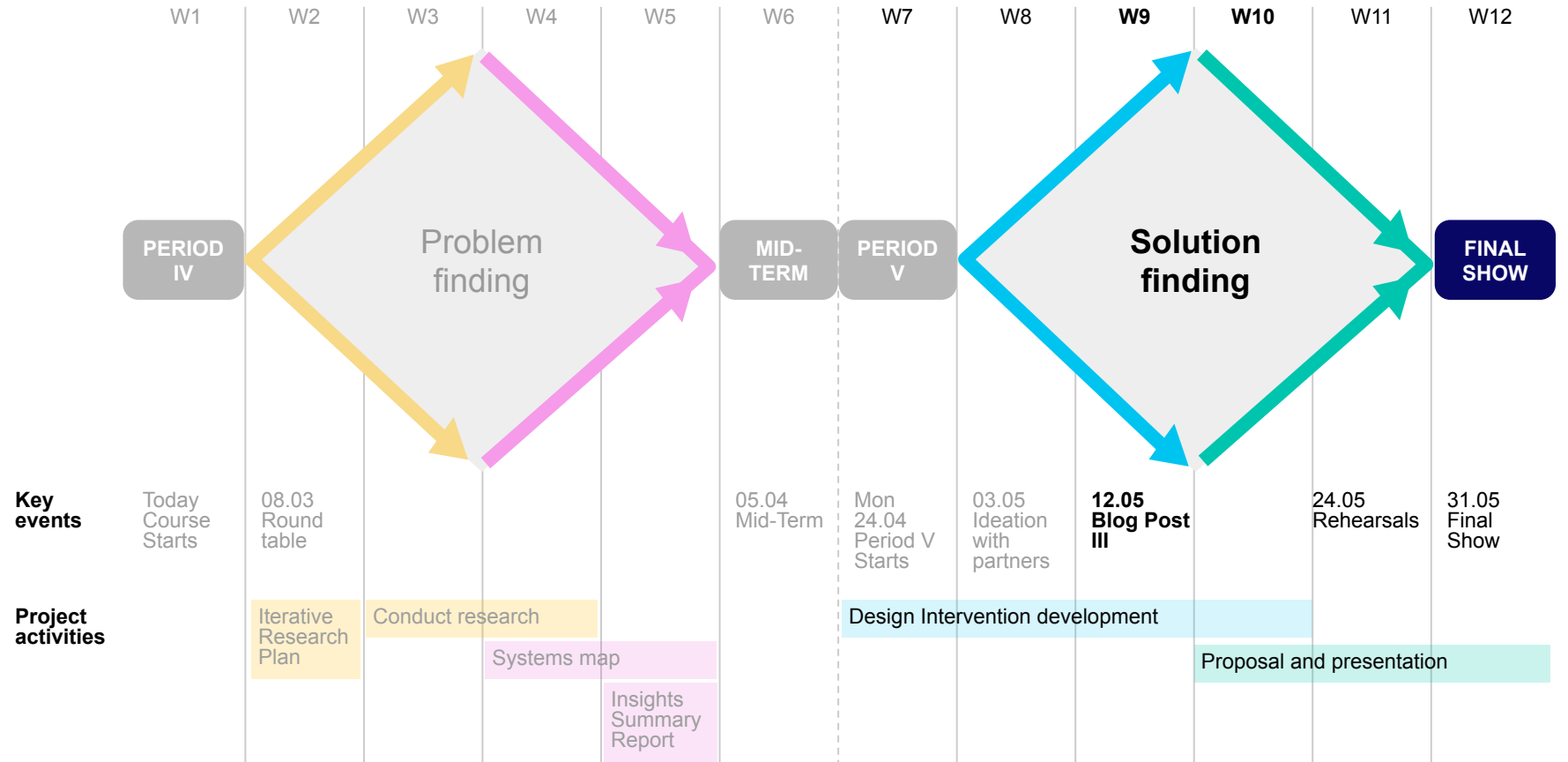


## Today

13:15 - 14:15 Reading discussion

14:30 - 16:00 Group tutorials (15 min. slots) Room: F101

**Period V**



## Design intervention process

### W7. What problem are you tackling?

- *Prioritise one problem (insight/opp.)*

26.04 Tutorials pre-task

### W8-9. What needs to change?

- *Explore types of interventions (W8 diverge)*
- *Identify the leverage point(s) (W9 Converge)*

