

Driven to Change

Problem-based entrepreneurship

Enactus Workshop
2023-09-27

jerrykoh@nicefutures.ca



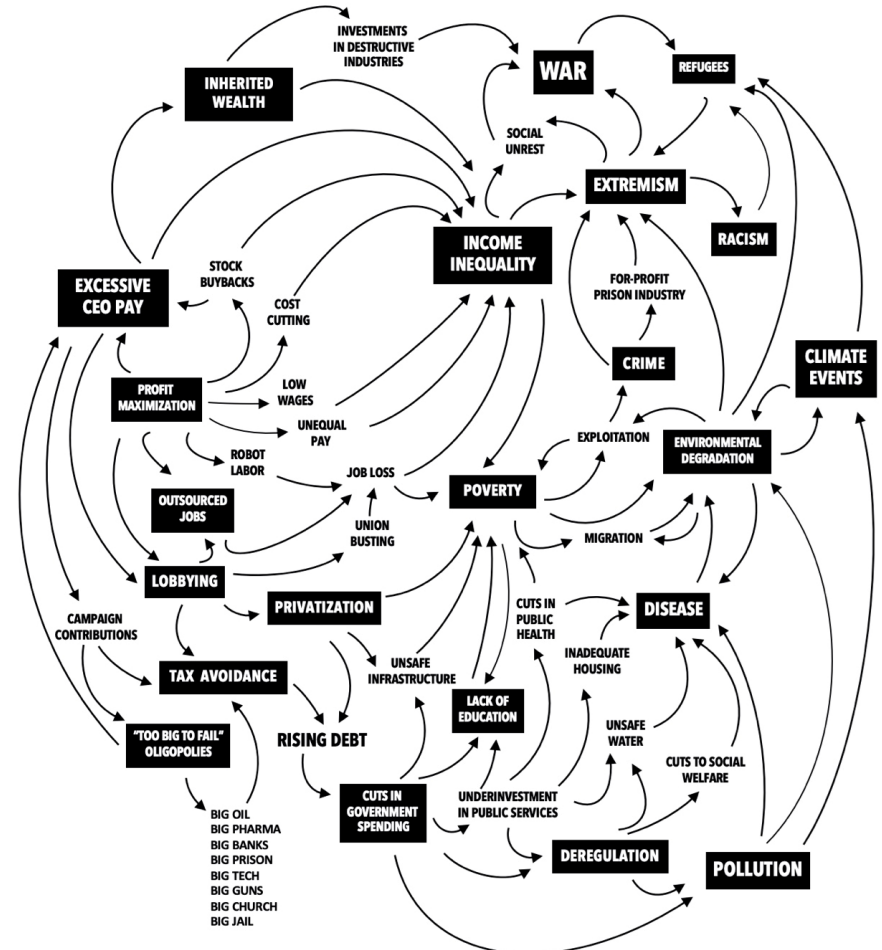
**SYSTEMS THINKING:
A CAUTIONARY TALE**


It's a wicked world

Climate change, extreme wealth disparity,
long public health emergencies, depletion
of natural resources, globalization, rising
inequality, ...

We are in the midst of a fundamental shift where the **conventional ways of problem solving don't work anymore.**

They often make it worse.





New provincial car park opens

What about developing freeways as a means to reduce traffic congestion? As existing roads become congested, so too commuting times increase. Commuting times in excess of the desired time frustrate the community and eventually lead to corrective action — the 'fix'. In this case, the fix involves constructing new freeways.

As soon as a new freeway is opened to traffic there is an immediate reduction in commuting times, and everyone is happy. Then, with a delay, the existence of the freeway (with its short commuting times) encourages people to move out to the peri-urban areas at the end of the freeway.

So, the new freeway triggers urban sprawl. More people, more cars, and more congestion. Once again commuting times become a problem, even on the freeway. What to do?
Last time we had this problem we built a new freeway ...



Uber and Lyft Made Traffic Worse in San Francisco. But It's Complicated.

Wired, 2018.

A mission-driven business has superpowers to do good and combat wicked problems

You work to change the world for the better, by solving problems in better ways, and solving bigger problems. Your business and products become more valuable and valued as a result.

- **Clear mission focus** ⇒ authenticity, and clear business focus, prospectus.
- **Customers and partners focused** ⇒ Clear results and impact, loved by both.
- **Strong company culture** and employee engagement ⇒ your employees love working with you, and your customers.
- **Business and community leadership** ⇒ your partners and stakeholders love working with you.
- **In love with the problem**, not your business ⇒ more ambition and innovation.
- **Seeing the whole problem** ⇒ attention to unintended consequences, and open to opportunities.



QuadFi

moka

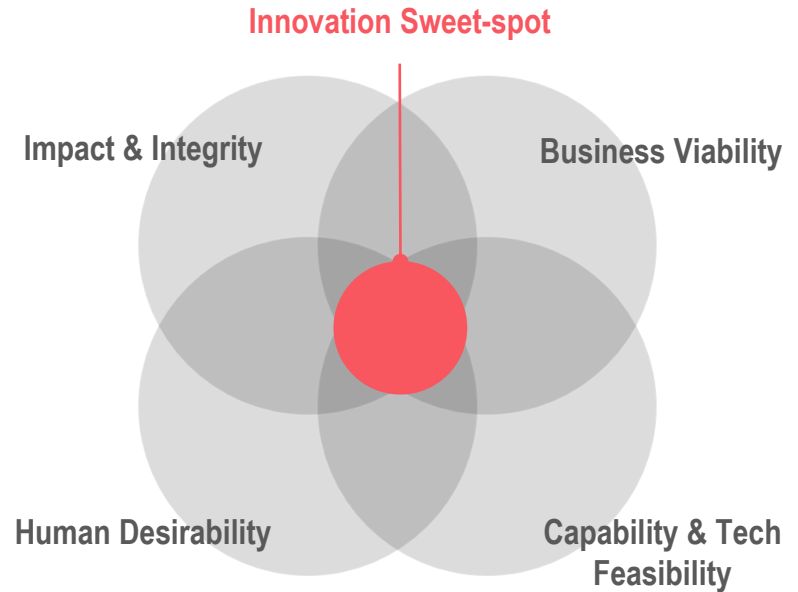
GROSCHÉ



How to start thinking like a mission-driven problem-based entrepreneur



Are you working on the right problems?



Based on: [How to test whether your innovation strategy is socially responsible.](#)
Board of Innovation.

Problem-based entrepreneurship in a wicked world

Problem-based entrepreneurship is a process of identifying and solving real-world problems through the creation of new businesses or products. It is a proactive approach to entrepreneurship that is focused on making a positive impact on the world.

Many entrepreneurs start with a particular idea for a product or a service they'd like to build a business around. Instead, problem-based entrepreneurship starts with finding a problem or challenge they'd like to develop a solution for. It focuses on identifying and solving specific problems or needs in the market that advances their mission, and find ways to build a solution and/or business around that problem.

While both approaches are valid, the advantage of problem-based entrepreneurship, is that it allows for a deliberate way for social entrepreneurs to tackle social and environmental problems.

Approach:

- Customer-Focused
- Impact-Focused
- Growth mindset
- Iterative Process

Process

- Understanding systems, and problem discovery
- Solution development and validation
- Scaling and growing impact



From *The Iceberg Series II* by Tom Hegen

Are you working on the right change?

Events

The inciting incident, great things that just happened, bad things that just happened.

Patterns & Trends

What's been happening, what keeps happening.

Structures

The underlying system of policies and rules, practices and norms, and the prevalent ways that money, people, knowledge, and information are allocated and distributed.

Power & Relations

The individuals and organizations hold decision-making power, authority, and influence (both formal and informal.)

The quality and strength of relationships, the connections and communications between key individuals and organizations.

