

Bogotá/Chicago/Champaign

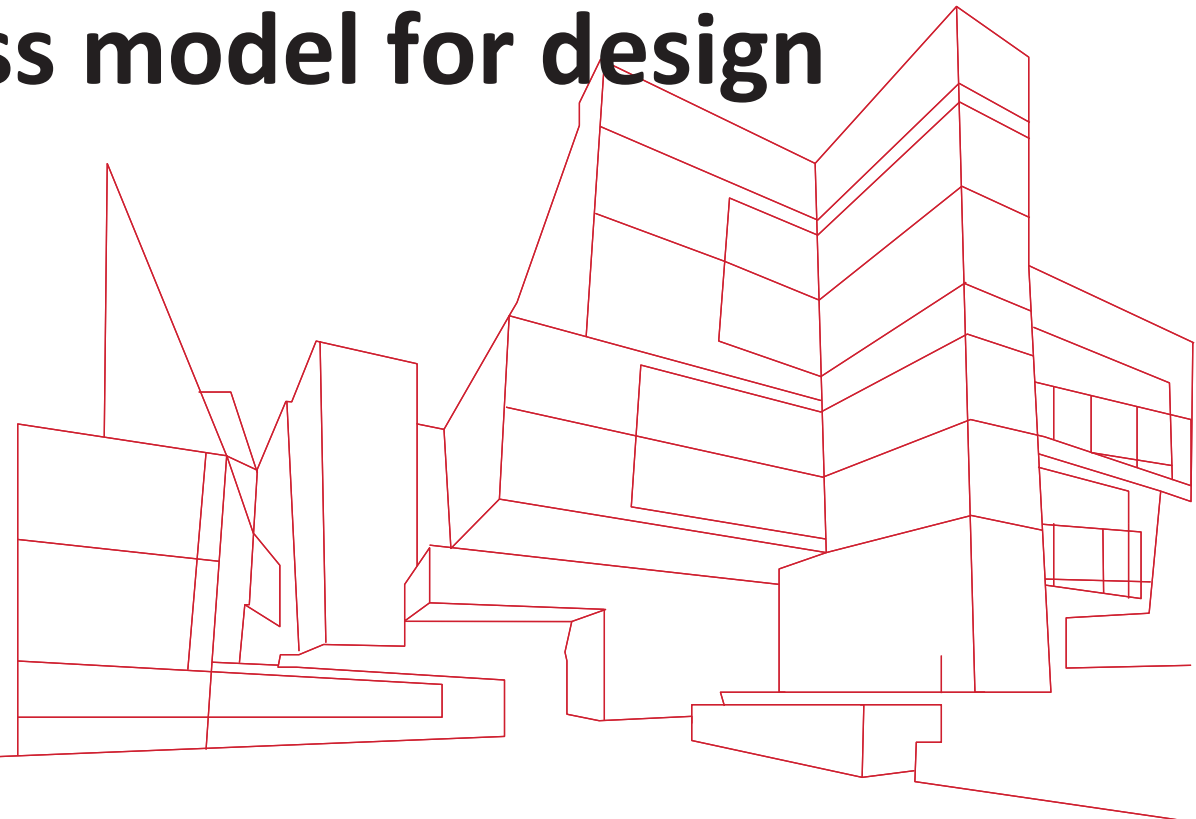
Prototyping the not-yet-existing for research and innovation: a possible process model for design research.

Juan de la Rosa / Adv. Dr. Stan Ruecker

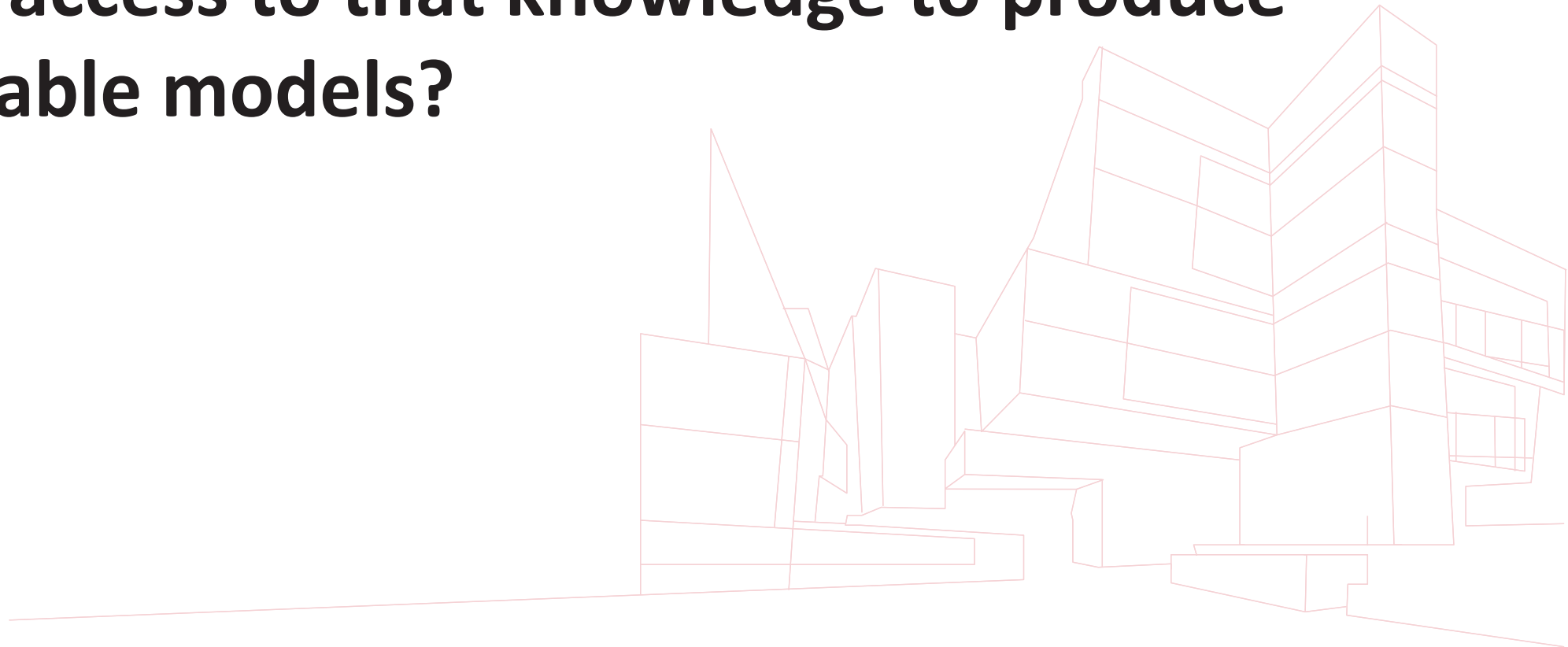
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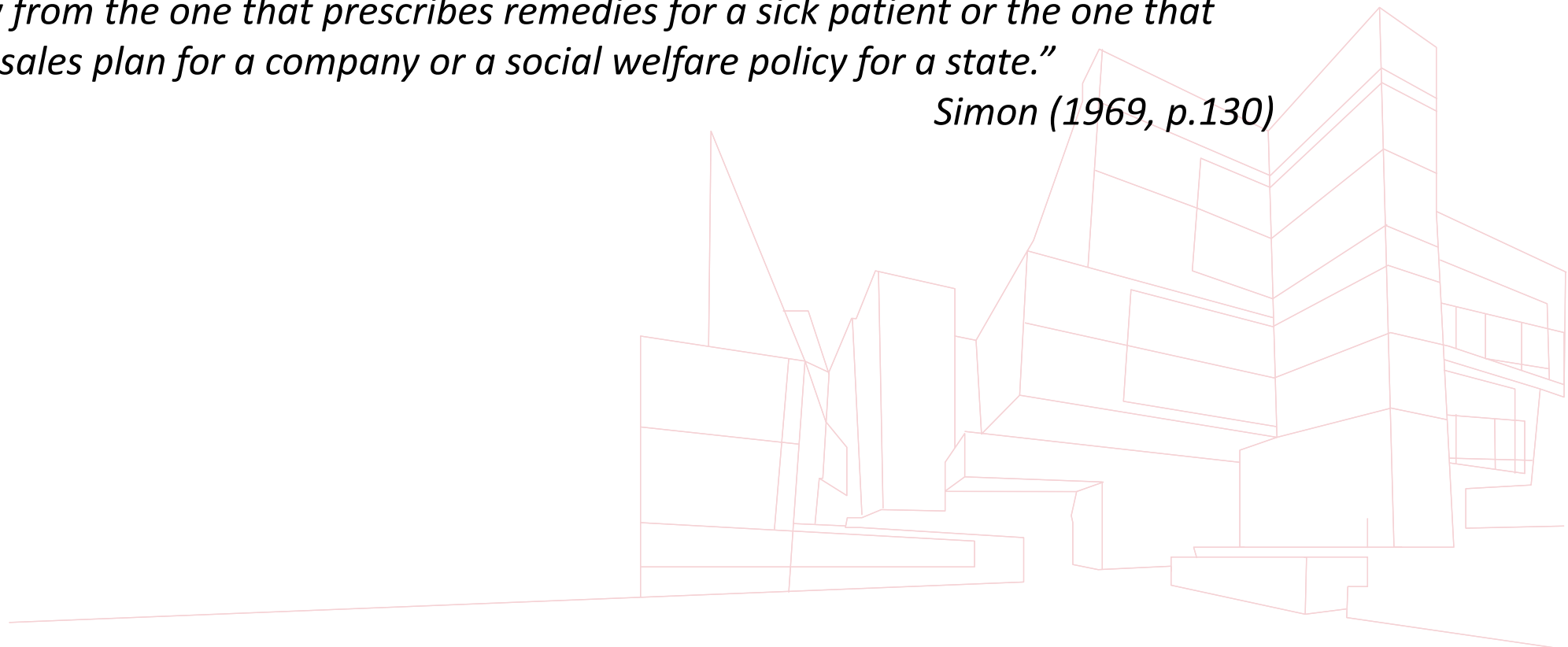


