group named the four resulting scenarios:

- fragmented social Europe;
- competing social Europe;
- Europe united despite its differences;
- an integrated social Europe.

3.4.3. European scenarios for VET

The countries involved in the Cedefop/ETF scenarios for the VET project comprised five EU Member States and five accession countries. This scenarios project attempted to identify, at national level, plausible scenarios in which VET would operate in each participating European country and then to carry out a scenarios analysis at European level. It also attempted to

identify how a number of strategies would intersect with the scenarios, and which strategies would be robust across several scenarios.

The project developed a detailed methodology. It should be noted that some of the detailed advice contained in this toolkit is drawn from the experience gained in the country-based and Europe-wide aspects of this project. The reports are all available on the European training village website at <http://www.trainingvillage.gr/> (see also Van Wieringen et. al, 2001; Sellin, 2002).

The country research produced a wide range of scenarios, reflecting the different social, economic, labour market, political, educational, training settings and values. By way of illustration, the names attached to the scenarios in some of the participating countries are given below.

Identified VET scenarios in some European countries	
	Scenarios identified
Austria	Internationalisation
	Harmonisation
	Regionalisation
Belgium/ Luxembourg	Controlled globalisation
	Regulation
	Proximity of training
Czech Republic	Scepticism to change
	Growth – solidarity
	Growth – competitiveness
Estonia	Good start
	Splitting into two
	Dissolving
United Kingdom	Crisis looms and the big players step in
	Ad hoc responses to global pressures
	The free market approach to competitiveness on course
	A social partnership approach to competitiveness develops

After further research and analysis, the international team synthesised three plausible scenarios for training and lifelong learning in Europe:

VET scenarios – the European level
Cluster 1: Europe in fragments (or Europe balancing on the edge)
The common elements are: Economic downturns or recession; low competitiveness in global terms; low growth; pronounced social inequalities; traditional practices prevail in companies; unemployment remains a problem; a brain drain; high mobility and migration of labour; government regulates market; trade unions are social partners; inclusion is priority; VET remains inflexible; ICT deepens social and training inequalities; calls for public support for groups at risk of social exclusion; uncertainty about how to approach policies for lifelong learning; weakly developed in-company training systems.
Cluster 2: Europe of the individuals (or protective and incremental Europe)
The common elements are: Markets prevail; some periods of high growth; the state withdraws and undertakes minimum intervention; continuing privatisation; small businesses have difficulties; liberalisation and deregulation of traditional frameworks; unemployment remains a problem; social inequalities increase; the state takes little or no responsibility for lifelong learning; individual training accounts/vouchers; individuals invest in own training; training programs are tailor-made; companies only offer limited training, and little financing.
Cluster 3: Europe of the networks (or Europe ready for substantial change)
The common elements are: Stable, steady intermediate growth; problems remain with achieving competitiveness; programmes of privatisation are complete; process of industrial restructuring has gone a long way; networks between firms, learning organisations are common; reduced/low unemployment; there is a need for a mobile workforce; high mobility; high flexibility; all kinds of work (training, working, non-working, part-time, zero-hours contracts, etc.) coexist; lifelong learning is important; well developed in-company training forms part of business plans; increased social inequalities, with the state and social partners called on to tackle this; on-the-job training; teleworking, national and international cooperation are part of the training set-up; individuals need to invest (financial and decision-making) in their own VET.

A particular feature of the Cedefop/ETF project is that it went on to examine closely the links between scenarios and strategies for developing training. To do this, the national teams used a further series of interviews with experts to investigate how appropriate to one or another of

the national scenarios a particular strategy was likely to be, and which strategies would most likely be applicable in the national setting across a number of scenarios. This is explained in more detail in Section 8.

3.5. The global level: The OECD schooling scenarios

Finally, it is worth noting that the OECD has developed a set of scenarios for the future of schooling. A consistent set of key variables was used to develop the scenarios, which are intended to help with making choices about education policies in a wide range of countries. The titles and key characteristics of the six scenarios follow.

OECD scenarios for schooling	
The status quo extrapolated	
Scenario 1 Robust, bureaucratic school systems	Scenario 2 Extending the market model
The re-schooling scenarios	
Scenario 3 Schools as core care centres	Scenario 4 Schools as focused learning organisations
The de-schooling scenarios	
Scenario 5 Learner networks and network society	Scenario 6 Teacher exodus; meltdown

The OECD’s education policy analysis (OECD, 2001) contains more detailed descriptions. The key characteristics of each scenario can be summarised.

OECD scenarios – defining characteristics	
Scenario 1	Strong bureaucracies and robust institutions.
	Vested interests resist fundamental change.
	Continuing problems of school image and resourcing.
Scenario 2	Reshaping public funding and school systems.
	Rapid growth of market currencies, indicators, accreditation.
	Diversity of providers, professionals; more inequality.

Scenario 3	High levels of public trust and funding.
	Schools are centres of community/social capital formation.
	Greater organisational/professional diversity; greater social equality.
Scenario 4	High level of public trust and funding.
	Schools, learners, teachers network widely.
	Strong features of quality and equality.
Scenario 5	Widespread dissatisfaction with organised systems.
	Non-formal, ICT based learning in a networked society.
	Communities of interest; major equity problems.
Scenario 6	Severe teacher shortages do not respond to policy action.
	Retrenchment, falling standards lead to areas of meltdown.
	Crisis spurs on widespread innovation; future uncertain.
<i>Source: CERI, (2001), Chapter 5</i>	

Part 2 of the toolkit will explain a number of approaches to constructing scenarios, and will introduce the main steps to take.

Part 2:
How to build scenarios

Section 4 Getting started

4.1. Ownership

Scenario building is a practical project. The organisation developing scenarios should expect to achieve a practical outcome and advantage from the exercise, although the benefits to be gained depend on many factors. Business organisations usually expect to increase their long-term profitability, while in education and training benefits other than financially measurable advantages are usually looked for. Creating an atmosphere of effective communication and trust is a common goal of scenario development projects. Scenario development is essentially a human resource development project and should be planned accordingly. The work involved is knowledge intensive, and its conduct requires research, discussions with experts both individually and in groups, and techniques such as brainstorming as well as analytical writing. Ideally, it is a project in which all the members of the organisation should be involved. Eventually the whole organisation, rather than a leading group or scenarios team, should claim the ownership of the scenarios.

Scenarios work best when a wide range of stakeholders are involved and can claim ownership.

This background to scenario development suggests that a core group is established and charged with the responsibility of managing the project. This core group is called the scenarios group; it cannot be large if it is to work effectively. The people who make up the core group should have a thorough knowledge of the subject and the field, they should know the organisation well and they should have the confidence to be able to develop and document the narratives or images of the scenarios. Brainstorming and analytical thinking will need to coexist as ways of working, and the way the group works will be most effective if informality and openness are strong characteristics. It is preferable that at least two members of the group can devote a good deal of their time to the activity, to ensure the continuity and the level of intensity that the project will need.

Scenario building can form part of the knowledge management activities of the organisation. Since the main goal is to increase the effectiveness of the organisation, it should also be considered as part of the quality management system. This means that the scenario development project requires the active support of the senior management of the organisation or organisations involved. Without this, the impact of the scenarios exercise is likely to be limited.

To function well, the scenarios will need to become the common intellectual property of the organisation. Transfer of the scenarios to the organisation begins at the start of the project, as the members of the core group start to collect data and interview the key specialists. The most important part of the transfer process will start later, when the draft scenarios are mature

enough for wider discussion so that they can be improved and amended. A plan for the transfer process should be developed at an early stage. The importance of transferring the scenarios into the ownership of senior management of the organisation cannot be overestimated. At the same time it is important, though often time-consuming, to transfer the ownership of the process to a wide range of the stakeholders involved with the organisations.

It is useful to develop ideas as to what kind of transfer process will take place from an early stage. One factor shaping the process will be the character of the scenarios being developed. If, for example, the scenarios' main value is metaphoric - as is the case of scenarios given names such as Ostrich, and Icarus - then the transfer process consists mainly of enabling stakeholders to understand and make use of the metaphors to generate discussion of how the environment may develop. On the other hand, scenarios can be used to look at the potential impact of specific strategies in different circumstances, and to help analyse strategies that can steer the organisation towards specific scenarios. In this case, the transfer process involves the stakeholders exploring carefully the relationship between strategies and scenarios as part of forward planning. (See part 3.)

4.2. Grounding the scenarios

The scenarios team will need to start with some research. The work can begin with an analysis of trends. The reason for this is clear: scenarios that rely on careful research and analysis are well grounded. They are likely to be plausible and, consequently, if and when these grounded scenarios raise issues, the scenarios will be taken seriously and issues seen as challenging. We now look at the different methods available to the core group to carry out research to build up the basis and the details of the scenarios that are developed. The objective is to develop a clear understanding both of what is known and what cannot readily be predicted about the aspects of the future that is of interest. Later, this analysis of trends will be combined with an analysis of the views held by strategists and other experts.

4.2.1. Desk research

The scenarios team starts its work with a careful analysis of trends

A starting point for gathering information for a scenarios exercise is to review the data and research that is already available. Many aspects of education and training are the subject of extensive research, and the national and international publications on statistics and trends cover a wide range of subjects. In many circumstances these can be accessed readily through websites, publications and internal documents. A best practice recommendation is to turn to the websites of the organisations that have established themselves as recognised authorities of research in education and training. Unesco, OECD, the World Bank and the European Commission are just a few to mention. Useful data may be both qualitative and quantitative.

Even if data is limited for a particular area of enquiry, best use should be made of available material.

It is worth looking for scenarios that have been developed by the organisations with similar ideas and goals to your own. This survey should not be limited strictly to the fields of immediate interest to you. Sometimes it is constructive to be influenced by scenarios from fields other than your own. Even if the details do not fit, they may suggest useful and interesting ideas.

