EXERCISE: Tools of an Innovator

Purpose Give students practice at applying the Innovation Cycle to real world challenges, and an understanding of:

1) The universality of the Innovation Cycle
2) How a variety of innovation tools and strategies follow the Innovation Cycle
3) How the Innovation Cycle explains the underlying dynamics of those tools
4) How understanding the Innovation Cycle enhances the use of those tools
5) How to select appropriate innovation tools according to the task and where they fit around the Innovation Cycle

Recommended with: Trail 6, or whenever an innovation tool is introduced

Time required 5-60 minutes
This exercise can be an in-depth look at how a chosen strategy navigates around the Innovation Cycle, or a brief check-in, noting connections between the two, that informs a specific task.

Key Points These will vary depending on the tool being used and where a task falls around the Innovation Cycle. In general, they should include

Where a tool or task falls along the Innovation Cycle, and fits into that pattern

The goals, key distinctions and Habits of an Innovator for the specific Phase a task falls into (These are presented in the elearning for each Phase of the Innovation Cycle in the four Paths of Trail 10. They can be downloaded from the elearning, or here.

Instructions

For this exercise to be meaningful, students need to have already been introduced to the Innovation Cycle and have a basic understanding of how it functions. The specific innovation tool or strategy may be introduced using one of the slides that maps it onto the Innovation Cycle, or this can be done after that approach has been explained.

While some lecture/explanation may be needed, this is best facilitated as a dialogue with students, with questions like:

- Where does this fit in the Innovation Cycle? Why?
- What's the larger innovation purpose of using this approach or taking this step?
- What does the Innovation Cycle say about how to use this tool most effectively?

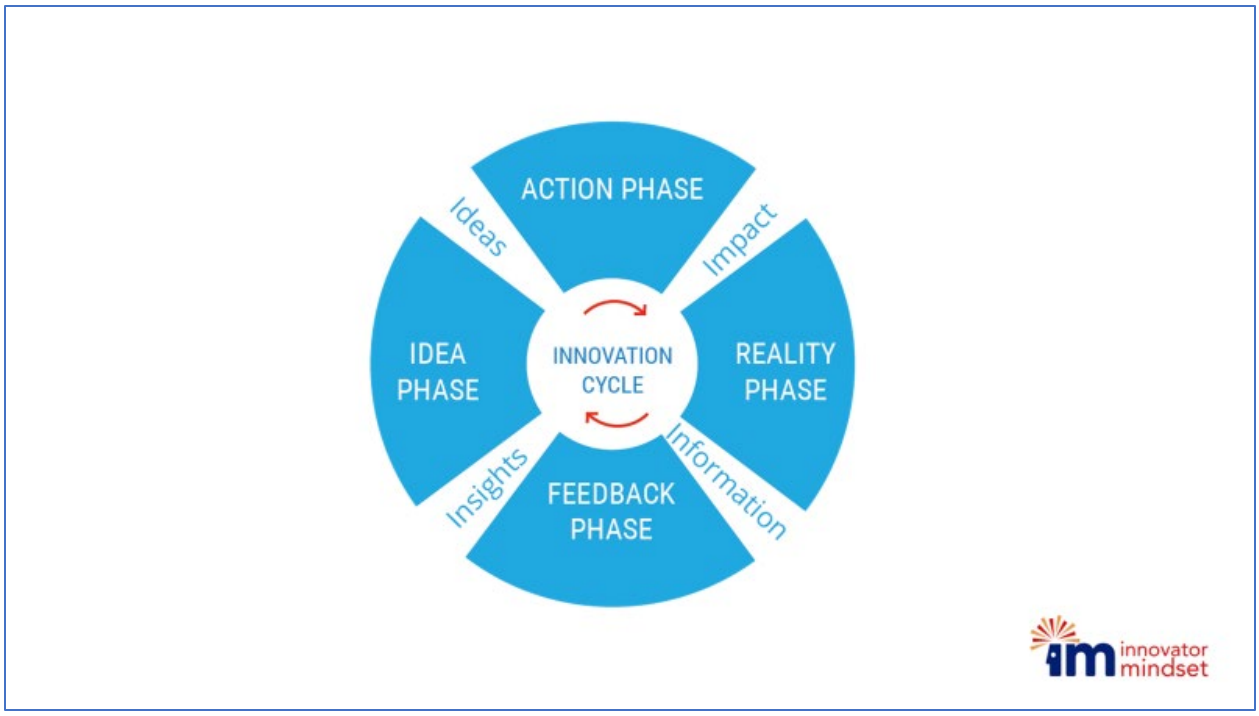
- What comes before this step in the Innovation Cycle and would it be helpful to do that first?
- What outcome are you looking for and how does that advance you around the Innovation Cycle?
- EXTRA CREDIT: Are there other innovation tools that could be used here that would accomplish the same objective more effectively?

