

Cascade Diagram Exercise (for a change driver) – Facilitator’s Guide

OBJECTIVE: TO EXPLORE PLAUSIBLE FUTURE IMPLICATIONS OF A CHANGE DRIVER

This exercise explores the sources of a change driver and its potential consequences. It is similar to the one conducted in [module 3](#), in which participants explored future consequences of a weak signal. For a large meeting, it is suitable as a breakout session in small groups.

People:

- 1 facilitator
- 5-8 participants
- 1 recorder (optional)

Materials:

- Markers
- Notepad for each participant
- Computer with access to mind-mapping software (optional)

Post on the wall:

- A visual agenda (optional)
- Rules of engagement (optional)
- 2 headings on sticky notes (optional):
What worked? What could be better?

Meeting Space:

- A room with a large writeable wall, a large roll of paper on the wall, computer screen, or flip chart sheets arranged adjacently.
- Seating for all conducive to hearing other participants, seeing the cascade diagram and recording personal notes.

Agenda at a Glance

TIME	ACTIVITY
5 minutes	1. General meeting introductions (if needed)
70 minutes	2. Give context for the cascade diagram exercise (2 minutes) 3. Provide activity instructions (2 minutes) 4. Ensure the group has a shared understanding of the change driver (15 minutes) 5. Explore first-order consequences (10 minutes) 6. Explore second-, third- and fourth-order consequences (30 minutes) 7. Discuss most impactful and surprising outcomes (10 minutes)
10 minutes	8. Reflect on and/or evaluate the exercise
EST. TOTAL TIME: 85 minutes	

BEFORE THE MEETING: CHOOSE A CHANGE DRIVER

At any stage of the scanning and foresight process, a cascade diagram exercise is a valuable brainstorming tool to deepen understanding of a potentially disruptive change. In this exercise, a cascade diagram is used to explore the plausible consequences of a change driver. The process is similar to the cascade diagram exercise for a weak signal. A key difference, however, is that a weak signal does not need a lot of evidence in order to justify exploring it through a cascade diagram. In contrast, by the time the group is considering a change driver, the group (or someone in it) should have established evidence that the change is occurring or will occur in 10-15 years. (For example, see some of the [change driver descriptions](#) that Horizons used for the Future of Asia study).

This means that the group should have generated and thoughtfully considered [change drivers](#) in advance of the cascade diagram session rather than identifying a change driver on the spot.

The facilitator may also want to do a test run diagram with the change driver that will be used. This can help the facilitator anticipate possible twists in the conversation and identify key questions to explore with the group.

Prepare the room

- A [cascade diagram is intended to be displayed](#) for participants while it is being developed, and it requires a lot of space. A large whiteboard or write-erase walls are ideal; however, a large roll of paper on the wall or several flip charts together would also work. Alternatives to writing on a wall surface include using an online mind-mapping tool such as [Mind42.com](#) and displaying it on a large screen as it is developed, and taking notes on large sticky notes and pasting them in the shape of a cascade diagram. These alternatives are discussed at the end of the annotated agenda.
- Set up the room for a small group discussion, with a chair and writing surface for each participant. Have pens and scrap paper on hand for participants.
- Post on the wall any visuals that will be referred to during the meeting.

ANNOTATED AGENDA

TIME	ACTIVITY	NOTES
5 minutes	<p>1. General meeting introductions (if needed)</p> <ul style="list-style-type: none"> • Introduce facilitators • Provide context for the session (why are we here?) • Allow participant introductions if they are unacquainted • Consider adding a few minutes to the agenda to: <ul style="list-style-type: none"> ◦ build rapport through an ice-breaker activity ◦ review or develop a list of ground rules on the wall 	<ul style="list-style-type: none"> • If this is one of several activities, consider using a visual agenda to situate this activity within the day's events. • A list of rules of engagement posted in the room during the meeting is a visual reminder of the group's commitment to support a good discussion.
2 minutes	<p>2. Give context for the cascade diagram exercise</p> <ul style="list-style-type: none"> • A cascade diagram is a useful way to: <ul style="list-style-type: none"> ◦ push our thinking out of the present and into the future; ◦ explore a range of plausible outcomes; and ◦ consider potential consequences further out from what we can initially anticipate. <p>If this is the first time participants are meeting together for such a brainstorming exercise, set the tone by reminding participants of a few principles:</p> <ul style="list-style-type: none"> • This is an exercise in divergent thinking: <ul style="list-style-type: none"> ◦ We're interested in ideas; don't censor yourself as thoughts come to mind. ◦ Be open to others' ideas. You might ask how someone arrived at an idea in order to understand, but do not evaluate it. 	

