



Introduction to Systems Thinking

President's Challenge
February 13, 2024

Prof. Jury Gualandris
Dr. Ju Young Lee

Today's learning goals

- Reflect on the complexity of the systems in which we are an integral part
- Learn a simple framework to develop more effective problem statements and explore ecologies of action
- Apply systems thinking to challenge and build upon any emerging, preliminary idea you have been forming until now

Agenda

- Ice breaker (5 min)
- Part I. Introduction to Systems Thinking (20 min)
- Part II. Group Activities: Application (30 min)
 - Problem Framing
 - Systems Awareness
 - Ideas and Actions
- Part III. Key takeaways (15 min)
- Part IV. Q&A (15 min)

Ice Breaker (5 minutes)

- Form a group with a maximum of five individuals and introduce yourselves
 - This will be your group throughout the day
- Each of you share a preliminary idea (1 min each)
 - Describe the solution you are proposing
 - What does success look like for you?
 - Who are key stakeholders you need to make it happen?

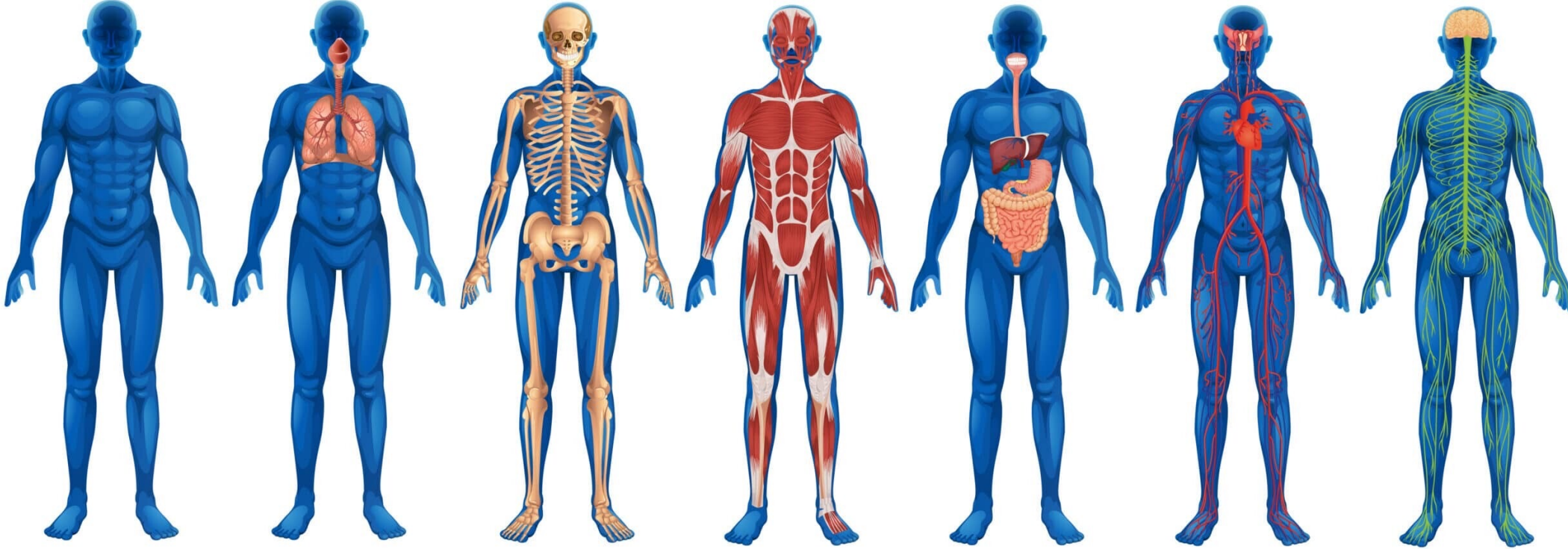


Part I. Systems and Systems Thinking

What is a System?

- An interconnected set of elements that is coherently arranged, organized in a way that achieves a function or purpose
- Systems are everywhere
- Systems are nested
 - Part of a larger system
 - Consists of smaller subsystems