Trends analysis and reading of the available scenarios provides the opportunity to survey the whole field at an early stage of the investigation. Beginning with a desk research exercise helps to prepare the ground in a number of ways:

- the scenario team gains a clear knowledge of what is already known about current trends in the environment they are interested in;
- the team can identify the aspects of the environment that need further investigation through the scenario exercise;
- analysis of trends will help to suggest the factors and actors that are driving underlying change;
- the team will become aware of the particular issues and questions that they will need to investigate further at a later stage.

Before developing the UK scenarios for training, the UK team in the Scenarios and strategies for vocational education and training in Europe project decided which were the main aspects of the national environment to explore. The team then summarised the main known trends at the turn of the 21st century, using official publications of national and international statistics. The table that follows indicates some of the trends identified.

VET scenarios in the UK – contexts and trends

Demography and social change

Population is increasing in an ageing, largely urban, congested and multi-ethnic society.
Families have become more varied and roles are changing in the family.
Women have taken on new roles, but inequalities are still evident.
Lifestyles have become more affluent, more individualistic, and social participation has declined.

The economy and technology

An accelerating process of economic globalisation is occurring.
The economy's performance is cyclical, with a sustained period of stability till 2001. UK has continuing problems with competitiveness; public investment in human capital is not keeping pace.
Successive governments follow similar macroeconomic policy, but with different nuances on fairness.
Income, wealth and spending patterns have risen, as inequality has become more pronounced.
Technological change is rapid, but its application uneven.

Labour market and employment

There is employment growth, alongside major changes in occupational activities.
Unemployment has fallen.
The labour force is ageing; there is a sharp growth in the number of women in the labour force.
Employment shows increasing diversity - part-time, temporary, home workers.
The demand for skills is both changing and rising with a growth in demand for generic skills.
There is an increasingly qualified labour force. Yet skills gaps are a feature of the landscape.

Education and training

New systems for managing and funding public education and training have developed.
Levels of participation, progression and qualification have risen.
Yet major concerns remain about the general levels of education achieved.
Developments have taken place in the qualifications framework. Work-based initial VET has expanded, while continuing training remains employer led and funded.
Government expenditure on education and training declined as a percentage of GDP, then steadied.
Massive expansion of higher education is taking place.
Attention focuses on identifying and tackling social exclusion. ICT is growing as a skill and tool for education and training.
There is a shortage of teachers – which appears to be becoming structural rather than cyclical.

4.2.2. Expert interviews

Finding out the views of a range of experts as to how the future may unfold is central to the development of a set of plausible scenarios. Experts should be consulted at each stage of the project.

An initial set of interviews with experts could explore:

- developments that they consider to be likely/ unlikely;
- developments that they consider to be important/unimportant;
- actors and factors they consider likely to drive and inhibit change.

You will need to decide how to resolve two questions as you organise the interviews. These are:

- which categories of people should be selected for interview?
- how many interviews should be conducted?

The interviews should include people from across the whole range of stakeholders, and you can consider these people as the experts. To decide who these are, you could refer to an analysis of key stakeholders or what drives change in your environment. For most purposes in education, training and lifelong learning, you may need to seek to achieve a cross section of government, providers, researchers, employers' and employees' representatives as well as other groups relevant to the field. You may also need a way to gauge the views of learners and potential learners.

Finding out how experts think the future may unfold using interviews, surveys or focus groups is central to developing scenarios

You should select experts who have an overview of the field being investigated. This does not mean that you have to limit your choice to actors in senior positions. Practitioners who reflect on change and have an overview will be able to make a valuable contribution. The importance of first-hand knowledge and expertise of the operational details of an organisation or network cannot be overestimated. It is also important that some of the experts you interview are selected from outside the particular environment, to increase the chances of bringing to light factors that insiders may overlook or take for granted.

The question of how many interviews to conduct will depend on the field you are investigating, the extent to which expert opinion on futures has already been surveyed, and the time and resources at your disposal. A total of 10 to 20 interviews should be sufficient for most purposes. Scenarios methodology relies strongly on the evidence of expert opinion – particularly where there are divisions of opinion concerning likely future developments in key areas. The validity of the data obtained from these interviews lies in the richness and variety of the views of experts, rather than the number of experts involved.

The scenario team may commission one or more authors to write a challenging paper, or series of papers, setting out their views as to how the future may develop. This can provoke participants to think more clearly about the future. However, commissioned papers of this kind are unlikely to be sufficient on their own to create effective and plausible scenarios.

4.3. Postal and e-mail questionnaires

Sampling techniques are often used in drawing together data on expert opinion. With a representative sample and a large number of responses, statistical techniques can be used to ascertain the range and strength of responses, and patterns that emerge. Smaller samples will also give an indication of the range of views held on a set of questions or statements.

Whether you conduct interviews or use a survey through written questionnaires, the purpose is to test which outcomes the expert respondents see as likely and which they see as unlikely. In particular, the key factors that are useful to build up scenarios are those where a division of opinion exists and there is disagreement about the likely outcomes. Respondents should also indicate which issues or questions they see as having high relevance or importance for the future.

4.4. Focus groups

Well structured focus groups, workshops or seminars may also provide an effective way of gathering information and expert opinions about future trends. A small number of seminars may be less time-consuming than a large number of interviews, and the outcome of the interaction between experts working in groups may help to reveal where the areas of uncertainty lie.

The French government decided to develop a series of scenarios to explore how Social Europe might develop. Seminar groups of experts worked through the trends and uncertainties to develop a set of scenarios. A similar approach was taken to develop the European Commission's scenarios for 2010 (see Section 3). Focus groups are also an effective way of discussing and testing the extent to which a provisional set of scenarios meets the intended criteria, and how they need to be modified and redrawn.

4.5. The analytical work of the scenarios team

Rigorous and imaginative analysis on the part of the scenarios team plays a key role in developing the scenarios. The scenarios team has to take the step out of the here-and-now and the short term, in order to conceptualise the plausible scenarios for the future.

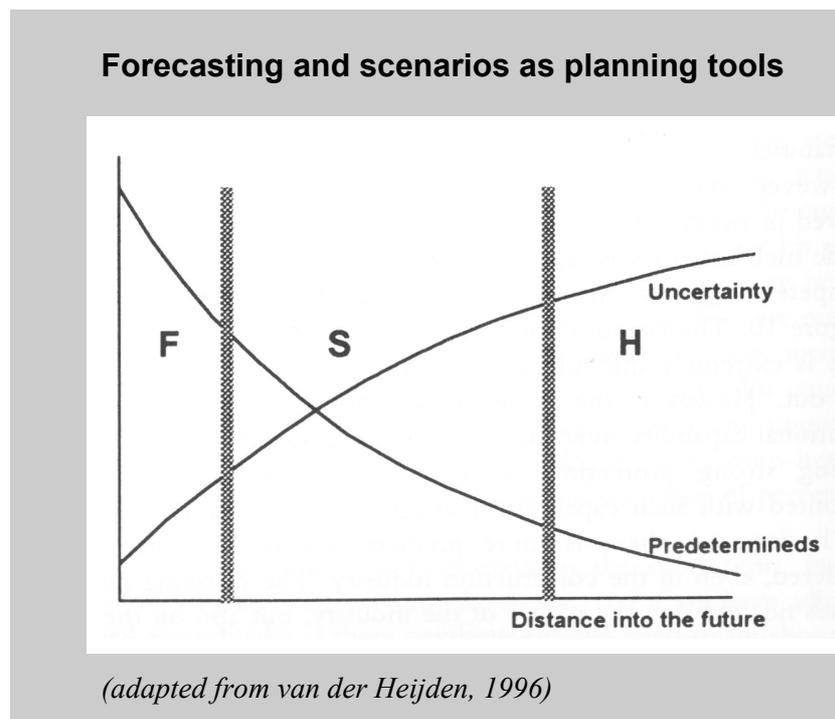
This implies that introspective analysis forms part of the thinking process. Working imaginatively is certainly part of the function of the scenarios team. However, introspective analysis alone is not a strong basis for building scenarios. Use of the techniques described in this section – desk research and trends analysis, expert interviews, surveys and focus groups – provides the scenarios team with the data that is needed if scenarios are to be based on best available knowledge and understanding.

Clearly, the scenarios team will decide which methods of investigation are appropriate, based on the circumstances of the scenarios exercise and the resources available. Some sets of scenarios are built up quickly, using limited resources (the ‘mini’ version). Other scenario exercises are based on exhaustive trends analysis and large-scale surveys of expert opinion using questionnaires or series of interviews (the ‘maxi’ version).

Section 5 Scenarios in combination with other tools

Scenarios may be used as a planning tool on their own or, more usually, in conjunction with other forecasting and foresight techniques. This section identifies how the scenario method complements other research tools that managers use to plan strategically. It should help answer the question about when it is useful to consider scenarios as an approach and when it might be better to use other modes of strategic planning.

The key contribution of scenarios methods to strategic planning is its power to extend thinking into the medium and long term; anything from 5 to 20 years ahead. According to Kees van der Heijden (van der Heijden, 1997) scenario planning is optimally positioned precisely where the number of possible uncertainties with respect to a particular object of planning coincides with the number of predictable quantities (point S in the diagram). For shorter planning periods traditional forecast methods will be most effective (F = Forecast). For longer periods – as van der Heijden remarks – there is only hope (H).



The extension of the range of the useful information about the future is possible because scenarios methods produce more than one future. Each of these futures is considered a plausible possibility. Planning necessarily becomes more complex with more than one future to contend with but there are benefits, notably the way that colleagues can become involved in discussing longer-term change.

Scenarios help to extend strategic planning into the medium and long term. Forecasts are an effective tool for shorter planning periods.