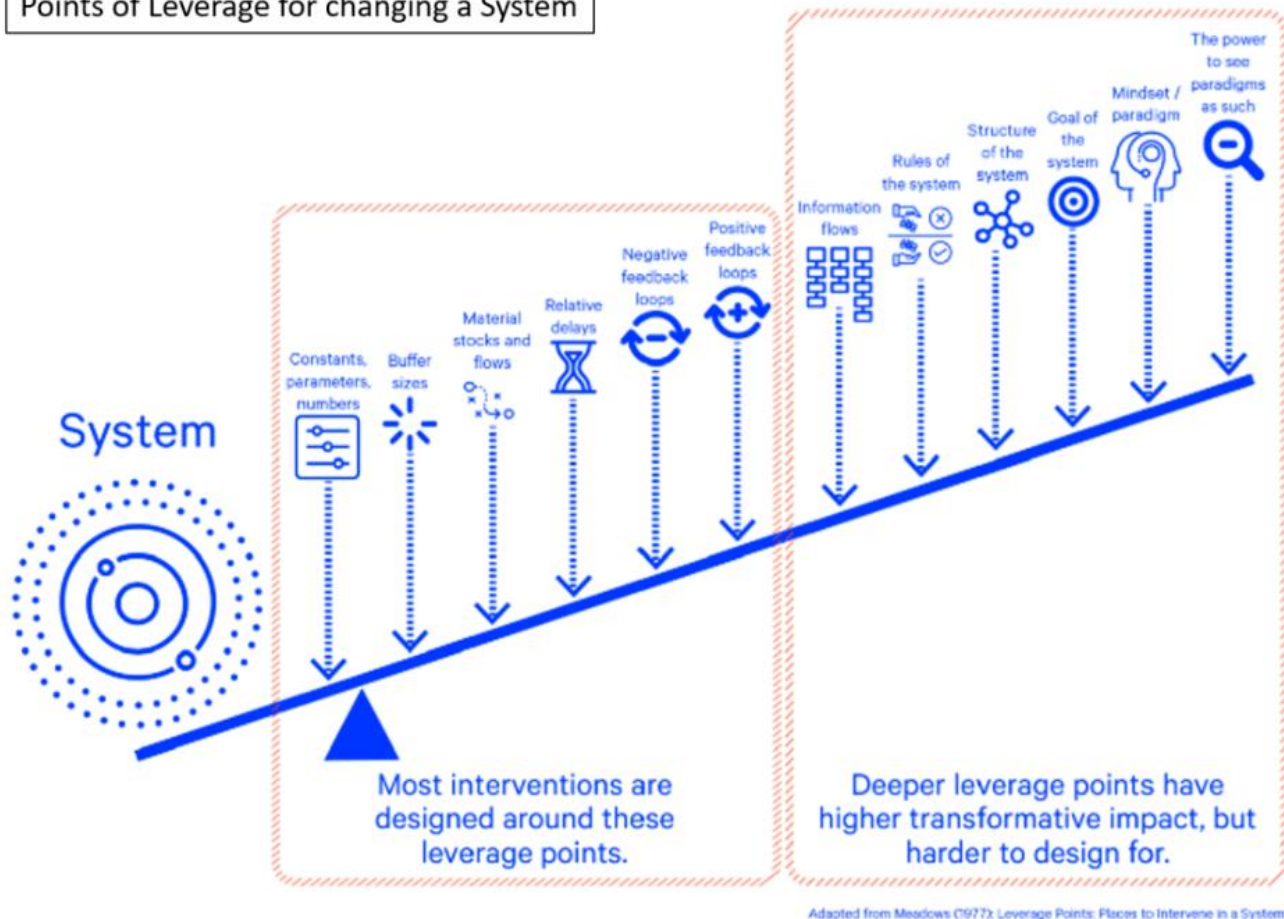
Goals & Paradigm

The real purpose of the system, who it benefits, and the deeply held beliefs and assumptions that influence individual power holders' decisions and actions.

Based on: Six conditions of systems change, from Kania, John & Kramer, Mark & Senge, Peter (2018). *The Water of Systems Change*. FSG. Available at https://www.fsg.org/resource/water_of_systems_change/



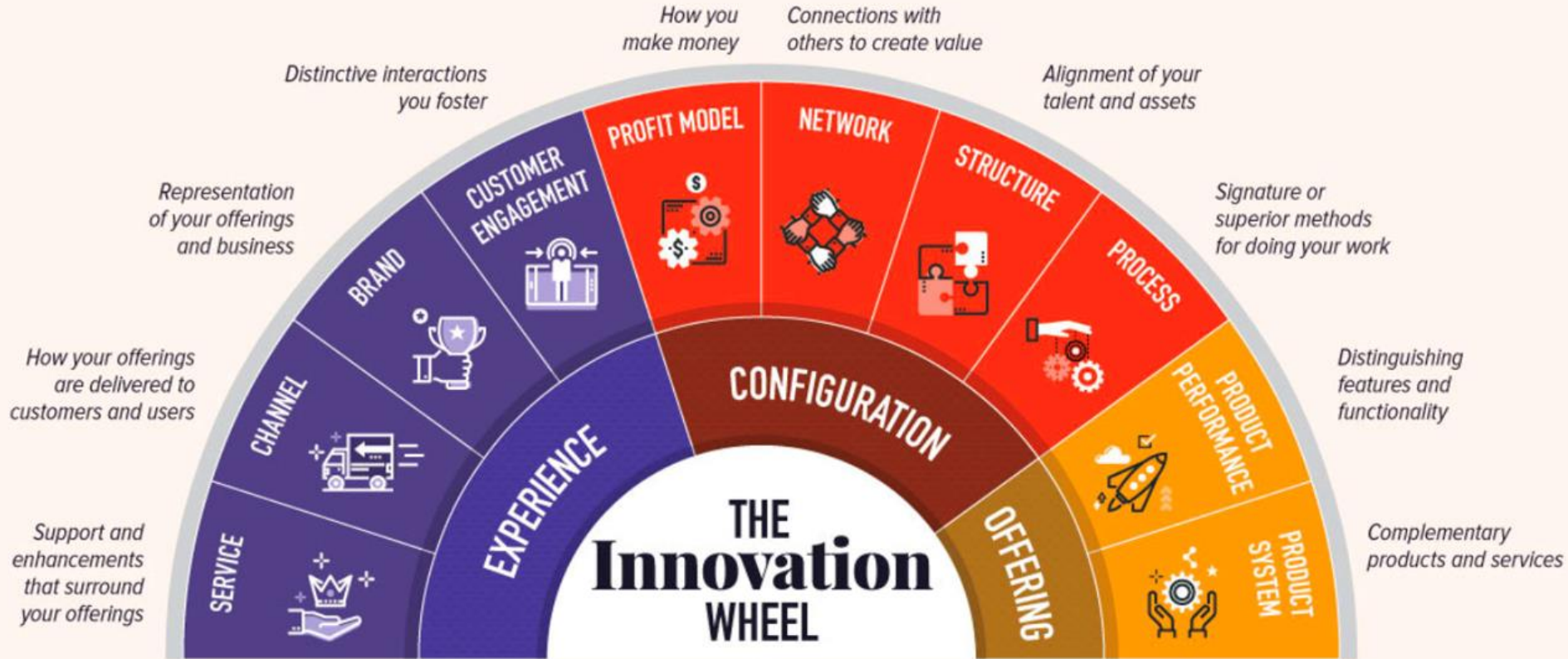
Places to Intervene in a System / Points of Leverage for changing a System



Key Concepts

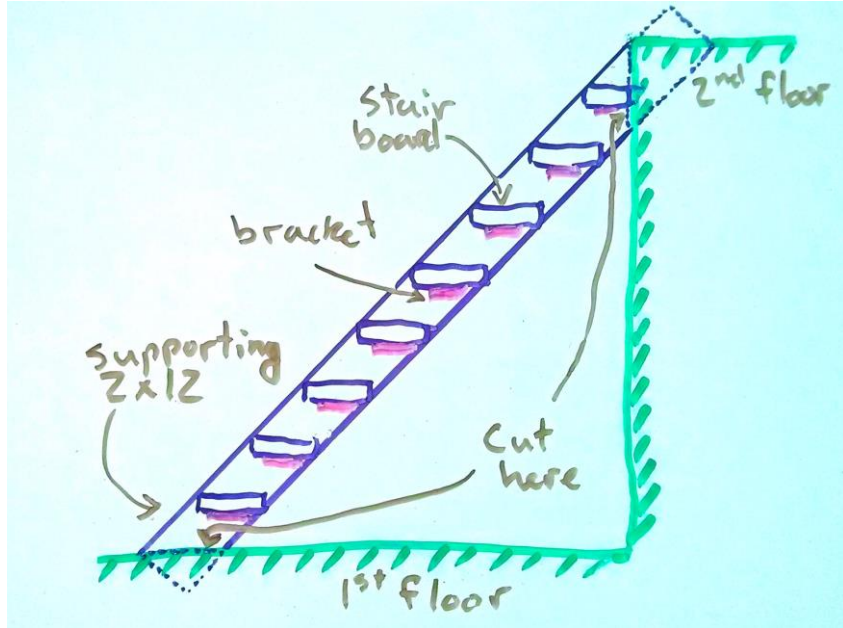
- 12. **Numbers:** Constants and parameters such as subsidies, taxes, and standards
- 11. **Buffers:** The sizes of stabilizing stocks relative to their flows
- 10. **Stock-and-Flow Structures:** Physical systems and their nodes of intersection
- 9. **Delays:** The lengths of time relative to the rates of system changes
- 8. **Balancing Feedback Loops:** The strength of the feedbacks relative to the impacts they are trying to correct
- 7. **Reinforcing Feedback Loops:** The strength of the gain of driving loops
- 6. **Information Flows:** The structure of who does and does not have access to information
- 5. **Rules:** Incentives, punishments, constraints
- 4. **Self-Organization:** The power to add, change, or evolve system structure
- 3. **Goals:** The purpose or function of the system
- 2. **Paradigms:** The mindset out of which the system—its goals, structure, rules, delays, parameters—arises.
- 1. **Transcending Paradigms**

UNDERSTANDING THE 10 Types of Innovation



10 Types of Innovation: The Art of Discovering a Breakthrough Product. [Visual Capitalist](#). July 1, 2020. based on Ten Types of Innovation: The Discipline of Building Breakthroughs. [Doblin-Monitor-Deloitte](#), April 2013.

Are you focusing on the right problem? Reality has a surprising amount of detail.



Those goddamn stairs.

[Reality has a surprising amount of detail.](#) John Salvatier, 2017.

What's the most important thing in building a flight of stairs?

Surprising details are *everywhere*.

Different people will see different details.

It's inevitable that we get stuck on details we know, and miss important details that we don't

Especially when we are trying to innovate, to do things differently.

How can you be confident about what you need to be right about?

Types of innovation uncertainties

Problem frame uncertainty: do you sufficiently understand the problem that you aim to solve, along with the factors that cause the problem? Problem frame uncertainty lowers your chance of designing a solution that goes to the root of an issue.

Solution uncertainty: are you able to access appropriate resources, expertise, and capacity, and to configure them in a way that yields a viable solution? Solution uncertainty lowers your chance of turning an idea into an effective innovation.

Adoption uncertainty: will people and partners in target communities accept your solutions? Adoption uncertainty lowers your chance that a solution – even one that “works” – will take hold.

Consequence uncertainty: does your solution run the risks of producing negative side effects? Consequence uncertainty lowers the chance that your innovation will produce positive impact, and may even threaten trust in you and your reputation.

Mission uncertainty: does your solution align with your sense of purpose? Mission uncertainty lowers the chance that your commitment will be strong enough to overcome setbacks and to persist through scaling.