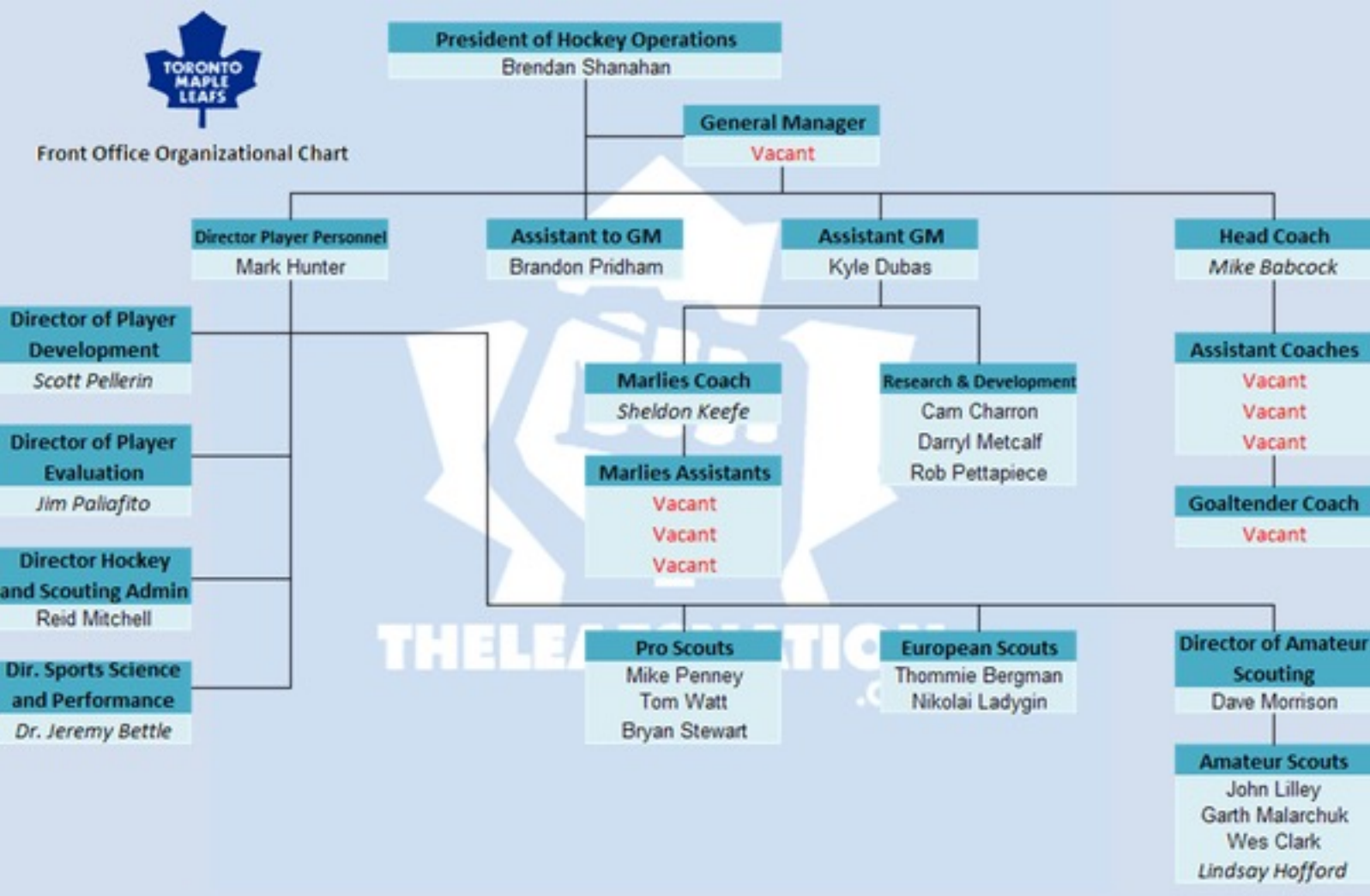
What is a System?



