WORKBOOK
VOL I

Designing participatory transformative processes for

JUST & CLIMATE-NEUTRAL CITIES

WORKBOOK FOR URBAN TRANSITION MAKERS
VOLUME I

Funded by the H2020 programme
of the European Union.

TOMORROW

“Europe, the first climate-neutral continent in the world by 2050.”

URSULA VON DER LEYEN, President of the European Commission

Authors: Giorgia Silvestri*, Julia Wittmayer & Tessa de Geus, DRIFT.

* For more information or questions, please contact silvestri@drift.eur.nl

Reviewers: Sara Giovannini, Energy Cities, Fréderic Boyer, Energy Cities & Frank van Steenbergen, DRIFT.

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Design, formatting and figures: contact@onehemisphere.se

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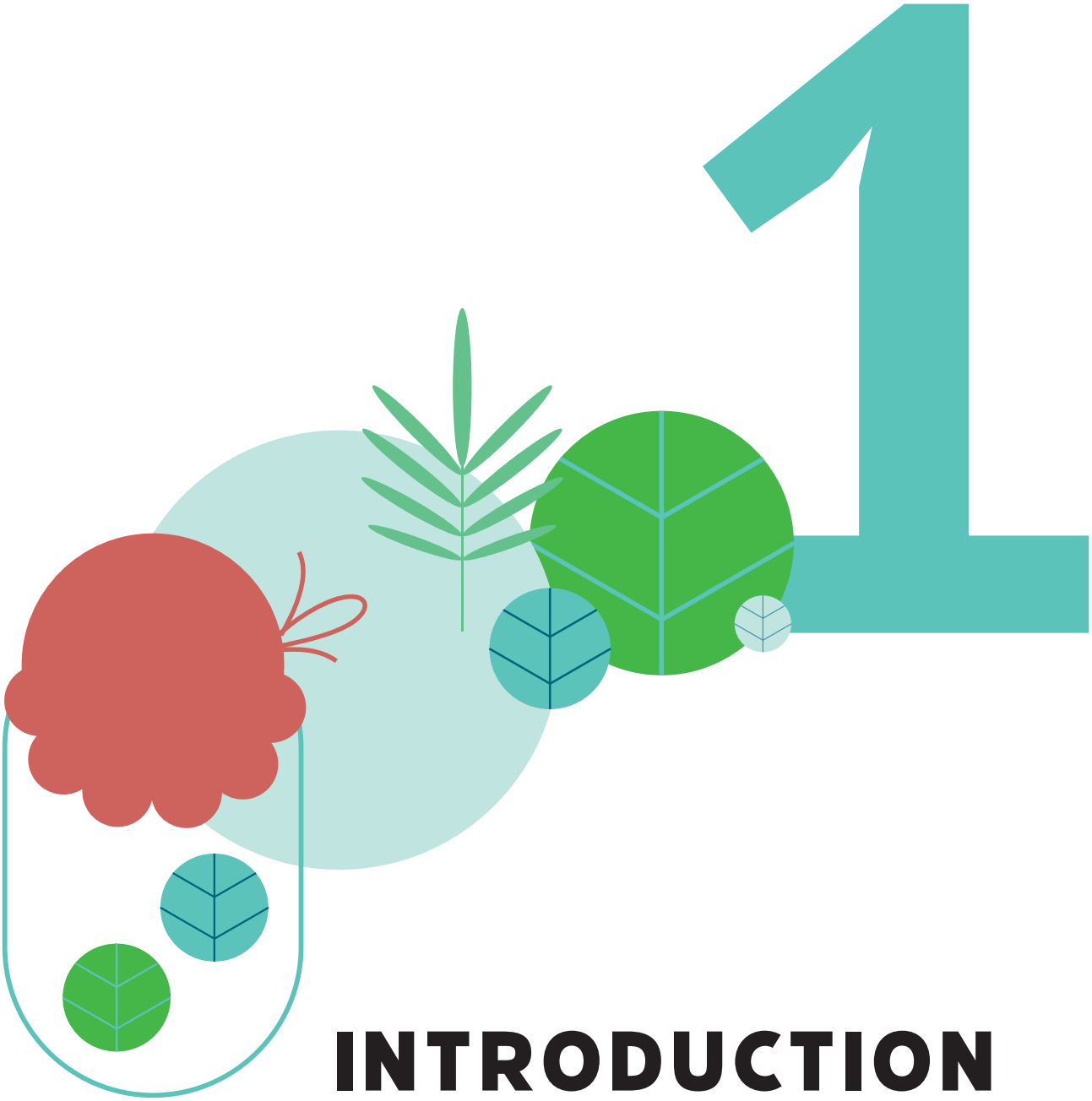


1 INTRODUCTION

The Workbook for urban transition makers is a collection of tools for change makers willing to contribute to sustainability transition in cities. More specifically, this workbook explains the tools to get started with so-called *transition governance*. This mode of governance aims to facilitate and accelerate sustainability transitions through a participatory process of visioning, learning and experimenting. Understanding the current system dynamics and the actor networks is a crucial starting point for devising activities to influence sustainable transformation in cities and beyond.

This workbook is for anyone who would like to adapt and implement transition governance processes in their city. For instance, change makers who want to design a long-term roadmap or strategy, to facilitate multi-stakeholder collaborations, to experiment with innovative solutions, or to conduct action research in their city, etc. This means that it is for everyone who would like to design, adapt and implement a process aimed at supporting sustainability transitions in their cities/communities. The tools presented in this workbook relate to the very basics of transition governance, i.e. analysing the transition dynamics within a city. Such an analysis consists of two main types:

- **A system analysis** which supports any person, group or team to create a better understanding of the dynamics, challenges and opportunities of the system they want to target for designing and implementing a process toward sustainability transitions.
- **An actor analysis** which aims to identify the most relevant actors or stakeholders in the system, and how they relate to each other. Mapping the actors and their roles helps to understand which and how actors can be involved in a transition governance process.

It is important to remember that a transition governance process can be successful only when it is carefully and sensitively adapted to a certain context. We, therefore, suggest you adapt the tools presented in this workbook to the context of your city, town or neighbourhood.

The aim of this workbook is threefold. After having worked through the analytical tools, you will:

- Know how to analyse the dynamics of your system;
- Arrive at a shared understanding of the different actors in a system and their roles;
- Bring together and facilitate groups of change makers to reflect on their individual and collective understandings of the system.

This workbook can be used together with other two outputs of the TOMORROW project:

- The Workbook Vol. II which provides a collection of tools and methods for designing a transformative and participatory process towards climate-neutrality.
- The Methodological Guide 'Designing participatory transformative processes for just and carbon-neutral cities - Methodological guidelines for using Transition Management'.

  This guide includes some of the overarching principles and activities when designing and implementing processes of governing urban transitions and it follows the metaphor of tending to a garden: starting with understanding the conditions (Step 1), planting the seeds (Step 2), nurturing growth (Step 3) and continuing the cycle (Step 4).

Table 1 gives an overview of the included tools and methods for the system and actor analysis. These tools can be used in two ways:

1. **Individually** by using the tools on your own and reflecting by yourself on transition dynamics or actor networks. It helps you to create a better understanding of a certain system and its dynamics. It also helps to identify strategies on how to facilitate sustainability transitions processes.
2. **Participatory** by using the tools as part of a workshop with a group. In these workshops different actors within your city are engaged as collectively discuss and understand the rooted problems and opportunities for change in a certain system or selected case. In this case, the goal is also to arrive at a 'shared' understanding of the system.

For each of the tools, you will find a description of its purpose and instructions for its application. You will also find tips and suggestions as well as important resources to deepen your knowledge about the tools. The description of the tools in this workbook is divided into two different chapters:

- Chapter 3 System analysis: includes some of the most important tools to analyse the problems and opportunities within your system, as well as the transition dynamics;
- Chapter 4 Actor analysis: presents four different tools for the identification, mapping and analysis of the actors of your system.

Each of the tools is outlined as followed: a basic description of the tool and its purpose, some instructions to apply the tool; additional tips and examples for its application; and recommendations for further readings and resources about the tool. We have also included multiple worksheets that can be used when applying the tools (Appendix 5). However, before we dive into the tools, we first introduce some background knowledge on transition governance in chapter 2.

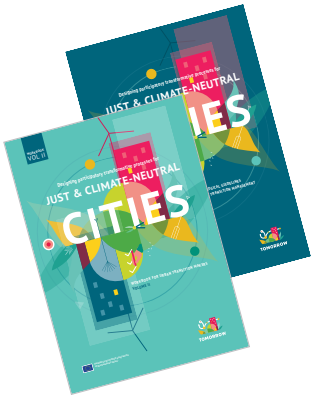


TABLE 1. OVERVIEW OF METHODS AND TOOLS DESCRIBED IN THE WORKBOOK

NAME	TYPE	PURPOSE	SECTION
The System Demarcator	**System analysis**	To identify the boundaries of the system.	3.1
The Uncovering Systems tool	**System analysis**	To characterise the system under study and identify its structures, cultures and practices	3.2
The Multi-Level Perspective (MLP)	**System analysis**	To characterise the system under study using transition thinking and map transition dynamics	3.3
The X-curve model	**System analysis**	To understand the transition dynamics of a system	3.4
The Four levers of governance	**System analysis**	To identify the different types of governance activities that are present in a system: strategic, tactical, operational, reflexive activities	3.5
The Power-Domain-Mapping	**Actor analysis**	To map actors according to the organizational background and the kind of power they are exercising	4.1
The Social Network Analysis (SNA)	**Actor analysis**	To track and understand networks and relationships at a variety of levels	4.2
Multi-actor Perspective (MaP)	**Actor analysis**	To map stakeholders in different sectors of a certain system, and reflect on the interactions and interconnections among them	4.3
The Actors' Map	**Actor analysis**	To identify the most important actors to be engaged in a transition governance process	4.4

BOX 1. TOMORROW PROJECT

The tools included in this workbook have been adapted and applied by the six pilot cities involved in the TOMORROW project (Valencia, Mouscron, Brasov, Nis, Dublin and Brest). As part of the project, transition teams in the six cities developed 2050 transition roadmaps together with citizens and other local stakeholders. These processes have also been used as pilots for other European cities that aim to influence transition processes in their territory and they are willing to become more sustainable and just. In this workbook, you will also find some examples of the application of the transition tools in the different pilot cities of TOMORROW.

THE BASICS OF TRANSITION GOVERNANCE

To create a better understanding of the tools presented in this workbook we will explain some of the main theoretical ideas behind transition governance and their operationalization.

SUSTAINABILITY TRANSITIONS IN CITIES

Cities play a key role in supporting and enabling sustainability transitions. For instance, municipalities can develop regulations and policies that can facilitate or hinder other actors (such as businesses, citizens, universities and other education institutions, associations and NGOs) in their goals to contribute to a sustainability transition.

TRANSITION GOVERNANCE FOR ACCELERATING SUSTAINABILITY TRANSITIONS

Transition governance is an approach that aims to influence existing dynamics of a system, such as the energy system within a city, as to make it more sustainable. It does so by embracing the system's complexity and by acknowledging the inherent uncertainty of societal change. Therefore, transition governance puts a high value on learning and reflexivity. Transition governance is a means to foster sustainability and just transitions by accelerating social learning and systems thinking among a diverse set of actors. In doing so, it tries to support the emergence of alternative ways of doing, thinking and organizing.

TRANSITION MANAGEMENT AS HANDS-ON MODE OF GOVERNANCE

A hands-on governance approach based on these insights is transition management. Transition management aims to address persistent societal problems through (social) learning, system thinking and through enabling new activities and collaborations relating to visions of a more sustainable future (Loorbach, 2010). Transition Management was developed in the Netherlands in the early 2000s and has since been applied in different domains such as the energy, food, healthcare, and water domain. It has also been applied at different scales such as nations, regions, cities or neighbourhoods as well as multiple contexts like European cities but also communities in Honduras, Uganda, Ghana and Australia.

Transition management has the following three main promises (see Roorda et al., 2014):

- **A sense of direction:** proposing a strategic future perspective which addresses the fundamental changes needed to reach a sustainable future;
- **An impulse for local change:** inspiring alternative and enhancing existing initiatives that contribute to the envisioned future;
- **Collective empowerment:** Enabling actors in cities to tackle transition challenges and seize opportunities for a sustainable city.

TRANSITION MANAGEMENT LEVELS

Transition management starts from the premise that so-called frontrunners play a key role in finding direction for the transition process. Frontrunners are key in driving the process of social change. To facilitate social learning and experimentation, the transition management framework identifies a strategic, tactical, operational, or reflexive level of interventions.

TABLE 2. TRANSITION MANAGEMENT LEVELS

INTERVENTION	
Strategic	Focusing on the long-term and relating to structuring societal problems and envisioning alternative futures.
Tactical	Developing coalitions, images, and transition agendas.
Operational	Mobilising actors and implementing projects and experiments.
Reflexive	Evaluating, monitoring, and learning throughout the process.

These four levels are also the main focus of one of the system analysis tools. See section 3.5 for more information.