The slides for this exercise illustrate a variety of innovation strategies mapped onto the Innovation Cycle. These can be used selectively to illustrate the strategy being used (e.g. design thinking, lean startup, etc.), or show a variety of examples to illustrate the universality of the Innovation Cycle (e.g. natural selection, the scientific method, etc.)

A learning sequence that integrates mindset and tools might be:

1) Learn about the Innovation Cycle and its Phases
2) Learn the key steps (or a specific task) in an innovation tool, like Lean Startup
3) Determine how those steps map onto the Innovation Cycle
4) Explore the important distinctions and Habits of an Innovator, for that Phase of the Innovation Cycle, as they relate to that task
5) Have students discuss how they will complete that task in a way that follows and supports the Innovation Cycle.
6) Upon completion of that task, have students explain how that has followed the Innovation Cycle, and propels them further around that cycle.

Before introducing specific tools, you may want to begin with this first slide that shows an enhanced version of the Innovation Cycle. In addition to the four Phases, it shows the four “I”s. These transition points are the outputs for each Phase, which are also the inputs for the next Phase. This more detailed understanding will make it easier to map the actions taken and results produced by various innovation strategies.



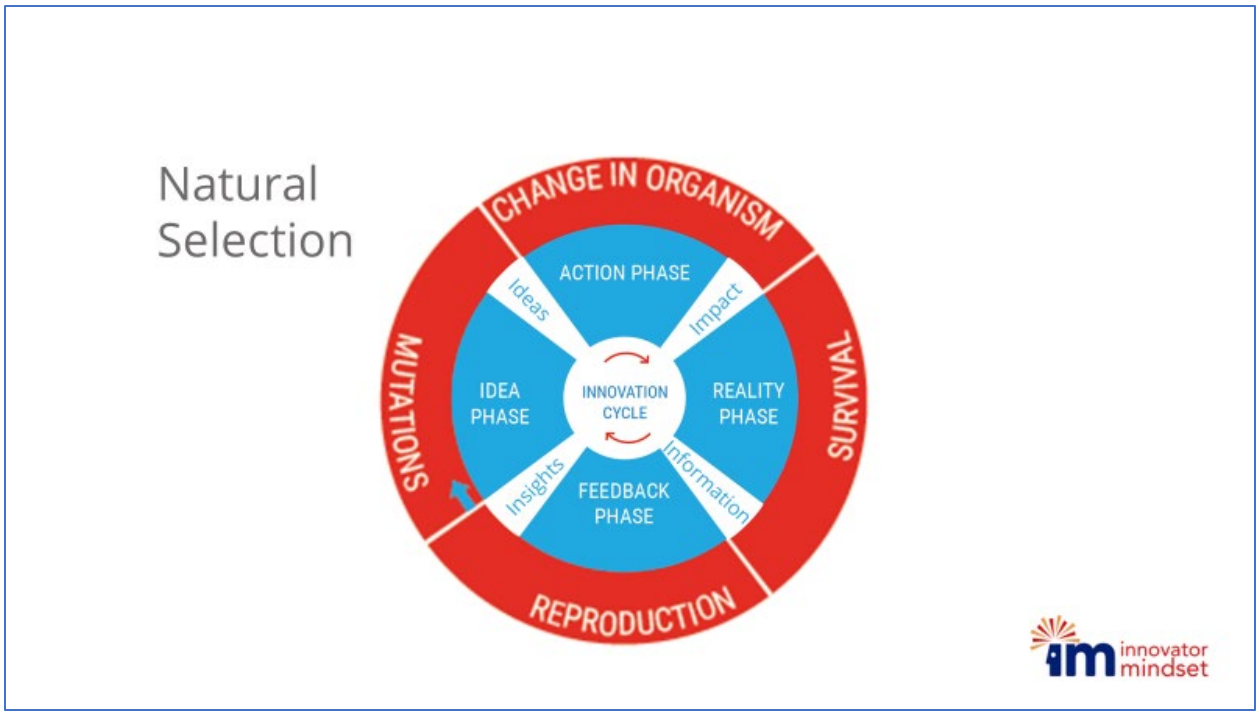
The four "I"s are defined as follows:

Ideas – The output of the Idea Phase—what you have generated; and the input for the Action Phase, when you act on those ideas to test them

Impact – The output of the Action Phase—what effect you are hoping to have; and the input for the Reality Phase, where you gauge the impact of those actions and determine what's happening

