



Aalto University
School of Arts, Design
and Architecture

Design Approaches to Sustainable Consumption

**Session 7 (Tuesday 30.1.):
Design for Sustainability Transitions**

Tatu Marttila

Tuesday 30.1.2024

Agenda

13:15–14:00 Project work & next sessions

- *Project work: Status & next steps*
- *Discussing idea presentations*
- *Next sessions*

14:15–15:00 Design for sustainability transitions

- *Transition management framework and the transition arena*
- *Visioning, back-casting, developing transition agendas*
- *Examples of transition arena work*

15:15–16:00 Project work in groups

- *Timeline exercise for groups*

16:15–16:45 Closing session

- *Preparations for next week game session*

Project work & next sessions



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Idea presentations on Thursday – feedback?

Idea presentations were held on last week Thursday. In 15 min. slots the group presentations were followed by a short feedback. Today we can continue with reflections...

Questions and areas of interest for the groups:

- Do you still need to select or narrow down your focus for the final outcome?
- Can you still involve further stakeholder interaction?
- Can you find synergy between groups?

(...Group 7, please upload also your idea presentation to MyCourses!)

Groups 1–3: Focus on food system services & design

Food and ecodesign/PSS

Food Waste App

(name pending)

Group 1:
Miina, Minerva, Petra, Aqib, Nina & Trine

Minimise food waste by...

Better planning
Algorithm to better estimate how many customers to expect on any given day

Second serving
Provide an opportunity for purchase of food before it gets wasted

Food Systems + Speculative Design

First concepts

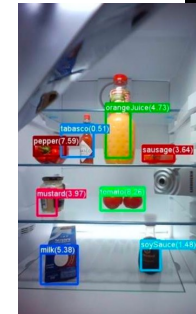
Dinah Coops
Valeria Escobar Molina
Freja Schalin
Manuel Diaz Tufinio
Virma Ylosjoki
Elli Tornqvist

What if Aalto's cafeterias were self-sufficient?

What if a fridge can reduce food waste while fostering a community?

Food System Transitions – Design Solution

Devayani Mohanraj, Eeli Haapala, Jimin Hong, Salla Kyyrö, Shita Padmi and Veera Parkkonen



Groups 4–5: Focus on mobility systems

MUO-E8049 Design Approaches to Sustainable Consumption

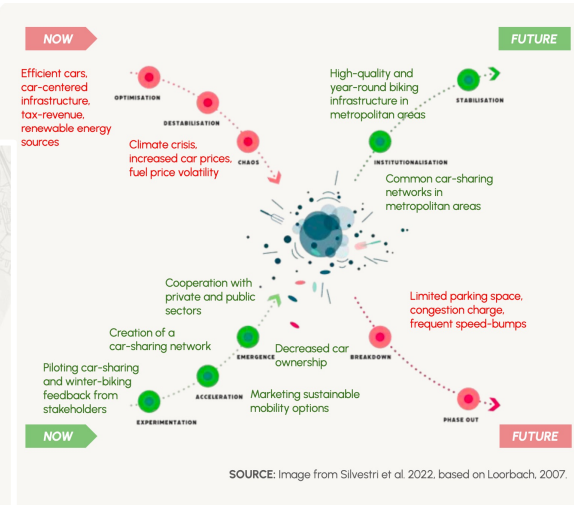
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Mobility Systems in Otaniemi

Strategic and Transition Design Approaches

Group 4 / Beste Polatkal, Tianyi Yu, Roosa Laakso, Sonja Mäkela, Ilmari Hieta, David Bertl

INITIAL OPPORTUNITY AREAS



Mobility Systems

Participatory + Collaborative Design

Group 5: Nathan Pottier, Laura Pohto, Chin-Ying Chu, Leevi Kangas, Regina Kazanjian, Siiri Aaltola

25.1.2024

Problem framing:

Examine the existing campus cycle infrastructure and analyze the reasons behind its lack of visibility.

Target audience: people who don't bike in winter.

Goal: increase winter biking safety and winter biking ease.

Obstacles (meta): awareness.

Obstacles (pragmatic): path conditions, winter tires, routines, gear, confidence.

Visibility can allude to culture building around cycling on campus.

Groups 6–8: Focus on housing systems & services

LET'S CLOSE THE LOOP

Aalto University Campus Student Housing

Sandra Sonneborn, Lien Pham, Yury Tupikin, Sofia Pascolo, Jenni Lehtinen, Anna Farrell

DESIGN APPROACHES TO SUSTAINABLE CONSUMPTION

SOLUTION



DESIGN APPROACHES TO SUSTAINABLE CONSUMPTION

IDEA PRESENTATION

Group 8 – Annette, Callisté, Jaana, Mayu, Meri-Tuuli, Skye



CHALLENGE 1 - STUDENT LONELINESS

- AllWell? Survey: 31% of students do not feel they belong to any group
- 25% of students lonely in 2021
- Finnish culture does not encourage communal living
 - In 2020, the number of Finns < 30 years old living alone was double the 1990 value
- Major negative health effects
- Communal living potential neglected



CHALLENGE 2 - FURNITURE LOGISTICS

Difficulty in moving in and out of campus furniture-wise

Students leaving things behind when they move out

High turnover rate because of exchange students and master's degrees are only 2 years

Distance to Kierrätyskeskus

Cost of furniture



Groups 9–10: Focus on products & related services

Fashion & Textile PSS & ECODESIGN

Monika Kokko
Ada Tola
Thekla Weißkopf
Tiia Kiuru
Jan Kulhánek
Saara Luukkainen
Shuyi Liu

Repair

SWAP

Borrow

Aalto Textile Hub

Customize
"Aalto"ed

DIY
Workshops

Digital Library
Tutorials & educational



Domestic appliances for short term housing

Md Asadur Rahman Khan, Martina Maci, Jeanne Lallemand, Ronja Chydenius, Topias Elg
Team 10 ICT & Domestic Appliances / Strategic and Transition Design

Need to access domestic appliances for short term use

What can we do?

- 1 Have it when you need it
- 2 Rent instead of own
- 3 Extend usage
- 4 Build on existing systems

Project work – next steps...

After presenting the ideas, each group needs to lock down their design concept idea, and move focus on its finalization and communication:

- Reflect on your group's preferred DfS approaches: If you still had several ideas, select one to focus on (vote in group if needed)
- If you want to involve several aspects/elements, think communication of a product or service system with many offerings, or typification of collaborative activities, or transition agendas with several actions on a timeline...
- Consider if you can still involve some stakeholder interaction (surveys for data gathering or validation of results; tests, experimenting)
- Structure your group's schedule for the last few weeks!



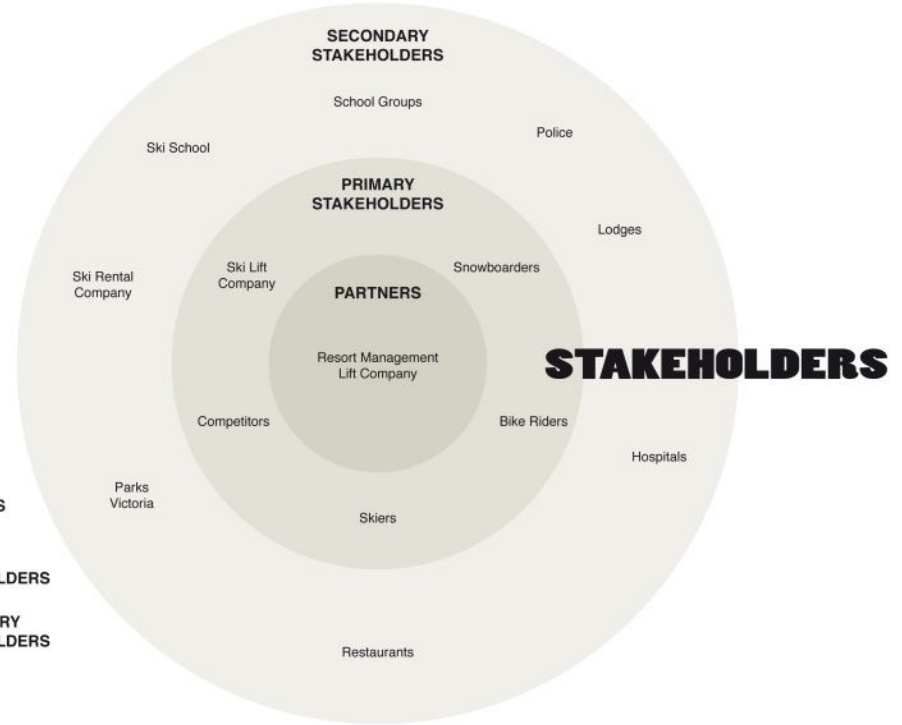
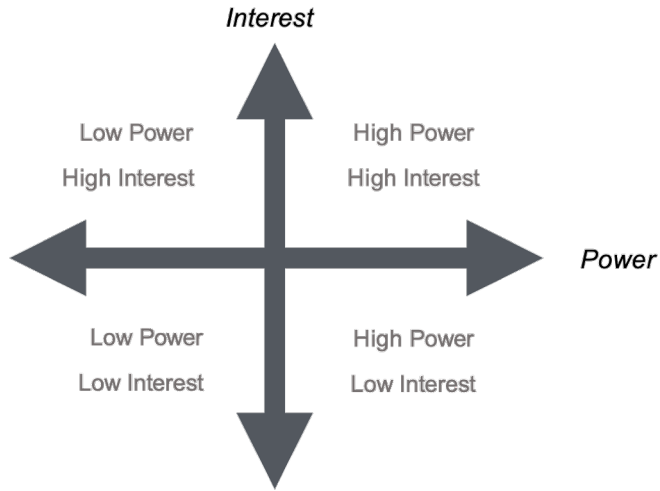
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Recap of last week

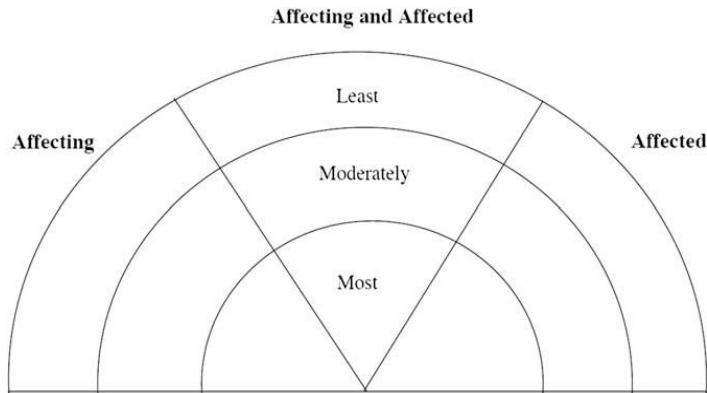
Course and project work schedule

Working days	Tuesdays (13:15-17:00)	Thursdays (9:15-12:00)
Week 1 (9.1 & 11.1.)	Introduction to course; DfS introduction (F101)	Designing for sufficiency (visitor: Mikko Jalas) (Q201)
Week 2 (16.1. & 18.1.)	Project work: Kick-off (A-Grid Mordor)	Sustainable PSS design & systems design (Q201)
Week 3 (23.1. & 25.1.)	Socio-technical experimentation & social innovation (F101)	Presenting case work ideas (A-Grid Mordor)
Week 4 (30.1. & 1.2.)	Design for sustainability transitions (Q201)	Communicating and scaling-up sustainability (visitor: Michael Lettenmeier) (A-Grid Mordor)
Week 5 (6.2. & 8.2.)	Sustainability games (visitor: Tommi Vasko) (A-Grid Mordor)	Project work tutoring & finalisation (Q101)
Week 6 (13.2. & 15.2.)	Project work: Final presentations (F101)	Feedback session (A-Grid Mordor)

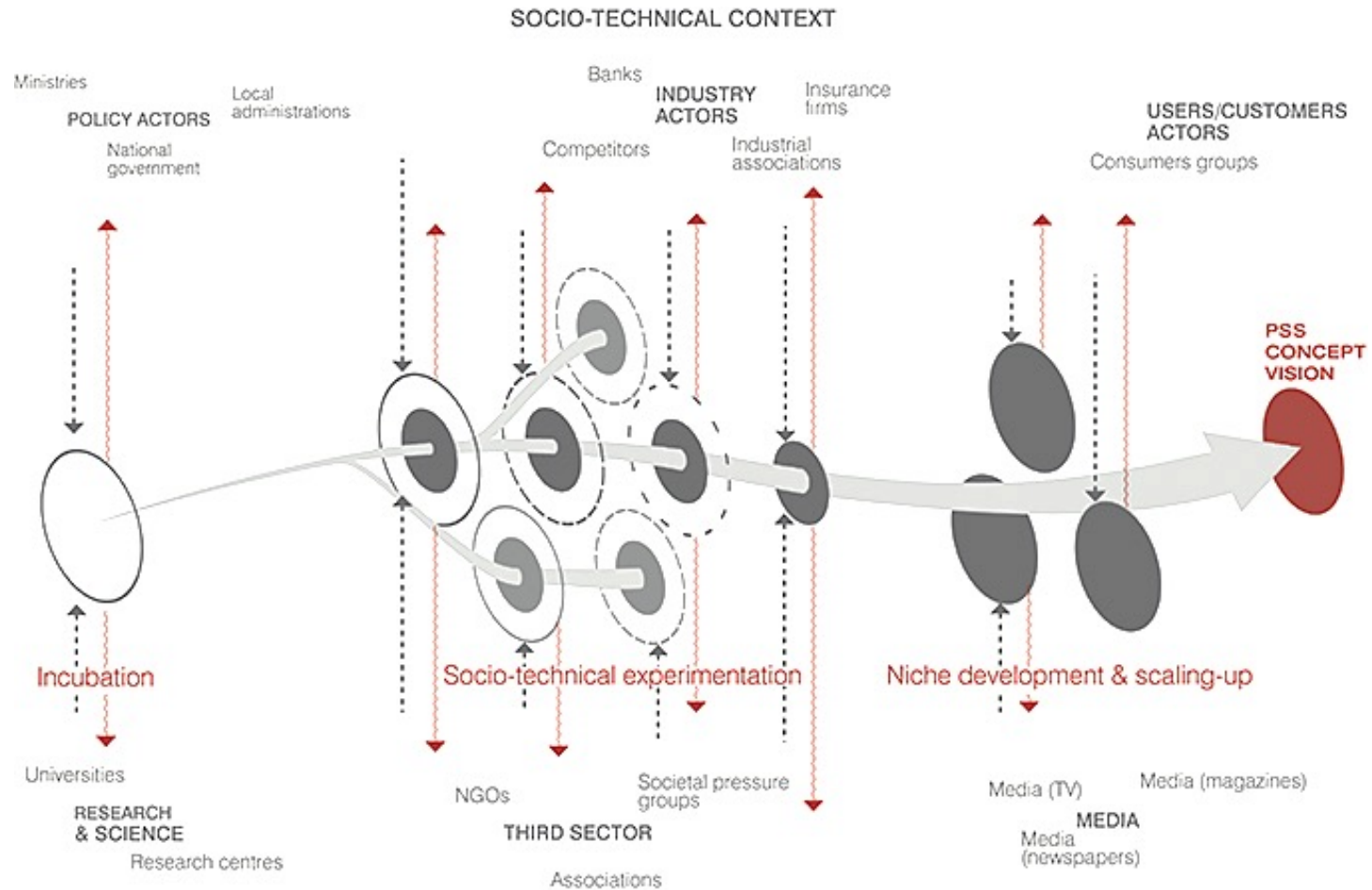
Identification of stakeholders and their positions/interests:



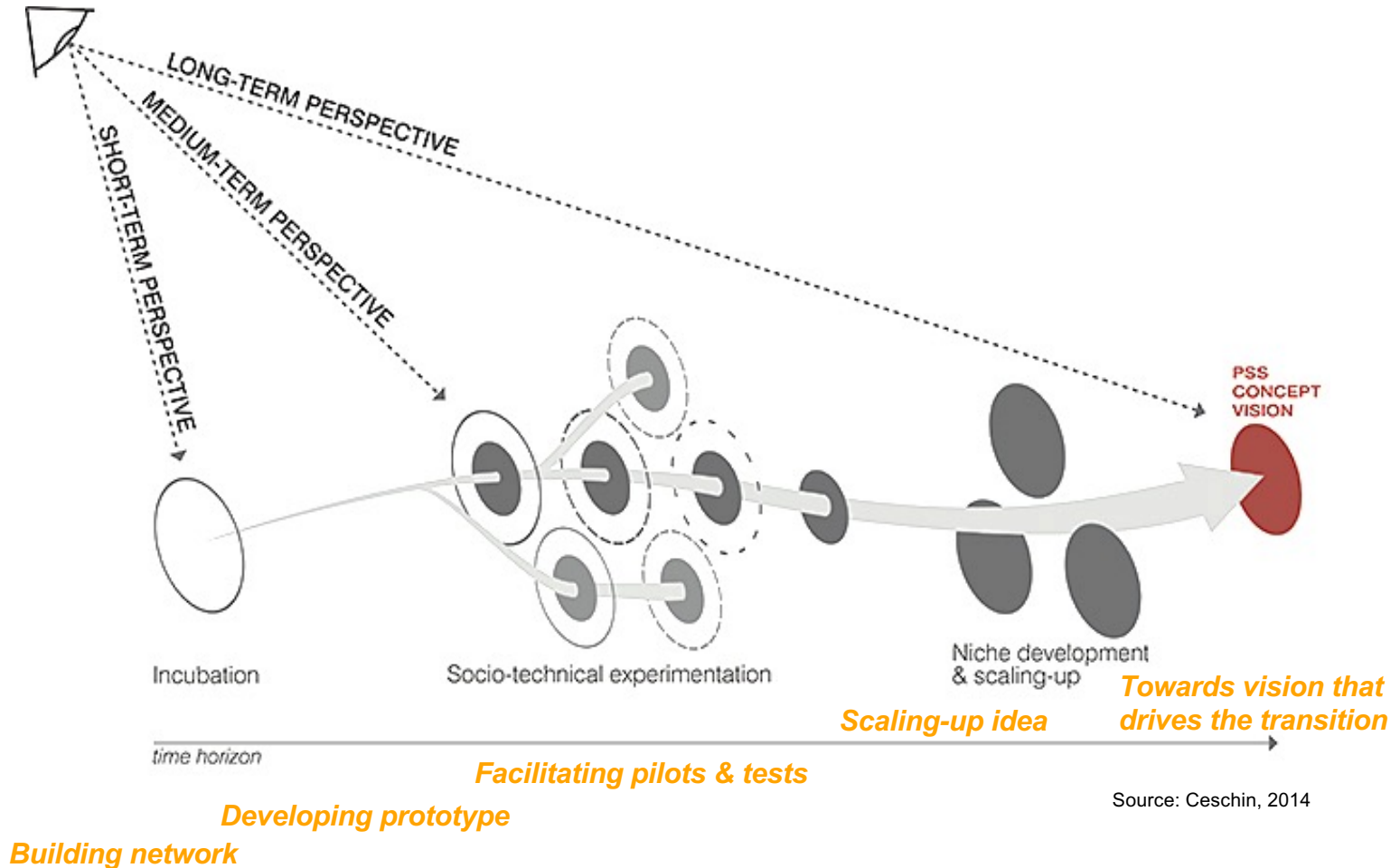
- PARTNERS
- PRIMARY STAKEHOLDERS
- SECONDARY STAKEHOLDERS



Managing the societal embedding of transition ideas:



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



This week sessions: Topics & readings

Tuesday (30.1.):

**Design for sustainability transitions
(Q201)**

Lecture reading:

- Ceschin & Gaziulusoy (2020) Design for Sustainability, Chapter 11: Design for sustainability transitions
- Supplementary reading (if you feel like it):
Irwin, T. (2018). The Emerging Transition Design Approach. DRS 2018 Proceedings

Thursday (1.2.):

**Communicating and scaling-up
sustainability (visitor: Michael
Lettenmeier) (A-Grid Mordor)**

Session agenda:

- Michael Lettenmeier (visitor) introduces examples of work to scale-up sustainable lifestyles; Michael is one of the leading experts of resource efficiency and dematerialisation in Finland and alumni of Aalto ARTS
- Communicating sustainability in design

Design for sustainability transitions



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Multilevel focus for design

Multilevel focus for design

Multilevel perspective adapted to design:

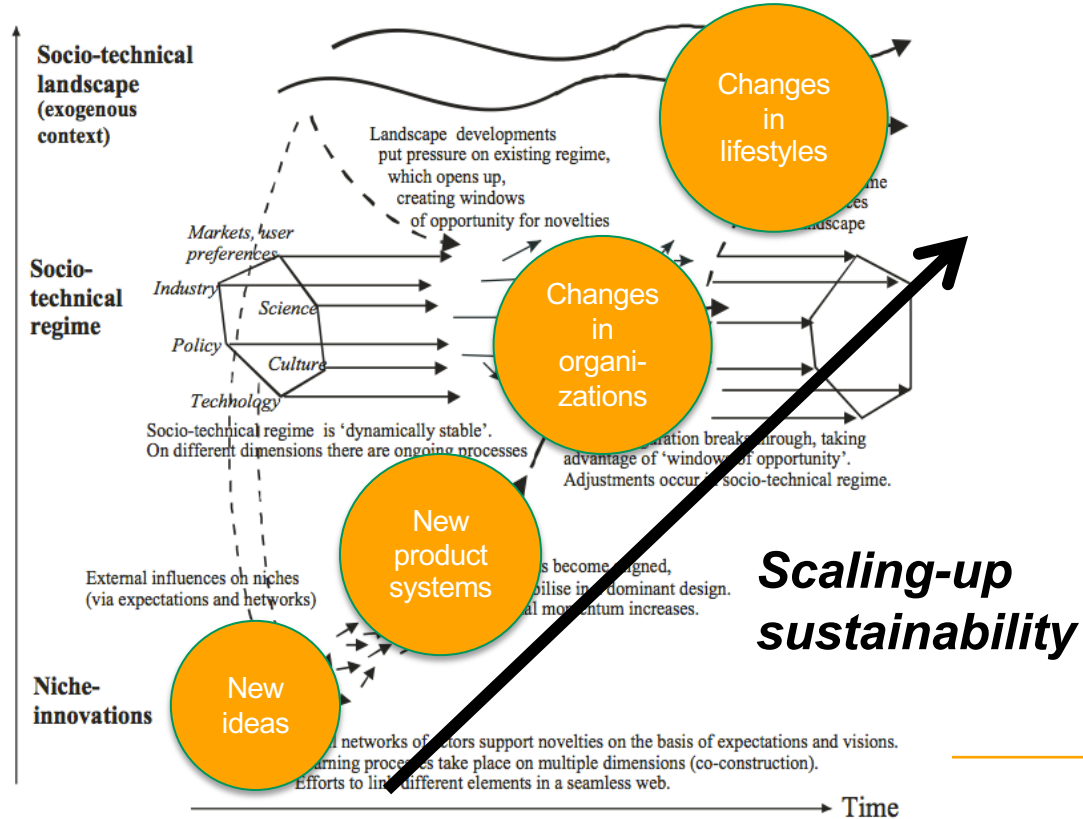
“The role of designers is broadening, from the creators of physical arte-facts to the potential role of facilitators of complex societal change processes. To support the widening role of the designer, there is a need for a design supportive model.”

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)**

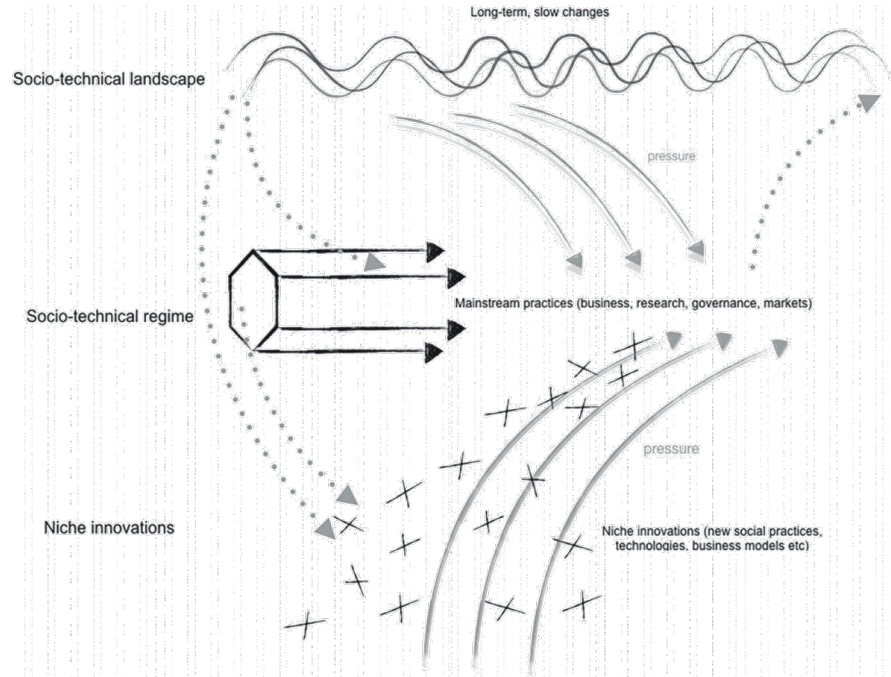
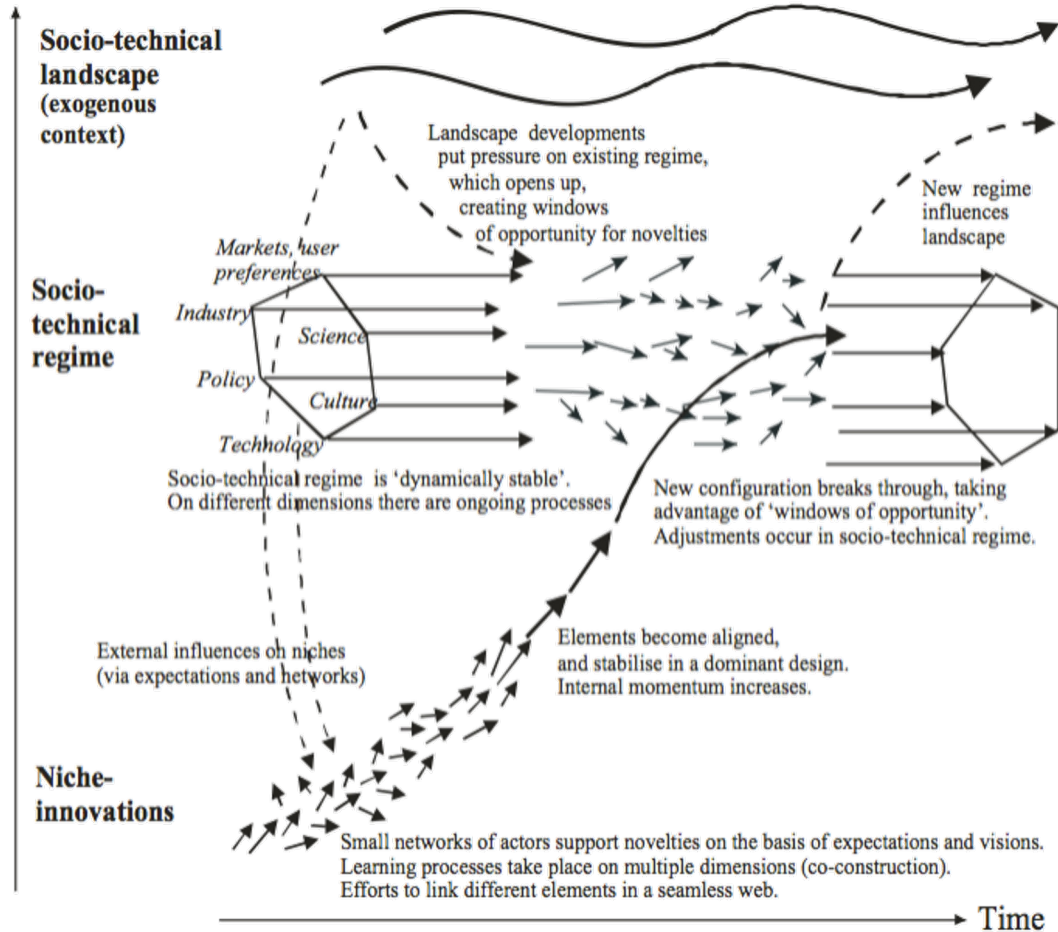