26.04 Lecture & Reading discussion (world cafe)

03.05 Ideation with stakeholders

03.05 Experiments lecture

10.05 Speculative design lecture

Period IV Systems thinking and Systems map

10.05 Reading discussion

### W10 - 12 How to change it?

- *Choose your type of intervention & define (not design) it further*
  
- *Validate with key stakeholders*

Period IV Systems thinking and Systems map

10.05 Reading discussion

10.05 Tutorials pre-task

17.10 Contact teaching Peer-to-peer exercise

## Leverage points in design intervention process

*Converge; choose where and how to intervene:*

- *The “What to change” and the “How to change it” must be coherent. The type of intervention (instrument) and leverage point must match!*
- *Use leverage points as a way to iterate, re-frame your intervention*

*Communicate what you are trying to change and how, in a coherent way*

## Group exercise

~15 min.  
(x4 rounds)

1. Look at all ideas/interventions you have, and map them to the Meadows leverage points
2. Share back, discussion
3. Choose and re-frame (types of interventions)
4. Discussion

## 10.05 Leverage points

### Physical part of the system

12. Air quality control does not make air cleaner
11. Buffers are physical entities (e.g., Water reservoirs) difficult to change
10. Physical structures of a system (e.g. roads) are crucial but changing it is rarely simple

### Information and control

09. Reducing delay lengths can have big impact (e.g. information and response), growth might be easier to control
08. Strengthening negative feedback controls to improve self-correcting abilities (e.g. preventative medicine)
07. Reducing the gain around a positive feedback loop slowing growth (e.g. population) as a leverage point.
06. Delivering information to a new place or adding feedback can change behaviors (e.g. meter in the front wall)

### Rules

05. “Power over rules is real power” (e.g. Constitution has more power than Congress)
04. Rules for self-organisation (e.g. DNA) and means for experimentation
03. Whole system goals (e.g. grow control to decrease uncertainty), can be steered from top individuals

### Paradigms

02. Shared social agreements (e.g. the idea of “fairness”), can change with new models. Role of change agents
01. Purpose beyond paradigms (e.g. religions)

Source: Meadows, D. H. (1999). Leverage points: Places to intervene in a system.

Places to Intervene in a System (in increasing order of effectiveness)	
12.	Constants, parameters, numbers (such as subsidies, taxes, standards)
11.	The sizes of buffers and other stabilizing stocks, relative to their flows.
10.	The structure of material stocks and flows (such as transport networks, population age structures)
9.	The lengths of delays, relative to the rate of system change
8.	The strength of negative feedback loops, relative to the impacts they are trying to correct against
7.	The gain around driving positive feedback loops
6.	The structure of information flows (who does and does not have access to what kinds of information)
5.	The rules of the system (such as incentives, punishments, constraints)
4.	The power to add, change, evolve, or self-organize system structure
3.	The goals of the system
2.	The mindset or paradigm out of which the system—its goals, structure, rules, delays, parameters—arises
1.	The power to transcend paradigms

## 10.05 Leverage points

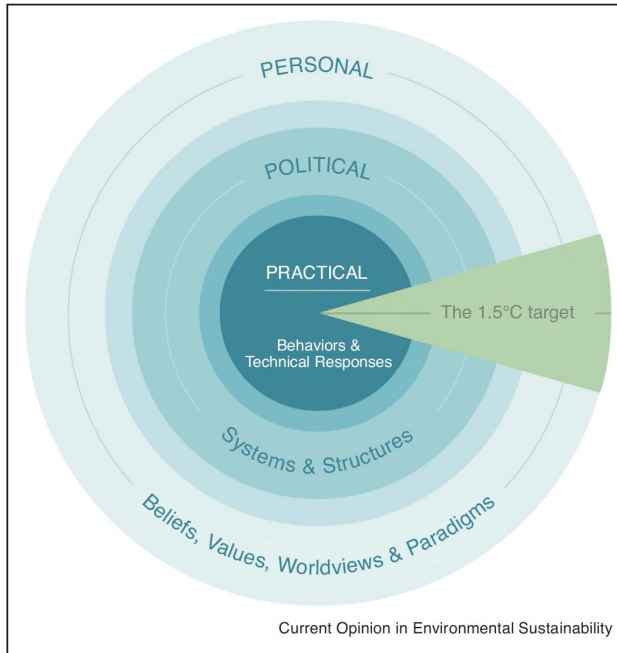


Image: [O'Brian.k \(2015\) Is the 1.5°C target possible? Exploring the three spheres of transformation](#)