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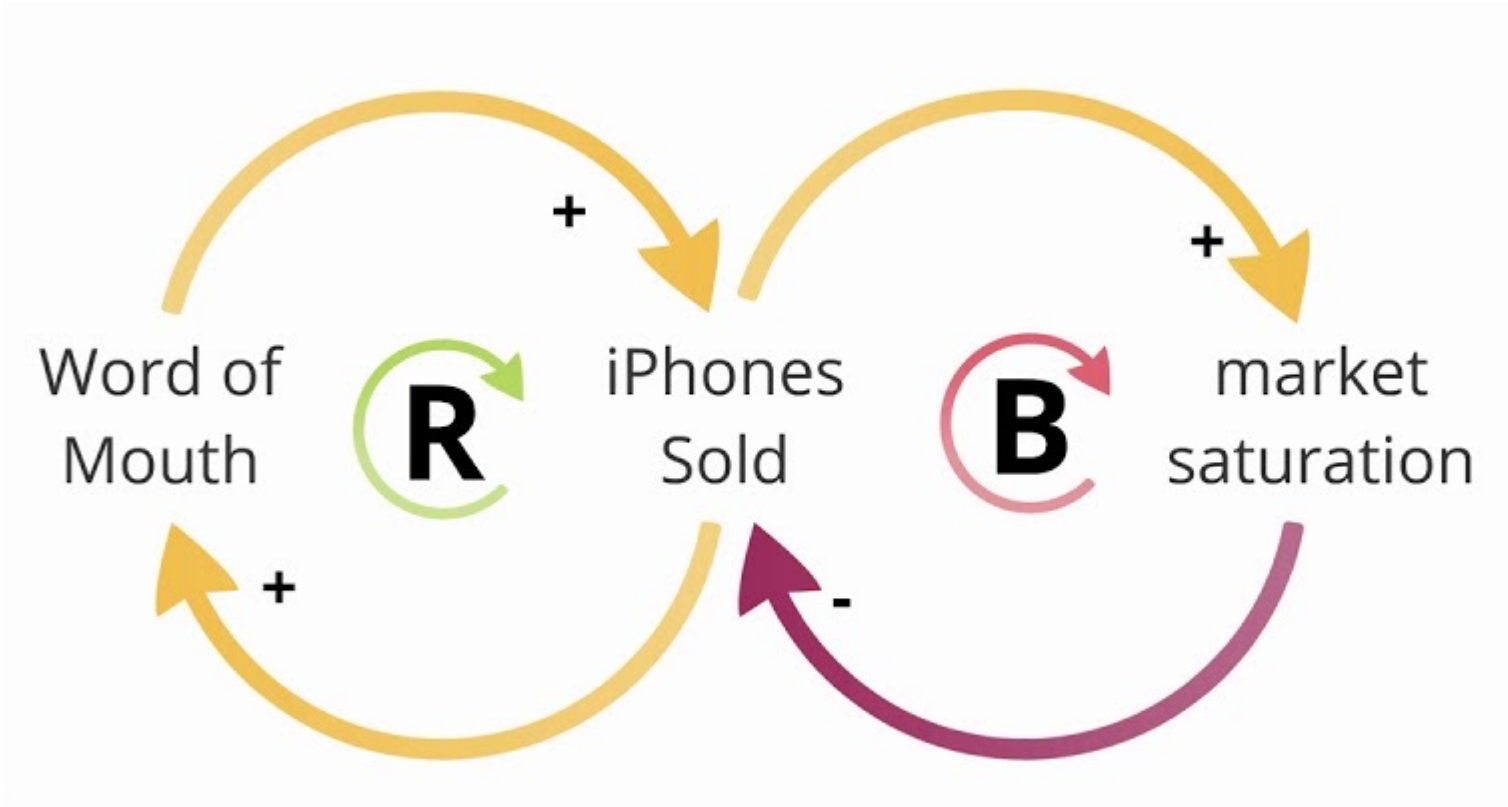
What is a System?

Value of Sport Tourism in 2019 in Canada



www.sporttourismcanada.com

What is a System?



What is Systems Thinking?

- It is a mindset that recognizes that our world is made up of **interconnected elements**, linked in ways that affect each other.
- See things holistically (do not see elements in isolation)
- Focuses on interconnections
- Embraces complexity: there is much that cannot be seen, controlled, or predicted

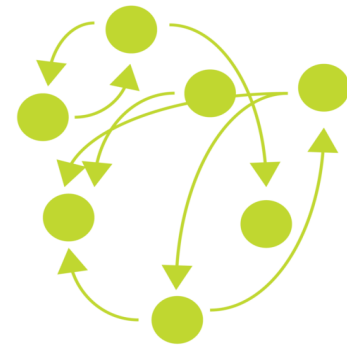
Traditional vs. Systems Thinking

Traditional Thinking



- Cause and effect
- Reductionist (deconstruct whole)
- Prediction and control, silver-bullet
- Grounded in Western science