	<ul style="list-style-type: none"> ◦ If you don't agree with a point raised, simply propose an alternative; we'll note both. • Create a comfortable space for conversation: <ul style="list-style-type: none"> ◦ Share the time; be concise and encourage others to contribute. • Recall that we are interested in plausibility, not probability: <ul style="list-style-type: none"> ◦ We don't need to assess how likely it is that an event could occur. ◦ There will be other opportunities to investigate and validate the brainstormed ideas from this session, through further scanning and other foresight exercises. • In this conversation you are an informed participant with many hats, not a representative of your department advocating on behalf of your file. Bring all your knowledge to bear. 	
2 minutes	<p>3. Provide activity instructions</p> <ul style="list-style-type: none"> • “We’re going to do a cascade diagram to consider the follow-on (or “cascading”) consequences of this change driver.” • “We will first spend a few minutes exploring what has led to this change. It is beneficial to understand the underlying causes of the change driver so we get a better sense of the driver.” • “We will then start exploring the first-order consequences we anticipate, and then we want to push ourselves further to ask: and then what, and then what, and then what? The 2nd, 3rd and 4th order implications are often surprising.” 	<ul style="list-style-type: none"> • According to preference, the cascade diagram could be drawn by the facilitator or by a notetaker. • The person drawing writes the change driver being explored on the wall, leaving lots of room to the right and some to the left.

15 minutes

4. Ensure the group has a shared understanding of the change driver

- The facilitator starts a discussion on what is known about the change driver. The facilitator may be the person presenting the information (if new to participants) or could solicit input from the participants.
 - Consider spending time to ensure the group understands the change driver, especially if it is relatively new to participants. Possible topics to discuss include:
 - “How do we know this change driver is happening? (Where have you heard about it? Any statistics? Examples of the change?)”
 - “Are there multiple parts to it? What do we know? What might we consider the expected future of this change driver to be—might it continue at a steady pace, accelerate...?”
 - “Where is it happening? Only in Canada or internationally? In a particular sector or more broadly? Who is it happening to?”
 - “What has led to this change?”
 - Once the group is warmed up on the topic, the facilitator or notetaker can build the left-hand side of the cascade diagram, which shows the sources of the change.
- Some participants may not be knowledgeable about the evidence around a change driver. That’s ok; they will have an opportunity to contribute to the next stages of the exercise.
 - What is known about the change driver and/or the sources of change contributing to it are written on the left, and the plausible consequences are written on the right.

	<ul style="list-style-type: none"> ◦ As a simple example, the source components of “aging population” in Canada might be written as: <ul style="list-style-type: none"> - Declining fertility rate - Aging of the baby boom cohort - Rising life expectancies • If participants begin to discuss the consequences of the change driver, the facilitator/note-taker should start recording these points as first-order consequences on the right-hand side of the diagram. 	
10 minutes	<p>Explore first-order consequences</p> <ul style="list-style-type: none"> • Facilitator asks participants for a list of first-order consequences. Possible questions include: <ul style="list-style-type: none"> ◦ “Now imagine that we are 15 years into the future AND this change driver is shaping the world. We are an older society, more technological, more integrated in the global economy... [add more context to help participants understand the subject matter]. How is this change playing out?” ◦ “We might be seeing some of the initial consequences already; what others could you imagine happening?” • To ensure a broad range of topics is addressed, the facilitator could build a template cascade diagram with first-order categories Social, Technological, Economic, Environmental, Governance (STEEG). 	<ul style="list-style-type: none"> • Constrain the first-order conversation (e.g. ask for about 8 consequences) to ensure sufficient time remains for the next steps. A broader range of first-order impacts comes at the expense of developing further into the future.

