

WHAT COMES AFTER DESIGN THINKING

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OUR QUESTION

Design Thinking has become the go-to methodology across many areas of Design and Entrepreneurship, but has it delivered the desired levels of *innovation*?

THE PROBLEM

Design thinking solicits from users actual problems and then iteratively develops a solution to these problems. But by beginning with known problems and striving for direct solutions it is nearly impossible for paradigmatic innovation to take place.

OUR CONTENTION

1. Innovation is at its core paradigm changing.
2. From Design Thinking all we are getting in our Entrepreneurship Programs is overly narrow solutions to simplistic problems. Our real challenges today are complex. These—our most pressing issues, require genuine paradigmatic innovation.
3. We as Entrepreneurship Programs are the ideal place to address complex problems in a genuine experimental multi-disciplinary environment—but to do so we need to move beyond the limits of Design Thinking.

We need to teach truly effective methods of Innovation

THIS BOOKLET

From our frustration with the limits of existing methodologies of design and innovation while teaching in the Feliciano Center for Entrepreneurship (at Montclair State University) we have developed an alternative methodology to Design Thinking: The Innovation Design Framework. Innovation Design is both a subsuming of Design Thinking within a larger framework (Innovation) and retooling of its techniques to be more effective with complex problems and emergent situations.

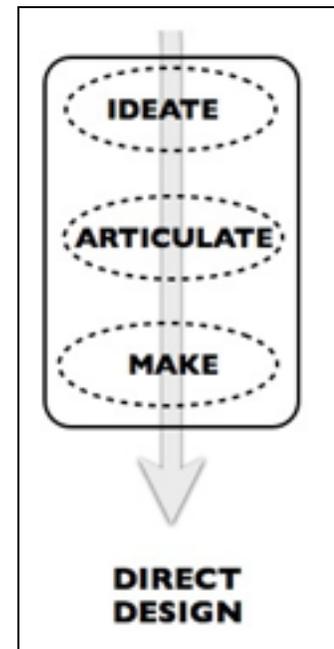
This booklet deconstructs the logics of Design Thinking and introduces the Innovation Framework:

FROM DESIGN TO DESIGN THINKING

Design, or Making, has been classically understood to be a process of turning ideas into things. You know the story: you have a vision—an idea—and you figure out a way to make it. Perhaps you make some drawings, work with fabricators, and other crafts people to realize your vision. And in the end, if everything worked out right, you have the materialization of your original idea and there is a pretty *direct* correspondence between idea, drawings, and finished product. This design process is what we call *Direct Design*. This is what most people understand design to be, and what they understand designers to do—they turn their creative ideas into things.

While Direct Design is ubiquitous in our culture, our question is “how effective is it in terms of innovation?” But before answering this question we need to quickly define what we mean by innovation: Innovation is the making of something that is *genuinely novel* and not merely a slight transformation of an existing reality. Innovations are things that change the framework, or the paradigm in which we operate.

Now there are many problems with Direct Design in terms of innovation. The primary issue is that Direct Design gives preeminence to *ideation* (and a disengaged form at that). The core logic of Direct Design is that *ideas come first*, and then making comes after. In doing this we marginalize and ignore the agency of things, environments, users and relations. Not to mention ideas are limited by our highly circumscribed ability to conceptualize things we do not understand or fully grasp (which is what innovation requires).



For much of the 20th century in the West variations of Direct Design were taught as a type of closed design process where designers have ideas and figure out how to realize them separate from a deep engagement with the world. This is still the central logic of many art and design schools -- especially industrial design departments and the studio arts programs -- not because of the effectiveness of this process in generating novelty, but primarily because Direct Design has deep historical roots in the western tradition such that our world is suffused with its habits and infrastructure.

The big shift that spelled the end of conflating Direct Design with Design came about with the rise of various social, anthropological, philosophical, ecological, and systems models of understanding that gave us insight into reality as a complex interwoven, dynamic and evolving system(s). It became obvious that human making could not effectively happen separate from the world of users, practices, problems, needs, politics and so on. Direct Design with its reliance of *working at a distance* from the world (in a studio and developing perfect products prior to any real social (customer) engagement) was rightly criticized for being removed, closed, and quite simply not *responsive* to real world conditions. It became painfully obvious to many in world of design that Direct Design was incapable of effectively answering these criticisms without radically changing.