Figure 11.1 The MLP of system innovations model

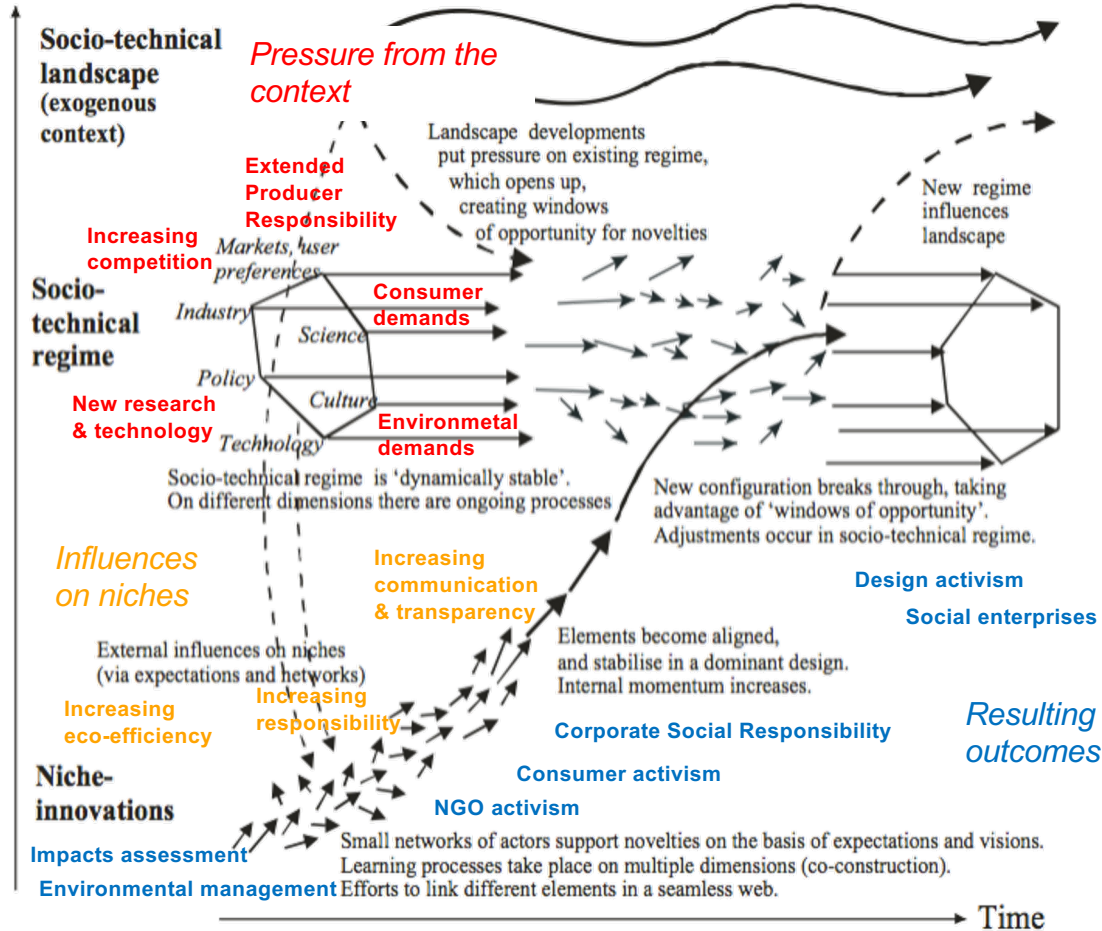
Source: Adapted from Geels (2005a, 2005b) and Geels & Schot (2007).

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



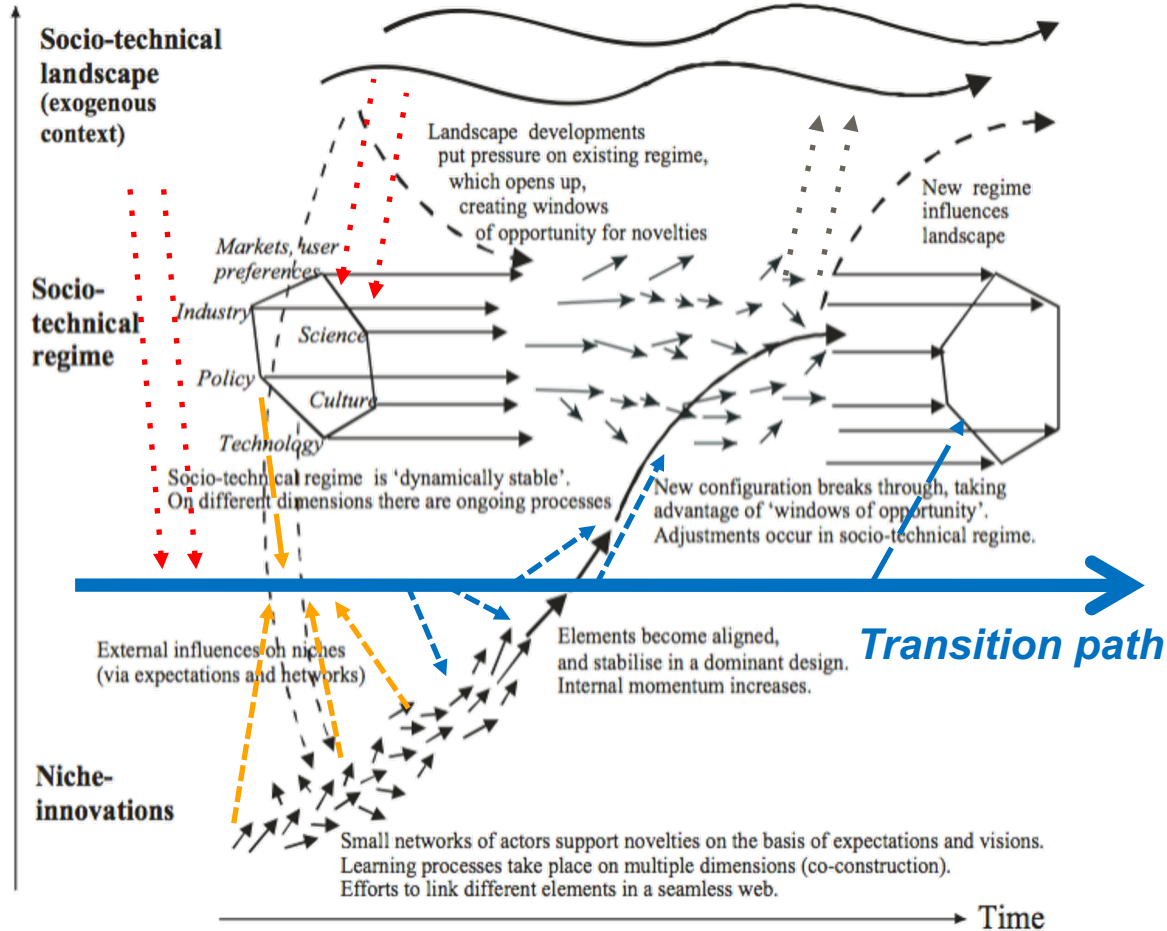
Source: Geels (2011)

Socio-technical context for *sustainable design* action:



Source: Author;
Developed from
Geels (2011)

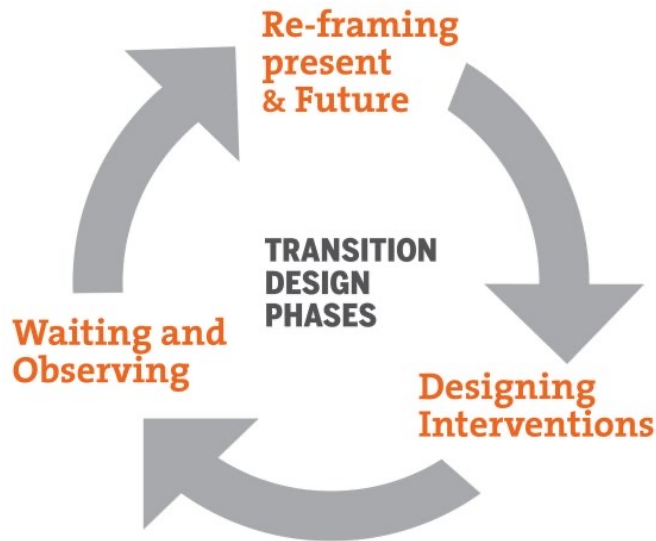
Design connecting levels of inquiry and action:



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.

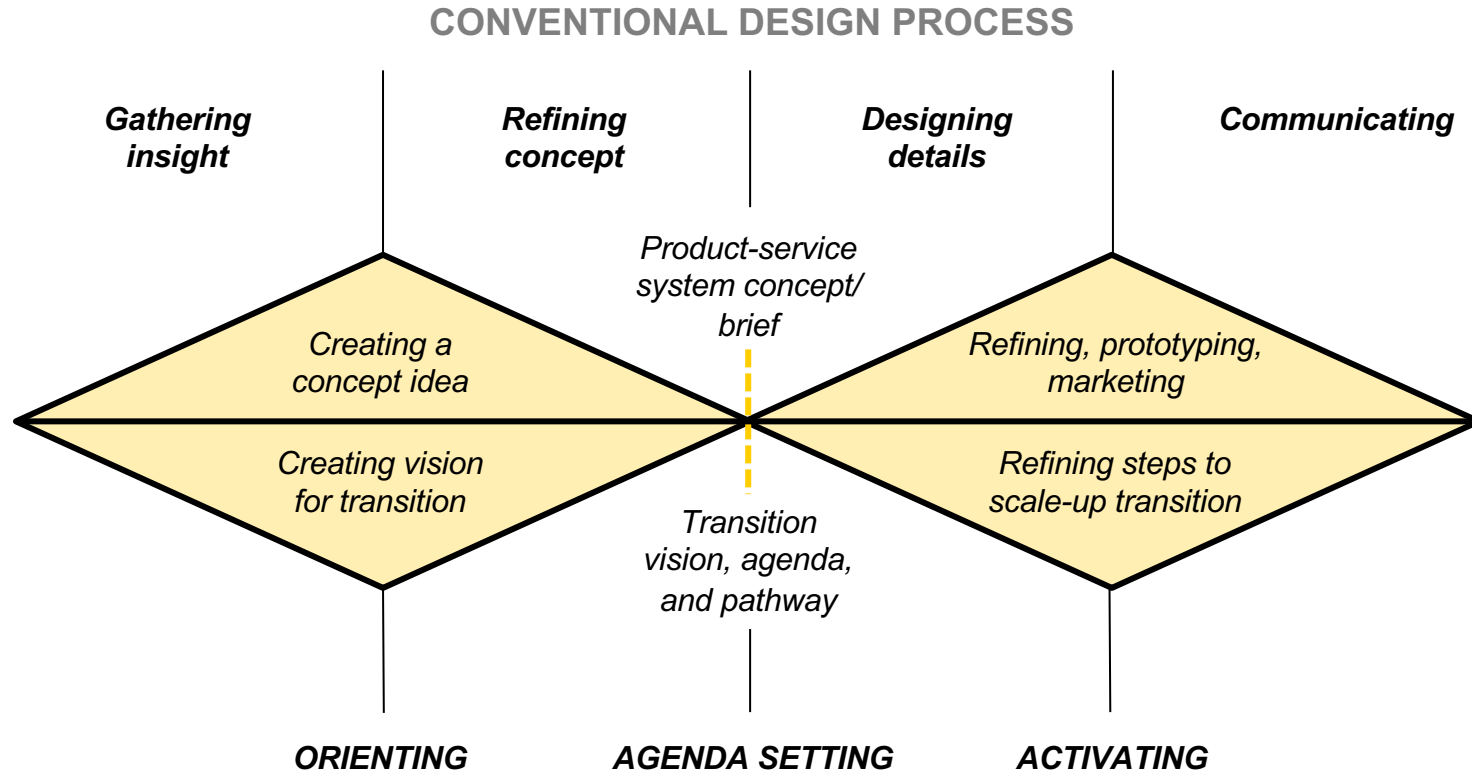


Source: Irwin, 2018

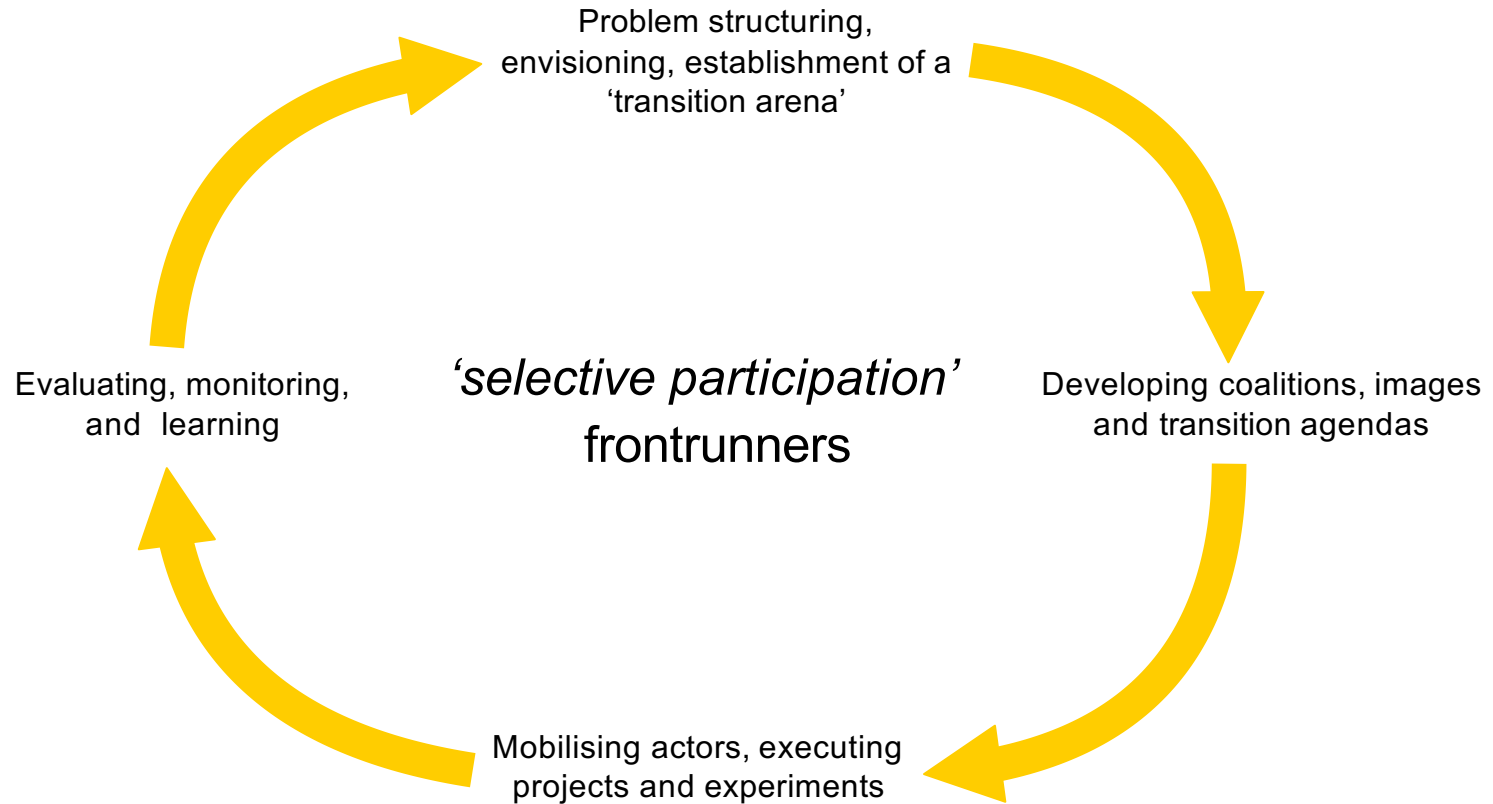
Transition design related focus methods:

- 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

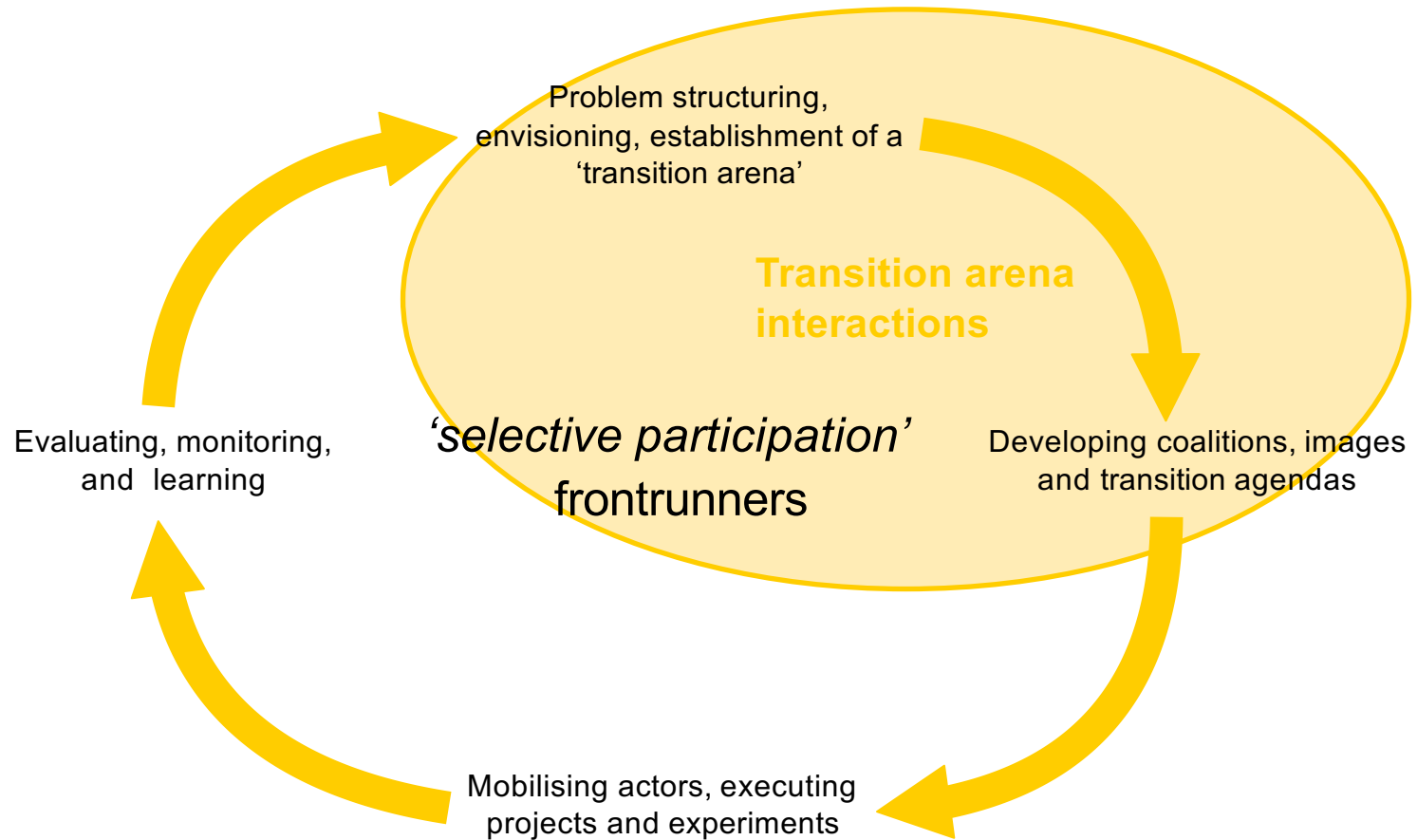
Transitions and design process



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

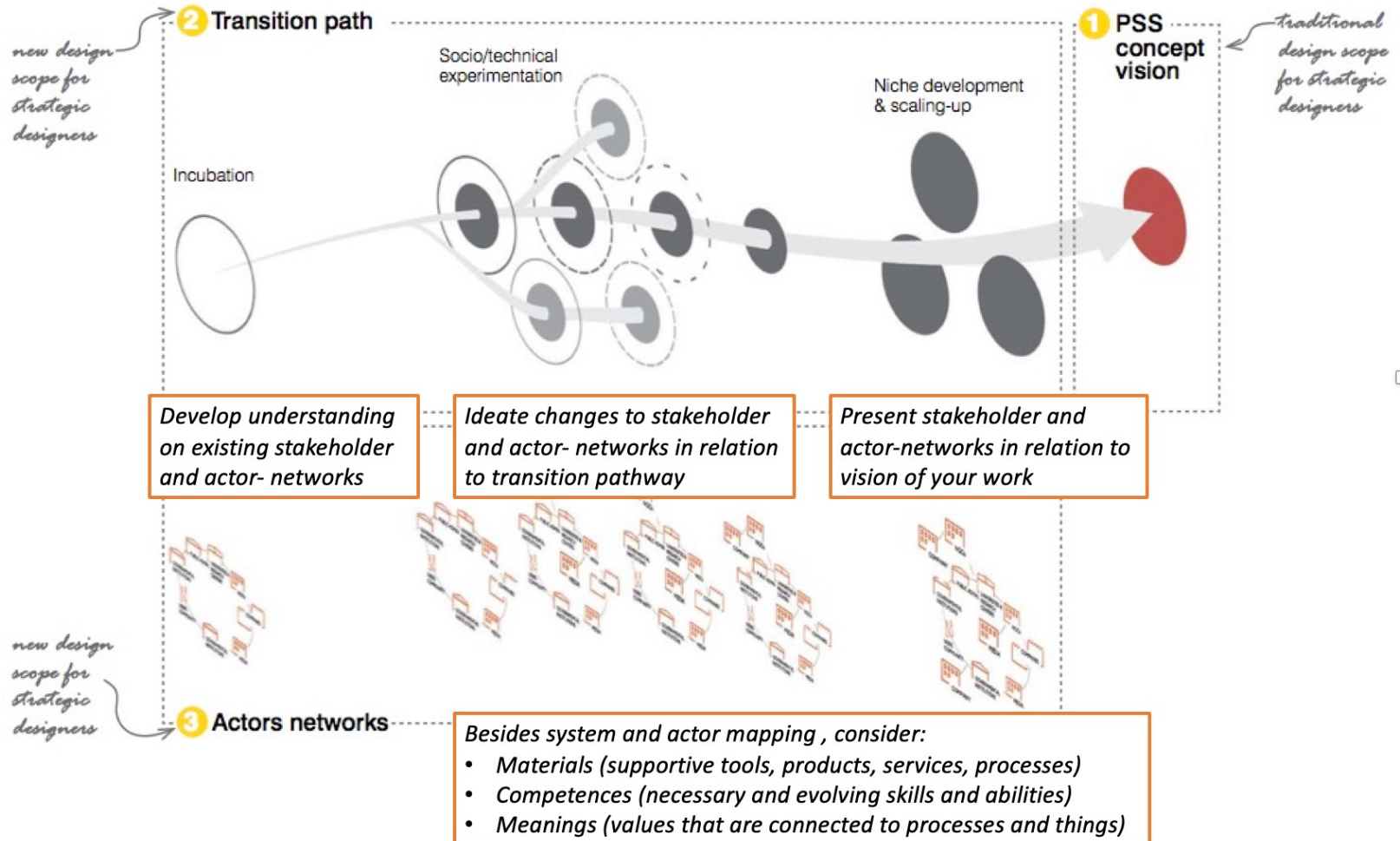
ACTIVATING:

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

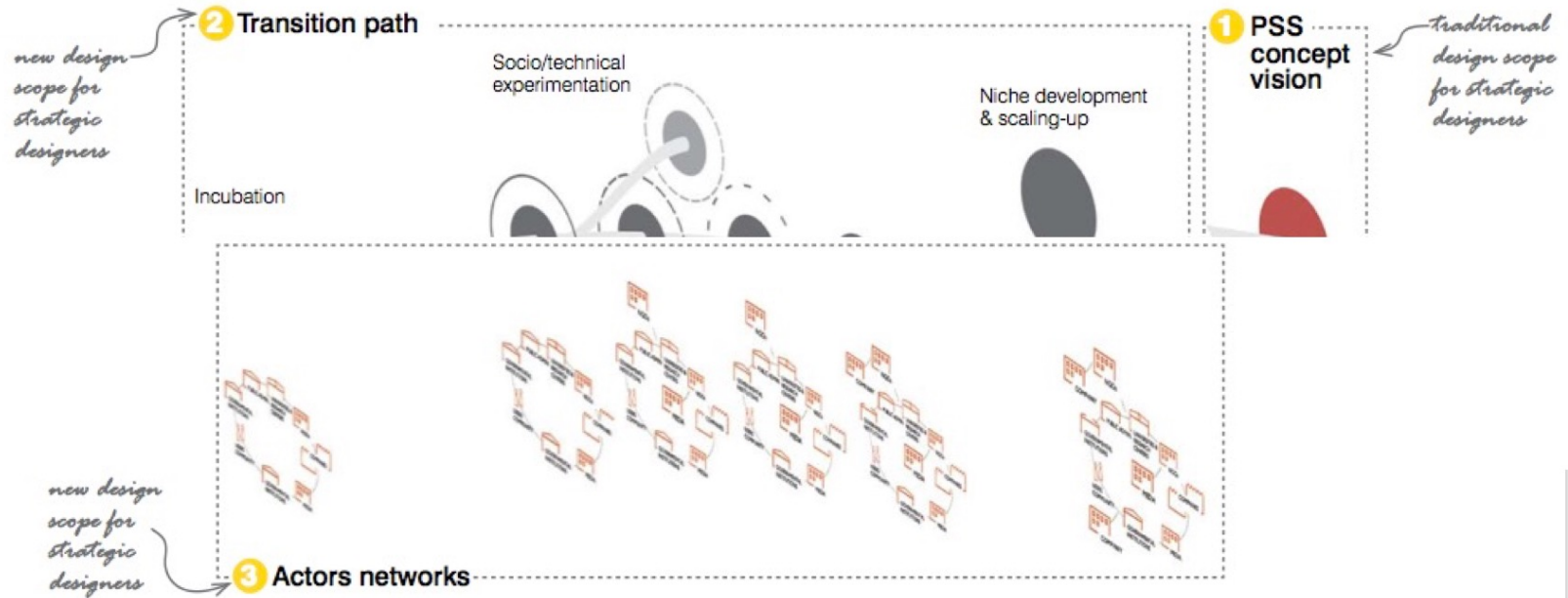
Transition management phases – From agenda setting to activating:

- **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).
- Transition 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*



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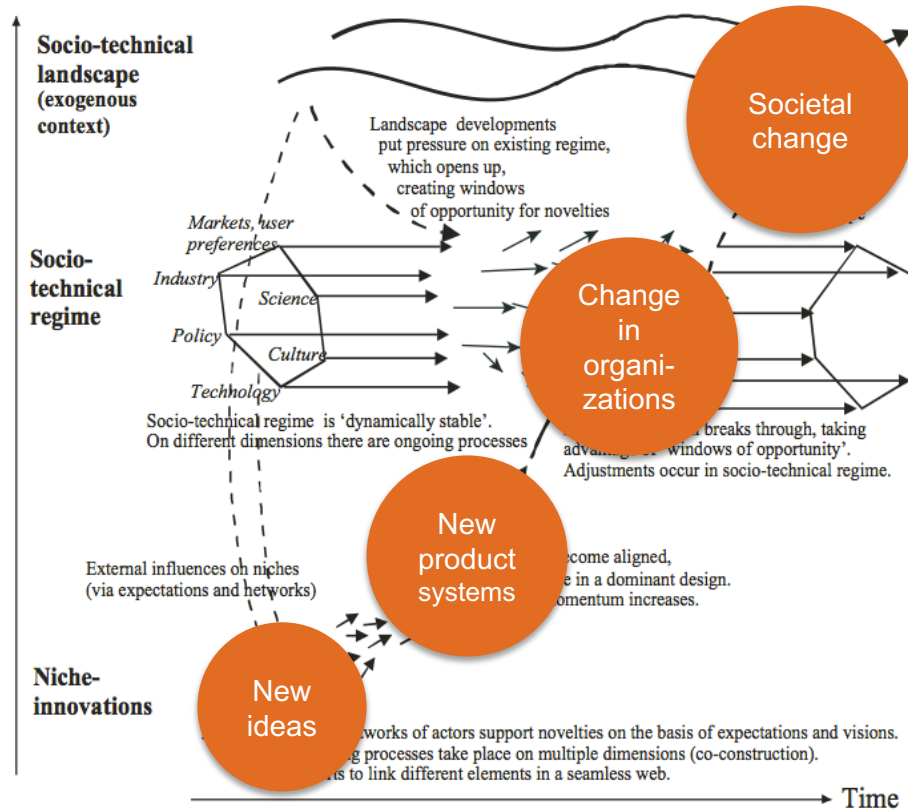
Scaling-up sustainability transitions

