HORIZONS **FORESIGHT** METHOD

Module
6

Scenarios and
Results

Government of Canada / Gouvernement du Canada
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GUIDE TO SPEAKING POINTS:

The following presentation includes a set of speaking points that directly follow the text in the slide.

The deck and speaking points can be used in two ways.
- As a learning tool to enhance the reader's foresight literacy
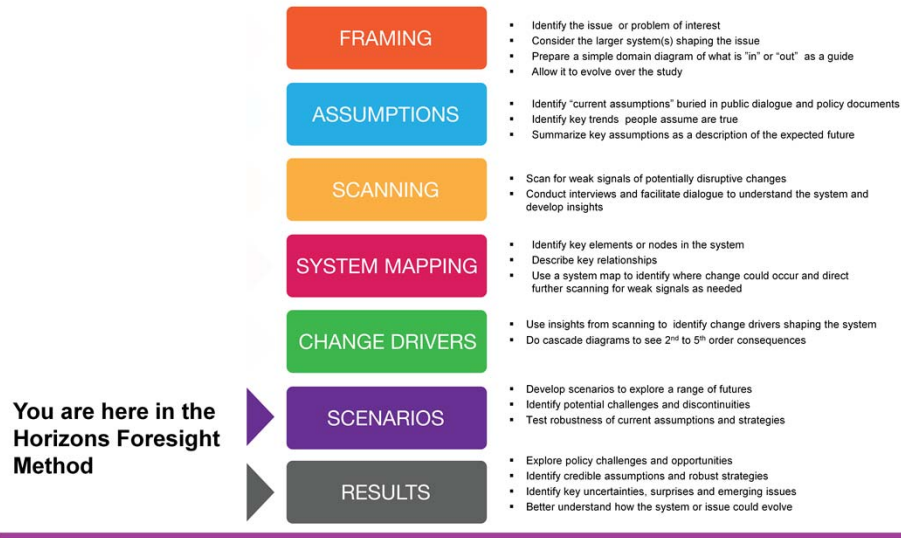- As a presentation tool to accompany the facilitation of foresight sessions

The facilitator can be selective when choosing their slides and speaking points to deliver, depending on the needs of the audience.

The Horizons Foresight Method

- Up to this point, the Horizons Foresight Method has involved identifying assumptions, scanning for weak signals, creating insights, developing system maps, and identifying the forces that are driving change in the system under study.
- As the change drivers interact with the system, they create significant, disruptive change. These interactions are central in the development of scenarios.
- This module builds on the previous material to inform the development of scenarios, which in turn surface potential challenges and opportunities for the future. The scenarios, challenges and opportunities can then be used to test the commonly held assumptions gathered at the beginning of the foresight study.

Learning Objectives

- Understand how to develop and analyze scenarios
- Understand how scenarios are used in the Horizons Foresight Method

WHAT IS A SCENARIO?

- **Definition: Scenarios are descriptions of plausible alternative futures.**
- In the Horizons Foresight Method, scenarios are a way to visualize how the system evolves as it interacts with drivers that create new and unexpected changes.
- The objective is NOT to predict the future, but to :
    - explore a range of plausible futures
    - identify potential challenges and opportunities that could emerge
    - develop robust strategies that may help cope with these surprises

What is a Scenario?

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- The objective is NOT to predict the future, but to explore a range of plausible futures, to identify potential challenges and opportunities that could emerge and to develop robust strategies that may help cope with these surprises.

FEATURES OF A SCENARIO

- Scenarios can be displayed in a variety of formats: words, graphics, pictures, video, etc. Experiential scenarios can include role playing, games and scenes with a collection of artifacts.

- Normally scenarios have a defined time limit, e.g. 2025, 2030.

- The detail level can range from one paragraph to many pages.

- There are many types of scenarios, but the two main ones are:
  - End-state scenarios (snapshot in time)
  - Developmental scenarios (story over time)

- The Horizons Foresight Method focuses on end-state scenarios.

