Mapping the Maze

Using the Transition Model Canvas to Analyse Socio-technological Transitions

THINKING | Sensemaking

What you will need:

- 12 - 25
- Groups of 3 - 5
- 2 hrs preparation
- 2 hrs execution
- Printed or digital Transition Model Canvas, sticky notes, markers

Menu:

"Learn to make sense of complex transitions. The Transition Model Canvas helps translate theory into action with a clear, structured format, ideal for tackling real-world change."

—Jip Leendertse

I. Overview

The Transition Model Canvas (TMC) helps to understand, evaluate and accelerate socio-technical transitions, such as the shift from fossil-fueled transport to zero-emission mobility. These transitions are complex: they unfold over time, involve many actors and challenge existing systems.

Designed to bridge the gap between abstract theory and practical insight, the TMC offers a clear visual framework. Students use it to map the core elements of socio-technical systems, e.g. infrastructures, institutions, innovations or actors, based on the Multi-Level Perspective (MLP) from transition studies.

Inspired by the Business Model Canvas, the TMC enables students to analyse systemic dynamics and identify leverage points for change. It supports both system exploration and strategy design, making complexity visible and actionable.

Learning outcomes

- The student is able to map the actors, institutions and infrastructures involved in a specific transition and understands the interrelated dynamics within complex socio-technological systems
- The student is able to make sense of existing and emerging systems by identifying patterns and formulating potential strategies to influence transitions

II. Learning Activity

By working with the Transition Model Canvas, students explore and make sense of the complex dynamics within a socio-technological transition.

1. Setting the Scene

10-20 mins

Before class, ask students to:

- Watch the knowledge clip on transitions and the Transition Model canvas;
- Read the scientific article on the TMC methodology, which includes an example of a completed canvas for inspiration.

In class, using the handout with background information, begin with a brief explanation of what a transition is and the purpose of the Transition Makers Canvas. Position it within the Multi-Level Perspective (MLP) framework and give short descriptions of the landscape level, the incumbent system and the niche system. Although these concepts are introduced in the knowledge clip, repeating them helps reinforce understanding.

Introduce key concepts from transition research, such as system levels, actors and institutions, and explain how these interact in complex systems. This ensures students adopt a systemic, not purely technical, way of thinking.

Hand out the Transition Model Canvas to each group. Emphasise that the TMC is iterative: students may revisit and revise earlier sections as their understanding grows and new insights emerge.

Tip: all students may work on a shared transition case or explore different cases in subgroups. If your course focuses on a specific transition (e.g. energy, mobility, protein), use this as a starting point.

2. Defining the Transition Goal

15-25 mins

Divide the class into groups of 3 to 5, seated together at a table. Each group has 10 minutes to define a SMART transition goal: Specific, Measurable, Achievable, Relevant and Time-bound.

The goal can include both a short-term milestone and a long-term vision. It should specify the geographic context, sector and/or technology involved. For example:

- Short-term: 50% of all passenger vehicles sold in the Netherlands by 2030 are zero-emission.
- Long-term: 100% of passenger vehicles sold in the Netherlands by 2040 are zero-emission.

Ask the groups to discuss:

- What future system do you want to help create?
- Why is this transition meaningful or urgent?

Then, hold a plenary reflection:

- Are the goals truly SMART?
- Do all group members support the chosen direction?

3. Mapping the Incumbent System

35-45 mins

Briefly revisit the incumbent system: the dominant, established system currently meeting societal needs, supported by strong actors, rules, routines and infrastructure. Ask the student groups to map the incumbent system in the 'Key elements & interactions' section of the canvas by identifying:

- Actors (e.g. ministries, companies, user groups);
- Institutions (e.g. laws, subsidies, standards);
- Infrastructure (e.g. roads, energy grids, digital platforms);
- The interactions between these elements.

Next, students identify the strengths and vulnerabilities of the incumbent system. Emphasise

that this is done *from the perspective of the incumbent system itself*:

- Strengths are what make the system stable and resistant to change;
- Vulnerabilities are cracks, inefficiencies or tensions where change might take root.

