

systemic design in public & social innovation



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systems

- a system is a whole that cannot be divided into independent parts

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

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

If Russ Ackoff had given a TED Talk

<https://www.youtube.com/watch?v=OqEeIG8aPPk>

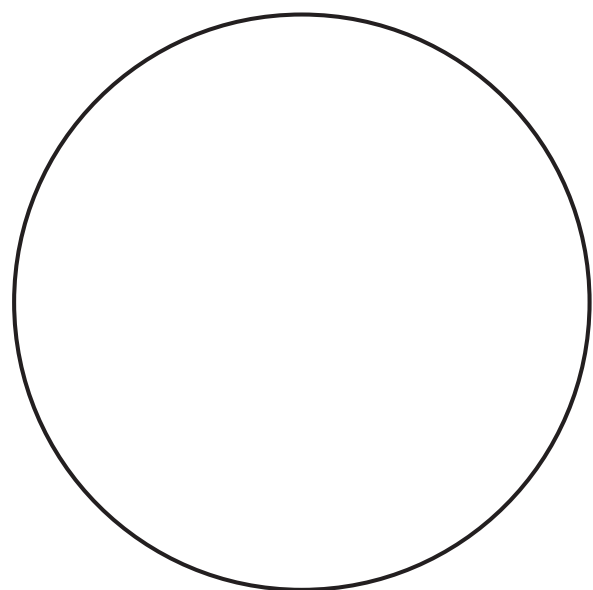
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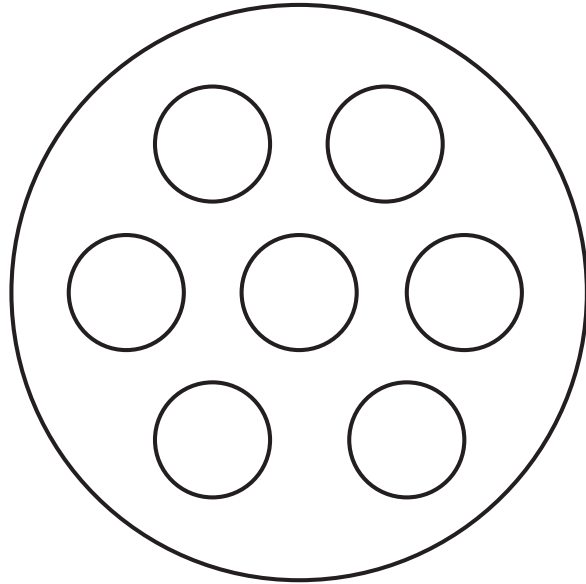
**systems thinking:
seeing the bigger
picture and
connecting the dots**

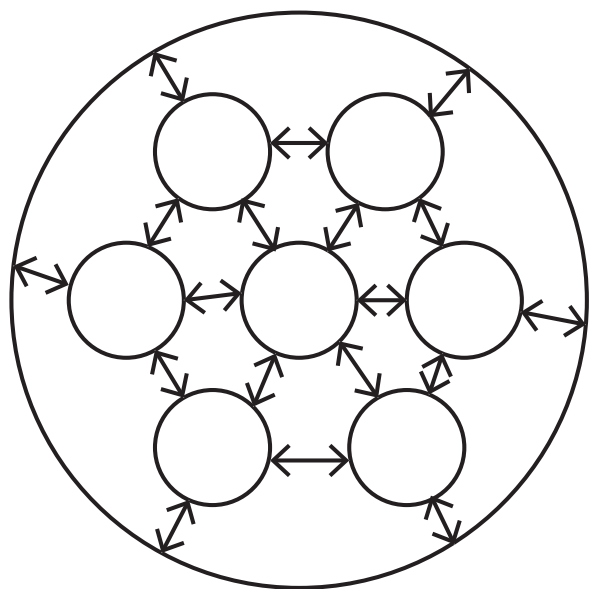
systems thinking

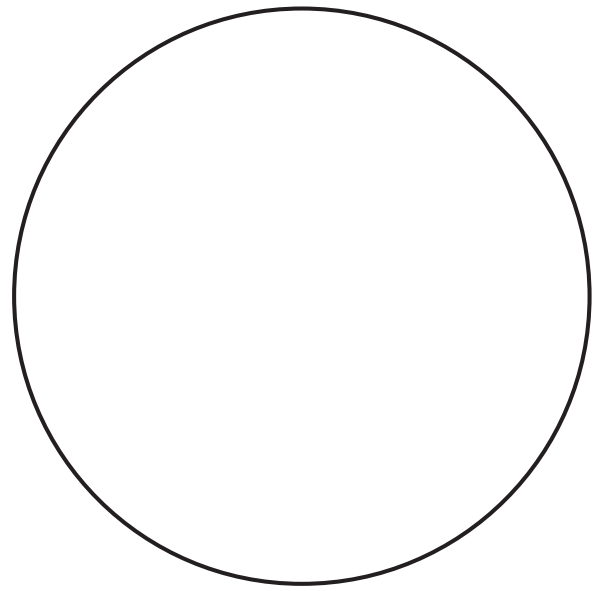
- analysis : reductionism & determinism (linear cause & effect)
- synthesis: expansionism
- systems thinking: combines analysis & synthesis