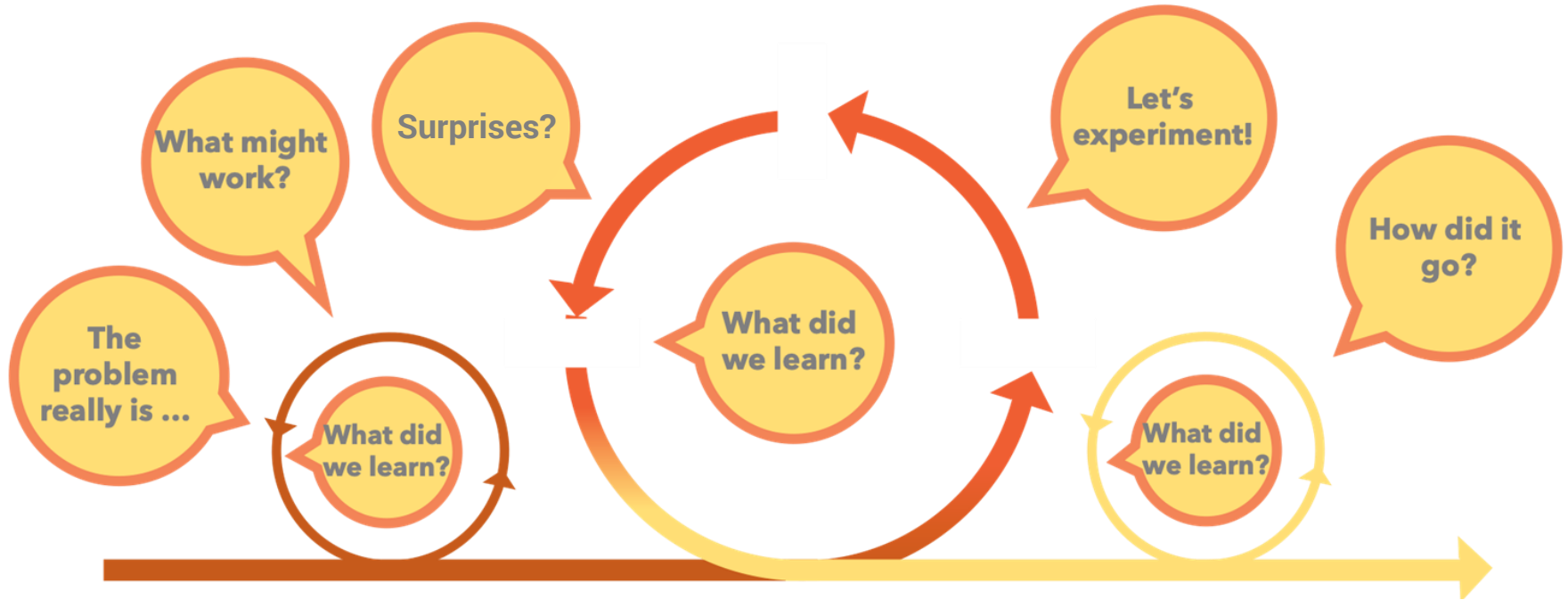
Managerial uncertainty: do you have the ability to oversee the innovation processes and execution? Managerial uncertainty lowers your chance of implementing and supporting your solution.

Focusing on solutions first may be more exciting and gratifying ...



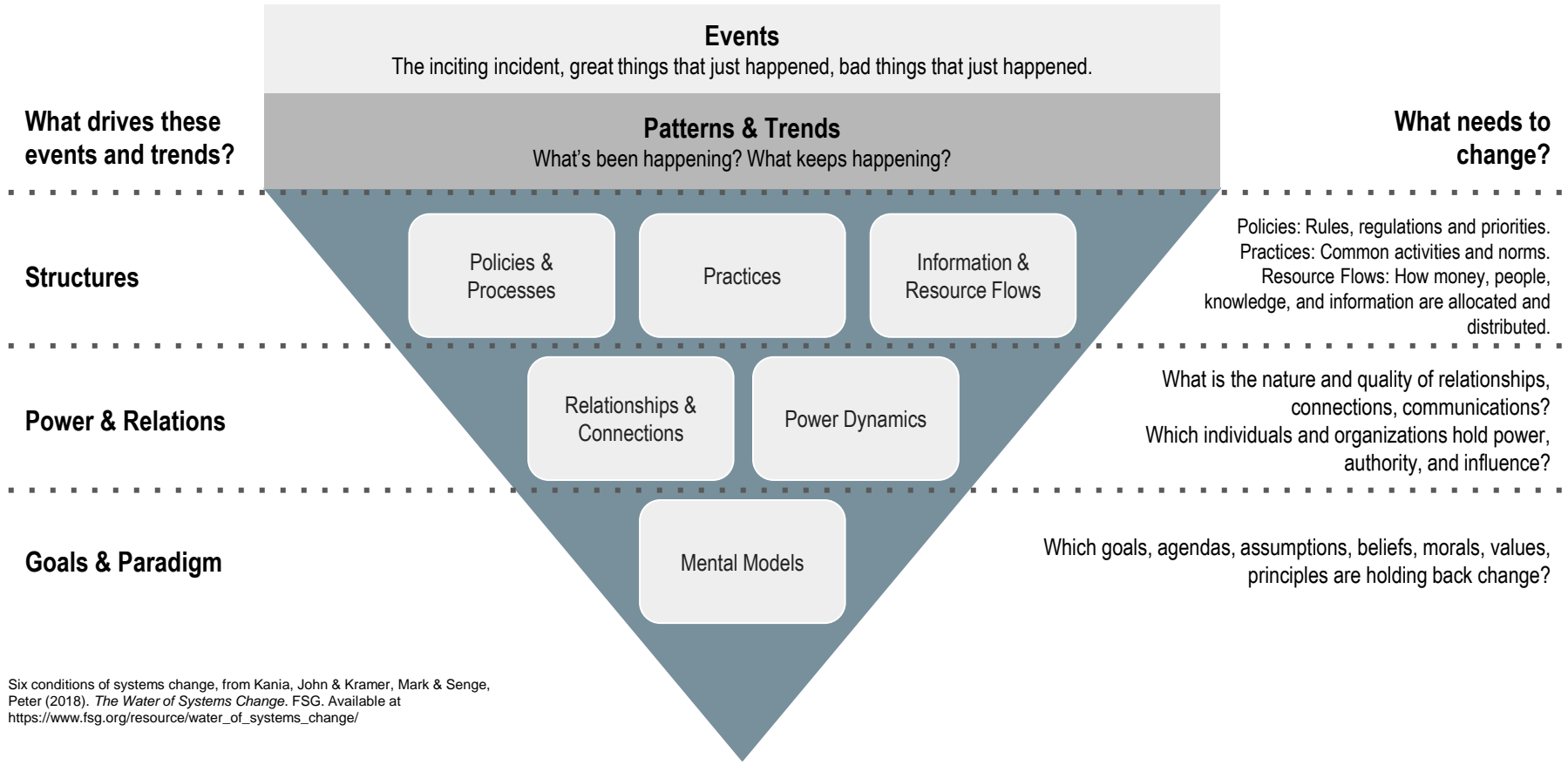
TALK .. MAKE .. THINK .. MAKE .. TALK ... TALK ... MAKE ... TALK ... MAKE ... PLAN ... PILOT