DOING TRANSITION MANAGEMENT

Transition management has been operationalised in a process with four key phases: an orienting, agenda-setting, activating and reflecting phase. Subsequently, these four phases are further operationalised in seven steps (see Figure 1). The transition management process allows for an iteration between the different phases and steps as to reflexively increase the actors' understanding of system dynamics, actor networks and possible leverage points.

An important step in this process is called **"setting the scene".** In this step an initial system analysis and actor analysis is carried out to increase the understanding of the system.

The **orientation phase** of the transition management cycle aims at creating a shared understanding of the system and its key challenges. This phase also allows for envisioning what constitutes a desirable future.

The **agenda setting phase** aims at determining short-term actions as well as short-term opportunities. The aim is to contribute to the envisioned future by connecting different networks and communities.

The **activating phase** focuses on organising a portfolio of experiments related to the envisioned desirable future.

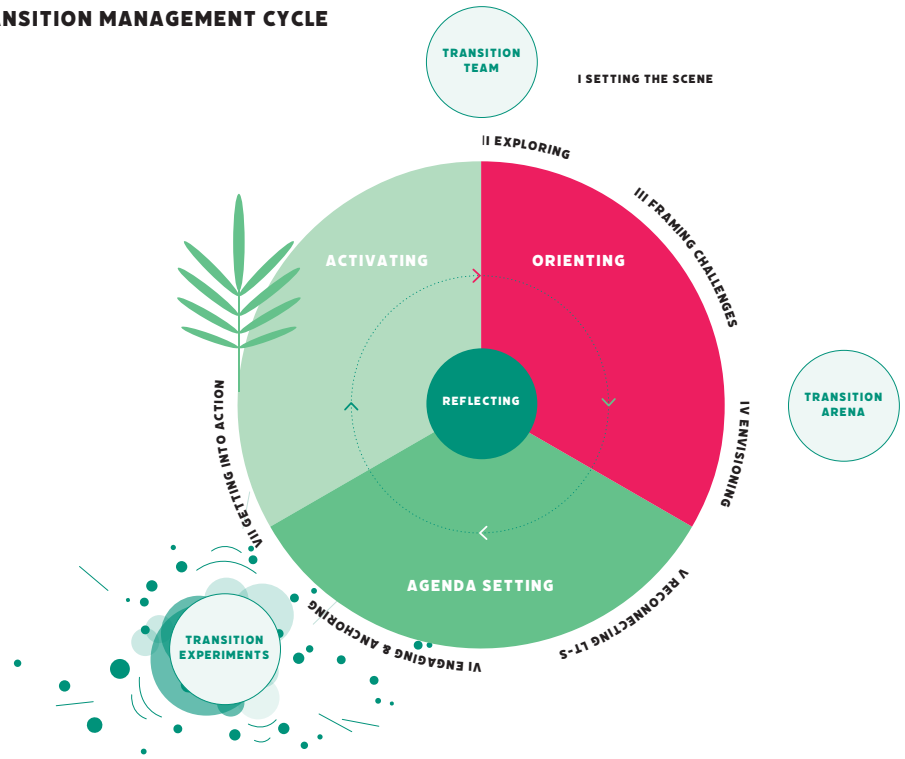
Linking these steps and their outcomes to the broader context is an ongoing activity throughout all the phases and is called the **reflecting phase**.

Key in organising a transition process within a city is setting up the **transition team**. This is the core team that adapts and drives the transition management process. Ideally, the transition team consists of approximately three to five people who are intrinsically committed to the cause of sustainability transitions and have time and capacity to facilitate the process. In most cases this team is primarily responsible for facilitating and carrying out the system and actor analyses.

One of the most important operational instruments of transition management is the **transition arena**, a so-called 'protected space' for frontrunners which consists of a series of meetings and activities aiming at problem structuring, vision building, back-casting and agenda-setting. This leads to the piloting of transition experiments that can be implemented during the activating phase. Importantly, the transition management cycle (Figure 1) can also be used to think about which kind of activities are most needed within a certain system (e.g., activating or orienting) and adapt the steps of the process accordingly.

In this workbook we share the most important tools and methods that can be used in the very basic step of a transition management process, i.e., setting the scene: the analysis of the system dynamics and the actors of a specific system.

FIGURE 1. THE TRANSITION MANAGEMENT CYCLE



SOURCE: Roorda et al. 2014

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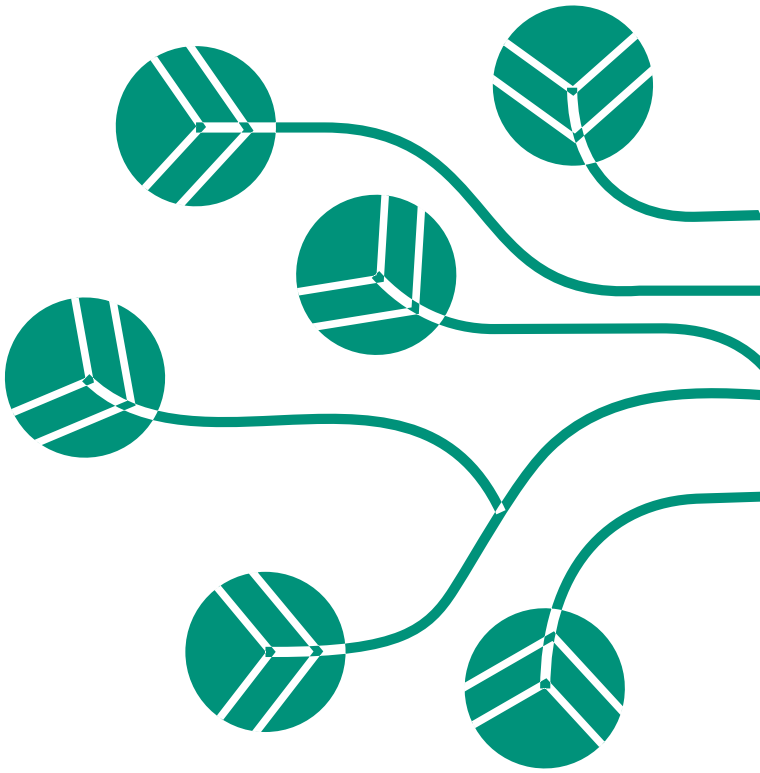
- Loorbach, (2014), **'To Transition! Governance panarchy in the New Transformation',** DRIFT, Erasmus Universiteit. https://drift.eur.nl/publications/transition-governance-panarchy-new-transformation/
- Roorda, C., Wittmayer, J., Henneman, P., Steenbergen, F. van, Frantzeskaki, N. and Loorbach, D. (2014) **Transition Management in the Urban Context. Guidance Manual**, Drift, Erasmus University Rotterdam, Rotterdam: https://drift.eur.nl/wp-content/uploads/2016/11/DRIFT-Transition_management_in_the_urban_context-guidance_manual.pdf.
  The guidance manual is available in French, German, Norwegian & Spanish. A shorter version is available in Greek.



SYSTEM ANALYSIS

The system analysis aims to better understand the dominant challenges and opportunities of the system under study, for example the energy system in a particular city. In grasping the transition dynamics, the system analysis helps to reflect more deeply on the interconnections and persistency of societal problems.

3.1 THE SYSTEM DEMARCATOR

PURPOSE: To identify the boundaries of a system.

The System Demarcator is a basic tool for any system analysis. It will help you define the boundaries of your transition analysis. Without a system demarcation, it is quite possible that you would feel a bit lost, and it would be difficult to apply any of the other tools. Setting system boundaries should help you to focus the analysis, and it also should increase the level of reflexivity, e.g., what do I and don't I include in my analysis and what are the consequences of this.

DESCRIPTION

A system's boundary demarcates a limit to the system's internal processes and components. Internal to its boundary, the system has some degree of integrity, meaning the parts are working together and this integrity gives the system a degree of autonomy. A transition governance process takes account of different systems and their interactions, for example physical, technological, social and institutional systems. As such, it is important to define clearly the physical, social and institutional system we study and want to intervene in.

INSTRUCTIONS

Ask the participants to define the boundaries of their system and specifically the:

1. Geographic boundaries (e.g., territorial, jurisdiction).
2. Sectorial boundaries (e.g., the specific sectors in which you would like to focus on).
3. Institutional boundaries (e.g., which institutional logic is prevalent in the demarcation).

TIPS & EXPERIENCES

- Provide tangible examples of boundaries of specific systems (e.g., see box 2 below for Dublin);
- You can ask participants to draw and use different colours to represent the different types of boundaries;
- Ask questions like: what would happen if we change the system boundaries? Would that lead to dramatic changes in the way we perceive the systems and its characteristics? What does this tell us about how we approached system demarcation?
- In case you are conducting a short workshop or session, you can make the identification of the system boundaries quite simple: ask participants to choose a case study and to make a short description of it. The case could be a specific sector in a certain city, country, or globally or a specific context such as a neighbourhood, a city, a geographical area without focusing on any specific sector.

BOX 1. THE SYSTEM DEMARCATION DONE BY DUBLIN'S TRANSITION TEAM FOR THE TRANSITION ROADMAPPING PROCESS IN DUBLIN CITY

BOUNDARY	DESCRIPTION
Geographic boundaries	The physical boundary of the Dublin Region, encompassing the four municipality regions of Dublin: Dublin City, Dún Laoghaire-Rathdown, Fingal and South Dublin County.
Sectoral boundaries	All energy demand (heat, transport and electricity) and supply solutions, and potential carbon sinks (green infrastructure) need to be addressed to become carbon neutral. This is limited to those emissions affecting the non-ETS sector and that fall under the 2030 and 2050 EU emissions targets (Scope 1 and 2). While Scope 3 emissions (i.e. indirect emissions from areas such as goods and services delivered through an outside provider, waste disposal, investments and product distribution) are of course very important to reduce, we feel it is too much to take on (too many additional stakeholders and very hard to monitor and track) and will dilute the effect of the roadmap. We have to limit the scope to what we can measure and influence. But when engaging stakeholders, if it appears to be motivating people, we will look into areas relating to Scope 3 without monitoring, such as providing general information on climate action that encompass Scope 3, such as reducing waste and shopping locally.
Institutional boundaries	We are targeting Irish public sector and governmental national, regional and local institutions. Transport, business and community sectors in Dublin. While we hope the Dublin Energy Transition Roadmap will influence EU level, we are not specifically targeting EU level institutions.

3.2 THE UNCOVERING SYSTEMS TOOL

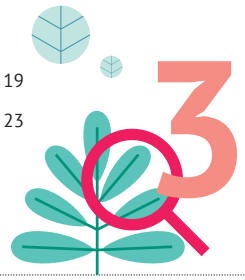
PURPOSE: To characterise the system that you are studying and identify its structures, cultures and practices.

DESCRIPTION

This method strongly relates to one of the core definitions of a transition: "a transition is a fundamental change in cultures, structures and practices at the level of a sub-system".

As part of this method, participants are encouraged to think about the following characteristics of a system:

- Structures: institutional, economic, and physical, and regulatory settings;
- Cultures: discourses, shared beliefs, values, perspectives and paradigms;
- Practices: daily routines, behaviours, actions, choices, habits.



INSTRUCTIONS

1. Explain the different characteristics of a system and what you mean by structures, practices and cultures and share tangible examples for each of them (see the example in the Appendix 5.2).
2. Give the participants a flipchart identifying the different elements characterising the system: structures, cultures and practices.
3. Provide guiding questions for each system's element such as the following:

   Characterising the structures

   - What are the different governance approaches, institutional frameworks and policies related to your system?
   - What infrastructures, economic, physical, regulatory, implicit rules and networks are in place?

   Characterising the cultures

   - What are the most common perspectives and values regarding your system?
   - Do people consider using a certain type of alternatives?
   - Are people aware of sustainable alternatives regarding your system?

   Characterising the practices

   - What are the most common practices and behaviors in your system?
   - What are the daily routines and habits in your system?
   - What are the alternative actions, behaviors and practices that are emerging in your system?
4. Ask participants to provide a short description of the structures, cultures and practices present in their system and write them on the flipchart or the printed canvas (see Appendix 5.2). Encourage participants to add anything that they consider important. Give participants at least 30-40 minutes for this exercise.
5. During the exercise, support participants by asking guiding questions, by answering any of their questions or doubts, or by providing examples.
6. Ask participants (or each group) to share some of their main insights from the exercise.

TIPS & EXPERIENCES

- This method can also be conducted in groups. You can divide the participants into different groups, ask them to first characterise their system individually and then share the results in the group.
- This method works better when having a facilitator supporting the participants to identify the different elements of the system.