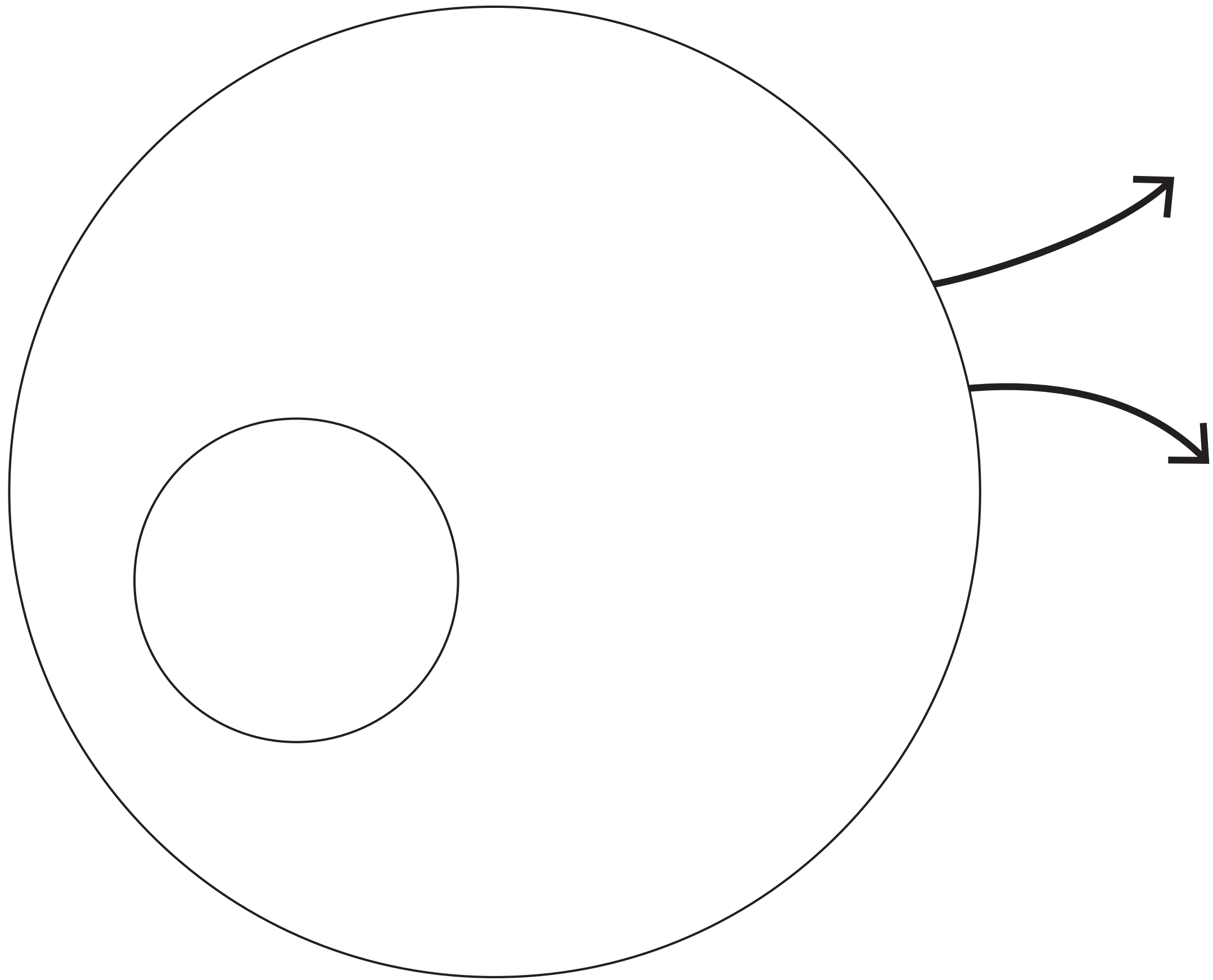
Ackoff, Russell L. *Ackoff's Best*. New York: John Wiley & Sons, 1999.

