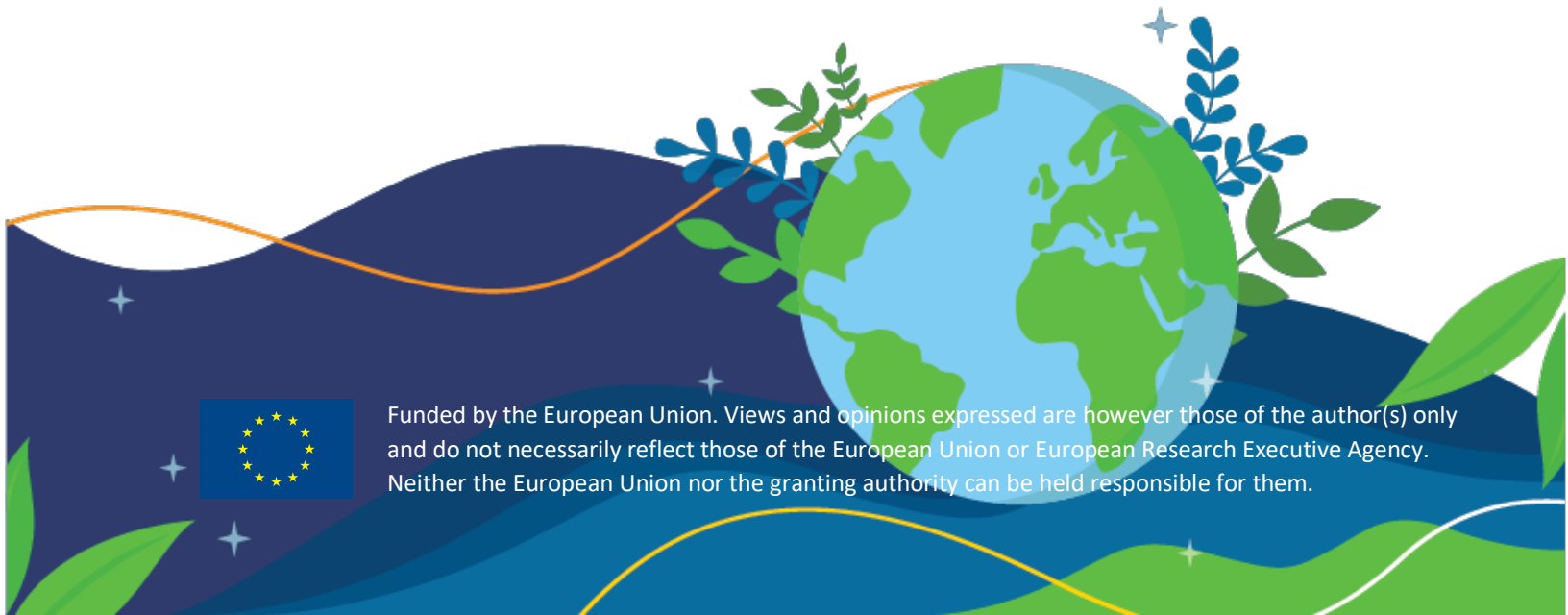
CO-SUSTAIN

Pathways for CO-creation between local authorities and collective actions for a SUSTAINable transition

Grant Agreement n° 101132467

Cross-case comparative analysis of the CO-SUSTAIN case studies and deliberation processes

Deliverable 4.2 DRAFT



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Main author(s)	Andrea Taffuri, Valeria Marina Borodi, Alessandro Sciullo (UNITO) Maare Käis, Heppu Honkanen, Niina Kiviluoma, Matti Kojo (LUT) Kaire Holts, Anneli Kährik, Dagmar Narusson, Aet Annist, Bianka Plüschke-Altof, Karin Kallaste, Raul Steinberg (UT) Nathalie Spittler, Daniel Körner, Michael Klingler, Fiona Lilith Medea de Fontana, Jana Plöchl, Patrick Scherhaufer (BOKU) Laura Valdés-Sánchez, Arnau Quinquillà, Camila Navarro Canelas, Joana Mundó (ECO) Álvaro Sánchez Robles, Juan Carlos Osorio Aravena, Marina Frolova, Natalia Aguilar (UGR) Wit Hubert (IGSMiE PAN)

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DEC	Websites, patents filing, press & media actions, videos, etc.	
DATA	Data sets, microdata, etc.	
DMP	Data management plan	
ETHICS	Deliverables related to ethics issues	
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PROJECT ABSTRACT

In Western democracies, traditional institutional participation is on the decline while non-institutional participation has been increasing. Non-institutional participation for the climate transition often relies on a prefigurative approach, thus creating spaces to incubate alternative ideas and novel forms of political participation (niches). Empowering these forms of political participation to encourage niche innovations will provoke the radical yet necessary changes in the socio-technical system for a climate transition. The CO-SUSTAIN project seeks to address this opportunity for a democratic climate transition, by defining and testing new democratic pathways enabling local policymakers to support various and novel forms of political participation and empowering citizens to act for a sustainable transition.