What is the knowledge that is produced on a design process? And, how can we gain access to that knowledge to produce reusable models?



“Everyone designs who devise courses of action aimed at changing existing situations into preferred ones. The intellectual activity that produces material artifacts is no different fundamentally from the one that prescribes remedies for a sick patient or the one that devises a new sales plan for a company or a social welfare policy for a state.”

Simon (1969, p.130)



Time:

Design devices a desired **future** that is uncertain to us

Nature:

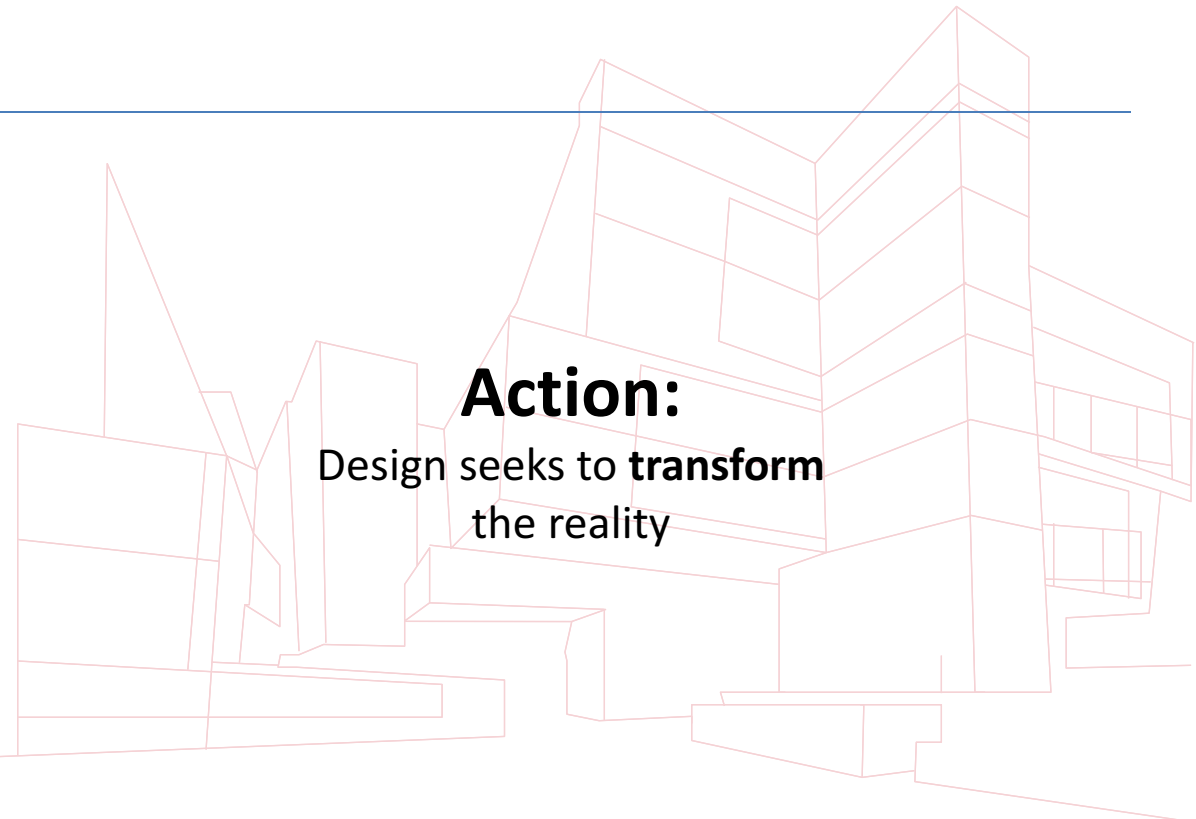
Design by nature deals with **complex systems**

Intention:

Design deals with **human** intents and human experience

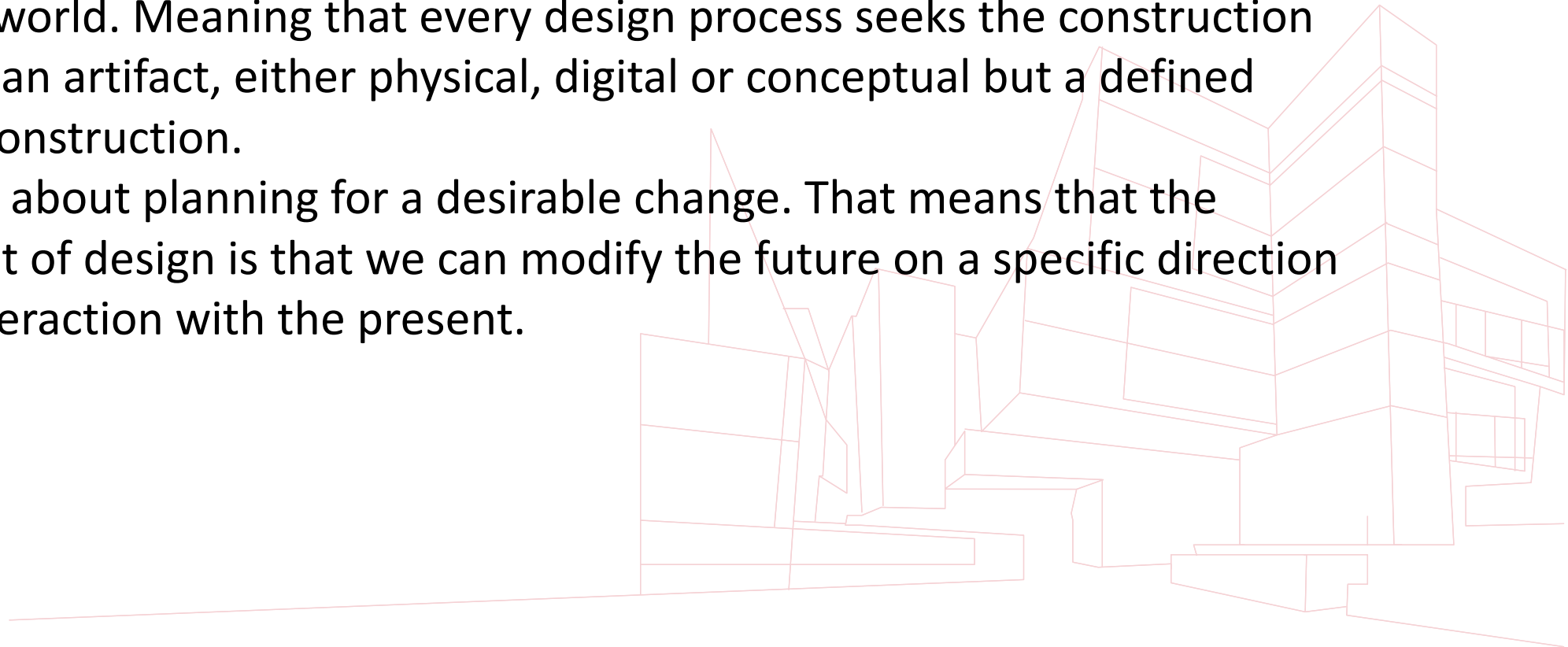
Action:

Design seeks to **transform** the reality

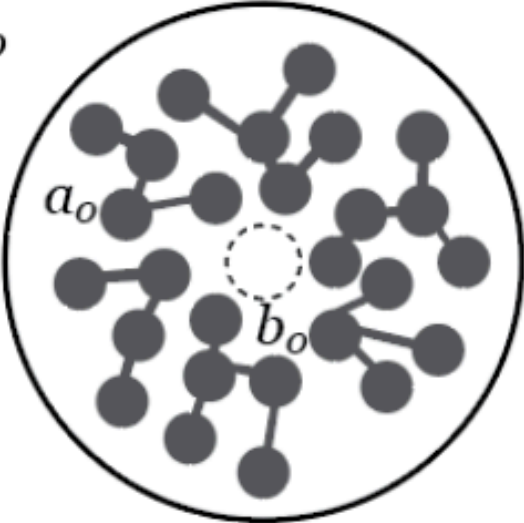
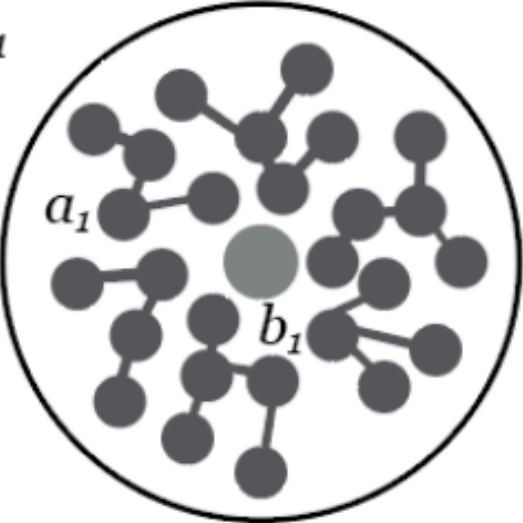
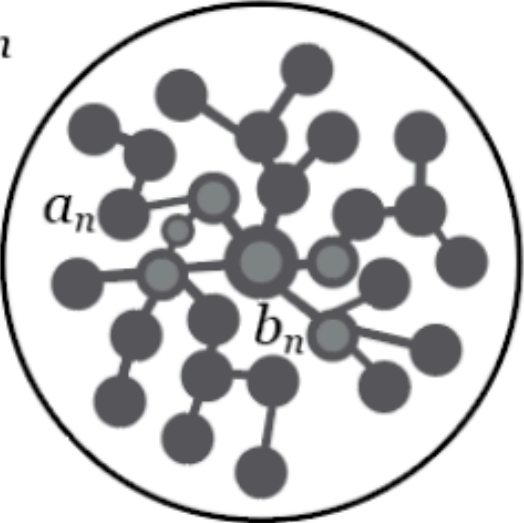


Based on Simon's (1969) description of design we could recognize two major arguments on the process:

1. Design is about the construction of the artificial, or that, what we have built into the world. Meaning that every design process seeks the construction of a human artifact, either physical, digital or conceptual but a defined human construction.
2. Design is about planning for a desirable change. That means that the argument of design is that we can modify the future on a specific direction by an interaction with the present.

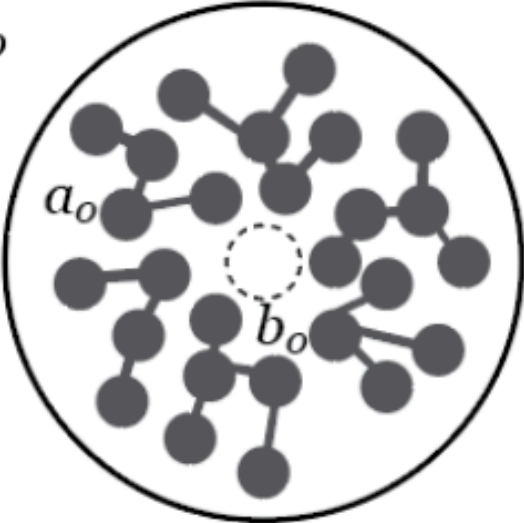
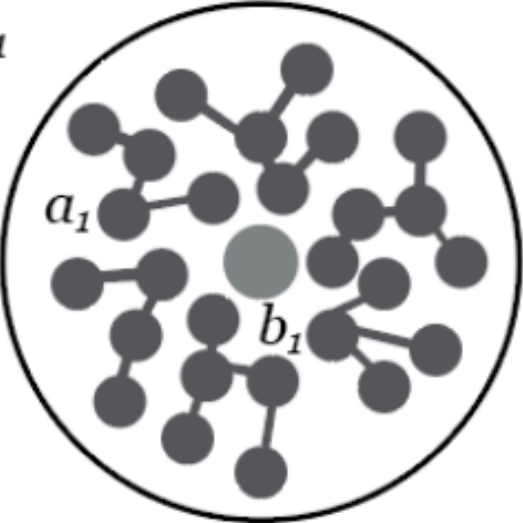
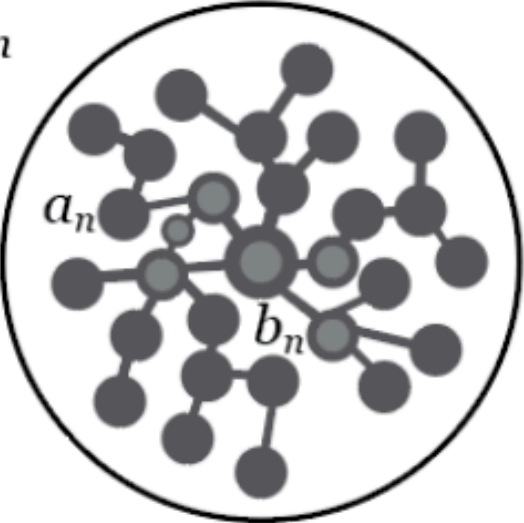


We could recognize then, the idea of a time structure (A) that is divided into three moments, the existence of a system to be transformed (a) and a design object or solution to be implemented (b)

<p>A_0</p> 	<p>A_1</p> 	<p>A_n</p> 
<p>A_0 – Past + Present - design context</p>	<p>A_1 – Near future – design implementation</p>	<p>A_n – Desired future – design objective</p>
<p>a_0 – Pre-existing state of the complex system</p>	<p>a_1 – Active state of the complex system</p>	<p>a_n – Transformed future state of the system to the preferred</p>
<p>b_0 – Not-yet-existing design solution</p>	<p>b_1 – Implemented action of design or designed object</p>	<p>b_n – Design object interacting through new affordances</p>