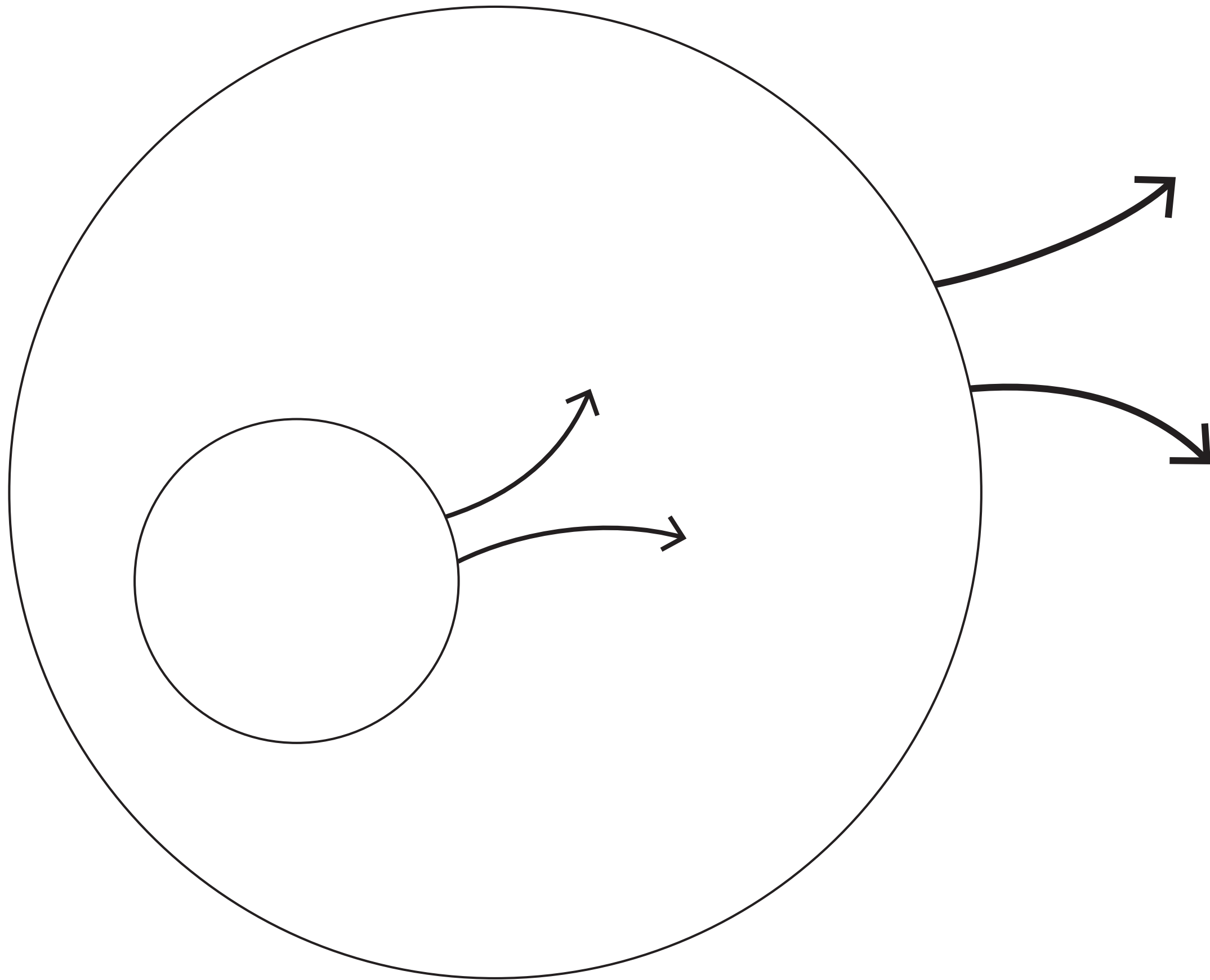


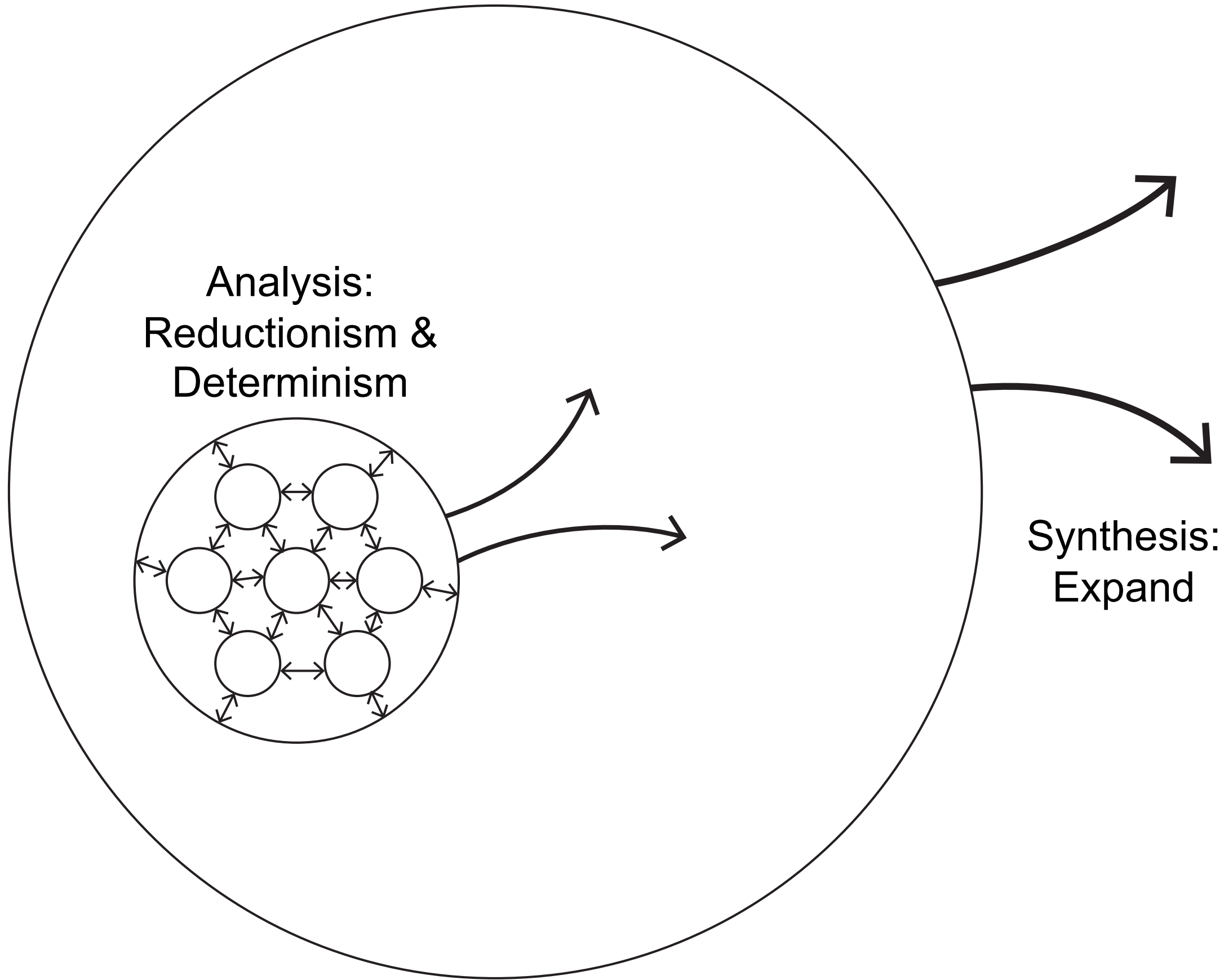












**Analysis:
Reductionism &
Determinism**

**Synthesis:
Expand**

systems thinking

- analysis : how things work
- synthesis: why things operate as they do
- systems thinking: combines analysis & synthesis; a holistic and synthetic approach

importance of relationships within and between systems

**importance of
relationships in and
between systems:**
turn to your neighbour: why
are you interested in
systems thinking/ systemic
design?

different types of systems

-social

-technical

-eco

-animate

-socio-technical

-...

different ways of thinking about systems

systems theories

ways of explaining the behaviour of systems

- system dynamics (cybernetics, system dynamics)
- system layers (leverage points, iceberg model)
- complex adaptive systems
- complexity theory
- organisational systems (Margaret Wheatley, Ralph Stacey, Peter Senge, Argyris & Schon)
- actor network theory
- ecological systems theory
- evolutionary theory
- game theory
- social systems theory
- theory U, integral model)
-

how systems behave

A large flock of birds, possibly terns, is captured in mid-flight, forming a dense, circular pattern against a soft, pinkish-orange sunset sky. The birds are silhouetted against the light, creating a textured, almost cloud-like appearance. Below the flock, a field of tall, golden-brown grasses stretches across the foreground, with a small body of water visible in the lower right corner. The overall scene is serene and evokes a sense of natural complexity and adaptability.

complex adaptive systems

A large flock of birds, possibly terns, is captured in flight against a sunset sky. The birds are arranged in a dense, circular pattern, creating a large, dark, textured shape. The sky transitions from a pale pink at the top to a light blue at the bottom. In the foreground, there is a field of tall, golden-brown grasses. A small body of water is visible in the bottom right corner. The overall scene is serene and natural.

self-organization
emergence
non-linearity

TOME II.

the cobra effect emergence

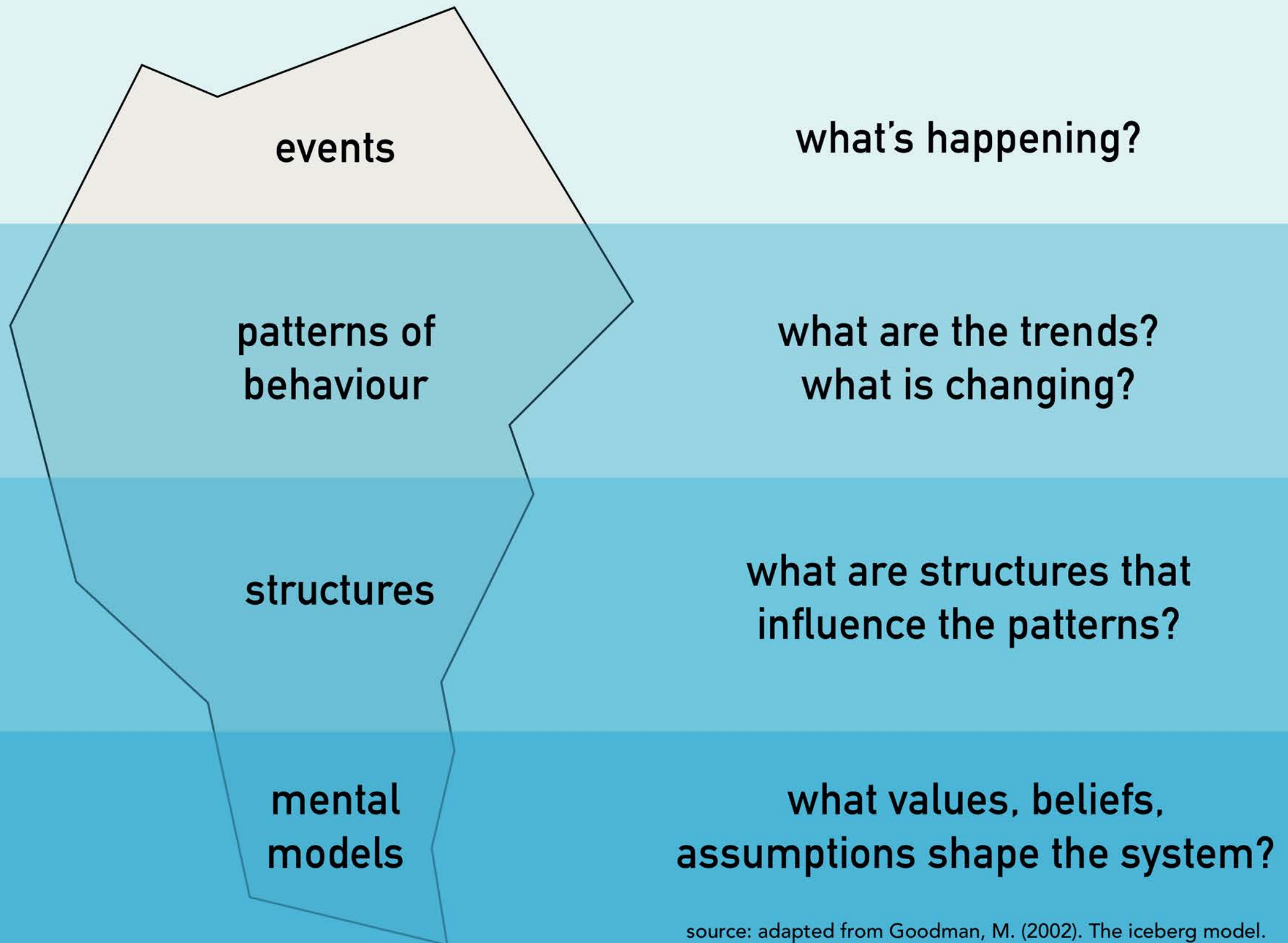
PLANCHE VIII.