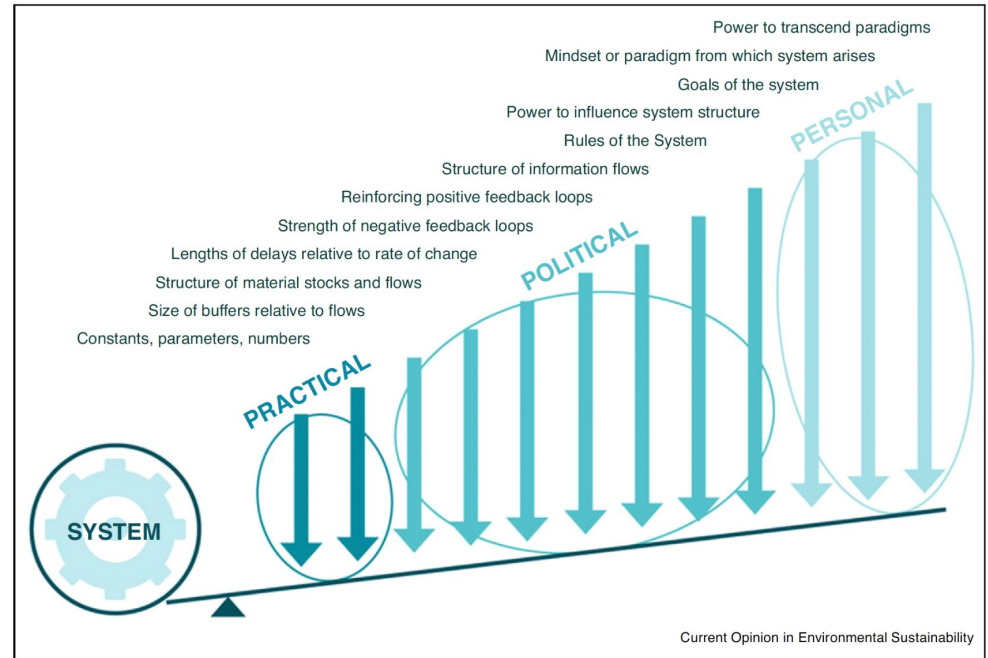
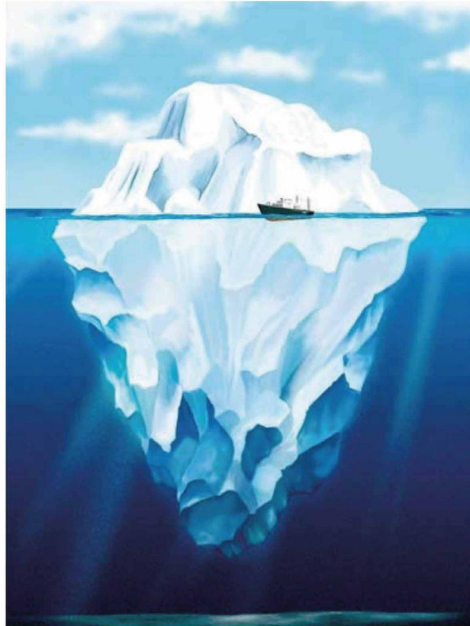


Image: Leverage points for systems change based on Meadows and their relationship to the practical, political and personal spheres of transformation

## Understanding Systems - Causal Layers



### Events

(who does what to whom?)

Reactive

What happened?

### Patterns

(reoccurring patterns over time)

Adaptive

What is happening over time?

### Structures

(how the parts of the system organised)

Creative

Why is this happening?

### Mental models

(mental models and assumptions)

Generative

In what ways our mental models  
created and sustained  
the structures in place?