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

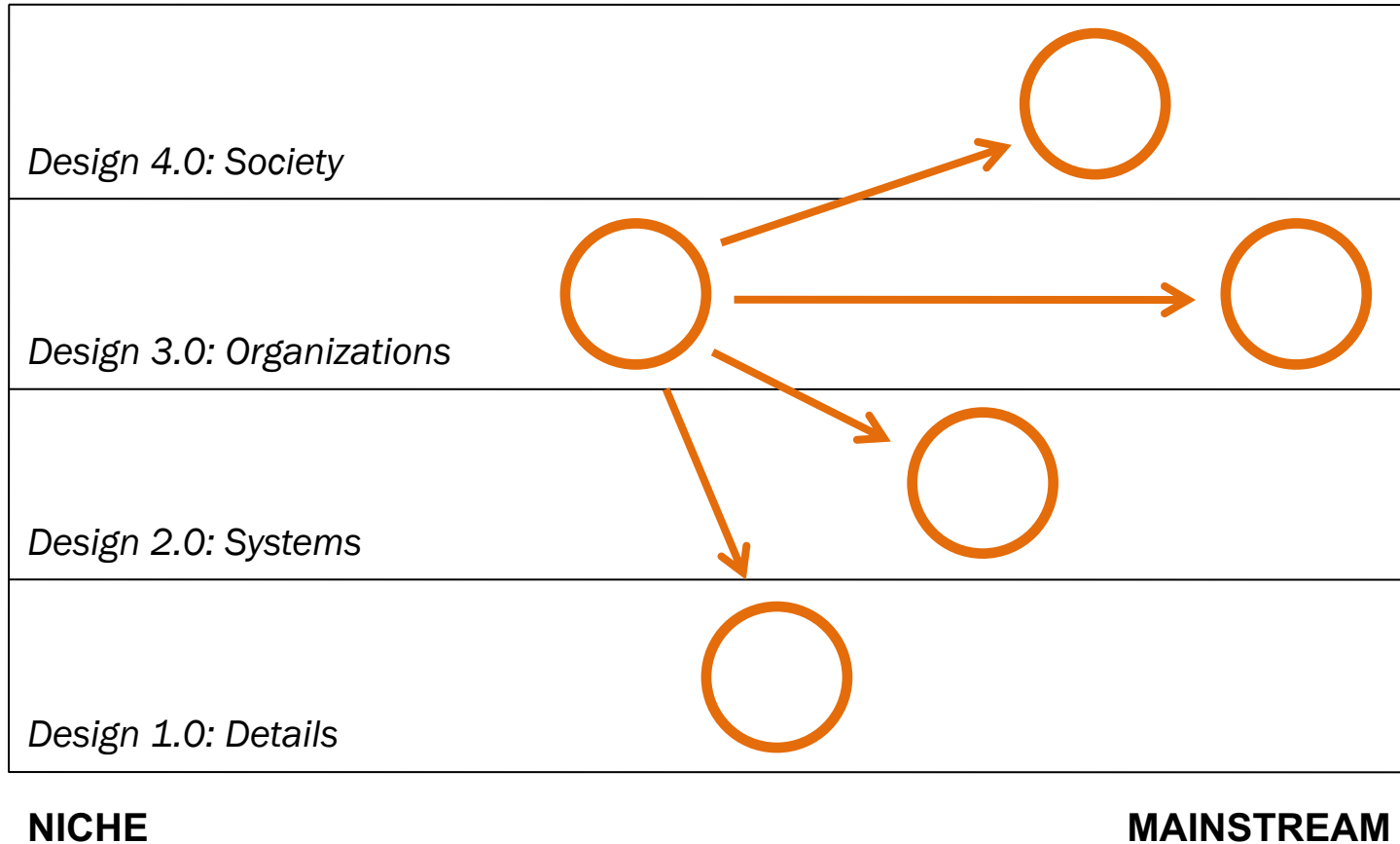


Vision-building as a part of the process:

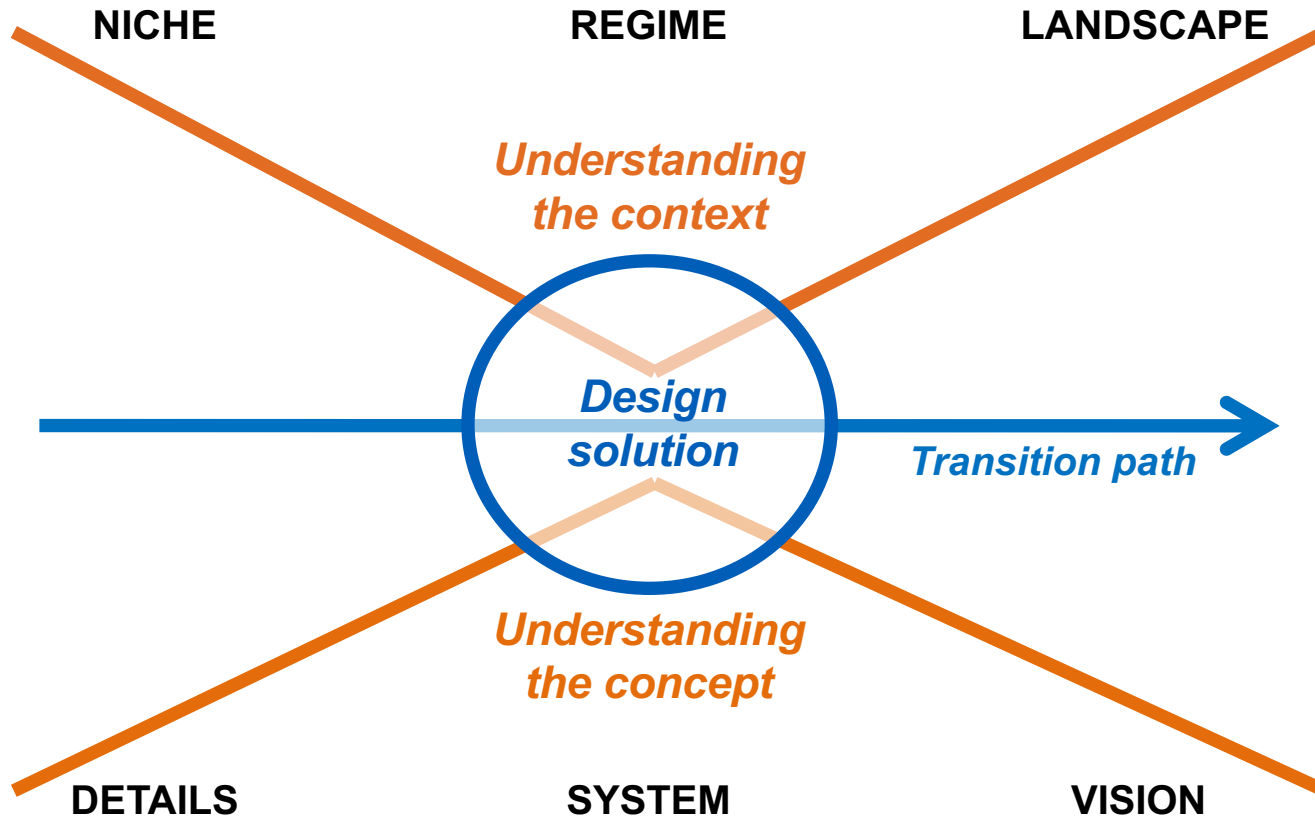


See: <http://visionsandpathways.com/>

Design ideation connecting several levels of action:

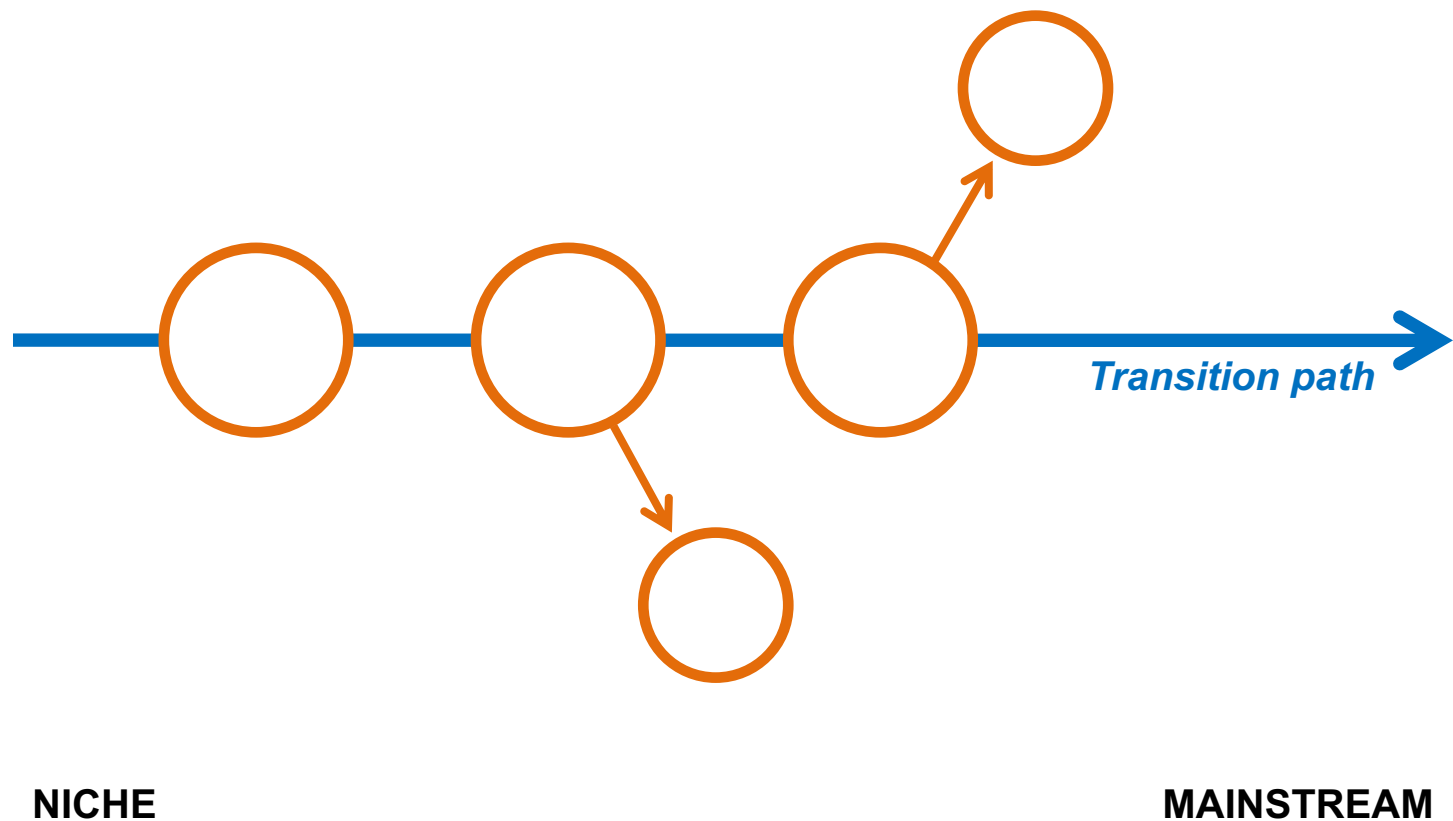


Design solution connecting different contextual dimensions:



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 eCYCLING WITH U.S. EPA

Samsung is a proud PLUG-IN to eCYCLING™ 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.



Scaling-up transition ideas

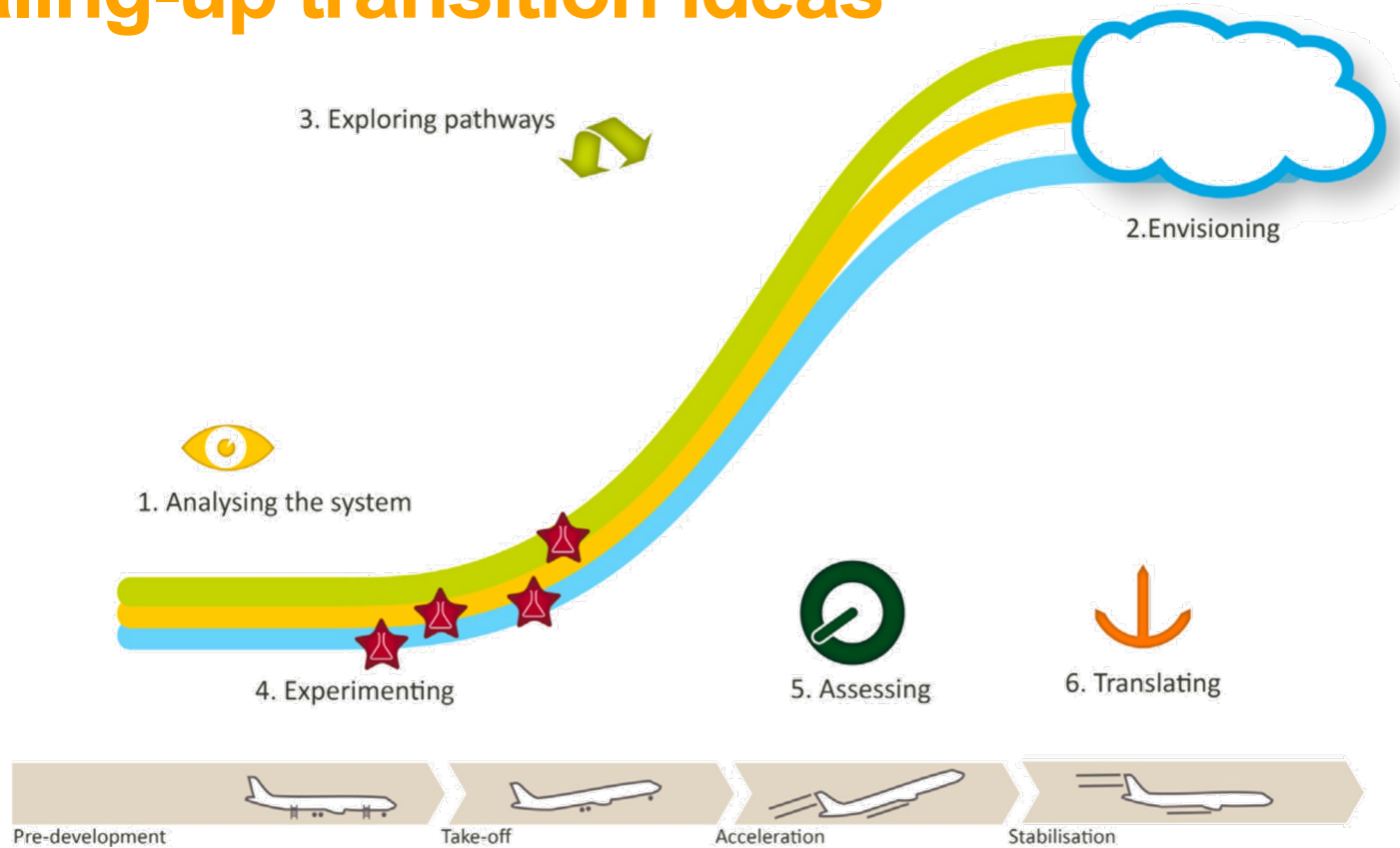


Fig. 1. Transitions to sustainable development: A logical combination of reinforcing steps and associated activities.