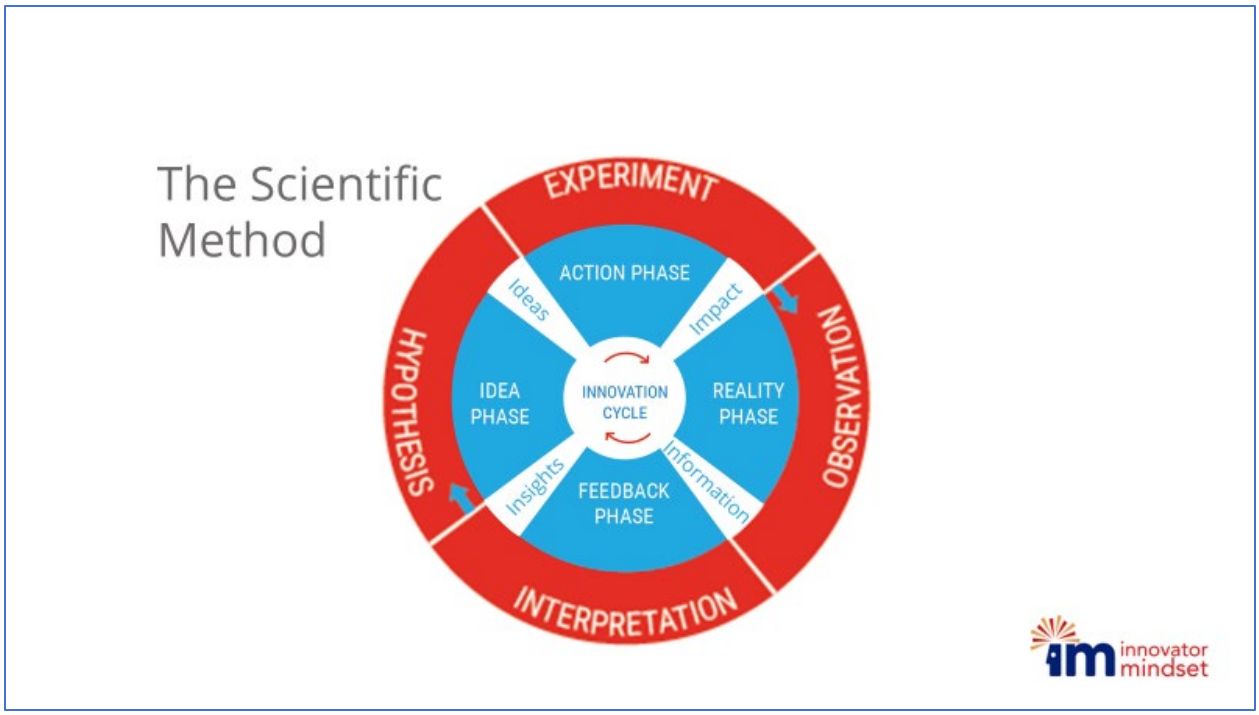
Information – The output of the Reality Phase—what you are trying to gather with your observations; and the input for the Feedback Phase, where you interpret that information

Insights – The output of the Feedback Phase—what you hope to gain; and the input for the Idea Phase, where you use those insights to generate new and relevant ideas



