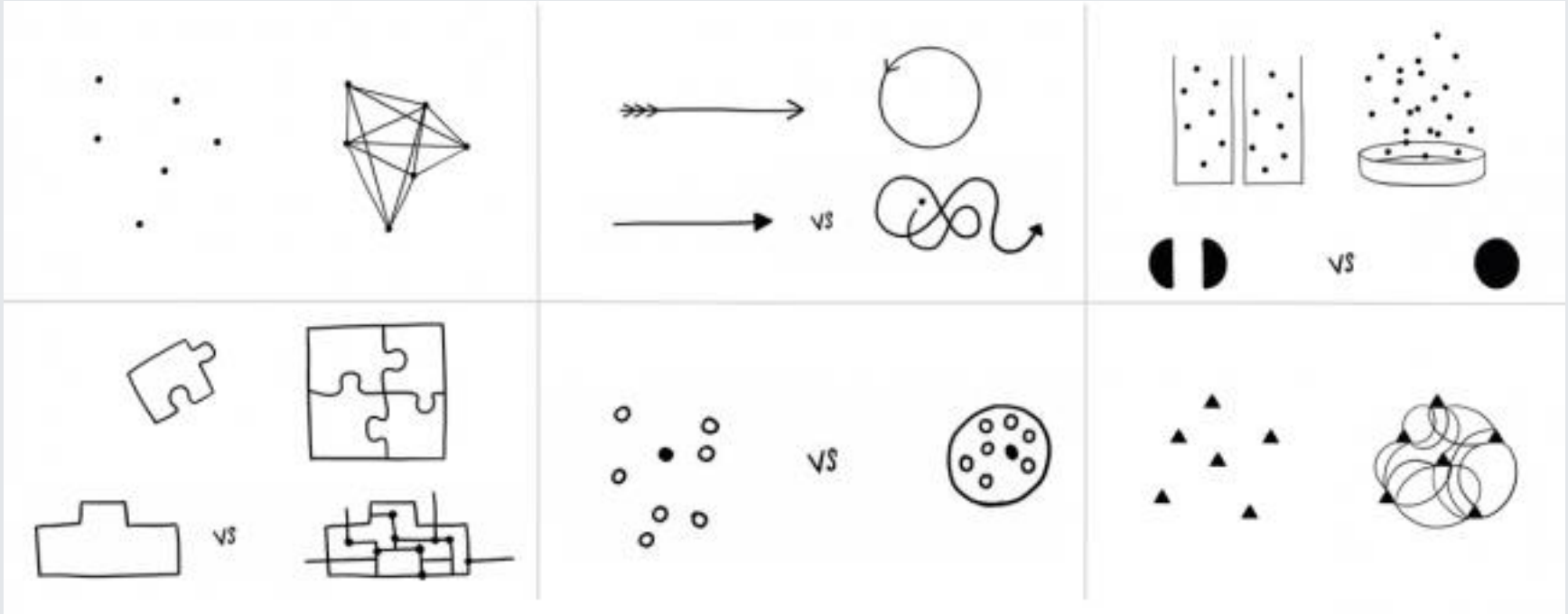
SYSTEMS THINKING IN PRACTICE



BY

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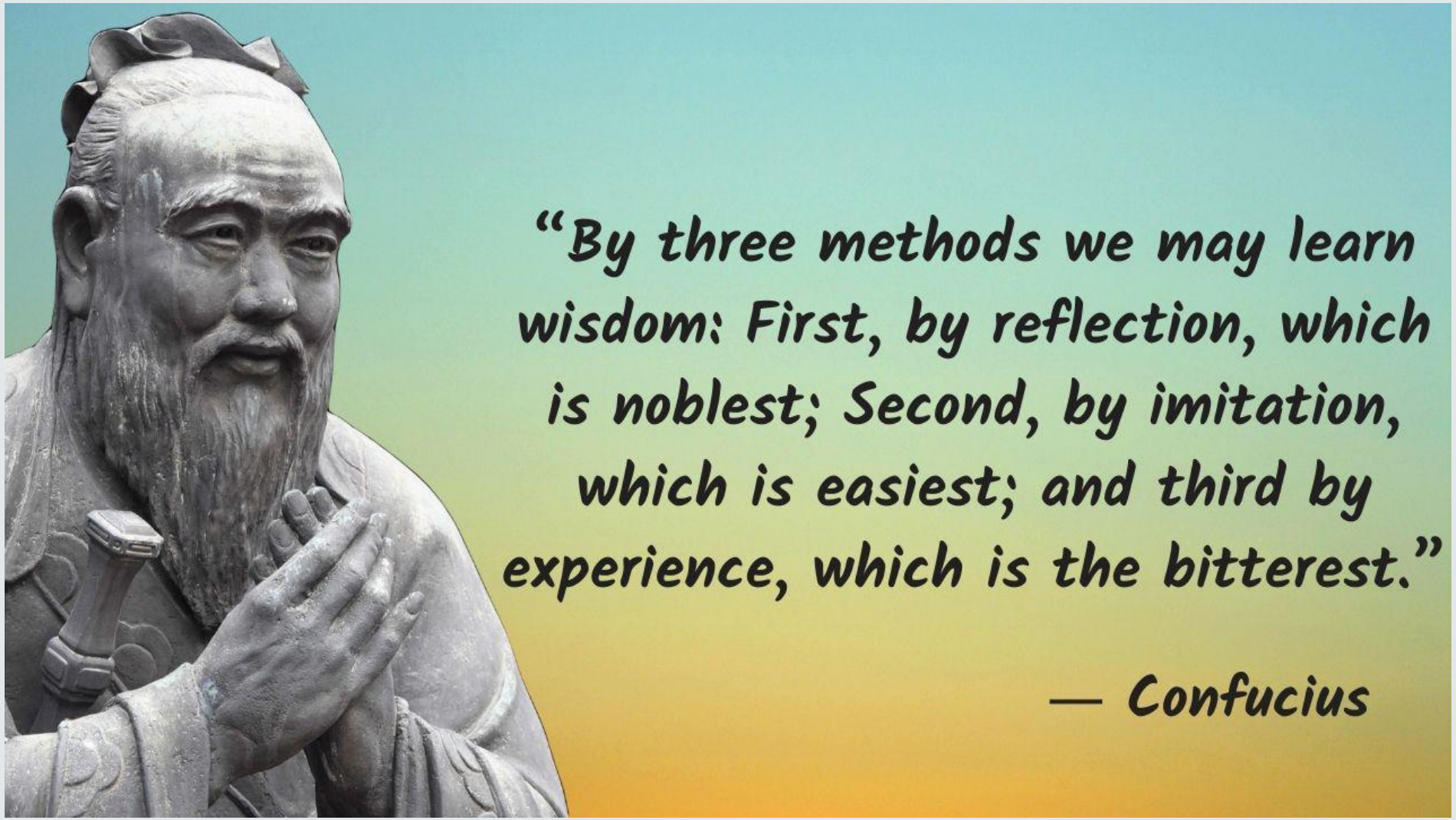
INTRODUCTION (CONT)



INTRODUCTION

- Systems Thinking is an essential part of strategic thinking. It is a holistic approach to analysis that focuses on the way that a system's constituent parts interrelate and how systems work over time within the context of larger systems.

- Systems thinking is a way of making sense of the complexity of the world by looking at it in terms of wholes and relationships rather than by splitting it down into its parts.

- Systems thinking originated in 1956, when Professor Jay Forrester founded the Systems Dynamic Group at MIT's Sloan School of Management.

INTRODUCTION (CONT)

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Systems Thinking

"Systems thinking is a discipline for seeing wholes rather than parts, for seeing patterns of change rather than static snapshots, and for understanding the subtle interconnectedness that gives living systems their unique character."