Backcasting and scaling-up

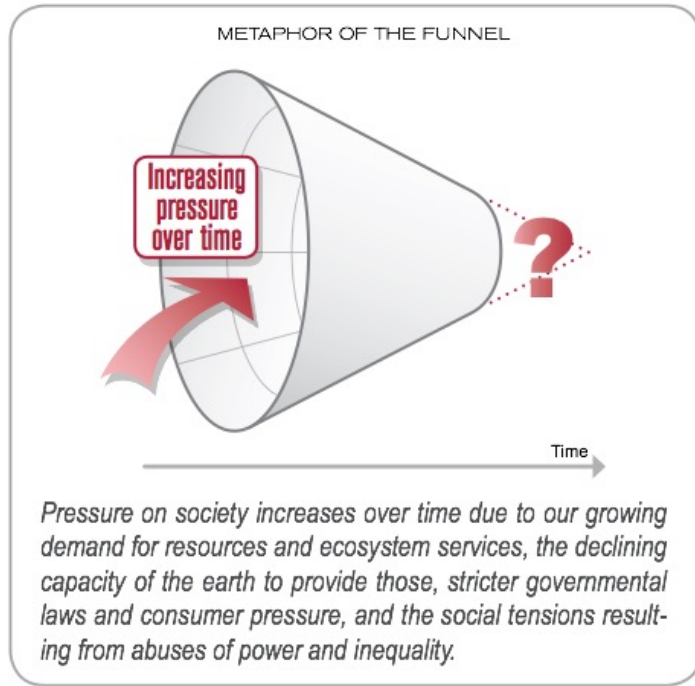
Sustainable development calls for but also results in changes in future policies, markets and consumption

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

Backcasting as a method for futures design:

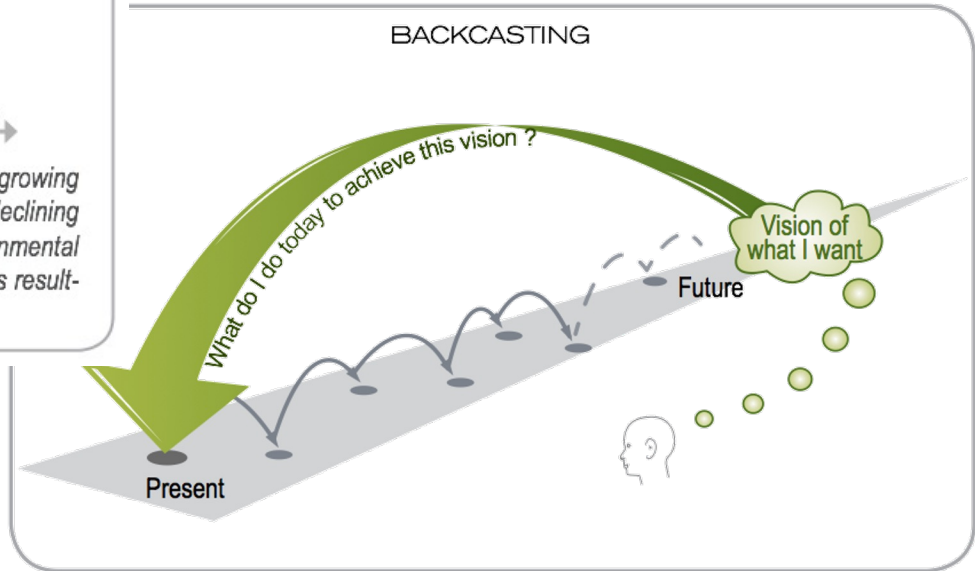
- Identify future vision; Iterate on progress from present statue; identify next steps to proceed towards strategic vision
- Future vision versus the current state: Decide on creative solutions (redesigned system, new actors & interaction), priorities

Backcasting (from The Natural Step framework):

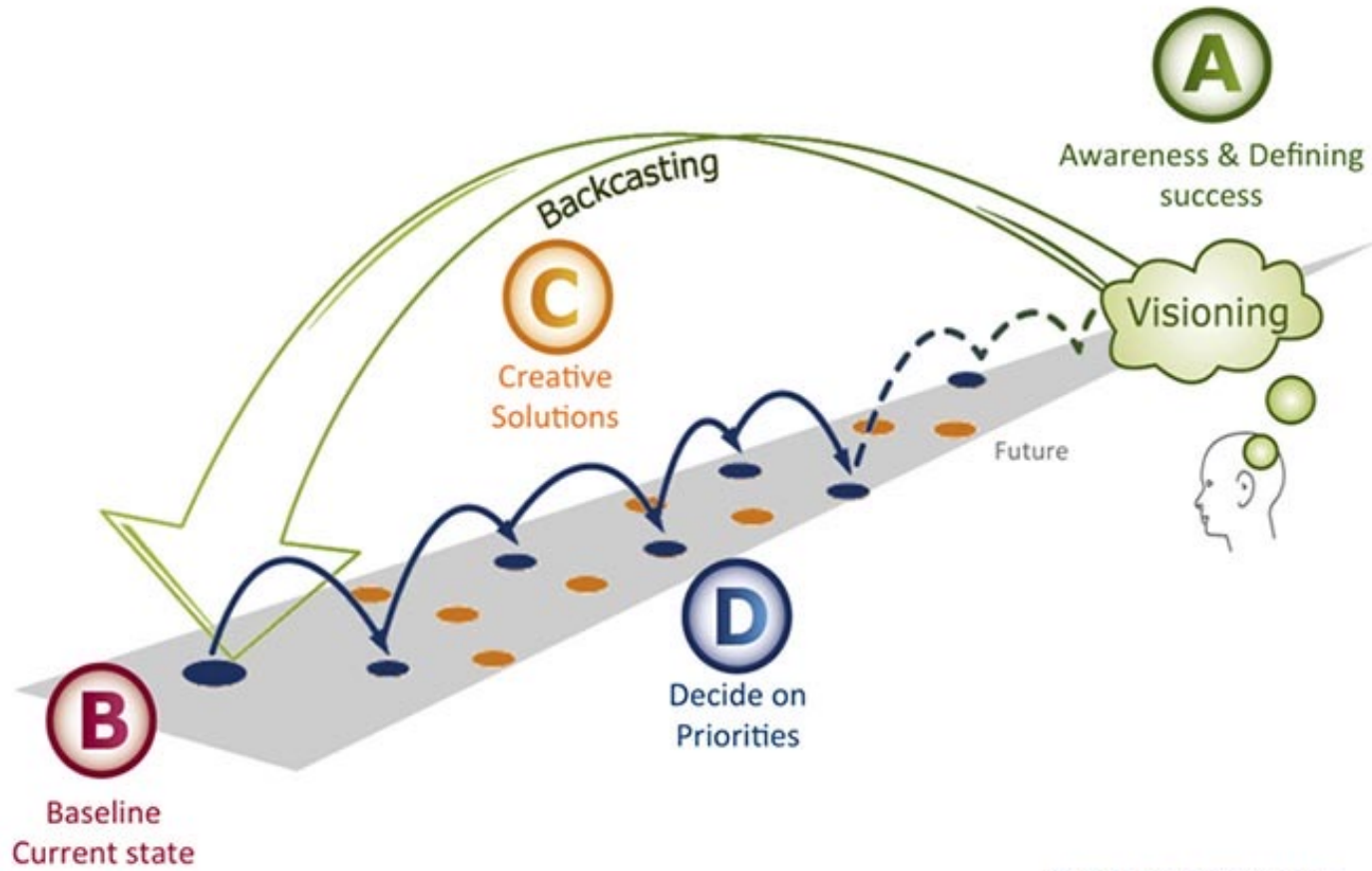


See for more info:
www.naturalstep.org

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

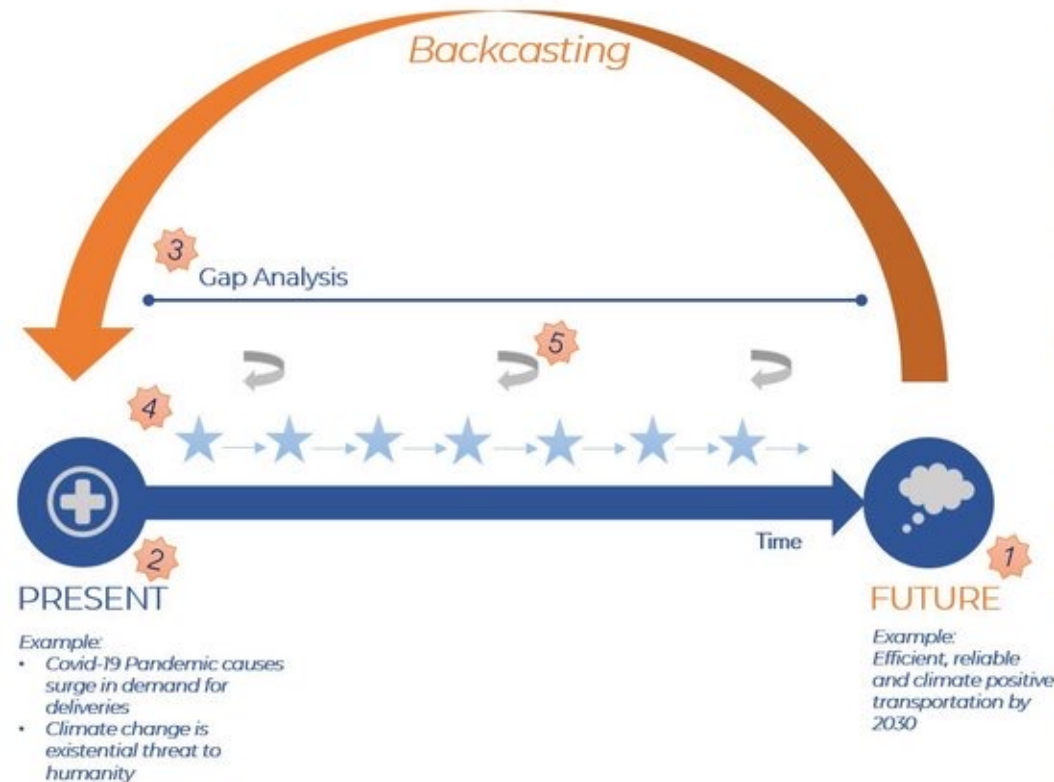


Backcasting (from The Natural Step framework):



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

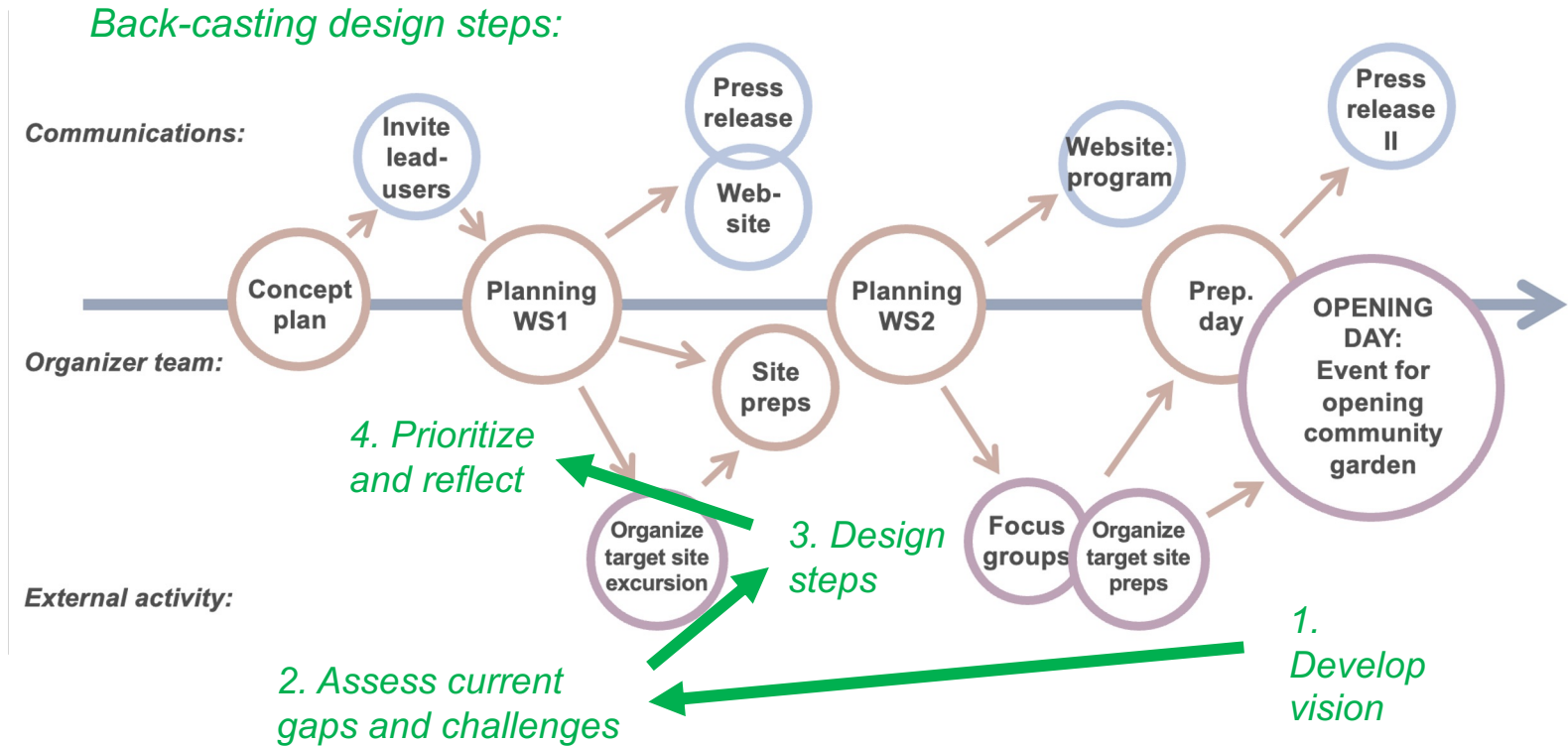
- How can the ultimate goal be broken down into specific targets to be achieved over time?
- Who within your organisation is responsible for achieving the specific targets?
- *Logistics example: 50% of fleet replaced with carbon neutral transportation methods by 2025.*