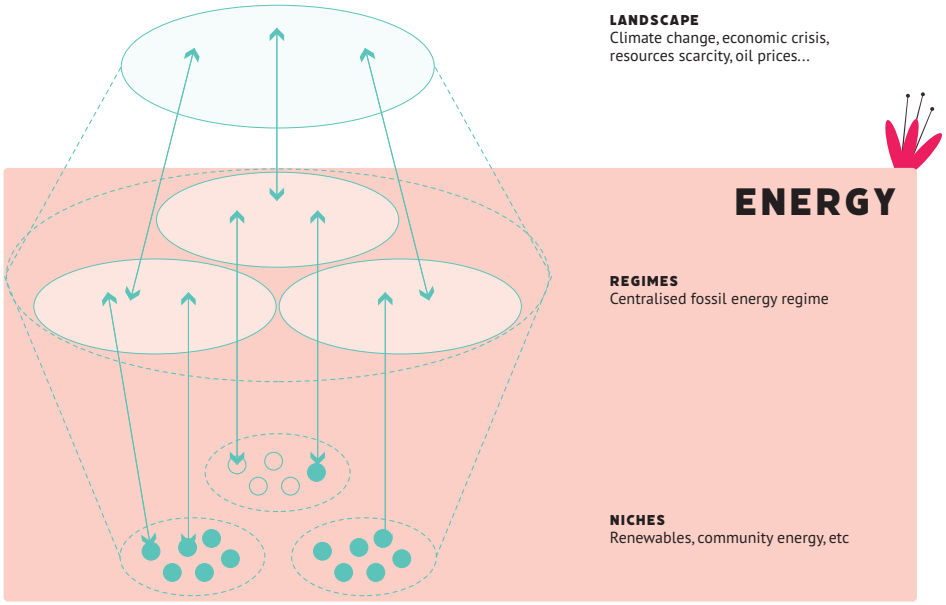
REFERENCES & RESOURCES

- Loorbach, D., Frantzeskaki, N., and Avelino, F. (2017). Sustainability Transitions Research: Transforming Science and Practice for Societal Change, *Annual Review of Environment and Resources 2017* 42:1. https://doi.org/10.1146/annurev-environ-102014-021340

3.3 THE MULTI-LEVEL PERSPECTIVE (MLP)

PURPOSE: To gain insights on the current transition tensions and challenges within a system.

FIGURE 2. MULTI-LEVEL PERSPECTIVE APPLIED TO THE ENERGY SYSTEM



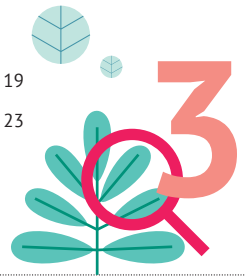
SOURCE: Geels, 2005.

DESCRIPTION

The Multi-Level Perspective (MLP) is a tool that can support you in characterising the system from a transitions perspective. It can give you a better understanding of the relationships between different elements of the system and it can support the reflections on the transition dynamics existing in it.

The Multi-Level Perspective (MLP) consists of three levels:

- **Landscape**: autonomous factors or "trends" in the system influencing both niches and regimes. Examples in the energy system: Climate Change, resource scarcity, SDGs.
- **Regime**: the dominant structures, cultures and practices. Examples in the energy system: centralised fossil energy incl. market-led fossil-based economy.
- **Niches**: the alternative structures, cultures and practices (so-called spaces for innovation). Examples in the energy system: solar energy, wind energy, energy cooperatives, innovative energy practices, etc.



INSTRUCTIONS

1. Carefully explain the MLP model and describe each level: Landscape, Regime and Niche.
2. Provide examples of what you mean for each MLP level and use an example of a MLP analysis (e.g., the MLP analysis of a specific sector).
3. Ask the participants to divide into groups of 3-5 people.
4. Ask each group to identify a geographical system (e.g. a neighborhood, a city, etc.) or functional system (e.g. food, energy, water, etc.).
5. Provide the participants with flipcharts representing the MLP.
6. Ask the participants to first define the boundaries of their system (see 4.1) and then start analysing the different MLP levels in their system: niches, regime and landscape. Give them between 40-60 minutes to engage in the group exercise.

   To support the participants to better understand the different MLP levels, you can: repeat a short explanation of the levels; ask questions; and share some examples (see in the Appendix 5.3).
7. Explain that they can write the elements for each level on post-its or directly on the flipcharts.
8. During the exercise check if the different groups have doubts or questions. Especially at the beginning of the exercise they might feel a bit lost, and they would need to be reminded of the meaning of each level. If needed, support them by asking guiding questions and giving some suggestions.
9. At the end of the exercise give the opportunity to each group to present the results of their group exercise.
10. Give space for some final reflections on what they have learnt from the exercise. You can ask the participants questions like: "What are your main insights from this exercise?", "What did you learn today?", "Did you have any surprises?"

TIPS & EXPERIENCES

- The participants might feel a bit lost in the theoretical concepts. Give them some time to "digest" the concepts. It will help them to relate the model to their own life and experiences.
- Ask continuously guiding questions that help them to better understand each level.
- Provide different examples of the MLP perspective of different cases or sectors.
- You can ask participants to draw and use their imagination to represent the multiple levels.

REFERENCES & RESOURCES

- De Vicente Lopez, Javier and Matti, Cristian (2016). Visual toolbox for system innovation. A resource book for practitioners to map, analyse and facilitate sustainability transitions. Transitions Hub Series. Climate-KIC, Brussels 2016. ISBN 978-2-9601874-0-3 https://learning.climate-kic.org/en/system-innovation/system-innovation-2/2019-04-24-04-20-261
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BOX 2. EXCERPT FROM THE MLP APPLIED IN THE CONTEXT OF THE CITY OF VALENCIA BY THE LOCAL TRANSITION TEAM

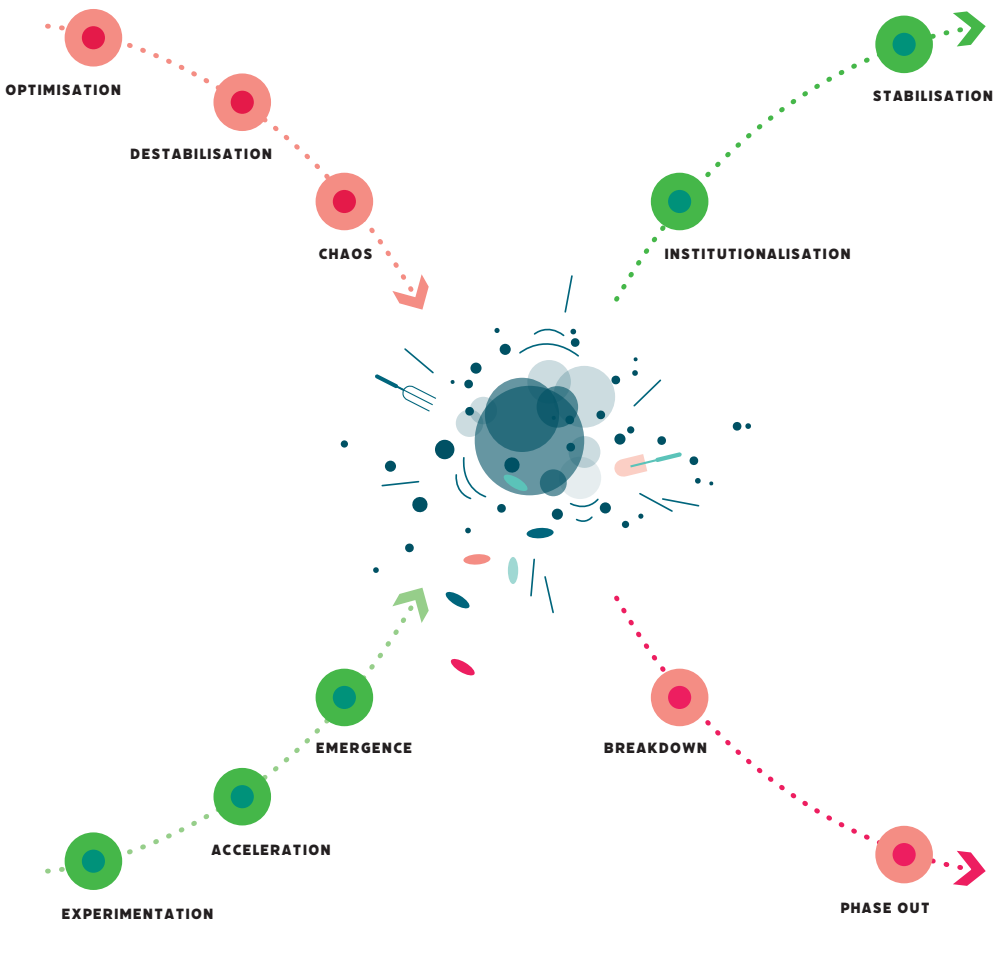
- Valencia is the third city in Spain by population with 800 thousand inhabitants (amounting to 1.5 million if we consider the metropolitan area) with a population density of 8.084 inhab./km^2.
- Valencia is the third urban destination in Spain and tourist activity, which exceeds two million visitors, represents more than 10% of the local economy;
- The Port of Valencia is the fifth busiest seaport in Europe, being also the leading Spanish port of the Mediterranean in commercial traffic, mainly of containerized goods; it provides services to more than 7,500 ships every year.

LEVEL	
Landscape	Climate change is contributing to create a sense of urgency and influencing the regime; The overall global economic situation influences the regime and niches; The 2015 Paris Agreement and the SDGs are related to the growing concerns about the consequences of climate change;
Regime	Current practices show that the energy sector of València is still dependant on fossil fuels, which are mostly imported, and which are used to produce energy in a highly centralised manner. [...] Mobility accounts for more than half of the total energy consumption of the city. Moreover, traditional combustion private vehicles are still dominant over alternative electric and hybrid vehicles. [...]
Niches	Energy cooperatives: energy cooperatives with activity in the 3 axes of the energy sector -production, distribution and commercialisation- have been operating in València for a long time. However, they have increased in number and size in the recent years. These cooperatives represent a radical shift from the traditional big energy companies towards a more democratic system, which also contributes to the decarbonisation of the energy sources used to produce electricity. Decentralised solar energy prosumers: recent changes in the legislative and regulatory fields have facilitated the self-consumption installations of renewable energy, mostly in the residential and tertiary sectors. [...]

3.4 THE X-CURVE MODEL

PURPOSE: To create a richer understanding of the transition dynamics within a specific system.

FIGURE 3. X-CURVE MODEL



SOURCE: image from Silvestri et al. 2022, based on Loorbach, 2007.

DESCRIPTION

The X-curve describes the dynamics of societal transitions in terms of iterative processes of building up and breaking down (see Loorbach et al., 2017). The X-curve features two main lines: a line moving up which represents "innovation" as a process of emergence and building up; and a line moving down which represents "exnovation" as a process of breaking down and phasing out. The interaction between these two patterns takes place within the context of large-scale societal developments in e.g., demography, technology, economy, and (geo) politics. Often such patterns take decades to evolve.

Innovation: Build-up of emerging culture, structure, and practices

- Experimentation - Radically new ways of doing, thinking and organizing are invented and tested;
- Acceleration - Alternatives are scaled up and become more accessible;
- Emergence - Alternatives become more viable and competitive to existing structures;
- Institutionalisation - Alternatives are stabilised and embedded in new structures, culture and practices;
- Stabilisation - Optimisation of the new status quo.

Exnovation: Transforming and phasing-out of dominant culture, structure, and practices

- Optimisation - Existing structures are improved;
- Destabilisation - A fundamental discussion about the current design of a system is initiated;
- Chaos - Societal structures experience disruptive shocks and are disintegrating;
- Break-down - Fall out and dismantlement of existing status quo;
- Phase-out - Former dominant institutions and practices become anomalies and eventually disappear.

INSTRUCTIONS

You can choose two options to facilitate the application of this tool. The one is more interactive and quicker, the other is more analytical and requires more time. Both options can be used as part of a workshop, educational session or multi-stakeholder meeting. The first option is more useful when participants need to learn about the main concepts of sustainability transitions as to develop a transition thinking mindset. The second option can be very effective to support participants to identify and reflect on the transition dynamics of their system.

Option 1: Interactive X-curve model

1. Before the start of the workshop or session, create an X-curve on the floor with tape;
2. Explain the X-curve model to the participants and give some examples for each of the different phases;
3. Ask the participants to stand up and to position themselves on the X-curve according to their role in the transition. For example, you can ask them the following question: what is your role in the transition? How would you position yourself on the X-curve?
4. Give participants some time to position themselves on the X-curve;
5. Ask them to share with the person next to them why they positioned in that specific part of the X-curve;
6. After a few minutes, ask the group of participants to share their main insights from the exercise. Optional: after the exchange of insights ask people if they want to reposition themselves on the curve.

INSTRUCTIONS

- CONTINUED

Option 2: X-curve model analysis

1. Explain the X-curve model to the participants by giving examples of the different phases;
2. Depending on the workshop or session, this exercise can be done in groups or individually;
3. Ask the participants to define the boundaries of their system (see 3.1: The system demarcator) individually or in groups;
4. Give to the participants a worksheet representing the X-curve model as in the Figure below (see Figure 4). A different version of the worksheet is included in the Appendix (see 5.4);
5. Ask the participants to identify the transition dynamics in their system. You could ask a question such as "Can you identify what are the elements of each phase?" (e.g., organisations, individuals, projects, regulations, events, behaviors, etc.). You can also ask them to follow the guiding questions included in the worksheet;
6. After they have identified the transition dynamics in their system, the next step is to discuss their interpretations of the analysis. For this, you can ask and discuss, the following questions:
   - Which phases are most dynamical in the current system and why?
   - Overall, what do you think are the most important transition dynamics in your system?
   - Which dynamics are absent? Why?
   - Is a certain actor-group over-represented in a certain dynamic? Why and what are the consequences?
   - What are the interconnections among the different transition dynamics?
7. At the end of the exercise ask the participants to reflect on the main lessons learnt from the exercise.

