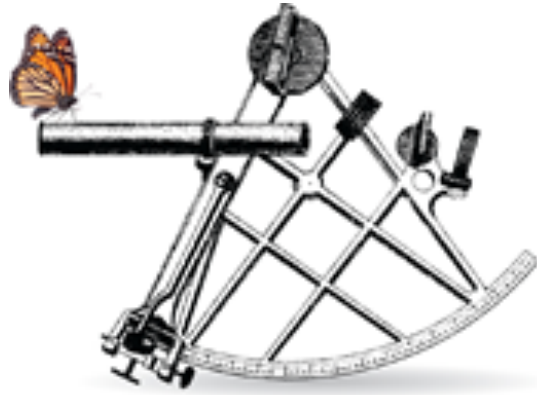




**Small Bets Before Big Bets: A
Framework to Evaluate Prototypes
& Fast Experiments**

Mark Cabaj, September 27, 2017



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**THERE IS NO
INNOVATION
WITHOUT
EXPERIMENTATION**

Principles

1. Small bets before big bets.
2. “Safe to Fail” rather than “Fail Safe” bets.
3. Emphasis on rapid development, testing and adaptation.

Success =

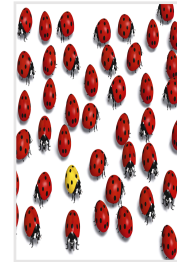
Volume & Quality of Learning + Data Base Decisions
Pace + Cost of Testing



Methods



Continuous Improvement (e.g. Six Sigma, TQM, PDSA)



Positive Deviance



Replication (e.g., adaptive replication)



Prototyping
(e.g. Lean Experimentation)