To develop a better understanding of political participation linked to environmental, political and societal imperatives, CO-SUSTAIN will study 18 historic examples in 6 different European countries for each of the latent and manifest forms of political participation underlined by Ekman: involvement, civic engagement, formal political participation, and activism. It will use institutional ethnography and system mapping to understand the dynamics of the participation and its management, thus delivering best practices to stimulate and support political participation around these imperatives. These best practices will serve to define interventions for solution co-creation in 4 case studies, one for each form of political participation: involvement through Spanish energy communities, civic engagement through Food Solidarity in Turin (IT), manifest political participation through participatory processes promoted by the government in Northern Europe (EE, FI) and activism through the Lobau Bleibt social movement (AT). The outputs and outcomes of the deliberations will be assessed to draw conclusions for more democratic climate policymaking across Europe.

EXECUTIVE SUMMARY

This document is one of the final deliverables of the CO-SUSTAIN project. It compares the implementation and results of the six deliberation processes run in the six case studies of civic and political participation between November 2025 and June 2026: the regeneration of public space in Annelinn (Tartu, Estonia), resident participation in large-scale energy projects, starting from small modular reactors (Espoo, Finland), the activist campaign for the Westbahnareal (Vienna, Austria), the food solidarity system of Turin (Italy), an inclusive shared-energy network in El Raval (Barcelona, Spain) and an energy community in the Alpujarra (Órgiva, Spain). In doing so, it returns to the question formulated at the start of the project: under which conditions, and through which factors and dynamics, does participation produce which effects on democratic pathways to transition? In simpler terms: what happens, where, why, and with what results?

The comparison builds on the CO-SUSTAIN theoretical triangle: sustainability transition theory (the multi-level perspective, MLP, read together with social movement theory following Törnberg), political and civic participation (Ekman and Amnå's typology of latent and manifest participation and Tilly's theory of collective action) and participatory, deliberative and prefigurative democracy. It adopts a generalising approach, complementary to the case-specific Impact Assessment Framework of Task 4.1, and a context–mechanism–outcome (CMO) logic inspired by realist evaluation. The comparison is organised in three stages. Stage 1 compares the contexts in two steps: an MLP reading of the causal loop diagrams (CLDs) produced in the panels, which identifies the loops that stabilise the regime, those that challenge it, the dynamics within the niches and the connections across levels; and the partners' answers on collective action mobilisation, windows of opportunity, niche–regime interaction and transition pathways. Stage 2 compares the deliberation processes on six dimensions of implementation, coded from D3.1 and validated by all partners. Stage 3 compares outcomes on five dimensions, combining the Theories of Change (ToCs) with the evidence of D4.1 and of a workshop with all partners (7 October 2026).

The comparison of the contexts (Stage 1) shows that the stability of the regime rests less on open opposition to the initiatives than on political inertia, administrative constraints, organisational fatigue and forms of participation that do not redistribute power, and that bridging actors are present in every case. The six cases fall into three distinct patterns of interaction between niche initiatives and established regimes. In Turin and Barcelona (embedded niches), initiatives led by organisations and by the third sector work with a regime that acts as a partner or incorporates them, through dense networks of intermediary actors; their main risk is co-optation. In Vienna and Órgiva (contested niches), citizen-led initiatives encounter resistance from established decision-making authorities, which limits the opportunities for collaboration. In Tartu and Espoo (invited participation), the participatory processes are primarily initiated and controlled by regime actors, while niche initiatives are either externally stimulated or have yet to emerge.

The deliberation processes (Stage 2) took the form of researcher-facilitated stakeholder forums rather than mini-publics, and were not linked to formal decision-making processes. They largely reproduced the relations already in place: where the initiative was in conflict with the decision-holding regime, those regime actors did not take part. What mattered most was which part of the regime was present at the final joint panel, where niche and regime were meant to meet and where the role-playing game needed real counterparts. Five types of deliberative arena emerge from the comparison, each associated with a different scope of the Theory of Change.

The outcomes (Stage 3) are still emerging and mostly cognitive and relational: a more systemic understanding of the problem, its reframing in terms of justice, and greater mutual recognition and

trust among participants. Governance-related outcomes remain largely limited to proposals and to stronger cooperation between actors. Implementation has started only in Barcelona, where the initiative retains control over the proposed actions, which were designed with the involvement of regime actors. Compared with the historical examples studied in WP2, the case studies confirm the role of bridging actors, funding and legal frameworks, and show that the openness of the regime shapes the involvement of decision-making authorities in deliberation and varies across levels of government.