TIPS & EXPERIENCES

- When explaining the X-curve model to participants for the first time they might feel a bit confused. Give them time to reflect at personal level and share examples of transition dynamics related to their daily-life or to their context;
- Ask continuously guiding questions supporting the participants to critically reflect and go beyond their comfort zone when identifying transition dynamics.

REFERENCES & RESOURCES

- Silvestri, G., Diercks, G., Matti, C. (2022). X-curve: a sense-making tool to foster collective narratives on system change booklet including background information about the X-curve and step-by-step description on how to use the X-curve in workshops and interactive sessions https://drift.eur.nl/app/uploads/2022/02/X-Curve-booklet-DRIFT-EIT-Climate-KIC-2022.pdf
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- Loorbach, D. & Oxenaar, S. (2018). Counting on Nature. Transitions to a natural capital positive economy by creating an enabling environment for Natural Capital Approaches: https://drift.eur.nl/wp-content/uploads/2018/02/Counting-on-Nature.-Transitions-to-a-natural-capital-positive-economy.pdf

FIGURE 4. EXAMPLE OF AN X-CURVE MODEL WORKSHEET

OPTIMISE ("TOP DOWN")

What needs to be organised / changed?

- Legal, policy, regulations
- Institution coordination/strength
- Implementation
- Data
- Roles & responsibilities

BUILD ("BOTTOM UP")

What needs to be built / developed?

- Capacity
- Expertise
- Stakeholders
- Dialogue
- Platforms

FUTURE / VISION

What is the end goal?

- Economy
- International networks
- Planetary boundaries
- New ways of working
- Big picture and crazy ideas

PHASE OUT

What isn't working / needs to go?

- Resources
- Infrastructure
- Interests
- Practices

TOMORROW

SOURCE: image from Silvestri et al. 2022, based on Loorbach, 2007.

3.5 THE FOUR LEVELS OF GOVERNANCE

PURPOSE: To differentiate the types of governance activities that are apparent in a specific system.

DESCRIPTION

This tool helps you to reflect on what is currently happening in the selected system and to consider what is needed to move beyond incremental "policy as usual". The tool helps to diagnose the activities that different actors in a system (including local authorities, citizens, businesses, knowledge institutions and NGOs) engage in, in relation to sustainability transitions.

The following types of activities are identified:

- Strategic: focusing on the long term and relating to structuring societal problems and envisioning alternative futures;
- Tactical: developing coalitions, images, and transition agendas;
- Operational: mobilising actors and implementing projects and experiments;
- Reflexive: evaluating, monitoring, and learning throughout the process.

More information and a description of each type is provided in Table 3 below.

INSTRUCTIONS

1. Provide to the participants of the workshop a canvas including all governance activities (see Table 3 below and Appendix 5.5).
2. Explain to the participants the different types of governance activities by providing specific examples for each activity. Allow for clarifying questions.
3. Ask the participants individually or in groups to identify the different governance activities of their system by filling in the canvas.
4. After the mapping of the ongoing activities, the participants share their interpretations of the analysis. This can be assisted by using questions such as the following:
    - Which type of activity is most popular? And which type the least? Why?
    - Which actor groups are driving which kinds of activities? Is there a certain pattern? What does this tell us about the system?
    - Which of the mapped activities were most successful (and on what accounts) to further the transition towards climate-neutrality?
    - What are obvious activities that are missing from this mapping? Why have these not been picked up?
5. Based on the understanding of existing governance activities, you can discuss which possible interventions can be employed to effectively address sustainability transitions.
6. At the end of the exercise, you can have a debrief by asking the participants what they have learnt and how they think to apply the lessons learnt into practice in their system.

TIPS & EXPERIENCES

This tool is better applied in a small-group setting (3-5 people), with actors from different backgrounds, who together map the identified activities directly on a canvas.

REFERENCES & RESOURCES

- Loorbach, D. (2010). Transition Management for Sustainable Development: A Prescriptive, Complexity-Based Governance Framework, Governance: An International Journal of Policy, Administration, and Institutions, 23:1,161–183.

TABLE 3. TYPES OF GOVERNANCE ACTIVITIES

GOVERNANCE ACTIVITY	DEFINITION AND EXAMPLES
Strategic	Strategic activities focus on the long term and relate to structuring problems and envisioning alternative futures of a societal (sub-) system. Such activities are inherently normative, since they involve ethical debates regarding what consist as transformative change and what type of change is desirable. **Examples of activities:** ◦ Support critical reflections on the interconnectedness and persistency of existing problems; ◦ Facilitate envisioning processes and development of visions on desired futures; ◦ Organise strategic discussions related to e.g., formulating long-term (collective) goals and guiding principles; ◦ Develop long-term planning; ◦ Support actors to collectively discuss and define important norms, values, ethics and understandings of sustainability. Such activities might be documented through or materialise as master plans, visions, etc.
Tactical	Tactical activities have a mid-term horizon and are related to building a movement of alternative networks, experiments and practices. The aim is to create a stimulating and cultivating context for people who are working on alternative ways of doing, thinking and organizing. **Examples of activities:** ◦ (Co-)create a roadmap; ◦ Co-develop coalitions, networks or platforms bringing people together around a shared concern or goal; ◦ Support actors to develop a transition agenda; ◦ Create financial and institutional incentives and regulations. Such activities might be documented through or materialize as roadmaps, strategic action plans, covenants, memorandum of understanding, experimentation portfolios, etc.

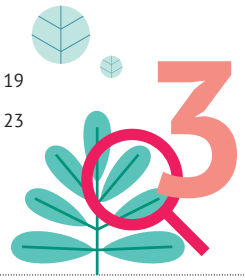
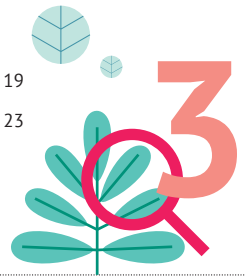


TABLE 3. TYPES OF GOVERNANCE ACTIVITIES - CONTINUED

GOVERNANCE ACTIVITY	DEFINITION AND EXAMPLES
Operational	Operational activities focus on the short-term and involve initiating experiments or projects, and mobilising actors. Such activities often are driven by individual ambitions, entrepreneurial skills, or promising innovations. They show that alternatives are already achievable in today's world. **Examples of activities:** ◦ Develop iconic or exemplary projects; ◦ Create (institutional) space for experiments; ◦ Support frontrunner initiatives to connect with each other and other societal actors; ◦ Support actors (e.g. civil society), to set up pilot projects and activities and to develop organisational, administrative, and financial capacities. Such activities might be documented through or materialize as actual projects, pilot activities, policy measures, etc.
Reflexive	Reflexive activities relate to monitoring, assessing and evaluating ongoing transition interventions. These activities include all processes of learning throughout the involvement of a specific transition program, project or activity. **Examples of activities:** ◦ Create learning programmes; ◦ Set up project evaluations; ◦ Include a dedicated person organising internal learning; ◦ Encourage the habit of evaluating, reflecting and learning from activities; ◦ Organise meetings with colleagues to explicate and share insights and learnings. Such activities might be documented through or materialise as learning sessions, learning agendas, 'failing forward nights', evaluation frameworks, etc.

BOX 4. THE FOUR LEVELS OF GOVERNANCE TOOL FILLED IN BY THE TRANSITION TEAM OF THE CITY OF VALENCIA

LEVEL OF GOVERNANCE ACTIVITY	WHICH GOVERNANCE ACTIVITIES ARE ALREADY TAKING PLACE IN THE SYSTEM YOU DEFINED?
Strategic	◦ Climate Emergency declaration. ◦ Valencia Changes for the Climate and Sustainable Mobility Fair. ◦ SECAP update in a collaborative way with all the City Council departments involved to have a realistic and agreed roadmap of mitigation and adaptation to the climate change. ◦ [...]
Tactical	◦ Energy Transition Working Group within the City Council departments to update and agree on a Roadmap towards mitigation and adaptation to climate change. ◦ New regulatory and legislative framework at national level. ◦ Revision and update of local administrative and regulatory procedures [...] ◦ Alliance for a Sustainable City: workshops on energy transition, renaturalisation of the city and healthy city. ◦ Collaboration with local energy cooperatives. ◦ [...]
Operational	◦ Local Energy Office to inform and assess the citizens in relation to energy transition. ◦ Promotion of the first local energy communities with direct collaboration of the City Council, promoting the projects and giving the municipal roof. ◦ [...]
Reflexive	◦ Energy Coordination Group formed by City Council, Foundation Valencia Climate and Energy, Foundation Las Naves, University; ◦ App 'Our City Our Energy' that monitors the municipal energy consumption (electricity, gas, water). ◦ [...]



ACTOR ANALYSIS

The actor analysis aims to identify the most relevant actors in the system, how they relate to each other and to the system. It provides an overview of who plays what role in a particular system, and in the envisaged transition. The actor analysis is going to be fundamental when you will organise participatory transition settings (e.g., a transition arena). For such settings you will have to understand what actors to engage and for which kind of role or activity.

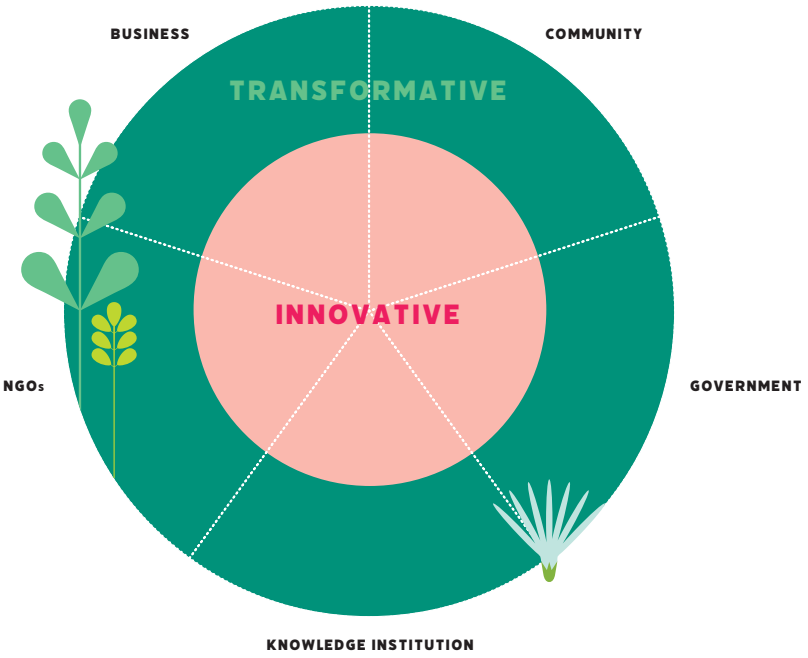
There are different methods that can be used to conduct an actor analysis. Actor analysis can be done from behind a desk or as part of a workshop or focus group with multiple stakeholders. To better understand a system, it is most fruitful to conduct an actor analysis across departments within a local administration and, possibly, inviting external actors such as civil society, business, academia, and knowledge institutions in a participatory workshop. Below we have included a few tools to conduct the actor analysis.

4

4.1 THE POWER-DOMAIN-MAPPING

PURPOSE: To support practitioners to map actors according to two criteria: organizational background and the kind of power they are exercising.

FIGURE 5. POWER-DOMAIN-MAPPING



SOURCE: Adapted from Appendices for Urban Transition Management Manual - Roorda, C., Wittmayer, J., Henneman, P, Steenbergen, F. van, Frantzeskaki, N., Loorbach, D. (2014). Transition management in the urban context: guidance manual. DRIFT, Erasmus University Rotterdam. https://drift.eur.nl/app/uploads/2016/11/DRIFT-Transition_management_in_the_urban_context-guidance_manual.pdf

DESCRIPTION

Through the Power-Domain-Mapping, you map actors according to the domain they are active in (see Figure 5), as well as the kind of power they exercise (see Table 4). This actor analysis combines power-mapping with distinguishing between organisational backgrounds.

ACTOR ANALYSIS

INSTRUCTIONS

1. Provide to the participants a canvas representing Figure 5 (see also Appendix 5.6).
2. Explain the different types of power as described in Table 4.
3. Ask participants to reflect on the system they are focusing on and think about the different types of power.
4. Ask participants to represent each actor of their system with a dot. The size of the dot indicates the impact of a given actor. If an actor exercises more types of power at the same time, multiple dots can be connected.
5. Ask participants to reflect on the visual representations of the type of power exercised by the different actors. You can ask guiding questions such as: What are the different types of power exercised by the actors in your system? How is the power exercised? How can these types of power be influenced?

TIPS & EXPERIENCES

- This exercise can be conducted in groups or also individually.
- It is better to use this tool when participants have already a basic understanding of transition governance principles and main concepts.