Features of a Scenario

- Scenarios can be developed and presented in many different ways. They can be described using words, graphics, pictures, videos and other methods. For example, experiential scenarios use role playing, games and scenes with a collection of artifacts to get participants in a state where they can experience what a potential future may be like.
- Scenarios normally have a defined time limit, e.g., 2025, 2030. Horizons' timeframe for scenarios is 10–15 years into the future.
- Scenario descriptions can range from one paragraph to many pages.
- While there are many types of scenarios, the two most common ones are end-state scenarios (snapshot in time) and developmental scenarios (story over time).
- Horizons has experimented with a number of methods, and generally creates end-state scenarios—meaning a snap shot of the system at one point in time.
- Developmental scenarios involve dealing with multiple causal pathways in story form. This can be quite challenging to do well. Horizons uses cascade diagrams to explore and represent such causal pathways in graphic form, but concentrates mainly on end-state scenario descriptions as it is easier to paint a picture that summarizes the collective impact of all forces at one moment in time.

Why Use Scenarios?

Scenarios give participants a holistic view/experience of the range of futures we may confront. They expose people to new ways of thinking, and can change how they see the system and the strategies they propose.

Scenarios are used to:
–identify emerging issues and potential policy challenges and opportunities
–clarify and test policy and planning assumptions
–develop a better understanding of the system and its future

WHAT MAKES FOR GOOD SCENARIOS?

- **Multiple futures** – don't examine only one future
- **Plausible** – the causal pathways that explore low probability, high impact developments seem reasonable
- **Non-linear** – go beyond linear models of change (A causes B) to explore spiraling complexity
- **Provocative** – explores the significant issues in a vivid and strategic manner
- **Explore assumptions** – move beyond conventional thinking
- **Concise and clear** – convey images more than facts; elements are at the same level of generality; contains the essence, not the details

What Makes a Good Scenario?

Characteristics of well-developed scenarios include:
- *Multiple futures* – scenarios don't merely examine one future, but explore a range of futures

- *Plausible* – the causal pathways that explore low probability, high impact developments in each scenario are reasonable and defensible

- *Non-linear* – scenarios go beyond linear models of change (A causes B) to explore spiraling complexity

- *Provocative* – scenarios explore the significant issues in a vivid and strategic manner that grabs the audience's attention

- *Explores assumptions* – scenarios move beyond conventional thinking to challenge current assumptions about the future

- *Concise and clear* – scenarios convey images more than facts. Their elements are at the same level of generality and they contain the essence of the message rather than the details.

EXAMPLES OF SCENARIO METHODS
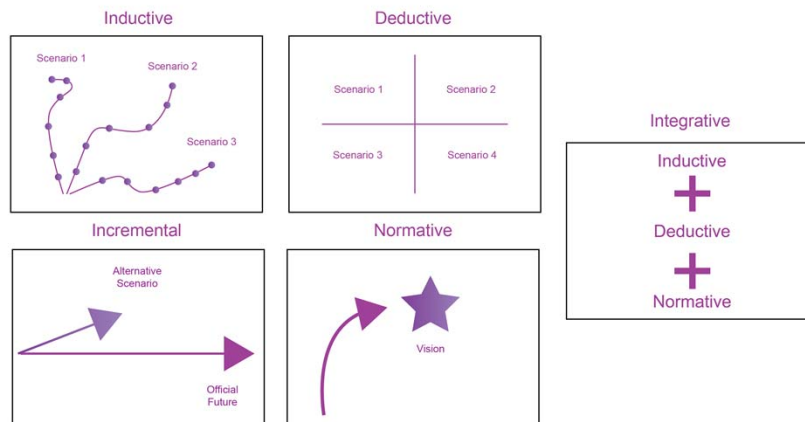
Adapted from Ged Davis, Scenarios as a Tool for the 21st Century, Shell International, 2002.

Examples of Scenario Methods:

There are a variety of scenario methods used in foresight.

