Creating Iceberg Models
A Powerful Systems Thinking Method

Description and purpose

The iceberg model is one of the most powerful and widely used systems thinking tools. It is used to identify underlying causes of events and patterns of events. It creates a visual representation of the relationship between events, trends and patterns, system structure and mental models.

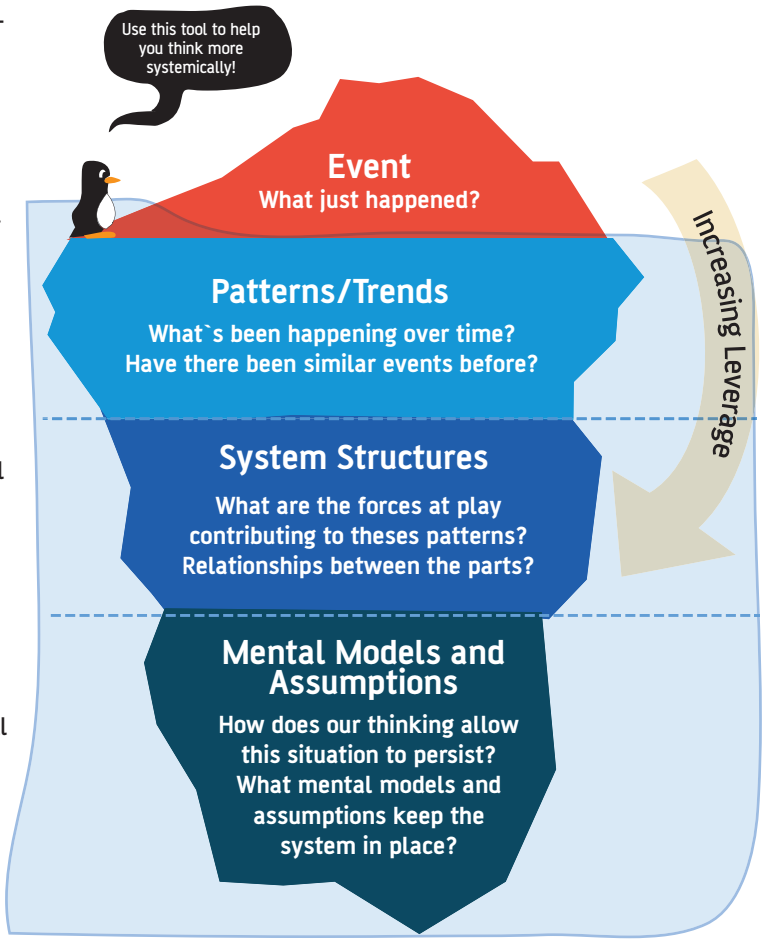
When should it be used?

The iceberg model is especially helpful when confronting difficult chronic problems that the organization has not been able to solve. It can also be used to help understand and learn from injuries and illnesses, organizational deficiencies and other adverse events.

Creating an Iceberg Model

1 → Form a small group of colleagues with knowledge and an interest in the problem or event. (individuals with diverse opinions and points of view)
2 → Start at the top of the worksheet and list the event or problem. Examples include vehicle incident, back injuries, slips and falls, poor communication and blame culture.
3 → Next list the patterns and trends that have occurred over time. Examples include similar events, near misses, injury and illness rates, ergonomic incident rates and frequency of chemical releases.
4 → Next and more difficult to recognize are the systemic structures that contribute to these patterns and trends. Examples may include budgets, workplace design, measurement systems, reward systems, work schedules, work organization, personnel practices and department relationships.
5 → Finally, but most importantly, list the assumptions and mental models that support the systemic structures. Ask yourself, what is it about our thinking that allows the system structures to exist? Examples include “the workplace is safe as long as workers follow the procedures”, “changing a procedure will insure that a job is done differently”, “no injuries means the job is safe” or “a high percentage of injuries are caused by frequent flyers”.
6 → Brainstorm improvements that can be made. Remember that the greatest improvement comes from changing assumptions, mental models and system structure.
7 → Prioritize recommendations and plan implementation.
8 → The iceberg model is a living document. Continue to modify and enhance the model as your understanding of the system improves.

THE ICEBERG MODEL



Use of Iceberg Model

Pros

- Relatively easy to create in a short period of time
- Creates a basic model of the structure, identifies major elements of the systems (influencers)
- Identifies assumptions and mental models that support the system structure
- Reflects multiple perspectives
- Visually distinguishes symptoms and underlying causes (leverage points)
- Highly effective tool to learn and understand a system

Cons

- Does not make interactions and interdependencies of elements visible
- Creates only a limited understanding of the system structure

SAFETY SOLUTIONS

Iceberg Model Worksheet

Topic _____

Event What just happened?	React
Patterns/Trends What's been happening over time? Have there been similar events before?	Anticipate
System Structures What are the forces at play contributing to theses patterns? Relationships between the parts?	Design
Mental Models and Assumptions How does our thinking allow this situation to persist? What mental models and assumptions keep the system in place?	Transform

Thinking drives the creation of structures, patterns and behavior. Peter Senge

Improvements _____

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Increased Learning and Leverage