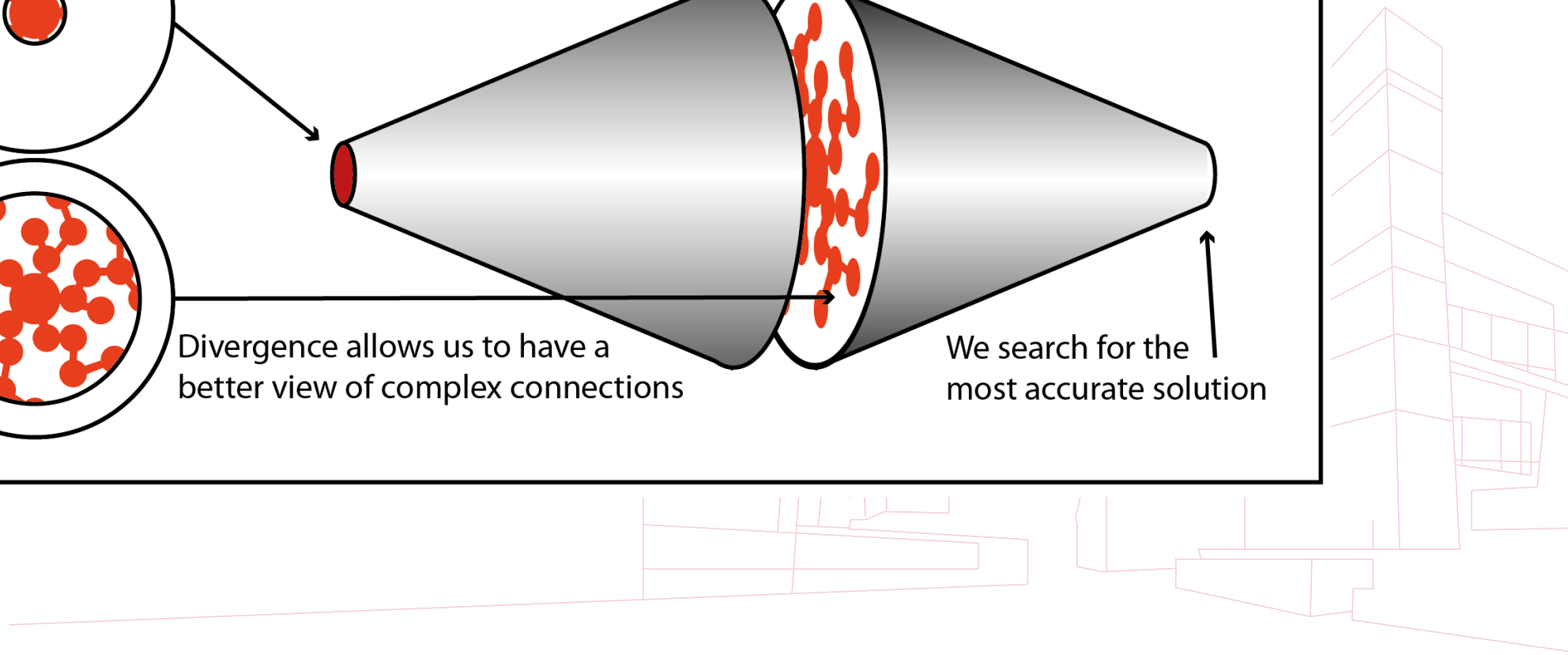
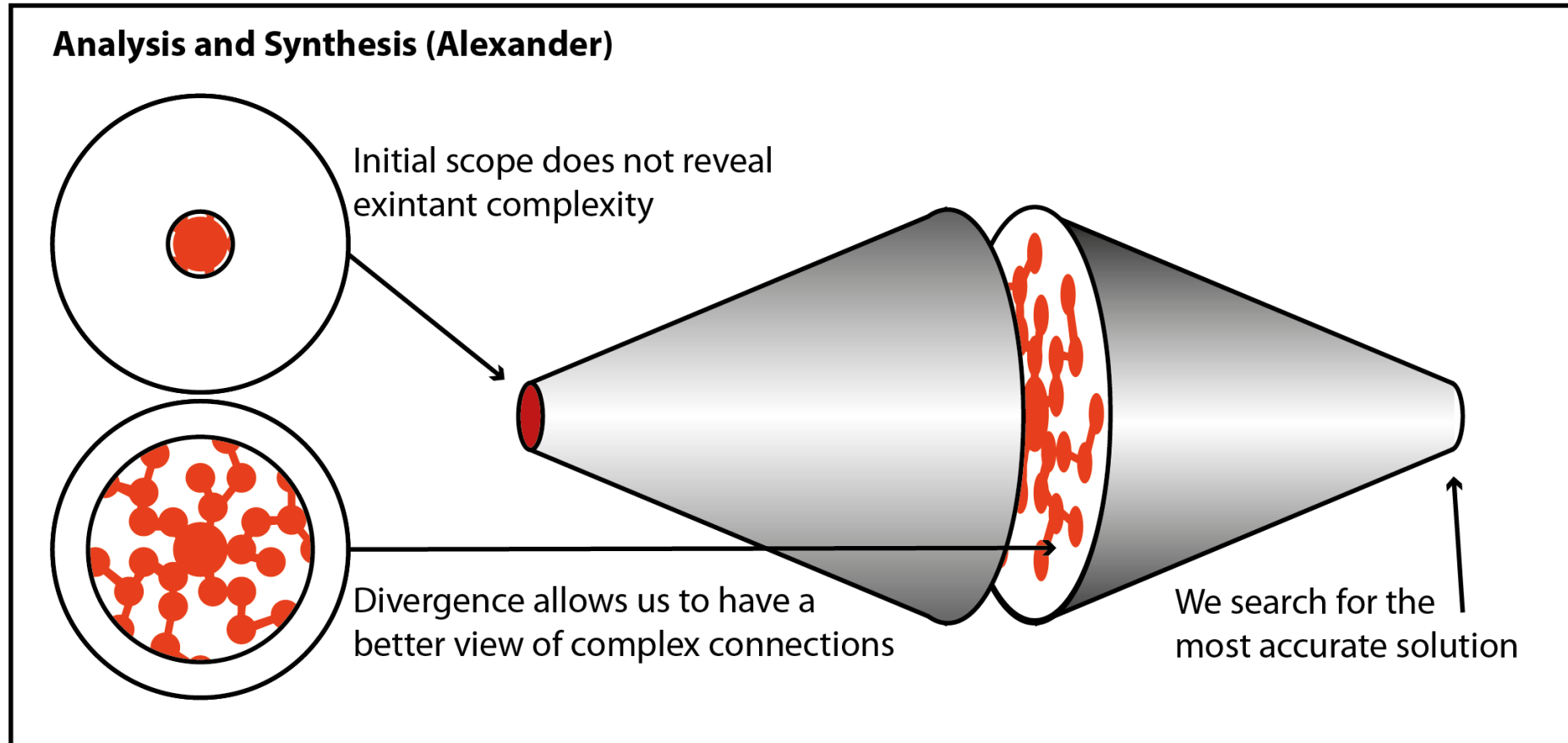


If the process of design is supposed to take us from a_0 to a_n , why do current design models focus their research process on the previous state of the system, rather than desired one? How do we test b_1 as a viable catalyst of a_n ? How do we produce an image of a complex future system that has been already altered by the not-yet-existing (Bødker, 1998) design implementation?