As the usefulness of a forecast based on extrapolation of trends begins to become unreliable, the usefulness of scenarios methods begins to become more useful. The change is gradual, but generally, after five years or so, traditional forecasts have limited value. The data generated by these methods

is also used to inform scenario development. Supplemented with other data that is often qualitative, the data from traditional forecasting techniques serves as a foundation for scenario building.

What are these traditional methods of forecasting used to model the future for organisations? They are based on three techniques:

- prediction based on extrapolation of trends in relevant data;
- target setting;
- consensus building.

The first of these involves trend analysis on quantitative data pertaining to the relevant operating period of the organisation. These trends are extrapolated to produce predictions for the near future. The second method involves the setting, by consensus of managers and other experts, of descriptors that represent indicators, targets or benchmarks to which the organisation should aspire. People plan to make these descriptors come about. These descriptors sometimes take account of possible changes to the socioeconomic context in which the organisation functions. The third method involves the Delphi process, where a series of cycles of consultations with experts are used to reach agreement about the future form of the organisation and how it might evolve to meet expectations. All three approaches are essentially short- to medium-term in scope. Scenario planning can build on all three of these methods and extend the usefulness of a forecast beyond the short term. In fact the desk research, which characterises the early stages of scenario development, will use evidence created by these three basic methods.

There is a range of methods that are used to build forecasts. Recent research on research techniques commonly used to look for future skills needs identified the following as the most commonly used:

- workshops with experts: half or day long structured sessions with high levels of interaction between participants and a sharp task focus throughout;
- focus groups, discussion groups, working groups, sector expert groups, brain storming sessions: shorter sessions which cover specific issues to exploratory discussion;
- Delphi methods: iteration of views by a structured method of engaging with experts;
- questionnaires: these can vary in length, depth, openness and mode of contact with the interviewer;

- interviews: taking the form of one-to-one interviews, small group or telephone interviews. Interviews can be heavily structured, semi-structured or open;
- desk research: looking at reports, statistics, recruitment data and other company documentation;
- case studies: applying trend analysis to specific work groups to discover implications. This includes workplace observations and HR practices.

These methods of data gathering are all useful ways of ensuring that scenarios are grounded in evidence (see Section 4).

Section 6 Forces for change

6.1. The value of clarifying driving forces for change

Anyone engaging in strategic planning should consider who or what would make change happen. However, in the scenario method the process of examining these driving forces for change has a specific purpose. Drivers of change are not constant forces acting on any scenario and in any strategy. A driver that is strategically important can disappear or metamorphose as a strategy is tested in a new scenario. New drivers can also emerge. The scenarios methodology is distinctive in that it attempts to ‘capture’ emerging drivers, sometimes thought of as weak signals because they are on the horizon of vision. For this reason the interactions between scenarios and strategies need to be examined in terms of the drivers of change that will support or hinder the application of the strategy.

Strategic planning involves considering the potential drivers of change.

In this section we examine more closely the ways drivers operate. The information from such an examination helps with scenario building (Section 7), and looking at interactions between scenarios and strategies (Section 9). In fact, this examination provides much of the raw data for developing strategic conversations, which is the principal outcome of scenario planning.

There is no shortage of experts willing to express an opinion on how education or training should develop, but few express opinions about how they could evolve over 10 or 20 years. One reason for this might be the existence of as yet uncertain influences, such as technological developments. Another is the difficulty people seem to face in weighing up which influences will dominate others in years to come. Some of these influences reinforce one another; others are in tension. Some uncertainties are dependent on the outcome of other uncertainties. A conclusion we have reached through application of scenarios methodology is the importance of defining as far as possible the origin or nature of drivers for change. Porter (1985) separates out independent uncertainties, those independent of other aspects of a future scenario, from dependent uncertainties, the outcome of which depends on outcomes of other uncertainties.

By investigating the drivers of change it is possible to isolate the independent uncertainties that can be used to build scenarios. We have found that identifying these underlying or independent drivers for change is crucial for building scenarios and for strategic planning purposes. It is also important to identify the factors that may inhibit or impede change in the future. This section introduces some of the drivers of change that are likely to impact on education and training systems

The scenarios methodology is distinctive in that it helps you to identify emerging drivers in the external environment.

Heading into trends without awareness of drivers of change leads to ‘hoped for’ futures that only reflect the opinion of an individual expert or decision-maker based on their own experience and outlook.

6.2. What are the drivers of change in VET?

Many see governments as the key driver for change in VET, and there is little doubt that a government can drive some change. However, consider the pressures to which a government may be responding when a policy is developed, and how these may change over time. Identifying these underlying drivers for change is particularly useful for building scenarios and for strategic planning purposes. We need to be able to take into account underlying factors that influence governments. For example, globalisation, the development of an information-based society and the drive for economic competitiveness are often cited as major drivers of change, particularly for education, training and lifelong learning.

At any time there are forces for change at a social level. Fashions, trends, interest in specific issues and broader social currents all lead to changes in values, customs and expectations that can influence policy. It is always useful to look at commentaries on the ‘state of the nation’ in order to get an idea of different perceptions of the nature of these forces for change at the social level.

Drivers do not exist in isolation. Lobby groups, public ‘champions’, legal instruments, financial backing, communication infrastructures may all be part of the driver anatomy. Again, when a driver is identified it is useful to probe the sub-structure of influence.

Another way of looking at drivers is to consider opposing forces. Sometimes a driver may seem strong enough to push through a reform, while some reforms, with apparently strong drivers, stall. There may be drivers in the opposite direction, inhibiting change. The strategic response might be to advance the reform by attempting to weaken the opposing forces in some way. So it is necessary not only to examine drivers of the change, but opposing drivers as well. In this respect, a SWOT analysis (strengths, weaknesses, opportunities, threats) can be a useful tool to help develop an understanding of drivers.

6.3. How can we delve deeper into the nature of drivers of change?

How best to introduce this discussion of drivers for change is still not fully resolved. Each scenario project needs to develop an appropriate style.

One method used in the UK Department of Trade and Industry (DTI) Future Learning project (available on <http://www.dti.gov.uk/>) is to probe responses to the question ‘who will want this to happen?’ repeatedly with ‘why?’ questions as appropriate. A simple example follows.

Probing for the drivers

Q Who will want to raise levels of training in ICT?

A *The government.*

Q Why?

A *It is an electoral promise.*

Q Why?

A *Because people want it.*

Q Which people?

A *Employers.*

Q Why?

A *Because higher skills means competitive advantage.*

Q Which other people want higher ICT standards

Etc.

If a working session is run in groups, a powerful discussion can develop and the roots of a driving force can be elaborated. Some such discussions can radically change a well-established view of a preconceived future or reverse perceptions of a near-certain trend. This kind of discussion is intrinsically strategic: the focus on analysis of drivers of change can sometimes be used on its own to enhance strategic approaches to planning.

A brief look at some other drivers that might need to be elaborated in the application of scenarios to VET and lifelong learning systems follows.

6.4. Some drivers for change in VET

VET is always changing. Innovation in organisation, content, teaching and learning, funding and recognition of learning is often a normal state of affairs. What follows is a straightforward discussion of some fairly obvious drivers for change in VET. However, it needs to be borne in mind that in addition to these well-established drivers we need to look for new ones. A new focus can spring from analysis of current drivers, while others will come variously from policy analysis, technological development and the study of innovation in VET and working practices.

6.4.1. Economy and employment

Skills supply is crucial for a healthy economy; the extent and the manner in which the VET system supplies skilled people is under constant scrutiny, not least the scrutiny of international comparison. Reforms can be justified by claiming better, more efficient delivery of what business needs and the needs for high-skills equilibrium. Who or what drives these reforms?

Economic cycles have a pronounced effect on levels of employment and training, skills shortages and the government's capacity to fund education and skills development. The needs and performance of the economy will be key drivers of a range of changes.

6.4.2. Funding

The nature of this driver is complex. Much depends on the locus of decision making. Much has been written about the supply side (making materials, education provision and skills available) and the demand side (responding to need, competition, and market forces). Funders, private and public, could channel resources towards subsidising supply (through sponsorship and advertising) or to spark demand (e.g. through direct funding of purchasing). The key drivers may be those that support a particular approach to funding a reform. Opinion is divided amongst analysts about the possibility of 'buying' a reform by funding programme incentives. In any case, the mechanisms and consequences are complex.

6.4.3. Technological change

Technology can drive reforms by changing the way things are done or opening whole fields of new possibilities. As more and more people use ICT, it can seem as if the technology has a life force of its own. Advances in internet technology, for example, will eventually make available external assessment on demand. The driver here could be economic since government agencies spend large amounts of money on paper-based technology and savings to institutions will allow them to decide where to spend.

A focus on drivers for change in learning or VET helps to identify why a change may come.

For every enthusiast for using ICT there are those who question the all-round effectiveness of ICT in supporting teaching and learning. The impact of technology may vary according to the scenario that develops. This is another reason for debating the function of technology as a driver for change.

6.4.4. Teachers and trainers

How far can we say teachers drive change? Collectively teachers are a large and potentially powerful force that can advance reform and resist it. They know the curriculum and assessment and will naturally evaluate developments against current practice. Teachers are close to learners: changes in society that impact on these populations will have an influence on what takes place in the classroom, hence teachers can become proxy drivers for change. Teachers collectively may drive towards or against reforms that demand higher-level pedagogical skills. An ageing European workforce and difficulties in the supply of teachers are also drivers of change in some countries.

Experience shows the importance of including teachers in the whole process of defining, developing and implementing curriculum and assessment change. Strategies that see the teachers as merely the implementers of change are likely to fall short, and this has major implications for driving education reform.

6.4.5. Society and communities

Education is part of society, not just in the sense of the formal processes of socialisation but also in a wider sense of being a part of the social infrastructure. Shifts in dominant and minority values, beliefs, culture and social practices - including ethical and moral stances - will inevitably act as major drivers on training, especially initial training. There is much debate at the moment about the generation gap, ageing populations and the increasing dependency of one social group on another. The tension between individualism and social engagement is well researched in many countries, and invariably forms a key element in the development of future scenarios.