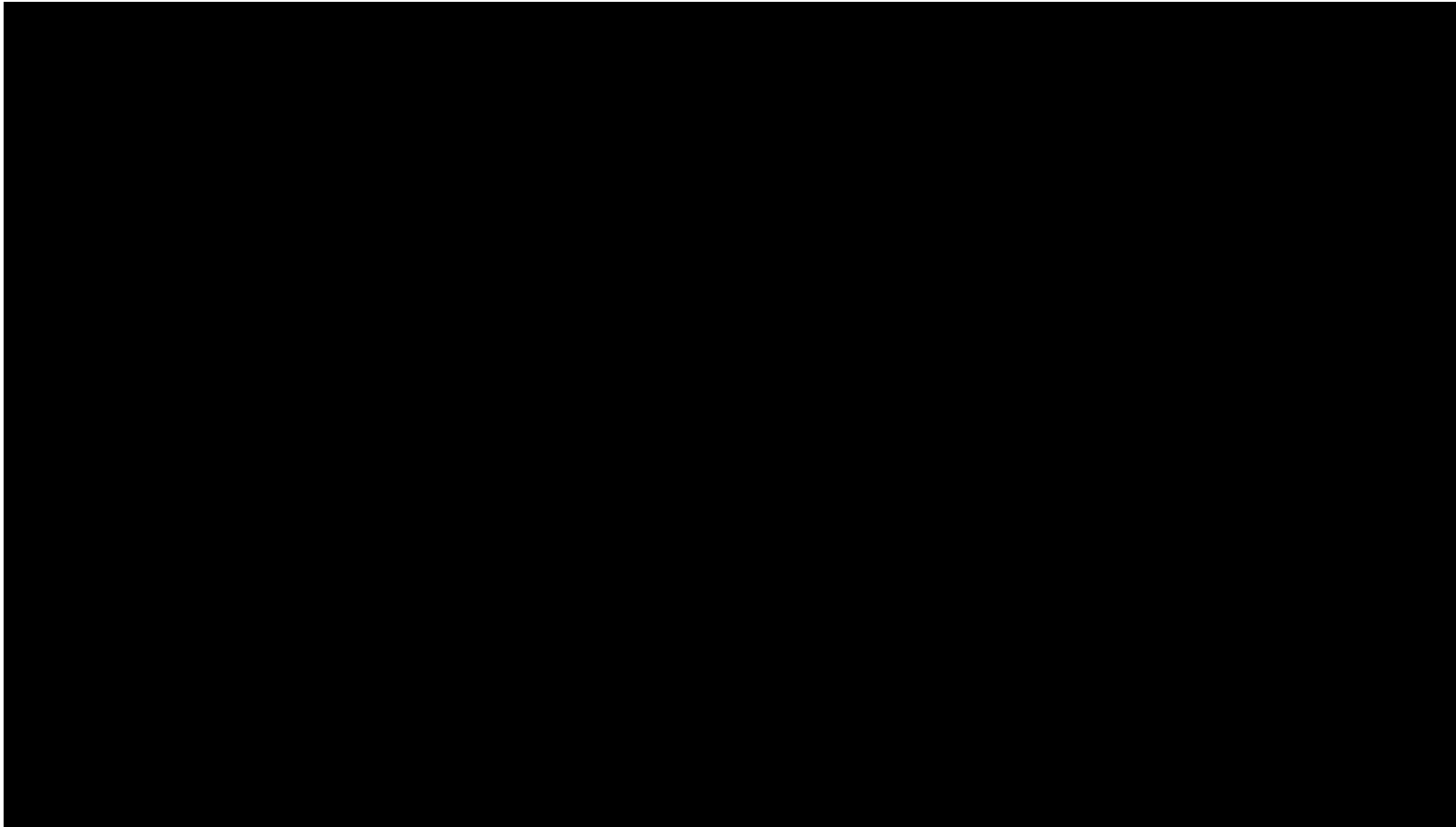


Rapid Results Process
(e.g., 100 Day Campaign)



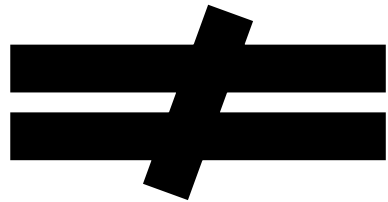
Adaptive Action Cycle
(What, now what, so what?)

An Example



Definitions

Prototypes



validate or prove an idea or intervention

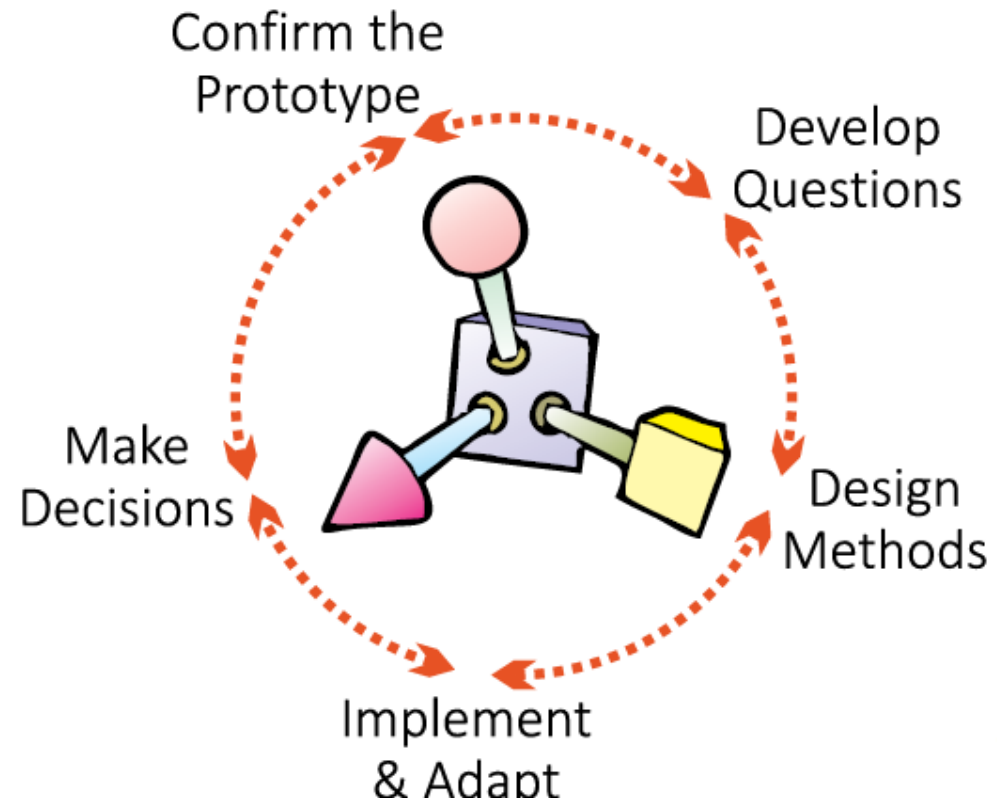
Prototypes



quickly & inexpensively test merit of an idea, generate new insights into challenges, and make decisions on next steps

The Five Steps

Evaluating Prototypes – An Iterative Process



Step 1: Confirm the Prototype



Members of a management team use lego to create multiple rough prototypes of a business process



The urbanistas at the Urban Block Foundation create a temporary “European” block of trees, cafes and bike lanes in an industrial neighborhood in Dallas to engage residents in a conversation about urban design.



An independent inventor creates a small-scale wind turbine to demonstrate how home owners can create their own micro-generator.

