

# Systemic Design

How to use systems thinking and design to tackle complex societal challenges

*Service Design Days Challenge 2019*

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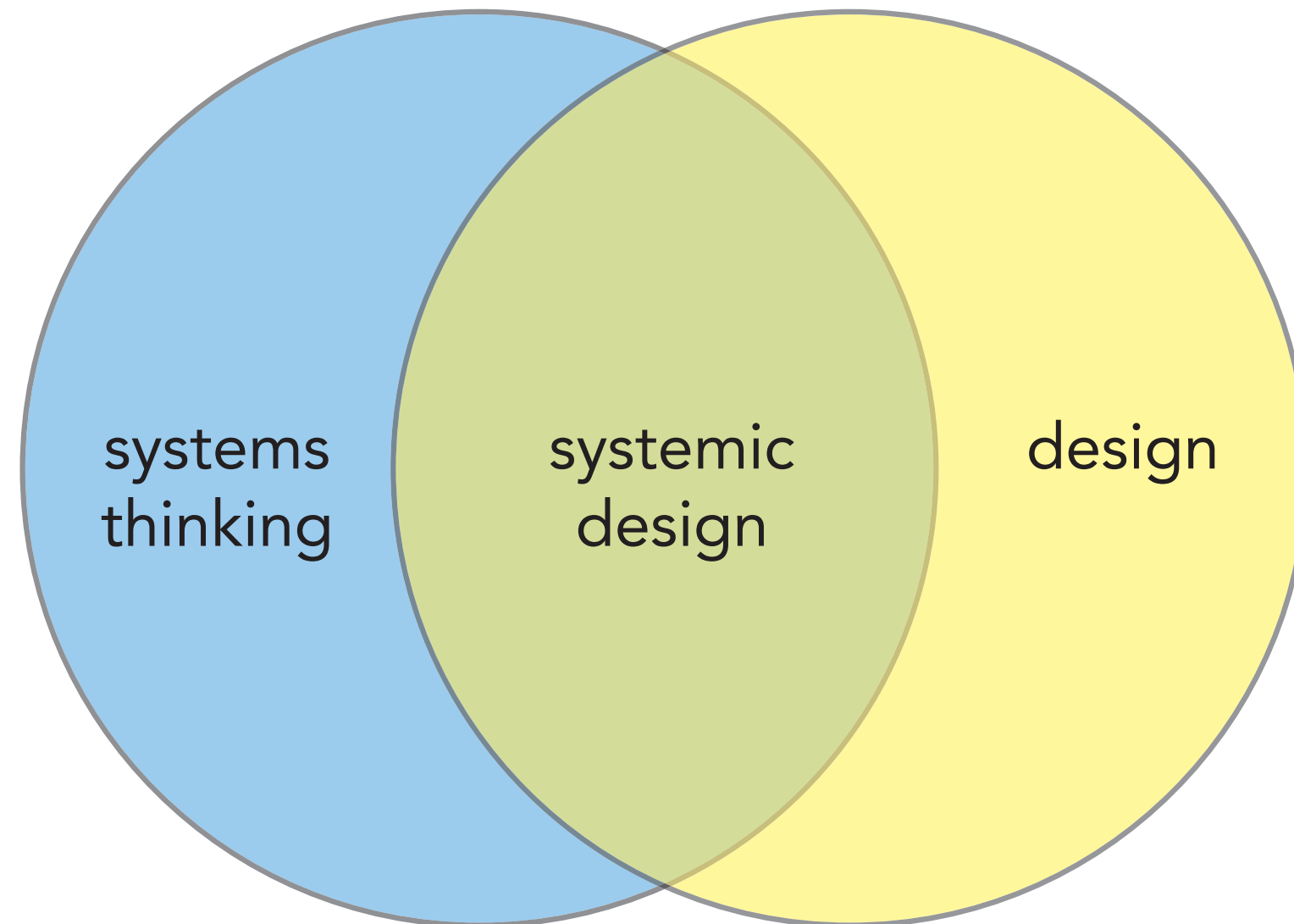


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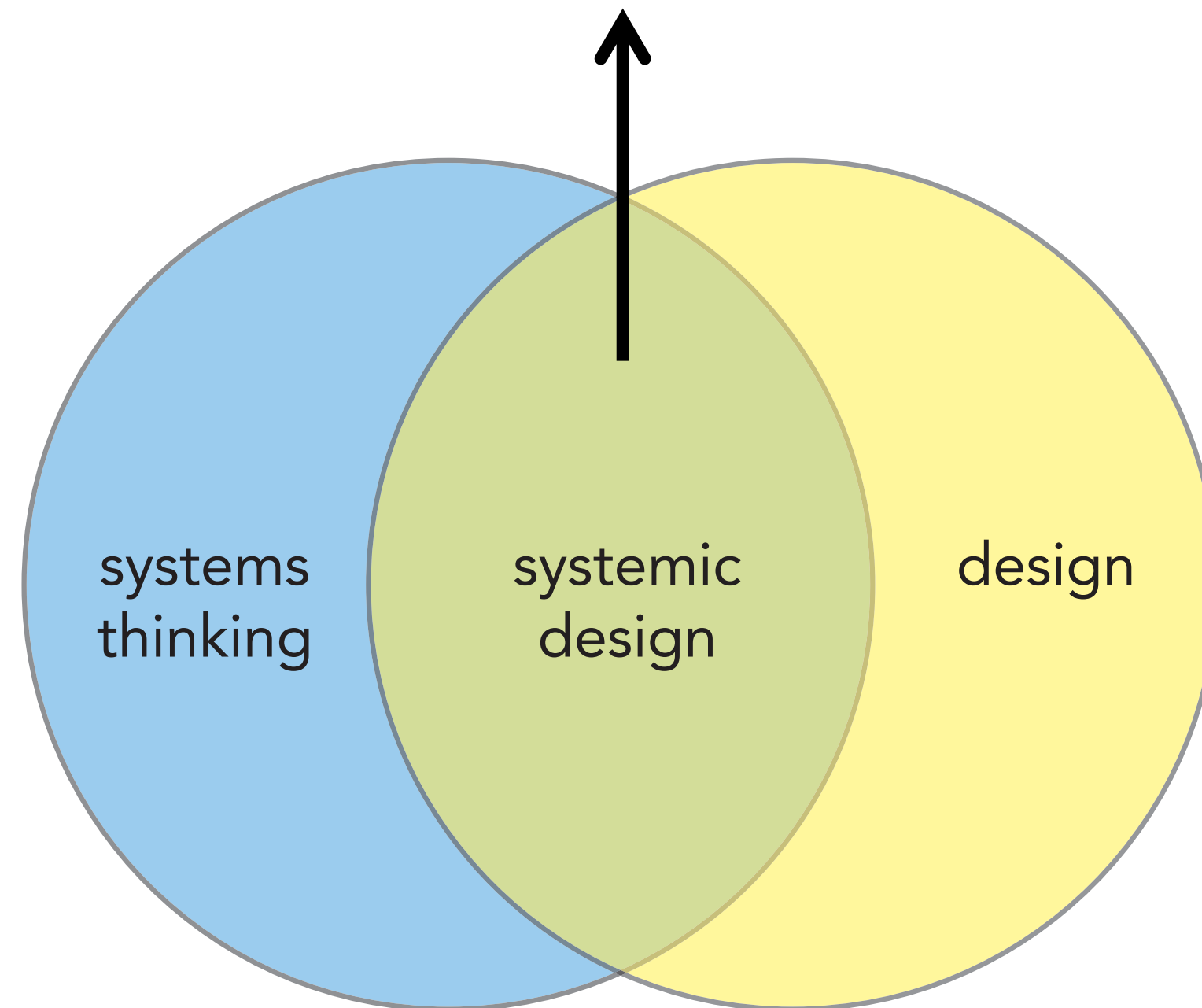


# systemic design



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**tackle complex societal challenges**



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**what is a system?**

# systems

- a system is a whole that cannot be divided into independent parts
- the behaviour of each element has an effect on the whole
- the behaviour of the elements and their effects on the whole are interdependent

Ackoff, Russell L. *Ackoff's Best*. New York: John Wiley & Sons, 1999.