Systems Thinking

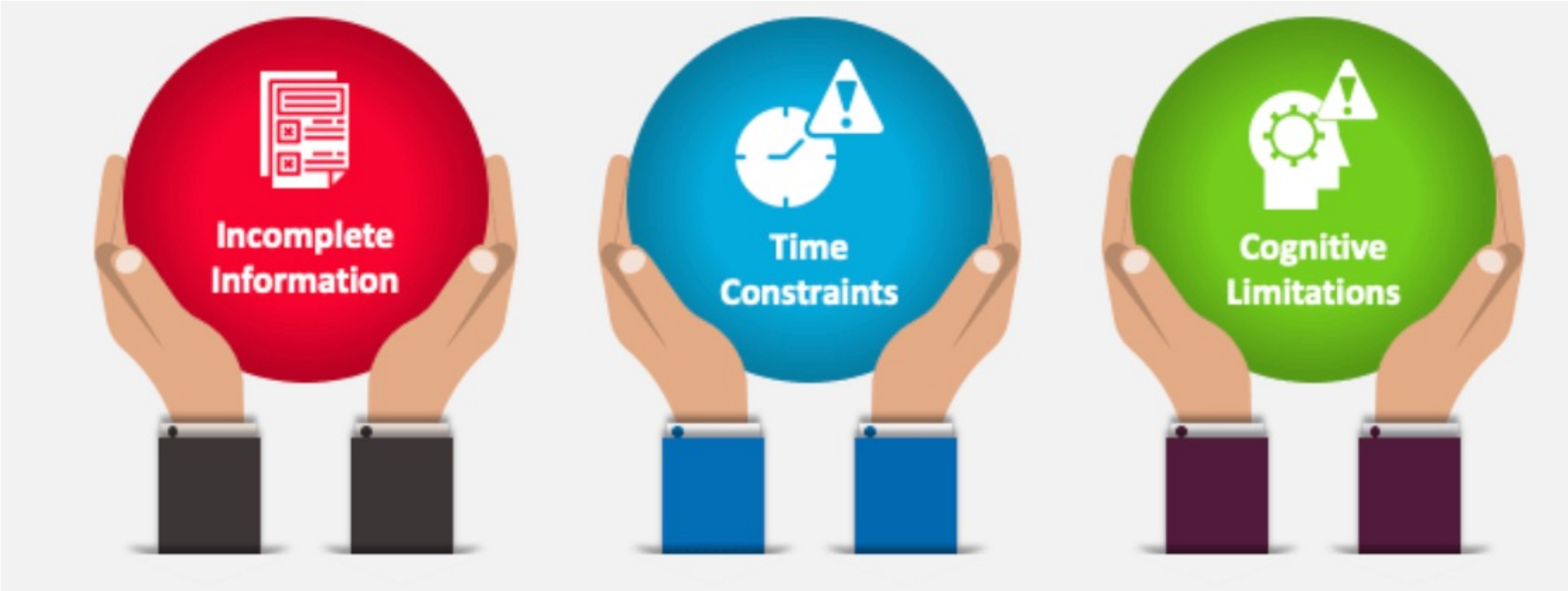


- Patterns and trends
- Holistic (bigger picture)
- Nudging, small experiments
- Grounded in Eastern philosophy and Indigenous worldview