Testing problems that matters to your customers and partners

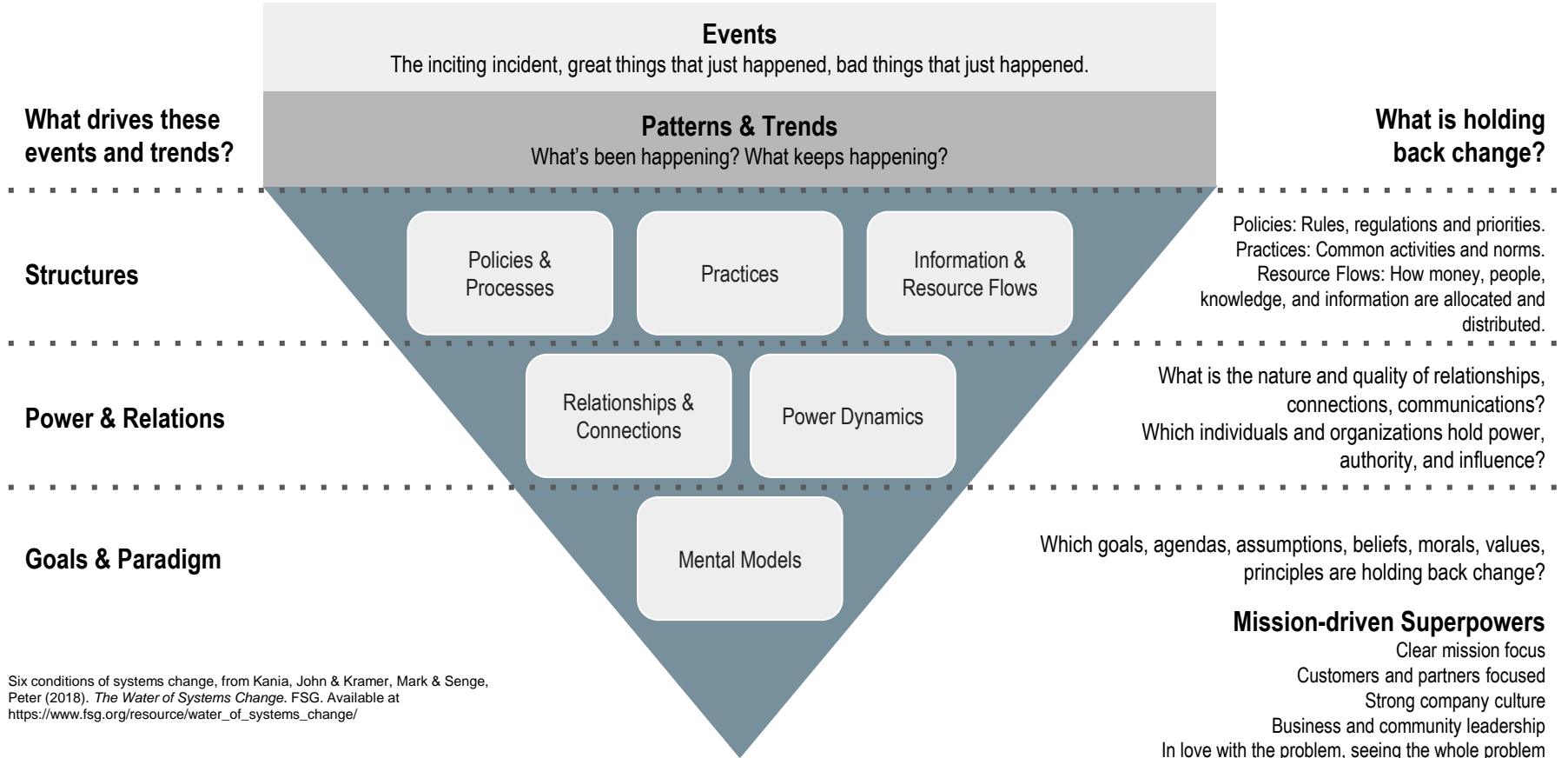


MVP

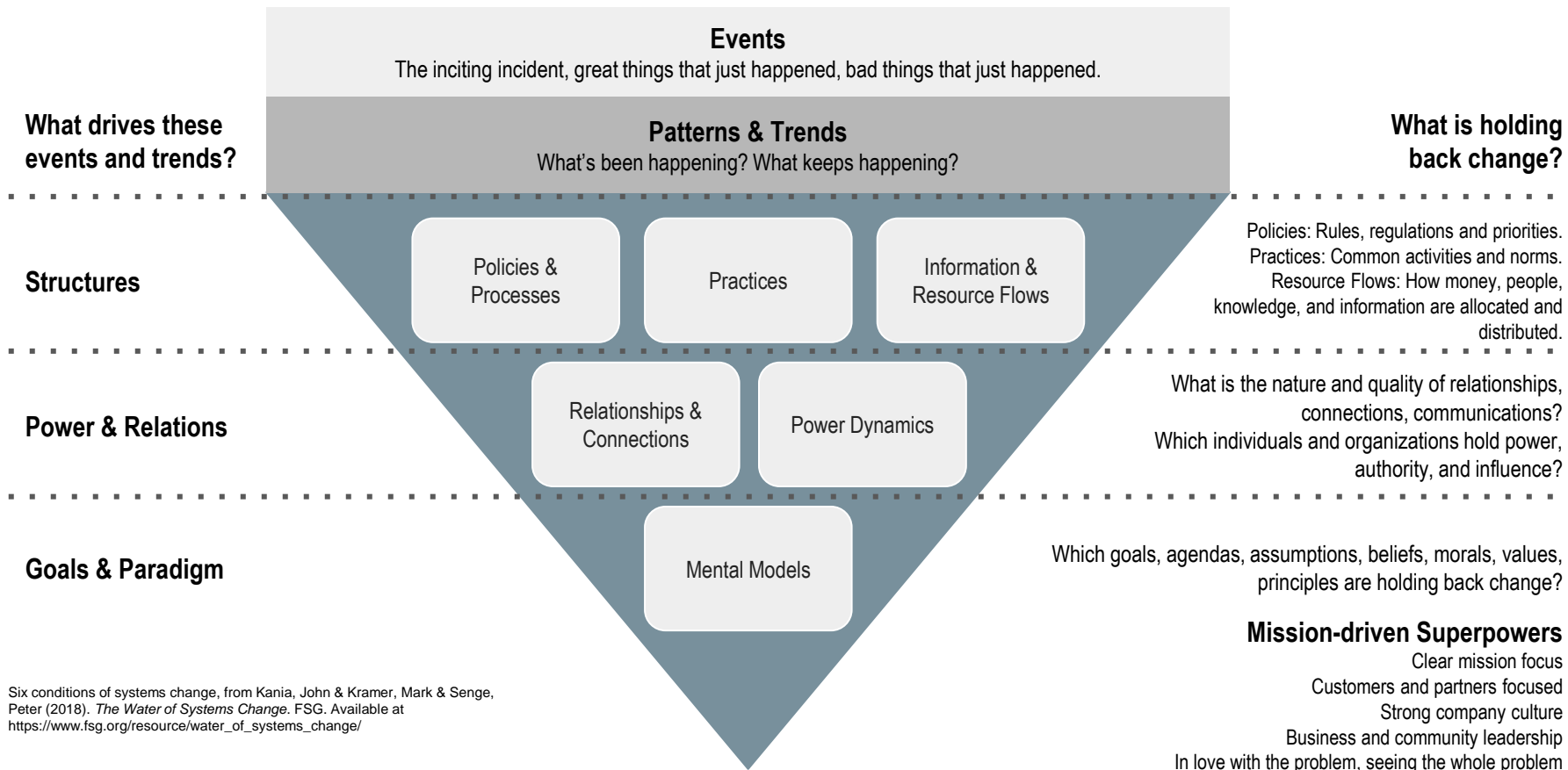
In 2030, when you achieve your mission, what will be different? Where and what would you have changed?



What/Where do you need to start changing? What would you need to be right about?



Who do you need to work with?



What would you add to your product strategy / theory of change

Ultimate goal / impact

- What will be different? Can you qualify or quantify the difference in a meaningful way?
- Which parts of the system will be different?

Short-term outcomes / pre-conditions

- Which parts in the system are holding back change?
- Which parts might hold back your mission growth and scale?
- Which parts are critical to your mission? What do you need to be right about?

Activities / Outputs

- How will you overcome the critical parts holding back change?
- What capabilities and capacities?
- Who else needs to be involved?

Additional considerations:

- What is the change that will be valued, tangible and meaningful for your
 - Users and customers
 - Partners
 - Stakeholders and others who will be impacted by the changes?
- How can your mission grow at the rate needed, to the scale needed, to effect change?
- What are the potential unintended consequences and backlashes?

Useful systems- and problems-based entrepreneurship resources

Articles and books

[Time To Burst Tech's Bubble: Systems Thinking In Tech](#)

[The Water of Systems Change - Peter Senge, Hal Hamilton & John Kania](#)

[Your Business Model Is a System And Why You Should Care - Ash Maurya](#)

[The Dawn of System Leadership - Peter Senge, Hal Hamilton & John Kania](#)

[The Fifth Discipline - Wikipedia](#)

[The Donella Meadows Project](#)

- [Dancing With Systems](#)
- [In A World of Systems](#)
- [Leverage Points: Places to Intervene in a System](#)

[The Systems Thinker](#)

[The Systems Bible - John Gall](#)

[The Quark and the Jaguar: Adventures in the Simple and the Complex - Murray Gell-Mann](#)

Tools

[Si Network Learning Resources](#)

[Systemic Design Toolkit](#)

[Iceberg systems mapping tool to identify leverage points for change](#)
[Think Jar Collective](#) - Think Jar Collective

[Systems Thinking Resources - The Donella Meadows Project](#)

[Kumu - organize complex data into relationship maps](#)

[Estuarine mapping](#) (strategy in complex environments) and [a trip into the estuary](#)

Communities and programs

[Si Network](#)

[The Cynefin Co.](#)

[Systemic Design Association](#)

[The Wolf Willow Institute](#)

[Human-Centered Systems Thinking - IDEO U Course](#)

Prototyping 101

“

It doesn't make any difference how beautiful your guess is. If it disagrees with experiment, it's wrong.



Richard Feynman. The Character of Physical Law (1965)