- Scenario methods can range from an ad hoc "mash-up" of techniques to formal methods.
- Bishop and Hines (2007) describe eight techniques (with 23 variations) to develop scenarios: judgment, baseline, elaboration of fixed scenarios, event sequences, backcasting, dimensions of uncertainty, cross-impact analysis, and systems modelling (see http://samiconsulting.co.uk/training/documents/BishopHinesCollins.pdf).
- Many scenario methods are built around some variation of the Shell/Global Business Network (GBN) method (two critical uncertainties form the axis in a matrix that explores four scenarios).
- There are numerous factors that combine in different scenario methods: quantitative vs. qualitative, exploratory vs. normative, analysis vs. intuition, expert judgment vs. broad participation, single step vs. many integrative steps, inductive vs. deductive, etc.
- The Horizons Foresight Method is an integrative approach that includes both

inductive and deductive phases, but could also be used to create normative (aspirational or goal-oriented) scenarios.

- *Note: The diagram is adapted from the work of Ged Davis, Scenarios as a Tool for the 21st Century, Shell International, 2002. (https://www.pik-potsdam.de/news/public-events/archiv/alter-net/former-ss/2006/programme/31-08.2006/leemans/literature/davis_how_does_shell_do_scenarios.pdf)*

1. Identify change drivers and system elements that will inform the scenario development
2. Develop the scenario logic
3. Put it all together: Create the structural scenarios
4. Identify policy challenges and opportunities
5. Test and clarify assumptions

STEP 1: IDENTIFY KEY CHANGE DRIVERS AND ELEMENTS FOR ANALYSIS

- Change drivers with the most disruptive impact on the system under study are chosen—these change drivers will be instrumental in the elaboration of the scenarios.
- System elements with the greatest potential for disruption or change over time (given the change driver impact) will also be central in the scenario structure.

Step 1: Identify Key Change Drivers and Elements for Analysis

Choosing Drivers and Elements:

- Through the scanning phase, participants develop a good understanding of the system and collect insights about what is changing. This knowledge informs the selection of drivers and system elements.
- Finding the right combination of drivers and elements and the right level of abstraction so they interact in ways that are strategically useful is an art. But the cascade diagrams and cross-impact work (described in the fifth module) are designed to give participants a feel for where and how significant change could occur.
- For change drivers, choose those that interact with one or more system elements to cause significant, disruptive change.
- For system elements, it is best to choose "lenses" that allow an overview of how one or more key structures might change. For instance, a useful lens could be social stability, which could include inequality and inter-group relations.

- Playing with different combinations in a cross-impact matrix (drivers x elements) is a good way to test the strategic value of any set. Running mental simulations with pairs can help inform the choices.

STEP 2: DEVELOP THE SCENARIO LOGIC

A scenario logic is…

- Built on a foundation of archetypal scenarios that ensure a range of plausible but distinct alternative futures are explored.

- The following archetypes have proved useful in public policy foresight:
  - **Transformation** – things change due to fundamental shifts in the way we work or see the problem. Transformation is often a response to an opportunity or a crisis.

- Each archetype is supplemented with additional lines of logic that help define the scenario context. This helps to place boundaries on the archetype, which facilitates the exploration of plausible futures.

Step 2: Developing the Scenario Logic

- Horizons generally uses the archetype approach to build scenarios. This allows for the exploration of a broad range of plausible futures representing the contexts within which policy developers might be operating. The four archetypes generally used are:
  - **Muddling through** – coping with or reacting to change, but without improving outcomes;
  - **Incremental progress** – things are getting better, but in an incremental way;
  - **Incremental decline** – current arrangements are hard to sustain and things are getting worse (without necessarily being catastrophic);
  - **Transformation** – things change due to fundamental shifts in the way we work or see the problem. Transformation is often a response to an opportunity or a crisis. It can be either positive or negative.
- Archetypes provide a wide spectrum against which to test possible future strategies, highlighting potential policy challenges and opportunities, and thereby allowing decision makers to design more resilient strategies.