NAJA HAJE
(Orig.)

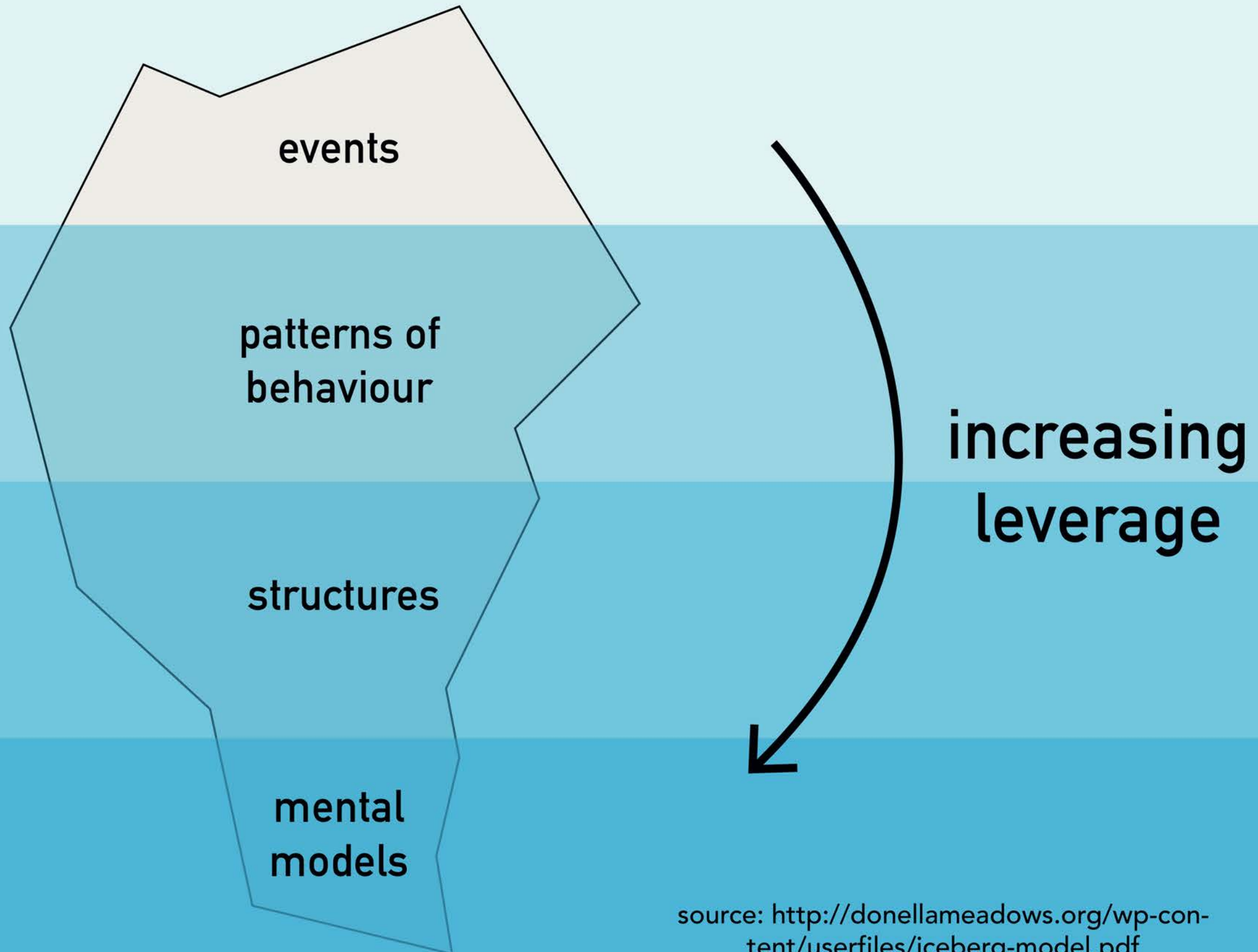
what we can see

the iceberg model



source: adapted from Goodman, M. (2002). The iceberg model.
Hopkinton, MA: Innovation Associates