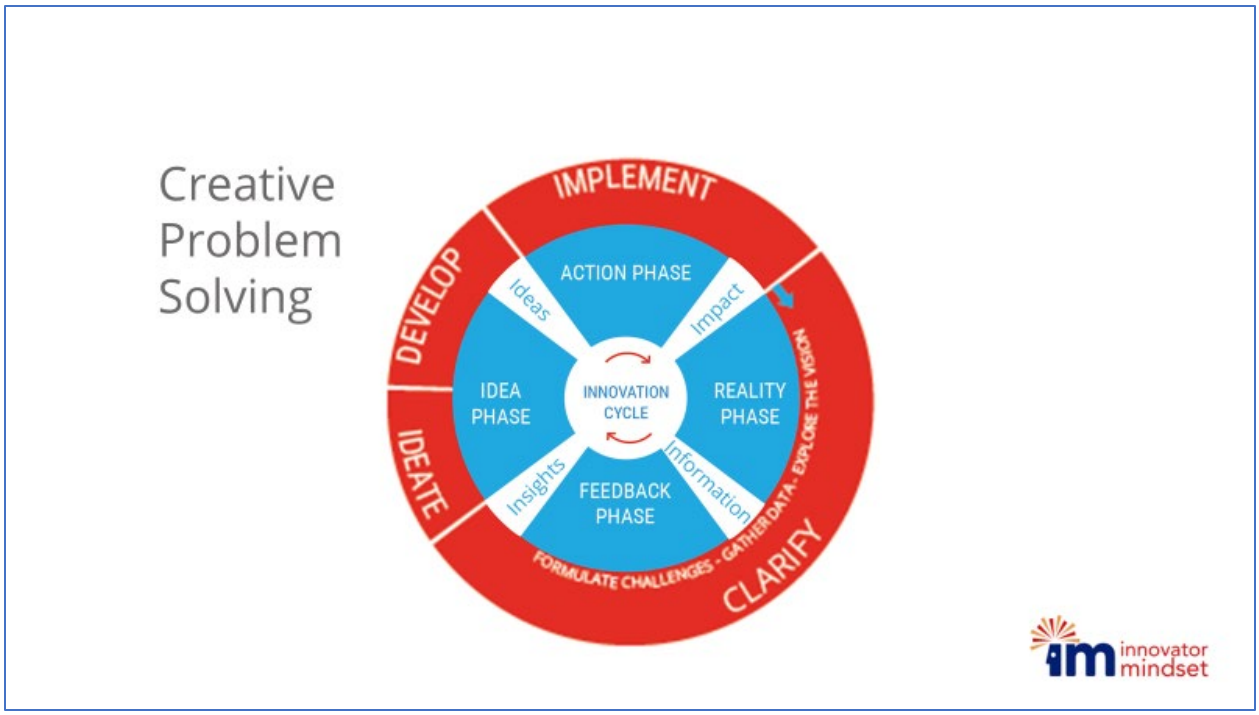
NATURAL SELECTION

Nature has been innovating for billions of years. Natural Selection illustrates how well the Innovation Cycle works even without any creativity or intent. Random mutations ("Idea" Phase) create changes in an organism (Action Phase). The environment (Reality Phase) then determines whether the change is advantageous or harmful. The organism then survives to reproduce or fails to (Feedback Phase). When reproduction does occur, the change is passed along to subsequent generations (saved) and becomes a potential source of further innovation. In nature, things like insights and ideas do not exist as they do in human-fostered innovation, but the pattern is the same.



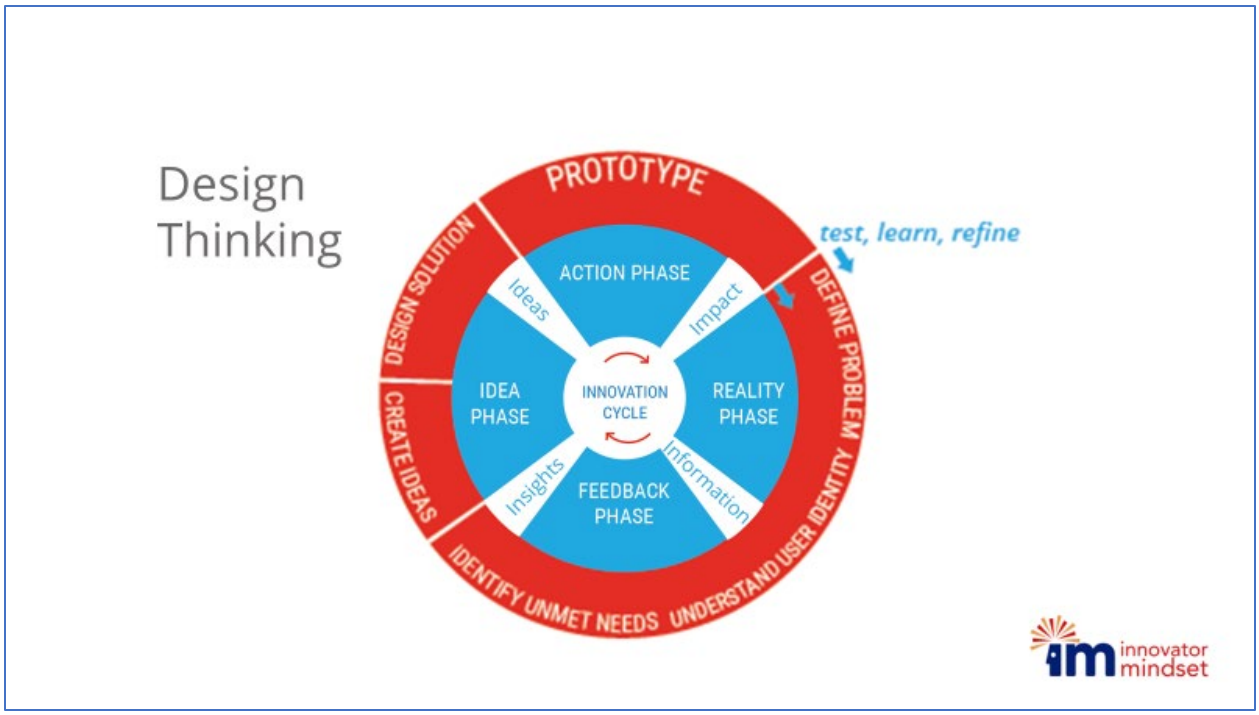
THE SCIENTIFIC METHOD

The Scientific Method has now been with us for hundreds of years, and it continues to be our most powerful tool for gaining new knowledge and insights. It was one of the inspirations for the Innovation Cycle, so it's not surprising that they match up. The Scientific Method typically starts with either an observation (Reality Phase) or a hypothesis (Idea Phase). However, an individual scientist may pick up the cycle anywhere. For example, someone might start in the Action Phase by designing an experiment to test a pre-existing hypothesis. or start in the Feedback Phase by reinterpreting existing data to develop a new theory.



