Activating key principles of systemic design through exploratory prototyping

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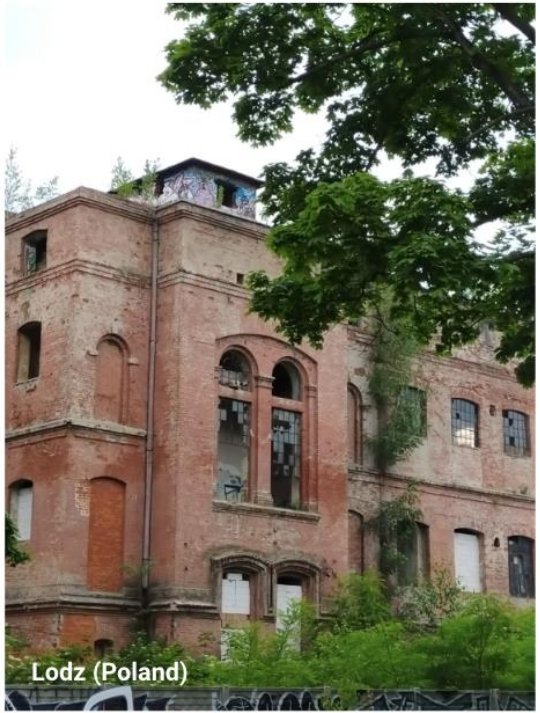
Introduction

- Systemic design principles
- Exploratory prototyping

Introduction

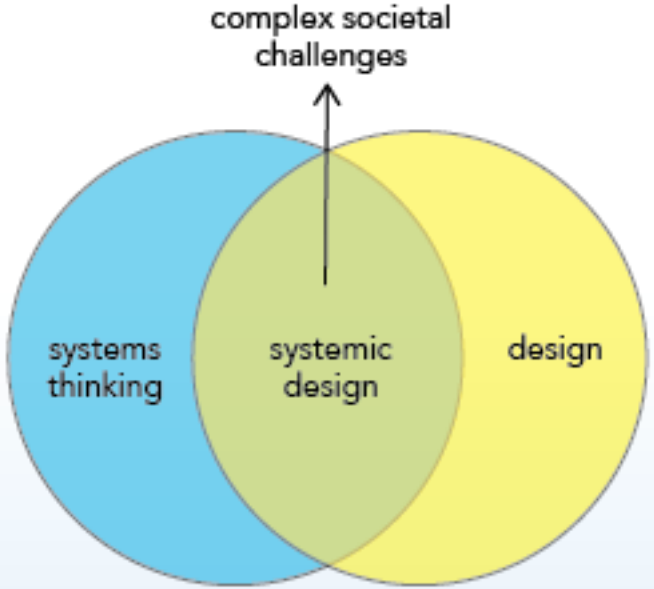
Systemic design issues



Introduction

Systemic design

- A promissing practice to address sustainable futures (Jones 2014, Jones & Sevaldson 2019, Buchanan 2019)
- *”Ultimate aim of systemic design is to co-design better policies, programs and service systems with the participants in those systems." (Jones 2017)*
- Integrates systems thinking and methods (yet, they remain underexplored)



source: https://miekevanderbijl.com/

Introduction

Systemic design principles

	How is design evolving to create the systems we need? (Drew et al. 2021)	Systemic design principles in social innovation (van der Bijl-Brouwer and Malcolm 2020)	Systemic Design Principles for Complex Social Systems (Jones 2014)
Acknowledging and appreciating the system's complexity	+ work at 3 levels of the system (micro, macro, meso) + seeing things (designs) as part of a bigger thing	+ developing empathy with the system	+ appreciating complexity systems ordering
Recognizing interrelatedness/interdependence	+ perception of interdependence	+ interrelatedness	*(not expressly mentioned)*
Framing or reframing the system's boundary	*(not expressly mentioned)*	+ open up problem space	+ boundary framing or reframing
Establishing a vision for the system	+ challenge the deep structure of a system + Working to an alternative intention + supporting the transition to a new model	+ evolutionary approach	+ identifying an ideal state + purpose finding + continuous adaptation
Concentrating on relations(hips)	+ reconfiguring relations that unlock or invite new behaviors	+ focus on relationships instead of end-users	*(not expressly mentioned)*
Promoting multifaceted strategies to enable change	+ supporting others to embody/experience/imagine alternatives	+ influencing mental models to enable change	+ self-organization

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Introduction
Prototyping

- Valuable method in (collaborative) design process,
- Potential to facilitate systemic design processes, still to be proven (Maiorana, 2021)
- Shift in definition and traditional application when applied in complex design processes (Blomkvist 2014, Maiorana 2021, Schulman 2010)

Introduction

Exploratory Prototyping

Experimental approach to prototyping	Exploratory approach to prototyping
Prototypes are solutions to a problem	Prototypes are instruments of knowledge activation
Prototypes evaluated through experimental use	Prototypes unfold new perspectives and potential opportunities to a given challenge
Goal: assessing problem-solving	Goal: facilitate emergence of solution ideas (not limited to one solution)
Prototypes inform about how the object works (or not) in a given context	Do not provide information about an object but catalyze new information on the context relevant for the design process

Generated from Floyd, C. (1984)

Introduction

The potential of exploratory Prototyping

Exploratory prototypes have been acknowledged for their value as:

- “vehicle[s] that raise questions and reveal both opportunities and dilemmas” (Hillgren et al. 2011),
- challengers of the “status quo” (Kimbell and Bailey 2017),
- “a tool for exploring the invisible adjacent possible” (Snowden and Rancati 2020)

Floyd, C. (1984, p.6)

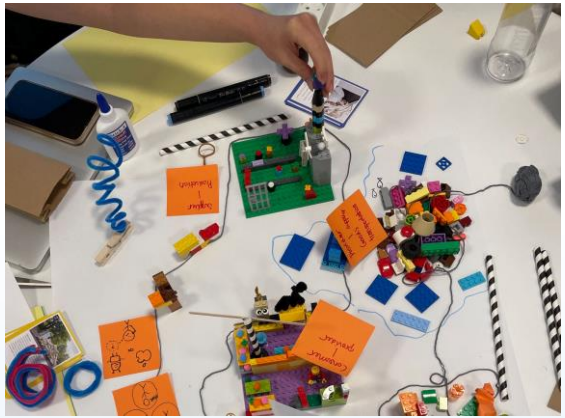
Research question

How are key principles of systemic design activated through exploratory prototyping?

