



Aalto University
School of Arts, Design
and Architecture

Design Approaches to Sustainable Consumption

Session 8: Scaling-up design ideas

Tatu Marttila

Thursday 2.2.2023 (9:15–12:00)

Agenda

- 9:15–9:30** **Recap and case work status check**
- 9:30–10:15** **Designing transitions & examples of transition work**
- 10:30–11:15** **Backcasting & scaling-up – exercise in case groups**
- 11:15–12:00** **Discussing results & closing session**

Recap of previous session

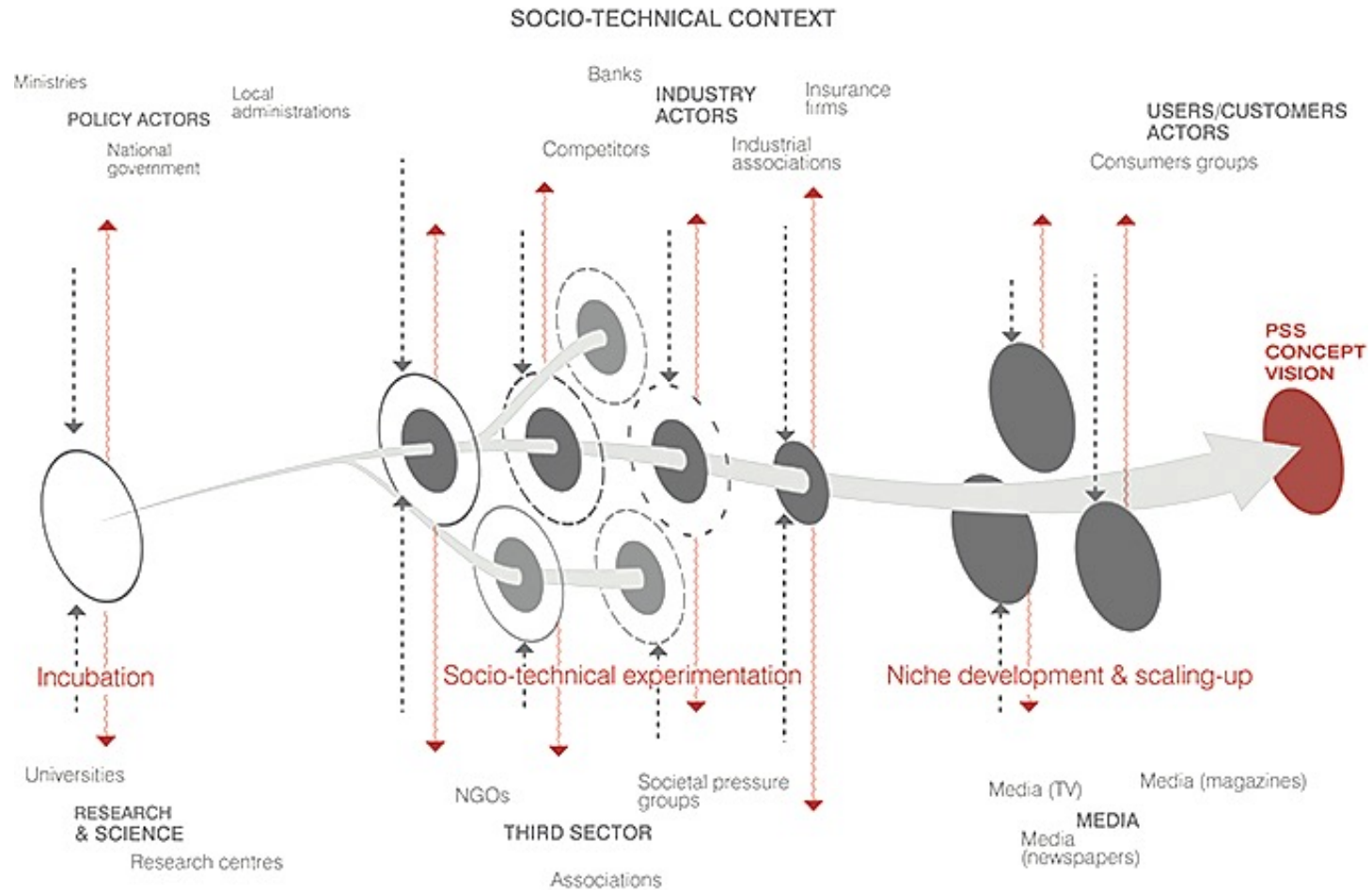


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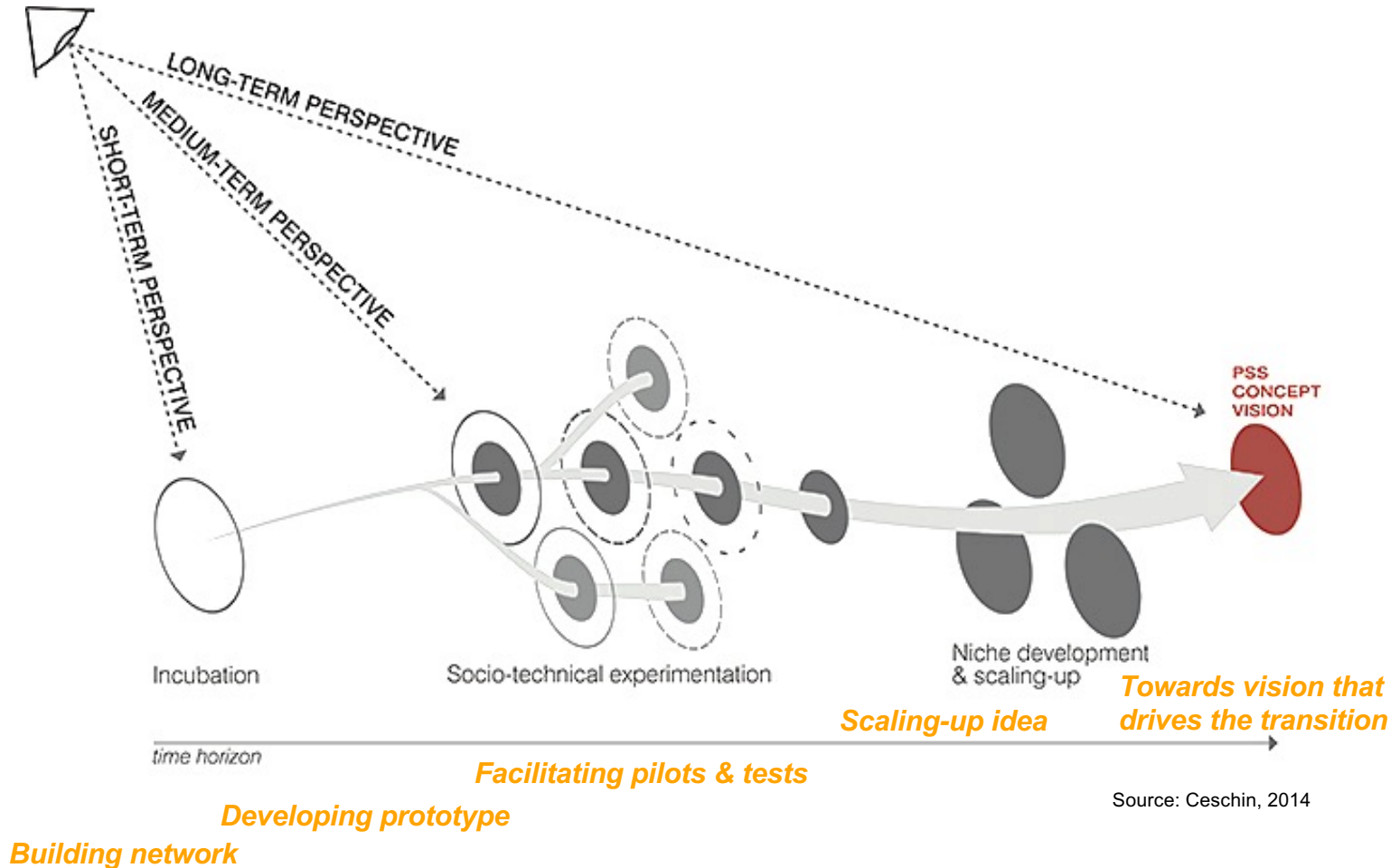
Course and case work schedule

Working days	Tuesdays (13-17)	Thursdays (9:15-12)
Week 1 (10. & 12.1.)	Introduction to course; DfS introduction (F101)	Case introduction: Food system sustainability (Q201)
Week 2 (17. & 19.1.)	Systemic (PSS) design and circular economy (Q201)	Design for sufficiency (Q201)
Week 3 (24. & 26.1.)	Presenting case work ideas (F101)	Assessing and communicating sustainability impacts (Q201)
Week 4 (31.1. & 2.2.)	Negotiating food systems experiments (Q201)	Scaling-up design ideas (Q201)
Week 5 (7. & 9.2.)	One planet game session (Metallimiehenkuja 4, room 206)	Case work tutoring (Q101) <i>Concept poster by Friday!</i>
Week 6 (14. & 16.2.)	Final presentations (F101)	Summary discussion (Q101)

Managing the societal embedding of transition ideas:



Multi-term design attitude, with focus simultaneously on different time perspectives:



Status check...



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Next session: One-planet lifestyle

Tuesday (7.2.) 13:15–17:00: *One-planet lifestyle game*

Guest: Michael Lettenmeier

- **NOTICE PLACE:** Metallimiehenkuja 4, room 206 (across the road from the Learning center)
- **Lecture and a game session** on lifestyle impacts and changes
- **You can prepare by doing the Sitra lifestyle test:** <https://lifestyletest.sitra.fi/>
- Read about sustainable lifestyle choices:
<https://www.sitra.fi/en/projects/100-smart-ways-to-live-sustainably/>

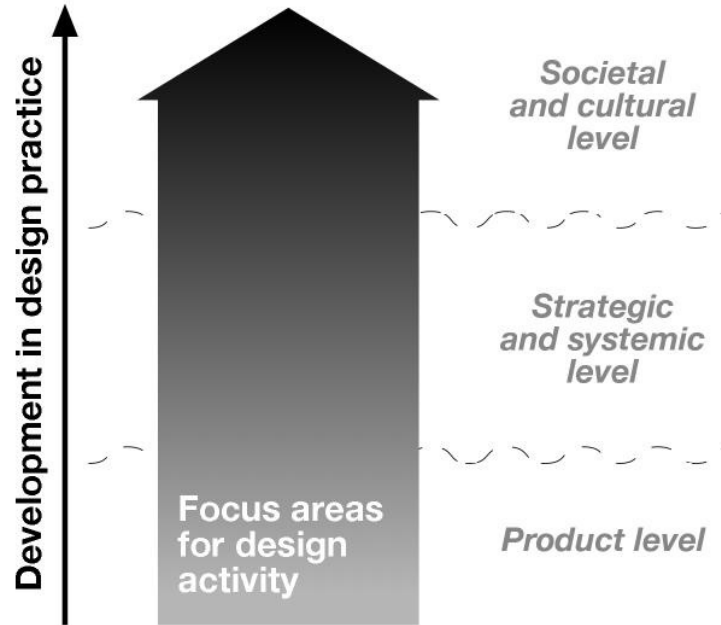
Remember to reflect on weekly topics and case progress in your learning diary!

Recap of DfS approaches and strategies

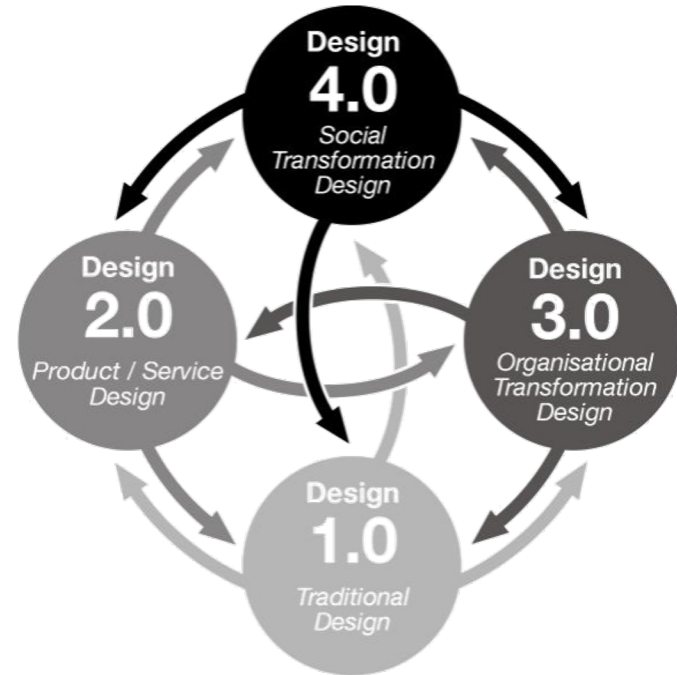


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Focus areas for sustainable design action



Source: Author



Source: Aminoff, et al. 2011;
GK VanPatter and Elizabeth Pastor, 2005

Strategies for Design for Sustainability

DfS approaches can be divided in **four levels of focus** according their relation to systemic and socio-technical emphases (Ceschin & Gaziulusoy, 2020):

1. Product innovation level:

- Green design
- Ecodesign
- Emotionally durable design
- Design for sustainable behaviour
- Cradle-to- Cradle design
- Biomimicry design
- Design for the Base of the Pyramid

2. Product-Service System innovation level:

- Product-Service System design

3. Spatio-Social innovation level:

- Design for Social Innovation
- Systemic Design

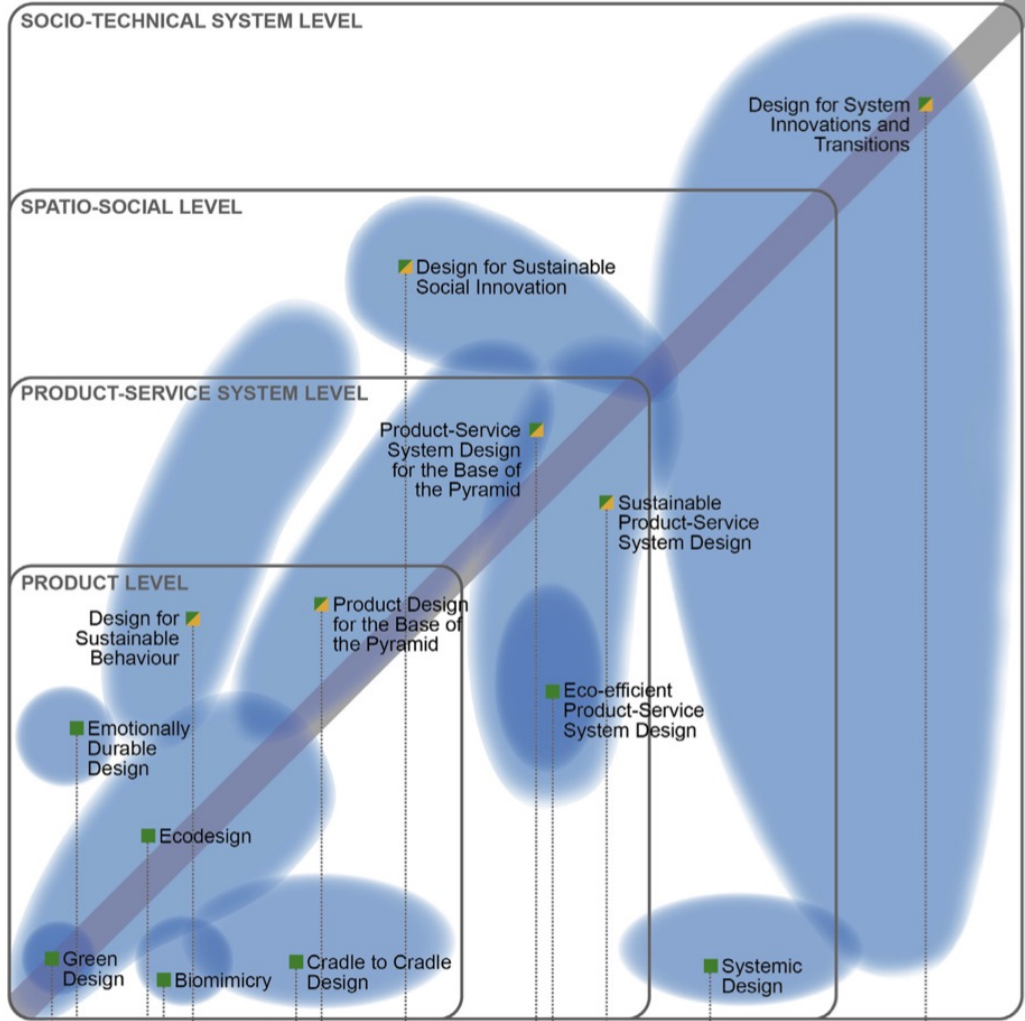
4. Socio-Technical System Innovation level:

- Design for System Innovations and Transitions

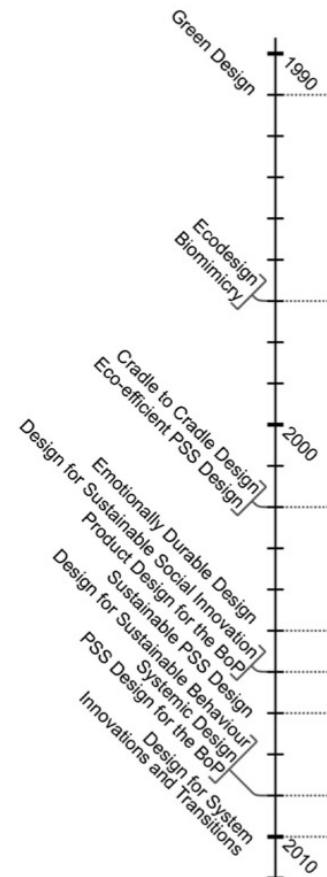
INSULAR

SYSTEMIC

Increasingly
potentially
sustainable



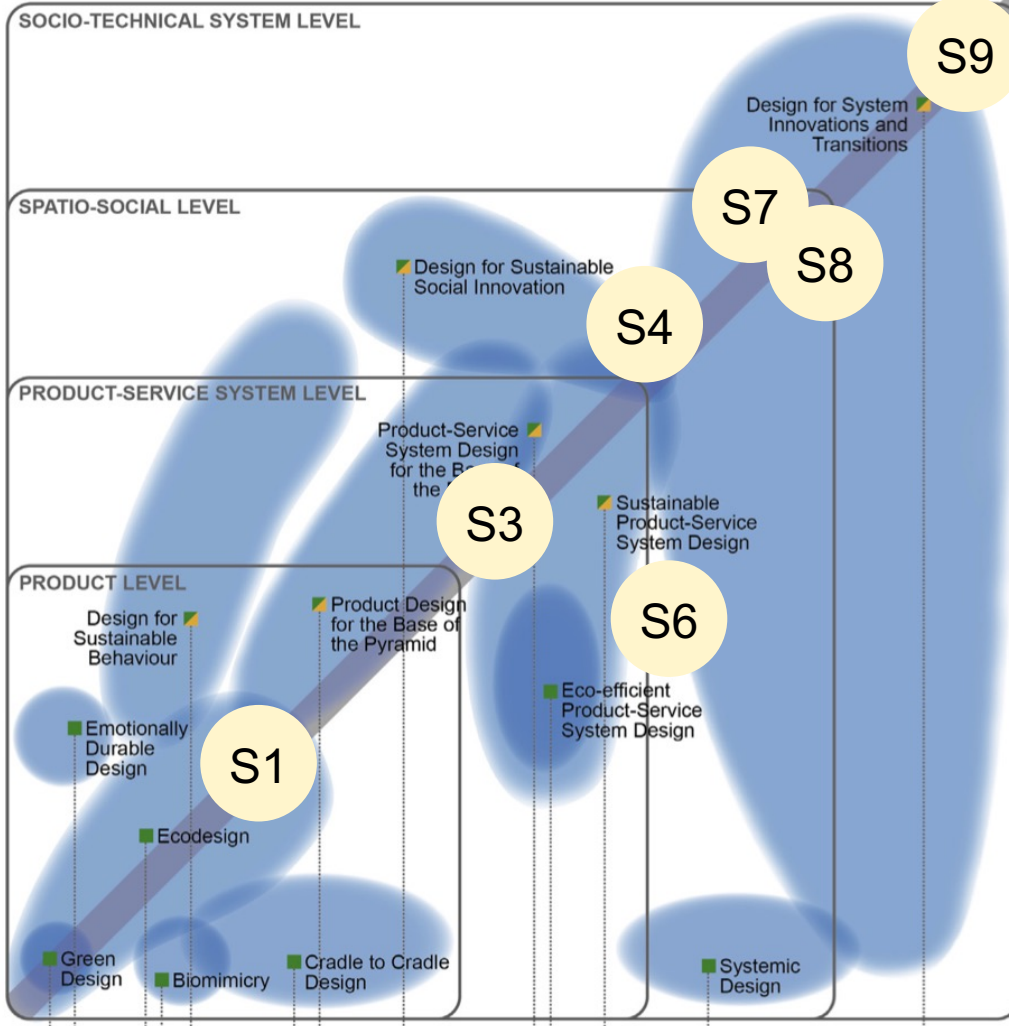
- Approach addressing the environmental and economic dimensions of sustainability
- ▣ Approach addressing the environmental, socio-ethical and economic dimensions of sustainability



A?

INSULAR

SYSTEMIC



Lectures and sessions:

S1. Introduction to DfS

S2. Case work intro

S3. PSS design

S4. Design for sufficiency

S5. Idea presentations

S6. Sustainability assessment

S7. Scaling-up

S8. Changing consumption

S9. One-planet game

S10. Shared tutoring

S11. Final presentations

S12. Summary session

■ Approach addressing the environmental and economic dimensions of sustainability

■ Approach addressing the environmental, socio-ethical and economic dimensions of sustainability

Design and transition management



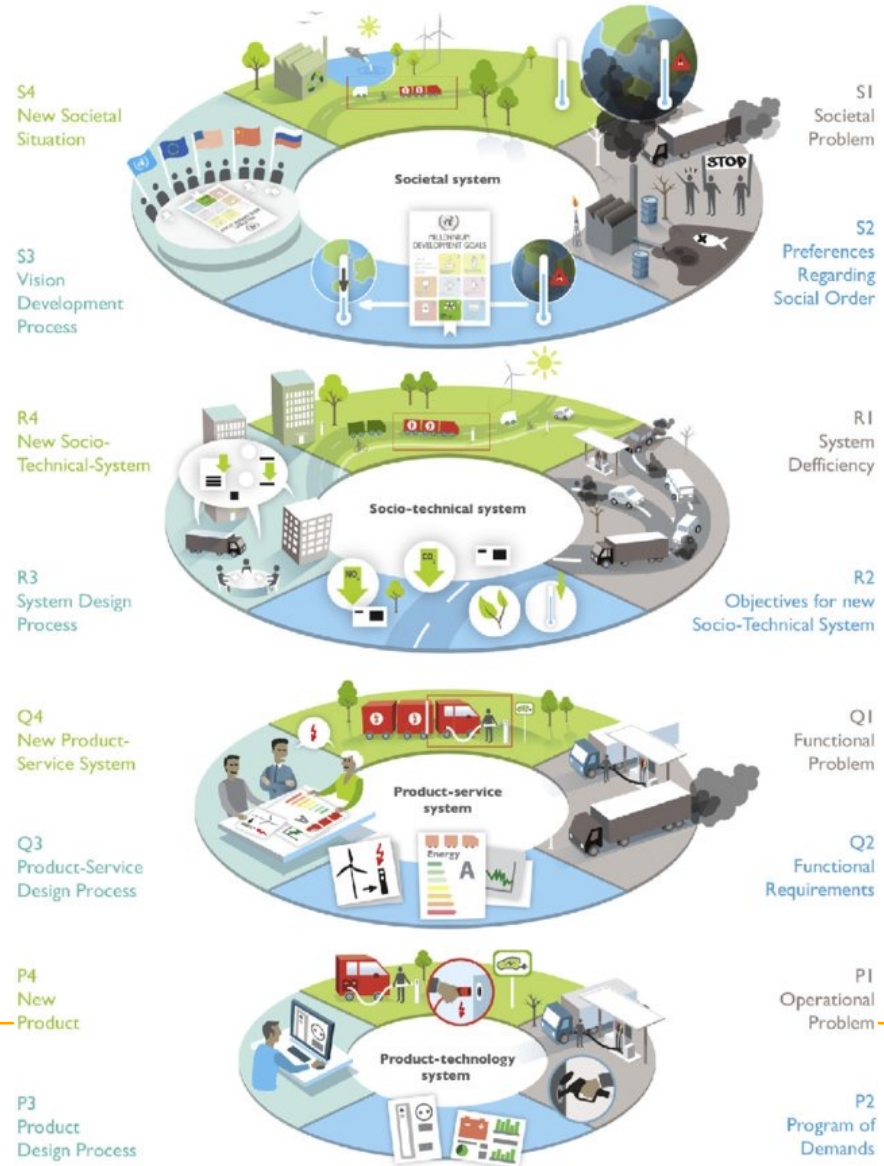
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Multilevel focus for design

Multilevel perspective adapted to design:

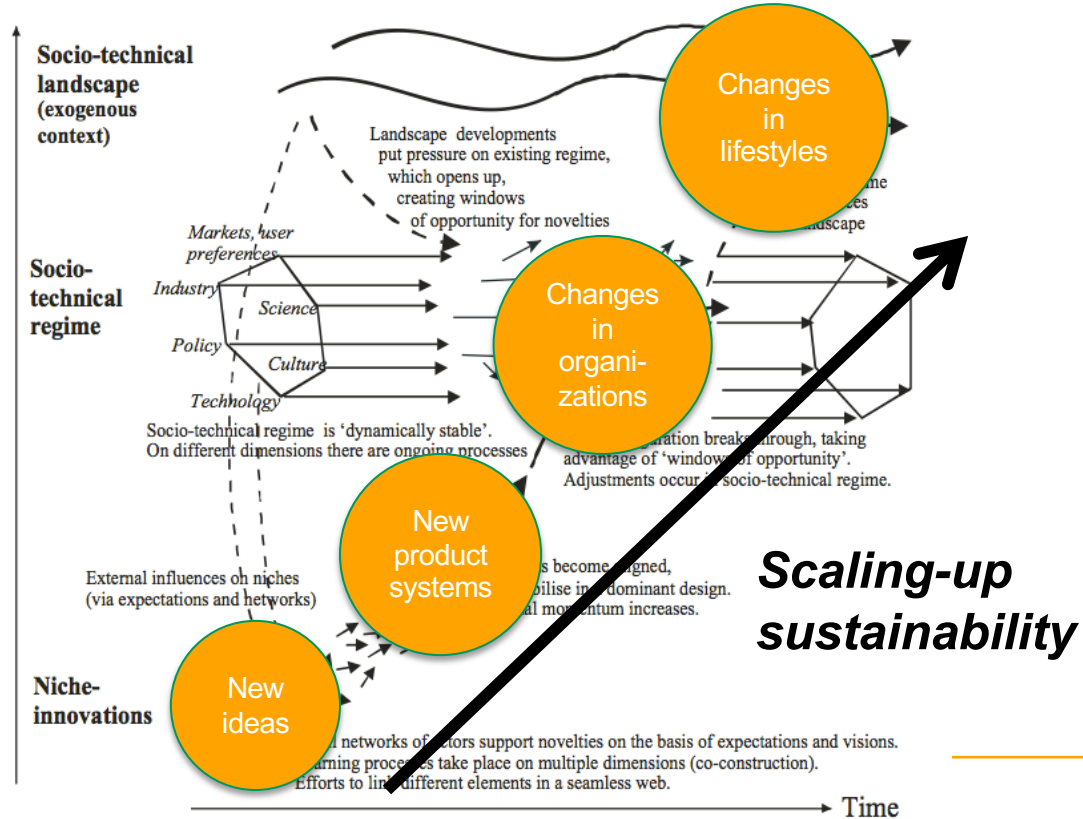
“The role of designers is broadening, from the creators of physical arte-facts to the potential role of facilitators of complex societal change processes. To support the widening role of the designer, there is a need for a design supportive model.”

Multilevel Design Model (MDM) by Joore & Brezet (2014)



Design connecting with potential for scaling-up

Scaling-up sustainability transitions within the socio-technical context:



Source: Geels, F. (2011) Multi-level perspective on sustainability transitions

Socio-technical systems and sustainability transitions

Transition Management (TM) methodology is based on a *multi-level perspective* (MLP) on sustainability transitions within the socio-technical system context, with focus on:

- **Macro-level (landscape)**
- **Meso-level (regimes)**
- **Micro-level (niches)**

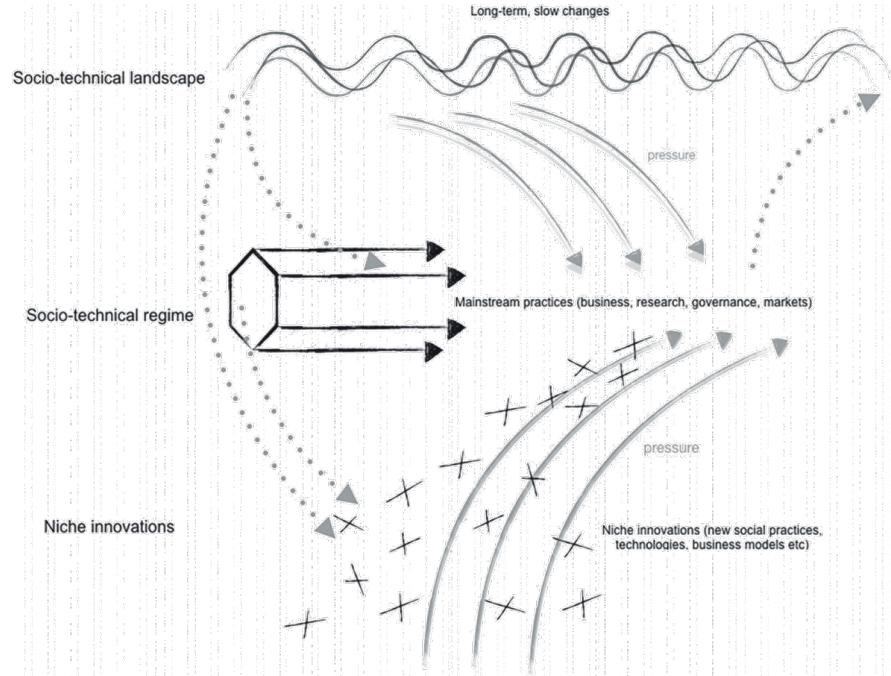
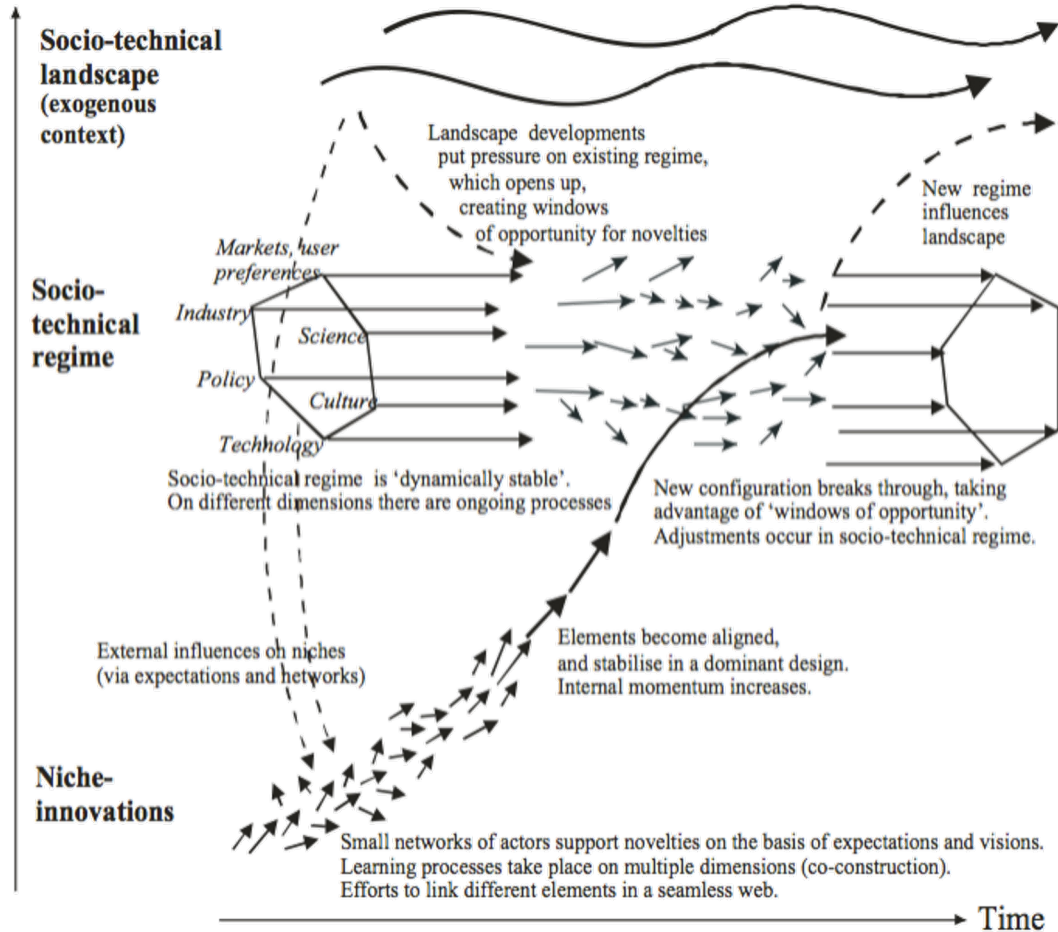