The Design Squiggle

Noise / Uncertainty / Patterns / Insights

Clarity / Focus

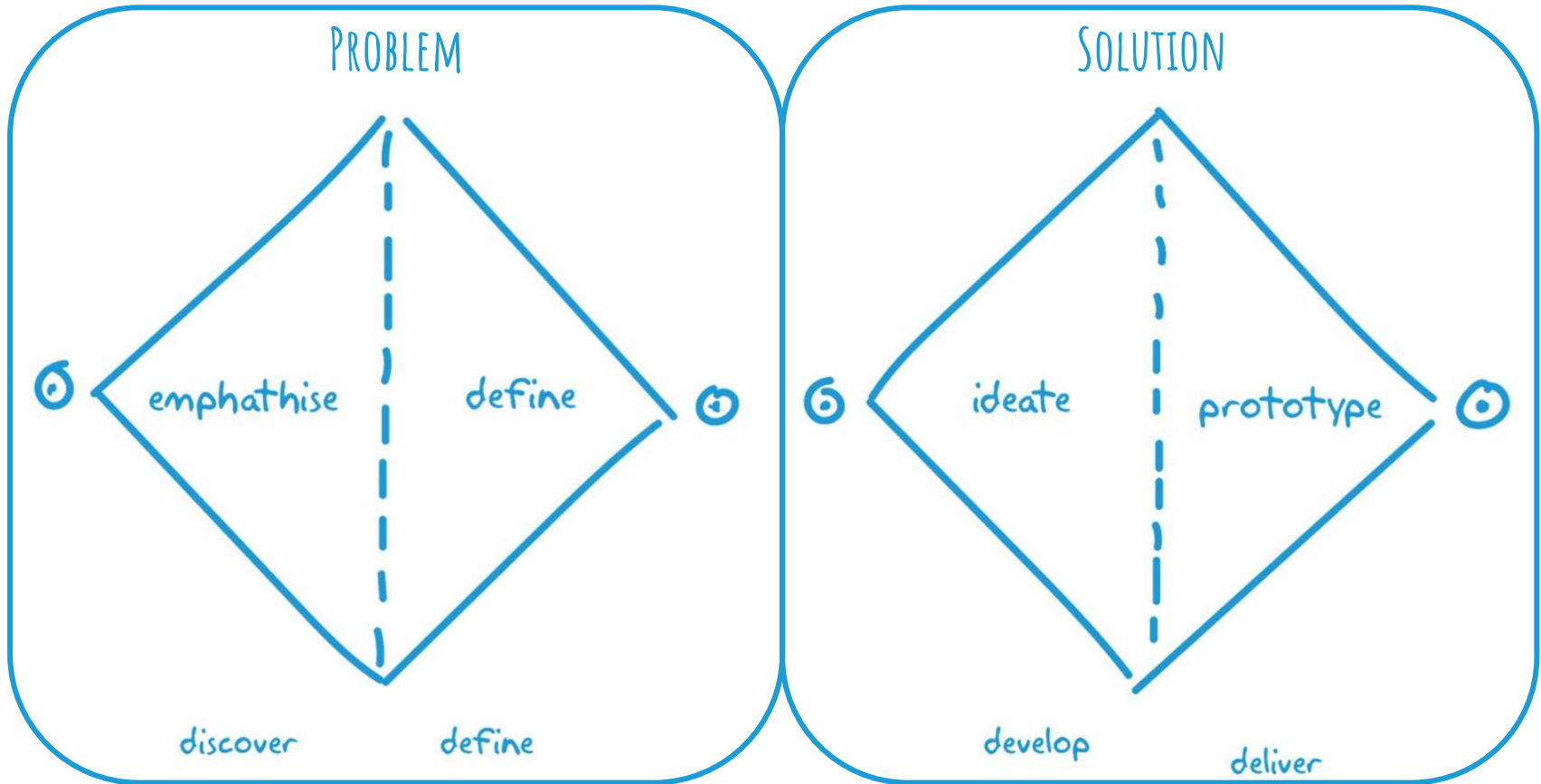


Research & Synthesis

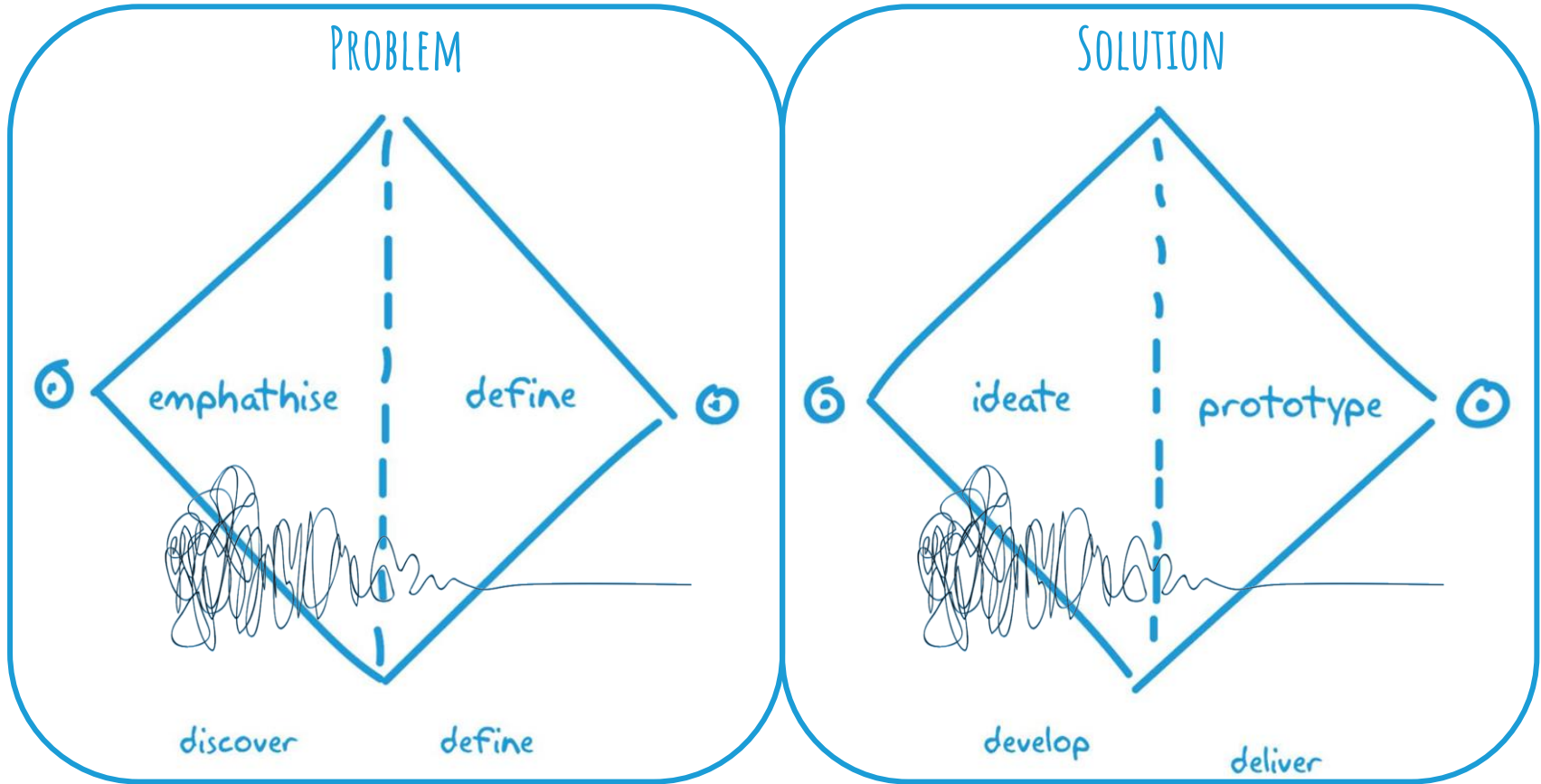
Concept / Prototype

Design

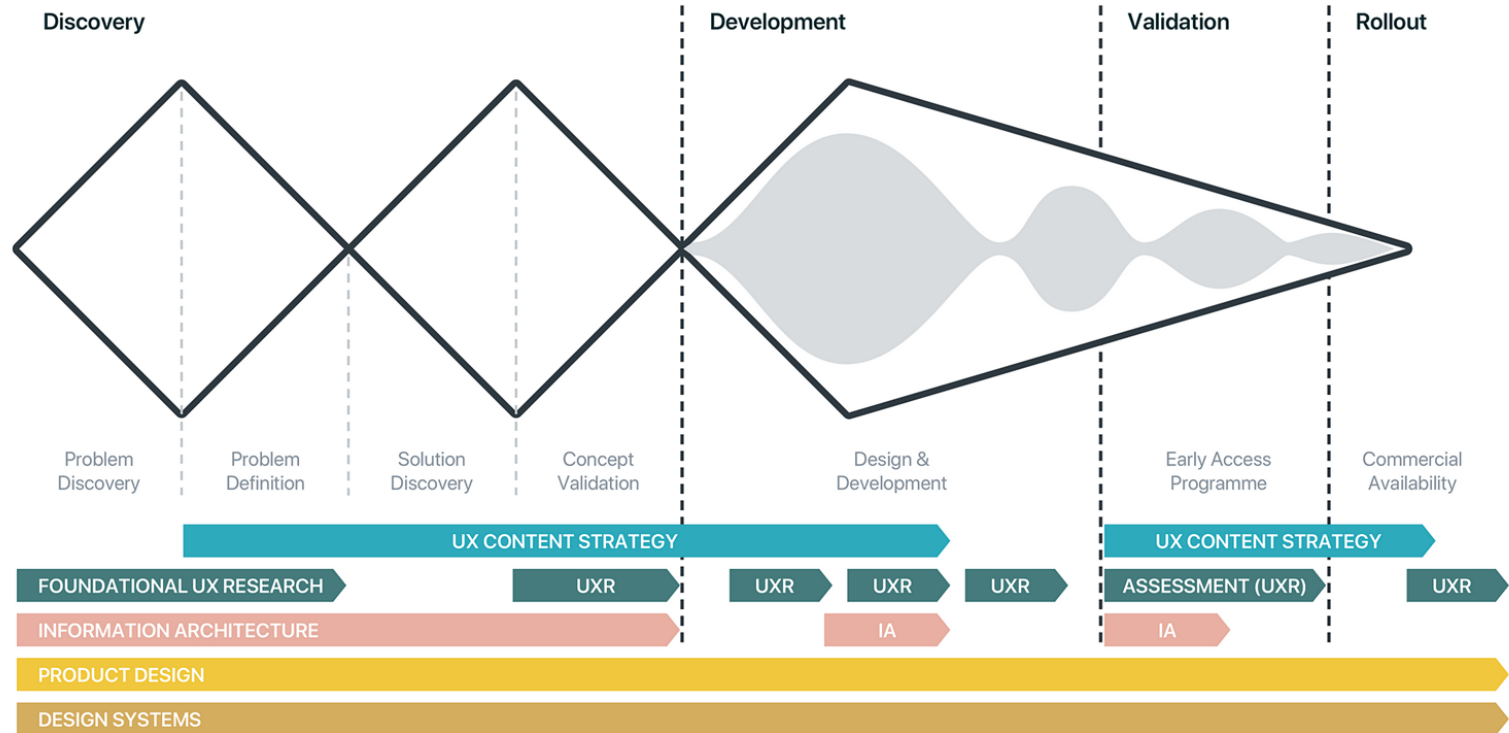
The Design Double Diamond



Design Is About Evidence Informed Inspiration + Thoughtful Iteration



Real World Design and Development



Zendesk Triple Diamond

By Mike Chen, Kim Lenox & Jennifer Chang

Why live / prototyping

We have little time and little resources to create and test alternatives

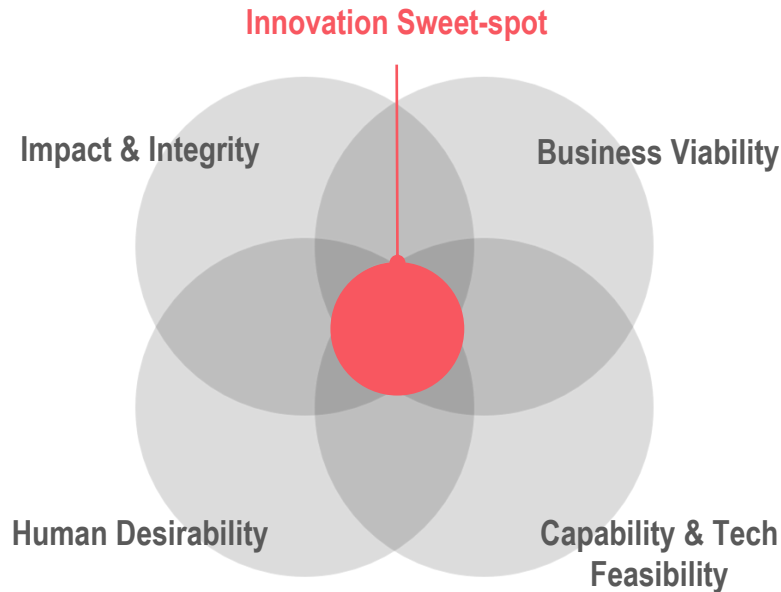
- Only one chance to get it right
- Not enough information / confirmation
- Need to get it perfect
- Try to maintain outcomes
- Need to manage risks: either adopt proven alternatives, or run a one-off pilot to show what works

Creating alternatives solutions is easier if we learn along the way

- Anticipate, not guess behavior
- Realize assumptions we've made
- Dispel fear, uncertainty, doubts
- Build engagement, conviction and evidence
- Manage risks
- Address unique features and circumstances

Why prototype?