For the policy recommendations developed under Task 4.3, the comparative analysis suggests adopting context-sensitive approaches instead of a one-size-fits-all model. Key considerations include involving from the start the level of government that holds the relevant decision, building on existing interfaces and coordination bodies, linking participation to the planning cycle, supporting the material conditions of participation of grassroots organisations and vulnerable groups, and planning follow-up and implementation from the outset.

ABBREVIATIONS

Table 1: List of abbreviations

Abbreviation	Definition
AEC	Alpujarra Energy Community
CA	Comparative Analysis
CAI	Collective Action Initiative
CLD	Causal Loop Diagram
CMO	Context–Mechanism–Outcome
DP	Deliberation Panel (DP1, DP2, DP3: first, second and third panel)
EIA	Environmental Impact Assessment
IAF	Impact Assessment Framework
KoM	Kick-off Meeting
LP	Leverage Point
MLP	Multi-Level Perspective
PSM	Participatory System Mapping
SMR	Small Modular Reactor
ToC	Theory of Change
WoO	Window of Opportunity
WP	Work Package

1. INTRODUCTION

CO-SUSTAIN investigates how local policymakers and collective action initiatives (CAIs) can strengthen and co-create democratic pathways to a sustainable and inclusive transition. This deliverable compares the six CO-SUSTAIN case studies and the deliberation processes run in them between November 2025 and June 2026: the regeneration of public space in Annelinn (Tartu, Estonia), resident participation in large-scale energy projects, starting from small modular reactors (Espoo, Finland), the activist campaign for the Westbahnareal (Vienna, Austria), the food solidarity system of Turin (Italy), an inclusive shared-energy network in El Raval (Barcelona, Spain) and an energy community in the Alpujarra (Órgiva, Spain). The comparison does not ask which case performed best, but which combinations of context and process are associated with which kinds of effect. Applied to the deliberation processes, the overarching question of the project can be reformulated as follows: *under which conditions, and through which mechanisms, does participation produce which effects on democratic pathways to transition?*

To answer this question, in this deliverable the six CO-SUSTAIN case studies are compared to identify differences and similarities in the implementation and results of the deliberation panels, in order to detect common enabling factors and barriers, while taking into account the differences in the political and socio-cultural context of each case. The research process has three main objectives, pursued in three stages and whose design is inspired by the context–mechanism–outcome (CMO) approach of realist evaluation (Pawson and Tilley, 1997; Westhorp, 2014):

- *Stage 1 compares the starting conditions, i.e.* the six cases as socio-technical systems in transition;
- *Stage 2 compares the implementation* of the six deliberation processes, seen as democratic innovations;
- *Stage 3 compares the results* and relates differences in context and process to differences in outcomes, in order to identify configurations that can inform the policy recommendations of Task 4.3.

The deliverable sits between two other WP4 outputs. D4.1 assesses outputs and short-term outcomes case by case, through surveys, interviews, observation, focus groups, expert validation and impact stories; here, its evidence is used comparatively, as the outcome side of the CMO chain. Task 4.3 develops policy recommendations, to which the configurations identified here provide context-sensitive input.

The deliverable also differs from the comparison of historical examples carried out in WP2. WP2 compared historical initiatives, while D4.2 compares the deliberation processes that CO-SUSTAIN itself designed and ran (D3.1); Section 8.3 discusses what the case studies add to the WP2 findings.

Chapter 2 sets out the analytical framework and Chapter 3 the methodology. Chapter 4 introduces the six cases. Chapters 5, 6 and 7 present the three stages of the comparison: contexts, deliberation processes and outcomes. Chapter 8 crosses them and formulates CMO configurations. Chapter 9 summarises the main findings, the contribution of the deliverable, its implications for policy and practice, and its limitations.

2. ANALYTICAL FRAMEWORK

This chapter sets out the concepts that guide comparison. It starts from the theoretical framework adopted by CO-SUSTAIN at the outset of the project and formalised in the Research Guide (D1.1), which combines the multi-level perspective (MLP) on socio-technical transitions with a theory of collective action and a typology of political participation, and links them to the participatory methods used in the case studies (system mapping, Theory of Change, serious games). To these, the comparison adds a reading of the deliberation panels drawn from the literature on democratic innovations and a context-mechanism-outcome (CMO) logic that connects its three stages.

2.1 Closing the project cycle: back to the big question

D4.2 is one of the last analytical outputs of CO-SUSTAIN. At the start of the project, the consortium agreed on a theoretical approach and a methodology, later refined in the Research Guide (D1.1). The project was then organised as a cycle. WP2 studied eighteen historical examples of political participation in six countries (D2.2, D2.3[1]) and derived from them the design of the deliberative interventions. In WP3, deliberation panels were run in six case studies involving collective action initiatives and other public and private stakeholders (D3.1). WP4 assesses what these interventions produced (D1.3, Task 4.1), compares processes and outcomes (Task 4.2, this deliverable) and translates the results into policy recommendations (D4.3). Comparing the case studies therefore means going back to the question with which the cycle began, and asking what the six deliberation processes allow us to say about it.