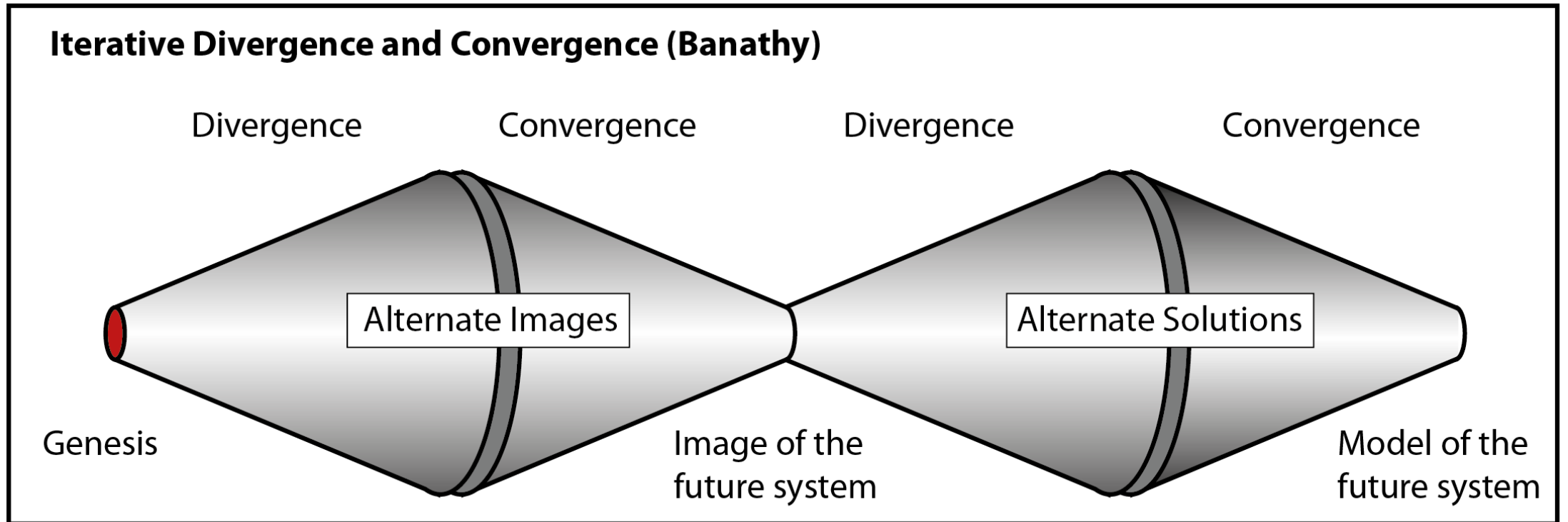
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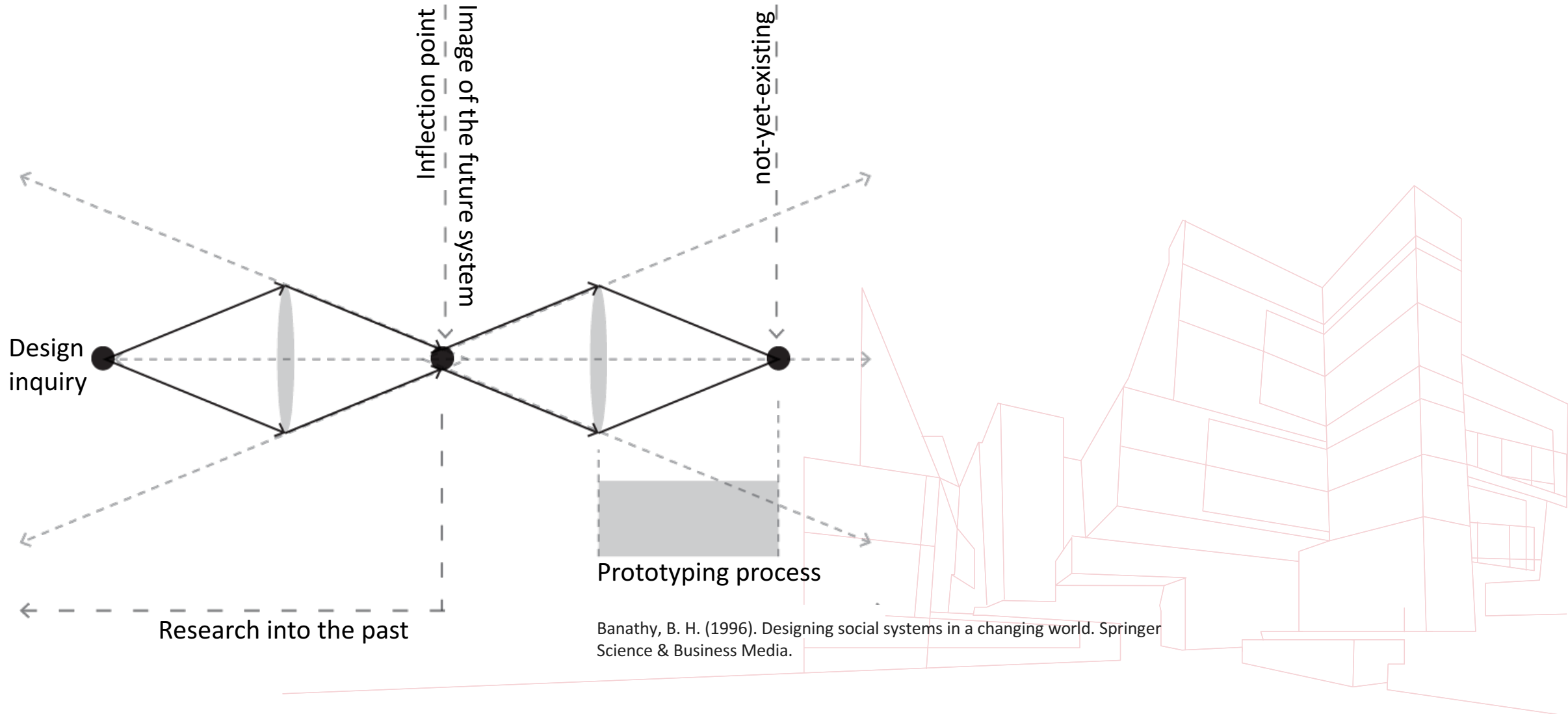
The design (reframing) process model



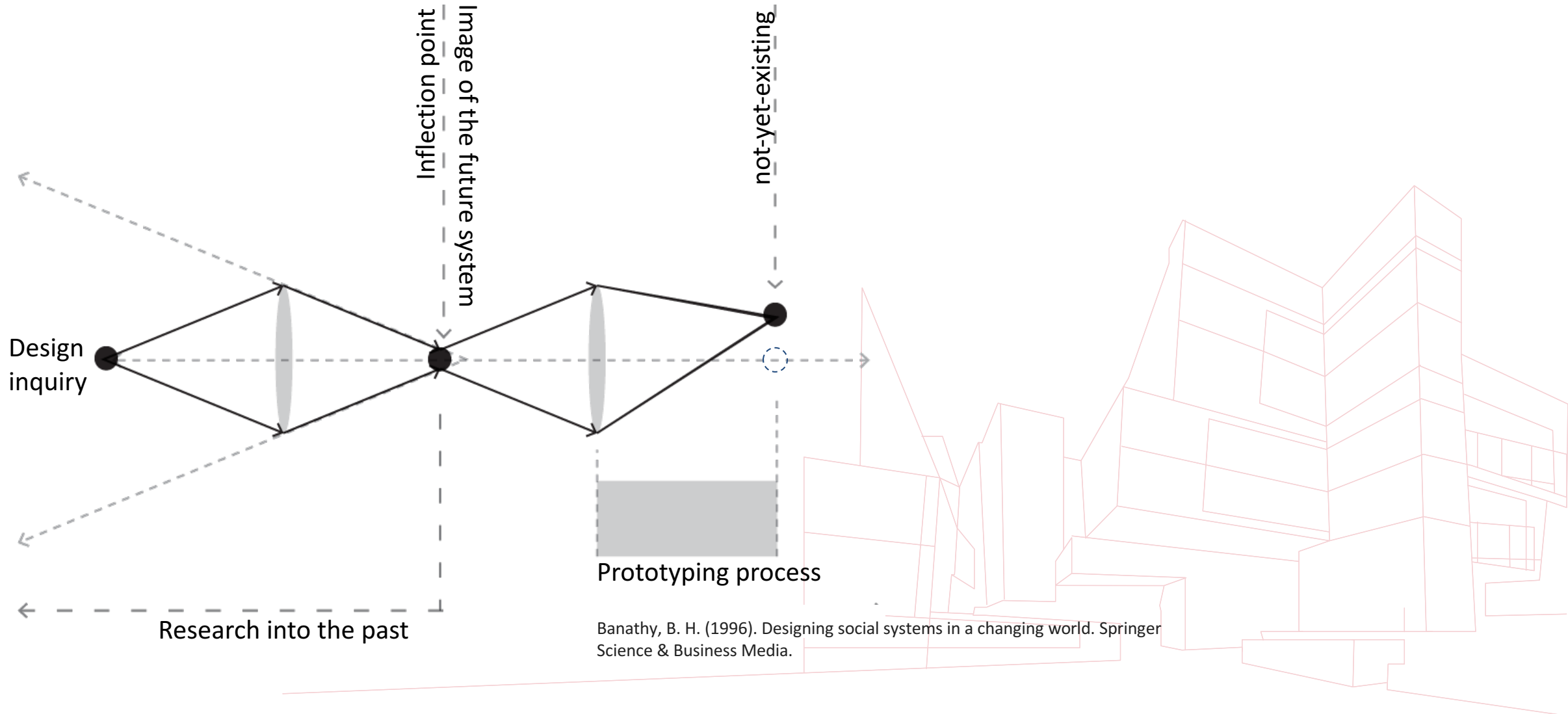
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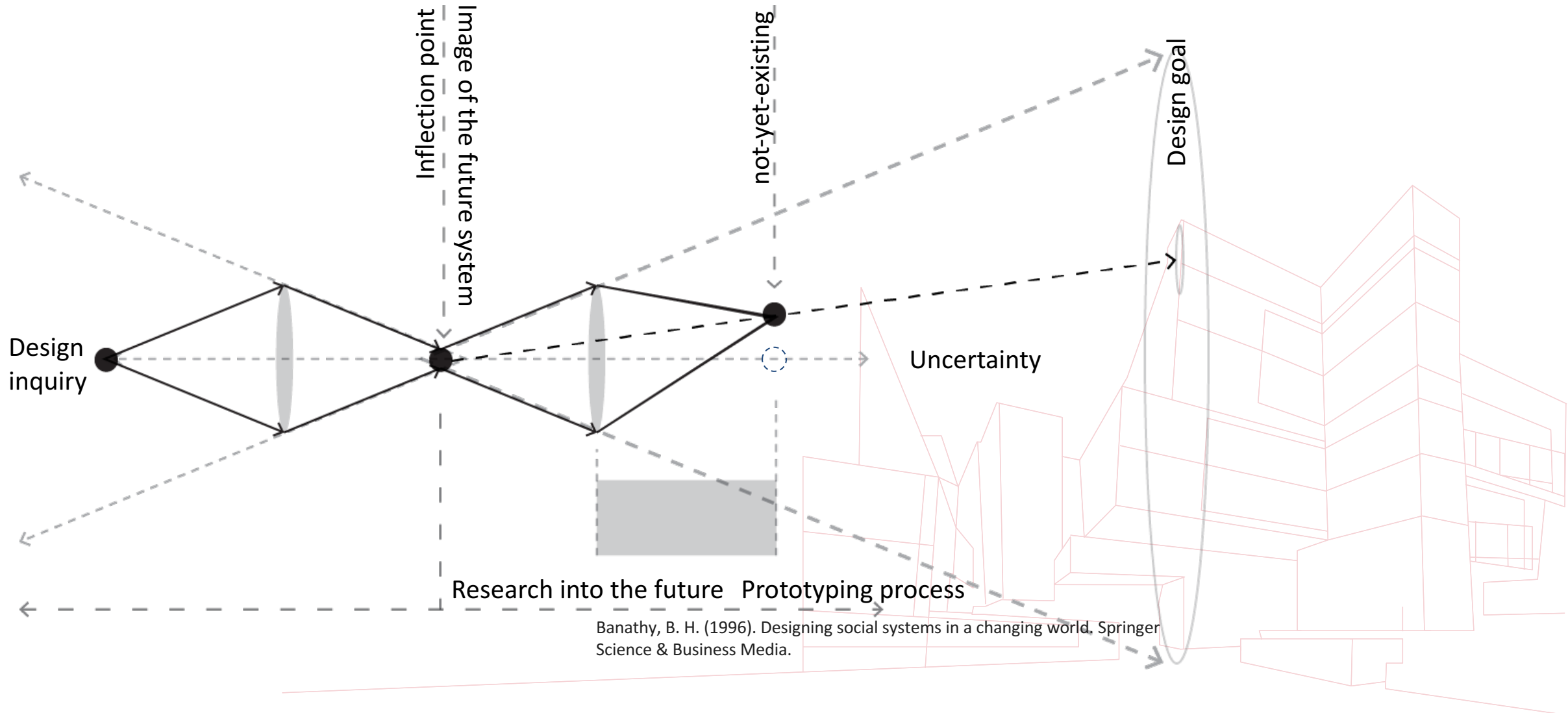