Peter Senge, author of

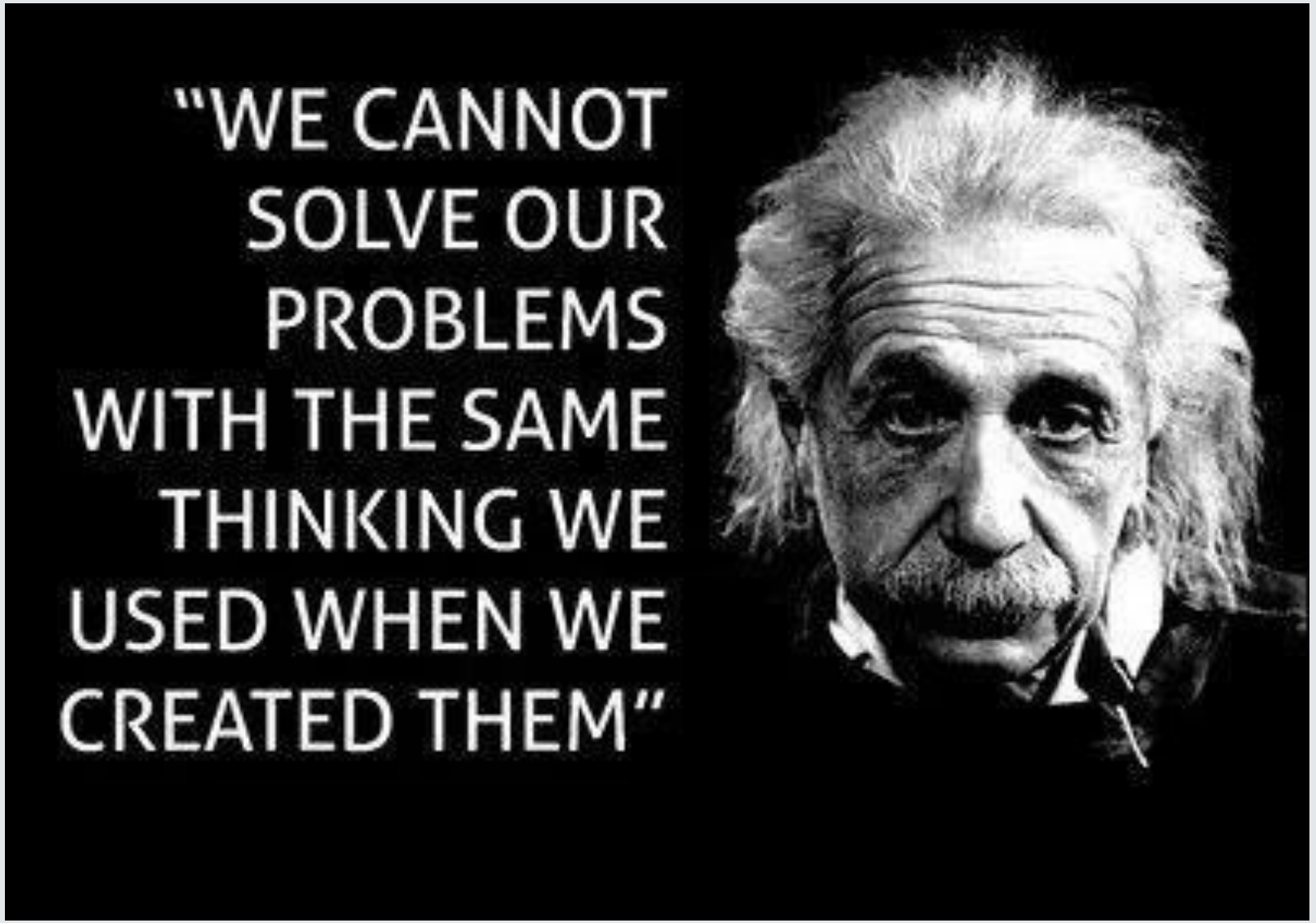
The Fifth Discipline: The Art and Practice of the Learning Organization

INTRODUCTION (CONT)

- Systems Thinking is a vantage point from which you see a whole, a web of relationships, rather than focusing on the details of any particular piece. Events are seen in the larger context of a pattern that is unfolding over time

- Systems Thinking is based on the idea that all key processes in an organisation are interrelated. A system is greater than the sum of its constituent components because the relationship between the different components adds value to it.