People are almost always **right** about what they need.
People are almost always **wrong** about how, and
sometimes even why they need it
Finding the sweet spot requires multiple trials and
errors



A prototype is

- One way of experimenting
- Early best guess(es) at how to make long-lasting change that evolves through learning
- Intentionally small and focused experiments
- Aimed at understanding a bigger pattern (e.g., issue)

A prototype should

- Be relevant: they answer key questions and address learning goals
- Be credible: they are considered legitimate to people using the data
- Focus: on critical assumptions and uncertainties, e.g. on 20% of the functions used 80% of the time
- Have appropriate increasing 'burden of proof' at each iteration - concepts can be "validated" by gut reactions from a few key users; a live prototype would need to pass specific tests; pilots need to demonstrate success with rigorous and robust evidence
- Produce timely data: made available in real time, as soon as possible, to advance learning

Prototyping Principles

With users

Show, don't tell

Tackle the hard questions

Aim for maximal learning

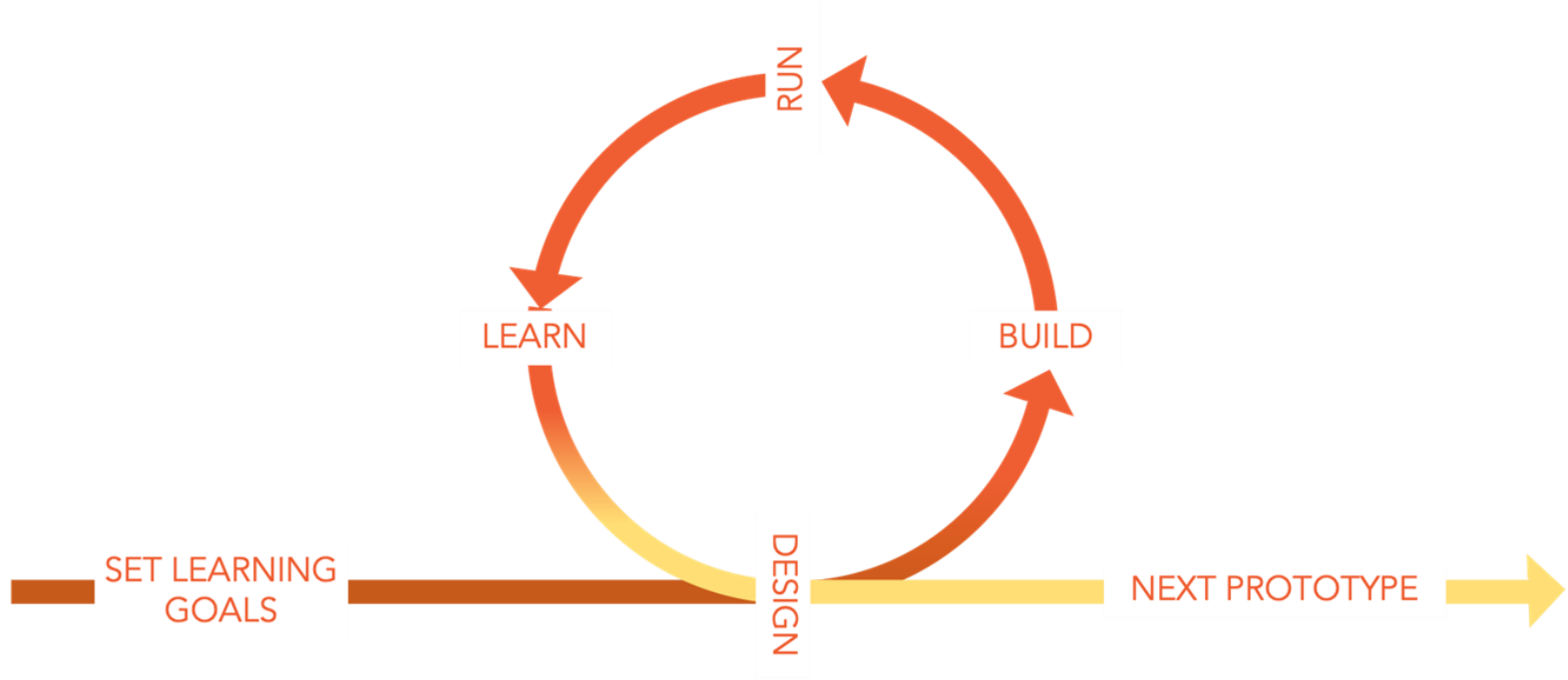
Run minimal, rapid iterations

Towards full fidelity

Show, don't tell.

If you are explaining
your prototype, you're
doing it wrong.

Live / prototyping cycles



Set learning goals

What are you trying to learn?

- Most difficult to explain or hard to comprehend
- Biggest unknowns
- Most unique features or circumstances
- Riskiest assumptions

How will the data help you learn?

- Signaling
- Focusing
- Approximating
- Validating
- Invalidating

Tiny tests

Find a quick and easy way to test your assumptions ...



TEST IT FOR A SHORT AMOUNT OF TIME

Impossible to do? Ok, but how about for a day? An hour? A week?



PROVOKE A REACTION

Find a way to "pass the ball" to someone and see if they will play ball back.



KEEP TRACK OF SOMETHING

What can you track that might reveal hidden insights and create change?



FIND WHAT'S IN THE BACK OF YOUR FRIDGE

What resources do you have hidden away that could be put to use?



A DAY IN THE LIFE OF...

Follow someone for a work day, or have them write a diary of how their day is.



STIR THE SURFACE

Make a change to something superficial, like badges, uniforms or how you greet users. Sometimes stirring the surface can reveal what's underneath.



ROLE PLAY IT!

I'll be the ___ and you can be the ___!
Enact different roles and discuss afterwards!



OBSERVE BEHAVIOURS

How do people ___ when ___?
And do they always ___ when they ___?



SWITCH YOUR HATS

Switch roles! Defend the opposite opinion! Mix things up! Think like you think someone else would think!



SHOW THE WATER TO THE FISH

Sometimes another perspective can reveal the hidden obvious.



TRY AN UNLIKELY COLLABORATION

Make a list of actors and see if you can find interesting combinations that spark ideas and curiosity!



TEST THE BARRIERS

Go out of the comfort zone, perhaps perceived barriers are more flexible than they seem?

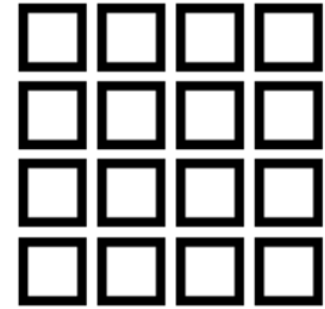
FIDELITY



LOFI PROTOTYPE



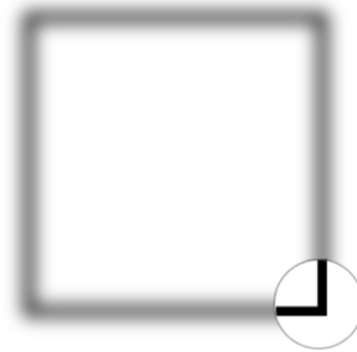
HIFI PROTOTYPE



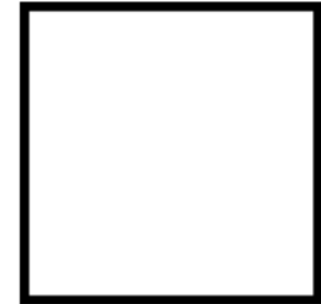
PRODUCT OF MANY



LOFI PROTOTYPE



HIFI PROTOTYPE



PRODUCT OF ONE

Fidelity is how closely a prototype resembles the complete and final alternative or solution