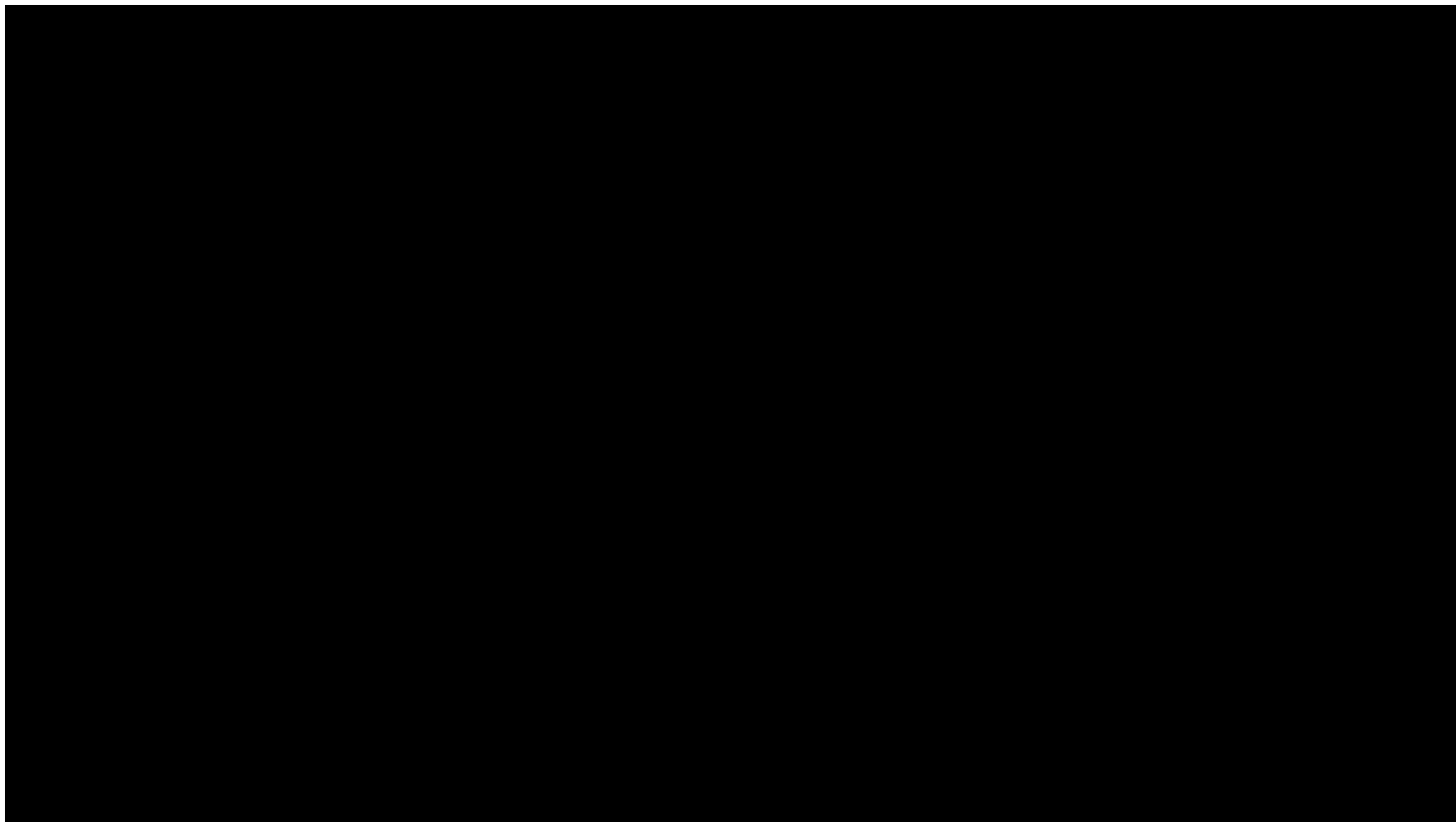
How Iceland Saved Its Teenagers



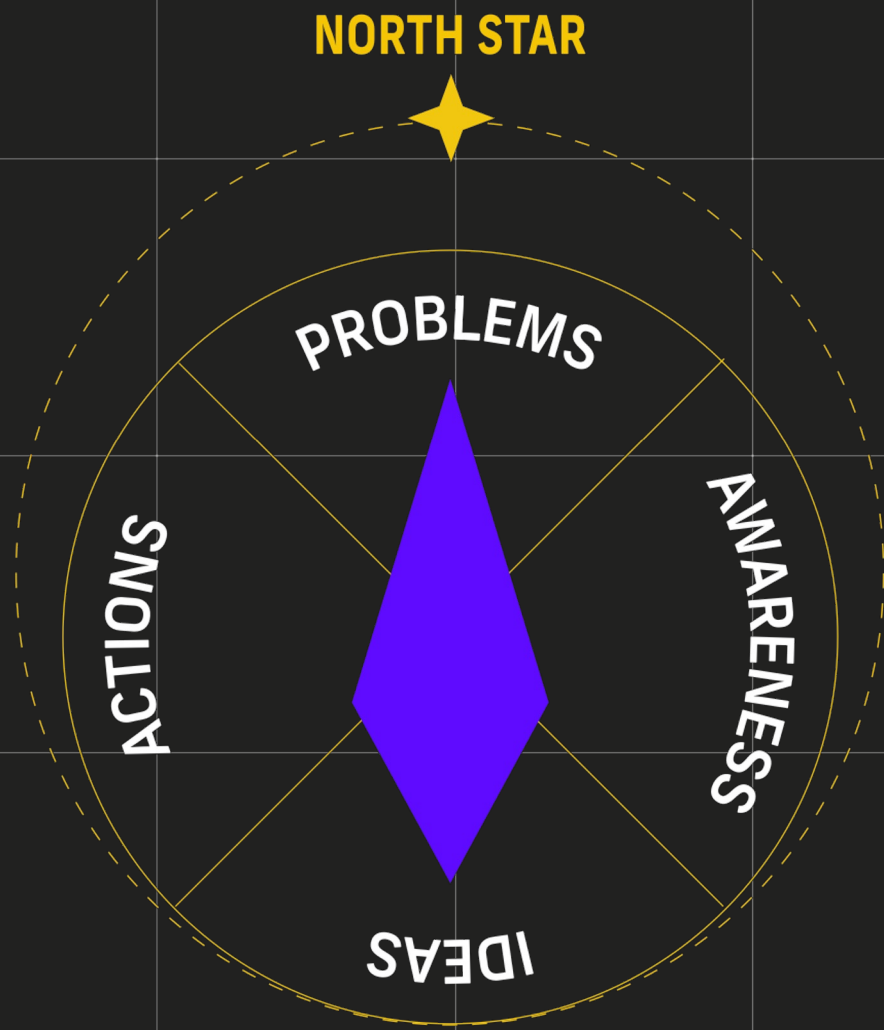
Do we think in “systems”?