**a system is not the sum of the  
behaviour of its parts, it's the  
product of their interactions**

**systems thinking**



**reductionism**





# reductionism - Descartes

## the Cartesian method

- introduced in the scientific revolution
- reductionism attempts explanation of entire systems in terms of their individual, constituent parts and their interactions





# reductionism - Descartes

the Cartesian method

- related to causal determinism: linear cause-effect relationships

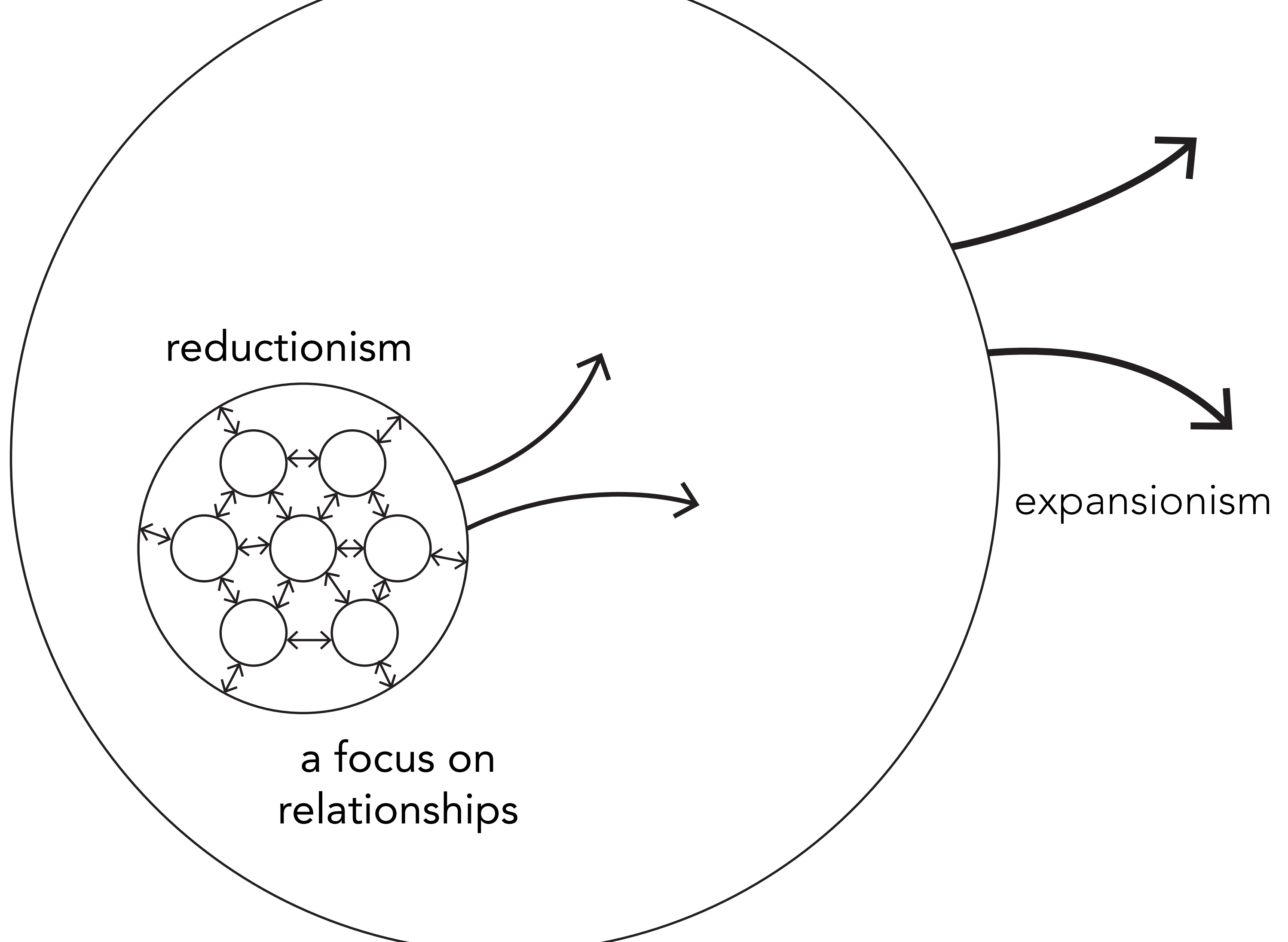


# examples reductionism

- can you think of examples of where reductionism manifests itself in our society? (for example in health, education, sports, democracy, work, etc.)



**systems thinking:  
seeing the bigger  
picture and  
connecting the dots**





# systemic design practices

1. systemic perspective on the problem
2. design for evolution
3. design for relationships
4. design for mental models
  - *framing and deep human insights*
  - *design as systems change*
  - *designing in networks*

**1. systemic  
perspective on the  
problem**



**interrelatedness of  
problems &  
expanded view**

# **interrelatedness of problems**

TACSI: “family reliance on services is caused by complex interrelated, chronic risk factors that span social, health and education sectors.”

Source: TACSI, 2016, “Generation by Generation– Pragmatic approaches to reducing intergenerational cycles of reliance on child protection services”



# expanded view/ opening up

## Example TACSI: evolving framing

- how do we enable more children to safely return home to their families, stay home and thrive?
- how might we better enable children and families engaging with the child protection system to live safely and thrive?

van der Bijl - Brouwer, Mieke. "Problem Framing Expertise in Public and Social Innovation." *She ji: The Journal of Design, Economics and Innovation* 5, no. 1 (2019): 29-43.

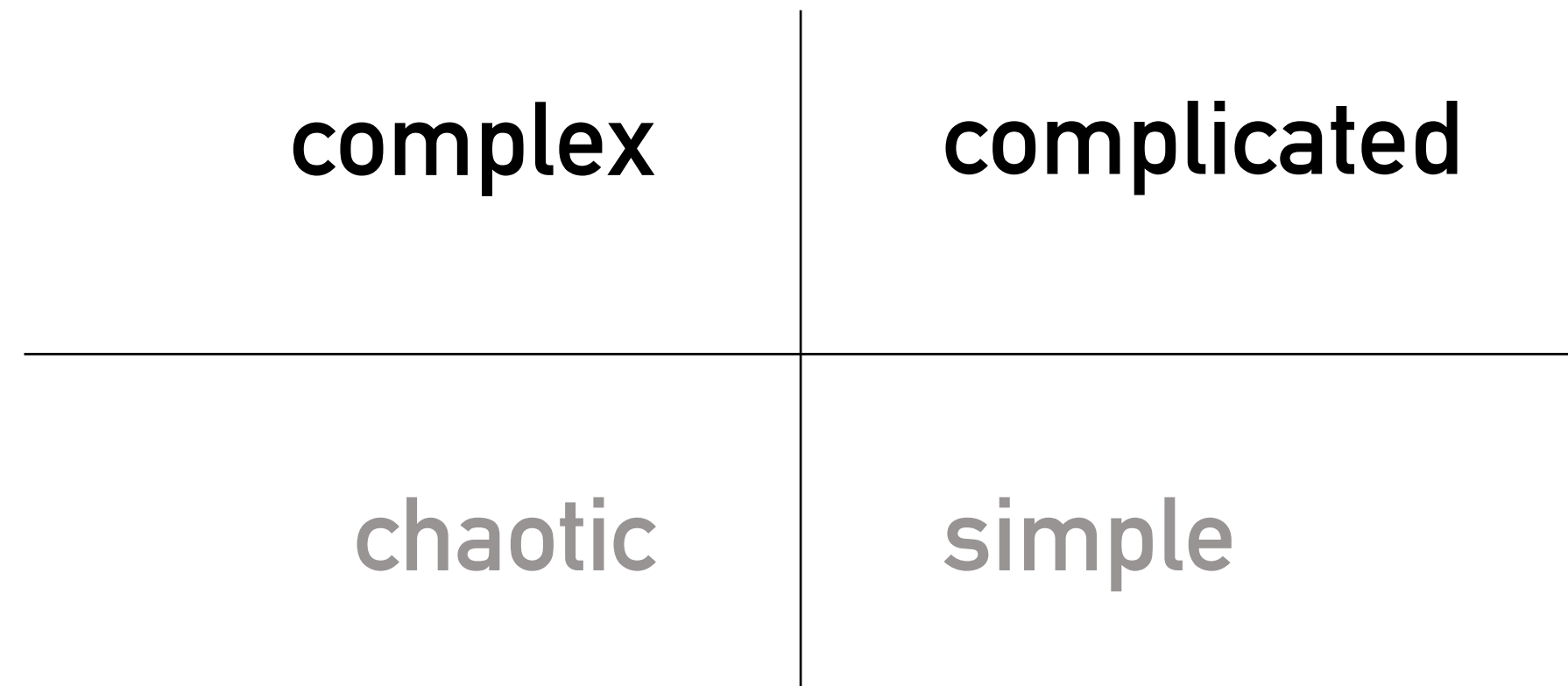
## **2. design for evolution**

**design for evolution:  
complex problems  
cannot be 'solved'**



# addressing complex challenges

## Cynefin framework



Snowden, David J., and Mary E. Boone. "A Leader's Framework for Decision Making." *Harvard Business Review* 85, no. 11 (December 2007 2007): 68-76.