From an awareness of the power of engagement, a new and expanded form of design emerged: *Responsive Design*. Responsive Design is just that -- it begins in a considered response to the world rather than springing from the “head” of a designer. Responsive Design at its best shifted the focus of design away from the narrow idea of designers and design as being focused on independently making (beautiful) things. Design now became about all the interactive processes needed to make anything come into being. Responsive Design came in many forms from Environmental Design to Human Centered Design.

Design Thinking is simply a form of Human Centered Responsive Design. But with its wonderfully ambiguous and broad name “Design Thinking”—it can seem to many to be a methodology that encompasses *all* of design—thankfully this is far from the case. What is called by the overly broad and inaccurate term “Design Thinking” is simply a particularly popular forms of Responsive Design.

The simplest way to understand how Responsive Design transforms Direct Design is to see that it adds a new critical step *prior* to the beginning of Direct Design. This step is Consultation. Responsive Design *does not replace* Direct Design so much as it *subsumes* it.

During consultation the Design Thinking variants of Responsive Design asks: What are you up to? What are your problems? Then the phase of ideation becomes collective: brainstorming, group improvisation, and other collaboration exercises are added to the mix. Then Responsive Design works in an iterative loop: from ideation to making becomes an indirect iterative loop (see diagram).

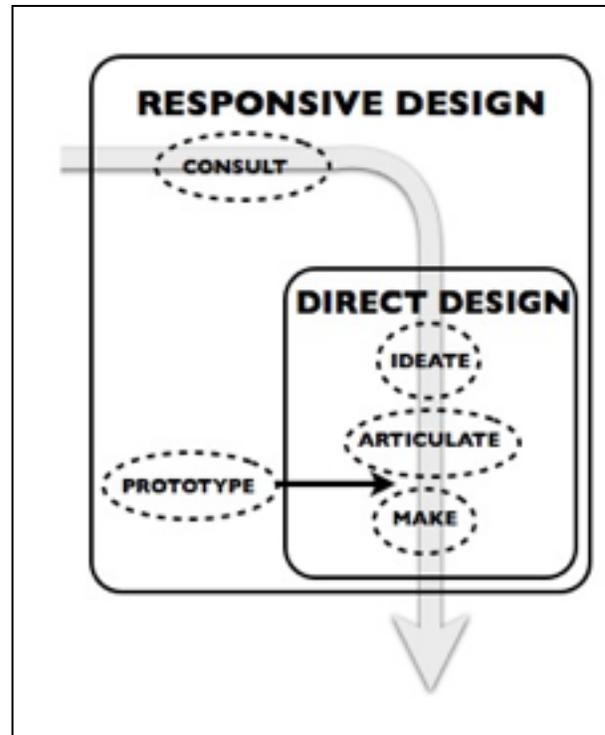
This loop is significant because it allows the object to evolve through testing and use and not come out of designers head full born.

Responsive Design has had an enormous impact for good. Environmentally centered design is of great value, as is user centered design. The fundamental importance of consultation and iteration in the design process are no longer in doubt. And we have no wish to go back to a world where the default methodology was Direct Design. Responsive Design has allowed design to be seen as something far larger than product design, and this alone is revolutionary.

A huge part of Design Thinkings appeal is that it claims to be an exceptional source of innovation. And for this reason it has been adopted by many entrepreneurship centers and programs. But can it deliver on this promise? There is no doubt that human centered design practices like Design Thinking can solve many direct problems. David Kelly, the founder of IDEO and a major proponent of Design Thinking’s power to solve problems likes to tell the story of how IDEO developed the children’s toothbrush by actually paying attention to how kids brush their teeth. What they noticed is that they hold the toothbrush differently, and so they need a fatter handle and not a smaller toothbrush (they were not miniature adults as previous toothbrush designers had assumed). Yes, the fatter toothbrush solves a problem. But is this really innovative or even addressing the actual questions that needs solving? Far too much of what happens when Design Thinking gets deployed is this type of outcome—a narrow opportunistic solution/product. Sure, as David Kelly admitted, you can make a few bucks for a limited time—but then what?