Figure 11.1 The MLP of system innovations model

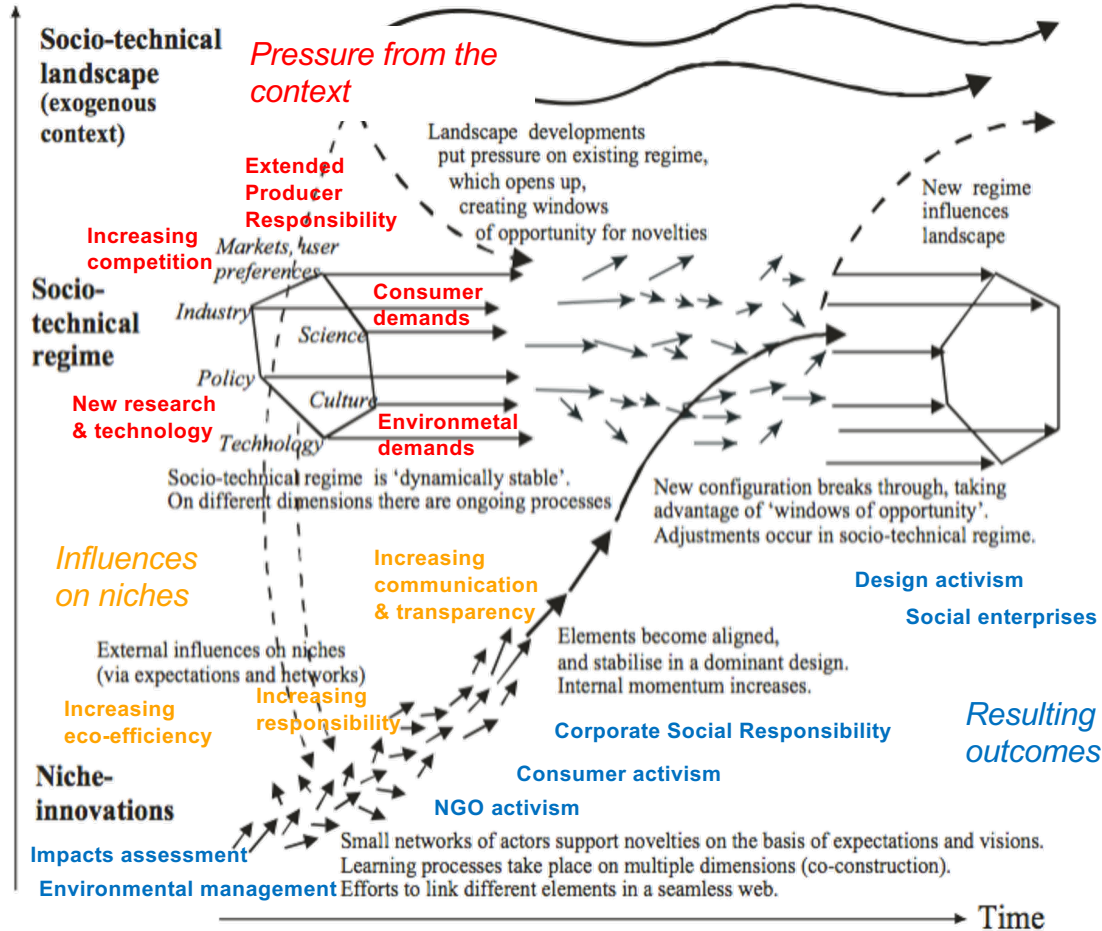
Source: Adapted from Geels (2005a, 2005b) and Geels & Schot (2007).

TM & MLP view: Socio-technical dynamics of transitions:



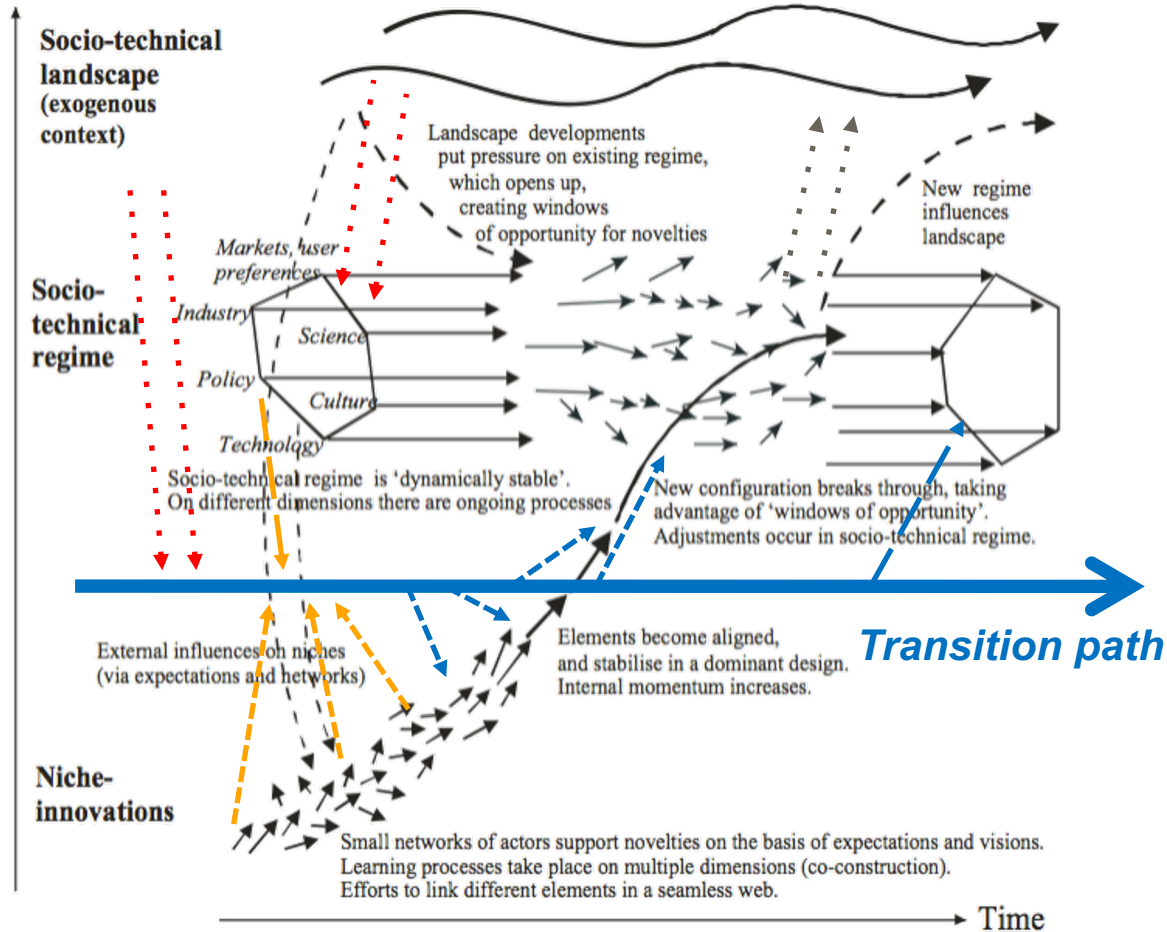
Source: Geels (2011)

Socio-technical context for *sustainable design* action:



Source: Author;
Developed from
Geels (2011)

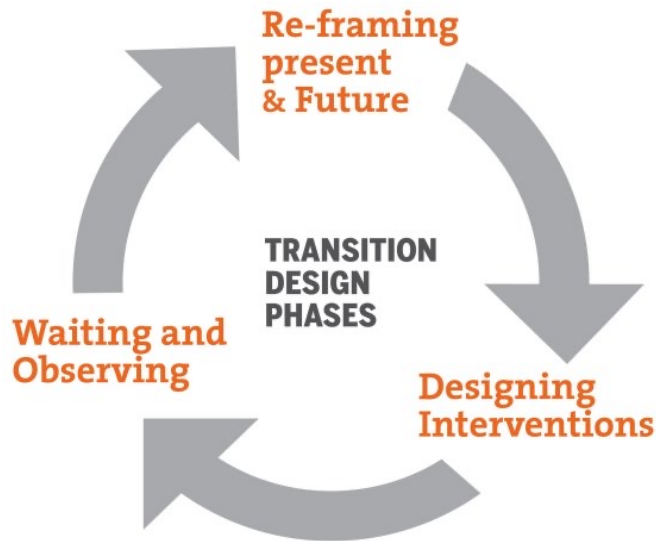
Design connecting levels of inquiry and action:



Source: Author;
Developed from
Geels (2011)

Design and transition management

Transition management calls for creative design approaches that can support transition project work in helping to structure work, visualize and repackage results, and communicate ideas.

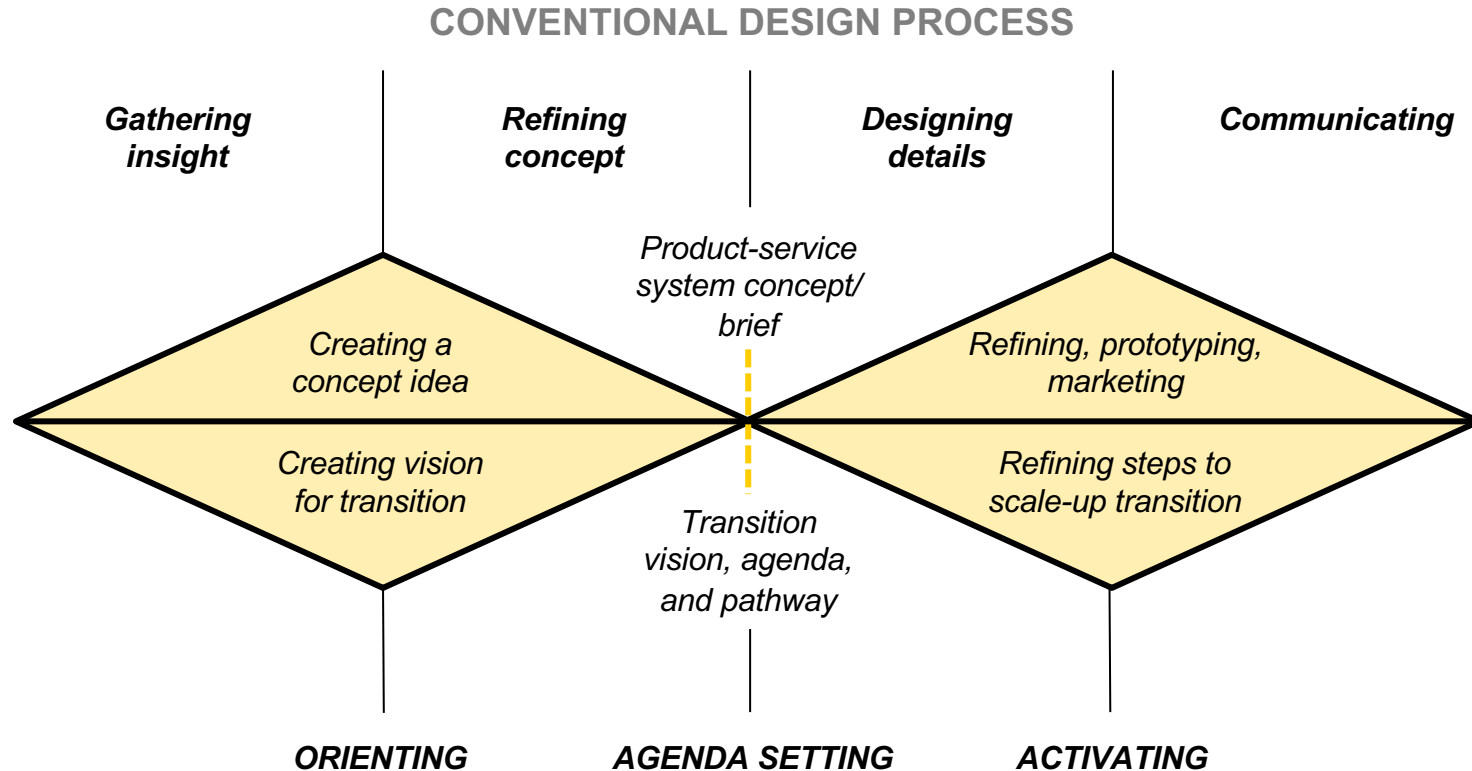


Source: Irwin, 2018

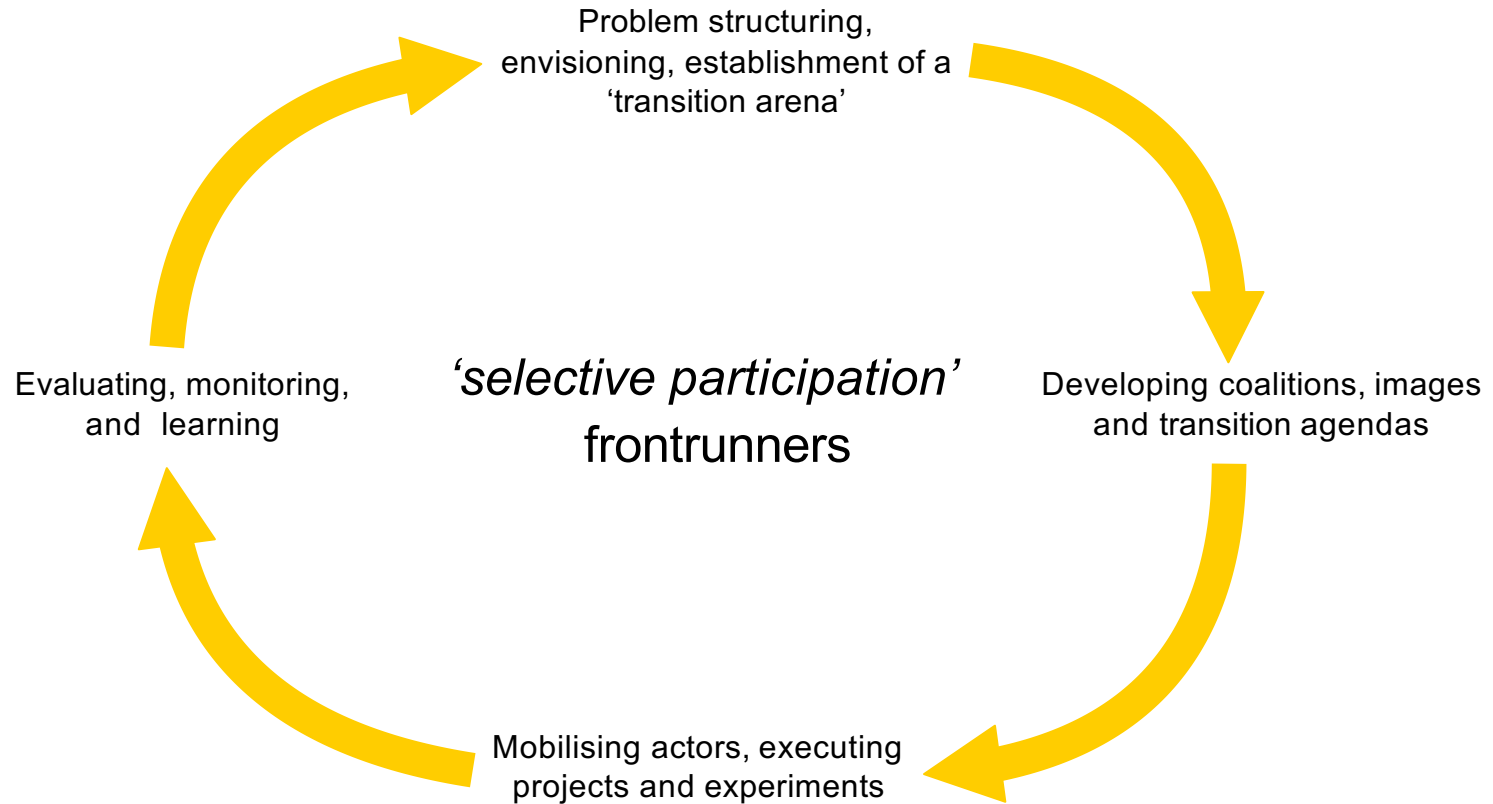
Transition design related focus methods:

- Overall project management and research activities
- Communicating issues of current situation
- Vision co-creation, visualization, repackaging
- Collaborative design of action agenda and actions to take further (back-casting)
- Communication of results of transition work to new audiences

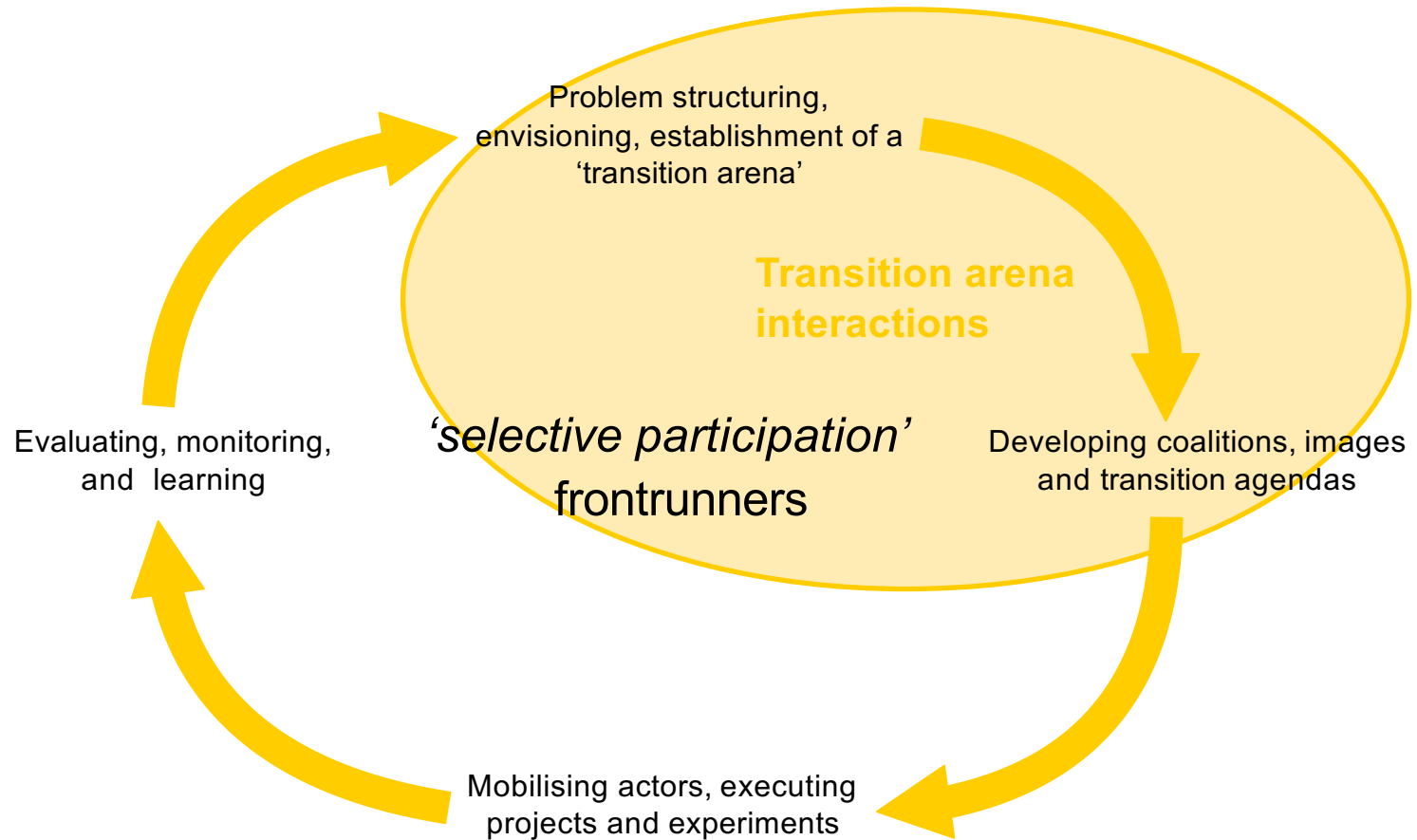
Transitions and design process



Transition Management (TM) cycle:



Transition Management (TM) cycle:



Transition management phases – From agenda setting to activating:

ORIENTING:

- From data gathering into ideation and co-creation

AGENDA SETTING:

- Develop transition agenda and vision for change
- Develop pathway and steps (activities, initiatives, experiments, campaigns, etc.)
- Prioritize steps and refine your transition experiment idea

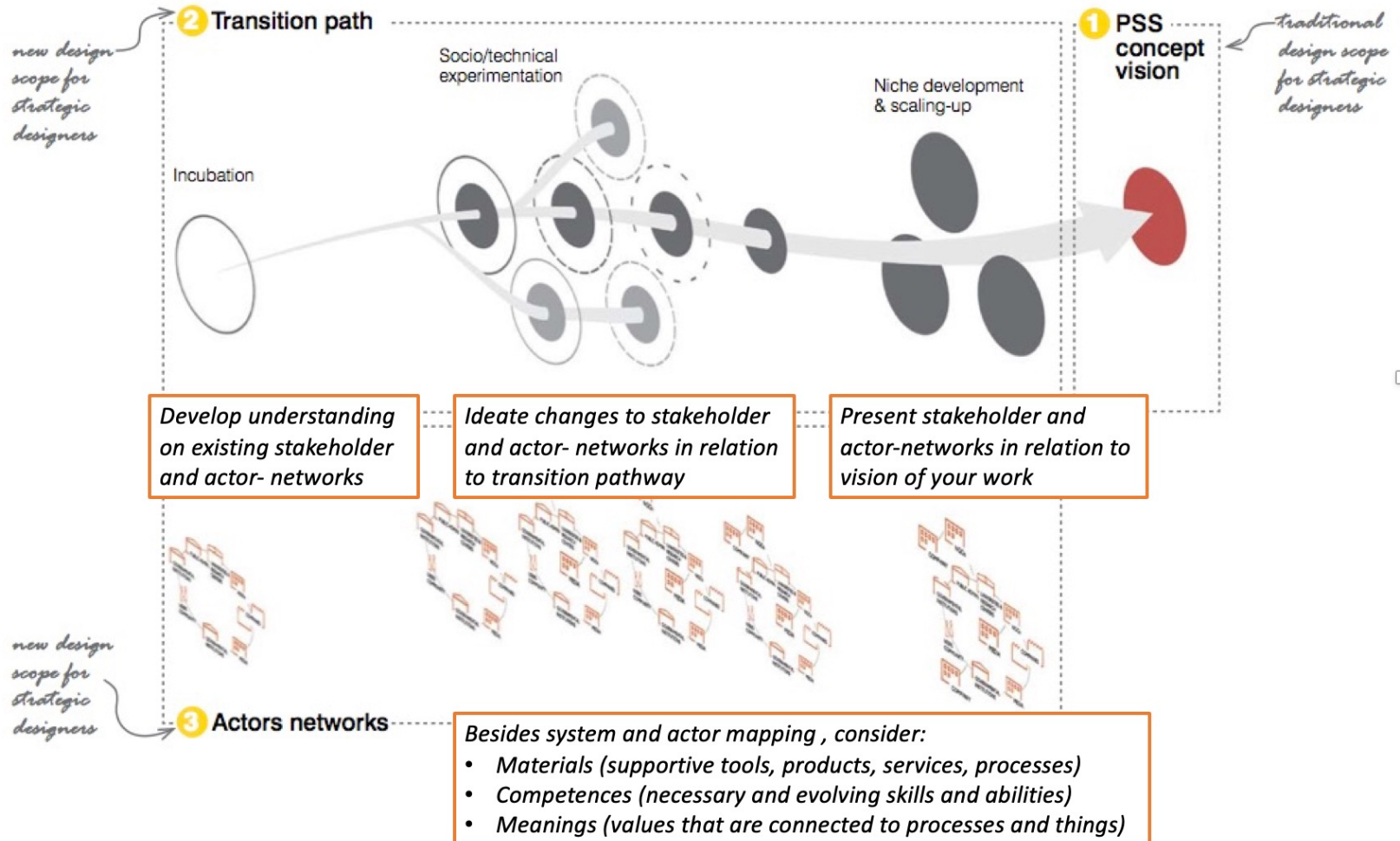
ACTIVATING:

- Scaling-up and communicating ideas on activities and experiments
- Mobilizing agenda steps and activities with new networks

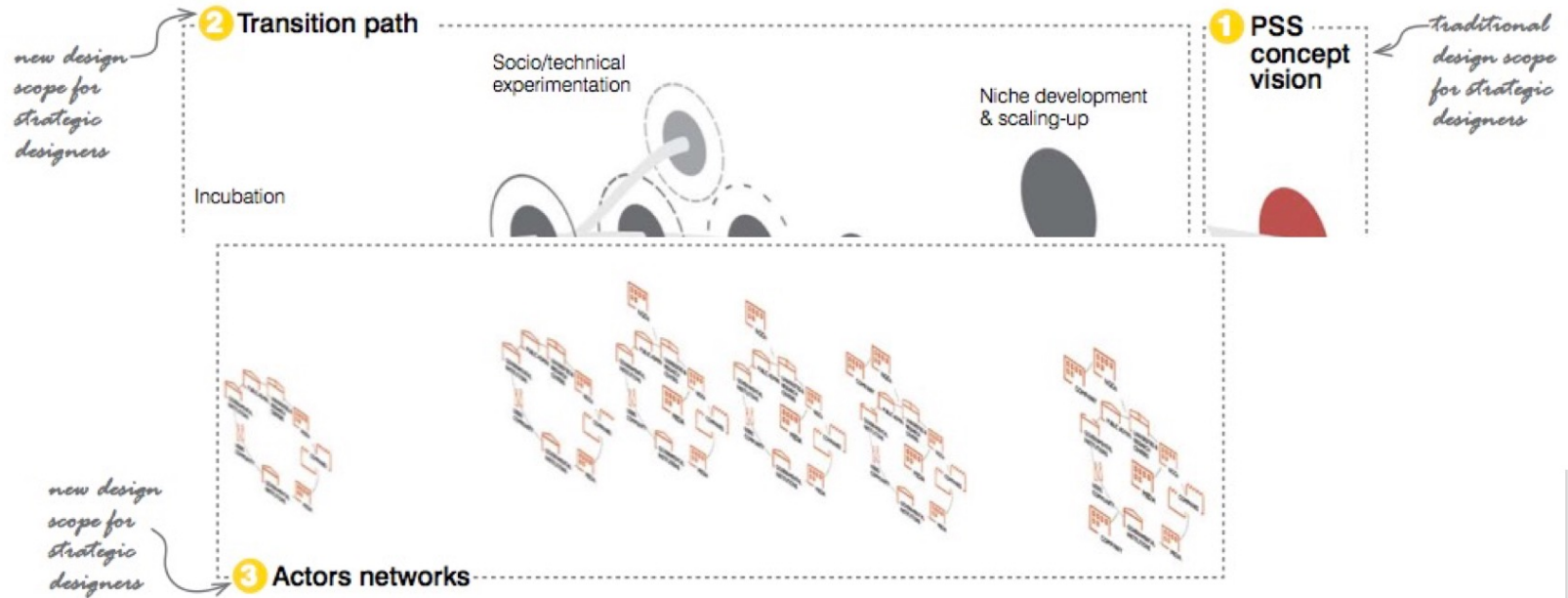
Transition management phases – From agenda setting to activating:

- **The orienting phase** consists of **strategic analysis and exploration of opportunities** that is done by extensive research activities, system mappings, and with analysis to ensure the necessary aspects in chain of production and consumption.
- **Agenda setting** consists of the **development of a transition vision, timeline, and goals and steps** (often co-designed in backcasting workshop).
- Design involves future, so its relation to **future vision needs to be addressed in the design process**. Future steps need to be aligned with the future vision, and current facts and opportunities.
- **Finally, the design focus moves to activation**: Communication of results, expansion of stakeholder networks, and initiation of first steps.

Designing transition pathways:



Designing transition pathways:



Transition management process:

*Initiate
Transition
arena*

*Discuss starting points:
Current situation,
drivers, and first steps*

*Develop vision and its
elements: Transition
targets and goals*

*Design and prioritize
different steps on the
timeline: Actor networks,
interactions, connections to
further action*

*Getting into
action*

Examples of transition design



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Reading: Irwin (2018) – The Emerging Transition Design Approach

Focuses on water shortage issues in Ojai, California

- Series of transition workshops
- Analyzing issues and concerns
- Creating future “snapshots”, scenarios, visions
- Explains Transition design approach step-by-step

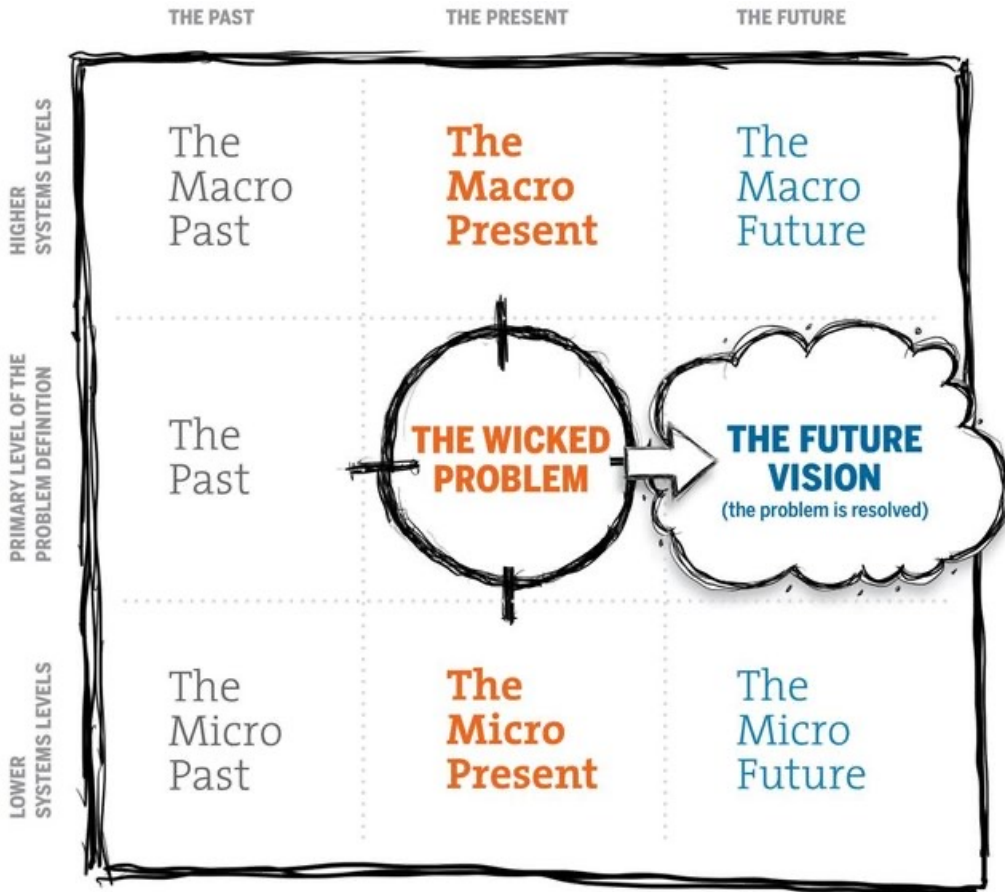
Mapping Ojai water issues:



The Emerging Transition Design Approach (Irvin, 2018):

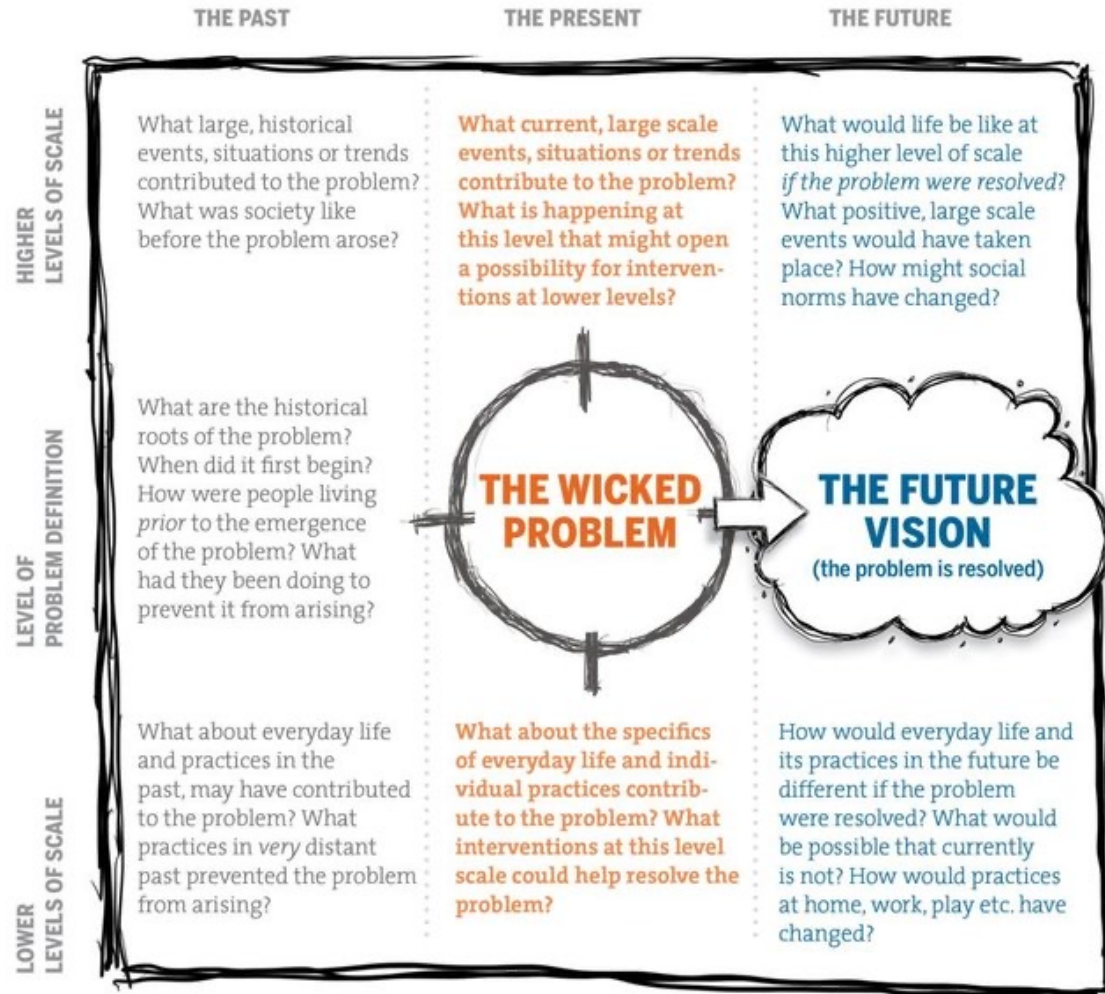
Transition Design draws upon the concept of the Multi-Level Perspective (Geels 2006) to situate both the wicked problem and a future, lifestyle-based vision in a large, spatio-temporal context.

This large context is explored in order to identify the most promising points of "intervention" lie within this large context.

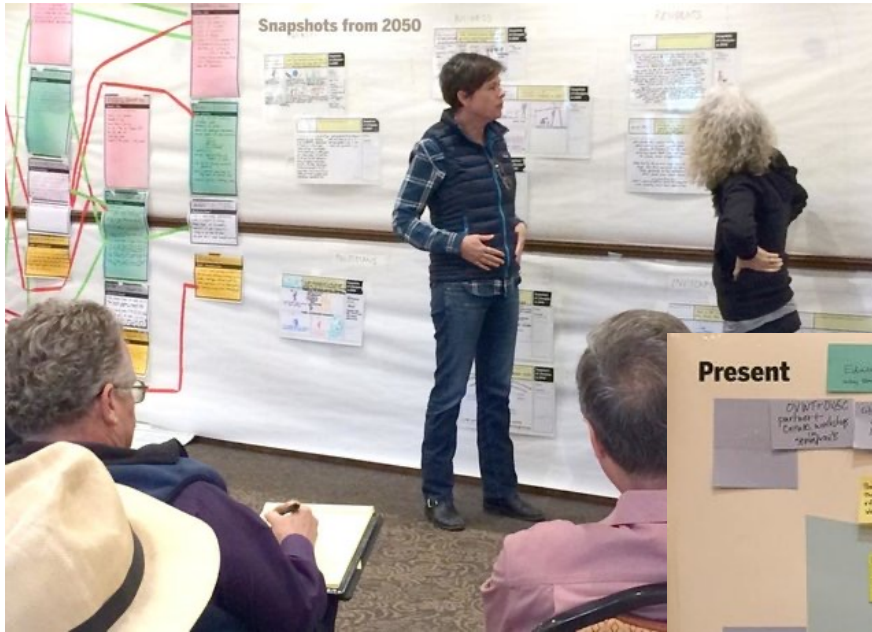


The Emerging Transition Design Approach (Irvin, 2018):

Specific questions can be asked at each level in the past, present and future in order to guide research and bring a higher level of fidelity to the future vision.

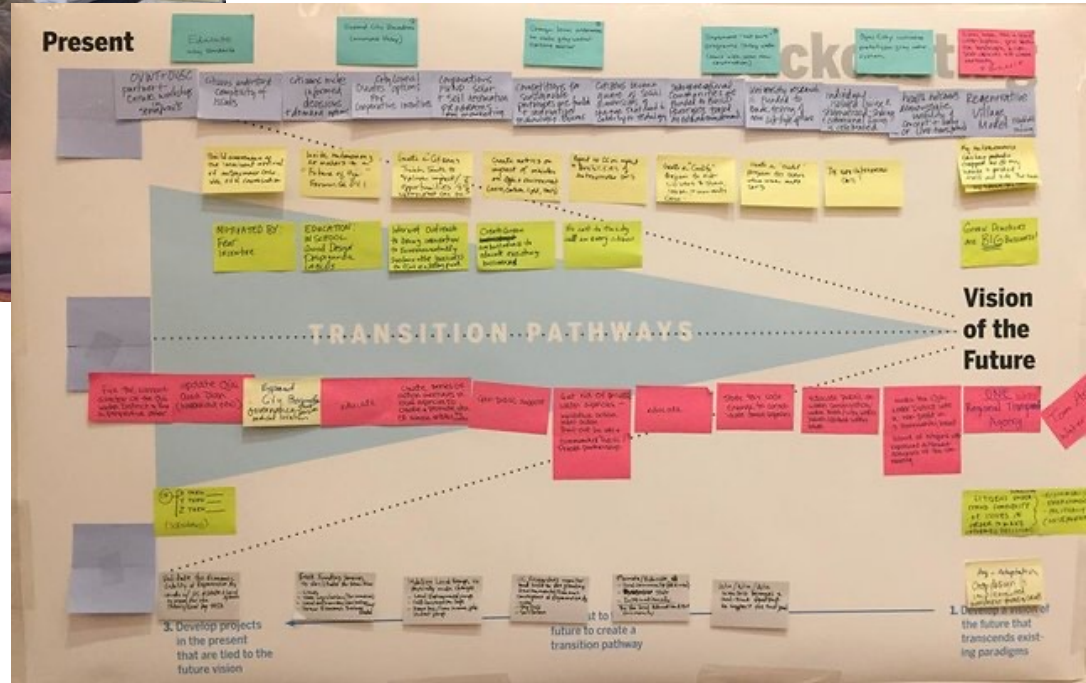


The Emerging Transition Design Approach (Irvin, 2018):

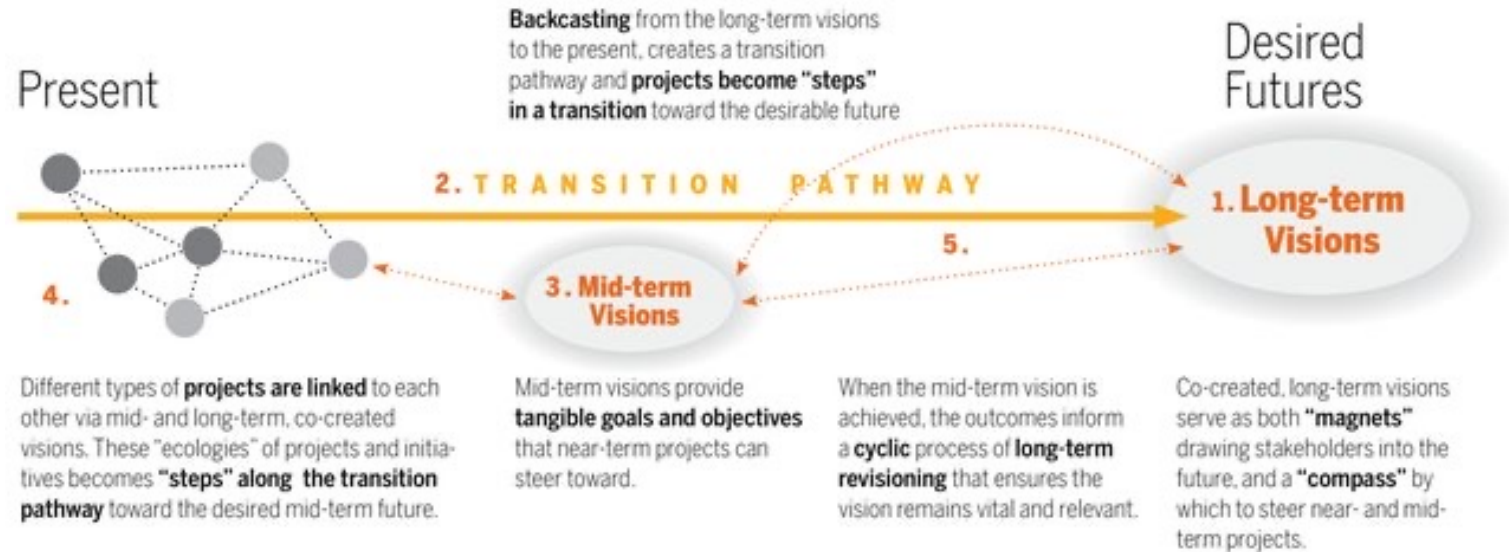


Transition project stakeholders presenting future narratives.

Transition pathway from desired future to the present, with each post-it representing a project/initiative or milestone.



The Emerging Transition Design Approach (Irvin, 2018):



Backcasting from a co-created future vision creates a "transition pathway" along which new and existing projects can be connected and situated as "steps" in a long transition toward the desired future.

Example #2: Mid-range TA work in Finland (2017–)

Smart Energy Transition project (SET; 2015–2021) was a Finnish Strategic Research Council funded project studying energy transitions with TA as one main tool

For the *“Smart Energy Transition Arena,”* a streamlined TA workshop structure was developed (6-7 sessions), along with *Mid-Range Transition Pathway Design Toolkit* (MTPT) to support collaborative transition pathway design (see Hyysalo et al., 2019a; b)

The original SET TA series was held in 2017 Feb-Dec, with a diverse group of energy, consumption and policy experts

SET Transition Arena 2017–2018 impacts:

- ✓ Report given to the Minister of Foreign Trade; Panel discussion with politicians
- ✓ TV media and newspaper attention; Large social media attention
- ✓ Attention amongst TM research and in other SRC projects

Hyysalo, et al. (2019). Developing Policy Pathways: Redesigning Transition Arenas for Mid-range Planning. Sustainability. <https://doi.org/10.3390/su11030603>

Hyysalo, Perikangas, Marttila, Auvinen (2019). Intermediate Codesigning in Transitions Governance: Catalysing and Channelling Participant Action. The Design Journal. <https://doi.org/10.1080/14606925.2019.1661557>

Workshop series structure in Smart Energy Transition arena in 2017:

Kick-off event

Workshop 1: Current challenges and drivers

Workshop 2: Vision and goals for 2030

Workshop 3: Pathways of change

Workshop 4: Prioritization of pathway steps

Workshop 5: Immediate actions & experiments

Workshop 6: Final report preparation

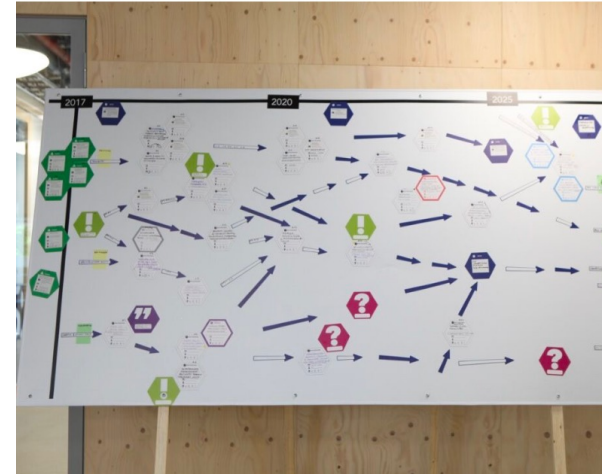
Each workshop (except kick-off) around 4 hrs)

Materials, tools (“designers’ input”):

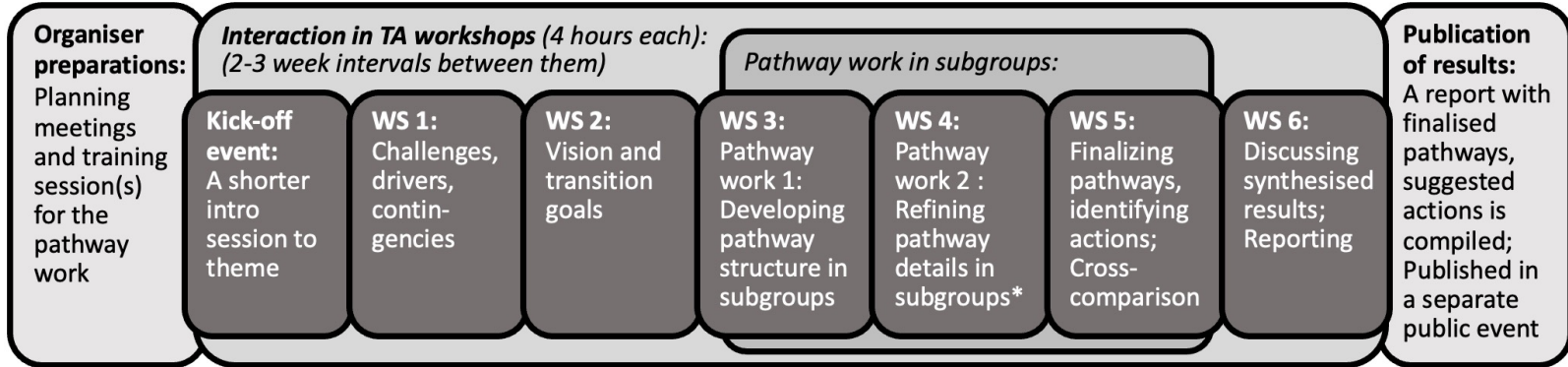
- Extensive background research; Expert interviews
- Toolset for pathway development (MTPT canvas)
- Memos, communication, voting
- Online platforms