Amongst all this it is difficult to pick out clear drivers and effects, with many agencies and social groups having a part to play, including the media.

6.4.6. Government policy

Governments respond to drivers, especially those listed above, but may elect to do so in different ways. They will wish to clarify and set an agenda. There will also be an element of easing barriers to developments, through goals such as achieving a higher skills balance in the active population, or improving access and equity through lifelong learning systems. There is evidence from around the world that countries may see schooling structures and qualifications systems as such barriers, for example in hindering the development of lifelong learning programmes.

There is a view that initial training institutions cannot keep up with technological, social, economic and demographic changes: they are reasonably effective in what they do but they structure learning provision in a rather dated way. Therefore, in some countries, we see a growing diversity in types of institution. In other countries we see the state attempting to

ensure a unified high level of provision aimed at securing an inclusive entitlement for all young people. In countries such as Canada, we see explicit statements that too much is expected of institutions in relation to shaping society.

The key aspect of government action that creates drivers for change is the bringing together of agencies and individuals in a larger, coherent push for change (e.g. social inclusion, higher standards, or making VET responsive to market needs).

There is also a strong communication element in government action. Governments wish to be associated with improvements and to be seen as a champion for particular issue. Such a champion, and the associated media access, can be seen as a powerful driver. Because of electoral cycles, governments may wish to commit only to short-term developments.

6.4.7. Internationalisation

With European and global developments, international agencies have an increasing influence on education and training. We have seen some growth in the mobility of students between countries and a growing awareness of evaluations of the systems operating in other countries.

The influence of international bodies such as the OECD and the World Bank are clear evidence of this, as is the adoption of the open method of coordination for employment and now for education and training policies across the Member States of the European Union. Some qualifications have also become international and there is growth in the popularity of vendor qualifications from multinational companies.

European and global developments bring in a new set of drivers of change in education and training.

This brings a different set of drivers to educational change. For example, multinational companies may wish to see particular training programmes develop and may wish to withdraw support for others. Comparisons between the performance of the educational systems and the economies of different countries lead to political action to improve a country's international standing.

6.5. The 'why' questions

This section has emphasised that for those engaging with a scenarios exercise, it is important to spend time thinking about why a change might come about rather than concentrate solely on the 'how' or 'what' of the change. The 'why' question focuses attention on the powerful actors, forces and value systems that might act to initiate and maintain a change programme. These are the drivers of change.

Section 7 Constructing the scenarios

This section identifies the main principles and some procedures that can be used for constructing scenarios.

7.1. An established methodology

Scenario planning is based on a method that can be applied flexibly to different circumstances. It is not a method analogous to scientific techniques like macroeconomic or labour market forecasting, (see Section 5) but it provides a systematic way to identify drivers and to develop plausible outcomes that can be kept under review.

The methodology involves the development of future scenarios, which are then used as a kind of lens or ‘wind tunnel’ with which to explore the potential, difficulty and detail associated with different strategies. This is not a convergent tool that provides a best guess for a single, inevitable future. The distinctiveness of the scenarios method lies in the way it tackles uncertainty, the richness and clarity of the data it generates for discussion, and its capacity to facilitate ‘out of the box’ thinking for forward planning in an organisation or across a network.

Scenario building uses a methodology that is well established, but which is not the same as a scientific enquiry. The scenarios that you construct are based on evidence and analysis; they also call for imagination and thinking ‘outside the box’ of short-term change. This creates a platform for testing strategies rigorously, openly and consistently. Scenarios thinking can operate as a practical tool to aid decision making in complex contexts and when future circumstances are uncertain. Thus, it complements scientific models rather than replacing them.

Throughout the toolkit we place emphasis on how to build ‘expected’ rather than ‘hoped for’ scenarios (see Section 2). The process involves describing and analysing trends and uncertainties in order to arrive at plausible alternatives showing how the environment may develop.

7.2. Criteria for effective scenarios

We can identify several criteria that characterise a set of well-constructed scenarios. To be fit for purpose, the scenarios will have several characteristics: they should be plausible, internally

This section takes you through 10 steps for constructing scenarios. The method can be used flexibly in different circumstances.

consistent, challenging, engaging and useful to the stakeholders involved in strategic planning. We deal briefly with each of these in turn.

7.2.1. Plausibility

A good set of scenarios has several characteristics.

They should be plausible, internally consistent, challenging, engaging and useful.

It is important that when the components that make up a scenario are taken together they tell a story about the future environment that the participants consider plausible. Achieving plausibility involves taking into account the possible impact of drivers that may create or inhibit change, identifying the changes that are likely to occur whatever scenario develops, and highlighting the aspects of the future whose outcome is most difficult to call. Once the scenarios are constructed, stakeholders should be able to identify

with the images or narratives of the future that the scenarios project: they should recognise the alternative outcomes as feasible in the given timescale.

Similarly, the scenarios as a set should describe the range of futures that the players involved consider plausible, even archetypal, given the parameters of what is anticipated and what is identified as uncertain.

7.2.2. Internal consistency

Each scenario will portray a rather different image of the future environment. It is likely that some important developments will be taken as constant across each scenario, while others will vary either incrementally or dramatically. The key criteria and axes that are brought into play - both when the scenarios are constructed and later when they are modified - should play a part in each scenario.

A writing frame is a useful tool to ensure that the criteria covered across the whole set of scenarios are consistent. A writing frame is a list of the factors that must be described in each scenario.

7.2.3. Challenge current assumptions

The scenarios must challenge current assumptions. Scenarios are intended to aid thinking about an uncertain future when the participants find this process difficult. Therefore, provoking people involved in decision-making to think outside the limits of accepted or conventional wisdom is an important role of the scenarios.

The tension between plausibility and challenge is very much at the heart of scenario development. This distinguishes scenarios from more traditional forecasting methods.

7.2.4. Engage stakeholders' attention

Like all good writing, scenarios should be expressed in language and images that are as strong, brief and clear as possible, without compromising the purpose of the exercise.

A part of the scenario building process is to order factors and possible developments in such a way that the people involved can make sense of what appeared otherwise to be a complex and unintelligible future. Therefore, the scenarios should be as simple as possible.

This is not just a question of the content of the scenarios. We suggest that ascribing names that convey a strong metaphoric meaning to the scenarios can be engaging. Various techniques have been used to bring scenarios to life, from multi-media presentations to individual biographies. Imaginative presentation of the scenarios enhances their intellectual and imaginative impact.

7.2.5. Prove useful in the strategic planning process

The aim of the strategic conversation is to shift attention to defining strategies that may prove effective when there is a significant degree of uncertainty about the future. Usefulness is a key criterion.

The outcome of the process should be useful in two ways. First, it should help to identify and refine strategies and risks in a way that short-term thinking and unidirectional forecasting cannot.

Second, the process of developing scenarios is formative. Using the scenarios to interrogate current trends and strategies should improve an organisation or network's capacity for strategic thinking and planning. The strategic conversation is a bottom-up as well as a top-down tool.

7.3. The main stages

Creating a set of scenarios involves following through a number of stages. Broadly speaking, it develops as follows:

- someone in an organisation or network takes ownership of a problem. They decide that a scenarios exercise has the potential to bring together different stakeholders in the attempt to identify effective strategies that can meet future needs, particularly when the future is complex or uncertain and it is difficult to fathom what policies might stand a good chance of being effective. The decision to initiate a scenarios process is taken;
- the team identified to lead the scenarios process - usually working with people from outside their immediate situation - spend some time identifying the important aspects of the

external environment. This developmental group is the scenarios team. They ask: Who are the key stakeholders? Which factors and drivers motivate, generate and prevent change?

- some time is spent with stakeholders identifying trends in the relevant external environment as carefully as possible. Which trends are likely to occur? Which outcomes are unlikely? Which outcomes are uncertain?
- the uncertainties are analysed further and clarified until the dominant sets of uncertainties can be identified. These will form the basis for the scenarios;
- preliminary scenarios are built up as sets of images or narratives. These are intended to bring to life the range of plausible possibilities;
- the draft scenarios are further checked with stakeholders and modified, then polished and presented.

Now, the leaders and stakeholders involved can use the scenarios to examine, discuss and help develop strategies.

We describe these essential stages in building scenarios in 10 more detailed steps.

Step 1

Define the problem and establish a scenarios group

Obviously, there must be an identified reason for embarking on a scenarios process. Section 2 of this toolkit referred to the optimal conditions for scenario building. In essence, an organisation or network is finding it difficult to identify and follow through strategies that are likely to work for the future. This may be because everyone in the organisation is deeply involved in day-to-day developments, or because the organisation lacks a vision of the future and ideas about how to get there. Alternatively, the future may just seem too complex, unclear or clouded with uncertainties.

Leading players must be both committed to working out which ways the future may unfold and be willing to engage people across the organisation or network in an analytical and imaginative investigation of what strategies may be effective in different circumstances.

An organisation or network must be willing to commit resources and some time to the process, and believe that the tools that they would otherwise use to define the future, such as forecasting, are not adequate to the task on their own.

Establishing a small scenarios group within the organisation will give the work a focus and provide continuity.

Step 2

Identify the key drivers of change in the environment

To build up scenarios that describe the future environments in which strategic planning will have effect, it is best to start by making a clear distinction between the development of the organisation, and the external environment in which it will be operating. Both may change.

The three questions to be answered at this point are:

- which aspects of the environment should be considered?
- who are the main stakeholders or actors involved?
- which are the actors and factors that drive change?

Concentrating on these questions leads the participants to explore the factors and agencies that have an impact on the aspects of the environment that are likely to change little, and to identify the drivers of change. We considered the drivers of change in more detail in Section 6. These include social change, changes in the economy and technology, labour market and organisational change, and political change. Changes in values and beliefs should also be considered as drivers. A range of actors is involved.