INTRODUCTION (CONT)



PURPOSE

To refine your strategic thinking skills for better operational outcomes.

AIM

To introduce participants of AWCN Course 8/2024 to the fundamentals of Systems Thinking with a view to enhancing your strategic thinking abilities.

SCOPE

- The presentation will cover the following:
  - Strategic Thinking Skills.
  - Types of Problems.
  - The Need for Systems Thinking.
  - Traditional Thinking vs Systems Thinking.
  - Building Blocks of Systems Thinking.

STRATEGIC THINKING SKILLS

- Critical Thinking.
- Creative Thinking.
- Thinking in Time.
- Furturing.
- Systems Thinking.

TYPES OF PROBLEMS

- **Tame Problems**. A tame problem is well defined and has known solutions within existing expertise. It can be solved in a linear fashion using straightforward, reductionist, repeatable and sequential techniques. They are best approached from a management style of leadership with a structured logical approach.
- **Critical Problems**. A critical problem causes a crisis and needs immediate action. They fetch uncertainty and fear. Commanders are needed who will coerce people into action and tell them what to do.
- **Wicked Problem**. A wicked problem is a complex problem that holds a multitude of other problems within it. There is no known solution. Sometimes, they have to be accepted and adapted to rather than overcome. These problems require leadership that involves everyone and approaches that look into everything and every possibility.

THE NEED FOR SYSTEMS THINKING

❖Systems Thinking intervention is needed in the following instances:

- ❖ The issue is important
- ❖ The problem is chronic, not a one-time event.
- ❖ The problem is familiar and has a known history.
- ❖ People have unsuccessfully tried to solve the problem before.

THE NEED FOR SYSTEMS THINKING (CONT)

TRADITIONAL SKILL	SYSTEMS THINKING SKILL	
Static Thinking Focusing on particular events	**Dynamic Thinking** Framing a problem in terms of a pattern of behavior over time	Specify Problem/Issues
System-as-Effect Thinking Viewing behavior generated by a system as driven by external forces	**System-as-Cause Thinking** Placing responsibility for a behavior on internal actors who manage the policies and plumbing of the system	Construct Hypothesis
Tree-by-Tree Thinking Believing that really knowing something means focusing on the details	**Forest Thinking** Believing that, to know something, you must understand the context of relationships	
Factors Thinking Listing factors that influence or are correlated with some result	**Operational Thinking** Concentrating on getting at causality and understanding how a behavior is actually generated	
Straight-Line Thinking Viewing causality as running one way, with each cause independent from all other causes	**Closed-Loop Thinking** Viewing causality as an ongoing process, not a one-time event, with the "effect" feeding back to influence the causes, and the causes affecting each other	
Measurement Thinking Searching for perfectly measured data	**Quantitative Thinking** Accepting that you can always quantify, though you can't always measure	
Proving-Truth Thinking Seeking to prove models to be true by validating with historical data	**Scientific Thinking** Recognizing that all models are working hypotheses that always have limited applicability	Test Hypothesis

BUILDING BLOCKS OF SYSTEMS THINKING

- Interconnectedness.
- Synthesis.
- Emergence.
- Feedback Loops.
- Causality.
- Systems Mapping.

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INTERCONNECTEDNESS

- Systems thinking requires a shift in mindset from linear to circular.
- The fundamental principle of this shift is that everything is interconnected.
- Systems thinkers do not have a linear, structured, mechanical worldview but rather see the world as a dynamic, chaotic, interconnected array of relationships and feedback loops.
- A systems thinker uses this mindset to untangle and work within the complexity of life.

SYNTHESIS

- Synthesis refers to the combination of 2 or more things to create something new.
- Systems thinking deals with synthesis as opposed to analysis, which is the dissection of complexity into manageable components. Analysis fits into the mechanical and reductionist worldview.
- Synthesis is about understanding the whole and the parts at the same time, along with the relationships and the connections that make up the dynamics of the whole.
- Essentially, synthesis is the ability to see interconnectedness.

