

Systems Thinking With the Iceberg: A Tool for Multi-stakeholder System Sight

Timing:	90-120 Minutes
# of Participants:	8-Unlimited
Equipment needed:	flipchart paper, markers, 1 pad of large post-it notes (4"x6"), 2 pads of 3"x3" post-it notes per team, pads of hexagon post-its in two colors (enough of one color for 3 hexagons per team), flipchart with iceberg drawn on it for presenter to use

PURPOSE/DESCRIPTION:

The iceberg makes us look at a system through different lenses and provides a way to talk about the pictures we each hold of what is happening in the system. It forces us to expand our horizon and not limit ourselves to looking at just a single activity or event, but to step back and identify the different patterns that that event is part of, the possible structures that might be causing it to occur, and finally, the thinking that is creating those structures. It also helps us identify our own mental models, because in the end, the only thing we really can change is ourselves. By changing the way we think, we change the way we act, and therefore can create the transformation that we seek.

GENERAL NOTES:

There are different ways of doing this exercise, depending on the number of participants. If you have a small group, it's possible to do it in plenary; with larger groups, it's better to work in small teams of 4 or 5 to start.

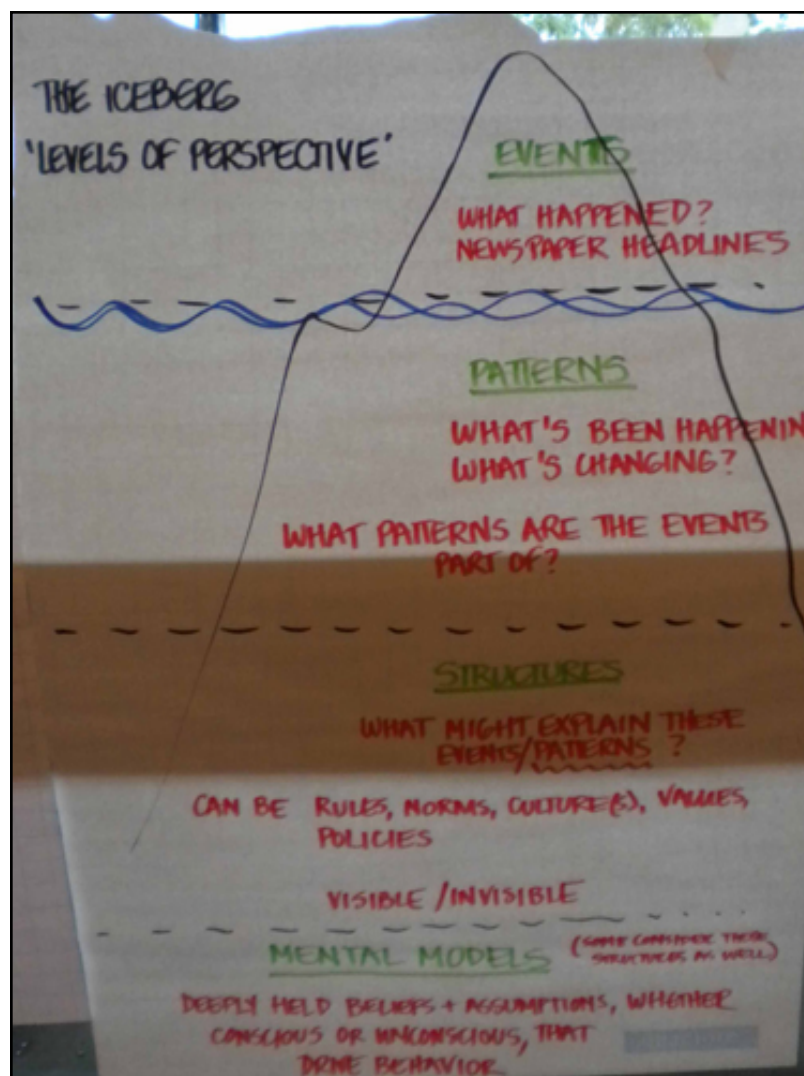
If you are using this activity in a workshop or course setting, you may want to "push" people through the process a little more quickly to save time, but be sure not to shortchange the process—this tool is really worth the investment.

PROCESS:

1. Introduce the concept of the iceberg using the following talking points and diagram:

- The iceberg is a common image that helps us recognize different ways to look at the same issue and helps us make explicit what we think is happening in a system.
- Only 10 percent of an iceberg is visible above the water line. Ninety percent of it is underwater.
- Throughout the sensing process, we have asked you to focus on what you were actually seeing, not what you thought you saw, what you wanted to see, or how you interpreted what you saw.
- Now we are going to look at what we observed as well as explore what might be happening "below the surface."
- Above the water line are the events. They are the "what's happened," the newspaper headlines, the "what we saw." They are discreet activities.
- A bit deeper and just above and below the waterline are patterns of events. If you look at events over some period of time, you will start to notice patterns. Patterns answer the questions, what's been happening? or what's changing? If you expand the time period broadly enough, eventually all events will show up as part of some sort of a pattern.
- Be careful here though—sometimes you might think you see a pattern only to find out that it is not really one. Only the events are real data; patterns require some interpretation of the data. It's important to get group agreement as to whether a pattern really exists.
- Below the patterns of events are the structures that are causing those patterns of events and the events that we saw to occur. Structures are the "rules of the game." They can be written or unwritten; they can be physical and visible or invisible. They are rules, norms, policies, guidelines, power structures, distribution of resources, cultural rules, or informal ways of work that have been tacitly or explicitly institutionalized. They answer the question, what might explain these patterns?
- Below the structures are the mental models. These define the thinking that creates the structures that then manifest themselves in the patterns of events. Mental models are people's deeply held assumptions and beliefs, whether conscious ("I know I think like this") or unconscious ("I've always thought this way and don't even question it, the idea is so core to my being") that drive behavior. Note: Some people consider mental models to be structures. For this exercise, we find it helpful to separate them out.

- If we only look at events, the best we can do is react. Something happens, and we fix it. We firefight. The first time an event pops up, we address it. We don't shift our thinking in any way; we just act swiftly to fix the immediate problem. And for some things, this approach works well. When there is an actual fire, getting out of the building is a good reaction.
- When we start to notice a pattern of those events, we have more options. We can anticipate what's going to happen and we can plan for it. When we start noticing patterns, we can begin to consider what is causing the same things to happen over and over again.
- When we start to pay attention to the underlying structures, we begin to see where we can change what is happening. We are no longer at the mercy of the system. We can begin to identify the thinking and the mental models that are causing those structures to be the way they are.
- If my mental model is, "my employees are inherently good people who work hard," then I would be more likely to create a personnel policy (a structure) centered on rewards and incentives than if my mental model is, "my employees are not motivated and try to get away with anything than can." That mindset would likely lead to personnel policies based on punishments for lack of performance.
- The more we can understand what is happening under the surface, the more we will be able to influence how a system works.



2. Use an example to walk the group through the thinking process. (Use your own or the following one).

First we want to identify a critical event that we feel shows something important about the system we are trying to understand. Remember that an event is observable and is the “what happened.” Then we want to describe the event in some detail. For example: Last Tuesday, we had a meeting at 19:00 in downtown São Paulo. It was pouring rain, and Mille arrived late. [Write this fact down on a large (4”x6”) post-it and stick it on the “events” part of the iceberg.]

Now we want to identify some of the patterns that this event may be part of. One person said that a pattern was that Mille is always late. One of the other people in the group said that that wasn’t true; it was just that Mille was late this time. [For this step, we need to agree as a group that the pattern is plausible.] But there are lots of times that people in this group are late coming to the meetings. [On a smaller post-it write, “Many people are late to the meetings,” and stick it on the “pattern” part of the iceberg.] What other patterns might Mille’s lateness be part of? More people are late when it’s raining. [Write that on another small post-it and stick it on the iceberg.] We’ve observed that more people are late when the meeting is at 19:00 as opposed to 14:00. [Write down and post that observation].

So what sort of structures might explain these patterns? Traffic in São Paulo at rush hour is terrible, and there is little public transportation, so the transportation system is a problem. Everyone is forced to work the same business hours, so office policies are problematic. [Write each structure on a post-it note and post the notes in the “structure” area of the iceberg.] Add a few more possibilities.

Tell the group that you will look at mental models shortly.

Facilitator Note: The reason we use post-its is that we may want to move things around; we may decide that something we initially identified as a structure is actually a mental model, a pattern may be a structure, etc. The idea is that we are making our thinking about this situation visible. Although it is helpful to get most of the patterns in the “pattern” place on the iceberg and the structures in the “structure” place, if the group can’t agree, then it’s fine if items end up on the iceberg wherever folks are most comfortable.

Also, please note that some people consider mental models to be structures. We find it useful to tease these categories apart and make the thinking explicit.

Talking Points:

- Note that there is not just ONE pattern or structure or mental model at play. There can be many. Also, how you see things often depends on where you are in the system.
- The core idea here is that the “whole is visible in the parts.” The events are a reflection of larger patterns and structures. By looking at one event and how it came to happen, we will be able to perceive the larger whole.
- The lower we go in the iceberg, the more leverage we have for transforming the system. Changing structures and influencing mental models has a broader, more far-reaching effect than reacting in the moment and firefighting.
- Many times, it doesn’t really matter which critical event we start with. We often end up identifying the same mental models and structures.

Note that for this exercise, we are going to create a picture of the problematic situation we’re here to explore. We are assuming that the Change Lab group comes together because they want to change a certain scenario, and we are going to get a picture of that reality through this exercise. It’s an important capability to be able to “look the problem in the eye” without always having to qualify it with positive stories. Seeing the situation for what it really is and radically accepting the problem is a core idea in the Change Lab approach.