Identifying these agencies is an important part of the process of constructing scenarios.

Part of the process may involve looking at the internal dynamics of the organisation or network that is seeking to develop effective strategies. It is important to remember that the scenarios describe how the future may turn out, while strategies describe policies for achieving broad objectives. Building references to the future structure of the organisation or network into the scenario descriptors must be handled with care; otherwise the distinction between the scenarios and the strategies may become confused.

An early decision is what timescale to adopt, whether the scenarios should be set for 5, 10, 20 years or even further into the future.

Step 3

Gather data on the relevant trends

The next step is to investigate the trends that may develop in the environment that you have identified. These trends – in particular those whose outcome is uncertain – will later be the basic ingredients from which you can start building up your scenarios. It is important that the scenarios you will later construct are grounded on the best intelligence that you can assemble about future trends and uncertainties.

This step is most likely to begin with desk research covering available data sources (see Section 4). Then you should ascertain the views of a number of key players or experts who have good knowledge of the area you are investigating.

You can select from several investigative and research techniques to find out how the experts you select see current trends developing into the future. Again, see Section 4. The methods available include: interviews, surveys, and focus groups.

Scenarios are not wish lists. They recount alternative narratives of what may occur in the future environment, depending on the outcome of factors that are capable of a range of outcomes. Useful scenarios elaborate variants of what may be expected, not accounts of what the participants hope for. It is of prime importance that the scenarios that you build up are grounded on the information available about both the likely and difficult-to-anticipate outcomes of key indicators.

Assembling the data will concentrate on two main questions:

1. What is the outcome of identified trends likely to be within the timescale of the scenarios?
2. How important is this likely to be in forming future developments?

Desk research and consulting experts will provide both quantitative and qualitative data. In most circumstances this provides rich information about how the future may unfold, and where uncertainty lies. More information and ideas about how to gather the data for the scenarios, and methods of consulting experts are provided in Sections 4 and 9.

Step 4

Sort the trends into three sets

You can now start to organise the information that you have gathered in ways that will help to build the scenarios.

You first discard the trends whose impact on future developments you can conclude to be unimportant. This entails classifying the trends in the particular context: important; of some relevance; and, unimportant. The trends that remain under consideration are defined as important components of potential future developments.

You must now reach a conclusion as to how to categorise each of the remaining trends (i.e. the ones categorised as important for shaping the future) in the light of the timescale of the scenarios that you will build. The task is to sort the trends identified as important into three categories:

The categories are:

1. trends that are likely to come about;
2. trends that are unlikely to come about;
3. trends whose outcome is uncertain or contested.

The conclusions you reach should be based on the data generated by the research that you have done. This may involve reaching conclusions from a survey of experts carried out through a written questionnaire. More likely, you will reach conclusions about the material that experts have provided in a series of interviews. In addition, the desk research with which you began the trends analysis provides a useful reference point for the analysis.

Step 5

Decide which are the key developments whose outcome is uncertain

For this step, you can put the trend statements considered as ‘likely’ and ‘unlikely’ to one side for the moment. For now you work only with the set of trends and developments whose outcome you have characterised as uncertain.

The task is to decide which are the key uncertainties in the environment you are looking at. You can identify these as opposites or as points on a continuum defined from high to low.

The decision to give priority to a small number of issues with uncertain outcomes involves discussion among the scenarios team. The task calls for both analysis and imagination.

In scenarios for education or training, the trends selected in this way may relate to a number of driving factors (see Step 2). Even if you are intending to construct scenarios that take several different fields in the environment into account, you should highlight only a small number of key trends whose outcomes are uncertain. Otherwise the scenarios will become too complex to understand and use.

In any case, it is helpful to bear in mind that the objective should be to identify the two most important trends or outcomes whose consequences are uncertain.

Step 6

Construct the basic scenario themes as a matrix or grid

Taking the key uncertainties that you have identified in Step 5, the task is now to create a matrix or table that sets out the basic characteristics of the scenarios that you will later elaborate.

Constructing a matrix is the most straightforward way to start building up the set of scenarios. This approach will require placing emphasis on two key trends or factors whose outcome you have identified as uncertain. By placing one of the factors on the vertical axis and the other on the horizontal, four polar combinations are produced, and these can provide the basis for four scenarios to be elaborated then tested further.

The alternative approach is to establish a more complex table that contains multiple criteria, while at the same time emphasising two or three key variables. To use this approach, divide the grid into headings that reflect the main aspects of the environment being described and, under each heading, identify a small number of criteria. These criteria should reflect the impact of the main drivers of change and the important factors that are selected to characterise scenarios for the future. Some of these factors will vary by scenario, some will remain more or less constant or be seen as subsidiary.

Whether you adopt a matrix or grid approach to constructing your scenarios will depend on your data, the time and resources you have, and which best fits your purposes. There is no optimum number of scenarios needed. It is possible to examine different strategies in the context of two contrasting scenarios. A two-scenario playing field might hinge on whether a single significant event happens or does not happen. It is also possible to consider up to five or six contexts. The key consideration is to seek out different and plausible futures grounded on the data you have assembled and the analysis that you have conducted. Generally, however, respondents find it difficult to take account of more than four scenarios when exploring strategies

Creativity and imagination should not be stifled by strict adherence to a code or system. People using scenarios have to be encouraged to think freely about different futures. If scenarios were nothing more than extrapolations based on existing data, they would simply be an extension of current forecasting approaches.

Each scenario needs to have a small number of core ideas on which it is structured. Technological change often features, and 'Moore's law' is a useful way of beginning to explore the uncertainty about how ICT applications may change, given the speed of expansion in micro processing. The core idea makes the scenario more easily appreciated.

Step 7

Develop your provisional scenarios

Step 6 has provided you with the matrix or grid that creates the basis for your scenarios. Developing the scenarios into a series of narratives or images for the future will require the scenarios group to think both analytically and imaginatively. The people building the scenarios require the freedom of mind needed to think about the strong and weak signals on the horizon as well as what is currently changing.

At this stage:

- utilise the data you have collected, to build up both the shape and the detail of the scenarios;
- reintroduce some of the contextual trends that you left to one side at the beginning of Step 5; these are the trends over which respondents showed broad agreement for the future, as either likely to occur or unlikely to occur.
- express the imagery or narrative in a way that will engage the interest of those who will use the scenarios.

Two choices that you make at this stage will influence the way that you build up the scenarios from the matrix or grid.

Qualitative or quantitative statements?

The statements contained in scenarios for learning, education and training are often expressed in qualitative terms (see Section 3).

The quantitative approach should also be considered. It may strengthen correlations within particular scenarios and underpin the contrasts between your scenarios. The numerical data may be presented as numbers, percentages, increases or decreases, figures based on an index of 100, etc.

In any case, it is a good idea to quantify as many as possible of the trends and criteria that form the scenarios, even if you eventually keep most of these in the background. This makes a link between the analysis of trends, forecasting and scenario building. It will also help to reveal inconsistencies.

How to bring the different scenarios to life?

Basically, there are two ways that you can build up the scenarios from the key uncertainties you have highlighted.

Either you can take into account all the data that you have gathered and the factors that you have identified as driving change, and encourage the scenarios team to consider the information and suggest ways that each of the different scenarios may develop. You do this without imposing an overall pattern *a priori* on the scenarios, to see how the narratives may develop. This is the inductive method: you build up the scenarios without imposing a strong pattern onto them. Then you look for the pattern at the end. This will be the most likely way of working when you use a number of different criteria from different domains to form the scenarios. The development of the European VET and lifelong learning scenarios followed this approach (see Section 3).

Alternatively, you may begin this step with a clear set of alternative models for your scenarios. The scenarios for education in the Russian Federation, for example, were based on macroeconomic models (see Section 3). In this case your scenario team will use the information available and understanding of the drivers to build up the narrative and detail around the pre-set pattern. You add the detail to the structure or development that you have already identified. This is a deductive process; it is most likely to feature when you already have a clear or archetypal matrix of alternatives.

It may be helpful to think of these alternative approaches as inductive and deductive. The inductive process involves building up the scenarios piece by piece from the evidence gathered, to see what pattern emerges. The deductive process means building the detail onto a clearly defined set of alternative structures or stories. In practice, you may choose to work with a combination of deductive and inductive processes.

Kees van der Heijden suggests that a third approach may be useful in some circumstances (Van der Heijden, 1996, p. 210). A government, organisation or business may have a strong attachment to an 'official future'. Yet the scenarios team's work shows that the strategies adopted are unlikely to achieve the hoped-for result, or that key drivers in the environment make the outcome unlikely. Van der Heijden suggests that the 'official future' becomes one of the set of scenarios, and the alternative outcomes implied by key trends and drivers can be the basis for building the alternative, plausible scenarios. Thus, the alternative scenarios are built up incrementally or as challenge scenarios.

Whichever method you adopt in particular circumstances, you must bear in mind the criteria for a good set of scenarios, with which we began this section.

Step 8

Check out the scenarios for plausibility and consistency

The objective is to make sure as far as possible that the scenarios are fit-for-purpose. This means that they should meet the criteria set out at the start of this section. Final presentation is the only criterion that does not need to be met at this point, though how to present the scenarios should be under consideration.

The task involves reviewing all the material gathered and presented so far. The external checking involves finding out the views and reactions of stakeholders and other experts to the draft scenarios, and deciding on any changes or modifications that will need to be made.

A further series of in-depth interviews with experts is the appropriate way to gauge responses, and it may be possible to ask some respondents to give written feedback. Workshops may perform this function well. In any case, you will consult with fewer people in this step than you did in Step 3. We say more about this in Section 9.

You will probably find that the six questions that follow will help you to check the work you have done:

- taken together, are the scenario statements plausible?
- is the timeline plausible?
- are all of the scenarios challenging enough?
- if we were to drop one of the scenarios, which one should it be? Why?
- are the scenarios likely to be relevant to the stakeholders who will be involved in the strategic conversation?
- what modifications would improve the scenarios?