SYNTHESIS (CONT)

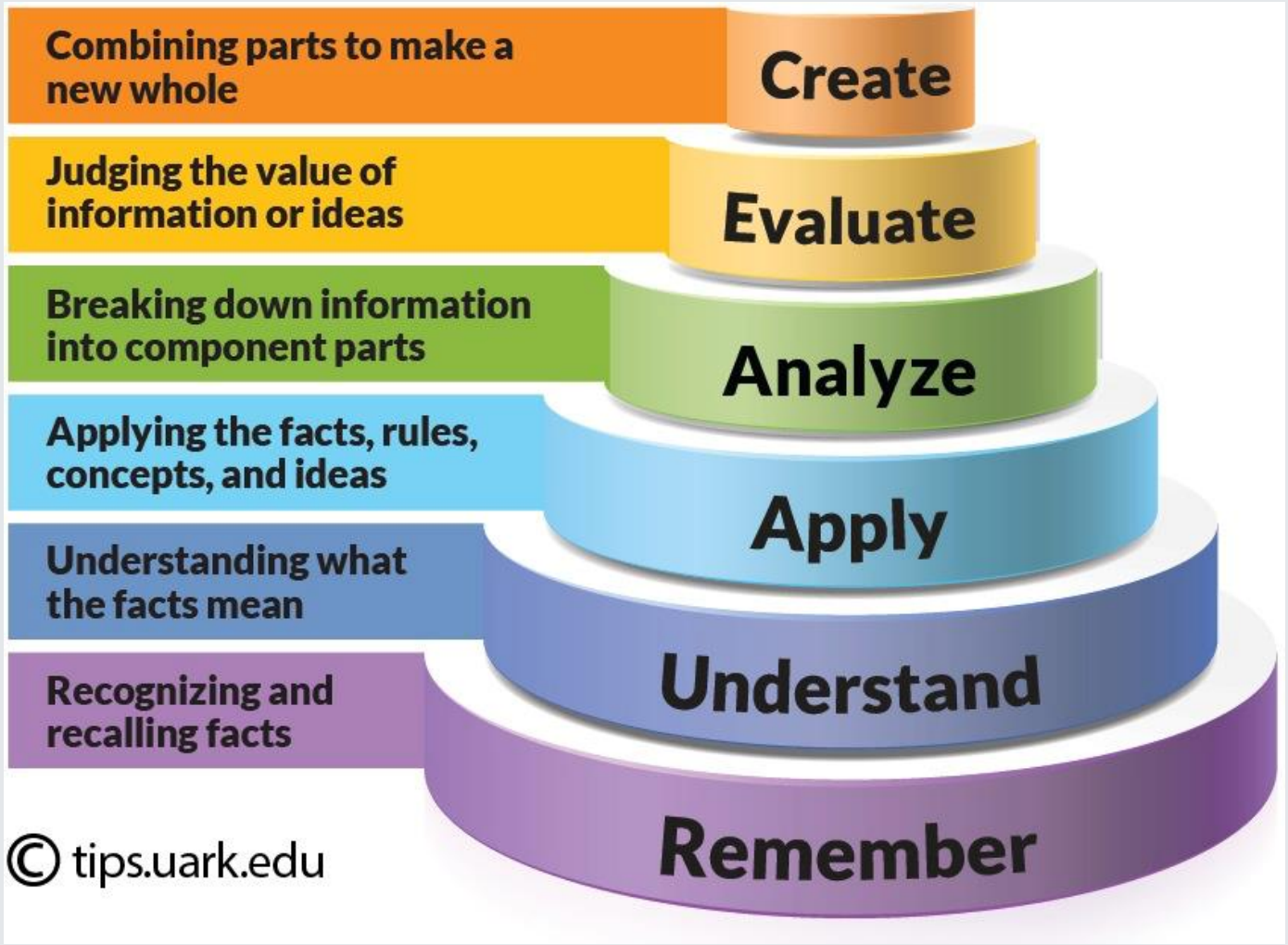


Figure: Blooms Taxonomy

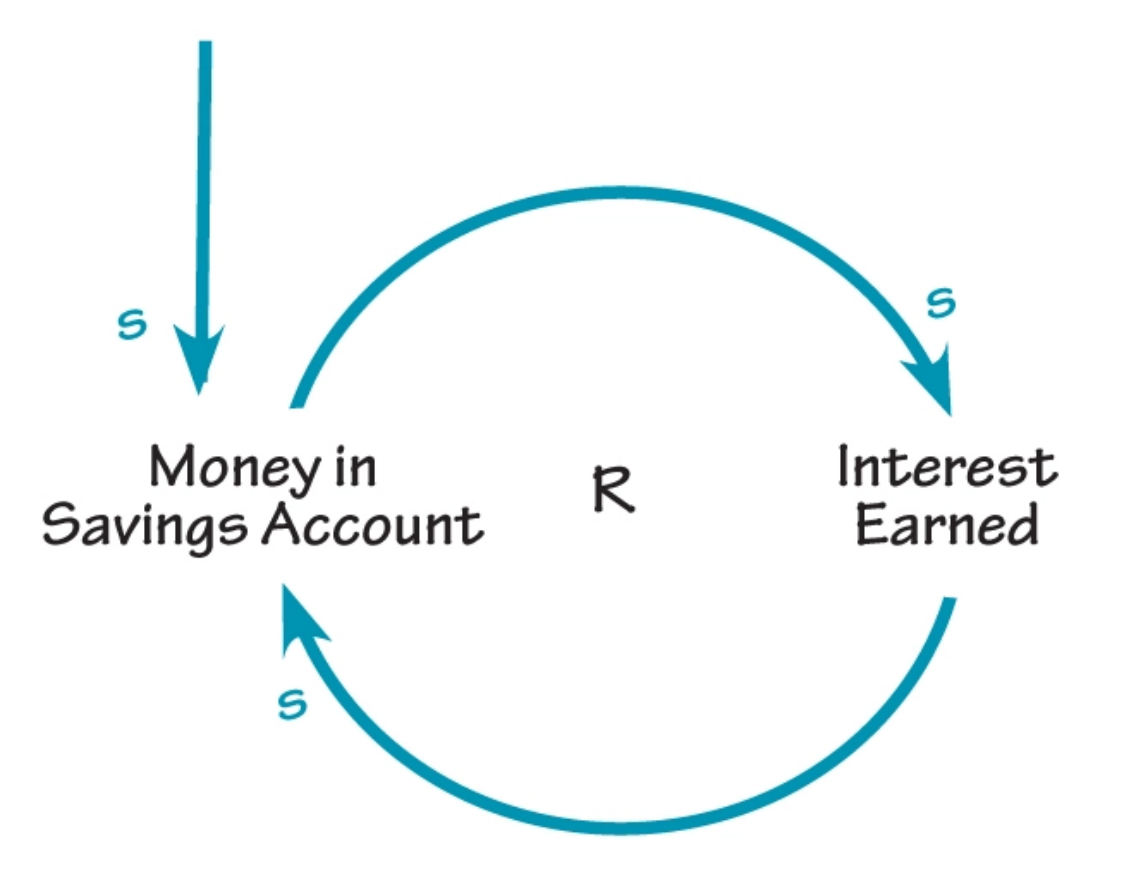
EMERGENCE

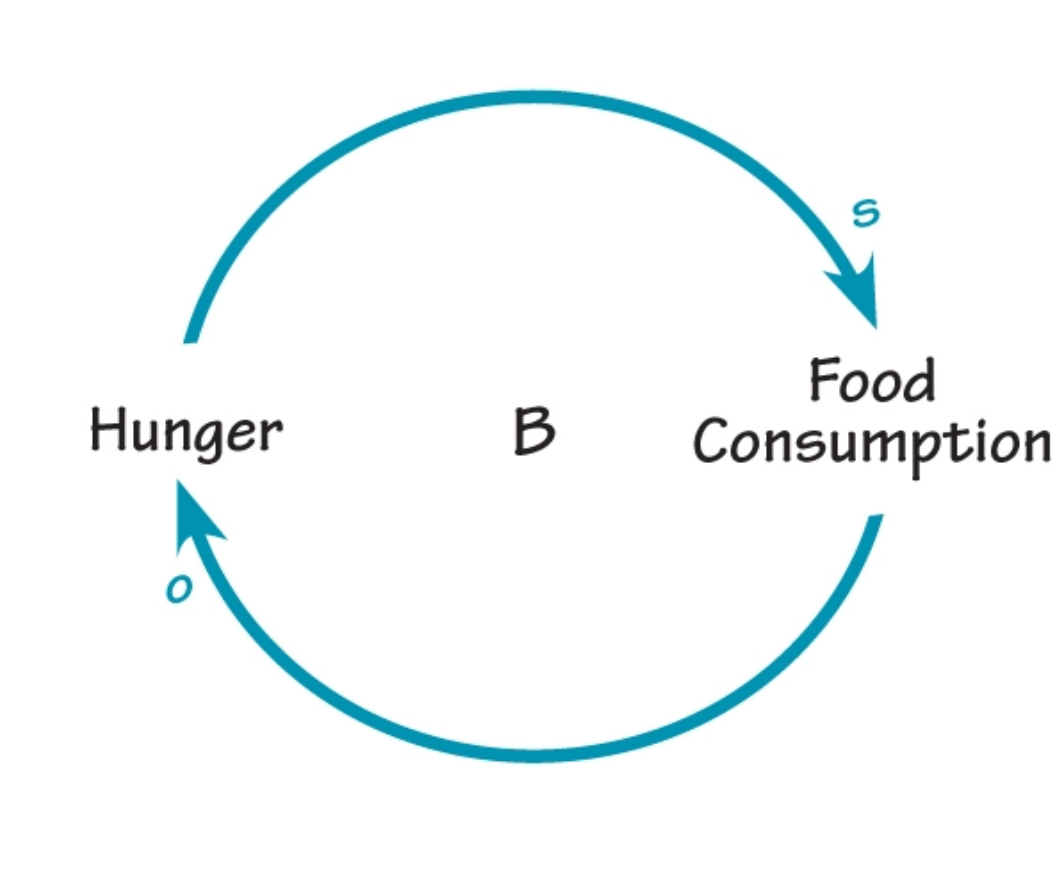
- Emergence is the natural outcome of things coming together. It explains how larger things result from the interactions of smaller things.
- Emergence is the outcome of the synergies of the parts; it is about non-linearity and self-organization.
- ***There is nothing in a caterpillar that tells you it will be a butterfly — R. Buckminster Fuller.***

FEEDBACK LOOPS

- Since everything is interconnected, there are constant feedback loops and flows between elements of a system. We can observe, understand, and intervene in feedback loops once we understand their type and dynamics.
- The two main types of feedback loops are *reinforcing* and *balancing*.
- In *reinforcing* loops, an abundance of one element can continually refine itself, which often leads to it taking over.
- A *balancing* feedback loop is where elements within the system *balance* things out leading to equilibrium.

FEEDBACK LOOPS (CONT)