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



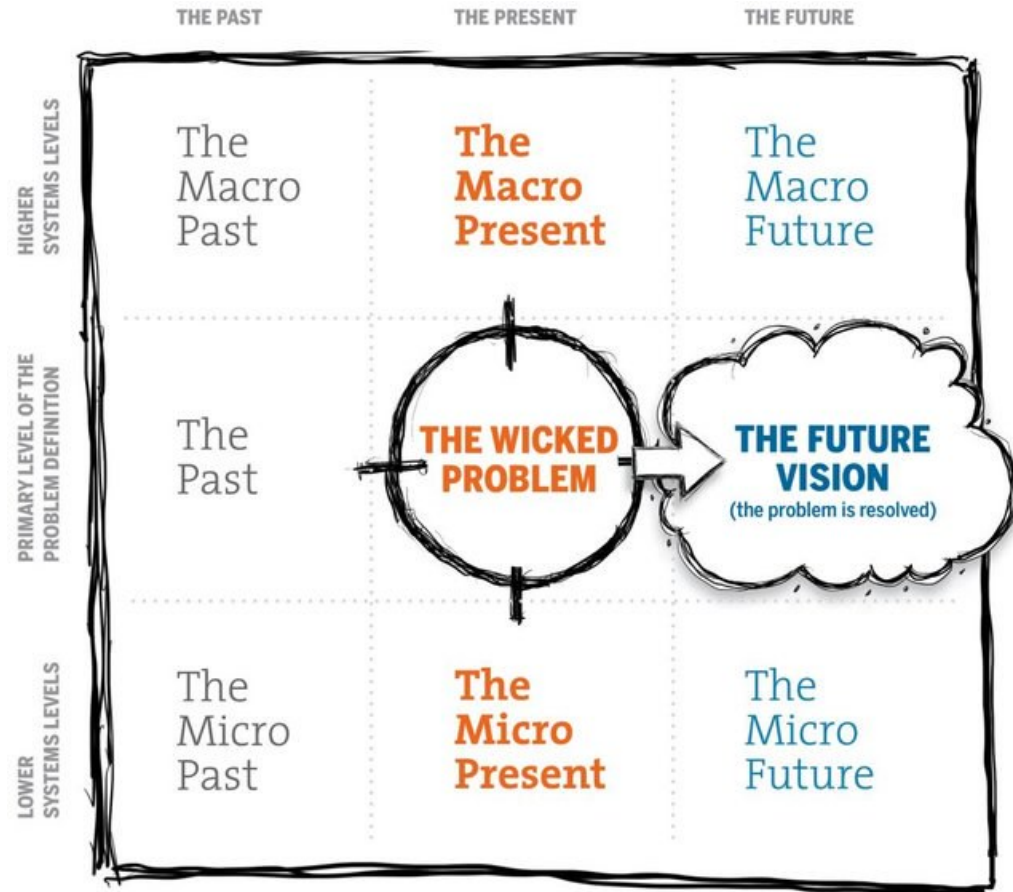
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Examples of transition design action

The Emerging Transition Design Approach (Irvin, 2018):

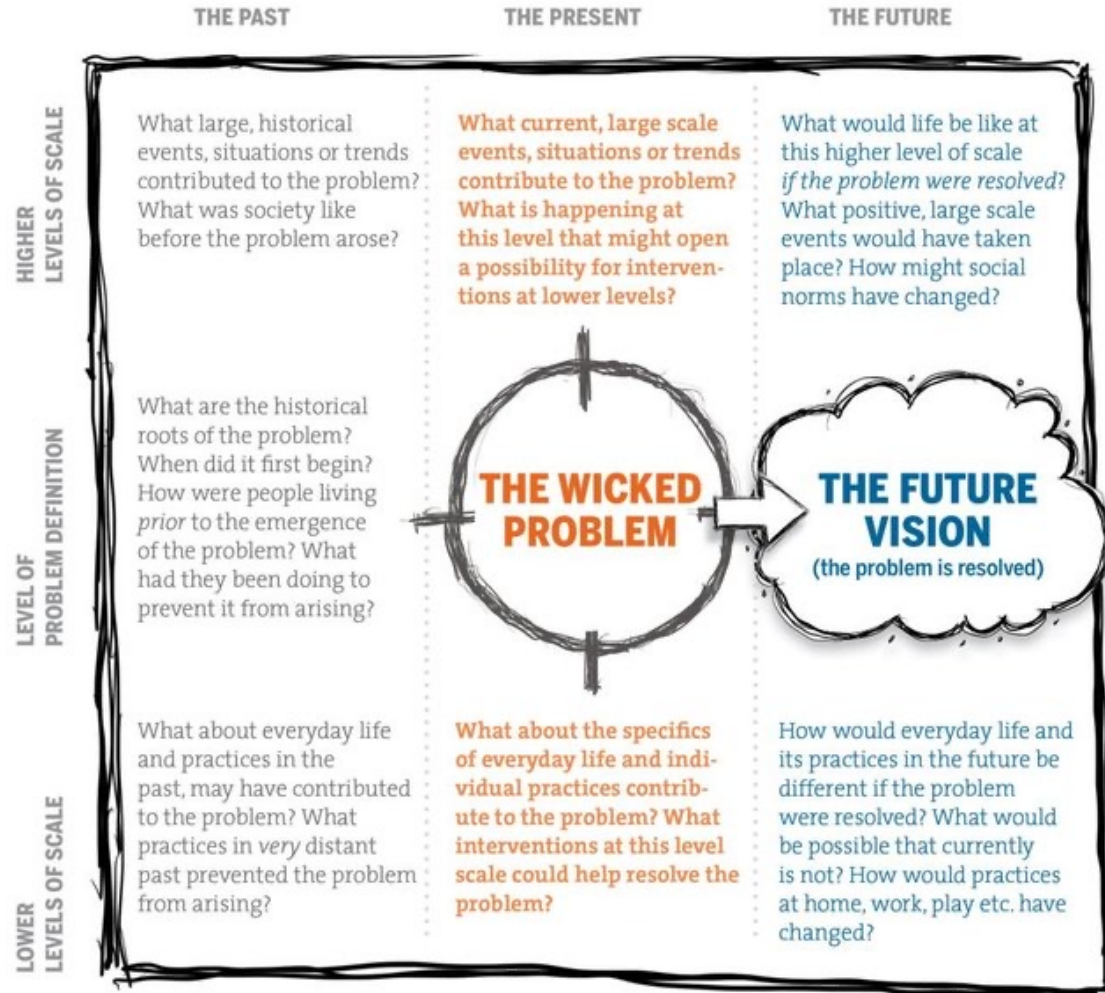
Transition Design draws upon the concept of the Multi-Level Perspective (Geels 2006) to situate both the wicked problem and a future, lifestyle-based vision in a large, spatio-temporal context.

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

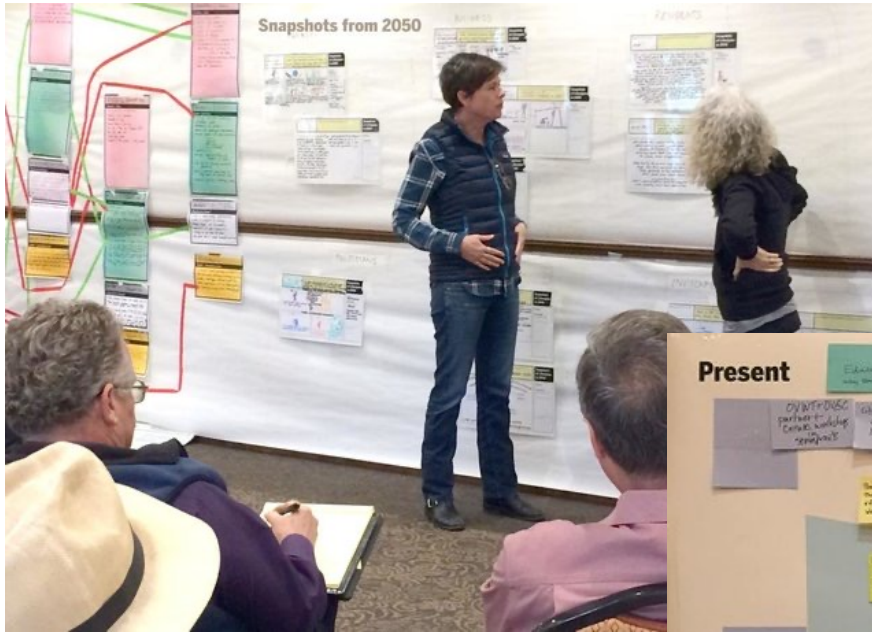


The Emerging Transition Design Approach (Irvin, 2018):

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.

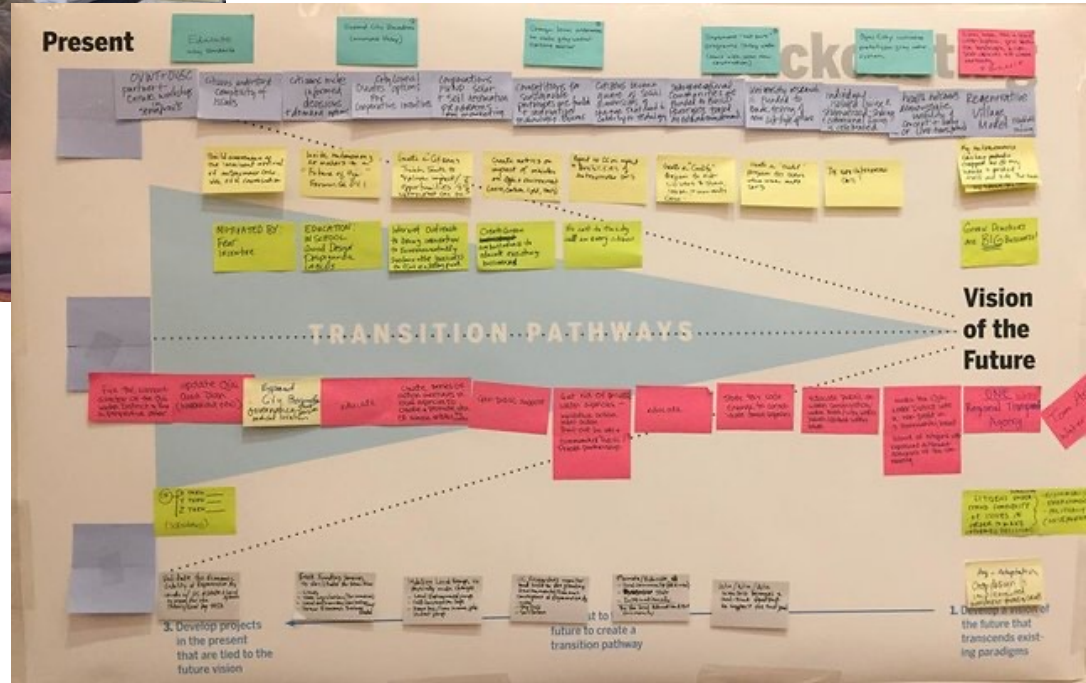


The Emerging Transition Design Approach (Irvin, 2018):

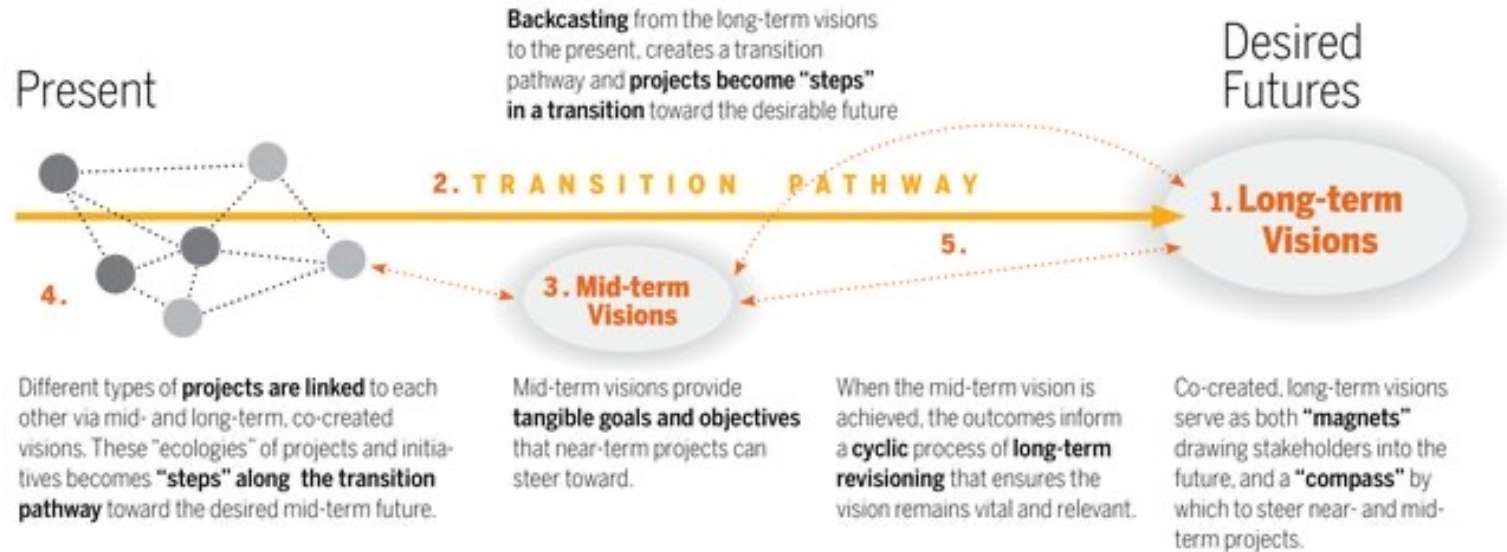


Transition project stakeholders presenting future narratives.