# addressing complex challenges

*experiment: probe,  
sense, respond*  
**complex**

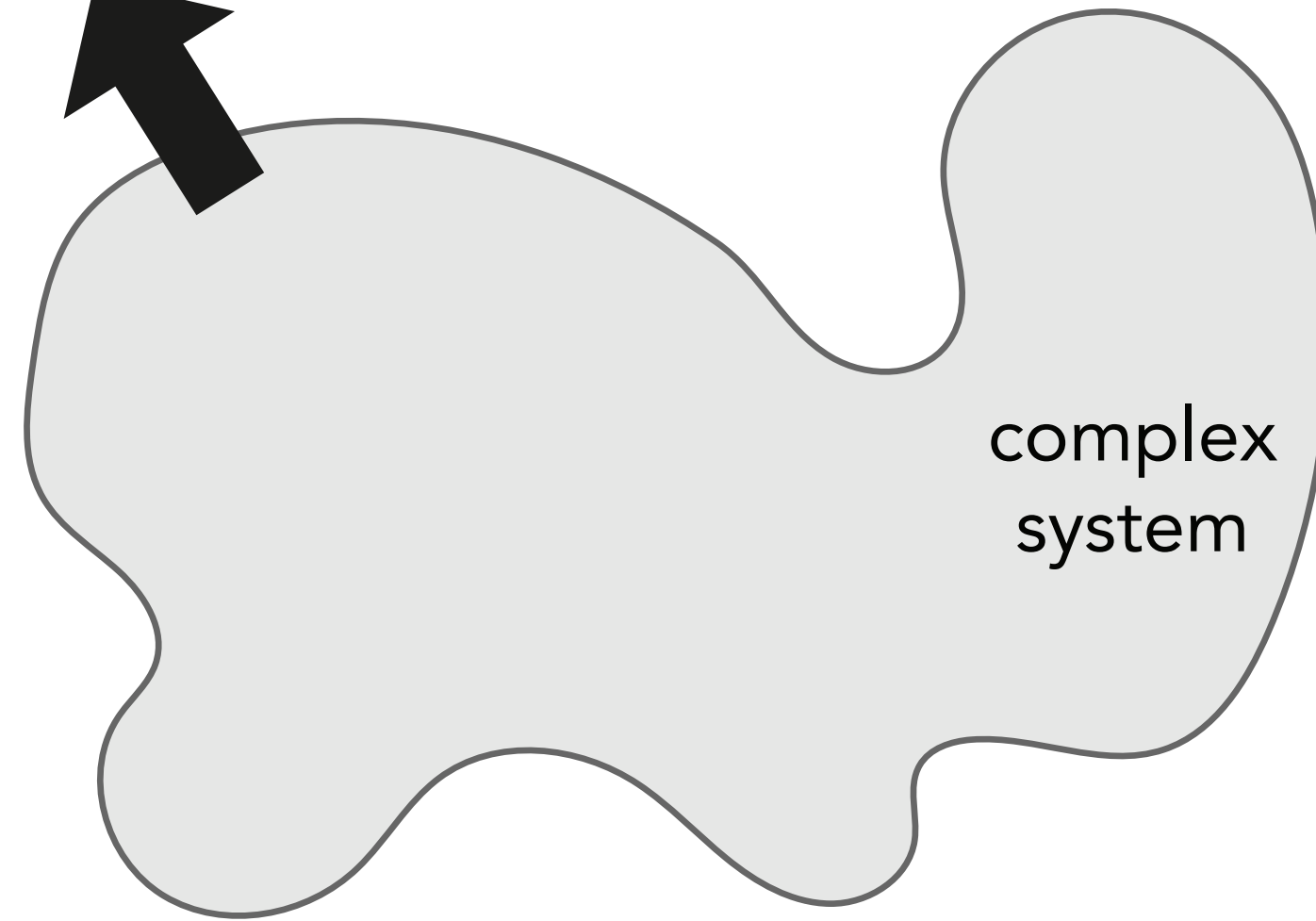
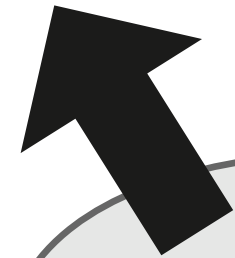
*expertise: sense,  
analyse, respond*  
**complicated**

**chaotic**

**simple**

Snowden, David J., and Mary E. Boone. "A Leader's Framework for Decision Making." *Harvard Business Review* 85, no. 11 (December 2007 2007): 68-76.