A Cautionary Tale (Cats in Borneo)



Innovation North Compass



The Compass

Action

Taking a series of connected actions that can nudge the system and foster learning

Problems

Issues that, if solved, could move you closer to your North Star

Ideas

Brainstorming ideas that could potentially address the problem

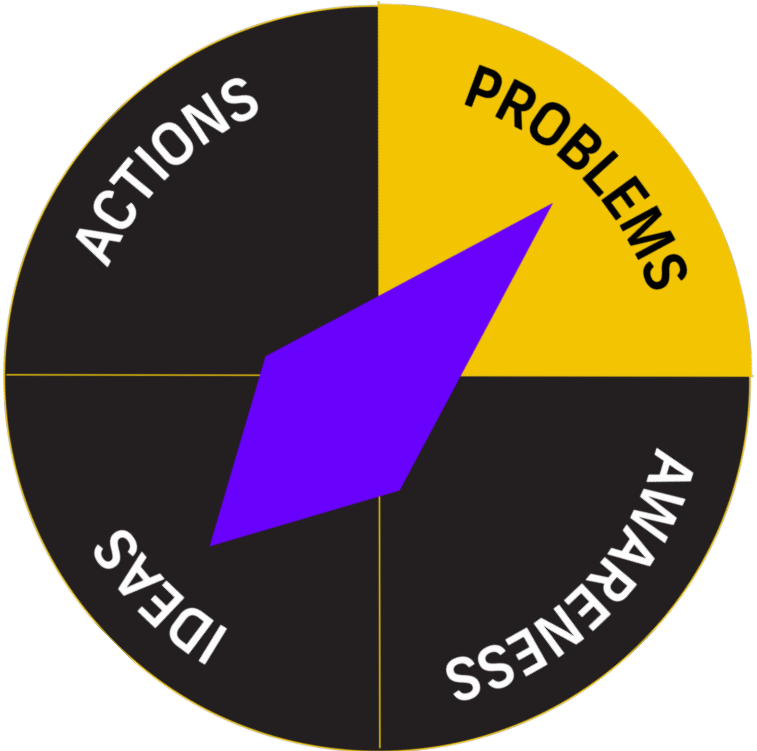
Awareness

understanding why the “system” operates the way it does to create the problem



Part II. Application: Group Activities

PROBLEMS SPACE



- Frame your problem as the gap between the current and desired state
- Refrain from embedding solutions within the problem framing (e.g., telemedicine service)
- Keep revising your problem

Activity: Problems (10 mins)

1. Pick group leader and select one issue your group will focus today

24hrs average time for patients requiring an inpatient bed.	118 mins average before patients were assessed by a physician.	200+ Emergency Department Closures in the past year	5.3% people who left Ontario Hospitals without being seen	17.8% of Canadian households are food insecure, including 1.8M children	Any other issues you shared within your group
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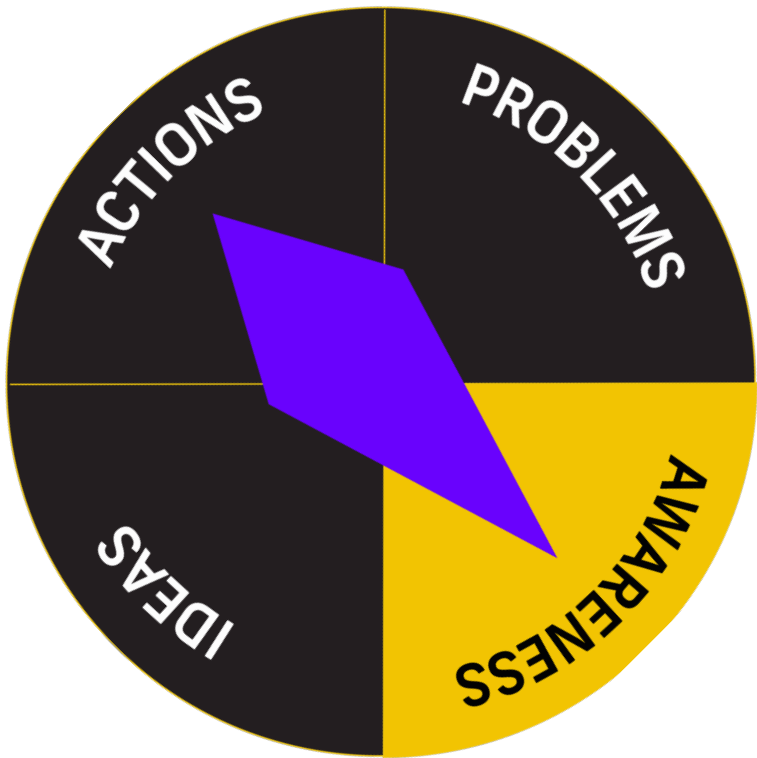
2. Reframe the problem you are trying to solve

- Current state, Desired state, Why important to close the gap
- Example: The post-lung transplant outpatient clinic session has an average volume of 7 patients, even though the clinic has the recommended space capacity for up to 27 patients (20 minutes per patient) per session. This has resulted in a delay in timely access to care for many lung transplant patients and a loss of potential revenue/profit for the outpatient clinic and the hospital.