That question is formulated in terms of democratic risks and opportunities associated with climate change and the ecological transition. In Western democracies, traditional institutional participation is declining while non-institutional participation is increasing (Dalton, 2008, 2022; Rojon et al., 2025); this non-institutional participation goes beyond resistance and protest and often relies on a prefigurative approach (Evans, 2021), creating spaces protected from mainstream views and practices in which alternative ideas and novel forms of political participation can be incubated. By empowering these forms of participation, CO-SUSTAIN sought to enhance the accountability of democratic governments and foster niche innovations that can contribute to the changes required by the climate transition. At the same time, low-carbon transitions produce winners and losers (Sovacool, 2021; Markkanen and Anger-Kraavi, 2019), their political feasibility depends on how social and energy justice are addressed (Patterson et al., 2018; Jenkins et al., 2016), and democracies struggle to reconcile the long-term horizon of climate policy with short electoral cycles and declining trust (Lindvall, 2021). A democratic transition is therefore not only a transition with more participation, but one in which participation is a vehicle of justice and of accountability.

At the beginning of the project implementation, this was further refined into an overarching question: under which conditions, and through which factors and dynamics, does participation produce which effects on democratic pathways to transition? For the purposes of the comparison, the question can be simplified into four sub-questions that structure the whole deliverable: **what happens, where, why, and with what results?** ***Where*** refers to the context in which participation takes place, i.e. the socio-technical system in which each collective action initiative (CAI) is embedded and the position of the CAI within it.

[1] D2.2 - Cross-case analysis of the triggers, management and impact of latent and manifest forms of political participation and D2.3 - Analysing best (and worst) practices to support and manage latent and manifest forms of political participation, D3.1. Results of deliberation panels, D1.3 Impact Assessment Framework, all available at https://co-sustain.eu/project-results/

What refers to the participatory process itself, here the deliberation panels that CO-SUSTAIN designed and ran.
Why refers to the mechanisms through which a given process, in a given context, produces certain results.
With what results refers to the outputs and outcomes of the process for participants, for the relations between them, and for the system.

This also clarifies what this deliverable does not do. It does not rank the cases, nor does it attempt to establish whether deliberation 'works' in general. Instead, the cross-case analysis considers the specific political and socio-cultural context of each case to better understand the dynamics of political participation at both the initiative and the system level. By identifying the social, economic, political and cultural factors shaping these dynamics, it provides a basis for context-sensitive policy recommendations rather than a one-size-fits-all approach. The aim is therefore to understand which combinations of context and process are associated with which kinds of effect.

2.2 The CO-SUSTAIN theoretical triangle

The theoretical approach of CO-SUSTAIN rests on three pillars (Figure 1):

(1) the theory of sustainability transitions, and in particular the multi-level perspective (MLP), read together with social movement theory (Törnberg, 2018);

(2) the literature on political and civic participation, combining Ekman and Amnå's (2012) typology of latent and manifest participation with Tilly's (1978) theory of collective action;

(3) the literature on participatory, deliberative and prefigurative democracy.

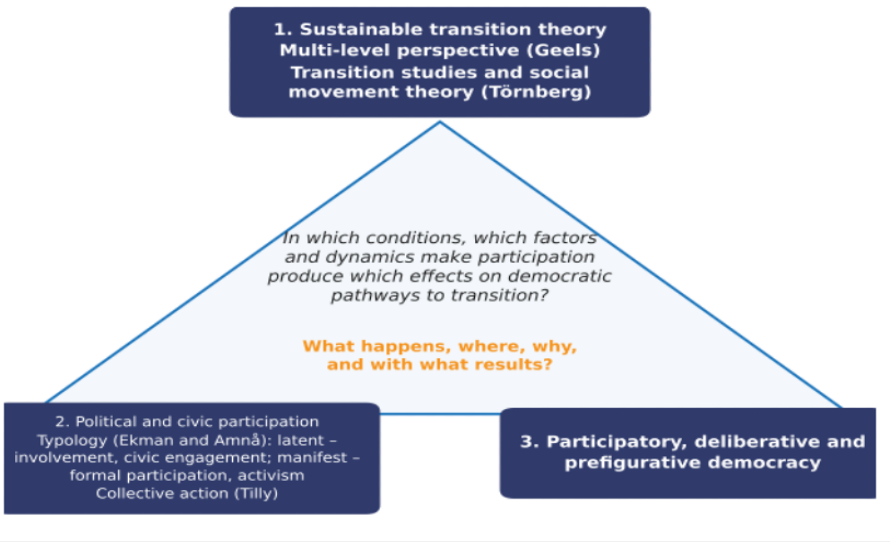


Figure 1: The CO-SUSTAIN theoretical triangle and the overarching question

Source: author's elaboration

The three pillars answer different parts of the overarching question. The first describes the system in which participation takes place and what a change in that system means. The second describes who participates, in which forms, and with which internal dynamics. The third describes the democratic arrangements through which participation can be connected to decisions. In the panels, the framework was put into practice through a set of methods combining participatory system mapping and the Theory of Change (Section 2.2.4).