the iceberg model

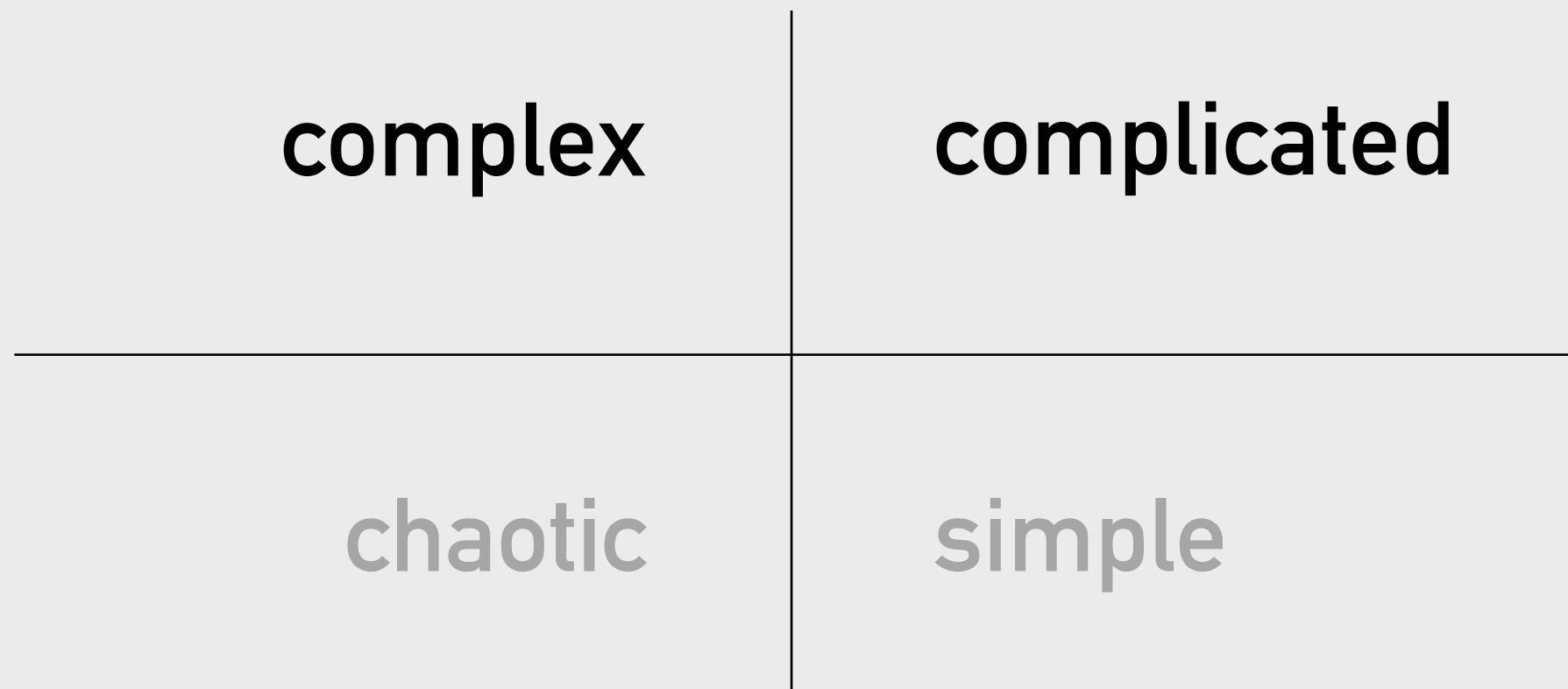


source: <http://donellameadows.org/wp-content/userfiles/iceberg-model.pdf>

**how might we
intervene in systems?**

intervening in systems

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.

intervening in systems

*experiment: probe,
sense, respond*
complex

*expertise: sense,
analyse, respond*
complicated

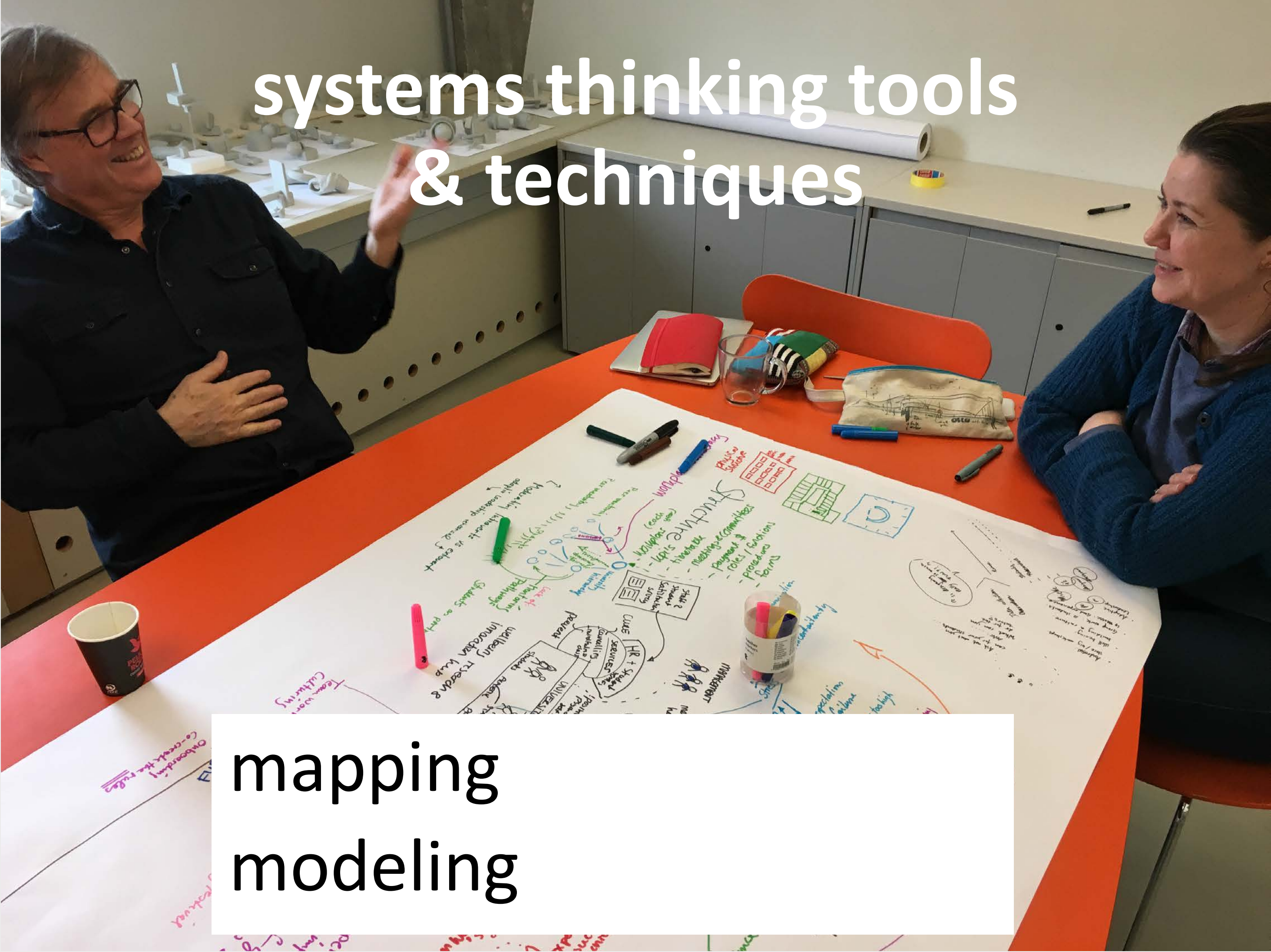
chaotic

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.

systems thinking tools & techniques

mapping
modeling



systems thinking tools & techniques

systems-oriented design

Birger Sevaldson & Linda Blaasvaer
AHO Oslo school of architecture & design

<http://www.systemsorienteddesign.net>



critique of systems thinking

systems thinking has been criticised for focusing only on analysing and modelling systems and lacking practical approaches to innovate on problems within those systems

Ackoff, Russell L. "Transforming the Systems Movement." http://ackoffcenter.blogspot.com/ackoff_center_weblog/2004/05/transforming_th.html.

systemic design: where systems thinking and design come together

design *of* systems (systems design)

design *for* systems

design *within* systems

**“methodology/
theory agnostic”**

public & social innovation



Rethinking Restoration

| Disrupting Disadvantage

source: <https://www.tacsi.org.au/work/rethinking-restoration/>

**question: what is it
that design brings to
public and social
innovation for
complexity?**

core practice design: problem framing

Dorst, Kees. "Frame Creation and Design in the Expanded Field." *She ji - The Journal of Design, Economics and Innovation* 1, no. 1 (2015): 22-33.