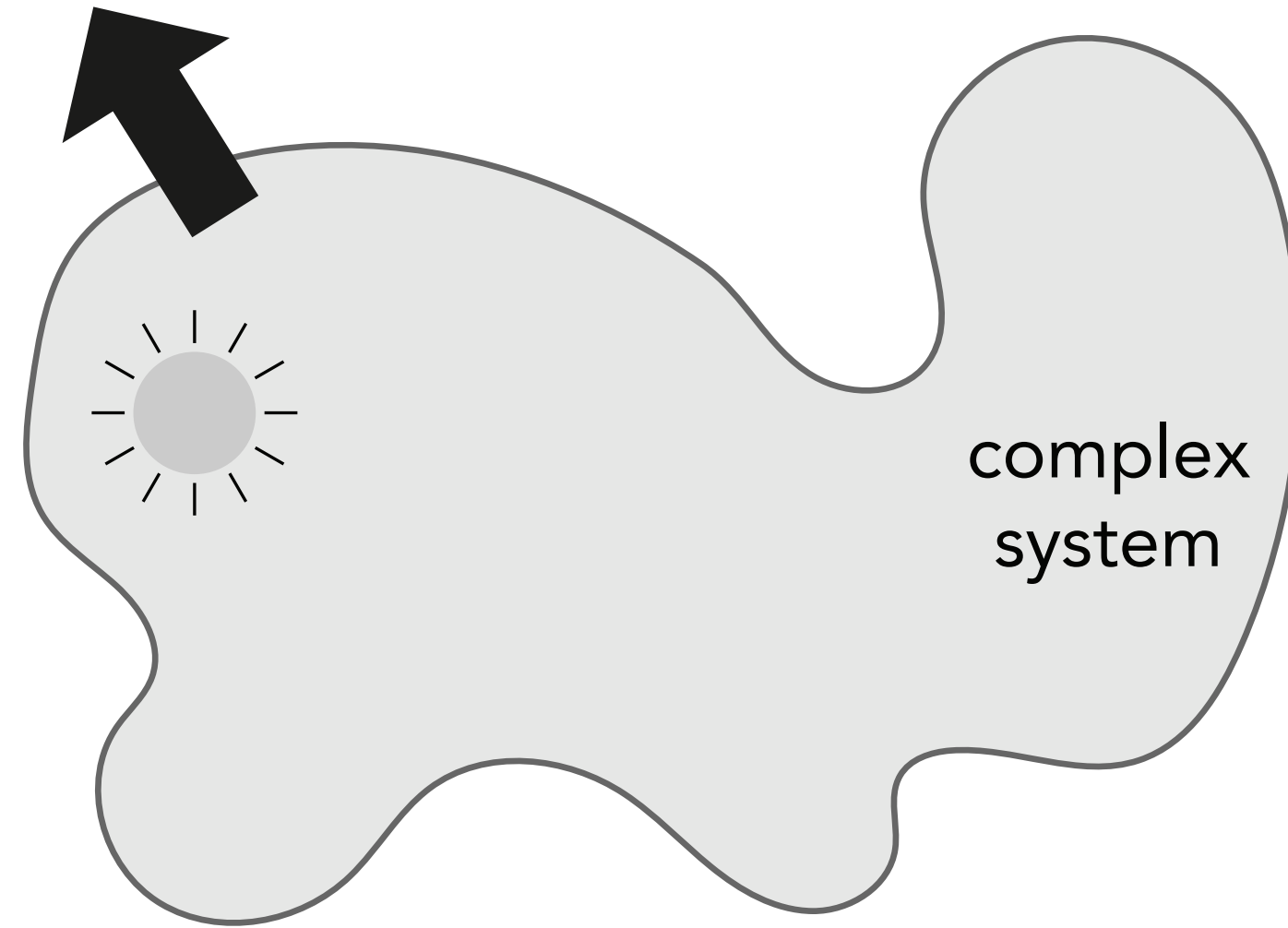
desired direction



complex  
system



desired direction



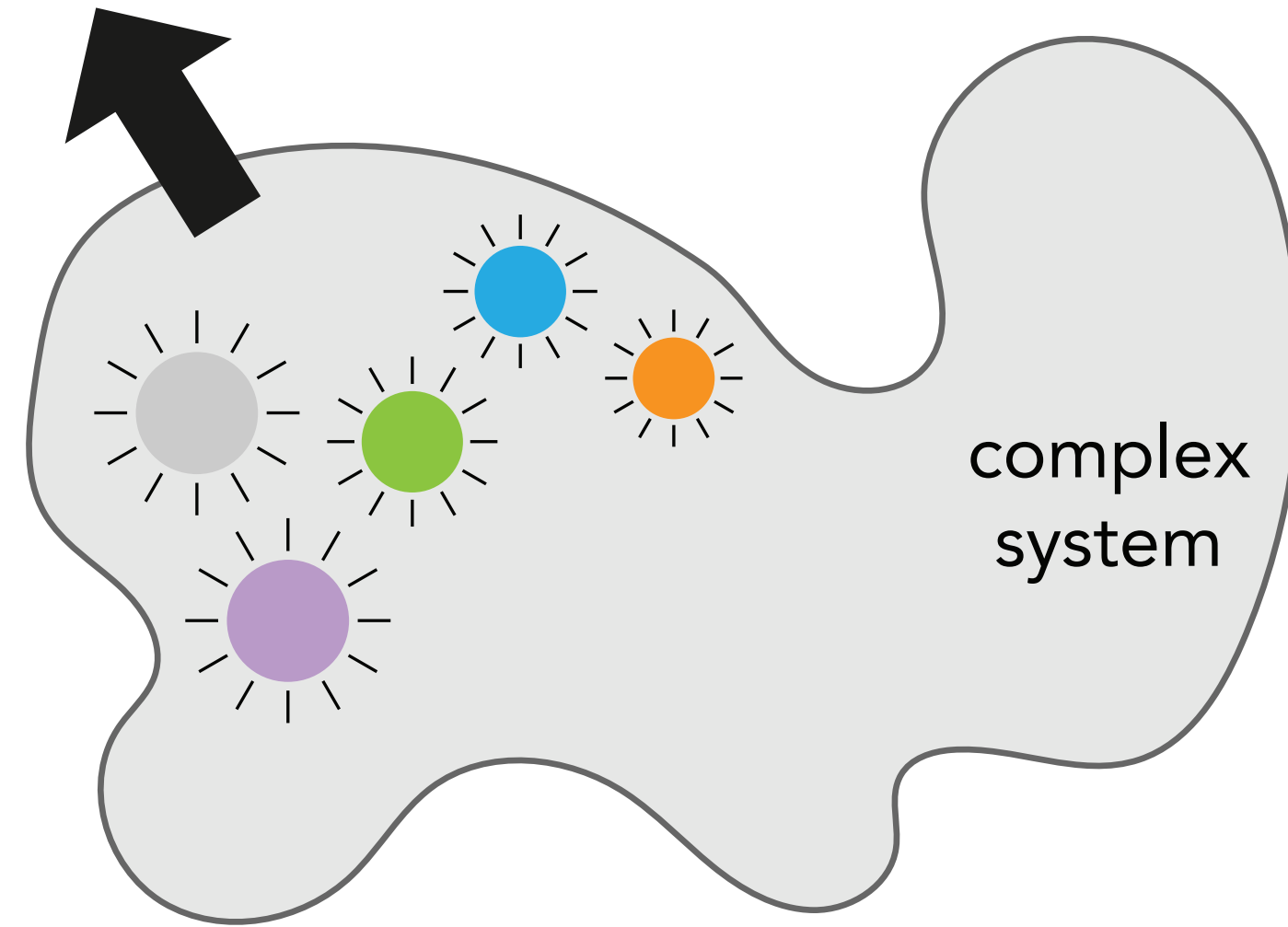
complex  
system

**evolutionary**

**approach:**

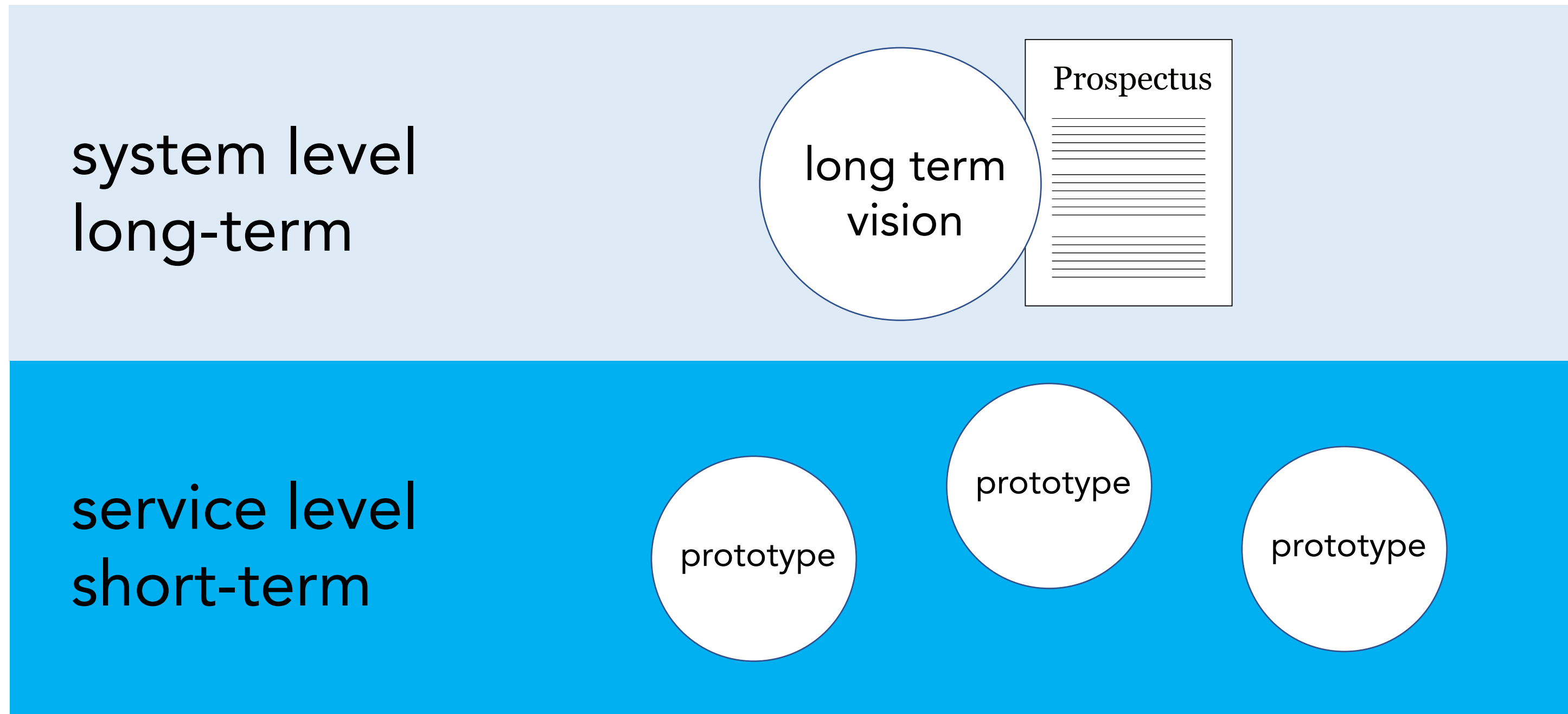
**vary, select, amplify**

desired direction





# "two-track thinking"



# **3. design for human relationships**



A large flock of birds, possibly starlings, is captured in mid-flight against a soft, pinkish-orange sunset sky. The birds are densely packed in the center, forming a large, dark, circular cloud that tapers towards the edges. Below the flock, a dark silhouette of a treeline and distant hills is visible against the horizon. The foreground consists of a field of tall, golden-brown grass.