2.2.1 Sustainability transitions and the multi-level perspective

The MLP is the overarching framework of the project. It understands transitions as non-linear processes that emerge from the interaction of three analytical levels (Rip and Kemp, 1998; Geels, 2002; Geels and Schot, 2007). *Niches* are protected spaces in which radical innovations, whether technological, organisational or social, are incubated by pioneers, entrepreneurs, activists or social movements (Kemp, Schot and Hoogma, 1998; Schot and Geels, 2008; Smith and Raven, 2012). *Regimes* are the semi-coherent sets of rules, technologies, infrastructures, markets, policies, knowledge and cultural meanings that stabilise existing systems through techno-economic, social, cognitive and political lock-ins (Geels, 2002; Smith, Stirling and Berkhout, 2005). The *socio-technical landscape* comprises the slow-changing trends and sudden shocks, such as wars, economic crises and pandemics, that put pressure on regimes and can open windows of opportunity for niche innovations (Geels and Schot, 2007). Strategic niche management adds that niches develop through three internal processes, the articulation of expectations, the building of social networks and learning, which can be supported or hindered by policy (Schot and Geels, 2008; Giganti and Falcone, 2022).

The MLP has been criticised for its narrow focus on technological innovation, its limited attention to politics, power and cultural meanings and its evolutionary and linear perspective (Geels, 2011, 2019a; Smith, Stirling and Berkhout, 2005; Markard, Raven and Truffer, 2012; Köhler et al., 2019). Two responses to these criticisms are central for this deliverable. First, the scope of transition theories has been widened to include social innovations: in CO-SUSTAIN the niches are social and political niches made of collective action and participatory practices, not technologies (Seyfang and Smith, 2007; Hargreaves et al., 2011). Second, transitions cannot be governed solely from the top but must involve a wide range of stakeholders, including networks of niche actors (Geels, 2019a), whose interactions with incumbent actors are shaped by power relations, cooperation, negotiation and conflict (Avelino and Wittmayer, 2016). Recent works connecting the MLP to social practice theory (Keller, Sahakian and Hirt, 2022) and to the analysis of agency across system boundaries (Hassink, Grin and Hulsink, 2018) is particularly relevant here, since several CO-SUSTAIN cases sit at the intersection of two systems: food and welfare in Turin, energy and social services in Barcelona and Órgiva, urban planning and public space in Vienna and Tartu.

Törnberg (2018) proposes a further step through the combination of transition studies with social movement theory. In the author's view, transition studies have paid little attention to the agency of social movements and to the conflicts through which transitions are contested, while social movement research has rarely looked at the socio-technical systems that movements try to change. The two traditions complement each other. Social movement theory offers concepts on mobilisation, framing, political opportunities and the organisation of collective action; transition studies describe the structures and multi-level dynamics in which collective action intervenes. From this perspective, collective actors are not confined to one level of the MLP: they can create and protect niches, put pressure on regimes through campaigns and political participation, and contribute to slow landscape changes such as the growing public pressure to act on climate. Self-help movements can work as innovation niches in which people experiment with new ideas and social practices (Hurwitz, 2016); energy communities can be experimental niches but also the product of governments' niche-opening policies (Wahlund and Palm, 2022); civic action can be mobilised in participatory processes promoted by public authorities; and social movements can contribute to landscape change (Hargreaves et al., 2011). The niches investigated in the six case studies are accordingly heterogeneous: a grassroots energy community, a hybrid network of organisations, a system of food solidarity initiatives, a community sphere fostered by a municipal initiative, an activist platform and, in Espoo, only potential

participatory practices. What they have in common is that collective action and participatory practices develop in them at the margins of institutionalised regimes, or in interaction with them.

To give the MLP an explicitly political and participatory reading, CO-SUSTAIN applies the framework of Kanger, Sovacool and Noorkõiv (2020), who identify six policy intervention points for sustainability transitions: (1) the creation of experimental niches; (2) the acknowledged cooperation of niches with climate governance, making space in the system for alternative solutions; (3–5) participation in the planning of system change, by eliminating conditions that impede the transition, alleviating its negative outcomes for the vulnerable and coordinating intersectoral conflicts; and (6) enforcing public pressure for change or mediating it towards the intersectoral structures of the system. All six points enable public participation, and all of them encompass potential roles for CAIs. We use them as a reading grid for the leverage points and Theories of Change produced in the deliberation panels (Section 7.6): they allow us to ask not only whether the panels identified places where the system could change, but at which point of the transition process those places are located.