Low Fidelity

LOOK AND FEEL



High Fidelity



Low Fidelity

INTERACTIVITY
&
FUNCTIONALITY



High Fidelity



Low Fidelity

SUBSTANCE



High Fidelity

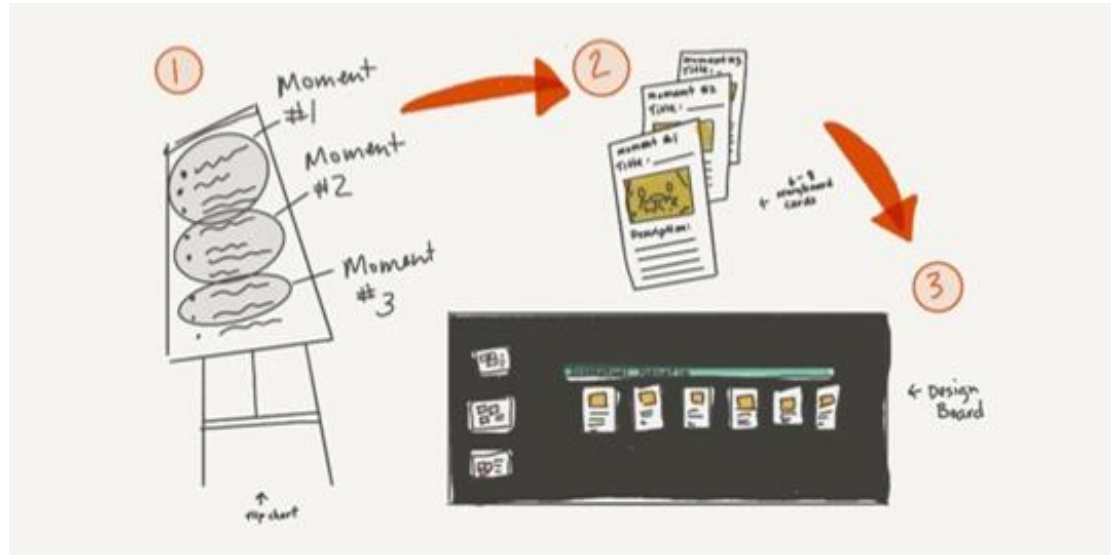
The best prototype is the one that helps you learn what you need to learn to get ahead

	Idea	Rapid Prototype	Live / Field Prototype	MVP (Minimum Viable Product)	Pilot	Scale / Institutionalize
Why	Surface new ideas	Make the idea tangible to test; improve the core value and how compelling it is	Test the idea in the field to surface real-world challenges and opportunities	Test the implementation of the idea with just enough features to attract users and stakeholders	A full, robust, longer term test and validation of the complete idea to build robust evidence	Further prototyping to help decide to adopt, scale, or let go of an idea
What to test	<ul style="list-style-type: none"> • Core Concept • Impact – what is the change, why is it important 	<ul style="list-style-type: none"> • Impact and user / stakeholder value proposition – is it really important to them? • User/Stakeholder experience – will they like using it? 	<ul style="list-style-type: none"> • Impact and user / stakeholder value proposition • User / stakeholder desirability • Operational and tech feasibility • Business / program model viability and sustainability 	<ul style="list-style-type: none"> • Impact and user / stakeholder value proposition • User / stakeholder desirability • Operational and tech feasibility • Business / program model viability and sustainability 	<ul style="list-style-type: none"> • Impact and outcomes • User / stakeholder desirability • Operational and tech feasibility • Business / program model viability and sustainability 	<ul style="list-style-type: none"> • Societal impact and outcomes • Broad user / stakeholder desirability • Growth operational and tech feasibility • Business / program growth viability and sustainability • Partnerships and networks
	Low Fidelity ☐					☐ High Fidelity
How to test	<ul style="list-style-type: none"> • Concept Paper • Presentations • Posters 	<ul style="list-style-type: none"> • Story Boards • Walk Throughs • Scaled models • Paper / Lego mock-ups • Role Play • Life-sized Mock-ups • Wizard of Oz • Virtual simulations 	<ul style="list-style-type: none"> • Wireframes (for digital solutions) • Live simulations with real-world data • Sandboxed implementation • Working demo of parts of the solution 	<ul style="list-style-type: none"> • Alpha / Beta implementation • Free trials 	<ul style="list-style-type: none"> • Pilot projects • Demonstration projects • Randomized control trials 	<ul style="list-style-type: none"> • Business model validation • Informal adoption of policies, regulations • Policy/regulatory sandboxes

Example: Paper Mock-ups



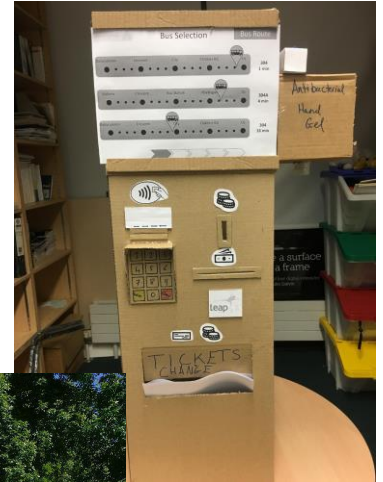
Example: Storyboard



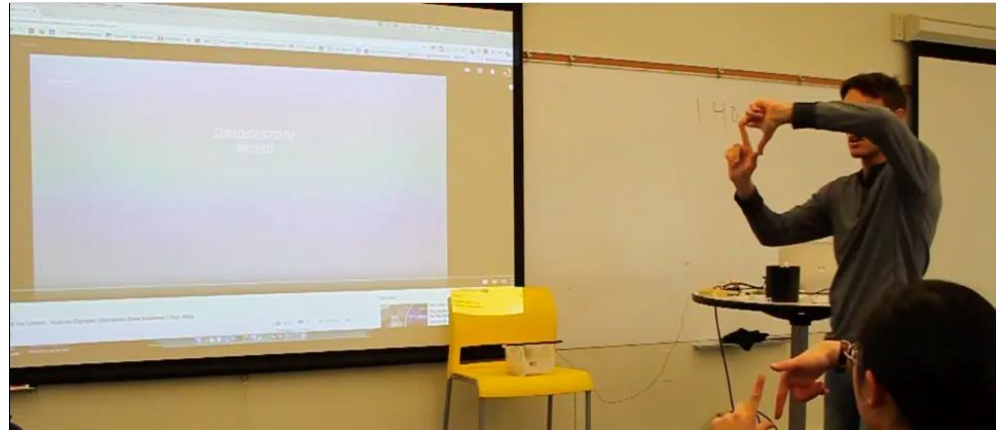
Example: Tabletop Walkthroughs



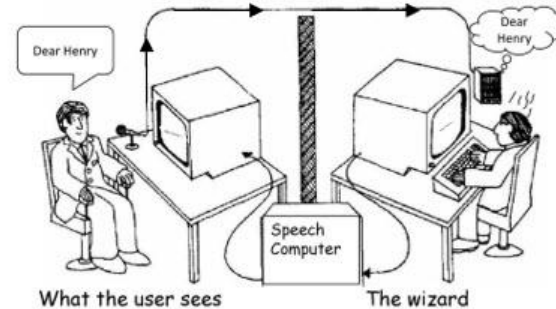
Example: Life-Sized Mockup



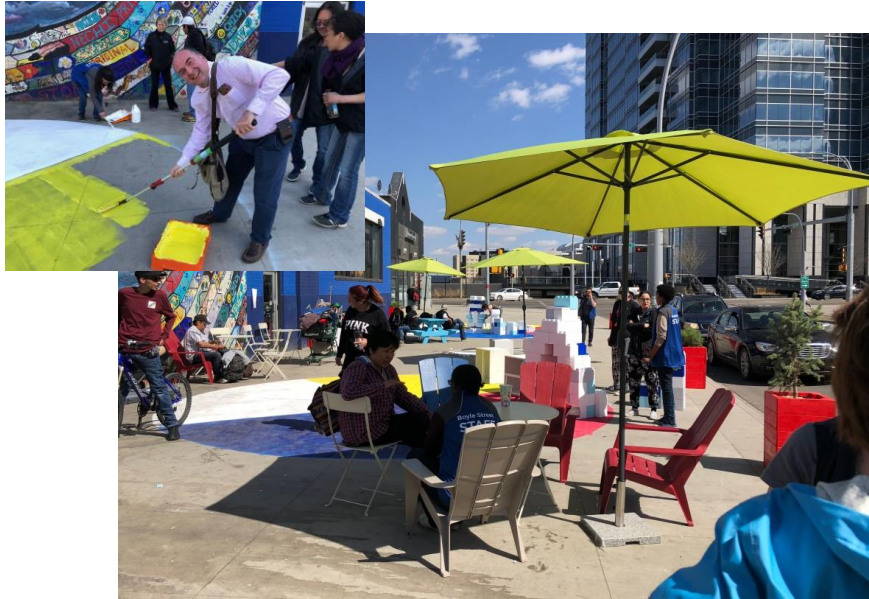
Example: Wizard-Of-Oz



Wizard of Oz testing – The listening type writer IBM 1984



Example: Field (Live) Prototype



The collage consists of eight photographs documenting the 'Opportunity for All Youth' hiring event. The photos show various aspects of the event: a floor plan of the venue, a Walmart 'Now Hiring' banner, a group of people sitting at a table, a close-up of a hiring event sign for Walmart, a person working at a table, a group of people sitting at a table, a person working at a table, and a group of people sitting at a table.

Prototype focus: assumptions, uncertainties, and learning goals

What if ...

What is your idea, your hypothesis?
Who benefits?

Assumptions:

What must be true, or your idea will fail?

Uncertainties:

What do you need to know more about, or your idea will fail?

Learning goals:

What do you need to learn (see above). What information or insights do you need to collect? How will it help you?

Ideas for prototypes:

1. What is the quickest thing/test you can do to achieve your learning goal(s)?
2. What is the cheapest thing/test you can do to achieve your learning goal(s)?
3. What is the most valuable thing/test you can do help you learn the most?

Pick one and start!

Prototype Planning

Prototype:

Describe the prototype that will help you achieve your learning goal.

Data and insights:

What does success look like? How will you get and use the data and insights? How will they help you improve the idea, the next version?

Risks:

What could go wrong? How will you prevent them? What will happen if things do go wrong? How will you manage the aftermath?

Describe 5 key steps:

- 1.
- 2.
- 3.
- 4.
- 5.

What do you need?