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problem framing

Schön (1983): “In order to convert a problematic situation to a problem, a practitioner needs to do a certain kind of work. [...] Problem setting is a process in which interactively we name the things to which we will attend and **frame** the context in which we will attend to them” (p40)

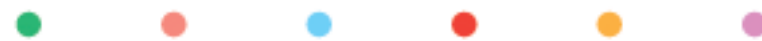
Schön, D. (1983). *The Reflective Practitioner: How Professionals Think in Action*. New York, NY: Basic Books, Inc.

design & framing in public and social innovation labs

research method



Retrospective case study approach



five case studies

- “A time-quality dilemma for primary school teachers” – MindLab
- “JongLab: how to live well as a young person in Nijmegen” – Kennisland
- “Kudoz - Social isolation of people with a cognitive disability” – InWithForward
- “Rethinking restoration – restoration & family preservation” – The Australian Centre for Social Innovation (TACSI)
- “Open government” – CoLab

systemic design principles

Systemic design principles

systemic thinking

- opening up
- portfolio of frames and solutions
- strengthening relationships/ social infrastructures
- other principles

opening up

CEO, TACSI

*“So we started off with a brief. [..] And then from there, we really started, I guess, pounding the pavement and seeking to really test, unpack all of the assumptions that were sitting behind the framing questions. And I think what we learnt very, very, very quickly was some fundamental things that **opened up the brief** to a whole new level.[..]”*

frame evolution

example TACSI

- how do we enable more children to safely return home to their families, stay home and thrive?

frame evolution

example TACSI

- 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?

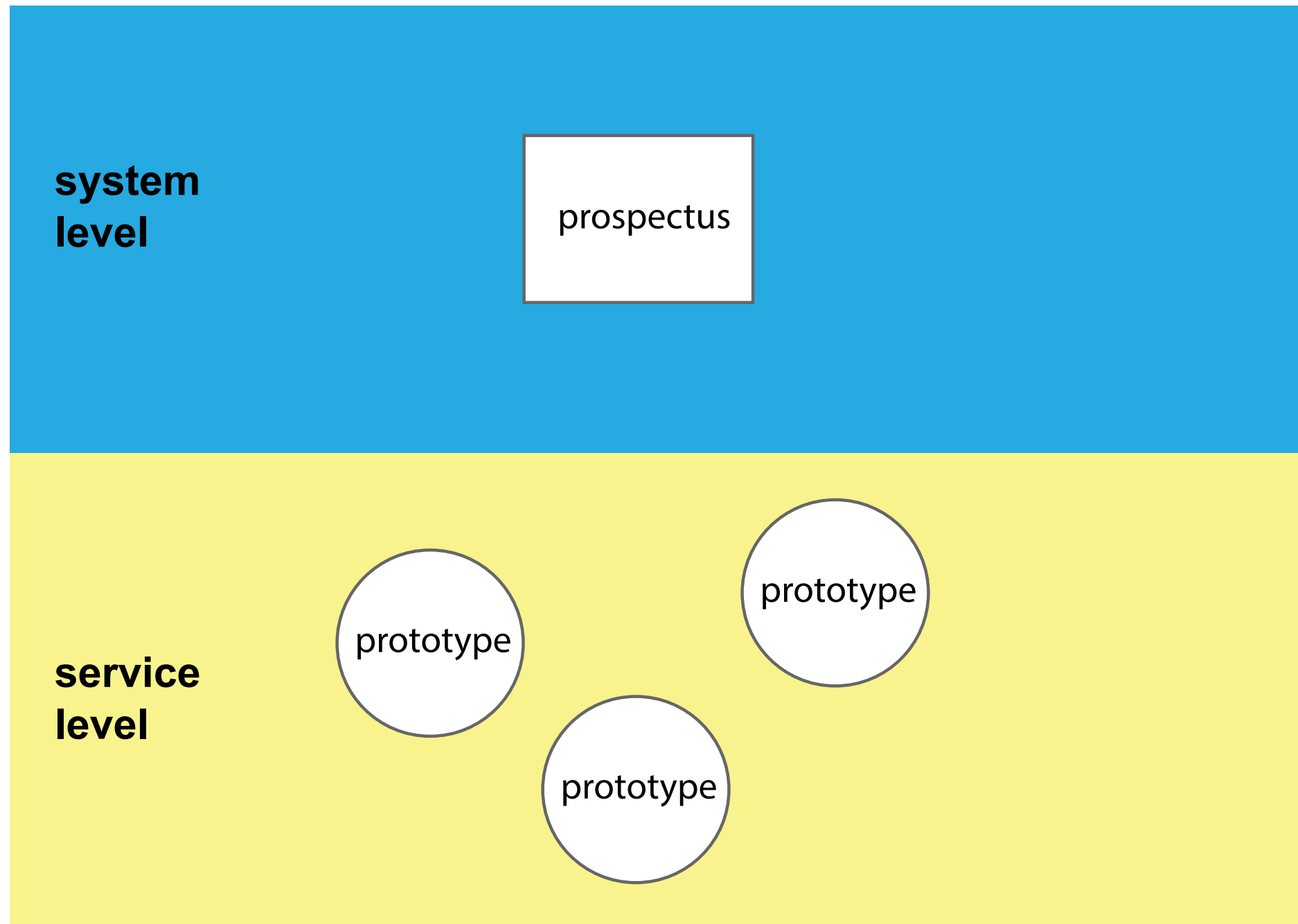
frame evolution

example TACSI

- 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?
- how might foster care build and maintain parental capability and keep families together?