Bear in mind that the observations and introspective conclusions of the group developing the scenarios will also have an important bearing on any modifications that you decide to make.

Step 9

Modify, polish and present the scenarios

The objective is to frame and present the scenarios in such a way that they are stimulating and plausible. You should encourage the stakeholders in the process to take ownership of the scenarios as part of the strategic conversation. At this stage:

- the scenario team will need to agree how to make any major or minor changes that have been identified as necessary in Step 8;
- some details will probably need adjusting to improve the storyline or the descriptions in the set of scenarios;
- you must decide what format and media to use to present the scenarios to maximum effect.

You want to engage the stakeholders on a number of levels: analytical, imaginative, and emotional. You want them to turn to alternative views of the future and to think strategically, an objective that is often not easy to achieve. You want them to think clearly, but ‘outside the box’, and to find ways to develop appropriate strategies.

Naming each scenario should help to give the scenarios impact and reinforce the main concepts.

Once the scenarios are ready, you can present them in the most appropriate report-back meetings.

Step 10

Keep the scenarios under review

Even now, the scenarios should not be seen as a finished text. Keep them under review and work with the stakeholders to alter them as circumstances unfold and as new factors come into play.

This needs to be part of the management process. Organisations have their own management processes and it would not be possible to describe in a single step how to integrate scenarios into the planning process of different organisations. This question is discussed in Section 10.

7.4. Scenario designs: mini, midi and maxi model

This section has described the stages and steps that you need to go through to produce a set of scenarios that is fit for purpose and that follows a sound methodology. Some scenario exercises are on a ‘maxi’ scale and involve extensive research, consultation and analysis. Others are constructed using more limited resources and, typically, some preliminary groundwork and a series of workshops: these are cut-down, a ‘mini’ version of scenario building.

We are also aware of many scenario exercises in which the participants have met together for a purpose and begun by developing a number of possible scenarios at once. Often these represent a ‘hoped for’ scenario and some ‘not wanted’ scenarios. Participants may spend an hour or an afternoon on this process. This may perform a useful function, but is not part of the scenarios methodology that we have outlined.

The steps we have outlined in this section can be used flexibly to produce scenarios that are appropriate to the particular circumstances. The scenarios can be developed on a scale from the straightforward to the highly elaborate, depending on the intended purposes, the context and the resources available.

The examples given in Section 3 illustrate a range of applications for the methodology in education and training. Whether to use a maxi, midi or mini variant is not necessarily determined by the size of the organisation involved. However, it clearly is the case, for example, that a large-scale scenarios and strategies exercise at European level will be developed on the maxi model.

7.5. Checklist

The checklist summarises the steps we have just described

<i>Checklist for developing scenarios</i>	
Step 1	Define the problem; set up the scenarios group
Step 2	Identify the key drivers of change in the environment
Step 3	Gather data on the relevant trends
Step 4	Sort the trends into three sets
Step 5	Decide which are the key developments whose outcome is uncertain
Step 6	Construct the basic scenario themes as a matrix or grid
Step 7	Develop provisional scenarios
Step 8	Check out the scenarios for plausibility and consistency
Step 9	Modify, polish and present the scenarios
Step 10	Keep the scenarios under review

Part 3:
Linking the scenarios to strategies

Section 8 Identifying the strategies to test

At the beginning we defined the term strategy in a straightforward way as a general policy for achieving a number of specific goals and objectives.

So far, this toolkit has concentrated mainly on how to build plausible scenarios for different circumstances. Now, we turn attention to the questions of strategy. Which strategies to select and explore in the light of the scenarios? What is a good strategy? How pertinent are different strategies in different scenarios? Which strategies are robust and will probably prove to be successful across the piece?

In this section we explore a basic question, but one that causes organisations and networks difficulty when the future is uncertain: in the particular scenarios/strategy process, how do the key players decide which strategy or strategies to explore?

The purpose of building the scenarios and investigating them is to help the stakeholders in an organisation or network to identify strategies that they can rely on strongly. This certainly implies that it is not the role of the scenarios team to decide which strategies should be explored. Rather, the scenarios team can act as a coach or facilitator, if need be, to help the key players *in situ* to identify which are the strategies that should be under investigation. Step 8 in building the scenarios (see Section 7) can, in addition, be used to encourage or provoke the key policy players - and others in the network or organisation - to identify both existing and new strategies that may be worth further consideration.

Informal discussion, seminars and interviews may all help those with an interest in, or responsibility for, strategic development to think about and decide on the strategies for further exploration. This is a formative part of the strategic conversation, and it cannot be missed.

An organisation may be strongly committed to a particular strategy or set of strategies, but unsure as to how successful they will prove. In this case, the scenarios team should facilitate discussion of what other strategies are worth considering as the strategic conversation develops. For example, it may be possible to identify new strategies that may help organisations to achieve strategic change when they have grown used to incremental changes.

It is often difficult to draw a clear distinction between a policy, which is fairly specific, and a strategy, which is broader and is aimed at achieving a number of objectives. Probably there is no hard and fast distinction. A technique that can help to avoid an atomistic exploration of a large number of strategies (or policies) is clustering. This involves finding ways in which it is

The purpose of building and investigating the scenarios is to help the stakeholders to identify strategies that they can rely on.

The scenarios team may need to help the stakeholders to identify which strategies to investigate.

possible to combine a number of the available, defined strategies and policies. The scenarios and strategies for vocational education and training in Europe initially produced some 13 to 15 ‘strategies’ for testing in the different scenarios, and then found that clustering techniques helped to organise these. This is illustrated in the table at the end of this section.

The organisation or network may want to test strategies they are already interested in. On the other hand, the scenario team may help stakeholders to identify the strategies under consideration in a number of ways:

- the scenario team may have to coach or facilitate the identification of which scenarios to consider;
- clustering may help to distinguish strategies from more detailed policy instruments.

Participants often report that the outcome of a scenarios process is more future-oriented discussion between employees in an organisation or between participants in a network. The method can also help to build consensus.

Clustering policies/strategies in the European VET scenarios project

Checklist for developing scenarios	
Single strategies considered	Clusters
1 Developing the ‘modern’ worker	<p>Demand</p> <p>Supply</p> <p>Information</p> <p>Coordination</p>
2 Encouraging individuals to be responsible for their own training	
3 Developing flexible providers/networks of providers	
4 Learning organisations: e.g. setting up more training within firms	
5 Forecasting and anticipating needs	
6 Transparency/availability of qualifications and pathways	
7 Monitoring	
8 Protection and social inclusion	

Section 9 Interactions between scenarios and strategies

Building scenarios is useful and interesting but it is only the beginning of the strategic planning process. Scenarios can encourage out-of-the-box thinking and can stretch short-term planning considerably. However, possibly its greatest value comes from the use of scenarios as wind tunnels or test-beds for the scrutiny of strategies.

Having identified a series of strategies, the next step is to examine them closely as if they were to be enacted in various scenarios. Each interaction needs to be examined. If we have four strategies and three scenarios we will need to look at 12 interactions.

The purpose of this process is to seek out strategies that are robust. A robust strategy will remain useful and generate positive outcomes in most or all scenarios. This means that, if any of these futures becomes reality, the strategy will serve its purpose well. Of course it is also useful to weed out weak strategies. These can be discarded and, in so doing, organisations can save time and money.

Sometimes a specific strategy will have been selected as the mainstay of future planning. This strategy can be tested against the scenarios and problems and unintended consequences of deploying the strategy can be unearthed. The strategy may not be the most robust but actions can be taken to bolster the strategy in certain situations.

An interesting variation on this testing of strategies in different situations arises when a scenario is considered the optimal outcome. In this situation strategies can be tested for the degree to which they enhance the likelihood of this scenario coming about. Strategies that are counterproductive in terms of other less desirable scenarios may also be developed.

No matter how strategies are chosen, it is part of the method that they are tested in scenarios and data collected about the interaction.

9.1. How will we find out if a scenario is robust?

There is only one way to do this: by seeking opinion from a range of experts. These experts could be from different fields; some closely related to the business of the organisation using scenario planning, some more indirectly associated with the field. Careful thought needs to go

The next step is to examine the identified strategies, if they were to be enacted in the different scenarios. For education and training a robust strategy will probably be useful and positive in most or all scenarios.

into the selection of the sample of experts. In the table that follows the main points to be considered are discussed and examples provided.

Choosing a sample of experts	
What is the range of fields of interest that should be covered?	
Think about:	Examples for VET:
Scenarios methods usually work best in large, complex situations and, in theory at least, all relevant fields need to be sampled. In practice it is best to have three headings:	<p><i>essential core fields</i></p> <ul style="list-style-type: none"> • Government policy makers • Employers organisations • Institutional leaders • Trade unions • Enterprise agencies • Assessment bodies • Basic skills agencies • Regional economy groups • Training organisations <p><i>associated fields</i></p> <ul style="list-style-type: none"> • HRD • Research agencies • Funding bodies • Initial education • Health and safety organisation <p><i>tangential fields</i></p> <ul style="list-style-type: none"> • Welfare organisations • Voluntary groups • Professional bodies
<i>Essential core fields:</i> ignoring these fields would undermine validity. Good representation from these fields is needed.	
<i>Associated fields:</i> these are important but not central. Try to make these into a hierarchy of importance and influence. Work from the top and include as many fields as possible. You might sample fewer experts as you move down the list.	
<i>Tangential fields:</i> these sometimes rise in importance but are mostly only indirectly related to the main area of interest. Keep leaders of these fields informed of the research but sample experts from these fields only if there is resource	

Can I group these fields in meaningful ways?