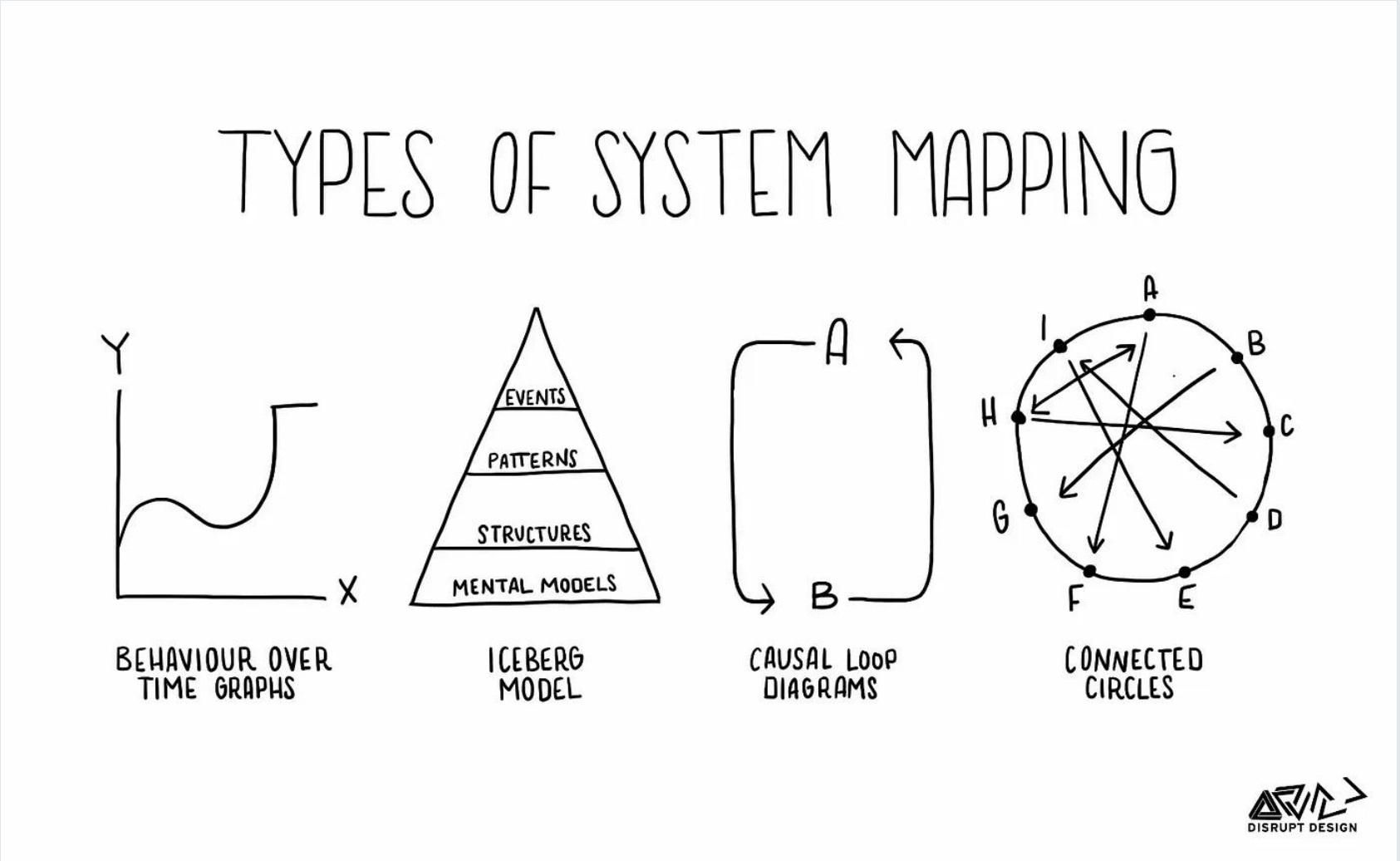
CAUSALITY

- Causality explains how one thing results in another in a dynamic and constantly evolving system.
- Causality as a concept in systems thinking is really about being able to decipher the way things influence each other in a system.
- Understanding causality leads to a deeper perspective on agency, feedback loops, connections and relationships, which are all fundamental parts of systems mapping.

SYSTEMS MAPPING

- Systems mapping is one of the key tools of the systems thinker.
- There are many ways to map, from analogue cluster mapping to complex digital feedback analysis.
- Identifying and mapping the elements within a system helps to understand how they interconnect, relate and act in a complex system.
- Consequently, unique insights and discoveries can be used to develop interventions, shifts, or policy decisions that will dramatically change the system in the most effective way.

SYSTEMS MAPPING (CONT)



CONCLUSION

THANK YOU FOR YOUR RAPT ATTENTION