	<p>Alternative: The facilitator can present questions in the form of an impromptu guided imaging exercise based on initial discussion (see Option A further in this document), or the facilitator can write a guided imaging exercise in advance using their knowledge of the change driver. The facilitator would ask participants to close their eyes, project themselves 15 years into the future and envision how the continuation of the change driver has changed the Canada/the world/a particular system.</p> <p>This is a helpful way to break away from discussion of the present (what is) and shift the discussion into a more imaginative space (what could be). A guided imaging exercise might add an additional 5–10 minutes to the agenda. However, this will help catalyze the discussion, and the cascade diagram will move faster. Participants may start building on each other’s ideas, with little need for questions as prompts to move into 2nd and 3rd order consequences (see next step). Listen for when a chain of events is being described, where participants are quickly moving from 1st to 2nd to 3rd order events, and record it accordingly. Then bring participants back to 1st order implications in order to record alternative pathways.</p>	<ul style="list-style-type: none"> • It is not necessary to gather input from participants in a systematic way, (e.g. seeking input from each person sequentially). However, to benefit from the breadth of perspectives in the room, consider: <ul style="list-style-type: none"> ◦ Asking for one consequence from each person. ◦ Reminding participants to be concise and to share the time. ◦ Seeking input from participants who speak up less often.
<p>30 minutes</p>	<p>5. Explore second-, third- and fourth-order consequences</p> <ul style="list-style-type: none"> • Facilitator asks for second-order consequences, each one building off a first-order consequence. 	<ul style="list-style-type: none"> • While structured, the cascade diagram exercise leaves the facilitator some flexibility. Options include:

- Participants will most likely generate ideas on their own; however, some prompts may be useful to ensure good conversation:
 - Have we thought about all the relevant actors and how they might respond?
 - How do you see the Canadian government responding to this change?
 - What issues could arise? What opportunities?
- If participants are all from a single department, it may be useful to keep a list of the department's mandate areas as prompts.
- Manage time to ensure participants have a chance to consider a few strands in greater depth (e.g. develop a few ideas to the 3rd, 4th, 5th, 6th order consequences if possible).
- Offer a quiet round (or several) of reflection so participants can record their thoughts on sticky notes. This will accelerate the pace of output, ensure divergent thinking, and is often appreciated by quieter participants.
- Allow participants to each choose one consequence and suggest a next-order consequence. Numbering the first-order consequences may make the conversation more efficient. E.g. "To outcome #4, I'd like to add the consequence..."
- At any point, the facilitator might want to orient discussion towards interesting/strategic points. E.g. "What do you think about consequence #6—surprising? impactful? If it were to happen, then what could happen next?"
- Likewise, the facilitator might ask participants to nominate the consequences (nodes) they'd like to develop further as a group. E.g. "Which of these consequences seems most surprising? Which consequences could have a significant impact?" Horizons often uses this technique to focus discussion.

	<ul style="list-style-type: none"> Remember that the aim is to generate new insight about the significance of the change driver and its implications. The conversation should be guided towards plausible outcomes that are less familiar lines of thinking; the facilitator may have a sense of this or can remind participants to focus on the ideas that are new and under-discussed. Listen for the energy in the room; if it seems like participants are repeating old thoughts heard elsewhere, ask a question to help them form new connections. 	<p>In the unlikely event that the conversation grows stale, some twists can be used to change the pace:</p> <ul style="list-style-type: none"> Choose two strands: “If this and this both happen, are there any new consequences of importance?” Get them moving: Offer participants the pen to come up to the diagram and add consequences.
10 minutes	<p>6. Discuss the most impactful and surprising outcomes</p> <ul style="list-style-type: none"> At this point, participants reflect on the results of the cascade diagram, looking for their “aha” moments. Ask participants for the highlights of the conversation, e.g. policy challenges, opportunities and surprise events. Possible questions could be: <ul style="list-style-type: none"> (POLICY CHALLENGE) – “What did you see that you don’t think government is prepared for?” (POLICY OPPORTUNITY) – “Is there anything exciting here? Policy opportunities to be embraced?” (SURPRISE) – “Where did you understand something in a new way? Is there a new question you are motivated to look into further?” 	<ul style="list-style-type: none"> If the cascade diagram exercise is done concurrently in breakout groups, allow time for sharing results in plenary. Participants could do a walk-around of the cascade diagrams, or each group could give a verbal report back.