Continuum of Prototypes

IDEA	RAPID PROTOTYPE	FIELD PROTOTYPE	PILOT	DECISION
<i>Surfacing new ideas</i>	<i>Making ideas tangible</i>	<i>Testing the “manifestations” of an idea in the field</i>	<i>A full, robust, longer term test of the idea</i>	<i>A decision to adopt, scale, or let go of an idea</i>

- Concept Paper
- Presentations

- Story Boards
- Client walk through
- Role playing
- Lego or paper
- Simulations

- Simulations
- Working samples of all or parts of new model

- Pilot projects
- Demonstration projects
- Trials

- (In)formal adoption of policies, regulation, technologies, practices and behaviors that survive the earlier phases.

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Example from the Better Block Foundation’s Work on Urbanizing Forgotten Dallas Neighborhoods (www.betterblock.org)

The group surfaces ideas on how to make Dallas neighborhood more vibrant.

The group sketches out what ideas might look like through vignettes and diagrams.

The group creates a mock up block with trees, bike lanes, cross walks, patios and stories in forgotten neighborhood.

The group elects to carry out more in-depth experiments on key prototypes.

City Council change a score of “anti-street life” regulations, the community introduced bike path, and local entrepreneur opened business

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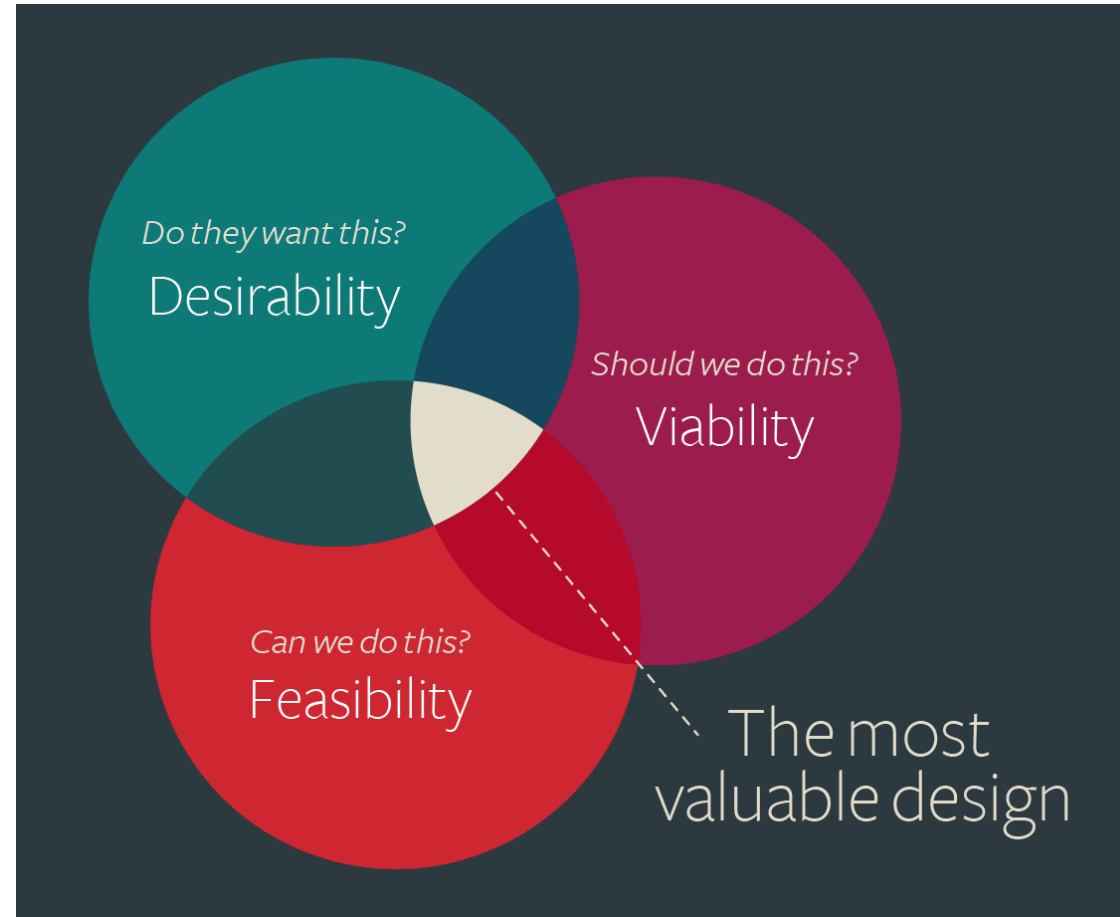
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City Council change a score of "anti-street life" regulations, the community introduced bike path, and local entrepreneur opened business based on prototype mock up.