3. Do the exercise.

Option 1

- Ask the group in plenary to identify a critical event—what is a “newspaper headline” regarding the issue you are trying to address that you have noticed from one of the sensing activities you have done.
- Write this event on a large post-it note and stick it on the iceberg in the area labeled “Events.”
- Then ask the group to take a longer view—what are some of the patterns that this event might be part of?

- Write the patterns that are identified on post-its (one per note) and stick the notes on the iceberg in the area labeled “Patterns.” The group needs to agree that these patterns are accurate.
- Then ask the group to dig deeper—what are some of the structures that might be causing these patterns to occur?
- Write the structures that are identified on post-its and stick them on the iceberg in the area labeled “Structures.”

Facilitator Note: Sometimes the group may come up with a pattern when talking about events, or a structure when talking about patterns or mental models. Feel free to challenge the group by asking, is this really a pattern or is it a structure? You can also ask people to look over the whole diagram at the end and make any adjustments by moving the post-its around.

Option 2

- Break the group into smaller teams of about 4-5 people. Ask them to work using the process above. Give each team a sheet of newsprint with the iceberg and Events/Patterns/Structures/Mental Models listed on it and the two types of post-its.
- As the teams work, the facilitator walks around to coach and support them. Sometimes a team can get stuck on choosing the “right” event. Remember, all events “lead to Rome.” The teams need to choose an event that they observed in enough detail that they can tell a short story about it. They might get stuck on whether something is a pattern or a structure; in this case, have them put the post-it on the line between the two. Don’t let people get caught up in debate, unless it’s around whether something actually has happened or whether the pattern is valid.

4. When the teams are finished, have them present their icebergs to each other.

5. Debrief the icebergs. What do we notice about them? What structures appear on more than one iceberg? What are the similarities? What are the outliers?

6. Make the mental models explicit.

Go back to our previous example: Let’s identify the mental models that created these structures. For instance, São Paulo is not ready for telecommuting. We don’t trust our employees to work flexible hours. Public transportation is not worth the investment. The only way we will get anything done is if we are in the office during the same hours. [Write each mental model on a post-it and stick the post-its on the “mental model” area of the iceberg.]

- In the same teams (or if you have done the exercise in plenary, then break into groups of two or three for this part), look at the events, patterns, and structures that were identified, and uncover the mental models that the group feels are at play in the system behind their iceberg picture. What is the thinking that is creating the structures that are causing the events and patterns to occur? Review the definition of mental models.

Facilitator Note: Give each group three, large hexagon post-its and a magic marker. It may be helpful for the group to use the expressions “I think that” or “I believe that” or “I know that” to help frame a mental model. For example, “I believe that people are inherently good.”

- Once they’ve identified several mental models, have them choose three that they think are the most important and write them on the hexagons, one mental model per hexagon.
- Once the teams are done, have them present their three hexagons and place them on a large wall. Put hexagons with similar or related mental models close together, with their sides touching. Put unrelated hexagons in open areas so that there is space around them.

Facilitator Note: As each team presents, you can ask the presenter to share the feeling associated with the mental model. For example, “We don’t trust our employees” is the mental model and “I am sad” is the feeling.

- Once all the hexagons have been presented, cluster them as appropriate.

Facilitator Note: In our experience, it works better to put the hexagons up on the wall or a board rather than on the floor, so people will be better able to see the whole.

- Ask the group if any essential mental models are missing and add them (checking on the feelings as well).
- Then ask for the group's help in doing a final clustering. Label the clusters using hexagons of different colors or else ask for a few people to do it during a break. The group doesn't need to fully agree on the names of the clusters. This can be an iterative process as needed. Put the hexagons with labels to the side of the clusters; you don't want to cover up any of the original hexagons.
- After the clusters are done, ask people what they notice about the mental models. Ask, What is your overall impression of what you are seeing? What is your overall feeling as you look at this picture?
- Ask them to sit silently and notice which mental models live in them. Then give them sticky dots to put on the post-its of those mental models.
- Ask them to return to their seats and silently contemplate what they see about the whole.
- Have them journal for a few minutes about what they have learned and what they have learned about their learning.

Option

- If you have done this exercise in small teams rather than in plenary, instead of asking participants to put just the mental models on hexagons, also give the groups hexagons or colored cards to record their three most important events, patterns, and structures. Then, have group members put their hexagons on a large, collective iceberg.
- Give the group time to group the patterns, structures, and mental models, and to look at what might be missing.
- Then give them sticky dots to put on the patterns and structures they participate in, and the mental models that are alive in them.

The iceberg model—and the conversation about mental models that it engenders—is a powerful way for a group to better understand the system they are working in as well as their own connection to the situation.

FURTHER READING:

If you'd like to know more about the Iceberg and systemic structures—Pegasus Communications is making the following article from The Systems Thinker newsletter available to you to download:

“How to See Structure,” by Rick Karash

<http://www.pegasuscom.com/download/080402pk.pdf>

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