# complex systems: self-organisation & emergence

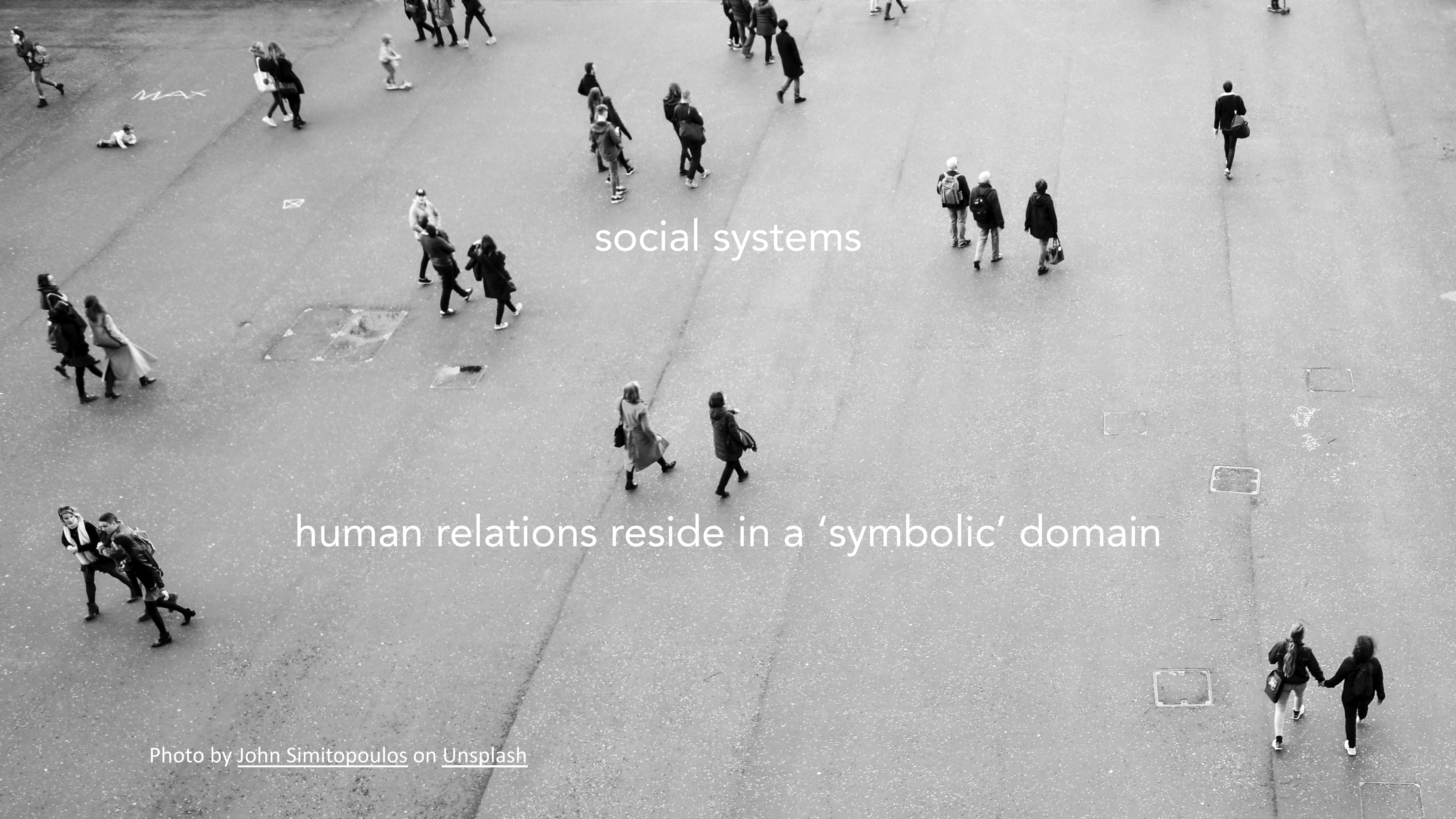


**these systems  
cannot be controlled**

**“cultivate systems  
change”**

**“positively influence  
system evolution”**





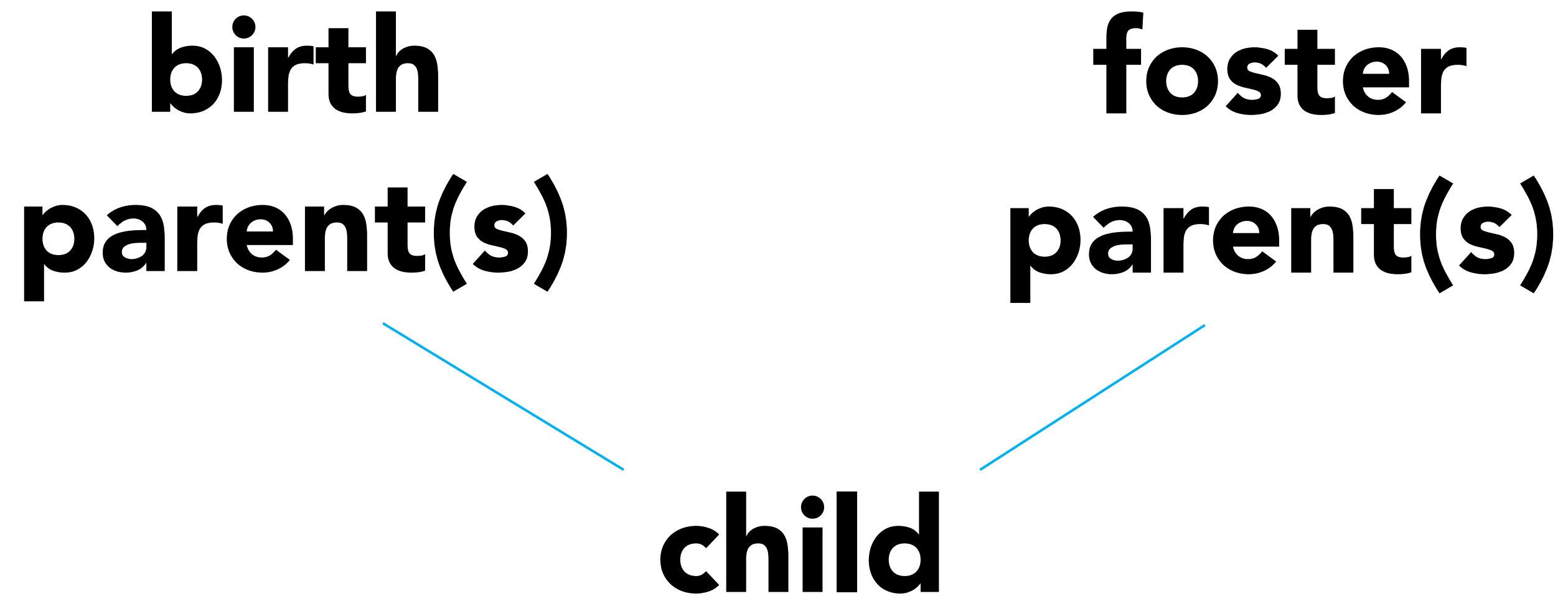
social systems

human relations reside in a 'symbolic' domain

# **design for human relationships**

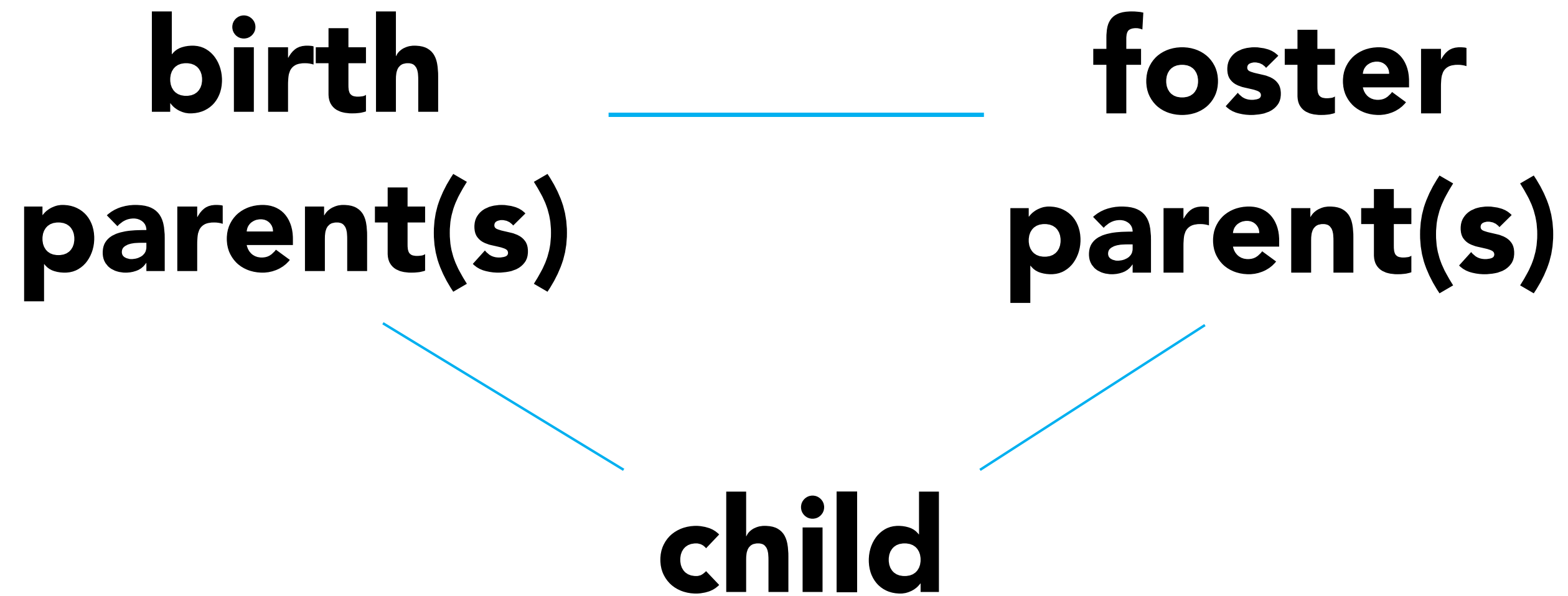
# co-parenting model

The Australian Centre for Social Innovation



# co-parenting model

The Australian Centre for Social Innovation