The design (reframing) process model

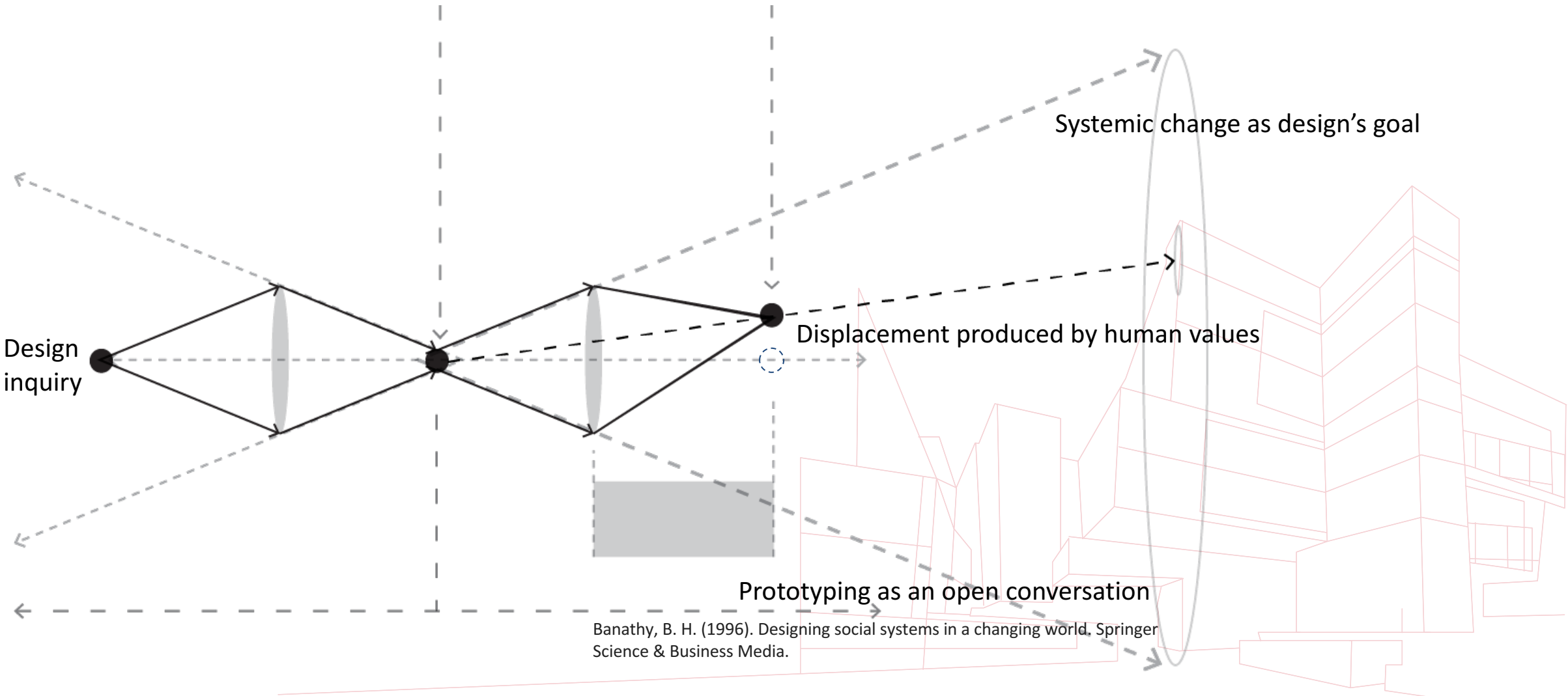


Banathy, B. H. (1996). Designing social systems in a changing world. Springer Science & Business Media.