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

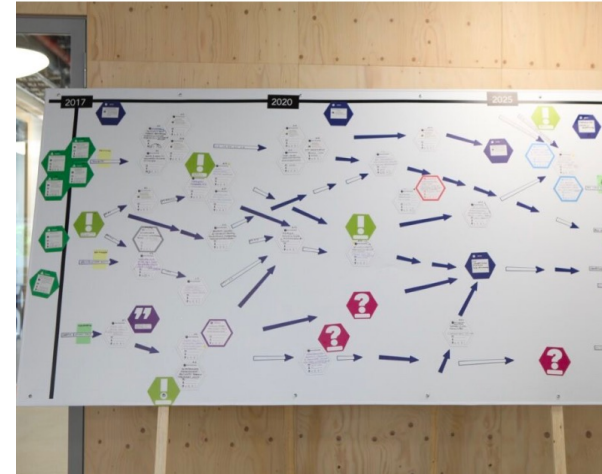
Each workshop (except kick-off) around 4 hrs)

Materials, tools (“designers’ input”):

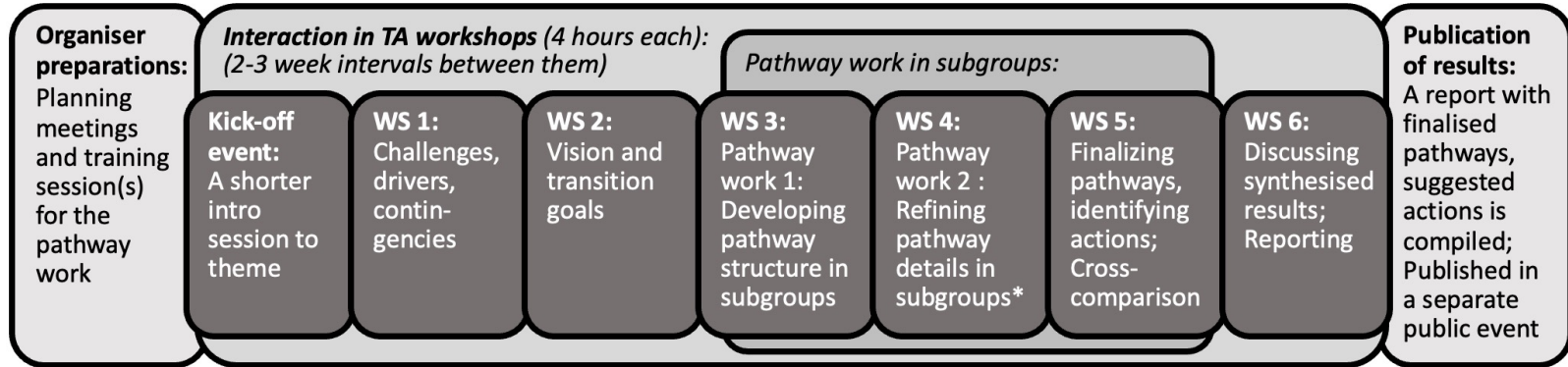
- Extensive background research; Expert interviews
- Toolset for pathway development (MTPT canvas)
- Memos, communication, voting
- Online platforms

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

Exercise in project work groups

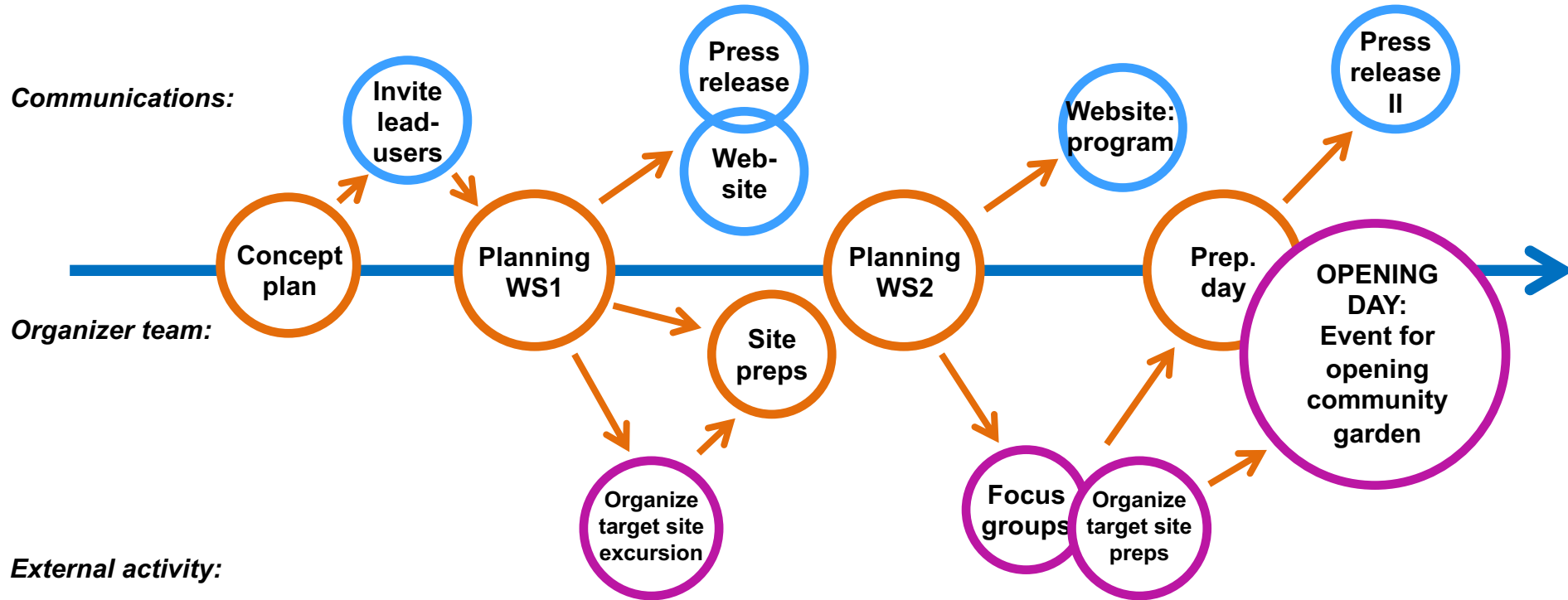
Exercise in project work groups: Backcasting & timeline design

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

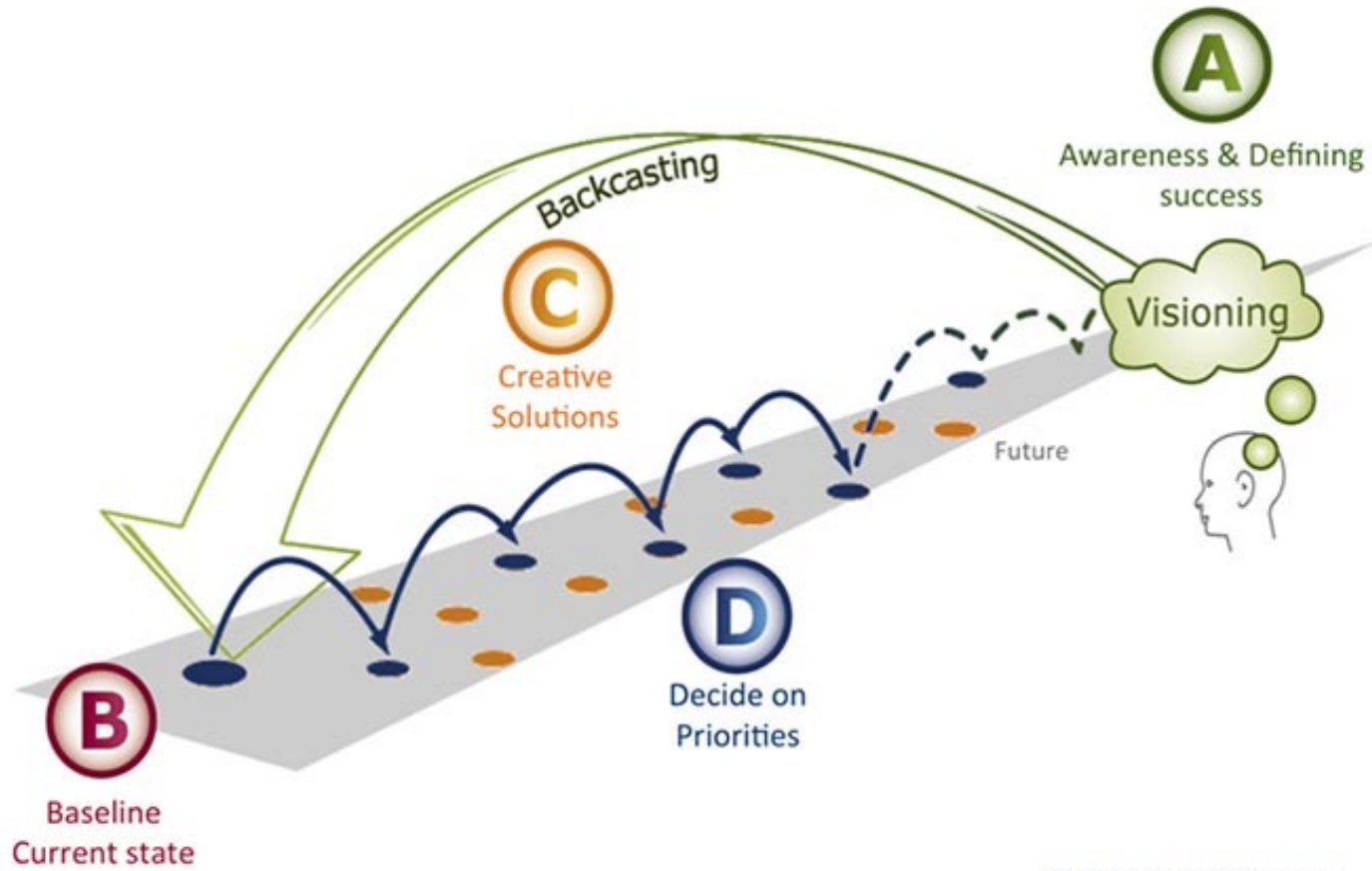
- Timeline can concern your overall project or then some component of it, eg. campaign, annual process, use of toolkit/materials, development project etc.
- Work with a horizontal timeline (see example on next slide)
- Consider the vision you pursue towards
- Discuss together and ideate main steps; Discuss also who are the involved stakeholders (~40 mins work)
- No presentation of results, but connects with your project work outcomes and next week exercise

Timeline design exercise

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



Backcasting (from The Natural Step framework):



Closing session

This week sessions: Topics & readings

Tuesday (30.1.):

**Design for sustainability transitions
(Q201)**

Lecture reading:

- Ceschin & Gaziulusoy (2020) Design for Sustainability, Chapter 11: Design for sustainability transitions
- Supplementary reading (if you feel like it): Irwin, T. (2018). The Emerging Transition Design Approach. DRS 2018 Proceedings

Thursday (1.2.):

**Communicating and scaling-up
sustainability (visitor: Michael
Lettenmeier) (A-Grid Mordor)**

Session agenda:

- Michael Lettenmeier (visitor) introduces examples of work to scale-up sustainable lifestyles; Michael is one of the leading experts of resource efficiency and dematerialisation in Finland and alumni of Aalto ARTS
- Communicating sustainability in design
- **See preparations for next week exercise on the following slides!**



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Preparations for next week game session

Preparations for Thursday & next week: Defining stakeholders for the role-play (1/3)

Already by this Thursday (1.2.), each group needs to do a bit of preparations for next week role-playing and gaming session.

Instructions for next Tuesday (6.2.) role-playing session:

- Before this Thursday (1.2.) your group needs to define and describe 3-5 relevant stakeholders for your project (use 'character sheets' from MyCourses -post)
- You also need to describe a situation that will be 'role-played' through in the specific roles (use 'script sheet')
- Each group has another group as their pair, with which the playing is performed.
- Prepare this material by Thursday (1.2.) as we will share these with your peer group by/during the Thursday session!

For general and/or practical questions, you can also contact Tommi Vasko (@aalto.fi)

Preparations for Thursday & next week: Defining stakeholders for the role-play (2/3)

Groups will utilise character sheets (shared via MyCourses) to describe selected important stakeholders. Characters do not have to be completely realistic, you can emphasise some aspect/feature of the character in the sheet as well as in acting it out.

Examples of roles depending of your case:

- Proactive user of a new service / User unwilling to change habits
- Citizen/spectator (techno-utopist vs. deep ecologist)
- Campus representative / Designer of the service / Representative of the maintenance
- Critical social sustainability expert
- Investor/grant reviewer

DASC role-play session (Tue 6.2.): Character sheet

Name of the Character and their professional identity (if it matters).

Write here...

What does the character pay attention to? What tools does it use in work and everyday life?

Write here...

What is the history, current relationship or job, and future desires of this character in relation to the project?

Write here...

What are the roles this character has had, and would wish to have in relation to this project?

Write here...

How would the character like to influence or change the project (what are the characters values), and how does the project change the character?

Write here...

Additional information about the character. How does it understand sustainability, or anything more random.

Write here...

Preparations for Thursday & next week: Defining stakeholders for the role-play (3/3)

Groups will also need to think about the situation that will be played at the session. The situation should be somehow relevant to your case. The situation does not need to be in the present day but can project a future setting!

Examples of some situations for scripting:

- Selected scenario of interaction within theme/service (consider also potential conflicts!)
- Projected future setting for a selected thematic situation/interaction
- Discussing aims of the service in informal setting (cafe/afterwork)
- Investor/steering group/management meeting
- Expert group (planning/feedback?) meeting with user representatives
- Family meeting to overcome hindering perceptions for sustainable transitions

DASC role-play session (Tue 6.2.): Play session backstory, context & setting

Describe the overall situation that the role-play takes place. Is it a casual event, an interaction around your concept idea, a developmental meeting, a family gathering? What is the purpose (if any) for the situation? Connect the situation to your characters for the role-play.

Write here...

Describe the physical setting: Where does the interaction take place? When does the interaction take place (consider also further in future)? In what type of world does the interaction take place (did something go very differently)?

Write here...

What is the backstory in greater detail? Are there hidden agendas or other potential contradictions between participants? What could go wrong?

Write here...

Thanks!



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