These should follow logically from the 'Key elements & interactions' section.

Pause for a brief class reflection on the results thus far. Highlight common patterns across cases.

Then, students explore the two types of strategies of the incumbent system and complete the third section. Drawing on examples of strategies from the article or knowledge clip, they identify how incumbent actors maintain or reinforce the current system. Allow 15 minutes for groups to define these strategies in their canvas.

Finally, reflect on the results as a group:

- Which strategies are most powerful or effective?
- Which vulnerabilities might provide entry points for change?

Tip: students are working on the left-hand side of the canvas and work their way down from top to bottom in this step.

4. Mapping the Niche System

40-45 mins

Explain that the niche system represents emerging alternative(s) that challenge the incumbent, and is often incomplete or fragile.

Start with the first section on the right-hand side of the canvas, 'Focus, key elements & interactions'**.** Ask students to identify:

- What is already present in the niche?
- What is still missing?

Move to the second section, where students reflect on:

- Strengths (e.g. innovative approaches, public support);

- Vulnerabilities (e.g. small scale, lack of funding);
- Uncertainties (e.g. unclear policy environment, unknown actor behaviour).

Here, uncertainties are included, as in the niche system some components are still unknown.

Students now complete the first two sections of the niche system.

Pause for a brief class reflection:

- What makes this niche promising?
- What elements are still fragile or unclear?

Introduce the final two sections:

- 'Strategies of the niche system': What are niche actors doing (or could do) to strengthen and scale their initiative?
- 'Strategic resources – present & missing': What resources are needed to support those strategies?

Then, students complete and add to all sections of the niche system.

Finally, reflect on the results as a group:

- Which strategy in the niche system do we consider most promising, and why?
- Which missing resource presents the biggest challenge to making that strategy effective?

Tip: students are working on the right-hand side of the canvas and work their way down from top to bottom in this step.

5. Iteration and Completion

20-35 mins

Introduce the landscape level: slow-changing or disruptive external developments that shape, pressure or accelerate transitions, such as pandemics, wars, climate shocks or shifts in other systems.

Ask students to:

- Identify relevant landscape factors in their transition case;
- Revisit and revise their canvas in light of these factors: what needs to change in light of this broader context?

Next, groups exchange canvases and provide peer feedback using the assessment criteria.

End the activity with a plenary reflection, using prompts such as:

- What do you still not fully understand about the current or future system?
- What did you learn from this exercise?

Please note, as part of assessment *as* learning, students write a 500-word individual reflection paper. Optionally, refer to the guiding questions for a summative evaluation to formally assess the students' learning after the peer feedback round or in a follow-up session.

III. Assessment

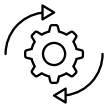
Through peer feedback, and optionally teacher-led assessment, assessment *of* learning takes place. Assessment *as* learning is supported through individual reflection, while also being embedded throughout the activity through short group reflections. These approaches can also be combined to create a more in-depth learning process.

Purpose

Assessment *as* learning aims to strengthen the learning process and the development of metacognitive skills. It empowers students to direct their own learning and to become independent, critical self-assessors.
Assessment *of* learning aims to strengthen the learning process and the development of metacognitive skills. It empowers students to direct their own learning and to become independent, critical self-assessors.

Roles

Self-assessment, peer assessment and, optionally, teacher-led assessment



Characteristics

Assessment with rubric and self-regulated learning

Materials

Individual reflection paper and peer or teacher-led assessment criteria

Assessment

Individual reflection

This reflection focuses on your learning process. You're not expected to summarise the content of your transition case, but to reflect on what you learned by using the Transition Model Canvas to explore system complexity and strategy.

Write a 500-word reflection paper, in which you address the following two questions:

1. **What did you learn from this exercise?**
   Think beyond the content of the case — consider how your way of thinking, working, or seeing complex systems may have changed. What was new, surprising or challenging for you?