	<ul style="list-style-type: none"> Facilitator/notetaker notes these points with an asterisk or sums them up on a new flip chart <ul style="list-style-type: none"> Where time allows, taking a moment to sum up observations on a new flip chart is preferable, as it allows participants to assign new meaning/context to the events raised in the cascade diagram. This information allows the facilitator to better understand why certain events are more surprising or significant. 	
10 minutes	<p>7. Reflect on and/or evaluate the exercise</p> <ul style="list-style-type: none"> Give participants an opportunity to provide feedback on the exercise. This might take the form of: <ul style="list-style-type: none"> A Q&A discussion Participant completion of an evaluation form Informal evaluation—On their way out of the room, participants are asked to post one comment on a sticky note for each of three wall headings: <ul style="list-style-type: none"> What Worked? What Could Be Better? 	<ul style="list-style-type: none"> Provide evaluation forms or sticky notes as appropriate.

Alternatives to drawing a cascade diagram on a writeable wall:

1. Using online mind-mapping tools:

If the workshop will run in a room with a large computer screen, the facilitator (or a notetaker) may prefer to record the conversation through an online mind-mapping tool. Some Horizons analysts prefer mind-mapping software over drawing by hand, finding it more legible, faster to type and easier to modify or move an idea. After the meeting, it is easy to print the result or rework the contents by modifying and collaborating with others, much like a wiki document. It takes a little practice to create nodes, type and move ideas with ease while following a conver-

sation, but it is worth the time for facilitators who expect cascade diagramming to be a recurring part of their work. Horizons often uses Mind42.com (available free), although other mind-mapping tools can likely achieve similar results.

2. Using sticky notes:

In a pinch, with just a large wall surface and a pack of large sticky notes, a cascade diagram can happen anywhere. As with mind-mapping software, sticky notes present the advantage of relocatable nodes. The facilitator can record points on the sticky notes and/or ask participants to record themselves. A disadvantage is that the sticky note configuration is often harder to follow and some participants' writing may be hard to read. The use of different coloured sticky notes to differentiate threads of thought or distinguish orders of outcomes (e.g. first, second, third order) can help. Participants can also be given a little guidance when asked to write, e.g. a suggested word limit and a model of readable-size text.

Add-ons/ Modifications to the cascade diagram exercise

OPTION A: After developing the initial cascade diagram, vote on the most significant consequences and build priority branches with further implications

This option balances the free-flowing brainstorming style of a cascade diagram exercise with the need to ensure sufficient time is spent on branches of conversation that are of strategic importance. A way to set some priorities (without hindering the brainstorming process) is to develop the cascade diagram over two sessions, with a voting stage in between to establish priorities. After generating the initial cascade diagram in the first session, the facilitator can ask participants to vote on the most significant consequences of the change driver, i.e. the disruptions that may produce further consequences that might not normally be considered. This step can be done at the end of the cascade diagram activity described above and should take 5–10 minutes. The second session would then explore and rebuild only those branches on the cascade diagram that received the most votes. During the time between sessions, the facilitator can pare down the cascade diagram to a more workable version that highlights the branches/consequences that received the most votes.

OPTION B: Vote on the most significant branches to develop as you build the cascade diagram

Another variation is to ask participants to vote as you build the cascade diagram. Once you have a good list of first order consequences, ask participants to choose a consequence to push out further to second order. Ask again, and at each subsequent order, decide which consequence to push out further. This can focus a cascade diagram exercise and save a lot of time, but it may also not generate as much information or allow quite as free a brainstorm.

Building a Foresight Workshop: Complementary Activities to Consider

For facilitators with multiple objectives for a foresight workshop, below is a suggestion of activities that would pair well with the cascade diagram exercise for a change driver.

Before the exercise

- Deliver the [Change Driver presentation](#).

After the exercise

- Once a number of change drivers have been explored through cascade diagrams and participants have a good sense of possible future consequences of a change driver, it may be useful to deliver the [Cross-Impact Matrix Exercise](#), which explores the interaction and relationship between two change drivers.

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