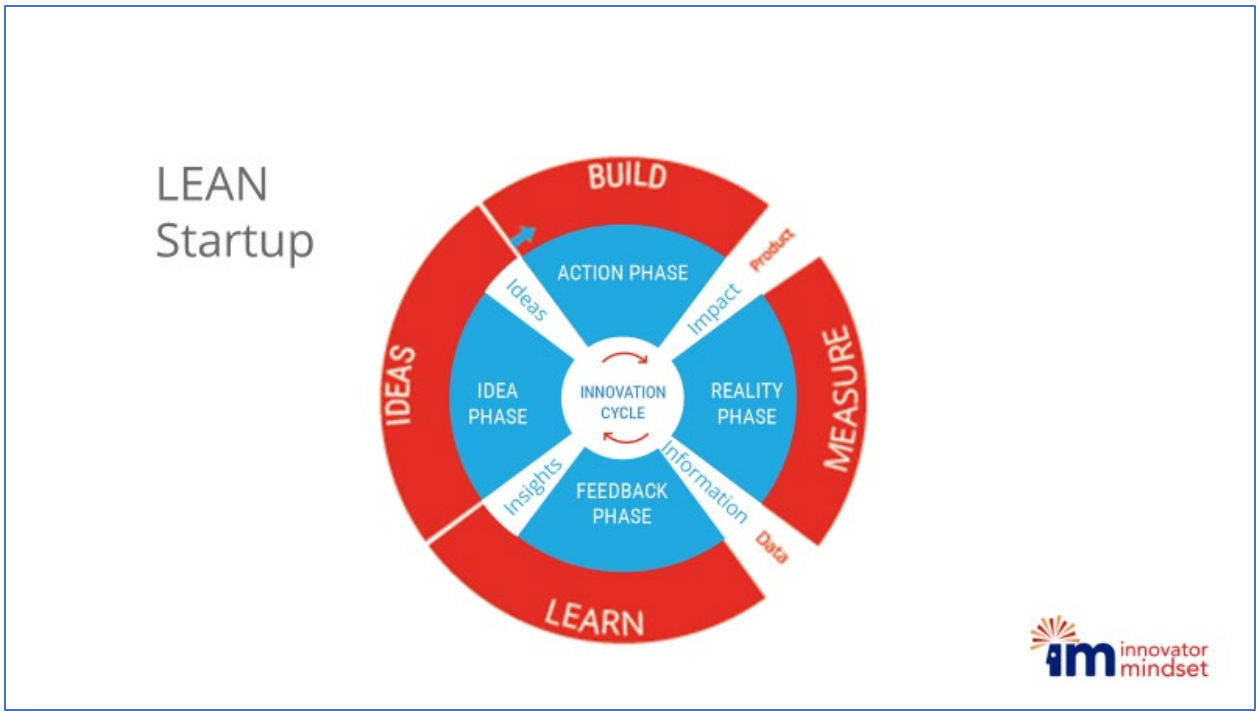
CREATIVE PROBLEM SOLVING

Creative Problem Solving is the oldest widely used systematic model of creativity, dating from the 1950s. Commonly called brainstorming, it has been updated many times based on research and borrowing from other models and disciplines. CPS is generally treated as a linear model that does not explicitly iterate. Still, it maps onto the Innovation Cycle. It includes tools for implementation but strictly speaking not experimentation.