Think about:	Examples for VET:
Once the fields are identified it is important to make sure that key <i>activities</i> are covered. These activities typify the area of interest.	<ul style="list-style-type: none"> • National policy planning • Regional planning • Funding • Management • Teaching • Students/workers • Ancillary or support work • Assessment • Recruitment • Training

How many experts should populate each group?

Think about:	
As a minimum for direct contact we suggest two people.	
As a target for direct contact we suggest as many as five.	
If electronic or paper consultation is planned as many as 30 per group should be a target.	

Should these experts cover a range of roles within the groups?

Think about:	Examples for VET:
Which roles.	In a company, for example, the training officer, the personnel officer and a trainer might be consulted.

How many experts are likely to drop out of the interview process?

Think about:	Examples for VET:
About half unless first class one-to-one contact is maintained prior to the interview.	Personal recommendations work well, letters explaining process followed by telephone call. etc.

9.2. Scenario/strategy interactions

Now that the fields have been defined and experts associated with them identified, it is necessary to look at the distribution of scenario-strategy interactions across these experts. How many interactions can each expert consider? Should they just be interactions they are interested or expert in?

If a face-to-face interview is the main means of exploring interactions it is possible, in our experience, to cover only two to four interactions in depth in an hour-long session. Several options are open at this stage:

- allocate experts to interactions randomly;
- allocate experts by potential interest or area of expertise of experts;
- allocate one interaction and allow free choice on the other;
- allow free choice for both interactions.

The expert interviews exploring the scenario/strategy interactions require careful planning

nature of the interactions.

The problem with leaving the experts free choice as to which scenario/strategy interactions to explore is that some interactions may remain unexplored and others examined intensively. However such a situation tells a story about the feelings of experts about the

It is not possible to be certain about how many expert views should be a minimum for each interaction. This depends on the nature of what is being explored. However five or six views begin to show areas of agreement and disagreement that is useful. Having five or six experts also provides scope for different perspectives on the interaction. In one pilot study we used two experts per interaction and still produced good illuminative data.

It is possible to take stock of coverage of interactions and, towards the end of data gathering, begin to guide experts towards relatively unpopular interactions.

9.3. Gathering and recording data

There are several options for gathering data and the pros and cons of these are well known.

- Questionnaires: good for simple data collection, cheap, often difficult to get to thinking behind response and poor response rates.
- E-mail questionnaire/discussion: convenient for many, good for providing background material, opportunity for some interaction, cheap.
- Focus groups: good for sharing thoughts, difficult to allocate thought to individual, danger of powerful people dominating discussion.

- Telephone interviews: good for detail, cheap.
- Face to face interviews: good for detail and exploring perceptions, expensive, time-consuming.

9.4. Designing the instrument

Whatever method of gathering data is used it will be necessary to define the areas of enquiry. The main areas will be:

- clarification of the aim of the project;
- procedural issues such as time available/needed, confidentiality, publication of outcome, etc.;
- clarification of the expertise and job role of the expert;
- obtaining from each interviewee an overview of scenarios;
- obtaining an overview of the strategies chosen;
- scenarios – strategies and their interaction;
- feedback on the scenario process.

It will aid analysis if the instrument is designed so that views can be laid out in a way which makes comparison between the views of different experts easy to correlate. The physical layout of the schedule recording views is one way of making correlations.

Another is by developing a coding system that will relate a specific viewpoint from an expert to specific scenario, a specific strategy and a specific interaction. For example, if a trade union leader viewed the recognition of non-formal learning of skills as being a key to a person's employability in a free-market scenario for the economy then we might code the trade union leader (expert SP6) with the strategy recognising non-formal learning (strategy C) with scenario 1 (free market dominates). The code might be SP6.C.1. It is then possible to analyse all occurrences of a strategy, a scenario or a type of expert in the database.

9.5. Built-in review stages

When the data-gathering is underway, it is important to pause after the views of a few experts have been gathered. The scenarios team will need to take stock. The main tools of the investigation (scenarios and strategies) may need minor amendment to make the rest of the process as useful as possible.

It is also useful to make sure that the opinion-gathering process is working well:

- are the interviews being completed in time?
- are all the questions clear?
- is there anything that needs additional explanation?
- is the coding system manageable?
- do schedules need amendment?

9.6. Analysis

When all the data has been gathered it is possible to look for patterns in responses to particular interactions. It is useful to do a preliminary sorting of evidence under three headings: strategy, scenario and expert group.

For each strategy it is useful to decide on a number of features of the strategy, and test these against the scenarios.			
	in	Scenario A	Scenario B
Objective			
Expected outcomes			
Unintended/negative consequences			
Key drivers			
Links with other strategies			
Implementation			
Stakeholders			
Regulations			
HRD			
Funding, etc			

	in	Scenario C	Scenario D
Objective			
Expected outcomes			
Unintended/negative consequences			
Key drivers			
Links with other strategies			
Implementation			
Stakeholders			
Regulations			
HRD			
Funding, etc			

The first heading is strategy. For each strategy, compile and collate data under headings that summarise each question in the schedule, including:

- what are the aims?
- what will happen if it is deployed?
- who will make it happen?
- what legal or financial incentives will be needed?
- what other strategies will help?

The second heading is scenario. For each scenario, go through the main points made about each strategy in turn. It may also be useful to try to judge robustness here by making quantitative judgements (say on a 3 or 4 point scale). This gives a numerical value to robustness that might be useful when aggregating strategies into clusters (see Section 8).

The process of testing the strategies highlights their potential impact and associated risks. The data produced and outcomes are presented to stakeholders and decision makers.

The third heading is expert type/group/field. Providing you have a sufficient number of interviews, you can collate the level of support for each interaction against expert groupings. See table above.

9.7. The outcomes

The process of testing the strategies reveals further data on driving forces, key players and instruments needed to make a strategy effective and so serves the purpose of refining each strategy. The process can also highlight risks and show why any side effects of deploying the strategy might be unhelpful. The template on the previous page may be useful.

It may be possible to link single strategies into a more powerful cluster of strategies. It is important to look at this kind of clustering in the light of the evidence rather than as some pre-research process that tidies up the data and makes it easier to use for data-gathering.

All of the data need to be carefully assembled and presented to interested parties in ways which enhance understanding of the forces involved in the strategic approach and which do not deny the systematic way in which it has been assembled. If this can be achieved, the outcomes will provoke discussion amongst the main stakeholder groups which is the essence of long-term strategic planning.

Section 10 Dealing with the outcomes

10.1. The strategic mix

It is probably the case that the optimal strategic planning process is a carefully constructed blend of methods and timescales for projection into the future. Scenarios play a distinctive part in the mix in three main ways:

- they deal with long-term rather than short-term;
- they involve all the key players in the process;
- they create a language that people can use in discussing how to handle various strategic options.

The best-known reason for scenario planning to fail is that the development work is not integrated into the culture of the organisations.

When the data from scenario–strategy interactions has been summarised it is important to consider how it:

- relates to data generated from other methods;
- might impact on the custom and practice of strategic planning;
- changes the management process necessary for strategic planning;
- will require different groups of people to be involved in planning;
- relates to changing local, regional, national and international situations.

These considerations are a necessary part of making scenario planning contribute to the strategic mix. Some considerations that are specific to the scenario part of the mix are now discussed. These considerations are either pitfalls that need to be avoided or opportunities that need to be recognised as such.

10.2. Spreading ownership

The best-known reason for scenario planning to fail is that scenarios development work is not integrated into the process and culture of an organisation. It is possible to be keenly interested in scenario work and yet to have no will to bring the method into the normal process of strategic policy making.

This means two sorts of commitments need to be established at the outset of the work. First, at senior chief executive level there is a will to change the strategic planning process so that there are resources allocated to introducing scenario planning. This goes beyond looking at the

results of a scenario planning process. The second kind of commitment is to develop staff across the organisation so that they can understand and use the evidence of scenario analyses in conversations about the future direction of policy. Without these two kinds of commitment the scenario process will be little more than a one-off interesting experiment.

Once committed to using the scenario method, it is necessary to think through ways of generating a process that will add value to other planning procedures. These ways of developing the process will depend on the structure and function of the organisation. However all organisations will be seeking answers to such questions as:

- how can I induct all staff into scenario method?

The purpose of scenario methodology is to create a strategic conversation among managers and stakeholders.

- who are the key staff in the organisation that will drive this aspect of planning?
- what timescale will be set for the process?
- what is the optimum dissemination process?
- how will we know when strategic conversations are taking place?

The main purpose of scenario methodology is to create a strategic conversation among managers and stakeholders. There are two prerequisites for this to happen. The first is to develop a shared language among the main participants; the scenarios provide this. The second is that there is something for managers and stakeholders to 'kick against' when they consider how a strategy will work in a given scenario. The perceptions of experts have created a bank of data to fuel discussion about such matters as:

- what is the point of pursuing this strategy in this situation?
- what will it achieve?
- what could go wrong?
- who will be supporters? Who will be against?
- who will turn the strategy into reality?
- what other conditions will be necessary for it to work well?

Most organisations hold a seminar or conference to discuss the findings of the scenario/strategy interactions. If there is such a seminar, it is important to structure the programme so that strategic conversations take place. One way of doing this is to set up group work/workshops with real issues to solve.

10.3. Remember the method

People can be sceptical about the reliability of the evidence created by scenario planning. The methodological dissemination is probably as important as the messages it has generated.

Because of the imaginative/creative nature of scenario planning, it is essential that the participants in the process are aware of certain pitfalls when creating and implementing the scenarios and strategies. It is, therefore, essential that all participants are clear about the data and techniques used in scenarios planning, about the clarity of its purpose, and about how it is to be used alongside other planning tools.

Managers and others often find that the most difficult part of scenario planning is letting go of the ‘official’ future. Scenarios involve investigating the ‘what if?’ questions.