portfolio of interventions/ prototypes

TACSI



strengthening relationships

MindLab:
A time – quality
dilemma for
teachers



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

lesson boxes



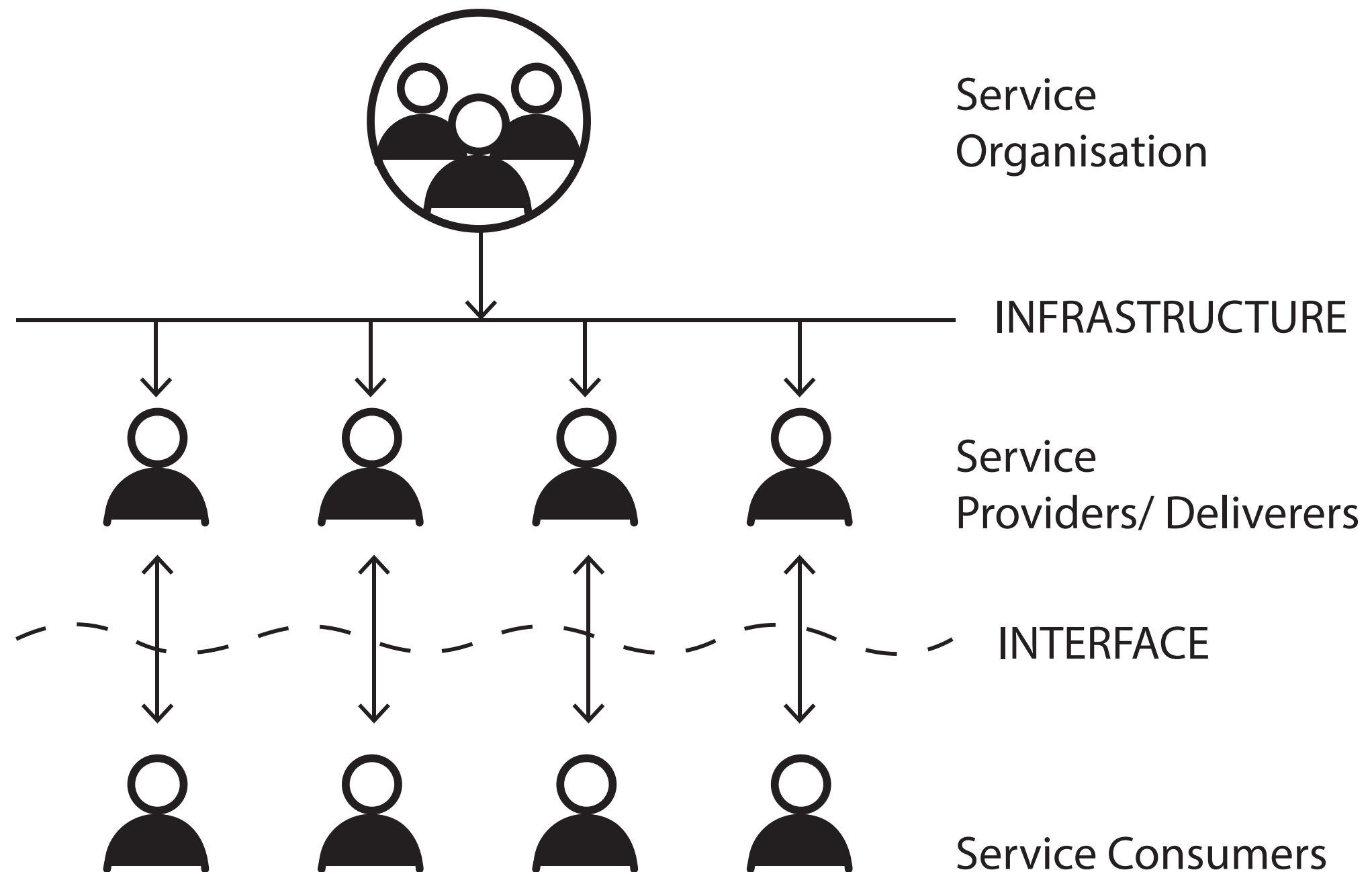
<http://www.nesta.org.uk/blog/creating-solutions-danish-teachers-time-and-quality-dilemma-0>

speed sharing



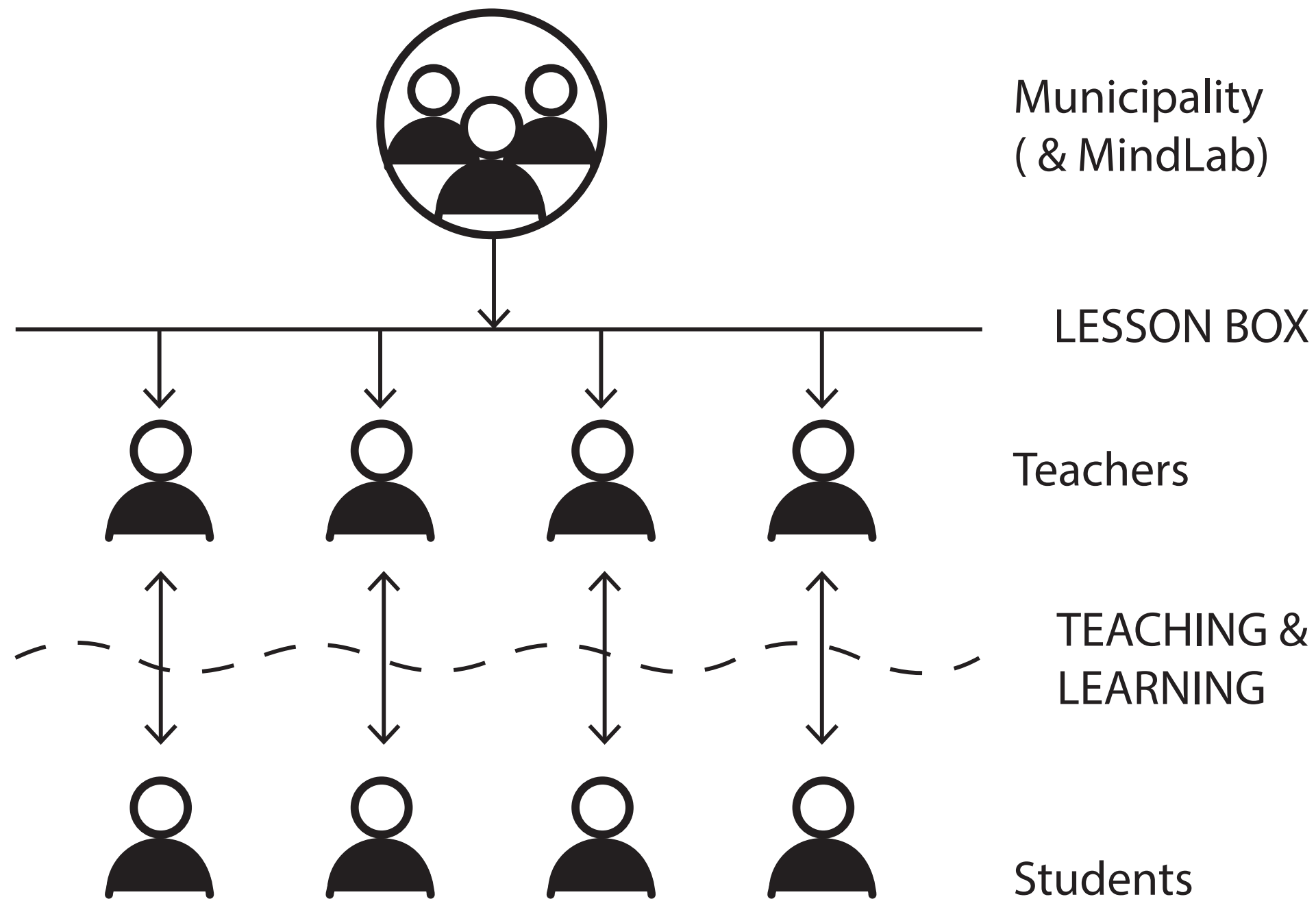
<http://www.nesta.org.uk/blog/creating-solutions-danish-teachers-time-and-quality-dilemma-0>