Finally, Geels and Schot's (2007) typology of transition pathways (transformation, reconfiguration, technological substitution, de-alignment and re-alignment), together with their distinction between competitive and symbiotic niche–regime relationships, provides a vocabulary for describing where each case stands. Given the local scale and early stage of development of the six cases, we use this vocabulary loosely, to characterise the relationship between niche and regime at the time of the panels (symbiotic incorporation, partial integration, hybridisation, selective alignment with persistent conflict) rather than attempting to classify them into established transition pathways.

2.2.2 Political and civic participation: forms of participation and collective action

The second pillar describes the actors of the niche and the forms of their participation. It combines two contributions: a typology of political participation and a theory of collective action.

A typology of participation. CO-SUSTAIN selected its historical examples and its case studies according to Ekman and Amnå's (2012) typology of political participation, which distinguishes manifest participation, i.e. formal political participation (voting, party membership, contacting officials) and activism (legal and illegal extra-parliamentary action), from latent participation, i.e. involvement (attention and interest in politics and society) and civic engagement (voluntary action in the community, outside the formal political arena). Manifest participation targets political or social elites to influence outcomes; latent participation covers forms of engagement that are 'pre-political' but may become manifest under certain conditions. The typology responds to the transformation of citizenship norms described by Dalton (2008), from duty-based citizenship centred on voting to engaged citizenship that expands the repertoire of participation beyond institutions. The six case studies cover the typology: involvement through energy communities (Órgiva and Barcelona), civic engagement through food solidarity (Turin), formal participation through processes promoted by local government (Tartu and Espoo), and activism through a social movement (Vienna). This matters for the comparison because every form of participation implies a different relationship with institutions, and therefore a different expectation about the outputs and outcomes of the deliberation process.

Collective action. The second contribution is a theory of collective action, adopted from the COMETS project (COMETS, 2019) and refined in D1.1. Collective action is operationalised through Tilly's (1978) mobilisation model (Figure 2). Its internal dimensions are the interests, motivations and values of the members; the organisation of the group (typology of CAI, legal form, governance); the resources it can draw on (financial, organisational, relational, knowledge-based, time); and the process of mobilisation

through which resources come under collective control and are turned into collective action. Its external dimension concerns the opportunities and threats arising from the CAI's relation with its environment: external conditions, regulatory frameworks, supportive or hostile responses from institutions, and the power and social control exercised by incumbent actors. This model links naturally to the MLP. The internal dimensions describe the capacity of the niche; the external dimension describes its interaction with regime and landscape, so that the windows of opportunity of the MLP and the opportunities and threats of the mobilisation model can be read as two ways of naming the same contextual condition. Stage 1 of the comparison, which deals with the contexts of the six cases (Section 3.2.1), asked partners about both (Sections 5.4 and 5.5).

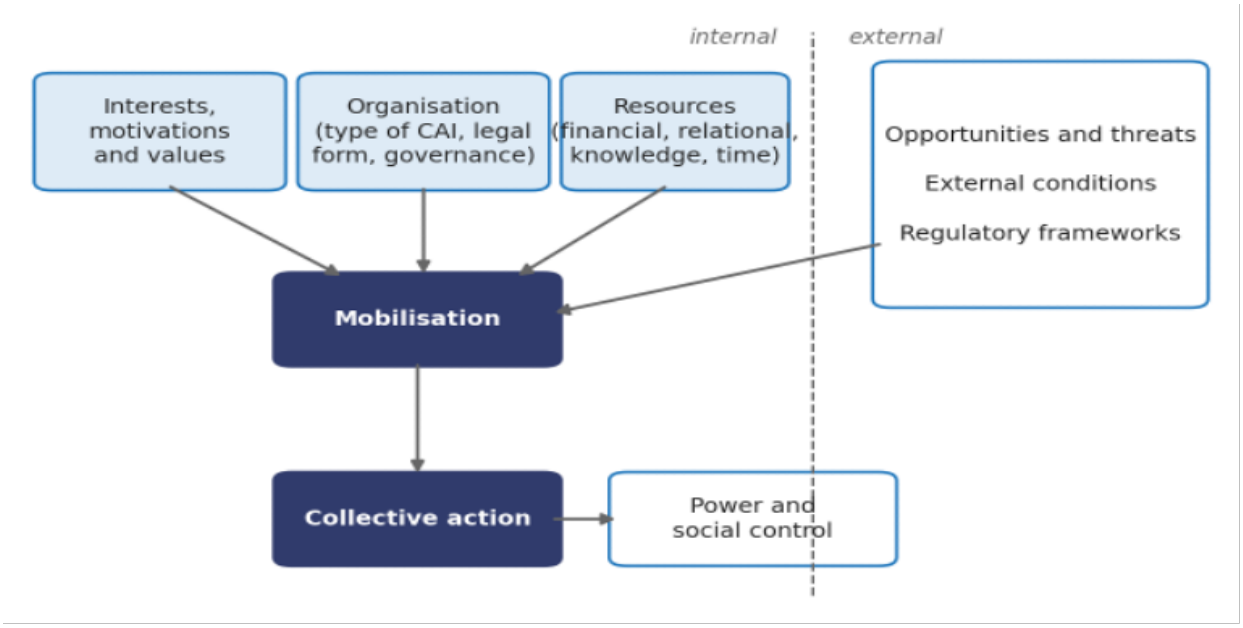


Figure 2: The collective action (mobilisation) model adopted in CO-SUSTAIN

Source: Tilly (1978)

2.2.3 Participatory, deliberative and prefigurative democracy

The third pillar concerns the democratic arrangements through which participation can be connected to decisions, by bringing together three strands of literature which are often discussed separately.