10.4. Being creative, the difficulty of letting go of the here-and-now

The most important and most difficult part of scenario planning is letting go of the official future. Managers find this difficult. Often their vision is limited to the achievement of the incremental tasks that they are directly involved in. What happens is that there is often too little unfettered thinking. Existing ideas and policies are too legitimised. Even when the scenarios are already constructed, there is sometimes a tendency to validate the conclusions from documentary evidence.

One major issue when constructing scenarios is the danger that people want to add values to them. They want to classify the scenarios into good/bad, desirable/undesirable. The toolkit has placed the emphasis on plausibility and internal consistency. The scenarios uncover what could come about, rather than what actors hope for.

Closely related to the issue of wanting to add values to scenarios is the general, and very common, idea of wanting to assign probabilities to the scenarios. It is not so much that one scenario ‘gets it right’ as having a set of scenarios that illuminates the major forces driving the system, their interrelationships, and the critical uncertainties. It is a general tendency for people to focus on the ‘as usual’ scenario, since it reflects conventional wisdom. In the same way people like to pick the middle scenario as the most likely, a tendency that can easily be avoided by working with an even number of scenarios.

10.5. Conclusion

The impact of the scenarios processes described in this toolkit will only be strong if dissemination is taken seriously and thought through from the beginning. This will have implications for the professional development of those involved, requiring preparation and, probably, training.

Section 11 In the final analysis

The key question for many readers is likely to be: can scenario methodology add value to strategic planning of education, training and lifelong learning?

Scenarios-based methods are powerful but there are situations where they fall seriously short of their potential. In this section we look at the strengths of the methodology and consider factors that weaken its effectiveness.

11.1. Can the scenarios method help to analyse and plan for the future?

In complex educational systems that range from a national service to single institutions, where many variables interact, the method can create a way of discussing the development of strategies. In combination with other methods of strategic planning, notably trends-based forecasting, it can optimise longer-term planning. For the method to be convincing and effective it needs to be grounded on a foundation of data that originates from good desk research and consultation with a well-chosen sample of experts from inside and outside the field of interest.

11.2. Making scenario information make a difference

There is an issue with the engagement on the part of managers and policy makers with the outcomes of scenarios exercises. It sometimes proves to be difficult to make the critical step from building scenarios and developing strategies to integrating the process into the existing strategic planning process. There are no easy ways to do this; experience shows that tensions exist between fully engaging managers in working through the method, the initiative that this requires, and the time that is taken up. Other commentators (Mintzberg et. al., 1998) have found this to be a major obstacle to achieving full value from scenario planning. From the earliest application of the method, researchers have found that changing the managerial view of the future is more difficult than building the scenarios themselves (Wack, 1984). Despite these difficulties, some see value in the scenario method as a training tool for management teams; it has the potential to bring coherence to future thinking and improve the level of planning expertise in an organisation.

Thinking more than five years ahead is not a common requirement for most organisations and many organisational practices do not easily accommodate discussions about longer-term approaches. Before work on developing scenarios and testing strategies begins, it is essential to consider how colleagues will be introduced to the method, including its limitations, and engage with scenario building and elaboration. Several projects (Office of Science and

Technology, 2001; Ringland, 2002 (b)) report that care is needed in getting the process of involving people in the methodology right.

11.3. Does it facilitate consultation with experts?

Using the method creates a language for thinking about the future.

The method is particularly effective here. The uncertainty about the future seems to stimulate people to give a view. The future setting also seems to release people from feeling they have to adopt an institutional or ‘party line’ on specific issues. The method can engage actively people

whose views are disparate and people involved in different operations of a complex organisation or network.

11.4. Will it generate a strategic conversation?

Scenarios development seems to capture the imagination of many people. High quality discussions can be stimulated about the robustness of a strategy in a certain scenario or the downsides of taking a certain approach. The evidence is that the method creates a language for thinking and talking about the future. This process could be the most significant outcome from the use of the scenarios method. Discussions about what might drive a strategy in different scenarios are a particularly useful way of developing strategic conversation. However, inconsistent narratives within scenarios spoil discussion and encourage unhelpful distractions. Similarly, the inclusion of strategic elements in the narrative of the scenarios tends to stall discussion.

11.5. How much resource to commit?

A full-scale scenario process for a large organisation or system is a major commitment. But it is not difficult to adapt the method to meet the needs of other organisations.

A full-scale scenario process for a large system or organisation is a major commitment. It is possible to adapt the scenario process in many ways to meet constraints of budget, time or people. For example, the level of desk research can be reduced or a smaller number of experts can be interviewed. However there is another way of adapting the method which can be useful in certain circumstances. It might be useful to begin with a mini scenarios exercise which only involves consulting in-house information and in-house people about future

changes in the environment in which the organisation operates. The production of these scenarios can be used to create a language about the future that can help people discuss longer-term approaches to developing the organisation. In this version, no strategies are developed for testing and no formal exploration strategies in different contexts are involved. A second level is to develop strategies by consultation and set them alongside scenarios for people to consider. In this midi version of scenario planning, the consultation with experts about the detailed interaction between strategies and scenarios is not undertaken.

The scale of the scenarios exercise is not necessarily determined by the size of the organisation involved. However, it is clear that a large scale scenarios and strategies exercise at European level will need to be properly resourced to be successful.

11.6. Complementing other methods

It is important that the method is viewed as one tool among others in a toolbox for developing future strategy. Several projects report that care is needed in getting the process right. In combination with other methods of strategic planning, notably trends-based forecasting, benchmarking and Delphi, it can optimise longer-term planning.

11.7. In conclusion

Scenario building methodologies can be adapted for use in a wide range of learning and VET settings because the field is complex and full of uncertainty. It is a tool that, combined with others, optimises strategic planning. The method is relatively easy to use, but major pitfalls need to be avoided. The method requires full engagement of actors and the need to induct people carefully into its logic and operation. It contributes to avoiding short-term views and ad hoc actions or measures which may have to be repeatedly corrected or re-oriented. The search for medium and long-term sustainability is facilitated.

The main outcome: a greater awareness of different plausible futures. This awareness leads to strategic conversations between actors and different interests. This is a practical outcome through which the open discussion of strategic options in the event of possible futures helps to improve strategic planning.

References

- Berkhout, F.; Hertin, J. Foresight futures 2001: revised scenarios and user guidance: final report. Brighton: SPRU, 2001.
- Bertrand, Gilles et al. *Scenarios Europe 2010: five possible futures for Europe* Brussels: European Commission, 1999. Available from Internet: http://europa.eu.int/comm/cdp/scenario/scenarios_en.pdf [cited 28.1.2004].
- Buchan, D.; Roberts, A. Energy study sees break-up of global trends. *Financial Times*, London: 21 January 2002.
- Coles, M.; Leney, T. QCA Scenarios for the school curriculum and assessment in 2011, London: QCA, 2002.
- Daley, R. *The world in 2001*. London: Economist Group, 2000. Available from Internet: <http://www.economist.com/theworldin/> [cited 28.1.2004].
- Education policy analysis: 2001 edition. Paris: OECD, 2001.
- Heidegger, G. et al. *Berufsbilder 2000*. Opladen: Westdeutscher Verlag, 1991.
- Heidegger, G.; Rauner, F. *Reformbedarf in der beruflichen Bildung: Gutachten im Auftrag des Landes Nordrhein-Westfalen*, Düsseldorf: Ministerium für Wirtschaft und Mittelstand, Technologie und Verkehr des Landes Nordrhein-Westfalen, 1997.
- Hindle, T. *Economist pocket strategy: essentials of business strategy from A to Z*. London: Profile Books, 2001.
- Leney T.; Green L.; Cooper C. *Transport scenarios*. London: QCA, 2002.
- Leney, T.; Coles, M. *Scenarios and strategies for training in the UK*. London: QCA, 2001.
- Leney, T.; Mackinnon, I. *Scenarios for three transport industries*, London: QCA, 2002.
- Mintzberg, H.; Ahlstrand, B.; Lampel, J. *Strategy safari*. Harlow: Pearson Education, 1998.
- OECD. *Education Policy Analysis 2001. Education and Skills*. Paris: OECD, 2001.
- People and connections: global scenarios to 2020*. London: Shell, 2000. Available from Internet: <http://www.shell.com/static/media-en/downloads/peopleandconnections.pdf> [cited 28.1.2004].
- Porter, M. *Competitive advantage*. New York: Simon and Schuster, 1985.
- Ringland, G. *Scenarios in business*. Chichester: John Wiley, 2002(a).

Ringland, G. *Scenarios in public policy*. Chichester: John Wiley, 2002(b).

Scenarios for the New Zealand curriculum in 2020. Wellington: Ministry of Education, 2001.

Schoemaker, P. Scenario planning: a tool for strategic thinking, *Sloan management review*, 1995, vol. 36, no 2, p. 25-40.

Schwarz, P. *The art of the long view*, London: Doubleday, 1996.

Sellin, B. *Scenarios and strategies for vocational education and lifelong learning in Europe*. Luxembourg: Office for Official Publications of the European Communities, 2002. Available from Internet: http://www2.trainingvillage.gr/etv/publication/download/panorama/5131_en.pdf [cited 28.1.2004].

Van der Heijden, K. *Scenarios: the art of strategic conversation*, Chichester: John Wiley, 1996.

Van Weiringen, F.; Sellin, B.; Schmidt, G. *Uncertainties in education: handle with care*. Amsterdam: Max Goote Kenniscentrum, 2001.

Vision 2010. Ann Arbor: University of Michigan, 2000. Available from Internet: <http://www.si.umich.edu/V2010/home.html#indexmap> [cited 28.1.2004].

Wack, P. *Learning to design planning scenarios: the experience of Royal Dutch Shell*. Harvard: Harvard Graduate School of Business Administration, 1984. (Working paper).

What schools for the future? Paris: OECD, 2001.

White book: the development of education in the Russian Federation. Moscow: Ministry of Education of the Russian Federation, 2000.

World population projections to 2050. New York: United Nations, 1998.

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