Outputs:

- An iterated vision for Energy and Climate Strategy in 2030
- 8 thematic pathway exercises with identified action points
- Communication materials



The mid-range TA process and transition pathway codesign with MTPT canvas:



** In national energy arena three new, thematically related topics were taken into pathway work for the second session*



The mid-range TA toolset (MTPT) supported transition arena series since 2017:

- **Since SET TA in 2017, collaborative mid-range transition pathway design has been utilized in several different contexts, each linking with SET original series:**
- On energy transition, in CORE project on citizen energy (2019) and in DigiDecarbon with focus on digital technologies to support community action (2022–2024)
- On national level, in a MoE TA pilot focusing on biodiversity goals (2018) with a full (online) TA later (2021), and in PMO (online) TA on A2030 goals (2021)
- On regional level, in two BlueAdapt arenas with focus on 'blue' bioeconomy (2018–2019)
- On city and district level, in Vaasa on mobility and in Tampere on development of Hiedanranta (2018; 2022)
- Each TA series have followed the mid-range TA structure, and the MTPT toolset or its digital revision
- Each of the series has had a different constellation of actors, but always multisectoral focus and representatives from several organizations

Scaling-up sustainability



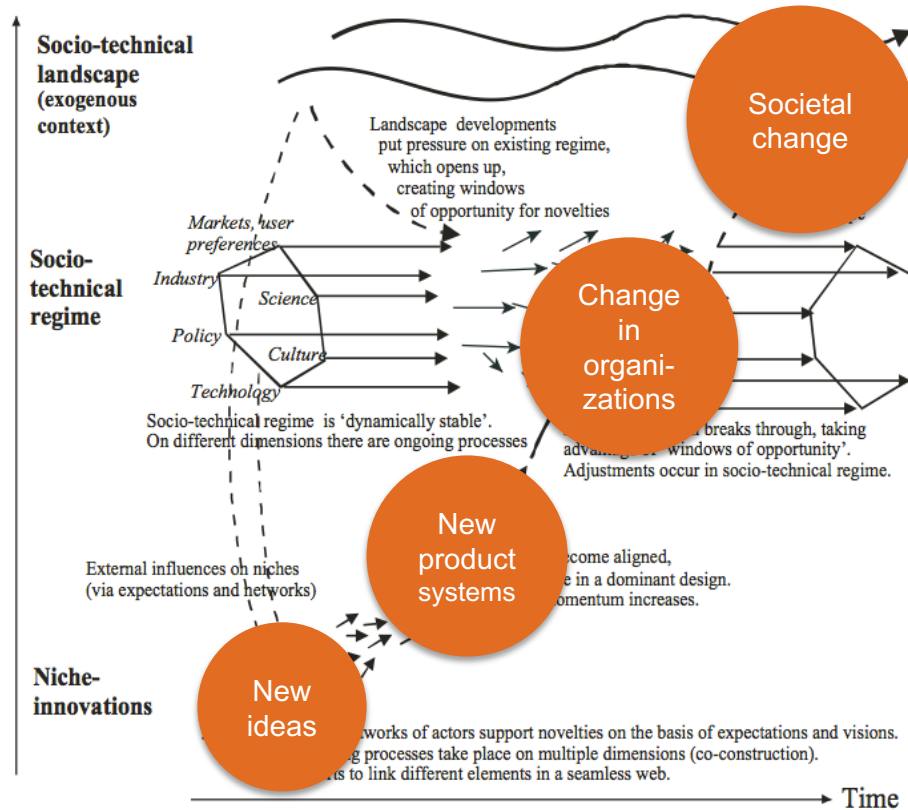
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Design action on several levels

Multi-level perspective on sustainability transitions within the socio-technical context (Geels 2011).

Design actions take place on all levels, and can be connected together

Source: Geels, F. (2011) Multi-level perspective on sustainability transitions

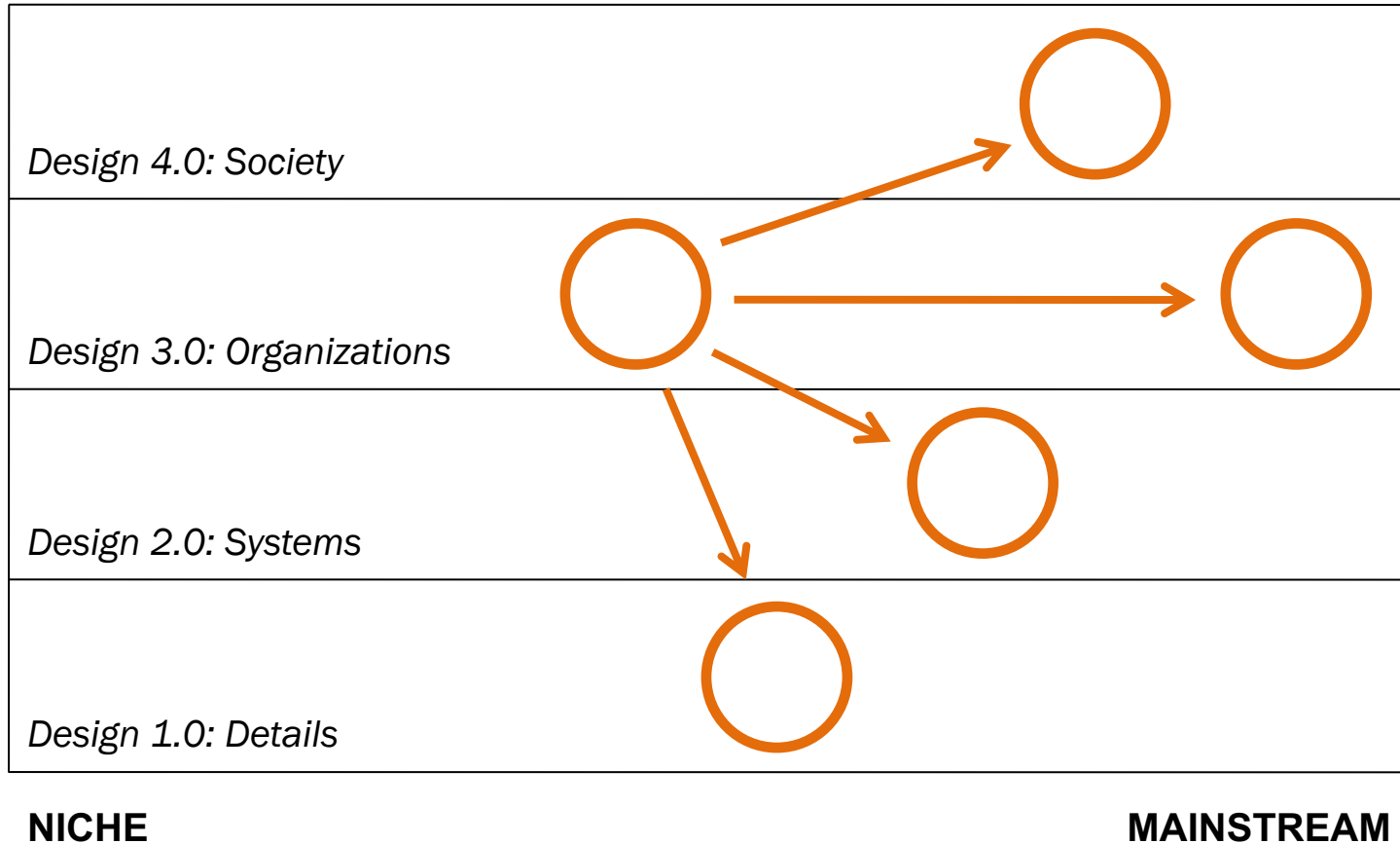


Vision-building as a part of the process:

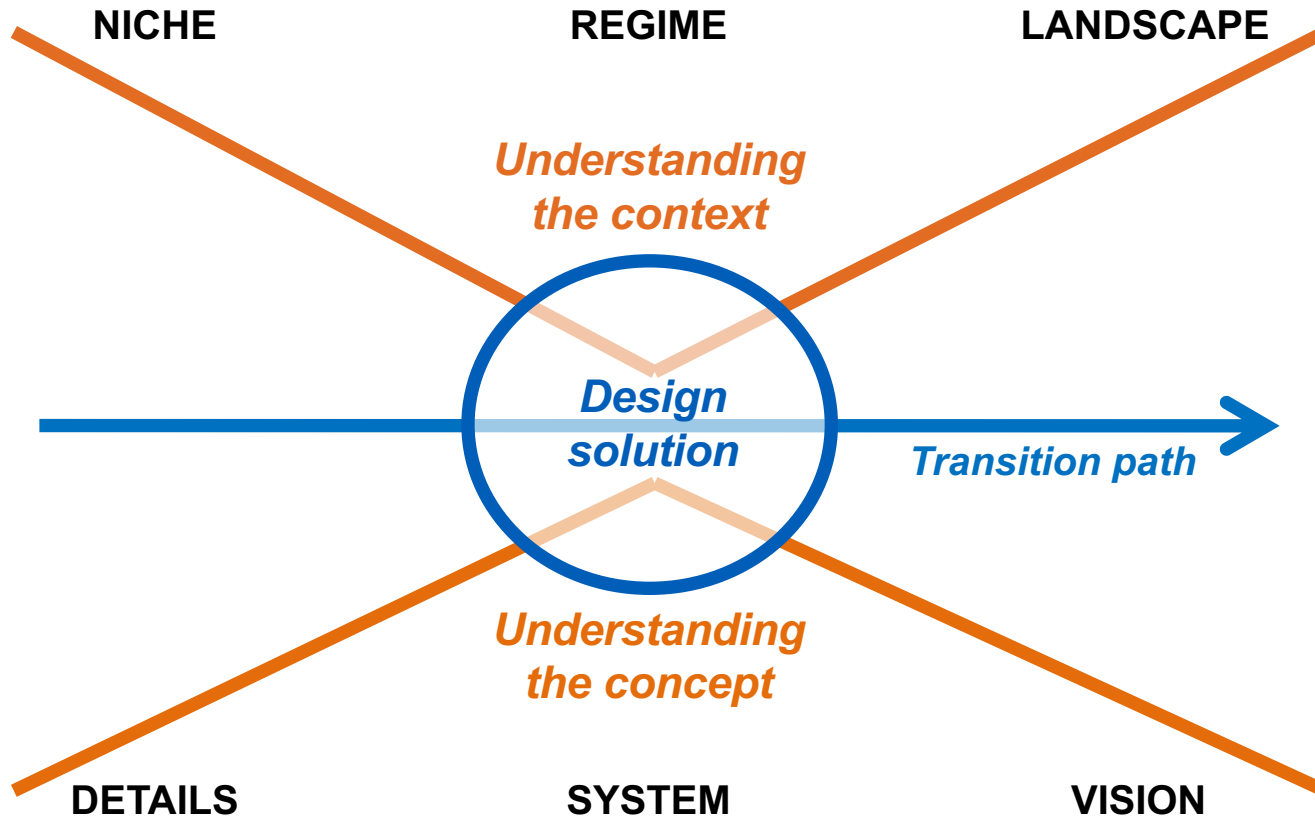


See: <http://visionsandpathways.com/>

Design ideation connecting several levels of action:

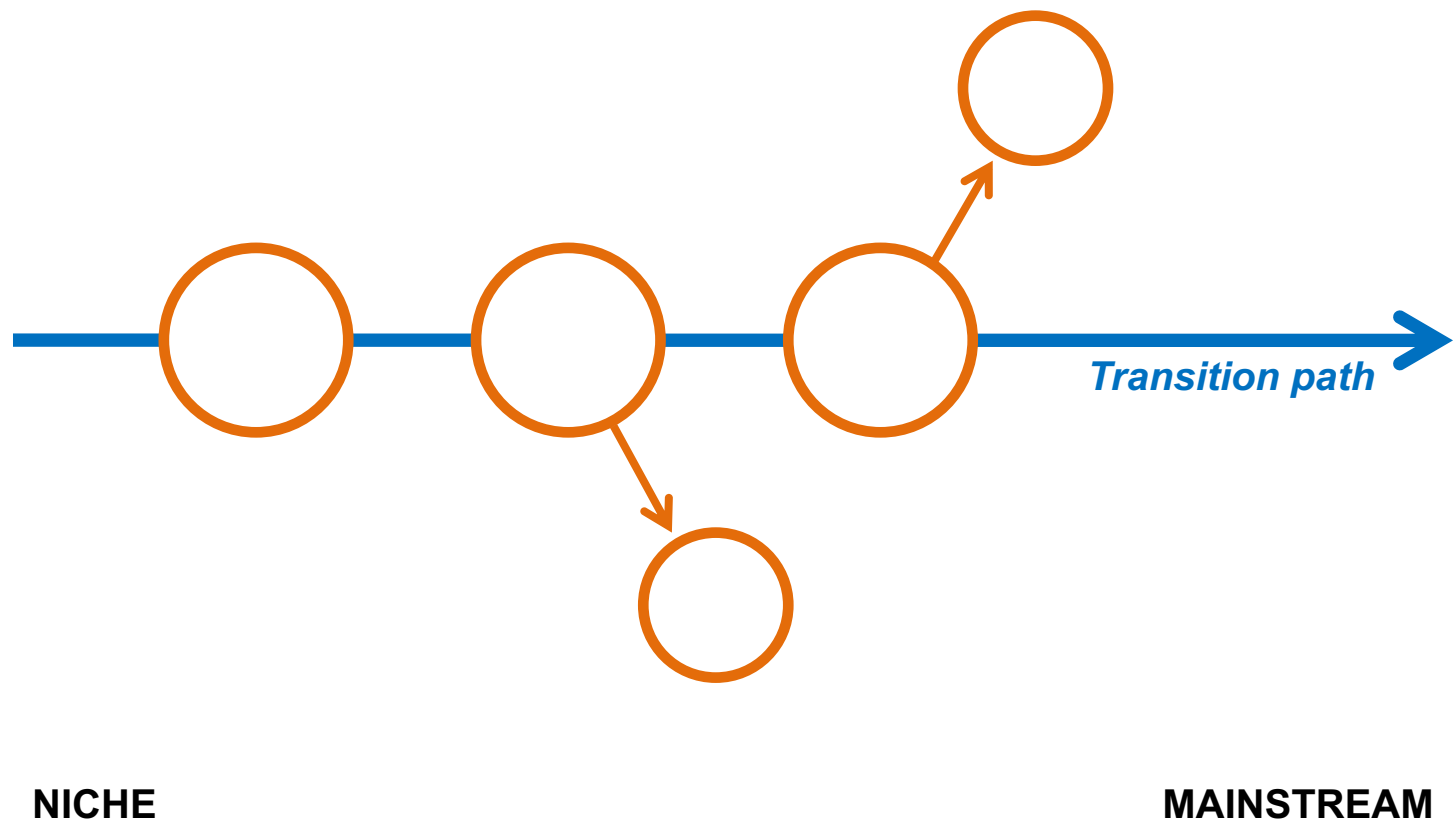


Design solution connecting different contextual dimensions:



Source: Author

Designing transition paths, working with contextual pathways:



Designing transition steps and phases for future sustainability:



NICHE

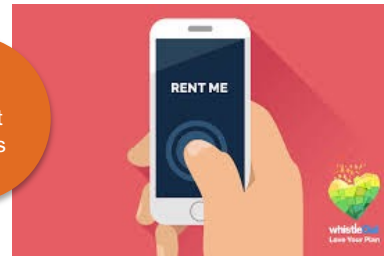
MAINSTREAM

SAMSUNG
mobile take-back program

Recycling is the first step toward environmental protection. That is why Samsung Electronics has actively participated in a recycling program for end-of-life mobile devices. Through the program Samsung is leading the efforts to create a recycling-based society where discarded products are reused as resources for manufacturing, and at the same time it is making great contributions to preserving the environment and using resources efficiently.