EXAMPLE OF SCENARIO LOGIC

	Muddling Through	Slow Decline	Gradual Progress	Transformation
Archetype Logic	Incremental approach. No major decline or improvement.	Period of instability. Things are not getting better.	Growing prosperity and security.	Crisis catalyzes change (drought -> food shortage).
Global Power Shift	Declining US and EU influence, while China and others grow in influence.	Shifting coalitions led by US, China and others compete for influence.	US, EU, China and others cooperate to promote prosperity.	Recognition of shared values and mutual interests in addressing global issues.
Geo-Economic	West is fiscally constrained, but "rise of the rest" slowly continues.	Recession. Growing debt. Growth hubs in parts of Asia.	Growing value chains. Growing transparency and accountability.	Well-being redefines progress. Both long and short (resilient) value chains.
Geo-Political	Shifting consensus. Patching up old systems.	Minilateralism: coalitions of like-minded. Competing norms.	Multilateralism is working and becoming networked.	Experimenting with co-creation, empowerment of self-organizing networks to produce global public goods.

Example of Scenario Logic

- This chart is an example of a scenario logic used at Horizons in the Future of Asia project. In this case, global power shift, geo-economic and geo-political factors are used to create the boundaries within which to formulate the scenarios.
- In this chart the basic archetypal logic (i.e. the first two rows) are supplemented with several additional lines of logic that help put boundaries on each scenario by defining key characteristics of the scenario.
- The choice of what to include in the scenario logic is a judgment call based on a growing understanding of what is worth exploring.

STEP 3A: BUILD THE STRUCTURAL SCENARIOS – A TEMPLATE

	Element	Muddling Through	Incremental Decline	Incremental Growth	Transformation
Scenario Logic	Archetypal Logic				
	Geopolitical logic				
	Geo-economic logic				
	Global Resource Scarcity				
Change Drivers	More Economic Centres of Power				
	Science, Technology and Innovation				
	New Societal Actors in Governance				
	Greener Economy				
System Elements (Lenses)	System element 1: Manufacturing				
	System element 2: Services				
	System element 3: Natural Resources				
	SE 4: Nature of Firms and Character of Value Chains				
	SE 5: Work and Jobs				
	SE 6: Nature of Government				
Key Policy Challenges	Policy Challenge 1				
	Policy Challenge 2				
	Policy Challenge 3				

Left labels: Scenario logic; Change drivers; System elements (lenses); Policy challenges

One scenario

Step 3: Build the Structural Scenarios: A Template

Logic:
- The scenario logic is created for each scenario archetype. In the example above, the additional lines of logic are political and economic. Working within the logic of the archetype, they provide a context and boundaries for each scenario.
- Work across the scenarios to frame what the economic and political situation looks like in muddling through, decline, growth and transformation. Choose logics that explore futures that are strategically useful.

Note: Once the scenario logic has been completed across all scenarios, it is best to work down the column and develop each subsequent cell guided by the scenario logic. This allows small groups to develop scenarios in parallel in a workshop. You can draw on insights gained from scanning and surprises found in the influence diagrams and cross impact analysis to populate appropriate cells in each scenario.

Change Drivers:
- Working down, given the scenario logic, describe what the first change driver would logically look like in the scenario. This is a deductive task. Brainstorm a

few headlines and try to synthesize them in a sentence or two.
- Continue through the list of change drivers.

System Elements:
- Still working down, given the scenario logic AND the context described by the drivers, deduce what the first system element would logically look like in the scenario. Brainstorm a few headlines and try to synthesize them in a sentence or two. This is a deductive and now cumulative task. Each system element is a "lens" or window into what the system would actually look like. With each new cell strive for logical consistency with all of the cells above it. As you proceed, some editing or revision of the cells above may be warranted.
- Continue the same process for all the system elements.

At this point you have completed one scenario. Repeat the process to complete all four scenarios. Then it is useful to re-examine the entire matrix. Check down for logically consistency and check across so each cell in the row is exploring strategically useful points.