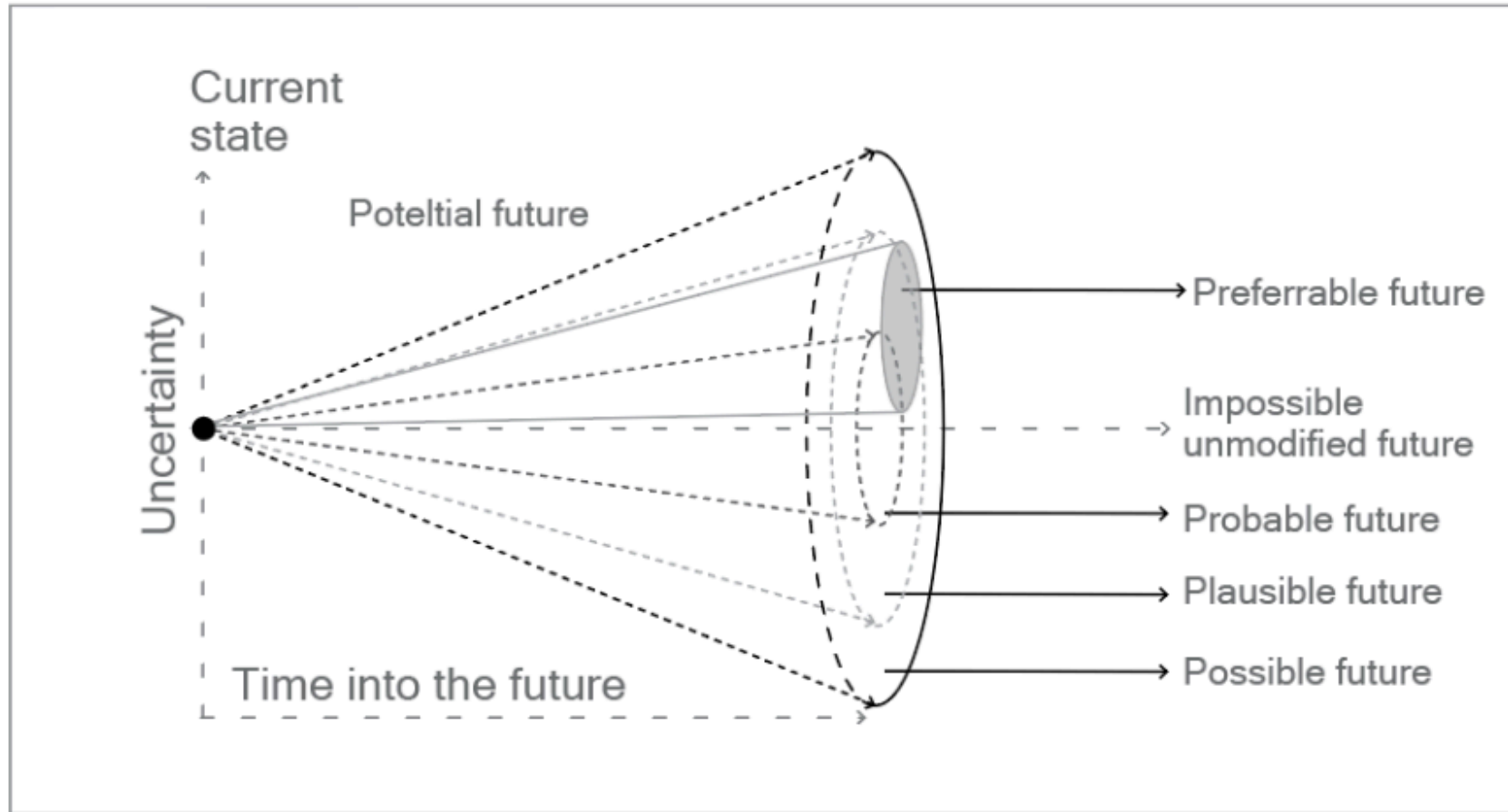
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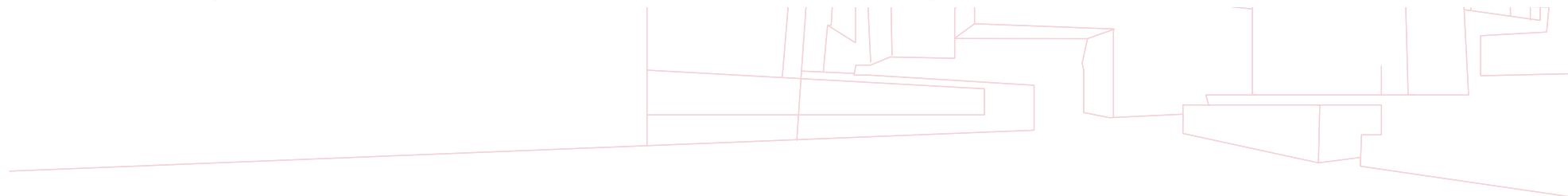
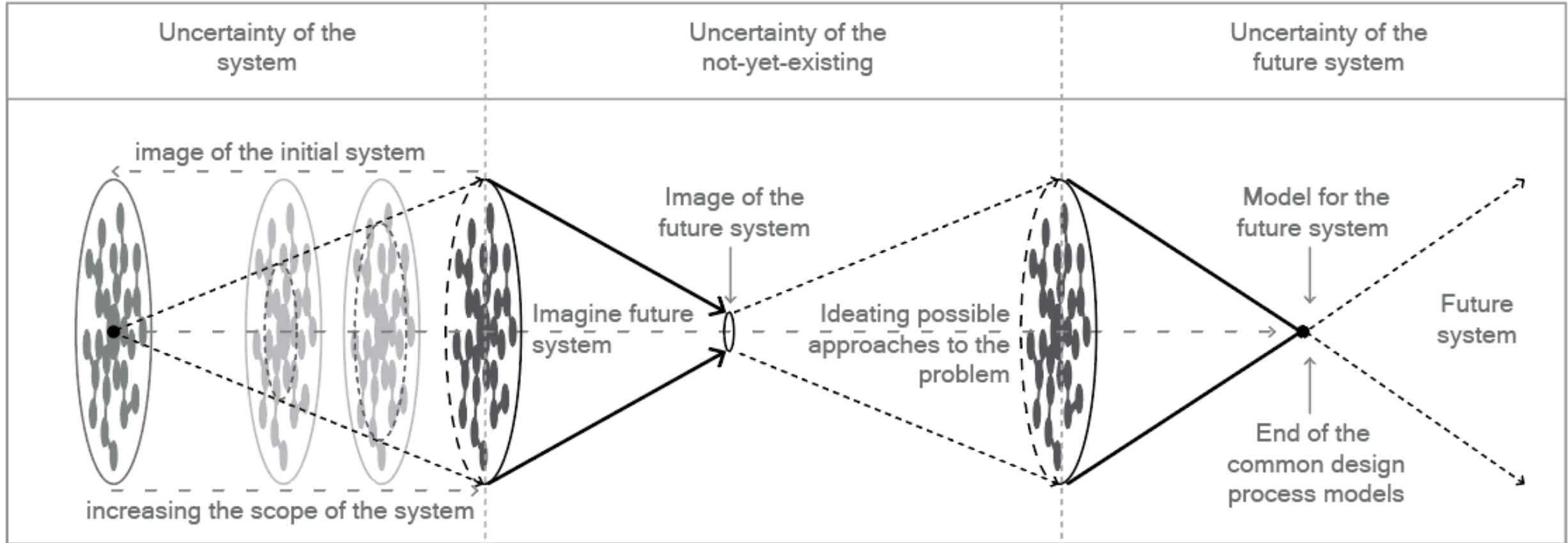


Researching into the future (dealing with uncertainty)



Modification of the model presented by Joseph Voros (2003) to exemplify potential futures.

Researching into the future (dealing with uncertainty)



Using displaced prototypes as probes

Current uses of prototypes:

Common prototypes seek to **validate ideas** or scenarios with users

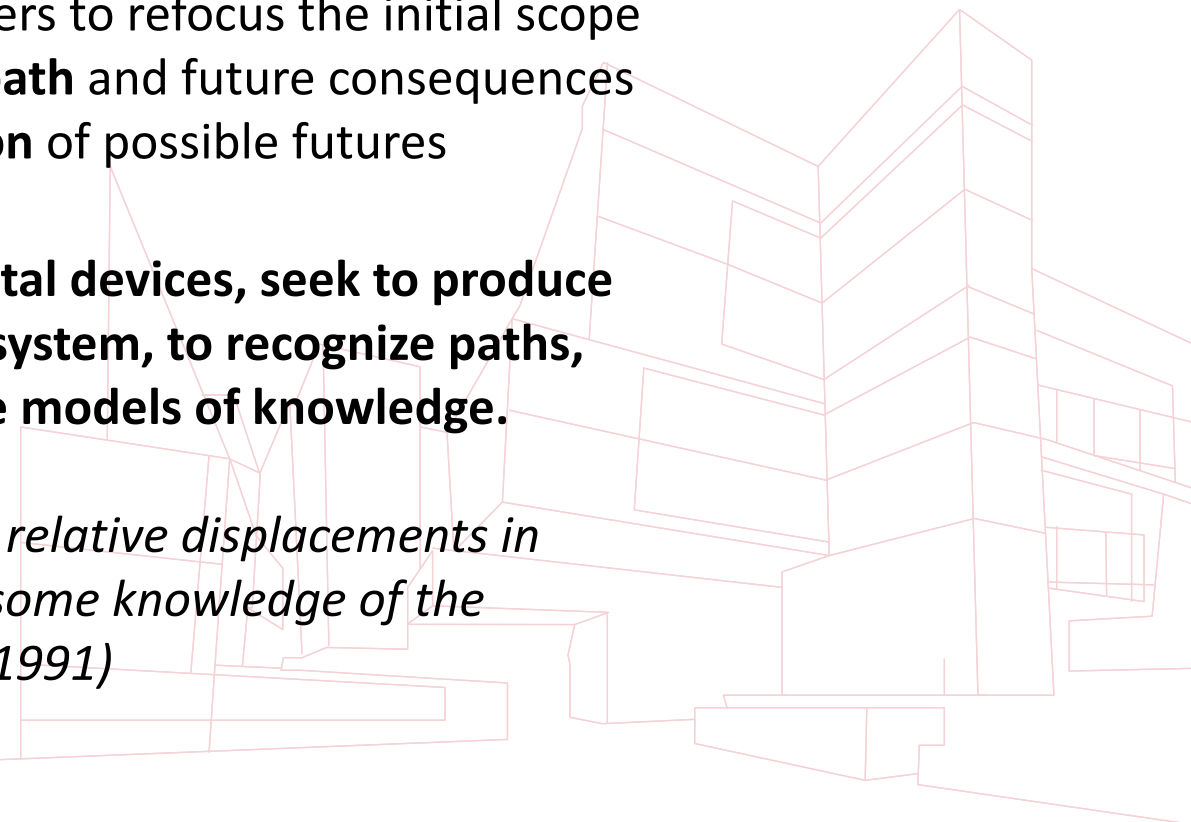
Provotypes seek to **provoke responses** on users to refocus the initial scope