2. **How could this tool help you recognise patterns and develop strategies in future transition work?**
   Reflect on how working with the Transition Model Canvas has affected your ability to identify systemic patterns and think strategically. In what types of projects would this be useful, and how might you adapt the tool to support your learning or professional practice?

Assessment

Assessment criteria for peer feedback

Use the criteria below to assess your peers' Transition Model Canvas. For each question, select a rating and add a brief comment.

Criterion	**Rating** (circle one)	**Comment**
Does the system map include all key actors, institutions and infrastructure? Are all three categories (formal and informal) represented?	Insufficient/Sufficient/ Good/Excellent	
Do the maps show how the system needs to change? Look for meaningful contrasts and missing elements, especially in the niche system.	Insufficient/Sufficient/ Good/Excellent	
Are the listed strengths and weaknesses consistent with the maps? For instance, is regulation seen as a barrier and also visible in the institutions layer?	Insufficient/Sufficient/ Good/Excellent	
Are the strategies grounded in the incumbent or niche system, and do they relate to one another? Use the examples from the background materials as reference.	Insufficient/Sufficient/ Good/Excellent	
Are key resources identified to support the strategies? Think of time, funding, networks, knowledge, etc.	Insufficient/Sufficient/ Good/Excellent	
Do the strategies provide a clear and coherent direction for niche development? Avoid internal contradictions or vague ambitions.	Insufficient/Sufficient/ Good/Excellent	

Assessment

Teacher-led assessment (optional)

A formal assessment of students' learning can take place after the peer feedback round (Step 5) or in a follow-up session, using the same assessment criteria.

You can use the following as guiding questions for a summative evaluation:

- **Complexity Awareness** (top half of the canvas)
  - Do students demonstrate insight into the interrelated elements of socio-technical systems?
  - Is the current system mapped with sufficient detail and accuracy?
  - Is the niche system clearly defined and distinct?

- **Sensemaking** (bottom half of the canvas)
  - Do strategies logically follow from the analysis of systems, strengths, and vulnerabilities?
  - Are leverage points and tensions identified and translated into coherent strategies?
  - Are resource needs realistic and meaningfully connected to the strategies?

If you choose this option, consider giving students time to revise their canvas based on your feedback.

IV. Key Advice

The **instruction video** and handout with **background information** and **Transition Model Canvas** (Step 1) can be downloaded below.

You can optionally refer to the **guiding questions** to deepen the group reflections at various points in the activity.

The TMC formats, instruction video, a workshop format and the paper outlining the methodology can be downloaded at https://www.uu.nl/en/research/copernicus-institute-of-sustainable-development/transition-model-canvas. The format that outlines the suggested time spent on the different sections of the canvas is available at https://www.uu.nl/sites/default/files/Workshop%20format.pdf.

To keep all students engaged at the same pace, invite groups to raise their hands once they've completed a field on the canvas. This allows you to briefly check their work, offer targeted suggestions and decide whether to move on to the next section. Let other groups know they can keep iterating if needed.

Using different colours (e.g. sticky notes or markers) for actors, institutions and infrastructure helps make the canvas more legible and visually organised.

The learning activity can be extended from 2 to 3 hours to allow more time for depth and discussion. The canvas can also serve as a support tool for students while learning in depth about a particular transition or to guide idea development aimed at societal change.

Key Advice

Background information on the Transition Model Canvas

The Transition Model Canvas (TMC) is a practical tool that helps students, educators and professionals to better understand, analyse and influence transitions—especially those related to sustainability. It is based on transition theory, and in particular the Multi-Level Perspective (MLP), which helps make complex system changes easier to grasp and act upon.

The TMC was developed through collaborative research with practitioners to operationalise transition theory for use in governance, education and innovation processes. It builds upon research in sustainability transitions and socio-technical systems and translates academic insights into a format that can be used in education, innovation and policy-making.