Policy Challenges and Opportunities:
- At this point the scenarios will be rich with information. They can be used in a variety of ways. One useful approach is to ask participants to imagine they are living in that scenario. Given what they know, what challenges and opportunities would arise for today's policies and institutions?

To summarize:
- The change drivers on the short list developed in Step 1 are explored in light of the scenario logic developed in Step 2. The key is to look for insightful ways in which the change driver will play out under the specific scenario.
- Then the system elements (from the domain or system map) are described for each scenario. Once again, the key is to look for insightful ways in which the system elements may shift according to the particular logic and the context provided by the change drivers.
- The result is a logically consistent scenario that describes a plausible future.

STEP 3B: FROM STRUCTURAL TO NARRATIVE SCENARIOS

- Once the structural scenario matrix has been completed, the information can be analyzed and synthesized to create narrative scenarios.
- Narrative scenarios can take the form of:
  - Short one-paragraph scenarios
  - 1–2 page scenarios (e.g. day in the life of…)
- These scenarios incorporate the insightful components of the structural scenario matrix.

From Structural to Narrative Scenarios

The Horizons Foresight Method usually results in two scenario products:

1. Structural scenarios (as per slide 12)
    - Structural scenarios are great analytical tools for identifying challenges, opportunities and surprises.
    - The scenario template is filled in.
    - This can result in a matrix that is approximately 4 columns by 20 to 30 rows.
    - The matrix offers a detailed description of each future.
2. Narrative scenarios
    - The narrative scenarios often consist of the scenario logic and the key disruptions and surprises that are characteristic of each scenario.
    - Narrative scenarios are more visceral and therefore helpful communication tools. For example, they can be used to lead a group through a guided imaging exercise to identify possible

implications. They can also be used to communicate findings more broadly.

- The structural scenarios are distilled down to give readers a feel for the four alternative futures without the detail. This can take the form of short one-paragraph scenarios, or scenarios that are 1–2 pages in length.

Step 4: Identify Policy Challenges and Opportunities

- Once a scenario is developed, the resulting policy challenges and opportunities are identified and explored.
    - A policy challenge is an issue that current policies, processes, and/or institutional arrangements may not be ready or able to address.
    - A policy opportunity is a potential advantage in the future. It may require some strategic thinking and action now in order to harness or maximize the benefits of this opportunity.
- This exploration can take the form of discussions or brainstorming on how current policies and institutions will fare when confronted with each scenario, and what challenges and opportunities may emerge.
- Guided imaging is a very effective way to immerse participants in a scenario. During the imaging process you can ask participants to identify the challenges and opportunities that current policies and institutions are not ready to address.
- Different groups should be engaged to get varying perspectives on the challenges and opportunities the scenarios may generate.

- During this exploration, take note of any alternative strategies or solutions worth exploring in the policy development phase.

STEP 5: TESTING ROBUSTNESS - THREE TYPES OF ASSUMPTIONS

At this point in the process, we test the "current assumptions" that we collected at the very beginning of the Horizons Foresight Method. We test the assumptions for their robustness across all scenarios.

Testing in this way results in three types of assumptions:
- Credible – those that usefully guide planning for the future
- Uncertain – those that require further research
- Vulnerable – those that should be reconsidered in planning

CREDIBLE ASSUMPTIONS
Should guide planning for the future

UNCERTAIN ASSUMPTIONS
Should be researched further

VULNERABLE ASSUMPTIONS
Should be reconsidered

Step 5: Test and Reframe Assumptions

- Remember that assumptions are the foundation on which we build our mental models, which guide our actions. At this stage of the method, we test the assumptions identified to assess their robustness in light of study findings. Horizons categorizes assumptions as credible, uncertain or vulnerable.