PLUG-IN TO eCYCLINGSM WITH U.S. EPA

Samsung is a proud PLUG-IN to eCYCLINGSM partner. Find out more on how you can recycle your cell phone at www.epa.gov/cellphones. Recycle your cellphone. It's an easy call.



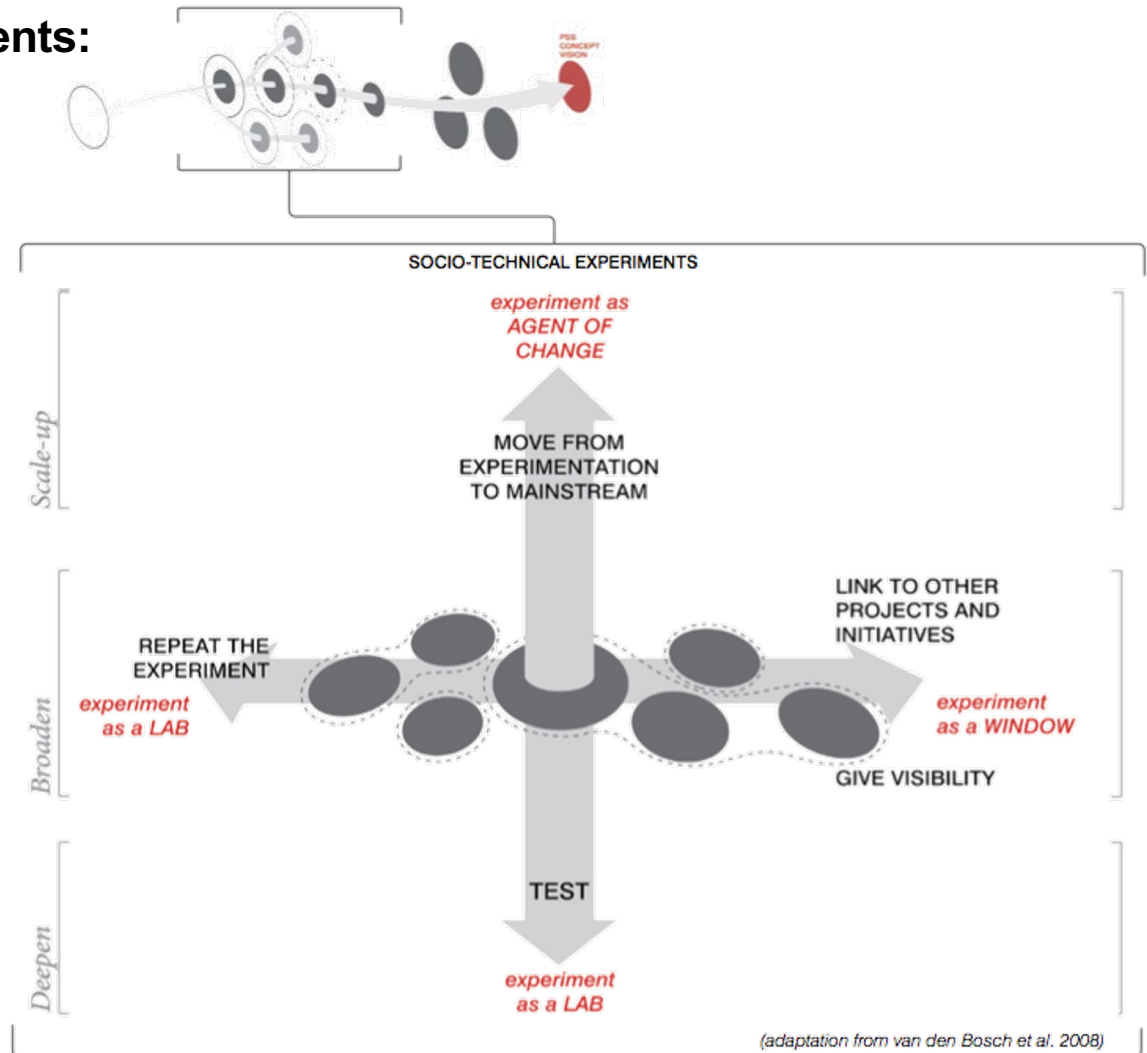
Transitions and experimenting

Transition experiments (governance, technological, social) are expected to create outcomes through three different mechanisms:

- **Deepening** (learning as much as possible from the transition experiment),
- **Broadening** (repeating an experiment in an adjusted form in a different context)
- **Scaling-up** (embedding an experiment in the existing structures of the incumbent regime)” (Grin et al., 2010, p.146).

Socio-technical experiments:

In the testing and scaling-up phase the design process has an emphasis on creating **socio-technical experiments** that help to *test* and *link* the design idea and to *move it towards the mainstream*.



Scaling-up transition ideas

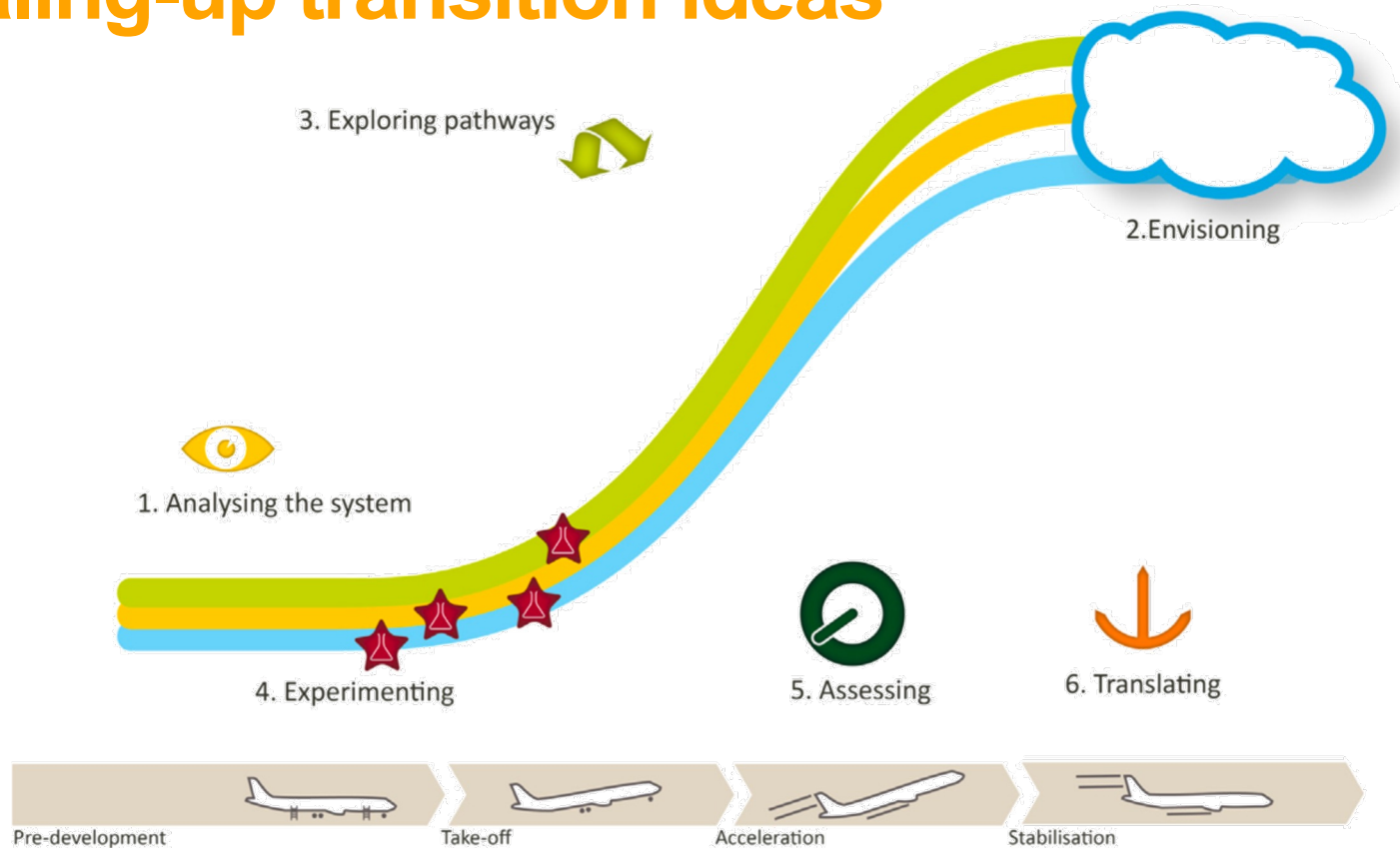


Fig. 1. Transitions to sustainable development: A logical combination of reinforcing steps and associated activities.

Backcasting and scaling-up

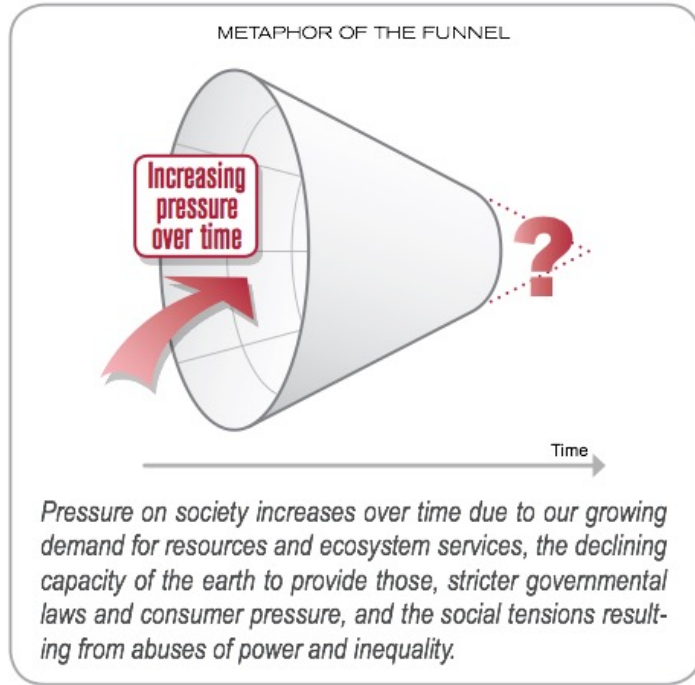
Sustainable development calls for but also results in changes in future policies, markets and consumption

Design involves future, so its relation to future setting should be addressed in the design process...

Backcasting as a method for futures design:

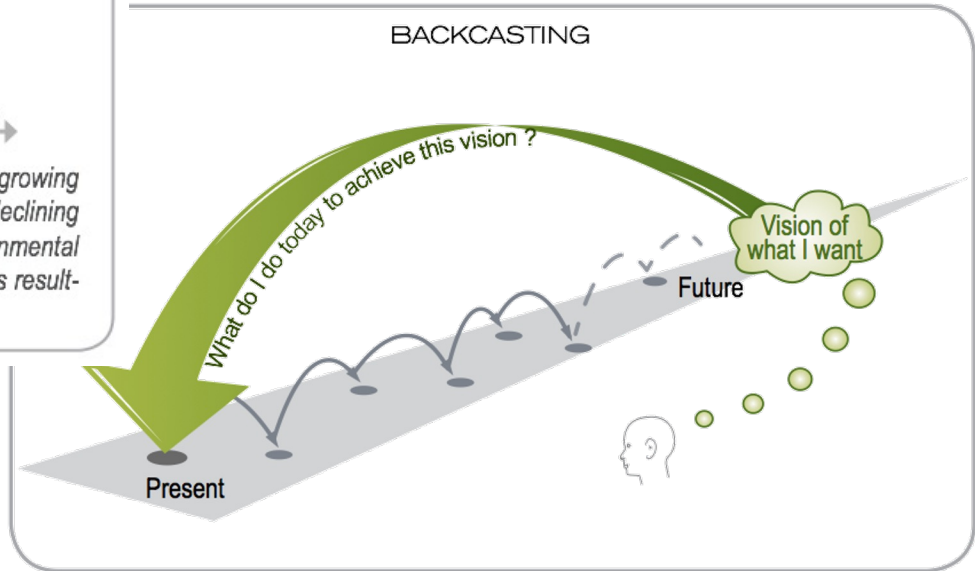
- Identify future vision; Iterate on progress from present statue; identify next steps to proceed towards strategic vision
- Future vision versus the current state: Decide on creative solutions (redesigned system, new actors & interaction), priorities

Backcasting (from The Natural Step framework):

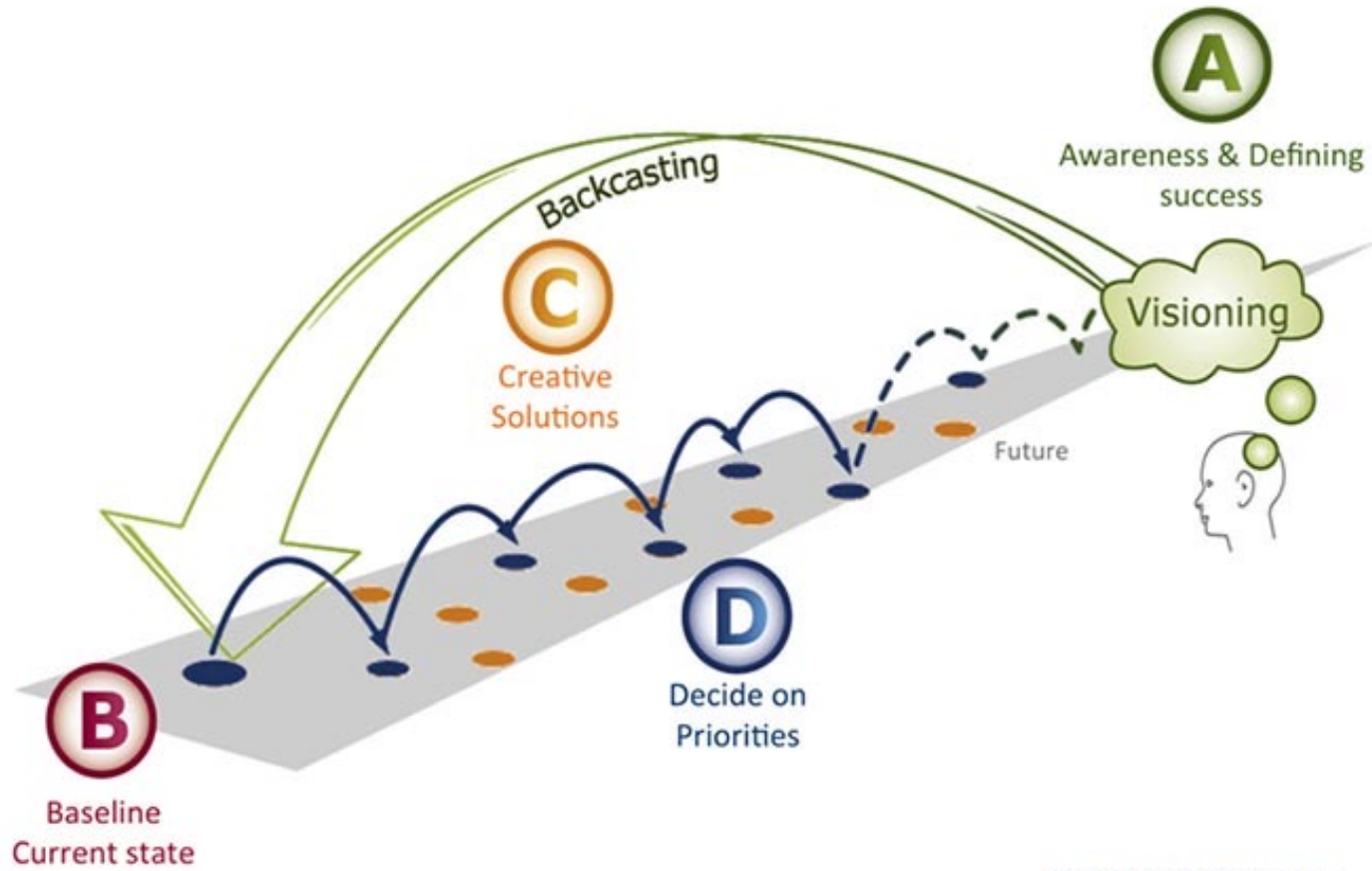


See for more info:
www.naturalstep.org

Sustainability pressure on society creates growing demand for sustainable services. Backcasting can help to plan steps to achieve future vision.