Multi-Level Perspective (MLP)

The MLP describes how systems change across three levels:

- Landscape: Large external developments, such as climate change, cultural shifts and geopolitics, that influence the system, but are usually beyond the control of individual actors.
- Incumbent system: The dominant, stable system that currently fulfils a societal function (e.g., transport, energy or food), supported by rules, technologies, institutions and powerful actors.
- Niche system: Small-scale, emerging alternatives that challenge the incumbent system and offer new ways of doing things. These spaces of innovation detail what's present and what's missing in the current system.

Transitions happen when pressure from the landscape destabilises the incumbent system, while the niche system gains momentum and legitimacy as a new alternative.

Key Concepts of the Transition Model Canvas

The TMC is a visual canvas that helps map out the dynamics of system change. It includes five core elements:

1. **Transition goal**
   A clear, specific ambition for a more sustainable future or desired system change (e.g. fossil-free transport or circular farming).

2. **Landscape**
   External trends and forces that influence both the current and emerging system, such as laws, social trends or crises.

3. **Incumbent system**
   The current dominant system, including key actors, institutions, resources and infrastructures. This also includes:
   - **Strengths** (e.g. stability, funding, political support)
   - **Vulnerabilities** (e.g. slow to adapt, loss of public trust)

4. **Niche system**
   The new system that is still developing, aligned with the transition goal. This part maps what is already in place and what is still missing, as well as its **strengths** (e.g. innovation, public support) and **weaknesses** (e.g. small scale, fragile funding).

5. **Strategies**
   The actions different actors take to keep the current system in place, or to support change. The TMC helps identify four types of interventions:

   - **Defend** the incumbent system
   - **Block** or slow down niche growth
   - **Destabilise** the incumbent system
   - **Strengthen** the niche system

These strategies help reflect on one's role within the system and design targeted action to change, or understand why change is being resisted.

Transition goal

Incumbent system

Key elements & interactions

Strengths & vulnerabilities

Strategies from the incumbent system
To defend the incumbent system

To inhibit the niche

Niche system

Focus, key elements & interactions (present & missing)

Strengths, vulnerabilities & uncertainties

Strategies from the niche system
To destabilise the incumbent system

To strengthen the niche

Strategic resources (present & missing)
To destabilise the incumbent system

To strengthen the niche

Landscape

Van Rijnsoever, F.J. & Leendertse, J. (2020) A practical tool for analyzing socio-technical transitions. Environmental Innovation and Societal Transitions 37: 225–237. https://doi.org/10.1016/j.eist.2020.08.004

Assessment

Reflective questions for group reflection

After Step 3

- What interdependencies did we notice within the current system (e.g., between actors, institutions, infrastructures)?
- What do these interdependencies entail for the strengths and weaknesses of the current system?
- Which actors or institutions seem to reinforce the status quo, and how?
- What strategies are used to maintain the current system, and which of these could be challenged or redirected?
- What strategies to maintain the current system are likely to be used in the future?
- Which strategies seem most powerful, and which most vulnerable to disruption?

After Step 4

- What makes the niche system fragile or promising in relation to the incumbent system?
- Where do we see tensions or alignments between the two systems?
- Which actors are active in both the incumbent and niche systems?
- Which actors need to change their roles to make the niche a reality?
- Which actors are most likely to resist change?
- Which strategies are most important to influence the incumbent system?
- What missing elements or resources would be needed to make the niche strategies effective?
- Which actor should be responsible for which strategy?

After Step 5

- Which external developments (e.g. war, COVID, cultural changes, economic trends) provide windows of opportunity for the niche system?
- What did we change in our TMC based on new insights, and what does that say about the dynamic nature of systems?
- How do small shifts in one part of the system affect the bigger picture?
- What information do we need to improve our understanding of the transition?
- How confident do I feel in identifying leverage points for change in this system?
- What information about either system do I need to research to improve the analysis?
- What is one concrete insight I take away about how to influence transitions through systemic thinking?

V. References

Van Rijnsoever, F.J. & Leendertse, J. (2020) A practical tool for analyzing socio-technical transitions. Environmental Innovation and Societal Transitions 37: 225–237. https://doi.org/10.1016/j.eist.2020.08.004

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