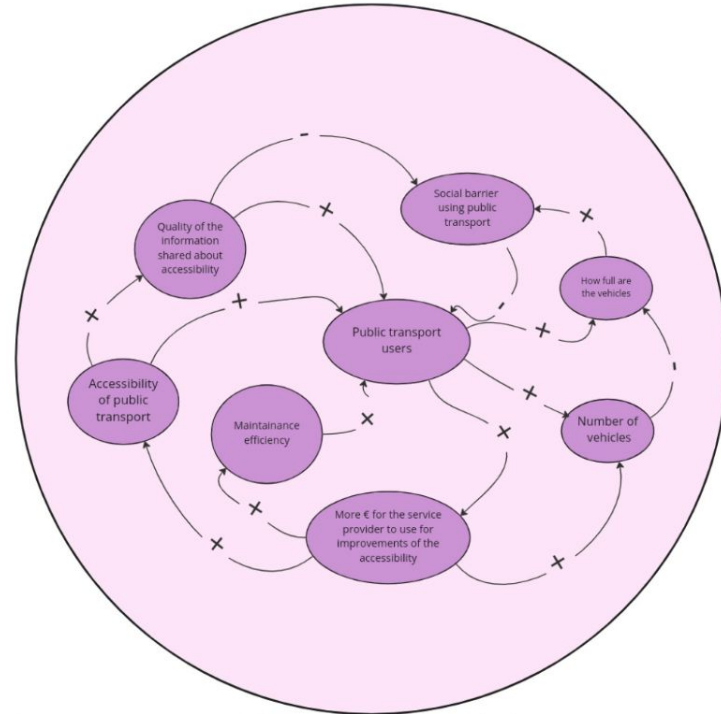


## 10.05 Leverage points

*“The drivers in buses and trains are one of the connections of micro- and macro-level, and maybe they could be the connecting leverage point to make changes in the system towards accessibility. (Meadows, 2009).”*