E.g., time, materials, help, permission, budget

Prioritizing prototypes with the Kano Model

Performance Pay-offs

Basic Expectations

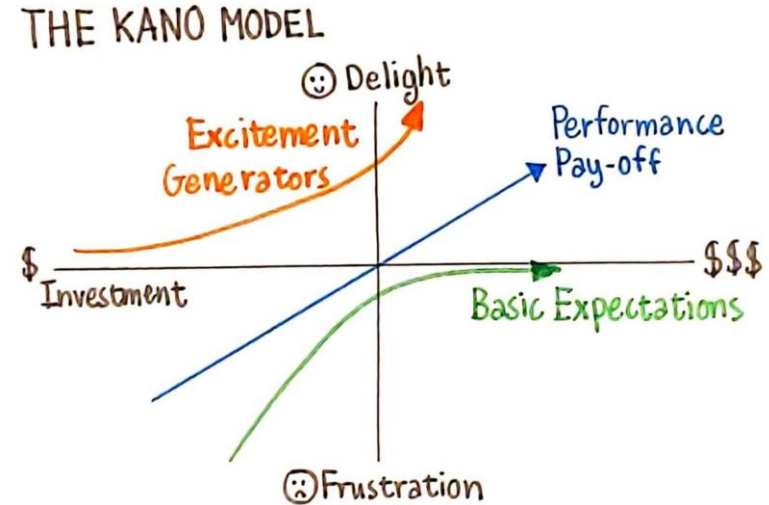
Excitement Generators

3 approaches to creating Delighters: Pleasure, Flow, and Meaning.

Pleasure: Exceeding user's expectations (does not need to be expensive!). This can be done through simple methods such as using clean language or understanding what people's questions are and having information to answer those questions.

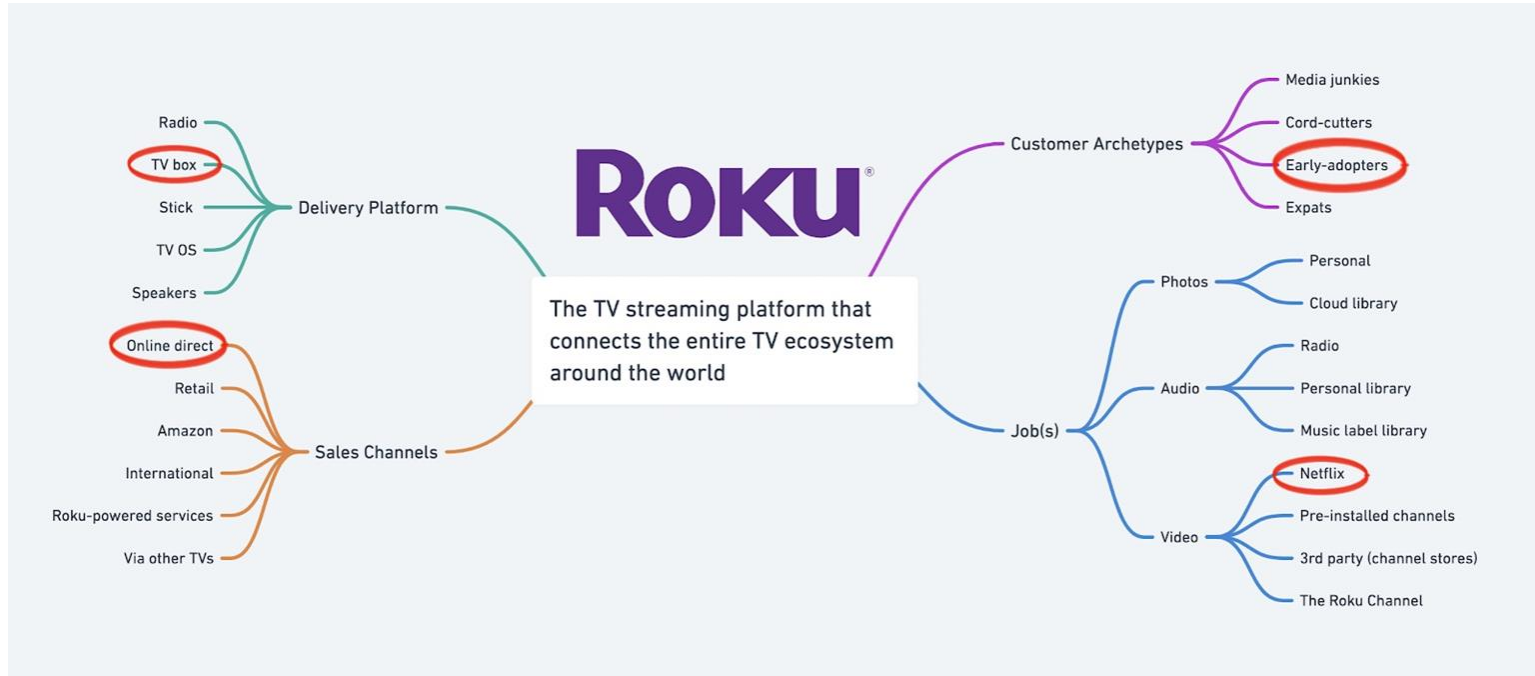
Flow: Making things faster, simpler by reducing the number of steps for the user to complete a task. (Removing friction)

Meaning: Building something into the product that allows them to make somebody else delightful. For example: TOMS- When you buy a pair of shoes, they also give a pair to underprivileged children in developing countries.



Learn more about using the Kano Model: <https://uxdesign.cc/choosing-the-right-features-with-kano-model-cc0274b6a83>

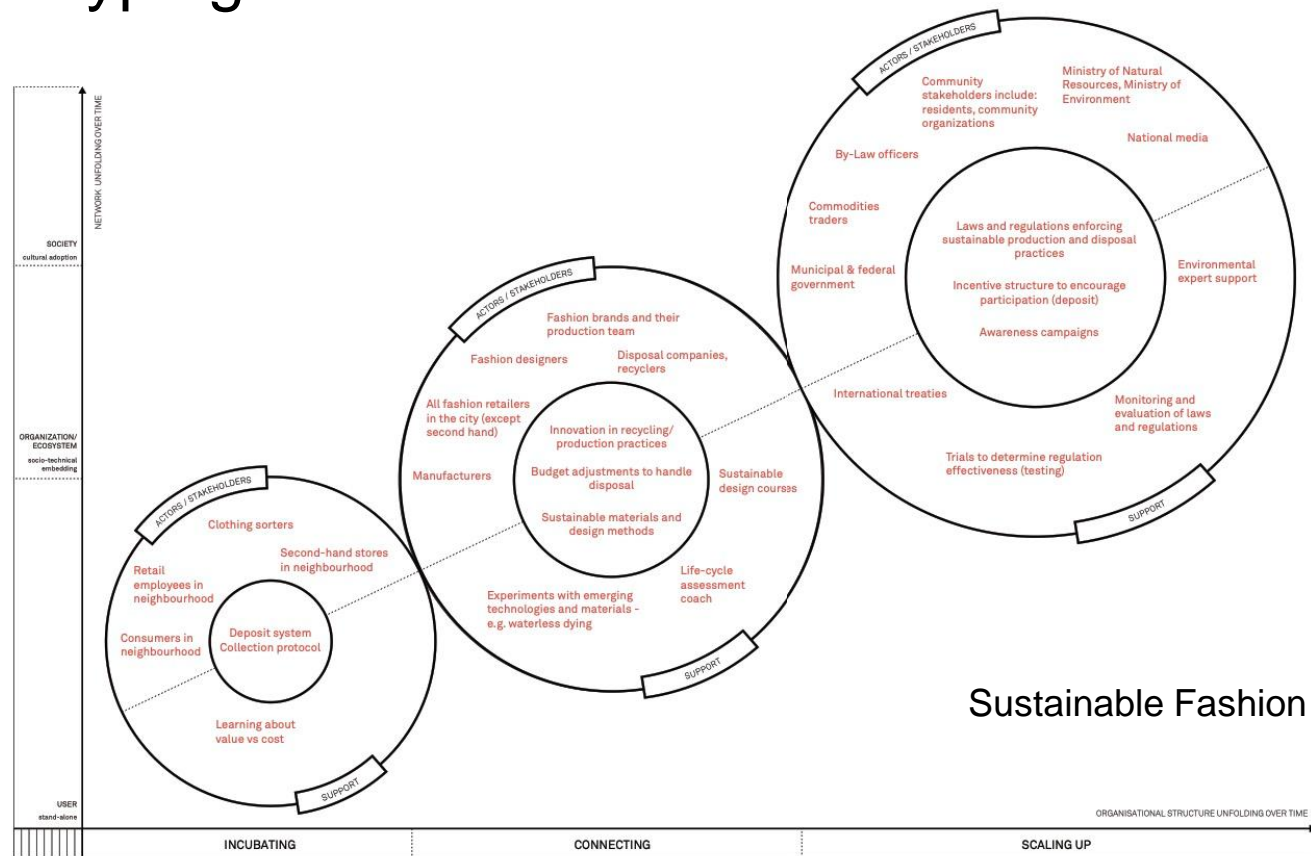
Prioritizing prototypes with an MVP Tree



The Secret to Cracking the Minimum Viable Product? Pick a leaf from your MVP Tree. Menlo Ventures, 2021.

Available at <https://menloventures.medium.com/the-secret-to-cracking-the-minimum-viable-product-pick-a-leaf-from-your-mvp-tree-960c00f28173>

Prototyping to scale



Create a storyboard with different scenes



Put together some simple screenshots



Create a moodboard or vision board



Build a 3D model



Create a sample landing page

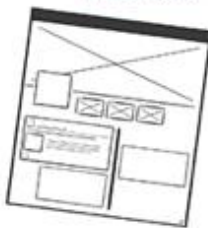
NO MORE EXCUSES
JUST BUILD IT.

GETTING STARTED WITH LOW-FIDELITY PROTOTYPING



Build it with blocks

Draw a wireframe



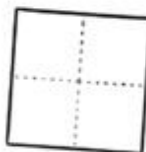
Lay out your ideas on a board with sticky notes



Create a fake ad for your product

Draw it out on a whiteboard

Build a cardboard 2D model



Sketch it out



ALL RIGHTS RESERVED. Laura Bunche. Used Julian Burford's 430+ Free storyboard illustrations.

Source: [The Skeptic's Guide To Low-Fidelity Prototyping](#), Smashing Magazine 2014.