REFERENCES & RESOURCES

- Avelino, F. (2011) Power in transition. Empowering discourses on sustainability transitions. Rotterdam: Erasmus University: https://repub.eur.nl/pub/30663

TABLE 4. TYPES OF POWER

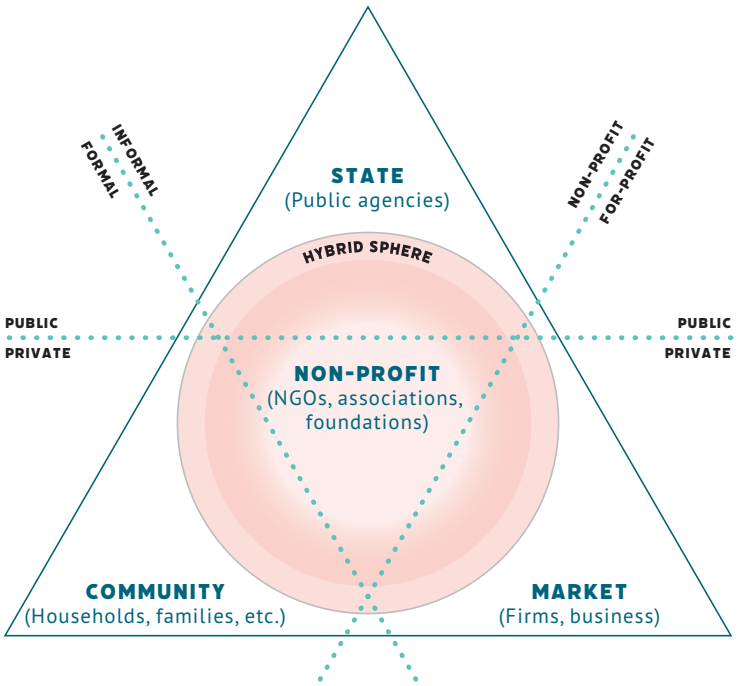
TYPE OF POWER	DEFINITION	TRANSITION NOTIONS
Innovative	**... capacity of actors to invent and create new resources**	Niches
Re-inforcive	**... capacity of actors to reinforce and reproduce existing institutions and structures**	Regimes
Transformative	**... capacity of actors to invent and develop new structures and institutions**	Niche-regimes
Systemic	**... collective capacity of actors to shape (reproduce or challenge) macro-trends**	Landscape

SOURCE: Avelino, 2011.

4.2 THE MULTI-ACTOR PERSPECTIVE (MAP)

PURPOSE: To map stakeholders in different sectors and their institutional logics. It also helps to reflect on the interactions and interconnections among the stakeholders in a particular system.

FIGURE 7. MAP TOOL



SOURCE: Avelino & Wittmayer, 2016.

DESCRIPTION

The Multi-actor Perspective (MaP) distinguishes among four spheres: state, market, community, and third sector/not-for-profit (See Figure 7). It allows you to group actors at different levels:

- Group level (Figure 8), to reflect on the collective role of (coherent) groups of people (e.g. organizations, associations, etc.);
- Individual level (Figure 9), to reflect on the role that each individual plays in different sectors in relation to sustainability transitions.

For example, in the case of the state, adult individuals are not only citizens, but they are also voters and taxpayers. In addition, market logics are not only formed by companies or producers, but also by individual consumers and clients.

INSTRUCTIONS

In case you would like to use the tool as part of a workshop or multi-stakeholder session, you can follow the following steps:

1. Give the participants of your workshop canvases representing the MaP (See Appendix 5.7);
2. Divide the participants into small groups;
3. Give some time to the participants to map 1) the group roles and/or 2) their individual role in the MaP.
4. Ask the participants to share in their groups what they have learnt from the exercise.
5. Facilitate a final plenary debrief. For instance, you can ask participants how they will put into practice what they have learnt as a result of the tool.

TIPS & EXPERIENCES

- When conducting this mapping exercise, you should try to be specific and insert the exact names of the organisations and individuals of each sector that are related to the system you have demarcated.
- The best way to use this exercise is in small groups of 2-5 people.

REFERENCES & RESOURCES

- Avelino F. & Wittmayer, J. M. (2016) Shifting Power Relations in Sustainability Transitions: A Multi-actor Perspective, Journal of Environmental Policy & Planning, 18:5, 628-649, DOI: 10.1080/1523908X.2015.1112259
- Avelino, F., Dumitru, A., Longhurst, N., Wittmayer, J., Hielscher, S., Weaver, P., Cipolla, C., Afonso, R., Kunze, I., Dorland, J., Elle, M., Pel, B., Strasser, T., Kemp, R., and Haxeltine, A. (2015) Transitions towards new economies? A transformative social innovation perspective (TRANSIT working paper 3), TRANSIT: SSH.2013.3.2-1 Grant agreement no: 613169. http://www.transitsocialinnovation.eu/resource-hub/transitions-towards-new-economies-a-transformative-social-innovation-perspective

4.3 THE SOCIAL NETWORK ANALYSIS (SNA)

PURPOSE: To track and understand social networks & relationships at a variety of levels in a certain system. It also assists in creating a better understanding of the social fabric you are operating in.

DESCRIPTION

A social network is made of actors that are connected by specific types of interdependencies, such as friendship, common interest, financial exchange, common beliefs, knowledge, ethnicity, etc. The mapping and categorisation of such interdependencies gives an overview of actors in a certain system and the (type of) relations between them. A social network analysis can help answering questions such as: who is the most influential or connected to the most individuals? And who acts as a bridge between different parts of the system?

INSTRUCTIONS

1. Define your focus. In completing a network analysis, it is beneficial to set your focus. This will involve considering various elements of the analysis.
2. Decide what data you will use. Social network analysis can be applied to any data that highlights relationships between things (e.g., individuals, objects, events, etc.).
3. Collect data.
4. Analyse your findings.
5. Validate your findings. Examples of the types of questions to ask include:
   - Do the findings match what is known?
   - Is there anything that seems unusual?
   - Can any unusual results be explained by issues with the data

TIPS & EXPERIENCES

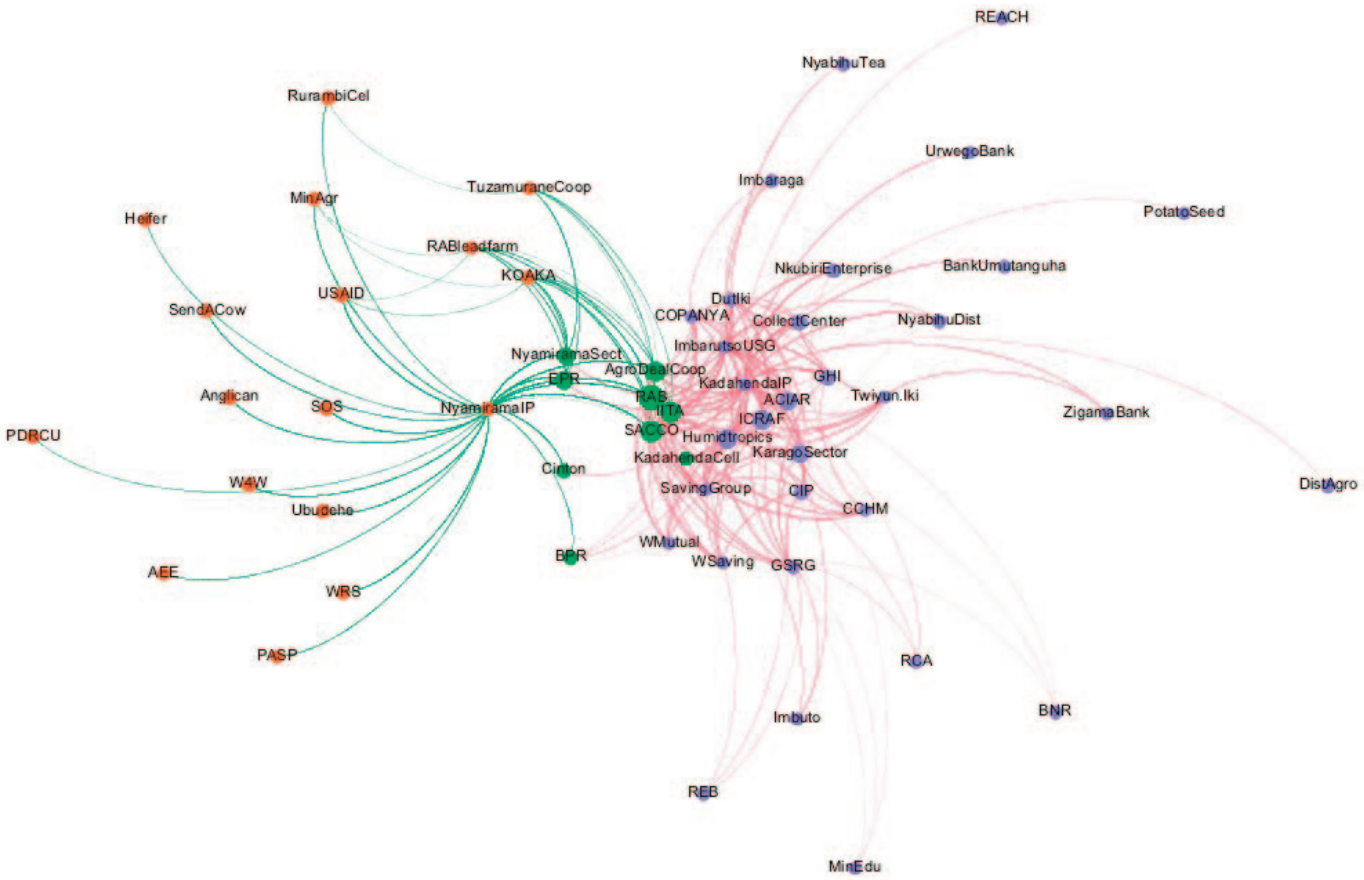
- There are a variety of tools you can use to conduct SNA;
- SNA can be used in groups or also individually.

REFERENCES & RESOURCES

- How to get started with social network analysis: https://towardsdatascience.com/how-to-get-started-with-social-network-analysis-6d527685d374

ACTOR ANALYSIS

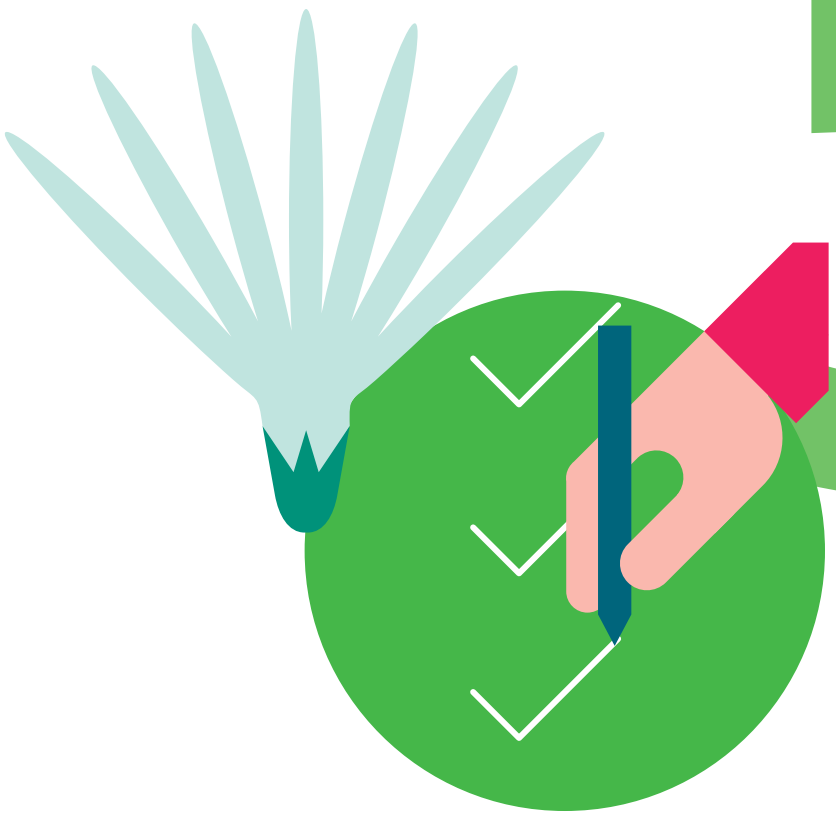
FIGURE 6. SOCIAL NETWORK ANALYSIS IN FAO, 2017, REPORT ON RWANDA AGRICULTURAL INNOVATION SYSTEM



SOURCE: FAO, 2017.