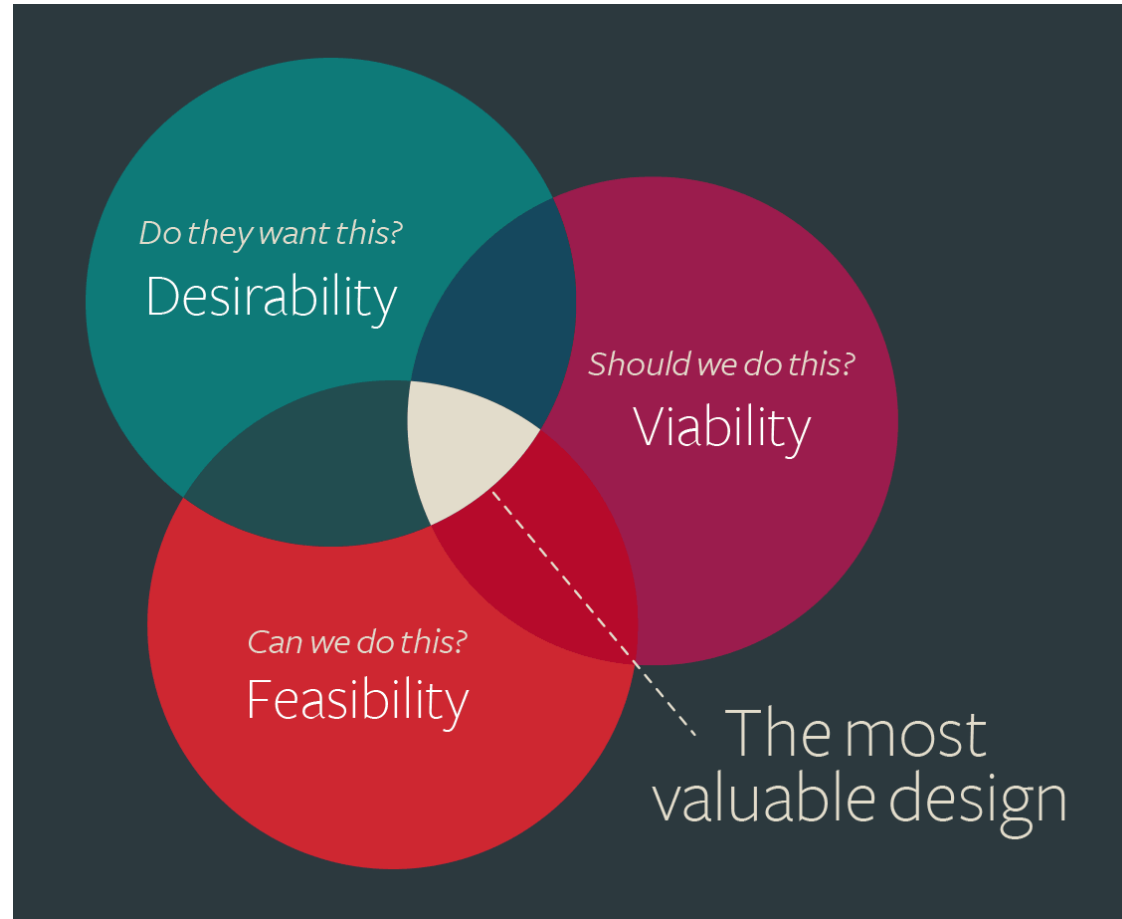
Step 2: Develop Questions




Sample Questions

	Question	Example
The Prototype	To what extent is this prototype likely to be effective in achieving what we want to achieve?	People agree that the only way that this thing would work is if we put it on a third story or higher.
	To what extent is this prototype likely to generate unintended effects (both positive and negative)?	The devices are sufficiently large that they might interfere with power-lines in older residential neighborhoods, which are typically quite low.
	To what extent is this prototype likely to be feasible in the real world?	These devices are easy to build and they seem as easy to set up as satellite dishes.
	To what extent is this prototype likely to be viable in the current context (economic, political, social, etc.)?	There appears to be very little in the way of municipal regulation of this type of technology: it's a pretty grey area, which may or may not work in our favour.
	To what extent is this prototype likely to be supported by key stakeholders?	We did not test this in any meaningful way – we should do so in our next iteration and round of testing.
	To what extent is this prototype scalable for bigger impact?	The executive director of a large environmental organization estimates there is potential for 50% market penetration in the city: let's consider doing a market analysis.
The Challenge	What are we learning about the challenge we are trying to address?	A lot of the people we talked to said that they were looking for ways for homeowners to get involved in micro-generation in general, not just this windmill. We now have three new ideas for micro-generation.
	What are we learning about the broader context and/or systems in which our challenge and opportunity are embedded?	Local community leagues have a lot of influence with City Hall. We should consider engaging them if we choose to develop the next prototype.
The Team	What did we learn about the capacity of our innovation team?	Boy, our team is more risk adverse than I thought: we were really nervous about developing this idea.
	What has changed in the working relationship amongst our team members?	Everyone on the team agreed that we worked well together and that we should consider doing some new prototypes together.