Participatory democracy asks how citizens can take part in decisions that affect them. Its classic reference, Arnstein's (1969) ladder, ranks participation by the degree of power transferred to citizens, from manipulation to citizen control. CO-SUSTAIN explicitly sought to move beyond this normative opposition between top-down and bottom-up participation. Mees et al. (2019) distinguish public participation, in which citizens contribute to policy-making that remains initiated and structured by government, from government participation, in which governments contribute to initiatives that are independently originated, organised and led by citizens and other non-state actors. Experiences in flood risk management (Edelenbos et al., 2017) and urban climate action (Chitsa et al., 2022) show that the shift from expert-led decision-making to stakeholder engagement has enabled citizen emancipation, but cannot yet be described as properly bottom-up. Carpentier (2016) suggests that the contrast between bottom-up and top-down is partly artificial and normatively driven, and that

participation should be analysed as power-sharing in decision-making, distinct from mere access to and interaction within a process; Collins and Ison (2006) propose to 'jump off Arnstein's ladder' and to see participation as social learning among interdependent actors. The consequence for CO-SUSTAIN is that power is inherent in participation, but multi-dimensional and fluctuating between participants during the process, so that inputs and outcomes vary with participants' agency and with contexts of action that are not limited to official, government-led arenas (Van Assche et al., 2020). The government's role should be examined not only as initiator and regulator, but also as facilitator and coordinator.

Deliberative democracy holds that collective decisions gain legitimacy when they result from inclusive, reasoned exchange among those affected (Bächtiger et al., 2018). Over the last two decades it has generated a family of democratic innovations, institutions designed to increase and deepen citizen participation in decision-making (Smith, 2009; Elstub and Escobar, 2019), and a 'deliberative wave' of mini-publics commissioned by public authorities (OECD, 2020), including many climate assemblies and juries (Willis, Curato and Smith, 2022). The CO-SUSTAIN panels share the deliberative ethos of these processes but differ from mini-publics in three respects: participants were selected purposively through the stakeholder analysis, as members of the organisations involved and on the basis of their roles and experience; niche and regime actors met separately before meeting together; and the process was convened and facilitated by research teams rather than by a public authority.

The CO-SUSTAIN deliberative process was designed drawing on the following theoretical perspectives, which also informed the dimensions guiding Stage 2 of the comparative analysis, i.e. the comparison of the deliberation processes conducted in the six case studies:

1) Fung's (2006) democracy cube compares participatory devices by who participates, how they communicate and decide, and how much authority their output carries.

2) Partisan forums (Hendriks, Dryzek and Hunold, 2007), in which participants bring organisational interests, are judged by whether relevant positions are present and able to engage rather than by statistical representativeness.

3) Invited and claimed spaces (Cornwall, 2004) distinguish spaces created by authorities or external agents from those that people create for themselves: the CAIs are claimed spaces, the panels invited ones.

4) The deliberative systems approach (Mansbridge et al., 2012) shifts attention from the single forum to its connections with the wider system, and coupling (Hendriks, 2016) names the links through which a forum's outputs reach decision-makers. Critical perspectives complete the picture: external and internal exclusion (Young, 2000), the agonistic critique of consensus (Mouffe, 1999), the micro-politics of facilitation (Moore, 2012; Escobar, 2019) and the representative claims made by organisations that speak for absent groups (Saward, 2010).

5) Prefigurative democracy, finally, refers to the strategies and practices through which activists try to build alternative futures in the present and to bring about political change without reproducing the social structures they oppose. CO-SUSTAIN focuses on non-institutional engagement beyond its oppositional forms, including prefigurative approaches (Evans, 2021), in which collective action enacts in the present the social relations it seeks to establish (Polletta, 2002). For the comparison, this is relevant in two ways. It explains why CAIs are treated as possible incubators of democratic practice, whose internal organisation (horizontal or hierarchical, inclusive or selective) is itself part of what contributes to a democratic transition. And it raises a question: whether the deliberation panels, as temporary protected spaces, could prefigure new kinds of niche–regime relations and thereby

produce social innovations (Gregg et al., 2020), or whether they reproduced the relations and power conditions already in place.