ACTOR ANALYSIS

5



APPENDIX

5.1 THE SYSTEM DEMARCATOR

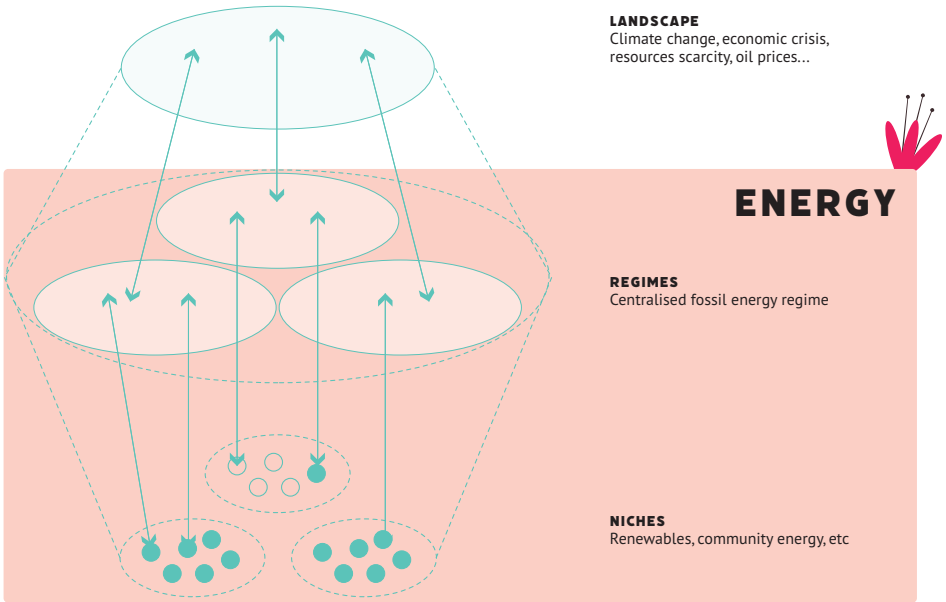
BOUNDARY	DESCRIPTION
Geographic boundaries	
Sectoral boundaries	
Institutional boundaries	

5.2 THE UNCOVERING SYSTEMS TOOL

TOOL	DESCRIPTION
Characterising the structures • What are the different governance approaches, institutional frameworks and policies related to your system? • What infrastructures, economic, physical, regulatory, implicit rules and networks are in place?	
Characterising the cultures • What are the most common perspectives and values regarding your system? • Do people consider using a certain type of alternatives? • Are people aware of sustainable alternatives regarding your system?	
Characterising the practices • What are the most common practices and behaviors in your system? • What are the daily routines and habits in your system? • What are the alternative actions, behaviors and practices that are emerging in your system?	

5.3 THE MULTILEVEL PERSPECTIVE TOOL - SUPPORT FOR FACILITATION

MULTI-LEVEL PERSPECTIVE APPLIED TO THE ENERGY SYSTEM



TOMORROW

SOURCE: Geels, 2005.

LEVEL	
LANDSCAPE Autonomous factors or "trends" in the system influencing both niches and regimes.	
REGIME The dominant structures, cultures and practices.	
NICHES The alternative structures, cultures and practices (so-called spaces for innovation).	

TOMORROW

THE MULTILEVEL PERSPECTIVE TOOL - SUPPORT FOR FACILITATION

LANDSCAPE

Definition: the landscape-level includes trends or changes in the broader context that have consequences for transitions. Examples are long-term developments like urbanisation, industrialisation, demographical changes, macro-economic fluctuations, climate change, geopolitical tensions, etc

Questions:

- What are the major, important, large scale societal changes happening that will affect the system? Think about physical, technological, social, economic and governance changes.
- What are possible rapid and unexpected events like shocks such as climate change, tsunami, earthquakes, COVID-19 that can severely influence the system?
- What are alternative overarching world views, paradigms and values?

REGIME

Definition: the regime-level refers to all dominant structures, cultures, and practices that provide stability and reinforce the current system. It is basically, society's "comfort zone" or "status quo". This level includes e.g., the systems most common practices, regulations, infrastructures and policies.

Questions:

- What is the status quo of your system?
- What are the dominant structures, cultures and practices of your system?
- What are the most common cultures and practices in your system?

NICHES

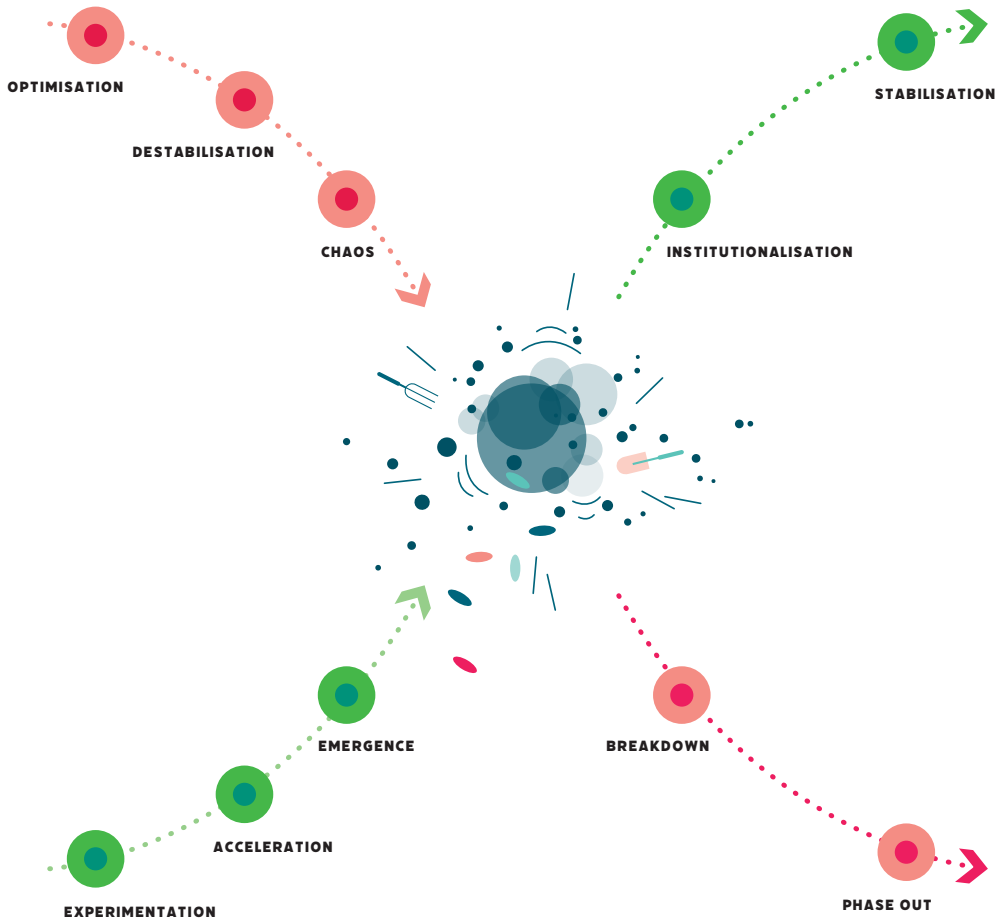
Definition: the niche-level refers to the alternative structures, cultures and practices that have the potential to disrupt the current status quo of a system. These niches often are initiated on a (trans)local scale where new initiatives, innovations or movements are emerging and new technologies, approaches or methodologies are tested in real life contexts.

Questions:

- What are emerging alternatives (niches) supporting a change of the system?
- How are (local) groups of organized citizens mobilizing and contributing to energy transition (e.g., energy cooperatives, active community groups, local initiatives, etc.)?
- Are there any innovations in the municipality of other institutions or organisations? If so, how are operating?
- How are (social) enterprises and other businesses contributing to the energy transition in your city?

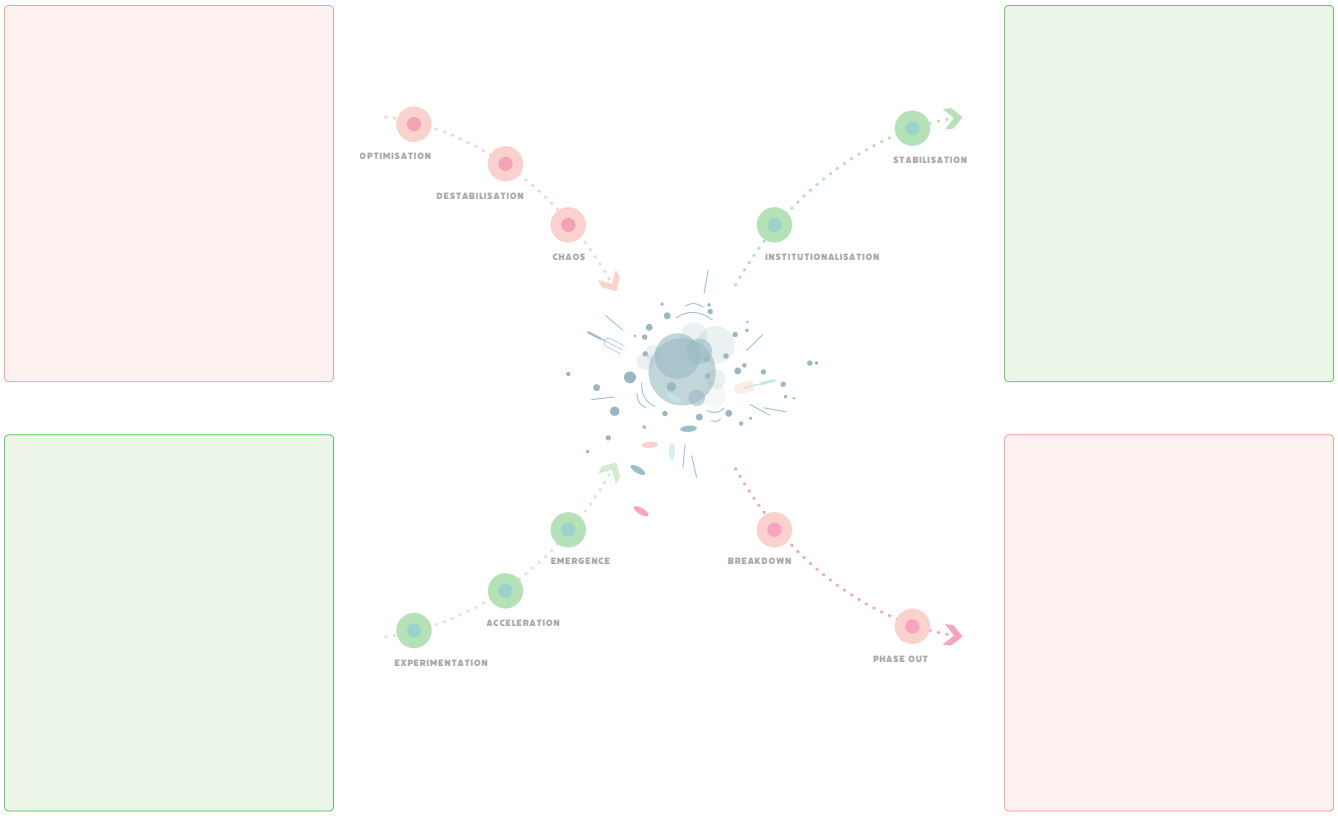
5.4 X-CURVE WORKSHEET

X-CURVE MODEL



SOURCE: image from Silvestri et al. 2022, based on Loorbach, 2007.

EXAMPLE OF AN X-CURVE MODEL WORKSHEET



TOMORROW

SOURCE: image from Silvestri et al. 2022, based on Loorbach, 2007.

APPENDIX

X-CURVE WORKSHEET

Main purpose/need:
Main system need:

EXNOVATION: SYSTEM DEMANDS	DO YOU RECOGNIZE THESE DEMANDS IN YOUR SYSTEM (E.G. CITY, NEIGHBORHOOD, ETC.)? IF SO, HOW?
Optimisation Overall demand: Waking up the system	
Raising awareness about need for change.	
Building a common narrative with all city actors: creating a new story of change and empowerment.	
Finding a sense of direction for the city administration/ government: knowing where your city wants to head to.	
Other.	
Destabilisation Overall demand: Joining forces and clear direction	
Finding political commitment to adjust directions and aims of the process of change	
Reorienting law, policies, contracts, financial flows and processes to correspond to adjusted course: what needs to be built up and what needs to be dismantled?	
Create a transition roadmap and operationalise it. Reflect on how to get there: knowing what is needed for transformation and what the steps are to get there.	
Create a sense of shared strategy and momentum by forming coalitions and facilitating knowledge exchange.	
Invest in anticipating inequalities and power inbalances that might be (re-)produced through transition.	

Go beyond green washing: incumbents need to be held accountable for their actions.	
Starting to think about phase out strategies already to navigate chaos.	
Building networks that can support the destabilisation.	
Anticipate on what needs to be institutionalised, while keeping different options open and ready, to be able to emerge and institutionalize later.	
Other:	

Chaos > Enforcing regulations for air quality and waste management

Break down Overall demand: Structurally getting rid of remnants that obstruct the transition and cannot be 'repurposed'

Starting to phase out institutions, law, policy, contracts, and processes that obstruct or limit the transition.	
Starting to phase out financial systems that obstruct or limit the transition.	
Starting to phase out infrastructures that obstruct or limit the transition.	
Establishing a new 'Business as usual' in people's lives.	
Other:	

Phase out Overall demand: Clear strategy and safeguarding people

Finding ways to deal with 'loss' culturally, economically and politically.	
Executing clear strategies to navigate the phase out dynamic in different sectors.	
Other:	

APPENDIX

X-CURVE WORKSHEET

INNOVATION: **SYSTEM DEMANDS**	**DO YOU RECOGNIZE THESE DEMANDS IN YOUR CITY? IF SO, HOW?**
Experimentation Overall demand: Creating space	
Empower (local) experiments and bottom-up initiatives: invest in successful niche building.	
Allow for spaces and projects that challenge the status quo.	
Other:	
Acceleration Overall demand: Joining forces and proof of concept	
Invest in niche expansion and embedding.	
Form networks of support for initiatives and innovations for mutual learning and support.	
Learn about different alternatives: what works, when, and how?	
Support experiments and bottom up initiatives to build their capacities (e.g. organisationally, administratively, financially).	
Support experiments and bottom up initiatives to replicate (e.g. in a different location or sector), to growing (e.g. gain new members), to partner (e.g. collaborate with local institutions and among each other), to have a more transformative impact.	
Other.	
Emergence > clearly promote and implement the MAAS concept	

Institutionalisation Overall demand: Embedding alternatives	
Implementation of legal and institutional changes.	
Institutionalising the new regime by detailing the implications of the transition throughout institutions, law, policy, contracts, and processes.	
Detailing the implications of the transition financial systems.	
Detailing the implications of the transition throughout the change of infrastructures.	
Adjusting accountability of new institutions and adjustments of the systems through checks and balances	
Other:	
Stabilisation Overall demand: Stabilising new configuration	
Responding to discrepancies and unforeseen side-effects of institutionalising of the new configuration.	
Checking how new societal structures affect social inequalities and protecting vulnerable societal groups.	
Reflecting on how the new structures are transforming the regime or reproduce similar patterns and problems	
Other:	

APPENDIX

X-CURVE WORKSHEET – Analysis done by the transition team of the City of Brasov

Main purpose/need: Better life of citizens (higher quality)
Main system need: Supporting the communication between the sectors. Creating the strategy of changing the mind-set of not getting out of their bubble. Breaking the cycle.