Step 3: Design Methods



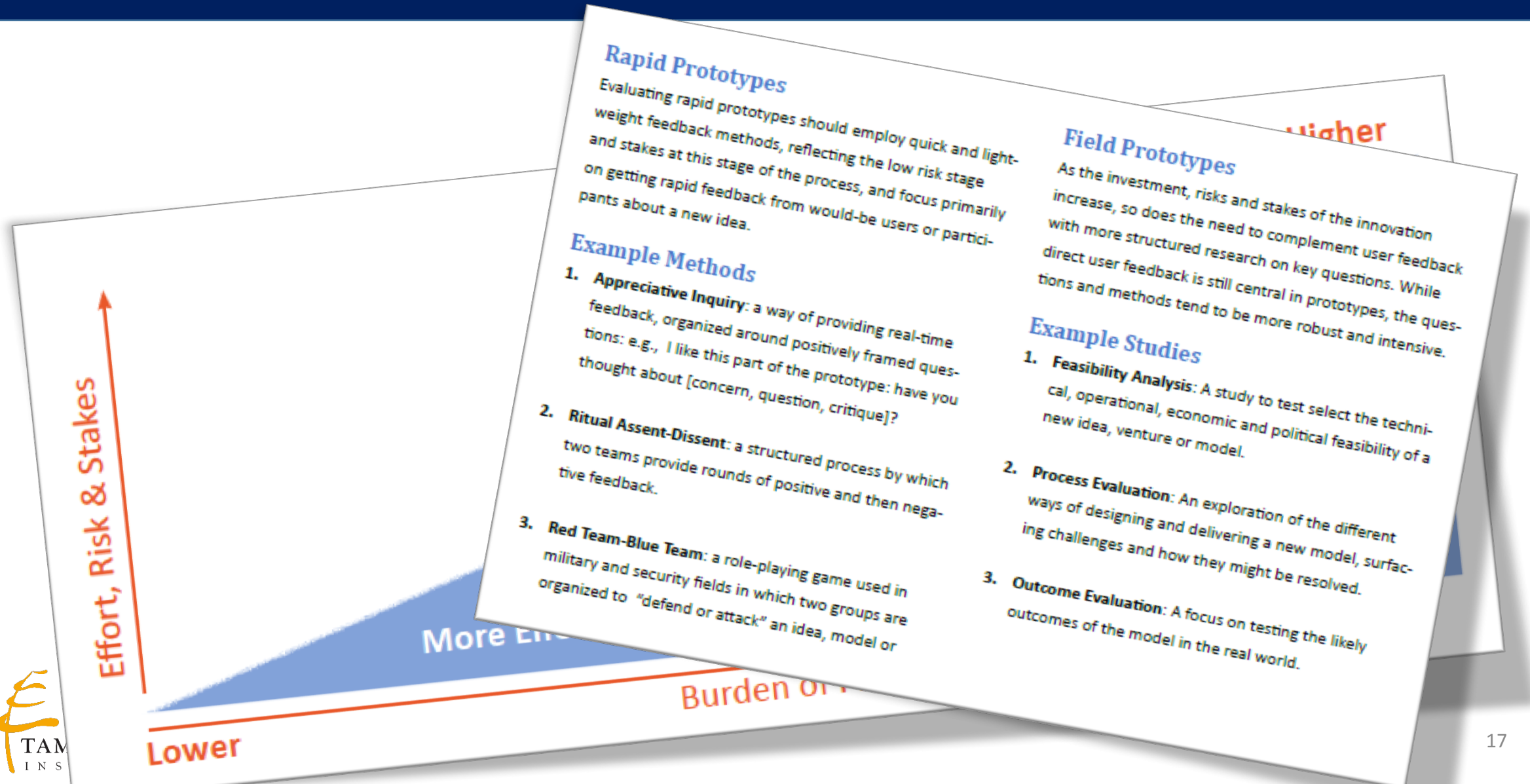
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1. **Relevant.** The methods must be designed to answer the key questions of the prototype team.
 2. **Credible.** The evaluation design should be considered legitimate by the people using the evaluation feedback. (For example, social innovators may feel that feedback from engineers on a new carbon-capture technology is more appropriate than the opinions of municipal administrators.)
 3. **Appropriate burden of Proof.** The methods should generate data that meets an appropriate burden of proof. For example, the burden of proof in an exploratory prototype is much lower than in a pilot project where the stakes and risks are higher. (See next page for more details.)
 4. **Quality.** The evaluation design should meet the basic quality standards of the Canadian Evaluation Society.
 5. **Timely.** The results of the assessment should be made available in 'real time,' that is, provided in such a way that social innovators can incorporate the feedback into their decisions about the next steps for the prototype.