service design system perspective



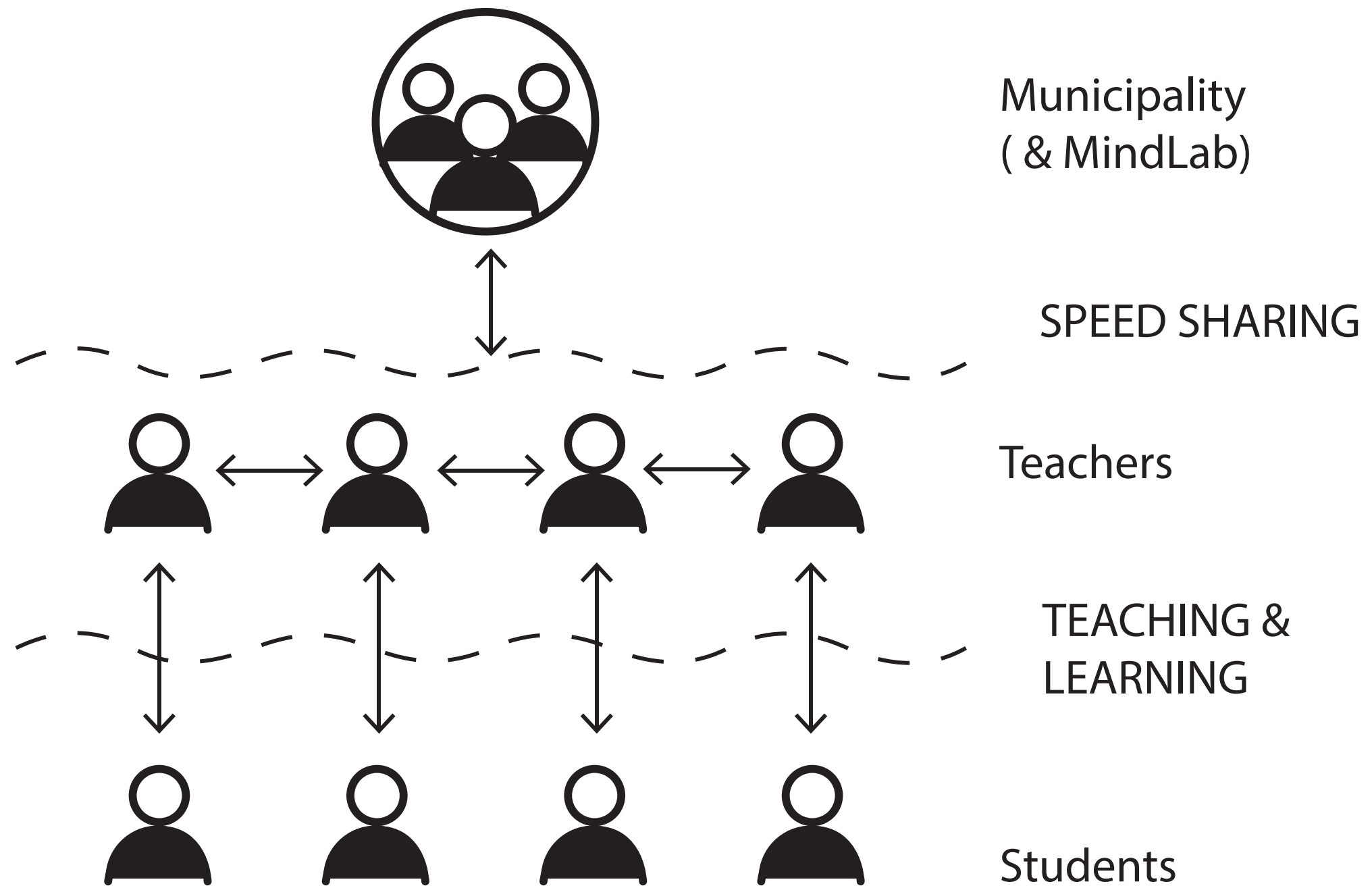
van der Bijl - Brouwer, Mieke. "Designing for Social Infrastructures in Complex Service Systems: A Human-Centred and Social Systems Perspective on Service Design." *She Ji: The Journal of Design, Economics, and Innovation* 3, no. 3 (2017).

MindLab – 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).

systemic design principles

- opening up
- portfolios of problem frames and interventions/ prototypes
- strengthening relationships
- culture/ mindset change
- ...

Systems thinking often implicitly/ intuitively applied

design *within* systems

**“you ‘re not stuck in
traffic, you are
traffic”**

Slavin, Kevin. "Design as Participation." *Journal of Design and Science*, no. 1 (2016).

<https://jods.mitpress.mit.edu/pub/design-as-participation>

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systemic design in public & social innovation – resources & references

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- If Russ Ackoff had given a TED talk <https://www.youtube.com/watch?v=OqEeIG8aPPk>
- Ackoff, Russell L. "Transforming the Systems Movement":
_ http://ackoffcenter.blogspot.com/ackoff_center_weblog/2004/05/transforming_th.html.
- Ackoff, Russell L. *Ackoff's Best*. New York: John Wiley & Sons, 1999.
- Video on systems thinking and system dynamics <http://donellameadows.org/a-visual-approach-to-leverage-points/>
- Leverage points: <http://donellameadows.org/archives/leverage-points-places-to-intervene-in-a-system/>
- Systems mapping & systemic design techniques: <http://www.systemsorienteddesign.net>
- Cynefin framework <https://www.youtube.com/watch?v=N7oz366X0-8>
- 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.
- Dorst, Kees. "Frame Creation and Design in the Expanded Field." *She ji - The Journal of Design, Economics and Innovation* 1, no. 1 (2015): 22-33.
- <http://www.nesta.org.uk/blog/creating-solutions-danish-teachers-time-and-quality-dilemma-0>
- Preliminary results of our study: van der Bijl - Brouwer, Mieke, and Bridget Malcolm. "Design Expertise in Public and Social Innovation." In *Proceedings of DRS 2018 International Conference, DRS 2018 - Design as a catalyst for change*, edited by Cristiano Storni et al, p424-36. Limerick, Ireland: Design Research Society, 2018. available on <https://www.academia.edu>
- Open access special issue in She Ji – the journal of design, economics and innovation, with articles of both Tim Tompson, and of myself about systemic design <https://www.sciencedirect.com/journal/she-ji-the-journal-of-design-economics-and-innovation/vol/3/issue/3>

thank you!

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