**design for the  
quality of human  
relationships**

<http://www.nesta.org.uk/blog/creating-solutions-danish-teachers-time-and-quality-dilemma-0>

**MindLab:**  
**A time – quality  
dilemma for  
teachers**

# lesson boxes



<http://www.nesta.org.uk/blog/creating-solutions-danish-teachers-time-and-quality-dilemma-0>

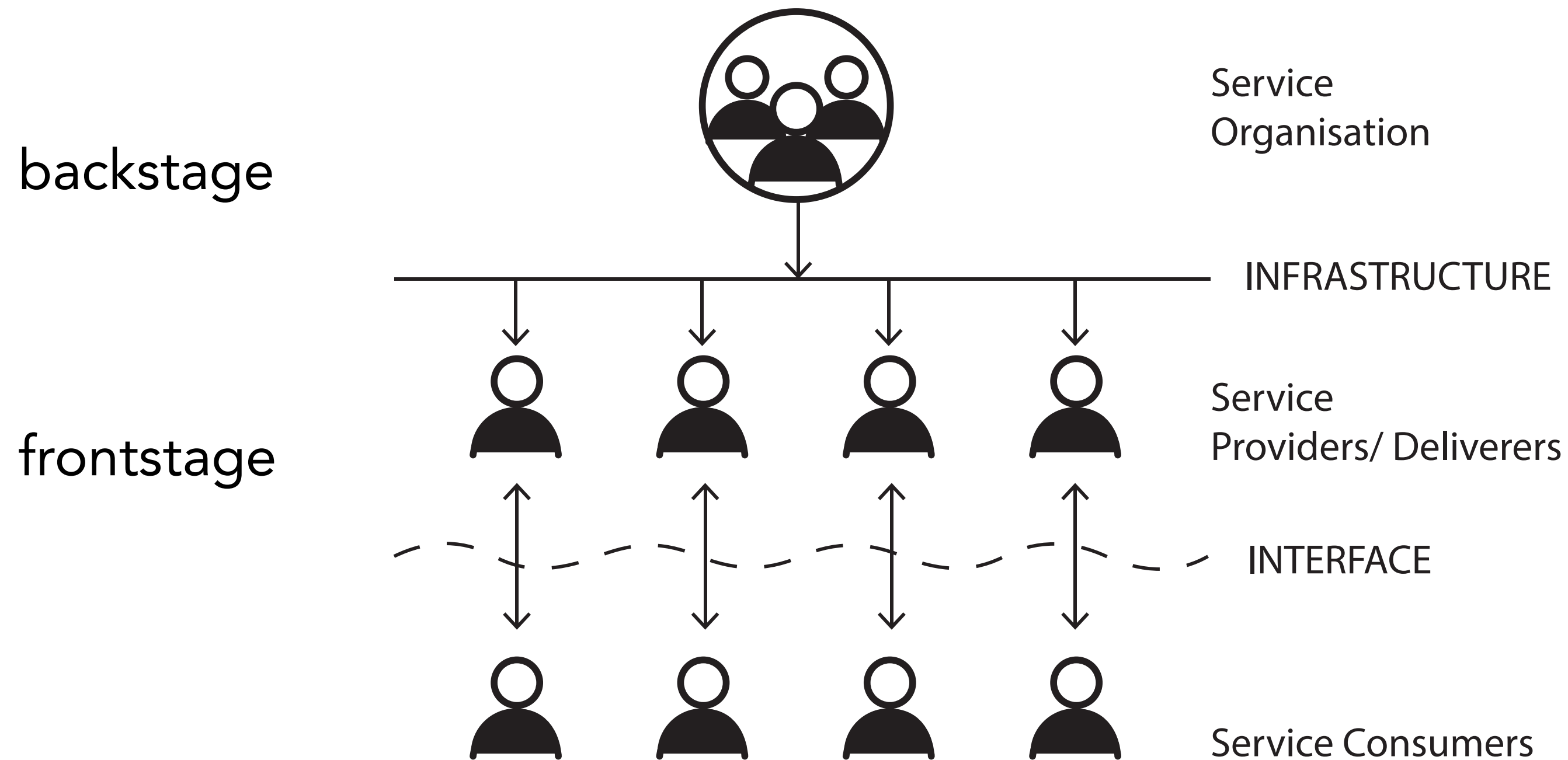
# speed sharing



<http://www.nesta.org.uk/blog/creating-solutions-danish-teachers-time-and-quality-dilemma-0>