Social innovators might be able to draw on these principles to craft evaluations on their own – particularly for evaluating rapid prototypes. For prototypes that require a more sophisticated design, they may require the support of an evaluator.

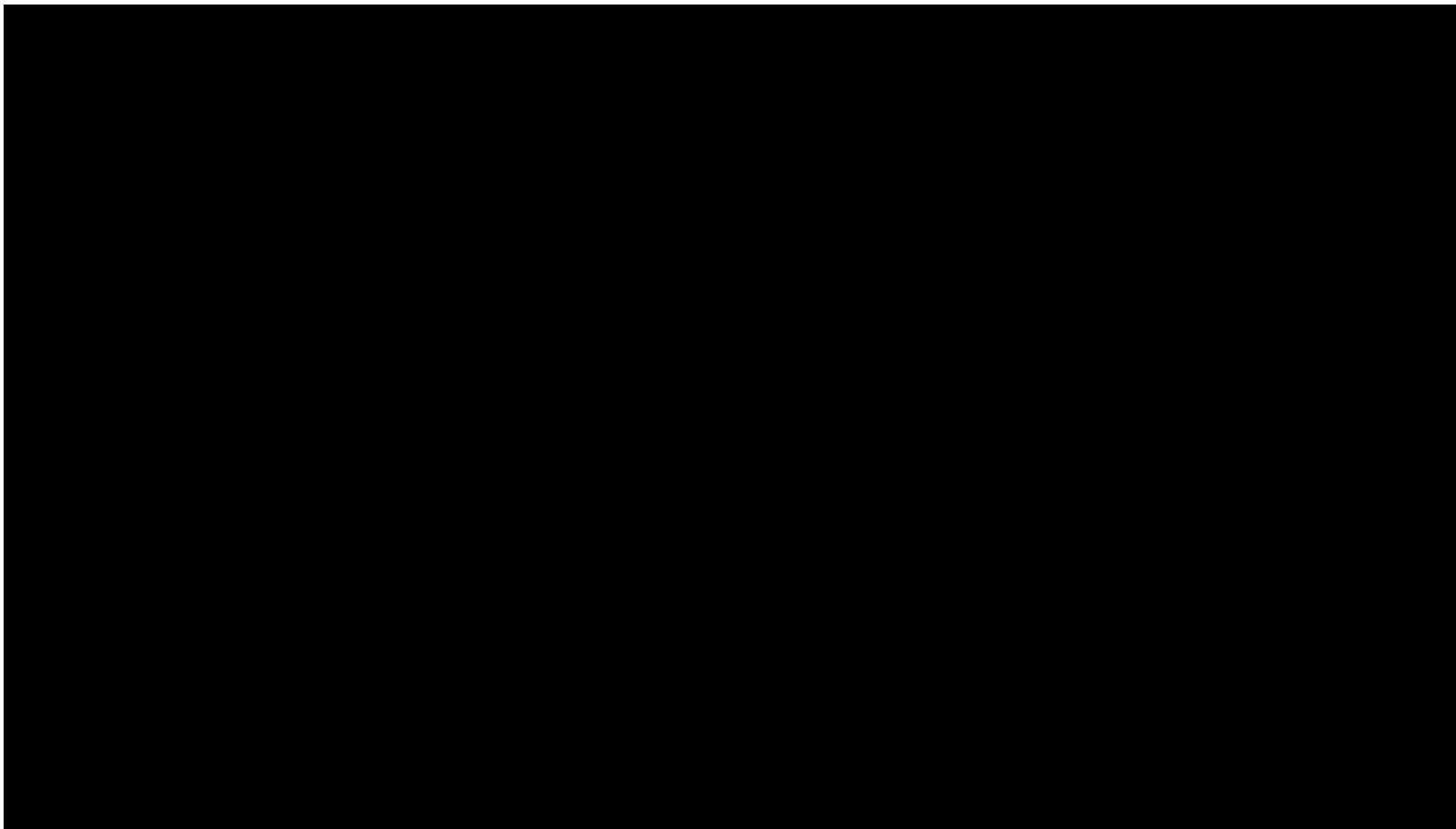
Whether simple or sophisticated, all evaluation design for prototypes has to answer the following four questions:

- What are the preferred data sources and method for each evaluation question?
- When do the innovators require the feedback?
- What things should be considered in making the evaluation useful?
- Who is the for coordinating and managing the evaluation?

