How to use the "iceberg" to understand complex systems
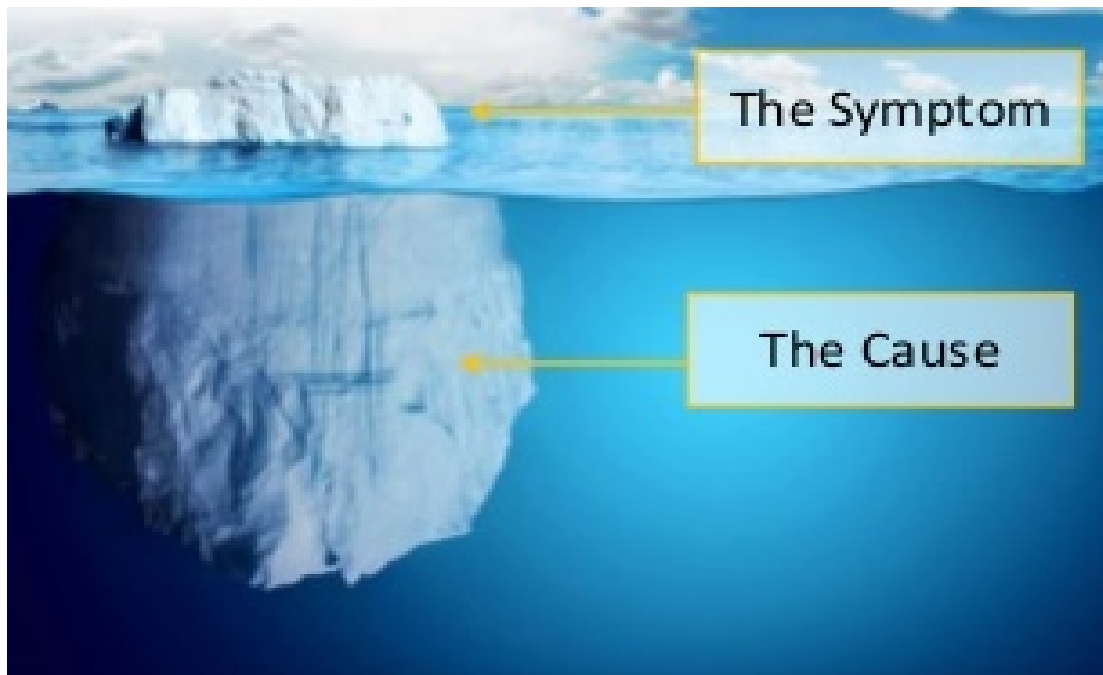
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## How to use the "iceberg" to understand complex systems

One of the most useful tools available to a systems thinker is called "**the iceberg**". The iceberg metaphor represents the problems we face in the world (much like an iceberg is a problem for ships). The visible world or the symptoms of a problem are easy to see. But the bulk of the iceberg representing the underlying cause(s) of the problem is below the water line. We need to learn to see below the water line.

Get it?

Okay.... so that was easy. Now we dig deeper into the iceberg model and use it to try to understand our problems at a deeper level than usual (below the water line). Here is the standard iceberg model.

The Iceberg

Events

Patterns of Behavior

Systemic Structure

Mental Models
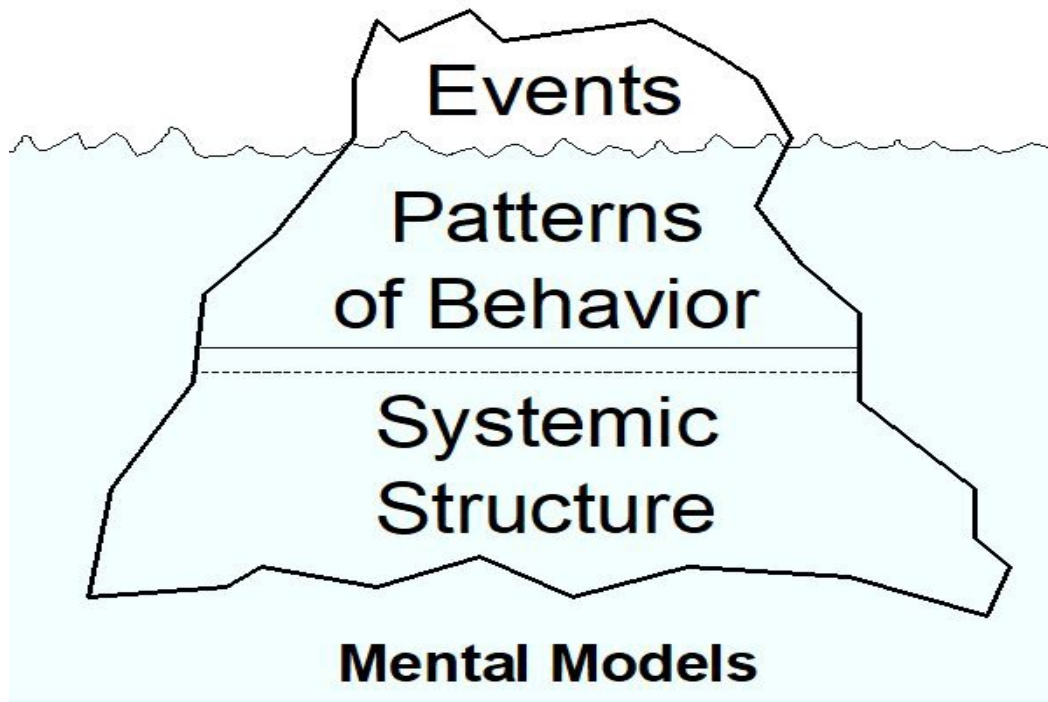
Some Definitions

- **Events.** The things we see happening (and sometimes wonder why).

- **Patterns of Behavior.** Consistent and regular actions or events over space and/or time. Trends….

- **Systemic Structure.** Relatively permanent things such as physical objects, organizations and policies.

- **Mental Models.** The shared belief systems, ideas, assumptions and goals of a system. Usually unstated but universally understood.

Okay.... now to use the tool we need to try to understand the relationships among the **events, patterns, structure and mental models.**

We begin with **events**.... something simple like stopping your car at a red stop light. That's a single event, right?

Most individual events are part of larger **patterns of behavior**. For example, stopping at a red light is part of a pattern of driving your car. This might include stopping at red lights, driving on the right side of the road, using your signals when you turn, obeying the speed limit etc. These are patterns that result in a particular event.

Patterns however don't develop without underlying **systemic structures** that support the pattern. In our example, these might be:

- **physical things** – the traffic light
- **organizations** – such as the police
- **policies** – like the traffic laws
- **rituals** – like "obeying the law"

If you have ever driven a car or riden a motorcycle in some countries in Southeast Asia, you would recognize the importance of these structures!

If we try to explain a single event such as why people stop at a red light, we need to see it as part of a larger pattern of behavior which is encouraged by particular structures. Structures "institutionalize" specific behavior. They are relatively permanent and have a big influence on our behavior.

But the structures themselves don't appear out of nowhere.... in fact, they emerge from **mental models**.

To change behavior, we need to change how we think about the world!