EXNOVATION: SYSTEM DEMANDS	DO YOU RECOGNIZE THESE DEMANDS IN YOUR CITY? IF SO, HOW?
Optimisation Overall demand: Waking up the system	
Raising awareness about need for change.	
Building a common narrative with all city actors: creating a new story of change and empowerment.	Promote and sustain communication between sectors and stakeholders. Raise awareness on the need of transition process (institutions and society).
Finding a sense of direction for the city administration/ government: knowing where your city wants to head to.	Bring together all local strategies under the transition process. Dismiss anything less. For one transition roadmapping.
Other.	Political and societal commitment to transition to a better future.
Destabilisation Overall demand: Joining forces and clear direction	
Finding political commitment to adjust directions and aims of the process of change	Clear land use planning regulations for a sustainable and inclusive expansion of the city.
Reorienting law, policies, contracts, financial flows and processes to correspond to adjusted course: what needs to be built up and what needs to be dismantled?	Apply just transition. Take into consideration energy poverty and all societal and cultural aspects: give a voice, empower, educate them, give proper subsidies, involve stakeholders.
Create a transition roadmap and operationalise it. Reflect on how to get there: knowing what is needed for transformation and what the steps are to get there.	Sustain the created coalitions and shift their subjects of discussions based on the newly appeared issues, innovations, projects.
Create a sense of shared strategy and momentum by forming coalitions and facilitating knowledge exchange.	Always adapt the transition roadmap accordingly to the monitoring process.
Invest in anticipating inequalities and power inbalances that might be (re-)produced through transition.	

Go beyond green washing: incumbents need to be held accountable for their actions.	
Starting to think about phase out strategies already to navigate chaos.	
Building networks that can support the destabilisation.	
Anticipate on what needs to be institutionalised, while keeping different options open and ready, to be able to emerge and institutionalize later.	
Other:	
Chaos > Enforcing regulations for air quality and waste management	
Break down Overall demand: Structurally getting rid of remnants that obstruct the transition and cannot be 'repurposed'	
Starting to phase out institutions, law, policy, contracts, and processes that obstruct or limit the transition.	
Starting to phase out financial systems that obstruct or limit the transition.	
Starting to phase out infrastructures that obstruct or limit the transition.	
Establishing a new 'Business as usual' in people's lives.	
Other:	
Phase out Overall demand: Clear strategy and safeguarding people	
Finding ways to deal with 'loss' culturally, economically and politically.	
Executing clear strategies to navigate the phase out dynamic in different sectors.	
Other:	

APPENDIX

X-CURVE WORKSHEET

INNOVATION: **SYSTEM DEMANDS**	**DO YOU RECOGNIZE THESE DEMANDS IN YOUR CITY? IF SO, HOW?**
Experimentation Overall demand: Creating space	
Empower (local) experiments and bottom-up initiatives: invest in successful niche building.	Empower initiatives supporting local production of energy for ensuring energy stability and independence. Support bottom-up initiatives operating at different levels in the city.
Allow for spaces and projects that challenge the status quo.	Recycling, reusing, reducing product consumption. Create an image and concept that follow the vision for the city.
Other:	
Acceleration Overall demand: Joining forces and proof of concept	
Invest in niche expansion and embedding.	Support active citizens groups and involve them in policy planning.
Form networks of support for initiatives and innovations for mutual learning and support.	Identify 'constructive' networks, initiatives and projects: enlarge, disseminate, collaborate.
Learn about different alternatives: what works, when, and how?	Sustainable tourism considering environmental protection (including biodiversity).
Support experiments and bottom up initiatives to build their capacities (e.g. organisationally, administratively, financially).	
Support experiments and bottom up initiatives to replicate (e.g. in a different location or sector), to growing (e.g. gain new members), to partner (e.g. collaborate with local institutions and among each other), to have a more transformative impact.	
Other.	
Emergence > clearly promote and implement the MAAS concept	

Institutionalisation Overall demand: Embedding alternatives	
Implementation of legal and institutional changes.	
Institutionalising the new regime by detailing the implications of the transition throughout institutions, law, policy, contracts, and processes.	
Detailing the implications of the transition financial systems.	
Detailing the implications of the transition throughout the change of infrastructures.	
Adjusting accountability of new institutions and adjustments of the systems through checks and balances	
Other:	
Stabilisation Overall demand: Stabilising new configuration	
Responding to discrepancies and unforeseen side-effects of institutionalising of the new configuration.	
Checking how new societal structures affect social inequalities and protecting vulnerable societal groups.	
Reflecting on how the new structures are transforming the regime or reproduce similar patterns and problems	
Other:	

5.5 FOUR LEVELS OF GOVERNANCE TOOL

THE FOUR LEVELS OF GOVERNANCE CANVAS

LEVEL OF GOVERNANCE ACTIVITY	WHICH GOVERNANCE ACTIVITIES ARE ALREADY TAKING PLACE IN THE SYSTEM YOU DEFINED?
Strategic Strategic activities focus on the long term and relate to structuring problems and envisioning alternative futures of a societal (sub-) system. Such activities are inherently normative, since they involve ethical debates regarding what consist as transformative change and what type of change is desirable.	
Tactical Tactical activities have a mid-term horizon and are related to building a movement of alternative networks, experiments and practices. The aim is to create a stimulating and cultivating context for people who are working on alternative ways of doing, thinking and organizing.	
Operational Operational activities focus on the short-term and involve initiating experiments or projects, and mobilising actors. Such activities often are driven by individual ambitions, entrepreneurial skills, or promising innovations. They show that alternatives are already achievable in today's world.	
Reflexive monitoring, assessing and evaluating ongoing transition interventions. These activities include all processes of learning throughout the involvement of a specific transition program, project or activity.	

FOUR LEVELS OF GOVERNANCE TOOL

TOMORROW

LEVEL OF GOVERNANCE ACTIVITY	DEFINITION AND EXAMPLES	WHICH STRATEGIC ACTIVITIES ARE ALREADY TAKING PLACE IN THE SYSTEM YOU DEFINED?
Strategic	Focuses on the long term and relates to structuring problems and envisioning new and different futures. This means all activities that relate to the "culture" of a societal (sub-) system: debates on norms and values, identity, ethics, sustainability, and functional and relative importance for society. Examples of activities: • Support critical reflections on existing problems, their interconnections and causes of persistency; • Facilitate envisioning processes and development of visions on desired futures; • Organise strategic discussions related to e.g., formulating long-term (collective) goals; • Develop long-term planning; • Support actors to collectively discuss and define important norms, values, ethics and understandings of sustainability.	
Tactical	Relates to the dominant structures (regime) of a societal (sub-)system. This means activities that trigger established patterns and structures, such as rules and regulations, institutions, organizations and networks, infrastructures and routines. Tactical activities have a mid-term horizon, and they are targeting the existing structures/ways things are organised and governed; can have has a physical aspect (e.g. changing infrastructures) Examples of activities: • (Co-)creating a roadmap; • Develop coalitions, networks or platforms bringing people together around a shared concern or goal; • Support actors to develop a transition agenda; • Create financial and institutional regulation.	

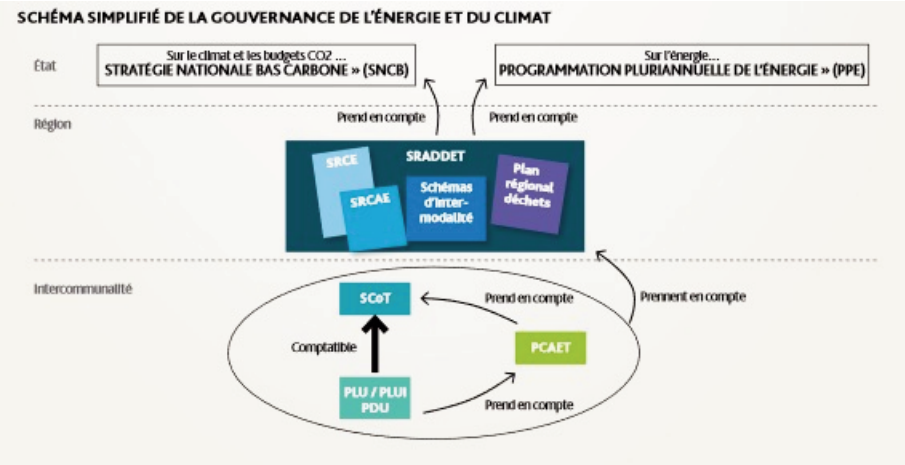
FOUR LEVELS OF GOVERNANCE TOOL - CONTINUED

LEVEL OF GOVERNANCE ACTIVITY	DEFINITION AND EXAMPLES	WHICH GOVERNANCE ACTIVITIES ARE ALREADY TAKING PLACE IN THE SYSTEM YOU DEFINED?
Operational	Involves initiating experiments and actions, mobilising actors, developing projects and activities and giving impulse for action. Operational activities often have a shorter-term horizon and are usually driven by individual ambitions, entrepreneurial skills, or promising innovations. Short term, showing alternatives are already possible today. Examples of activities: • Develop iconic or exemplary projects; • Create a policy space for experiments; • Support frontrunner initiatives to connect with each other and other societal actors; • Support actors (e.g. civil society), to set up pilot projects and activities and to develop organisational administrative, financial capacities.	
Reflexive	Relates to monitoring, assessment and evaluation of ongoing societal change processes (e.g. participatory or governance process), policies, activities and projects. These activities include all processes of learning throughout the involvement of a specific process, project or activity. Examples of activities: • Create learning programmes; • Set up project evaluations • Include a dedicated person organising internal learning • Encourage the habit of evaluating, reflecting and learning from activities • Organise meetings with colleagues to explicate and share insights and learnings • …	

FOUR LEVELS OF GOVERNANCE TOOL – Analysis done by the transition team of the City of Brest

LEVEL OF GOVERNANCE ACTIVITY	WHICH GOVERNANCE ACTIVITIES ARE ALREADY TAKING PLACE IN THE SYSTEM YOU DEFINED?

Strategic	◦ Metropolitan level :
	  ◦ Our SECAP includes a 2050 strategy and objectives
	  ◦ Urban center of the metropolis : between 2018 and 2019, participatory process to define a 2040 shared vision for this area called "Coeur de Métropole"
	  ◦ We mostly know public initiatives from the Metropole but there may be others
	◦ Regional level: between 2018 and 2019, "Breizh COP", a large consultation and engagement process to define Brittany's transition strategy and objectives. This process will be cross-sectoral (energy, economy, social, digital…) and will be initiated by the Regional council
	◦ National level: "Climate Citizen Convention" made of 150 citizens chosen randomly. Their goal is to propose regulatory measure to achieve 2030 objectives on GHG emissions reduction

Tactical	◦ On energy and climate issues, we have multiple levels of governance, according to the scope of intervention of each authority:
	  ◦ Metropole council (SECAP, urban planning)
	  ◦ Regional council (Regional strategy for urban planning and sustainable development)
	  ◦ National government (National low carbon strategy + pluriannual energy program)
	 
	
	◦ Co-creating new activities: Urban renewal process: Inclusive and participatory approach to renew 3 urban districts. Urban planning authorities are designing a new urban policy with the inhabitants, associations, institutional partners, businesses, etc.
	◦ Coalitions/Networks: some networks (eg. citizen climate network, private club on Sust.development, etc.) are existing and/or structuring but do they have an influence on the tactical level? They are rather focused on operational activities.