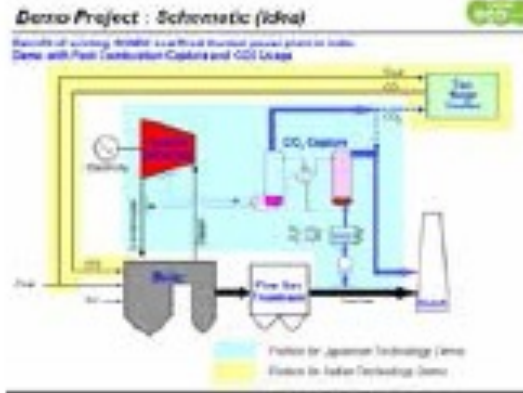
Appropriate Burden of Proof



Timely/Real Time



RAPID PROTOTYPE



FIELD PROTOTYPE



A series of technical assessments to test select features of the carbon capture technology to determine whether it might work well enough to warrant a full pilot experiment.

PILOT



A series of more detailed tests to assess operations, partner capacity and the market for the product of an 'end to end' demonstration plant, a last step to determine whether to build a commercial plant.

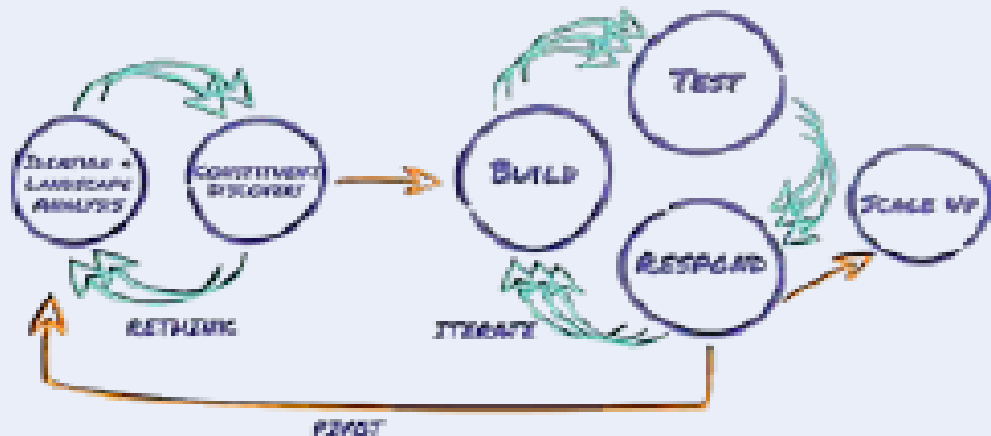
Step 4: Implement & Adapt

While rapid prototypes are usually developed and evaluated in a single meeting or session, the work of preparing and assessing field prototypes takes time. Here are three things to draw upon to design your own process.

Lean Start-up Methodology

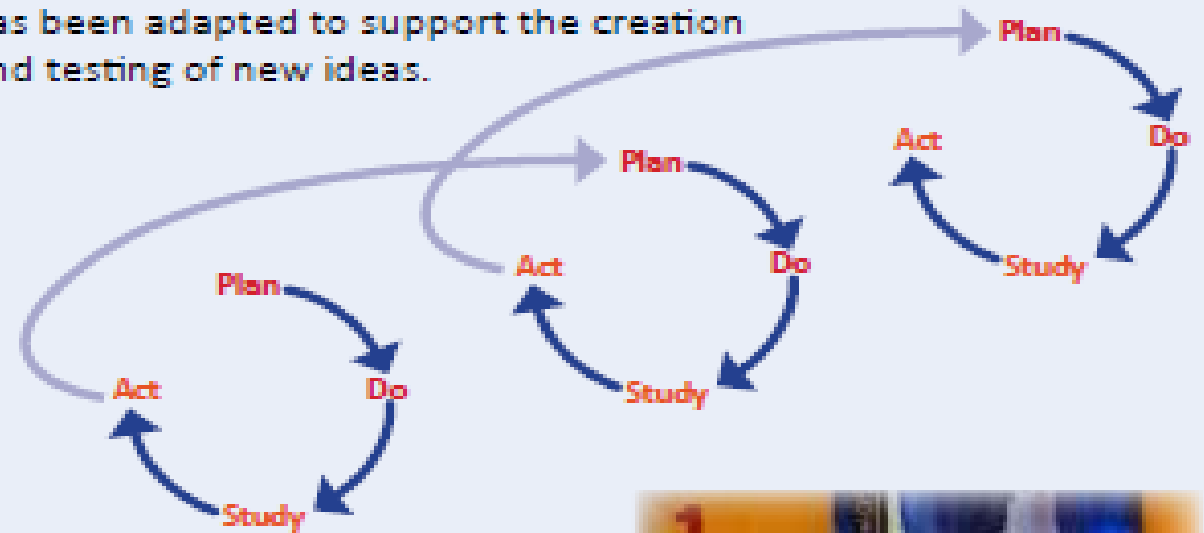
A build-measure-learn process that begins with developing a minimum viable product (MVP) and then testing and learning from it as quickly as possible.