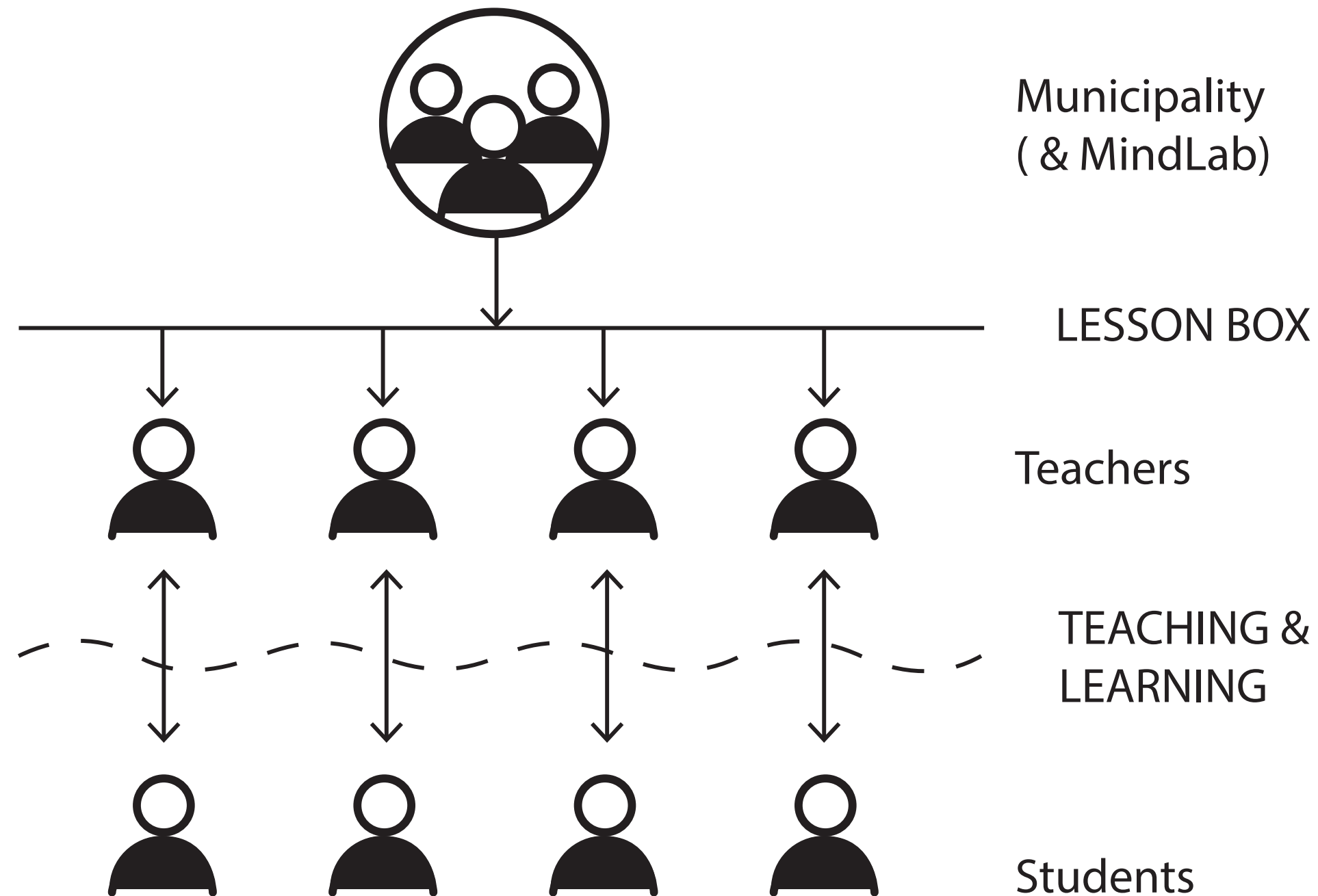


# service design system perspective



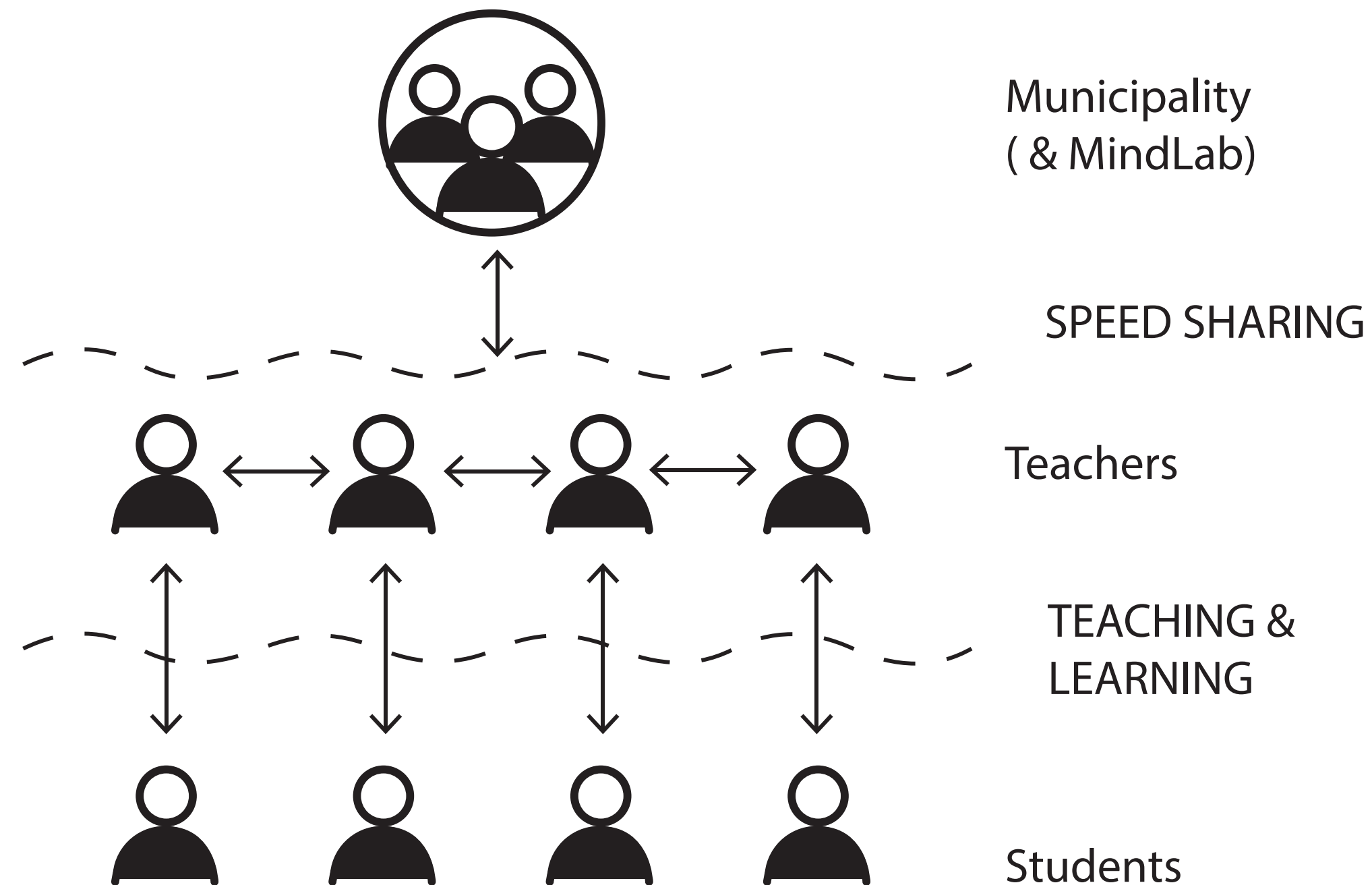
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# MindLab – infrastructure



van der Bijl - Brouwer, Mieke. "Designing for Social Infrastructures in Complex Service Systems: A Human-Centred and Social Systems Perspective on Service Design." *She Ji: The Journal of Design, Economics, and Innovation* 3, no. 3 (2017).

# MindLab – social infrastructure



van der Bijl - Brouwer, Mieke. "Designing for Social Infrastructures in Complex Service Systems: A Human-Centred and Social Systems Perspective on Service Design." *She Ji: The Journal of Design, Economics, and Innovation* 3, no. 3 (2017).

# **building & strengthening human relationships**

- allows for novelty and creativity to emerge
- creates 'knowledge flows', people learn from each other.
- generates collective motivation
- ...