There are three major problems with Design Thinking when looked at from the perspective of innovation:

1. *The focus is on solving known problems:* When we except an existing problems as a given we immediately narrow space of possibility to an already pre-given set of options/solutions. Innovation involves, at the very least, *the making of new problems worth having*. And at its best it involves the *co-making* of new modes of being that make existing problems moot. As Buckminster liked to say: “You never change things by fighting the existing reality. To change something, build a new model



that makes the existing model obsolete.” Design Thinking with its tight focus on soliciting problems from users and generating direct solutions to these problems makes the possibility of changing or inventing new frameworks and paradigms nearly impossible. We argue that by accepting existing problems as a given — innovation is not possible. Now this is not to say that solving an existing problem in a direct manner is bad—all we wish to point out is that this is not *innovation*. And yes, sometimes innovation is just not that important. *But when it is, this logic is just not that helpful.*

2. *Design Thinking is based on a false model of human decision making:* it assumes that we are rational agents, and that as rational agents we know what our problems are when asked. Models of design and entrepreneurship that begin by asking people what their issues are, or by attempting to discover customers, do the very people they hope to help a disservice by assuming that they are rational agents (the recent Nobel Prize in Economics was for related research). Of course, these methods can none-the-less be quite successful at finding very direct and surface level problems and concerns. And of course these can be effectively monetized or design for. Sometimes the results are quite surprising.

Now, this criticism should not be mistaken for a criticism of the practice of engaging with people in the design process. That could not be further from the truth, this criticism’s goal is a call for a deep, richer and distinctly different forms of engagement and *co-creation*. The simple truth of the matter is that we do not know fully in advance what we want or need. And on a deeper level, innovation because it leads to something genuinely new—cannot be known in advance. Innovation involves emergent processes of which *we* and what we make *are the outcomes*. We are calling for a process of design that operates “below, beside, and above the human¹” — as much as *with* humans. We are calling for design processes that open up new worlds.

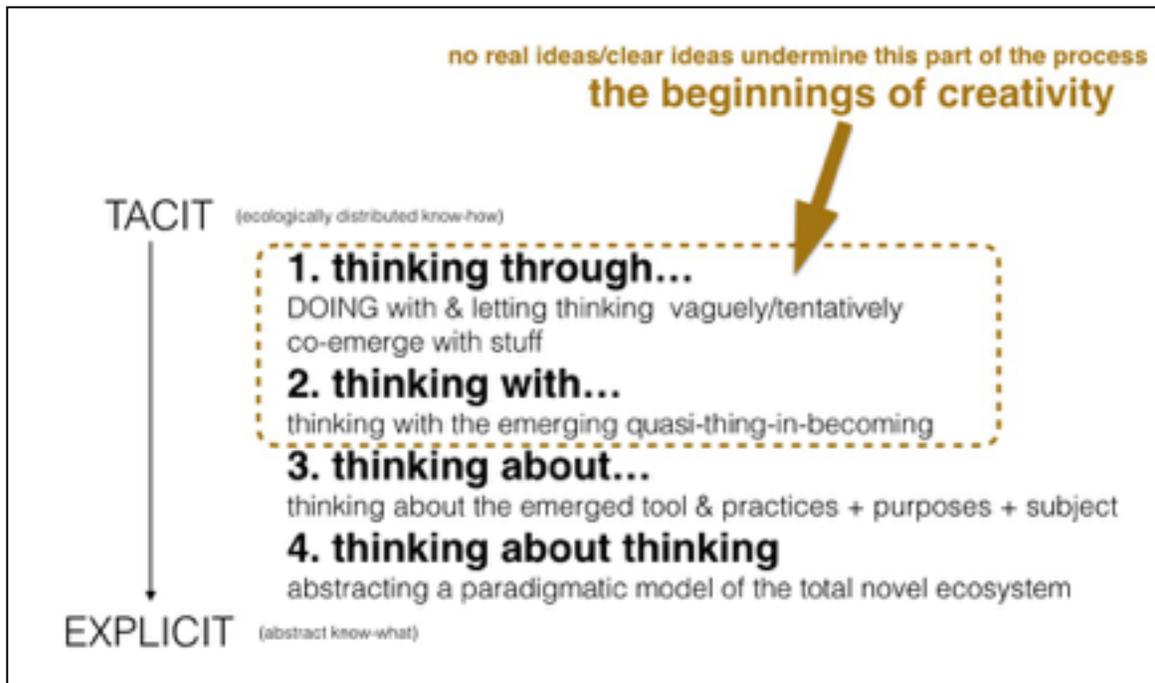
3. *Ideas still come first:* After soliciting problems, Design Thinking asks for Ideas. But by putting ideas at the beginning of the process it runs into the exact same problem as Direct Design: *the genuinely new begins in a manner that resists or even refuses conceptualization.*