Report back (2 min)

- What is the gap you want to focus on and why is it important?

AWARENESS SPACE



- Be ready to struggle. Mapping a complex system is a very hard process.
- Do not engage in armchair theorizing. Go out and talk with various systems actors. (e.g., lung transplant patients, doctors, nurses, hospital administration, insurance companies, regulatory agencies...)
- Focus on “salient” relationships

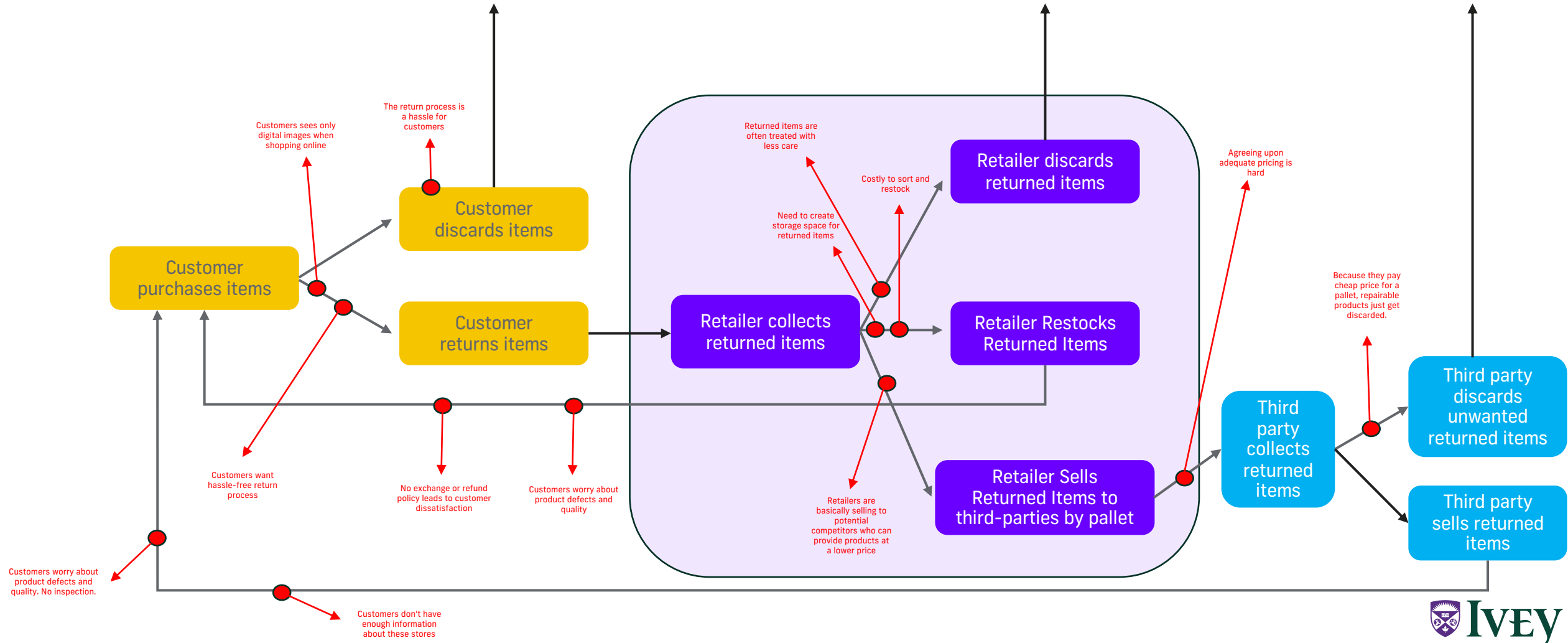
Activity: Awareness (10 mins)

1. Spend 2 mins individually
 - Identify 1-2 key actors/stakeholder groups that you think contribute to the problem gap
 - Explain how (i.e., through what activities does that actor contribute to the problem?)
 - Explain why (i.e., what factors make the actor behave in such a way?)
2. Share with your group and combine the list of key actors and activities
3. [If time permits] Create a systems map on how different activities of various actors contribute to the problem (group leader can do the mapping)
 - Create boxes that describe an actor and its activity (e.g., manufacturer makes the widgets)
 - Connect the boxes with arrows to illustrate how the activities of different actors collectively contribute to creating the problem