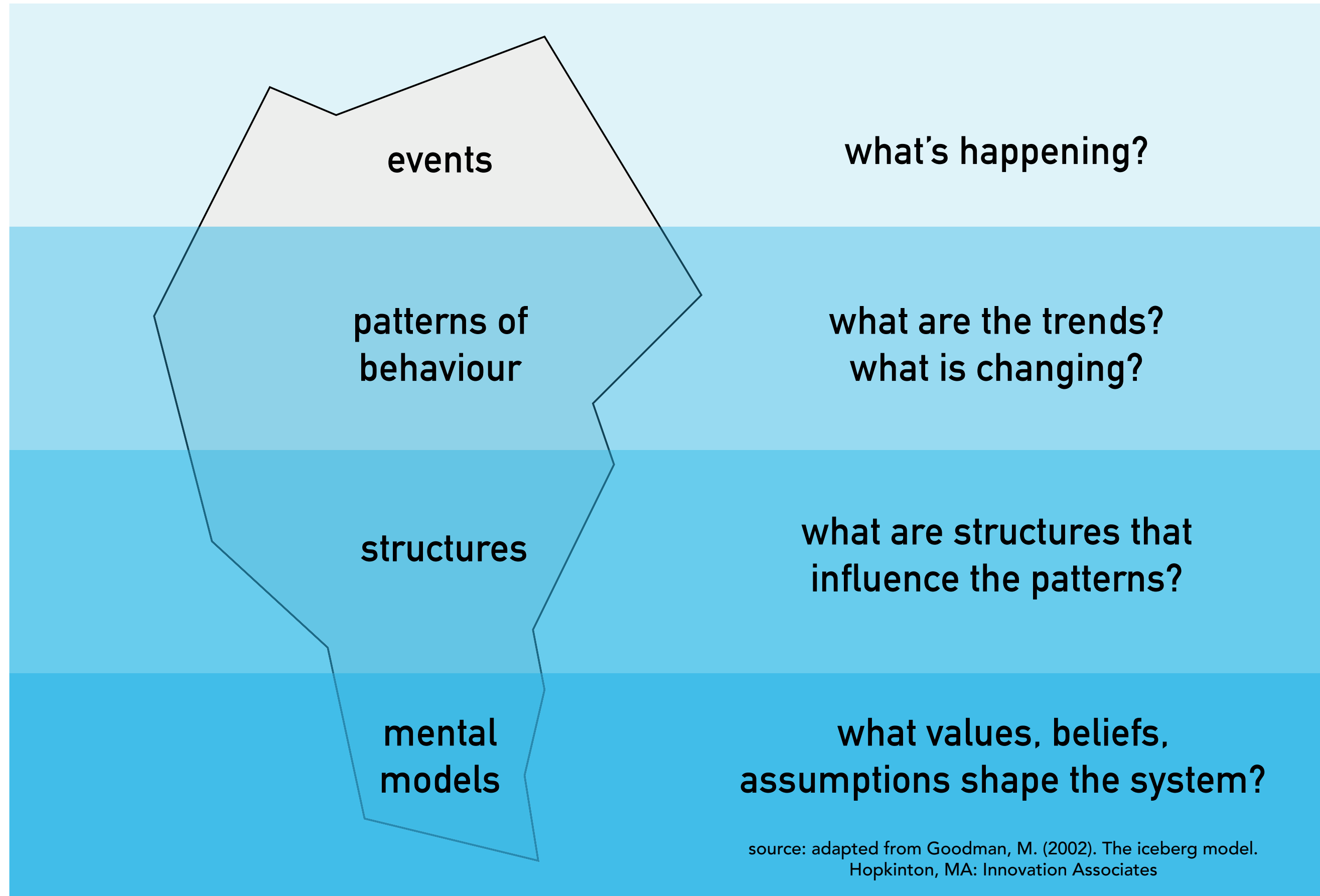
# qualities of human relationships

- learning
- motivating
- caring
- collaborating
- sharing
- .....

*can you think of  
examples in your work  
where you designed for  
relationships?*

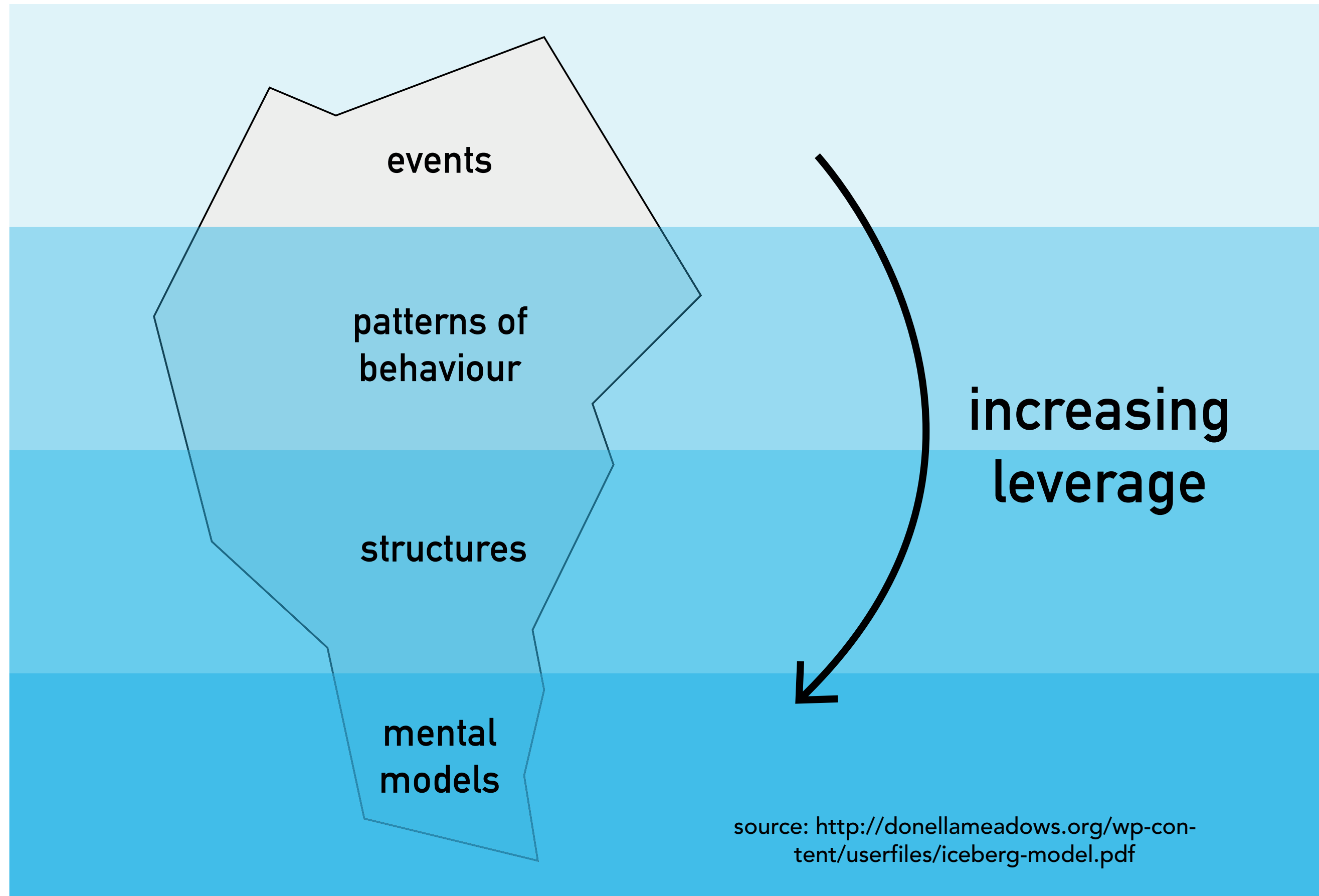
# **4. design for mental models**

# the iceberg model





# the iceberg model



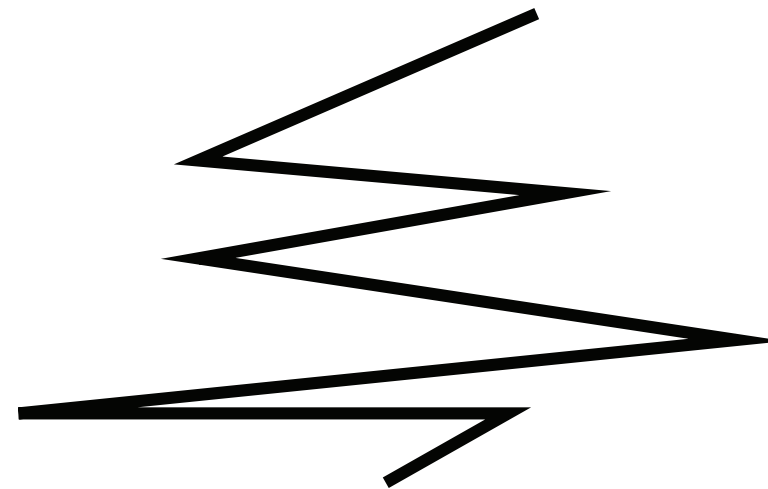
**influencing mental  
models**

# **working with mental models in design**

- awareness of importance of mental models and the difficulty to change it
- selecting people who have a “positive” mental model
- changing mental models

# **awareness of importance and difficulty to change mental models**

“lessons in happiness”



street culture  
mental models about  
fashion and looks



# **working with people who have a 'productive' mental model**

TACSI

“we’ve observed a pattern in that instances where both families and professionals see propensity to change, parents tend to experience successful restoration outcomes”

Source: TACSI, 2016, “Generation by Generation– Pragmatic approaches to reducing intergenerational cycles of reliance on child protection services”

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# changing mental models

- can you think of an example in your life when you changed your beliefs and the way you were thinking about a certain topic?
- what changed your belief/ mental model?

# some research on shifting mental models

... through design

- perceiving other peoples' perspectives
- embodying alternatives – enacting new ways of doing things
- ...

Vink, Josina, Bo Edvardsson, Katarina Wetter-Edman, and Bård Tronvoll. "Reshaping Mental Models - Enabling Innovation through Service Design." *Journal of Service Management* 30, no. 1 (2019): 75-104.

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**concluding..**



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# why service design is well positioned for systemic social innovation

- framing: “open up”
- prototyping
  - design for evolution
- human-centredness
  - relationships
  - mental models

# what we take from systems thinking

- interrelatedness of challenges
- self-organisation & emergence: let go of control and allow for novelty to emerge.
- focus on relationships and mental models



# thank you!

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- Vink, Josina, Bo Edvardsson, Katarina Wetter-Edman, and Bård Tronvoll. "Reshaping Mental Models - Enabling Innovation through Service Design." *Journal of Service Management* 30, no. 1 (2019): 75-104.

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