The question we need to ask is “where do ideas come from?” This “Ideas first” logic is a version of Descartes famous and long discredited “*I think therefor I am.*” The assumption behind the “ideas first” model of design is a flawed understanding of how humans engage with the world around them *and* where ideas really come from. It assumes is that humans live in a representational world separate from reality, and that we are at our core “thinking beings” (that is beings who have and work with ideas). In this mind vs world model we are minds (our brains) with discreet input devices (our senses) housed in a moving platform (our bodies) generating ideas about an external world.

As a huge body of contemporary research on embodied cognition has demonstrated *the body and the environment fundamentally shape the mind* — “it might even be possible to say that bodily movement, transformed onto the level of action, is the very thing that constitutes the self.²” Given this: the answer to the question “where do ideas come from?” must be that *Ideas come from situated embodied action*—ideas emerge from deeply engaged forms of *doing*. This form of “absorbed” doing is not what happens in brainstorming or ideas storming. It is never so explicit—how could it be? Rather it is a type of *tacit* knowledge where *doing exceeds knowing*. It is a type of “thinking through”—a doing-with and letting things vaguely and tentatively co-emerge with stuff in action. This early phase of making is one with no clear and distinct ideas or concepts, but more of a “following-in-doing-with”. From this phase one begins to “think with” the emerging of a situation or object still very much in becoming. It is only after this that one begins to “think about” what is emerging in any concrete and conceptual manner. Here is where ideas begin to emerge. (see diagram below).

¹ This is a wonderful phrase from John Protevi (see bibliography).

² Shaun Gallagher, *How the body shapes the mind.*



Given that the new cannot be known in advance, and that knowing (in the sense of having a clear and distinct idea) is fundamentally tied to what already exists, *thinking cannot be the primary path to the new*. Despite this almost all existing models of creativity and innovation privilege thinking (just google creativity and it is all about ideas and almost nothing about doing).

Conceptual forms of thinking (ideation) make sense in a Newtonian world of determinacy, but in an open-ended self-organizing world of emergence they can no longer be the fundamental mode of tracking or joining becoming. We need to co-emerge with novelty as an actual form of doing. The new can (only) be approached by letting go of explicit knowing and opting for an engaged experimental practice of doing, following, and co-emerging with what comes next (tacit knowing)³. In the creative process, know-how necessarily takes precedence over know-what (knowledge)⁴. We need to escape this prison house of ideation. While we make things, once we make them they then turn around and make us.

³ This is not to say all thinking is bad or irrelevant. It is simply not the seat of creativity.

⁴ Diagram draws upon the work of Malafouris *How Things Shape the Mind*

SO WHAT COMES AFTER DESIGN THINKING?