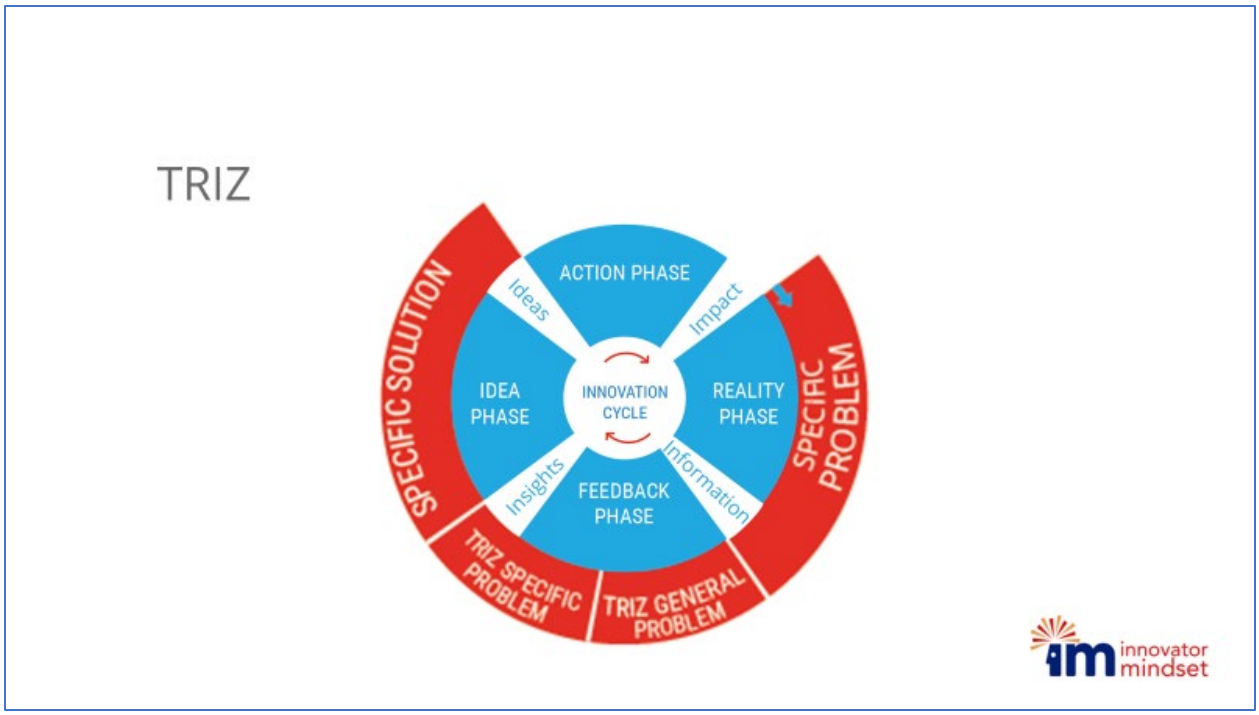
DESIGN THINKING

Design Thinking, like Creative Problem Solving, tends to blend together data gathering (Realty Phase) and analysis (Feedback Phase), which is partly a reflection of the ethnographic qualitative research that is at its core. Also, like Creative Problem Solving, Design Thinking divides ideation (Idea Phase) into two steps: idea generation and idea refinement. Design Thinking is explicit about testing and iterating the solutions it develops. The final step in the Design Thinking process, Test-Learn-Refine, is in a sense taking another lap around the Innovation Cycle.



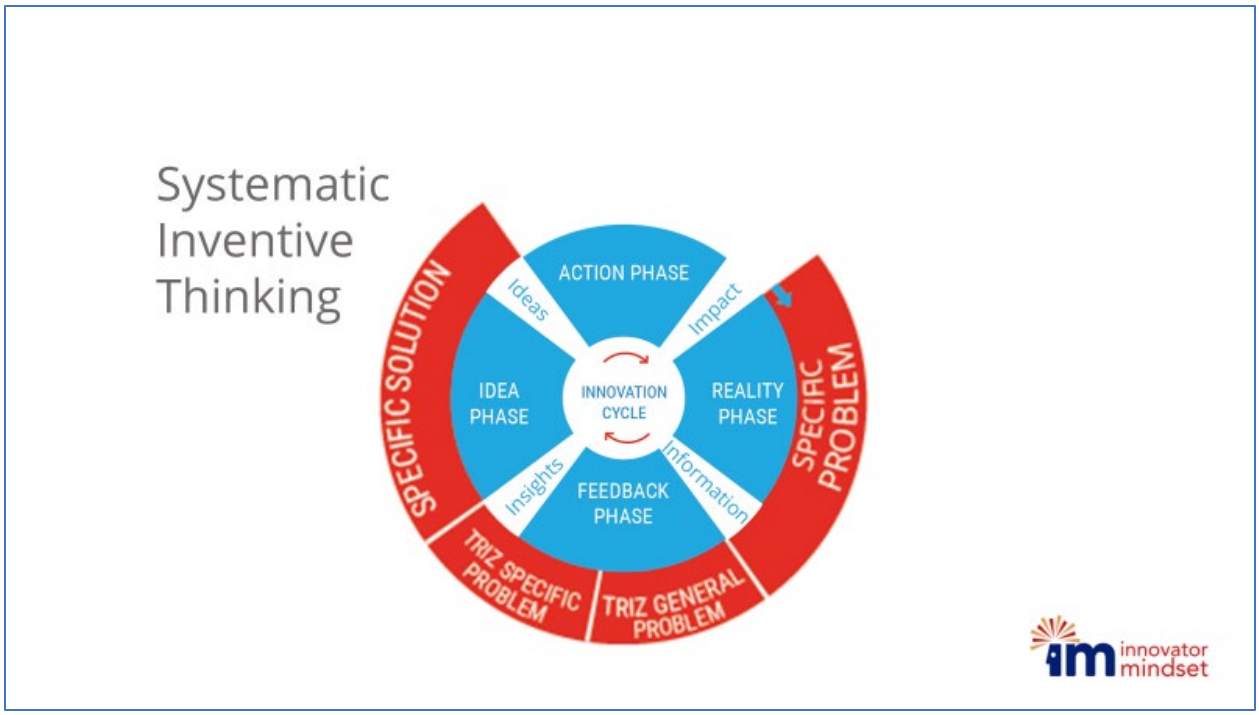
LEAN STARTUP

LEAN Startup is called a three-step process, but it easily maps to the four phases of the Innovation Cycle. LEAN Startup has a Build step (Action Phase) that creates a Product, a Measure step (Realty Phase) that creates Data and a Learn step (Feedback Phase) that leads to new ideas (Idea Phase). Like the Innovation Cycle, LEAN Startup is an iterative process.