STEP 5: TEST AND REFRAME ASSUMPTIONS
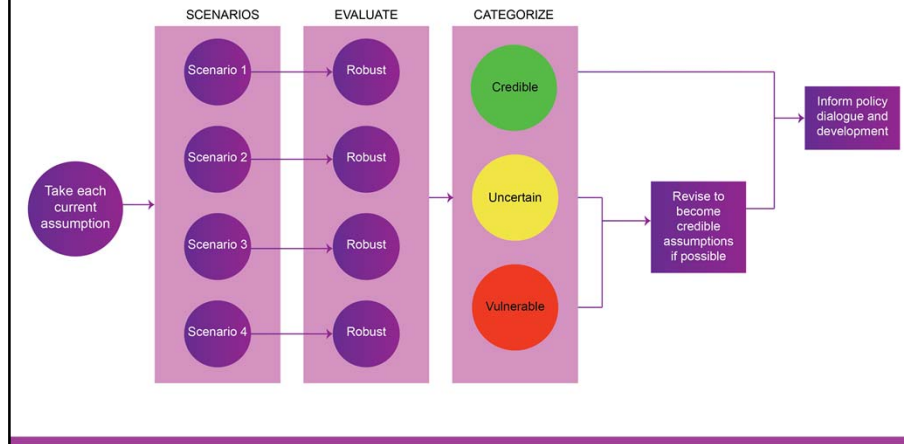
Step 5: Test and Reframe Assumptions

- These assumptions can now be tested against the scenarios that have been developed:
    - Recall the current assumptions (i.e. the assumptions buried in public policy documents and everyday conversation).
    - Test the robustness of each current assumption in each scenario. An assumption is robust if it appears to be a strong, reliable guide to planning under the specific conditions in the scenario (see Facilitator Guide for Testing Assumptions in Module 6).
    - Use the following categories to classify each assumption:
        - Credible (assumption is strong under the scenario and should guide planning for the future)
        - Uncertain (assumption requires further research in order to assess validity)
        - Vulnerable (assumption should be reconsidered in light of the challenges and opportunities that arise out of each scenario)
- After you have classified an assumption's performance in each of the four scenarios, you can give it an overall rating. If you noted as assumption "credible" in most or all of the scenarios, then it is considered a credible assumption. It is a

good guide because it is robust across fundamentally different futures.
- If appropriate, the vulnerable assumptions can be reworded or additional credible assumptions can be developed to describe the emerging policy environment and to help inform policy dialogue and future policy development.
- This method of scenario analysis is a way to systematically challenge and test our assumptions about the future.

Put it all Together: Process Steps

- This slide reiterates the step-by-step scenario development process identified in the previous slides. Each step provides a context that informs the next step:
    - Identify change drivers and system elements that will inform scenario development.
    - Develop the scenario logic, which sets the boundaries for the scenario.
    - Deduce how the scenario logic shapes each change driver in this scenario. Guided imaging, brainstorming or facilitated discussion exercises can be used to identify some headlines and synthesize findings. It is best to summarize findings in 1–2 sentences that capture the essence of the driver; otherwise, there may be too much detail to handle.
    - Deduce how the logic and change drivers shape each system element in this scenario. Guided imaging, brainstorming and facilitated discussion exercises can be used here as well.
    - If time permits, review and revise the scenario to ensure that it meets the criteria for a good scenario (strategic, provocative and plausible).
    - With all the boxes in mind, identify the policy challenges and opportunities that may emerge in each scenario. Once again, guided imaging, brainstorming and facilitated discussion exercises can be used.

- Test the robustness of each current assumption across each scenario. Assess and reframe as a new, more robust assumption, if necessary.

Module 6

RESULTS: PRODUCTS OF THE HORIZONS FORESIGHT METHOD

- The entire process give participants a holistic view/experience of the range of plausible futures. It exposes people to new ways of thinking and can change how they view the system.
- Scenarios are used to:
  – identify emerging issues and potential policy challenges and opportunities
  – clarify and test policy and planning assumptions
  – develop a better understanding of the system and how it could evolve
- Once the scenarios have been completed, they can be used to:
  – test the robustness of existing policy
  – provide a context for new policy development
  – identify uncertainties that need to be monitored as leading indicators of change

**Here is an overview of the results from the Horizons Foresight Method:**

- The method helps participants to get a more holistic view of the range of plausible futures. It exposes people to new ways of thinking and can change how they view the system.
- Scenarios are useful in many ways. They help identify emerging issues, explore potential policy challenges and opportunities, and clarify and test policy and planning assumptions.
- Scenarios also help develop a better understanding of the system and how it may evolve in the future.
- Through further engagement, scenarios can also help text the robustness of the existing or proposed policy and identify uncertainties that need to be monitored as leading indicators of change.