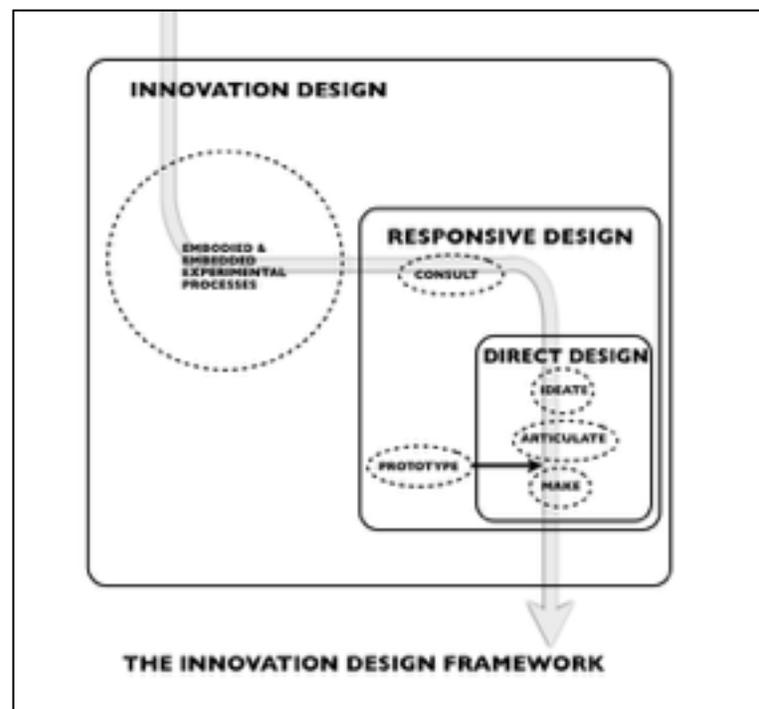
We need to pause here for a moment and dig a little deeper into the concept of innovation. And to get a good grasp on innovation one must first understand creativity. Creativity is a concept of very recent origin. For the longest time the western tradition had no place for such a concept. What we might call today “creativity” was understood for the longest time to “recovery” or “discovery” of what was there all along (the deities intentions, plans, laws, etc.). The term “creativity” was first coined in the 1920’s by the philosopher Alfred North Whitehead to define the most basic process underlying all reality. Reality, for Whitehead, is a *creative movement into novelty*—and this is true from the big bang to hip hop. Whitehead went on to develop the most comprehensive model of creativity as a *process of emergent novelty coming into concrete being* during his tenure at Harvard in the 1930’s and 40’s. But, while his word stuck, his ideas did not. Creativity quickly became a thing -- a spark, a special sauce, a pattern of neurons... And the concern for understanding and utilizing *processes* that generate novelty was left to other fields far from the worlds of design (thus we need to turn to ecology, complexity, evolutionary biology, process philosophy (to name a few) to find serious engagement with *creativity as a process*).

Creativity treated as a process allows us to shift the focus from the mind (*ideas*) to *engagement with the world, things, and processes*. Doing matters. Things matter. Processes matter. When we do things, the things we use speak back to us and transform us. In light of creativity as a process the world becomes alive and in this engagement with the environmentally situated push and pull of active materials novelty emerges. It is Whitehead who first alerts us that novelty emerges *not* from our heads but from the middle of action. Whitehead is overturning the long and deeply held assumption: “I think therefore I am” and replacing it with “We do therefor I am”—with the “we” being an expansive list of collaborators that range far beyond the human: pens, roads, microbes, concepts, habits, relations, cars, ecosystems—these all make up the “we”.

A quick survey of genuinely novel outcomes such as flight (both human and animal), modern technologies (from the alphabet, to the printing press, to the micro-processor), or powerfully transformative social movements (feminism, equality, and reproductive rights) reveals that none of them followed a process anything like Direct Design or Responsive Design -- they all involved processes that were paradigmatically transformative and exceeded (or even in some cases totally ignored) ideation.

We must again return to our question “where do *new* ideas come from?” with a clear answer: they do not come from other ideas but rather form a deeply embodied and embedded form of experimental action . Given this the answer to our real question “what comes *after* Design Thinking” is really a question about what comes *before* Design Thinking. We need to add a process prior to of Design Thinking to generate novel ideas.

Innovation Design does not replace or contradict Responsive Design anymore than Responsive Design contradicts Direct Design—these are nested, interwoven, and complimentary design processes that together make up The Innovation Design Framework⁵. The goal of this framework is to act as



⁵ But, we are strongly critical of the ideation centric, and thing centric models of all practices of creativity and design.