Critical prototypes seek to **argue of current path** and future consequences

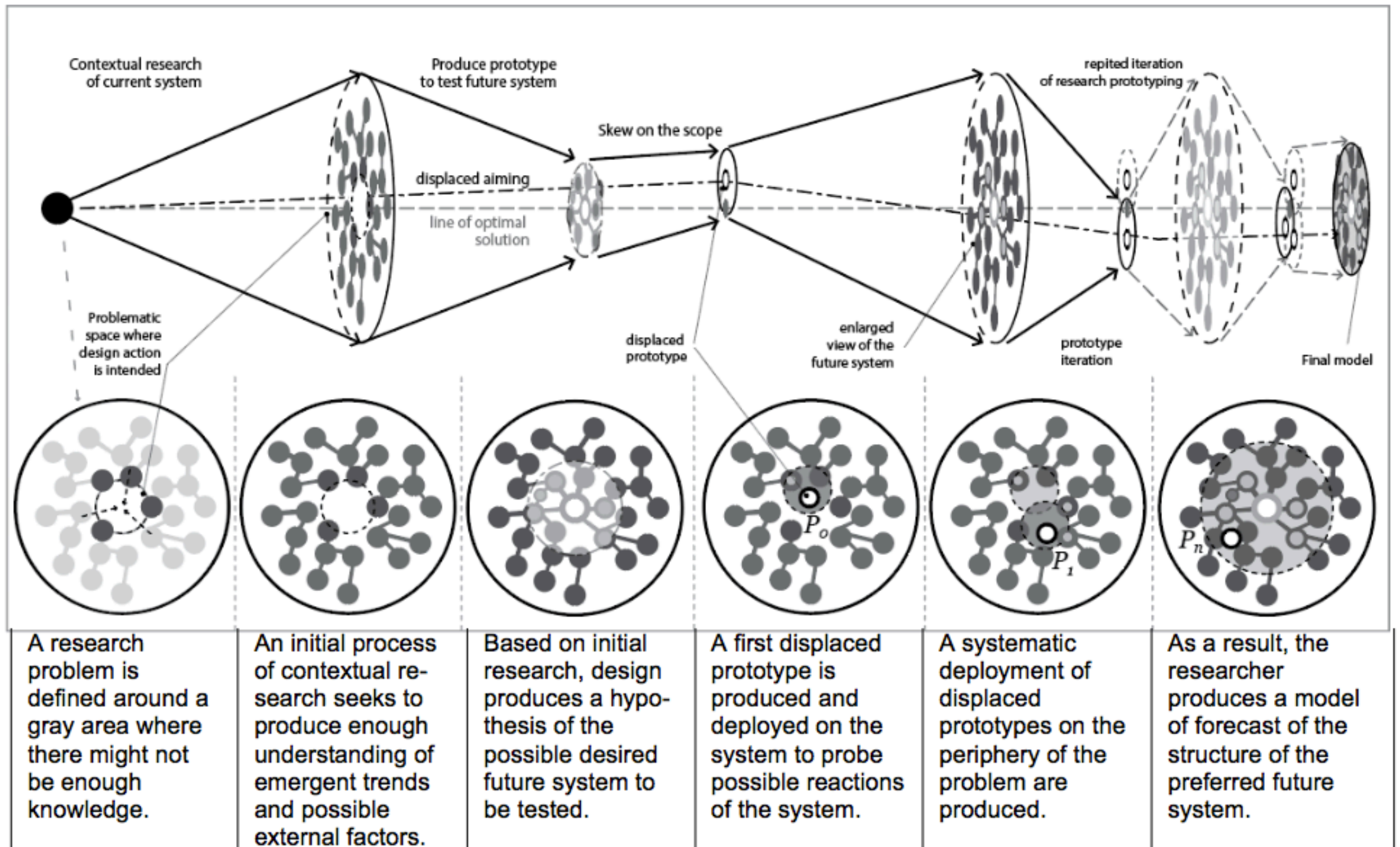
Fictional prototypes seek to **enlarge our vision** of possible futures

Displaced prototypes as probing, experimental devices, seek to produce several low resolution images of the future system, to recognize paths, intentions and actions necessary as reusable models of knowledge.

“Image resolution can be improved when the relative displacements in image sequences are known accurately, and some knowledge of the imaging process is available.” (Irani & Peleg, 1991)

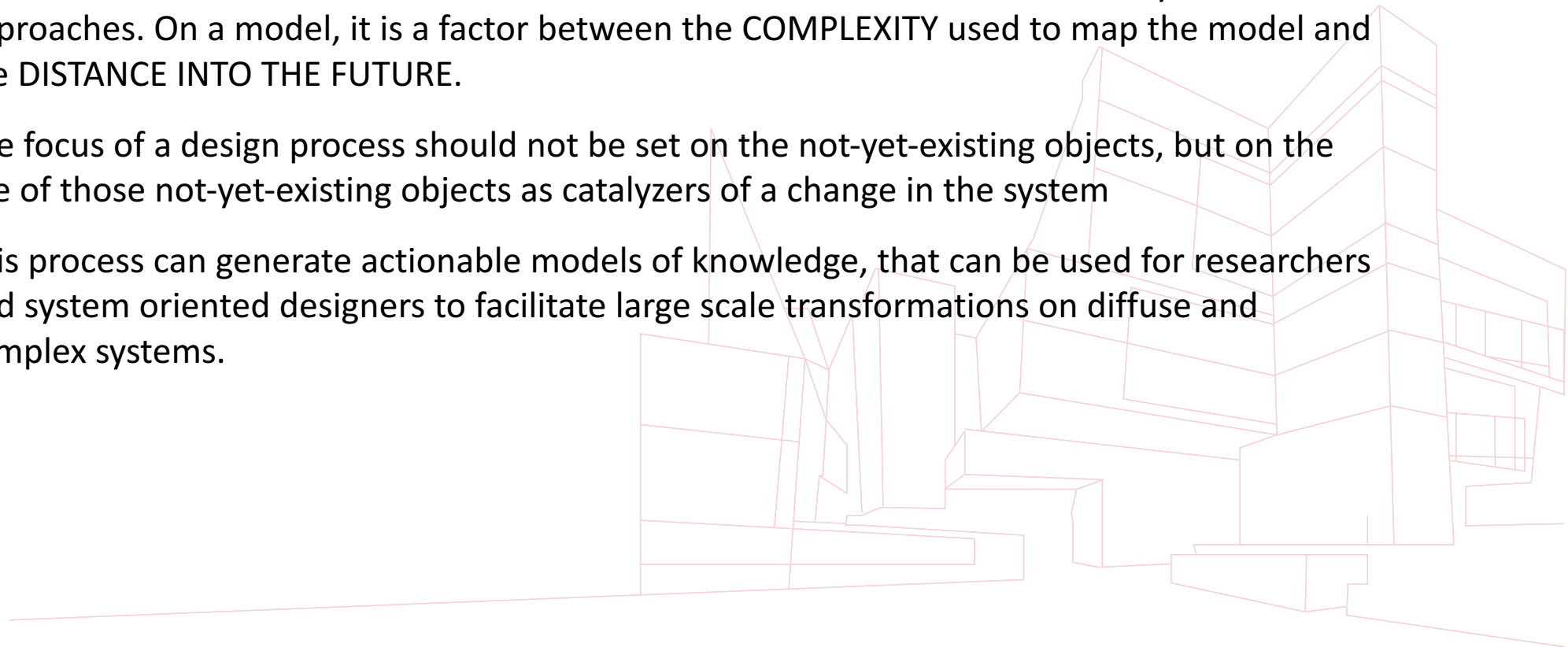


ITERATIVE MODEL FOR DESIGN RESEARCH BASED ON PROTOTYPING



Conclusions

- We argue that the used of iterative DISPLACED PROTOTYPES with different focus can increased the level of RESOLUTION of our image of the preferred future system.
- UNCERTAINTY is a constant of DESIGN and is what defines the need for more systemic approaches. On a model, it is a factor between the COMPLEXITY used to map the model and the DISTANCE INTO THE FUTURE.
- The focus of a design process should not be set on the not-yet-existing objects, but on the use of those not-yet-existing objects as catalyzers of a change in the system
- This process can generate actionable models of knowledge, that can be used for researchers and system oriented designers to facilitate large scale transformations on diffuse and complex systems.



Thank you!

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