SUMMARY: KEY FEATURES OF THE HORIZONS FORESIGHT METHOD

- It uses our innate foresight skills to develop, share and test mental models of the system and alternative futures.
- An understanding of the system is at the core of the process.
- It engages knowledgeable people to share their mental models of the system and how it may evolve.
- Visual tools provide "scaffolding" at every step of the process to help participants share their models and facilitate dialogue.
- The key products (credible assumptions, robust mental models of the system and how it could evolve, and a clear sense of emerging challenges and opportunities) are extraordinarily useful products in policy development and decision-making.
- It offers a more rigorous and systematic exploration of the future possibilities than many other methods.

Summary: Outputs of the Horizons Process

- Scenarios allow participants to get a more holistic view of the range of plausible futures. They expose people to new ways of thinking and can change how they may view a particular system.
- Scenarios are useful in many ways. They help identify emerging issues, explore potential policy challenges and opportunities, and clarify and test policy and planning assumptions.
- Scenarios also help develop a better understanding of the system and how it may evolve in the future.
- Through further engagement, scenarios can also help test the robustness of existing or proposed policy and identify uncertainties that need to be monitored as leading indicators of change.
- The Horizons Foresight Method of scenario development is different from other methods. It is an integrative method that combines inductive and deductive elements. It puts more focus on the system and visualizing how it changes. And it emphasizes testing assumptions and identifying challenges.
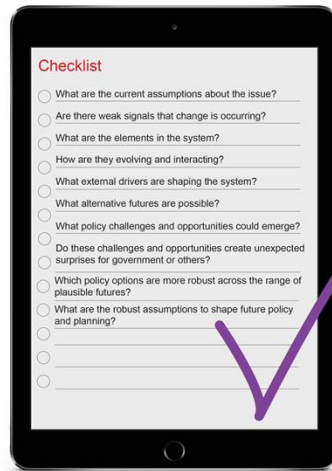
Checklist:

- What are the current assumptions about the issue?
- Are there weak signals that change is occuring?
- What are the elements in the system?
- How are they evolving and interacting?
- What external drivers are shaping the system?
- What alternative futures are possible?
- What policy challenges and opportunities could emerge?
- Do these challenges and opportunities create unexpected surprises for government or others?
- Which policy options are more robust across the range of plausible futures?
- What are the robust assumptions to shape future policy and planning?

Module
6

REFERENCES

A variety of other scenario methods are included in the list below:

- Peter Bishop, Andy Hines, Terry Collins, (2007),"The current state of scenario development: an overview of techniques", foresight, Vol. 9 Iss: 1, pp. 5 – 25. An excellent overview of the methods and techniques used to create scenarios. http://training.fws.gov/courses/alc/alc3194/resources/publications/scenario-planning/Bishop_et_al_2007.pdf

- Scenario Planning Resources http://www.well.com/~mb/scenario_planning/#Introductory_texts

- Shell Guide for Explorers (walks through the whole process) http://s05.static-shell.com/content/dam/shell/static/public/downloads/brochures/corporate-pkg/scenarios/explorers-guide.pdf

- The scenarios page in the Journal for Future Studies library http://www.jfs.tku.edu.tw/?cat=23

- Kosow and Ausgabe, Methods of Future and Scenario Analysis, ITZ, 2008. One of many thoughtful overviews of the field. http://www.die-gdi.de/studies/article/methods-of-future-and-scenario-analysis-overview-assessment-and-selection-criteria/