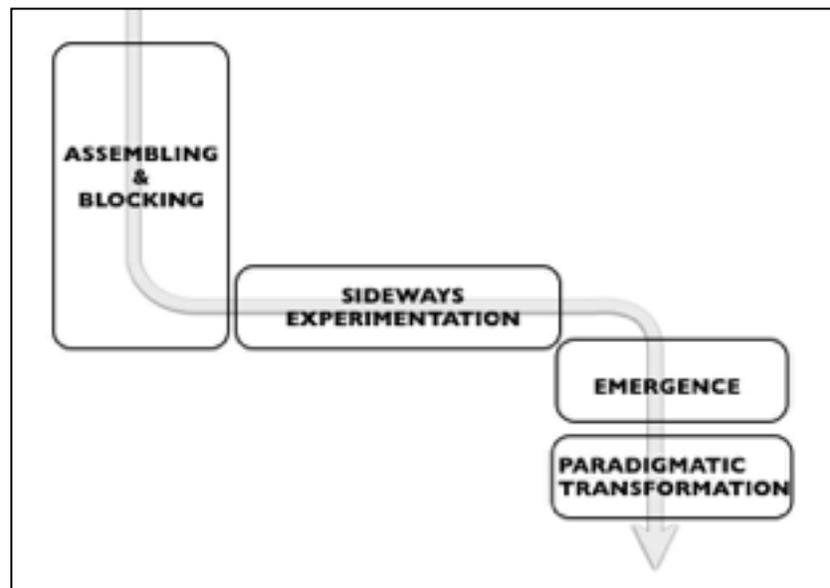
an expansion and re-orientation of our most common design tools to encompass novelty, creativity and innovation. It gives us a way of moving from misunderstanding creativity as some impossibly mysterious “thing”, to a difficult but accessible process of emergent paradigmatic novelty.

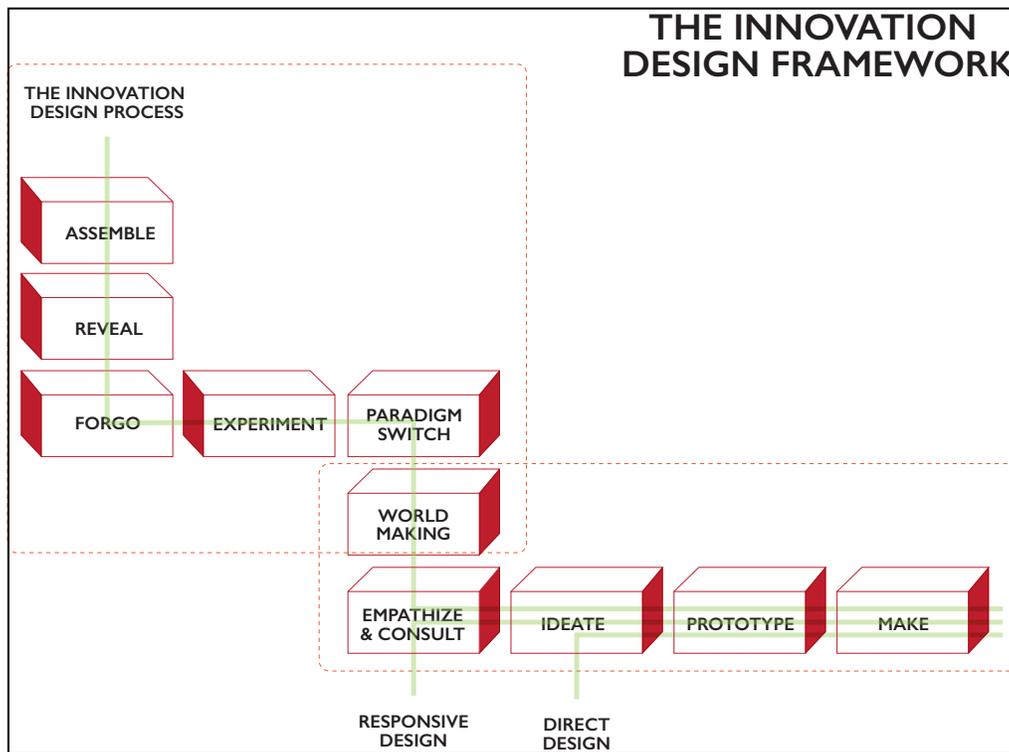
When the new becomes central to making then the classical “problem solving” ways of Design Thinking needs to be significantly rethought. Creativity and innovation do not solve problems, but rather they invent new problems and more importantly — *new worlds* , that, if anything, make the old ones moot. Innovation is the invention of new problems worth having for worlds worth making. What is needed today is a full reckoning of how novelty emerges via a tangible process of worldmaking.