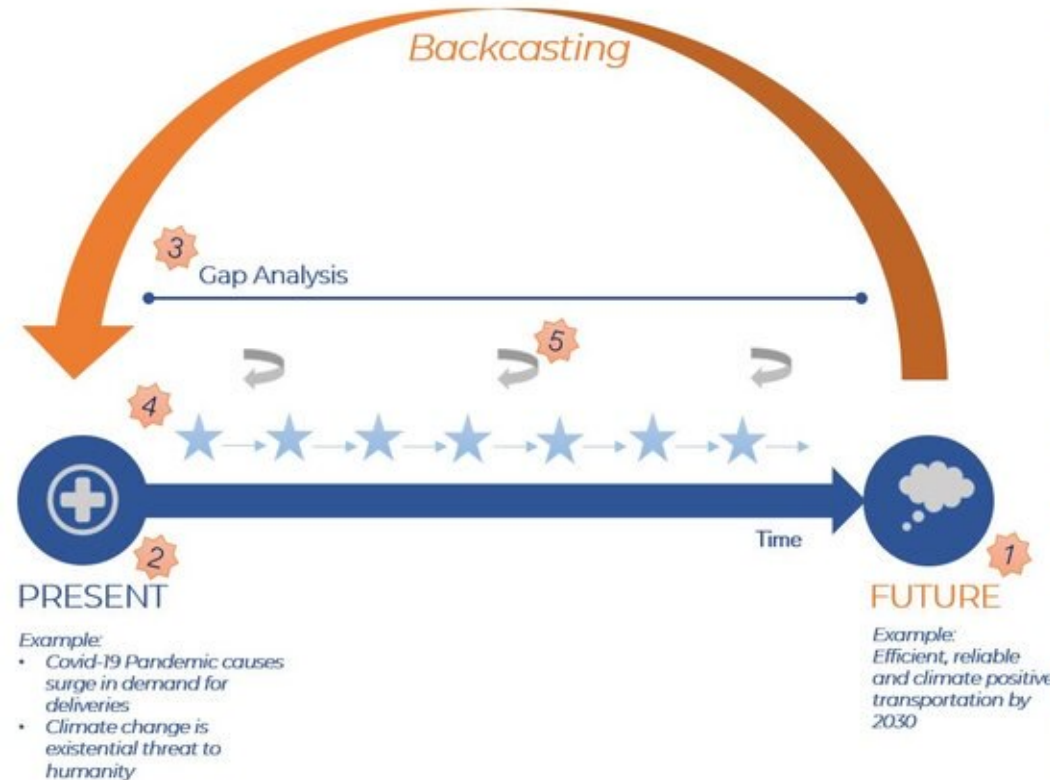


Backcasting (from The Natural Step framework):



Example – Backcasting process by KKS consultants – Sustainable logistics:

The Backcasting Process



1. Future Vision: Definition of desired future scenario – Be creative!

- What does sustainability mean to your organisation?
- How can your organisation contribute to achieving global sustainability?
- What is your vision for: technologies, products, services, and policies?
- *Logistics Example*: Vision - Efficient, reliable and climate positive transportation by 2030.*

2. Present: Assessment of present circumstances

- How is your organisation responding to (the effects of) the Covid-19-pandemic?
- What is your organisation's current strategy?
- Which technologies, products, and services are currently available?
- Which policies is your organisation currently guided by?
- *Logistics Example: Pandemic causes surge in delivery tasks due to boom in online orders → negative environmental impact might increase as deliveries increase.*

3. Gap-Analysis: Identification of required setting for achieving the desired future

- How are the present technologies, products, services, and policies aligned with the future vision?
- How do these need to be developed further?
- *Logistics Example: Product innovation - affordable carbon neutral transportation methods, e.g. delivery drones.*

4. Action Plan: Development of actionable steps for achieving the future vision

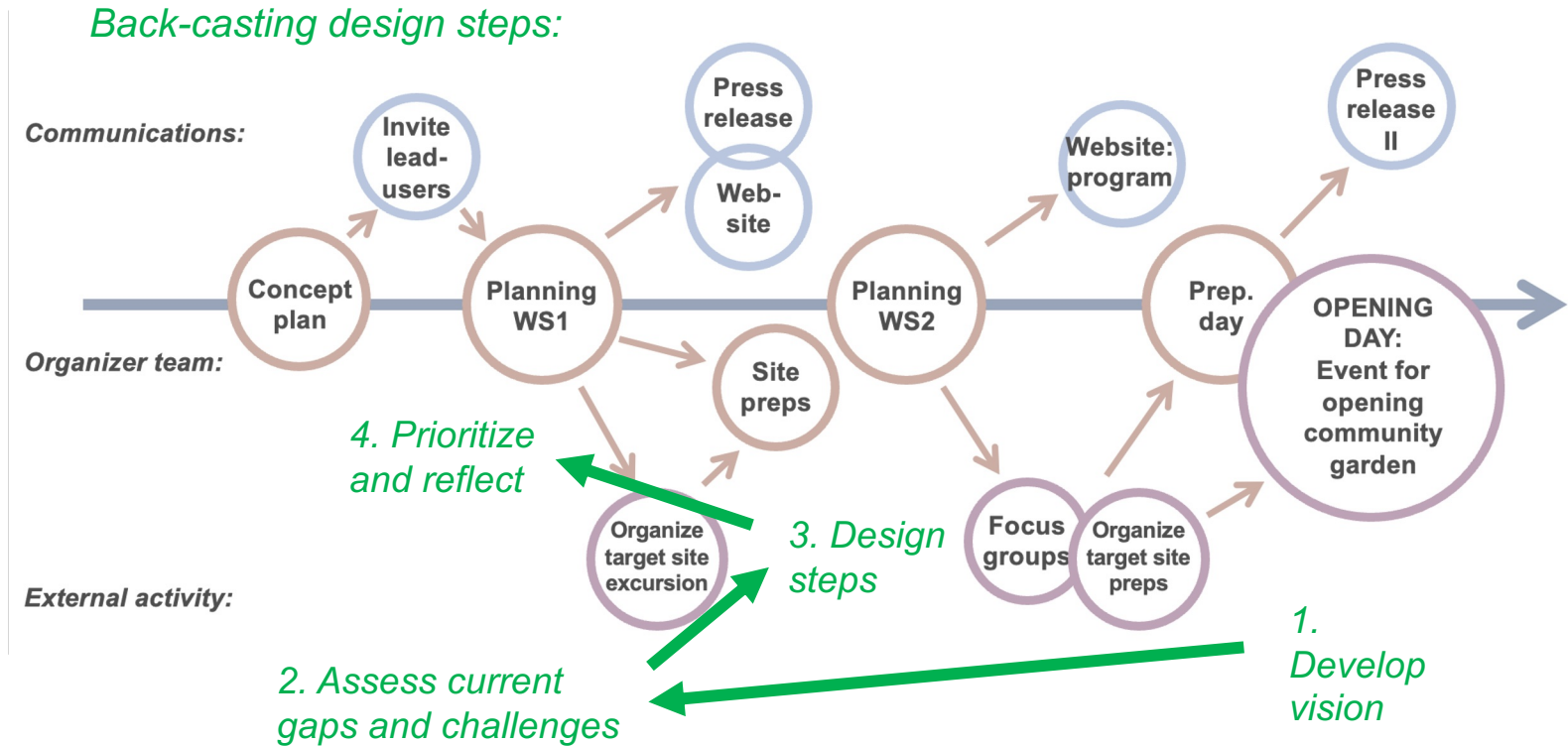
- How can the ultimate goal be broken down into specific targets to be achieved over time?
- Who within your organisation is responsible for achieving the specific targets?
- *Logistics example: 50% of fleet replaced with carbon neutral transportation methods by 2025.*

5. Revision: Continuous revision of action plan

- Have the circumstances of the broader system that you operate in changed?
- How is the action plan affected as a result?
- Does the action plan need to be revised to ensure achieving future vision?

*) The example firm is a nationally operating logistics firm. As part of a broader sustainable strategy, the management team defines a vision on climate action.

Example – Designing a timeline for opening an urban garden site with local community:



Example steps to co-create a community garden, with various actors and activities involved in different phases

Exercise in groups



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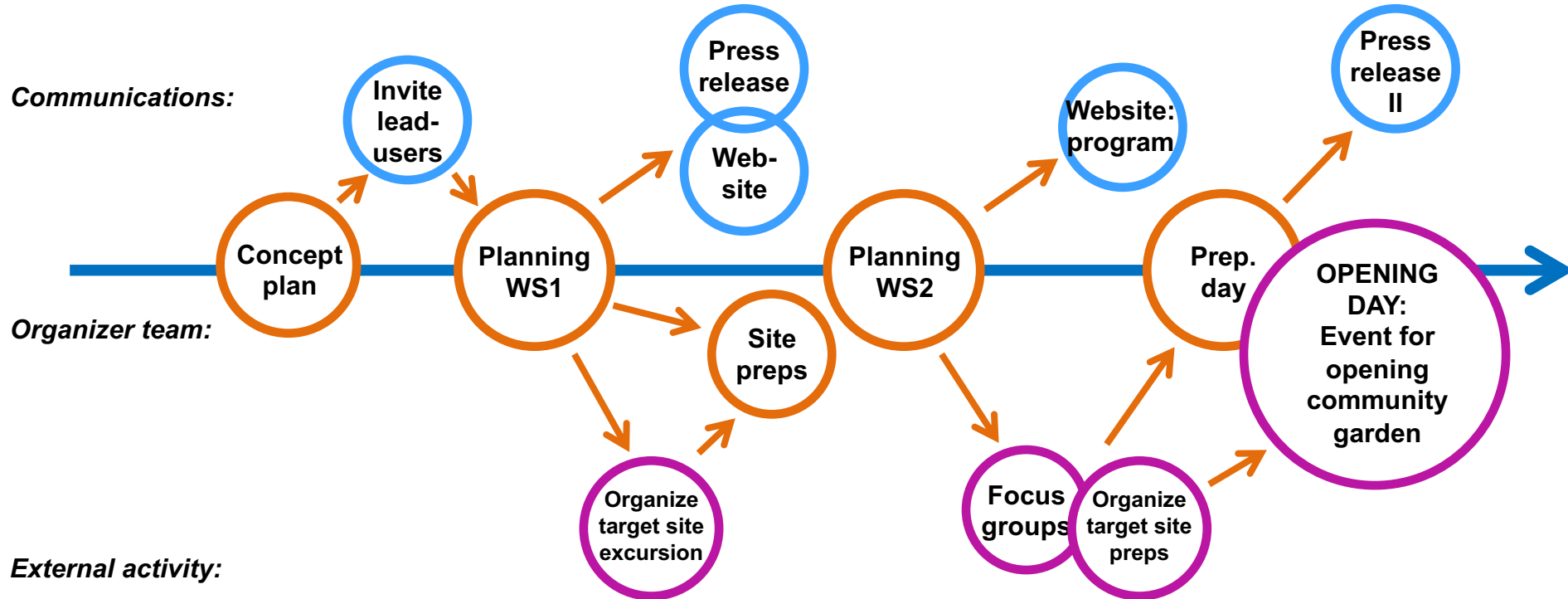
Exercise in case groups: Backcasting & timeline design

Create a timeline that relates to some dimension of your case work:

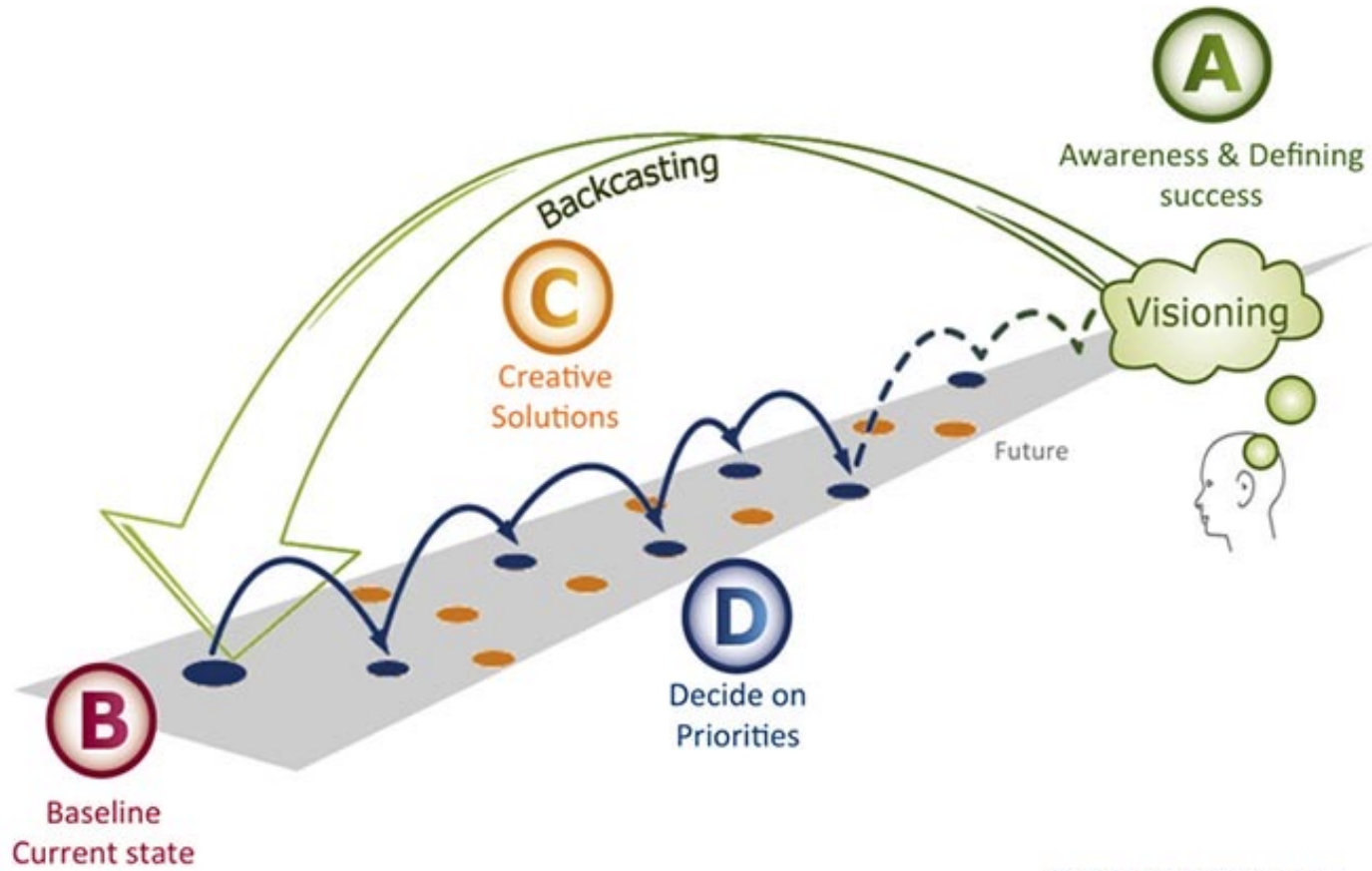
- Timeline can concern your overall project or then some component of it, eg. campaign, annual process, use of toolkit/materials, development project etc.
- Work with a horizontal timeline (see example on next slide)
- Consider the vision you pursue towards
- Discuss together and ideate main steps; Discuss also who are the involved stakeholders (break 10 min + ~30 mins work)
- Present results very shortly (30 min; 3 min each team)

Timeline design exercise

Example timeline: *Developing urban garden site with local community*



Backcasting (from The Natural Step framework):



Thanks!



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