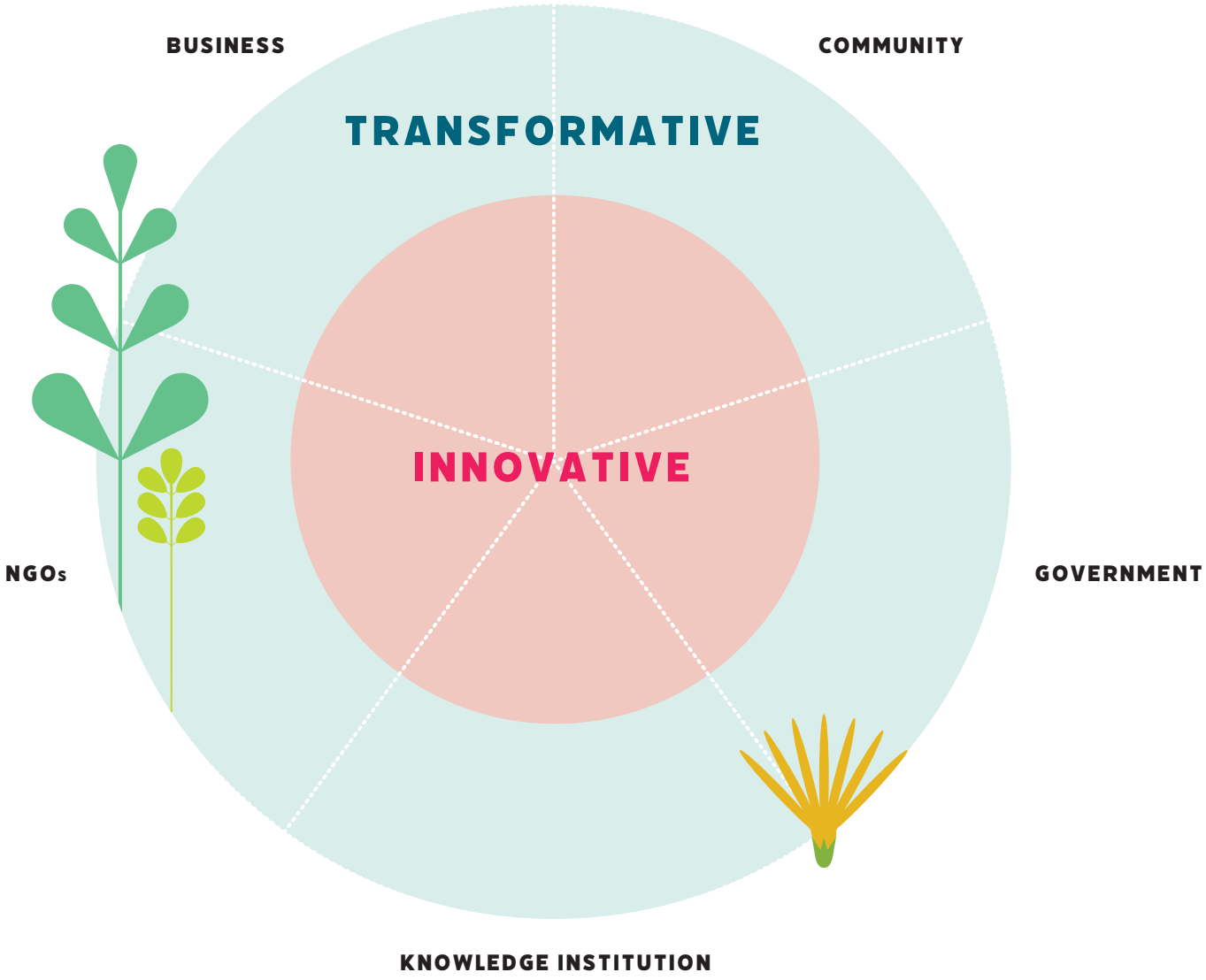
APPENDIX

FOUR LEVELS OF GOVERNANCE TOOL – Analysis done by the transition team of the City of Brest

LEVEL OF GOVERNANCE ACTIVITY	WHICH GOVERNANCE ACTIVITIES ARE ALREADY TAKING PLACE IN THE SYSTEM YOU DEFINED?
Operational	◦ Since 2016: structuring a citizen and association network about climate and transition (Climate Citizen Network, "Climate Clic" events ...). ◦ Since 2018: participatory budget in Brest. Citizens can propose ideas and vote for them. Selected ideas are financially supported by the city council (500 000 euros in 2019 for 9 projects, most of them relate to ecology). ◦ Since 2019: "Make a success of transitions in the economy", a local call for projects opened to businesses, associations, institutionals, who present ideas on transitions (digital, ecological, societal) ◦ Support from the Metropole to association who are experimenting new solutions (e.g., waste, agriculture...) ◦ Citizen initiative to invest in solar panels ("Ecoop"), now structured as a cooperative society ◦ Iconic place: "Les Capucins", third place, installed in a renovated factory, connected to public transports (including an urban cable car), connected to a smart grid, solar panels on the roof and the urban heating system. The place is frequently used for public events, such as the "Climate Clic" events. ◦ ...
Reflexive	◦ Internal evaluation of the SECAP within the project core team + annual evaluation of the action plan. ◦ Many awards and norms include an evaluation process (Cit'ergie, equivalent of European Energy Award; award for our Urban Heating Network; ISO 50001). ◦ Sustainable days for the Metropole staff. ◦ No dedicated staff or program to organise internal learning about our SECAP.

5.6 THE POWER-DOMAIN-MAPPING

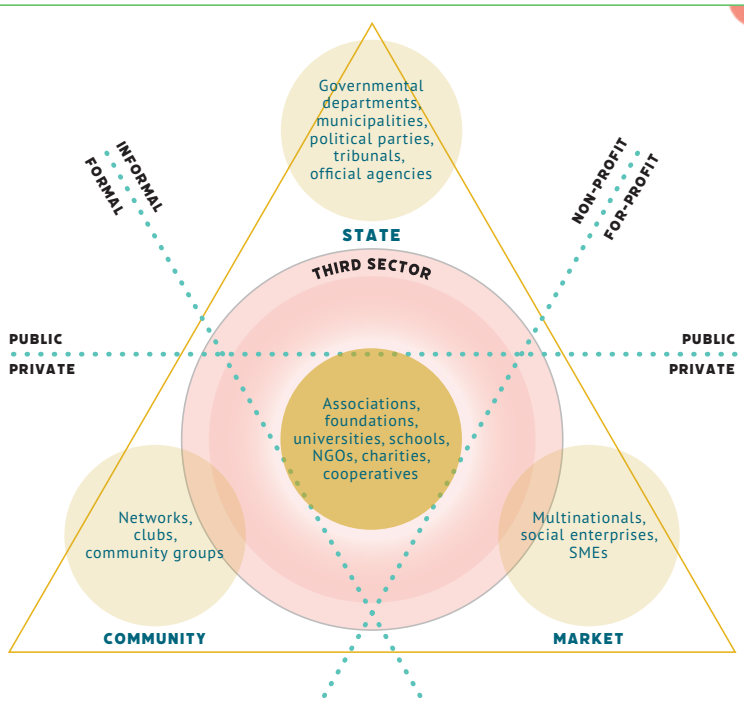
POWER-DOMAIN-MAPPING



SOURCE: Adapted from Appendices for Urban Transition Management Manual - Roorda, C., Wittmayer, J., Henneman, P, Steenbergen, F. van, Frantzeskaki, N., Loorbach, D. (2014). Transition management in the urban context: guidance manual. DRIFT, Erasmus University Rotterdam. https://drift.eur.nl/app/uploads/2016/11/DRIFT-Transition_management_in_the_urban_context-guidance_manual.pdf

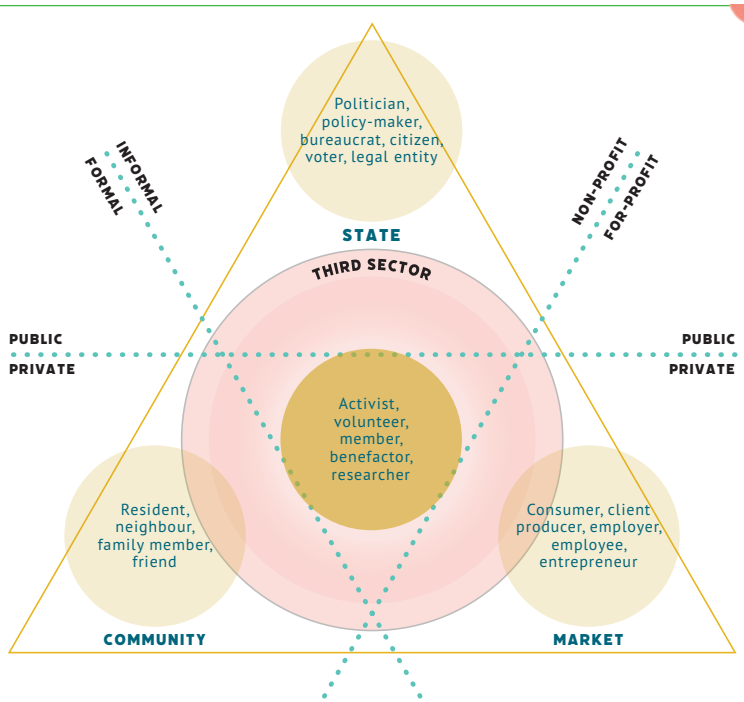
5.6 THE POWER-DOMAIN-MAPPING

MAP: GROUP ACTORS



SOURCE: Avelino & Wittmayer, 2016/

MAP: INDIVIDUAL ACTORS



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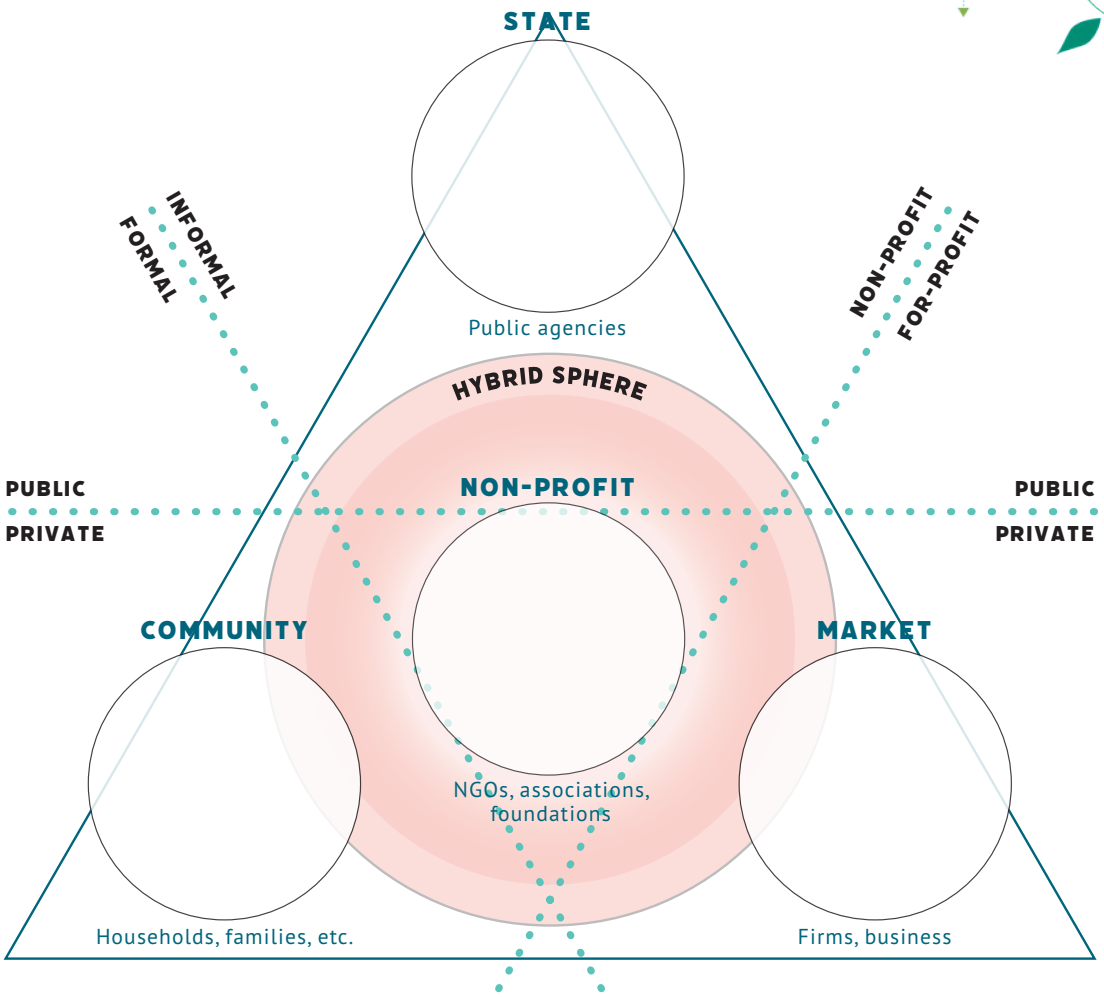
MAP CANVAS



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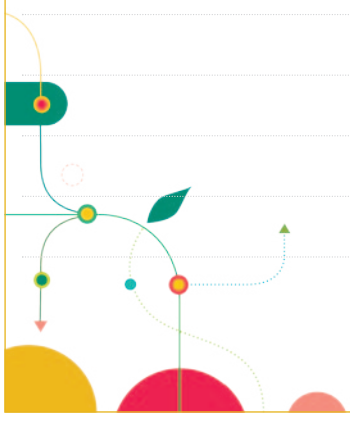

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“Europe, the first climate-neutral continent in the world by 2050.”

URSULA VON DER LEYEN, President of the European Commission

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