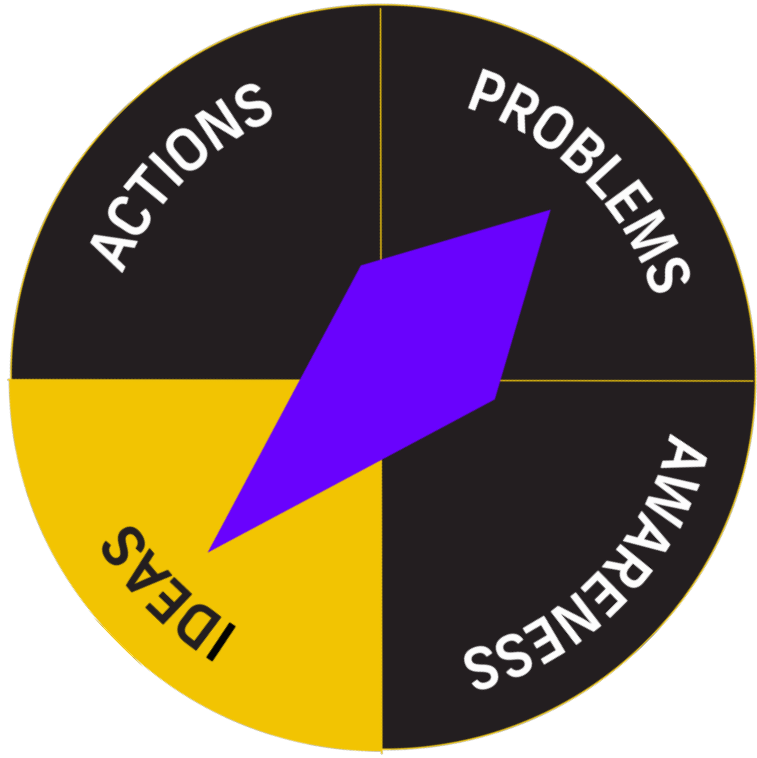
Report back (2 min)

- Who are the most important stakeholders you found that contribute to your problem? Who are some less obvious stakeholders?
- How do they contribute and why?

Waste in Landfills

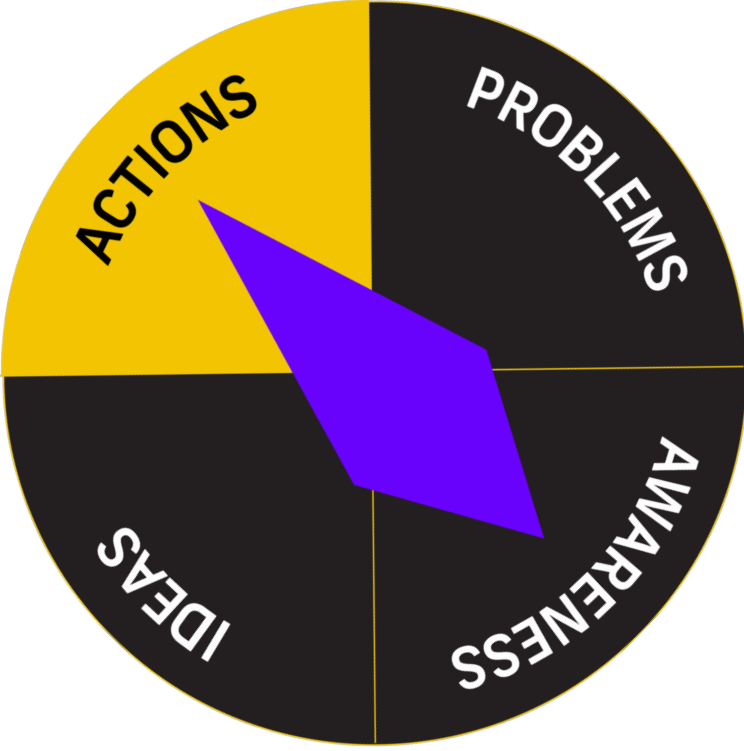


IDEAS SPACE



- Aim for quantity rather than quality
- Do not judge ideas too early
- Look for other contexts that deal with similar problems (i.e., analogical inspiration)

ACTIONS SPACE



- Identify actions that specific actors can take today
- Search for collaboration opportunities
- Do not only look for moonshots
- Identify ecologies of actions



Part III. Key Takeaways

Today's learning goals

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Reflection

- Share your problem gap and critical action
- Share your “ah-ha” moment, anything counterintuitive you have learned today

Key Takeaways

- Systems are:
 - Complex network of nodes (actors or stocks) and arcs (positive and negative information, material, financial, relational connections)
 - Nested (level of analysis)
 - Non-linear dynamics: effects can be delayed in time or decoupled in space; initial circumstances, feedback loops (both reinforcing and balancing), and tipping points make accurate predictions and effective theories of change difficult to develop.
- Systems thinking requires you to invest time and effort in:
 - Characterizing the problem, as a gap!
 - Gaining awareness of the problem space, considering different stakeholders and their direct and indirect contributions!
 - Developing ecologies of actions!
... along the way, engage with different stakeholders within and outside the system



Part IV. Q & A