THE INNOVATION DESIGN PROCESS

Let's start simple: This creative procedure consists of four big moves: Assembling and Blocking, Sideways Experimentation, Emergence, and Paradigmatic Transformation. We can lay these out sequentially:

1. Assembling and Blocking (Forgoing). Assembling is the coming together with a matter of concern and gaining a deep participatory understanding. Blockage is both a simple procedure and a quite complex one. Blockage is quite simply to do something different—it is to forgo repetition of what has already been done.
2. An iterative process of *Sideways Experimentation* leads to:
3. The *Emergence* of new qualities, capacities, and affordances. At some point in this long and multi-branched experimental process one crosses a threshold into
4. A new *Paradigm*. Dwelling and experimenting from within this new paradigm is the true beginning of novelty.





THE INNOVATION DESIGN PROCESS IN DETAIL

With this broad understanding of the big moves in the process let us look at the methodology in more detail. There are ten steps to this process (see above):

1-2. *Assemble & Reveal*: One begins a design process with a matter of interest which asks for certain collaborators to *assemble* from diverse fields with the goal of *revealing* what is going on at all levels.

3-4. *Forgo & Experiment*: From a position of rich understanding the collective can decide what practices, and processes to *forgo* with the goal of developing a way of *experimenting* that leads the team out of the existing ways of engaging with the issue.

5-6. *Paradigm Switching & World Making*: Experimentation is a form of sideways movement of following and co-evolving with the matter of interest. One is following across thresholds into ways that allow for a novel paradigm to emerge. This paradigmatic shift allows for a novel world to be sensed.

7-8. *Empathize & Consult*: This nascent world needs to be carefully brought into being via a process of deep empathy and consultation—what does it want?

9. *Ideate & Prototype*: With the emergence of a novel world one can draw upon ideation techniques that come from this world to develop prototypes that in turn reinforce the emerging world and ideation.

10. *Make & Remake*: Now the long process of developing an ecological roll-out of a “product.”

Here is a very simple example: The story of how Jackson Pollack (and others) innovated Drip Painting:

Assemble & Reveal: Pollack and his partner Lee Krasner were a mature painters who had a deep knowledge and connection to both the history of painting and the contemporary world of art as an active participants.

Forgo & Experiment: The first drip was not the outcome of a process of brainstorming but the following of a embodied and embedded hunch that an accidental driio could lead out of painting as they understood it because it blocked the normal forms of composition, mastery and representation. So they followed this drip by doing, testing, evolving with it.

Paradigm Switching & Worldmaking: In doing this they realized that the existing paradigm (art=controlled action/communication) is not what he is doing — action itself becomes the object—and this is an entirely new world.

Empathize & Consult: Pollack and Krasner at this point are not the only artist that see this emerging new world, many others engage with this space of *action as an end in itself*. So while Pollack and Krasner still focus on painting (see steps below) others develop the concept of “Happenings” “Life=Art” “Everything is Flux” etc. And a broad wide novel world comes into being quite rapidly.

Ideate & Prototype: Each of those evolving this world tests ways of doing and thinking in an iterative manner evolving prototypes of new art forms, materials, techniques and outcomes.

Make & Remake: These pioneers are join by others and collectively they refine and diversify a world into a concrete actuality. Now clear ideas are generated by critics, historians, and the artists themselves. This in turn feeds-back into the process.

While this example is helpful in getting a sense of the terms and the process, the Innovation Design Framework is not a tool best relegated to “creative” but impractical practices such as art. The methodologies of Innovation Design open up tangible possibilities for the design of novel solutions to social, ecological and object oriented problems big and small. While this brief introduction cannot do justice to these aspects of Innovation Design they have been the focus of our us of these techniques over the last two decades with powerful and surprising results.

Finally, the Innovation Design Framework is an augmentation, synthesis, and reorientation of Direct and Responsive Design into a robust tool and framework to design for innovation at all scales. We would be happy to share more of our ideas, concepts and practices. Please be in touch:

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The concepts of Innovation Design principally come from almost two decades of work with design collaborative SPURSE (spurse.org). Additionally, over the last few years The MIX Lab (themixlab.org) at Montclair State University has been further developing these ideas into a powerful curriculum of entrepreneurial design.

NOTE

This document is a preliminary draft. It is a working document that is in flux, and as such it is full of errors, oversights, missing and unfinished sections. It is being shared with the hopes of developing a community of practitioners in new models of innovation and creativity. All forms of feedback are welcome. But, please do not site or share without express permission.