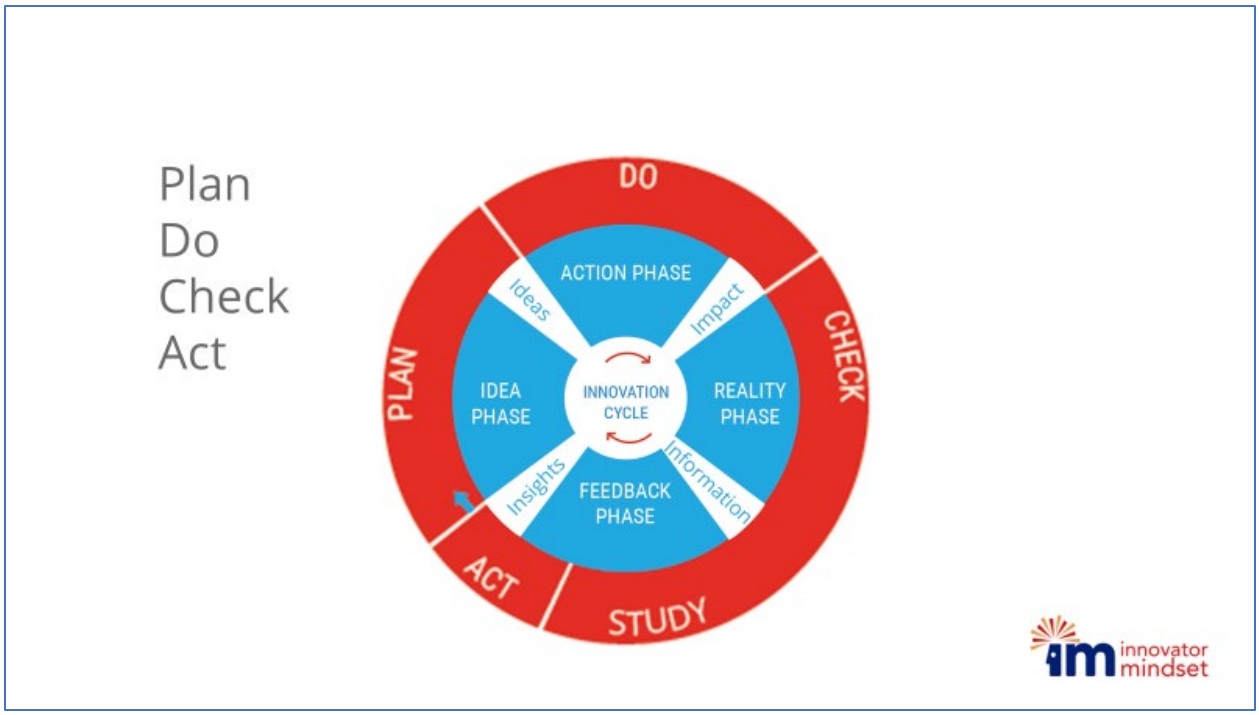
TRIZ

TRIZ is based on the belief that all technology innovations have already been figured out and fall into identifiable patterns. So, solutions are best found by looking at comparable solutions used elsewhere, or by identifying certain patterns. TRIZ maps to just part of the Innovation Cycle, substituting analysis, pattern recognition and retrieval for other approaches to ideation. With TRIZ, the Reality Phase (observation and data gathering) is less robust than some other models, while the Feedback and the Idea Phases are extensive. A considerable number of innovation tools have been developed by TRIZ practitioners that build on and expand the TRIZ approach.