THE LEAN PROCESS FOR THE SOCIAL SECTOR BY ACCELERATE CHANGE



Plan-Do-Study-Act (PDSA) Cycle

This highly structured methodology for experimentation originated in Total Quality Management. Since then it has been adapted to support the creation and testing of new ideas.

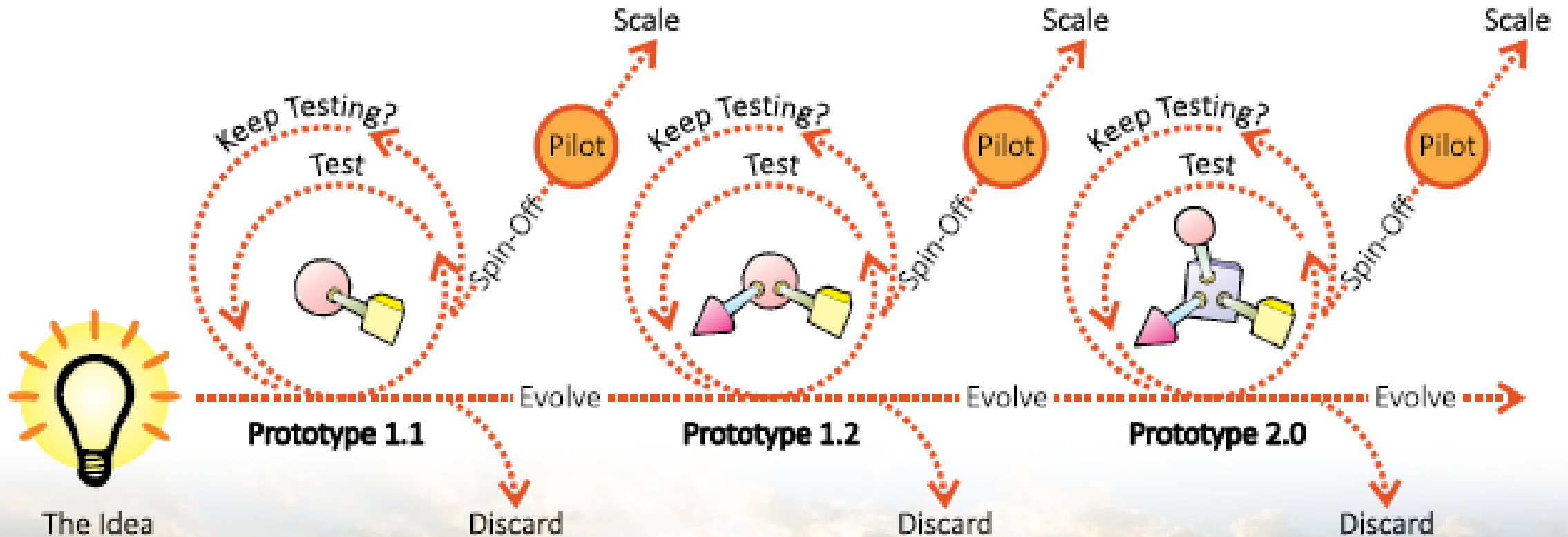


Rapid Results Campaign

An idea popularized by the Rapid Results Institute. It encourages social innovators to set micro "stretch goals," e.g., reduce homelessness in a city by 2.5% – in an iterative series of 100 Day Campaigns.



Step 5: Decision



Resources

NESTA Making Innovation Flourish

<http://www.nesta.org.uk/>

The world's premier social innovation organization, with a half-dozen tools on prototyping – and a special focus on public services and public policy.

SERVICE DESIGN TOOLS

COMMUNICATION METHODS SUPPORTING DESIGN PROCESSES

An open collection of communication tools used in design processes that deal with complex systems.

The tools are displayed according to the design activity they are used for, the kind of representation they produce, the recipients they are addressed to and the elements of the project they can convey.



DESIGN ACTIVITIES	REPRESENTATIONS	RECIPIENTS	CONTEXTS
GO-BEHIND	TEXTS	STAKEHOLDERS	CONTEXT
ENVOYING	GRAPHS	PROFESSIONALS	SYSTEM
TESTING & PROTOTYPING	NARRATIVES	SERVICE STAFF	OFFERING
IMPLEMENTING	GAMES	USERS	INTERACTION
	MOODS		



<http://www.designkit.org>

The organization that popularized design thinking in general and created a first-rate kit for human-centered design.



BetterEvaluation

<http://betterevaluation.org>

The most comprehensive web-based evaluation resource in the world with a step-by-step approach to evaluation design and dozens of tools.



<http://diytoolkit.org/media/Prototype-Testing-Plan-Size-A4.pdf>

A little known group, specializing in international development. DIY produced the Prototyping Testing Plan.

Questions

- Where do you think employ this framework (if at all) in your work?
- What new questions emerge?
- What might you do next with this idea or methodology?