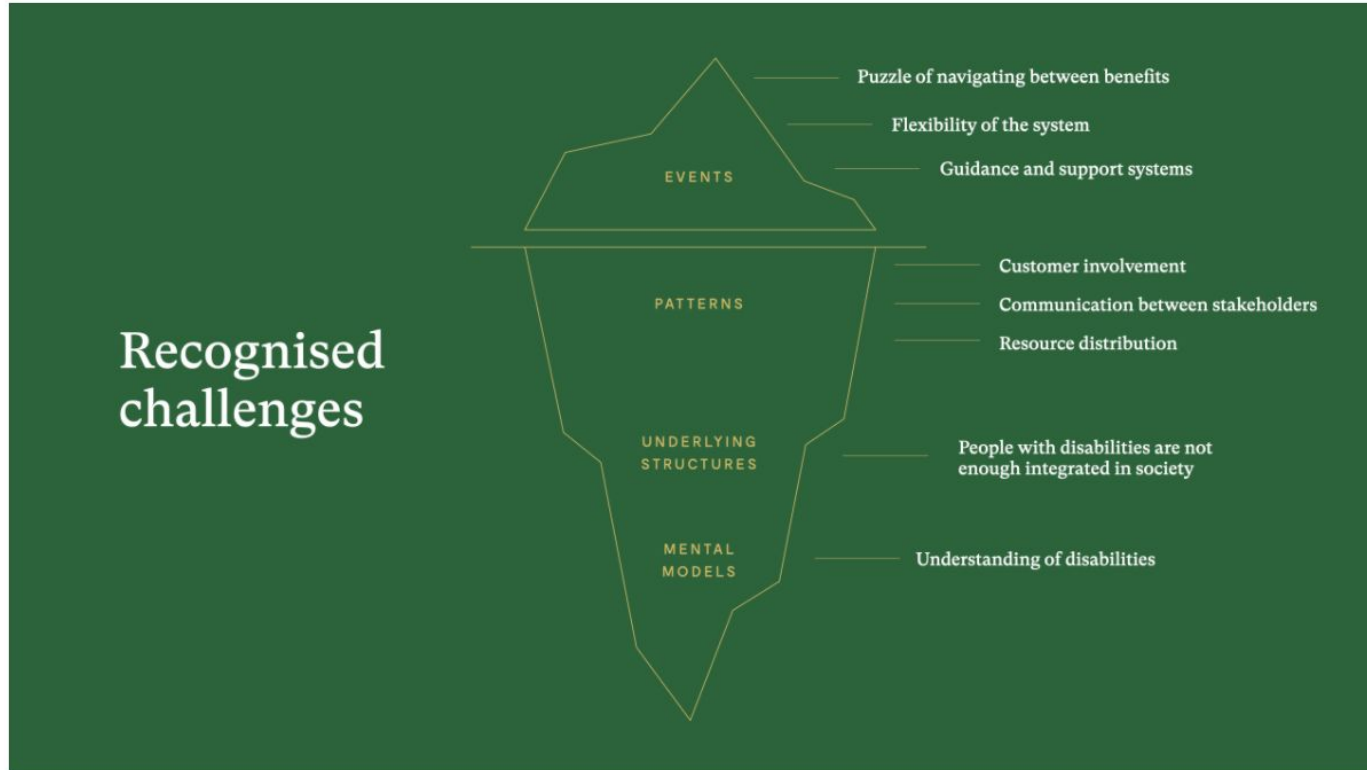
Suvi Onne's blog – DfG 23

<https://dfg-course.aalto.fi/2023/macro-level-accessibility-doesnt-exclude-micro-level-barriers-in-public-transport/>



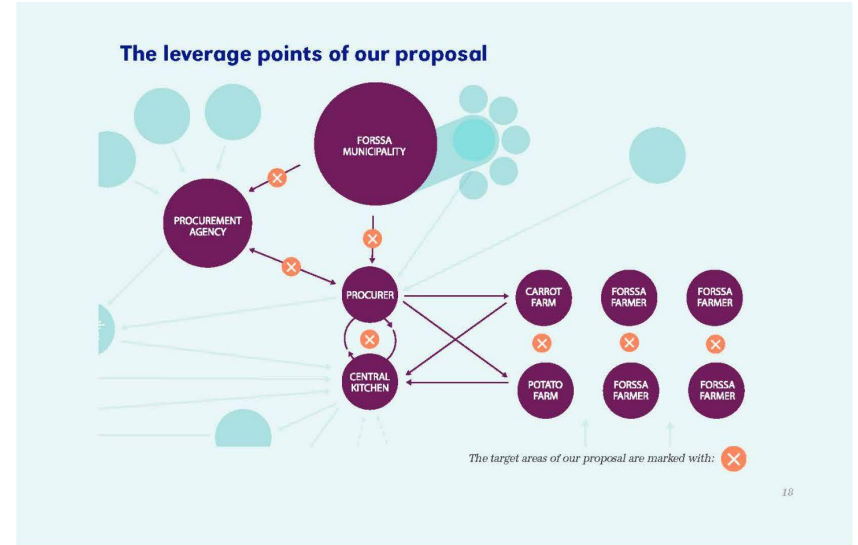
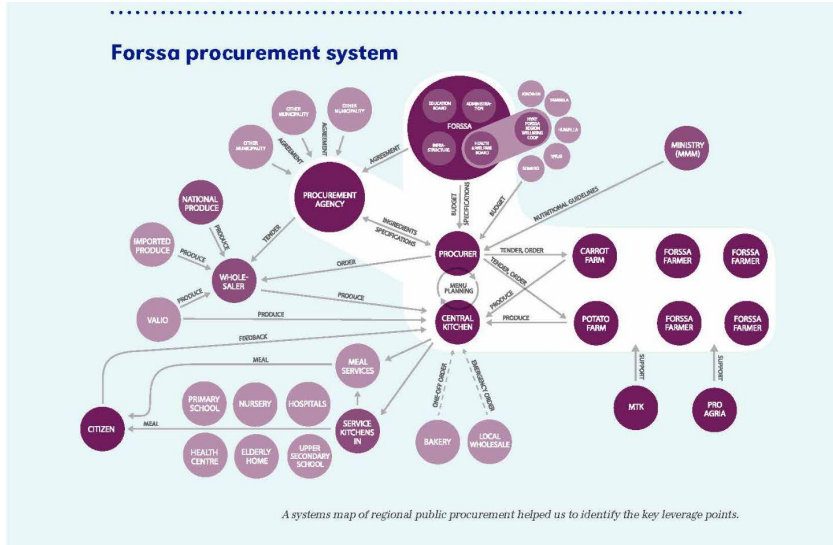
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## 10.05 Leverage points



*We used a systems thinking tool - the Iceberg model to structure the challenges, their connections, and their underlying reasons. Graphics by Ruta Jumite.*

## 10.05 Leverage points



A Model for Regional Sustainable Circular Food (DfG 2017)  
 Andrea Cuesta, Helén Marton, Anna-Mia Myllykangas, Ellinoora Rusthokarhu,  
 Lindsay Simmonds