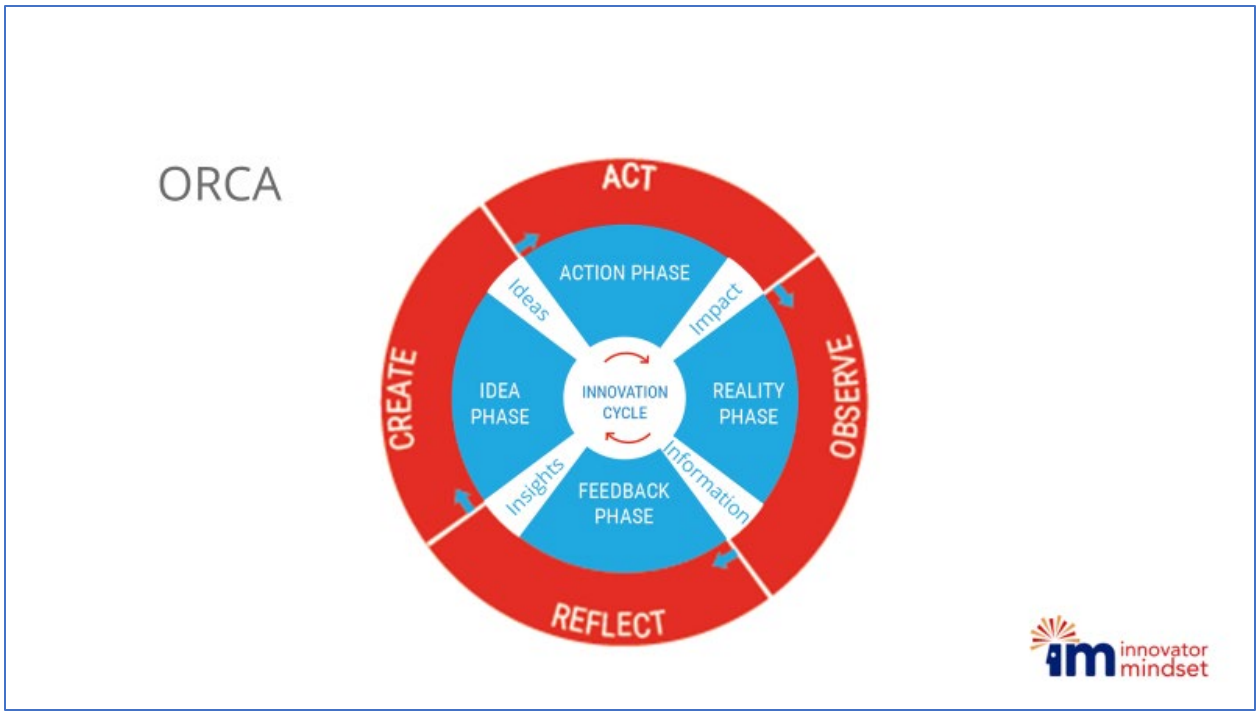
SYSTEMIC INVENTIVE THINKING

Systematic Inventive Thinking (SIT), also known as Thinking Inside the Box, was inspired by the TRIZ methodology. It is a clever set of tools for generating creative ideas and solutions. SIT resembles older Creative Problem Solving models, in that it does not provide for experimentation and iteration (although it does not preclude doing those things). Instead, it focuses on generating good usable ideas. So, like TRIZ, it maps to part of the Innovation Cycle.



PLAN DO CHECK ACT

The Plan Do Check Act (PDCA) cycle, popularized by W. Edwards Deming, is widely used in project management and for continuous improvement. It is applied primarily to optimize and enhance existing processes (Status Quo Cycle) but can also be used to develop new ones. PDCA begins with planning (Idea Phase). The Do step (Action Phase) tests that chosen approach. The Check or Study step (Reality Phase) measures changes in performance, to determine whether a new or enhanced process should be adopted (value creation). In PDCA, the Act step refers to when a process change is actually adopted into practice.



ORCA

ORCA Observe/Reflect/Create/Act is a process and a set of tools specifically designed to implement the Innovation Cycle. These tools can be used beginning with any Phase and the process usually involves iterating through the cycle multiple times.

The ORCA process and tools are explained more fully in the student development guide *Developing Your Innovator Mindset*, which can be downloaded at:

Common Innovation Tools

These are some widely used innovation tools listed by the Phases where they fit in the Innovation Cycle. These are listed using terms that can be searched online for details about each of them.

OBSERVE: REALITY PHASE

- Appreciative Inquiry
- Behavioral Mapping
- Customer Demos
- Customer Interviews
- Customer Surveys
- Diary Study
- Ethnography
- Eye Tracking
- Focus Groups
- Genchi Gembutsu - Go and see for yourself.
- Innovation Accounting
- Positive Deviance
- Voice of the Customer
- Web Analytics

REFLECT: FEEDBACK PHASE

- Affinity Diagram
- Analogs & Antilogs
- Assumption Surfacing
- Cohort Analysis
- Customer Interviews
- Customer Profiling/Archetypes
- Emotional Journey Map
- Empathy Map
- Experience Mapping
- Five Whys
- Process Flow Diagram
- Shoshin - The Beginner's Mind
- Startup Learning Milestones
- Statistical Analysis
- Storyboarding
- SWOT Analysis

CREATE: IDEA PHASE

- Brainstorming
- Brain Writing
- Creative Process Incubation
- Creativity Simile & Metaphor
- Diverge Converge
- Idea Management
- SCAMPER
- Scenario Planning

ACT: ACTION PHASE

- Experimental Design
- Growth Hypothesis
- Value Hypothesis
- Kanban
- Leap of Faith
- Minimum Viable Product
- Opportunity Analysis
- Prototyping
- Small Batches
- Split A/B Testing