Methodology

Methodology

3 workshops & follow-up interviews



Methodology

Prototyping activities

Activity	Description
Opening	Facilitators introduce the topic and the context of their research.
Introduction to the brief	Participants are introduced to the brief and the challenges of the urban context to be addressed.
Rounds of exploratory prototyping	Teams of participants are given materials and instructions to represent the targeted system in several rounds of exploratory prototyping targeting the material infrastructure, the socio-technical factors, the environmental factors, economic and political elements; the human and other-than-human actors, and the flows and interactions between them
Envisioning solutions	Participants generate prototypes of potential solutions that lead to their targeted vision for the system
Plenary discussion	Round of presentations followed by reflections on the use of exploratory prototyping for complex systems

Findings

- Prototyping influenced the unfolding of the systemic design principles identified in the literature.
- Specially influenced:
  - acknowledging and appreciating complexity,
  - recognising interrelatedness and
  - concentrating on relationships within the system

- From understanding the system, its elements and connections, prototyping also facilitated:
  - framing the system's boundaries,
  - establishing a vision for the system,
  - developing solutions to enable the envisioned change.

Conclusion

How are key principles of systemic design activated through exploratory prototyping?

Conclusion

Rationality through tactility

A team explored the targeted urban system through the metaphor of a body, and identified potential challenges to address

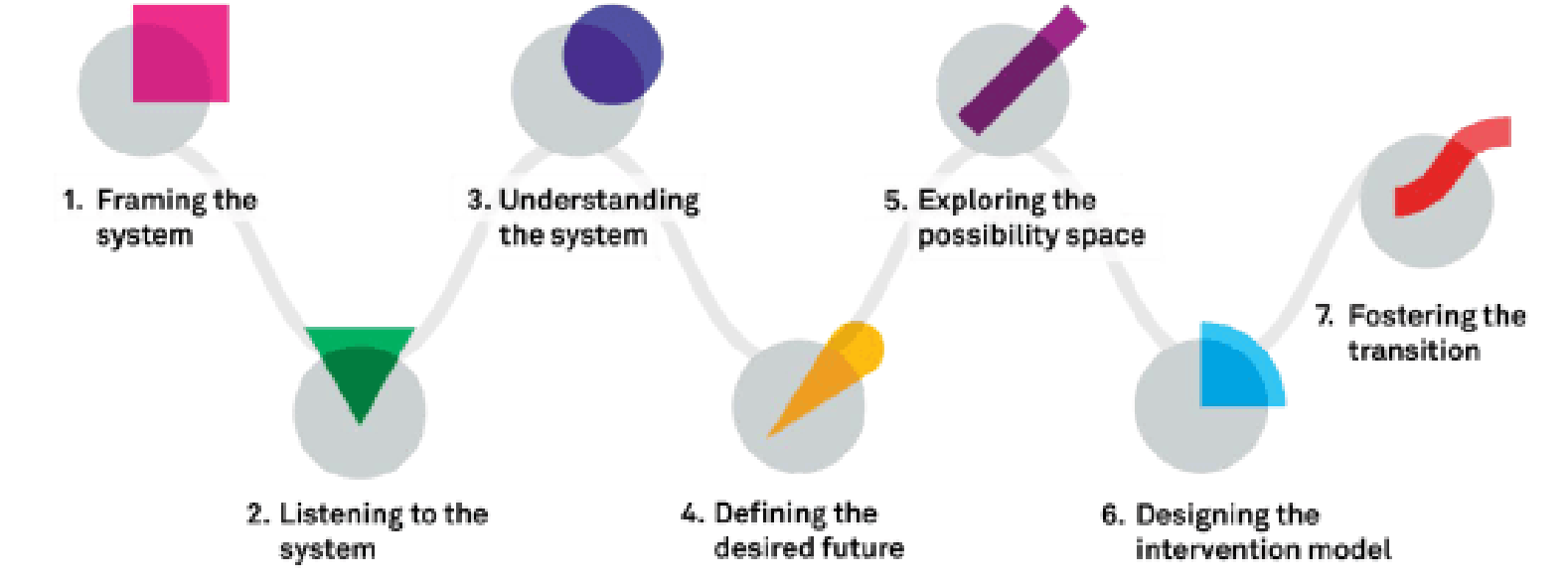
Conclusion

Prototypes as boundary objects

A team prototyped their vision of a system, envisioning solutions according to Elinor Ostrom's (1990) concept of "governing the commons"

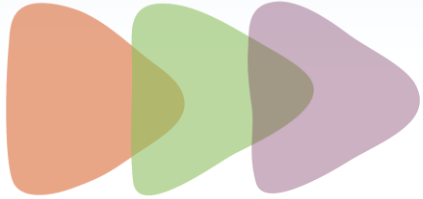
Conclusion

Exploratory prototyping in early stages of systemic design processes



Conclusion

Simplification vs. complexity



Thank you!

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