2.2.4 The methods of the deliberation panels: participatory system mapping and Theory of Change

Systems thinking links the theoretical triangle to the methods used in the panels. Participatory system mapping, using causal loop diagrams (CLDs), represents the feedback structure of a system: variables linked by causal relations of positive or negative polarity form reinforcing and balancing loops that generate the observed patterns of behaviour (Sterman, 2000; Barbrook-Johnson and Penn, 2022). Mapping with the 'problem owners' integrates diverse expertise and helps uncover the structures behind observed dynamics (D1.1); applied to transitions, it allows participants to make the interplay of niche, regime and landscape visible (Tourais and Videira, 2021). In CO-SUSTAIN, CLDs were built separately in two deliberation panels, one with niche and one with regime actors (DP1 and DP2), and merged in the final joint panel (DP3), so that niche and regime dynamics could be connected. Leverage points are places in a system where an intervention can produce wider change; Meadows (1999) ranks them from shallow parameters to deep paradigms, and Abson et al. (2017) group them into four realms (parameters, feedbacks, design and intent).

The Theory of Change (ToC) works backwards from a desired long-term outcome to the preconditions, intermediate outcomes and interventions needed to reach it (Weiss, 1995; Connell and Kubisch, 1998; Taplin et al., 2013). It is at once a way of thinking, a process of reflection and a product that communicates how change is expected to happen. Its known weakness, a tendency towards linear causality, is the reason why CO-SUSTAIN combined it with system mapping, following Wilkinson et al. (2021): the CLD supplies the feedback structure, and the ToC turns selected leverage points into pathways. Serious games, and in particular the role-playing game used in DP3 (Frolova et al., forthcoming), complement both tools by allowing participants to take the perspective of other actors and to test pathways against their constraints (Bakhanova et al., 2020; Fernández Galeote et al., 2021). In this deliverable, the CLD and the ToC are both outputs of the panels and objects of analysis: reading the CLD through the MLP shows how participants represented their system (Chapter 5), and reading the ToC through the MLP shows which levels and loops the pathways address (Section 7.6). Table 2 summarises how the four strands are used in the comparison.

Table 2: The four theoretical strands and their application in the comparative analysis

Strand	Key concepts and references	Stage	Role in comparative analysis
Sustainability transitions (MLP)	Niche, regime, landscape; lock-in; windows of opportunity; niche–regime interaction; transition pathways (Geels, 2002, 2011, 2019a; Geels and Schot, 2007; Smith and Raven, 2012; Köhler et al., 2019); six policy intervention points (Kanger, Sovacool and Noorkõiv, 2020); transition studies and social movement theory (Törnberg, 2018)	1 Context; 3 Outcomes	MLP labelling of the CLDs; typology of contexts; reading of leverage points and ToCs
Political and civic participation	Latent and manifest participation (Ekman and Amnå, 2012; Dalton, 2008); mobilisation model (Tilly, 1978)	1 Context; 3 Outcomes	Characterisation of CAIs; resources and organisation; niche capacity as outcome

Participatory, deliberative and prefigurative democracy	Public vs government participation (Mees et al., 2019); access, interaction, participation (Carpentier, 2016); social learning (Collins and Ison, 2006); democracy cube (Fung, 2006); partisan forums (Hendriks et al., 2007); invited and claimed spaces (Cornwall, 2004); coupling (Hendriks, 2016); prefiguration (Evans, 2021)	2 Implementation	Three lenses: Design, Practice, Coupling; typology of deliberative arenas
Participatory system mapping and Theory of Change	CLDs and feedback (Sterman, 2000; Barbrook-Johnson and Penn, 2022); leverage points (Meadows, 1999; Abson et al., 2017); ToC (Weiss, 1995; Connell and Kubisch, 1998); PSM and ToC combined (Wilkinson et al., 2021); serious games (Bakhanova et al., 2020)	1 and 3	Comparable representations of the systems; ToC read through the MLP

Source: D1.1; UNITO elaboration.

2.3 A CMO-inspired comparison

2.3.1 Building blocks: context, mechanisms and outcomes

The comparison adopts a CMO-like approach inspired by realist evaluation (Pawson and Tilley, 1997). In realist evaluation, interventions do not work in themselves, even when they are designed and applied in the same way: they offer resources that people may or may not take up, depending on social, institutional, organisational and political conditions. **The question is therefore not whether an intervention works, but what works, for whom, in what circumstances and why**. Explanations take the form of context–mechanism–outcome configurations: in a given context, an intervention triggers a mechanism, which produces an outcome (Pawson and Tilley, 1997; Westhorp, 2014). Following Dalkin et al. (2015), we distinguish the resources offered by the intervention from the reasoning and response of participants, which makes the mechanism observable through the way participants used, adapted or ignored what the process offered.

Realist evaluation is usually applied to programmes, policies or interventions. In our case, the intervention is the deliberation process, designed in D2.4 and implemented in WP3 (D3.1), and the three building blocks are defined as follows.

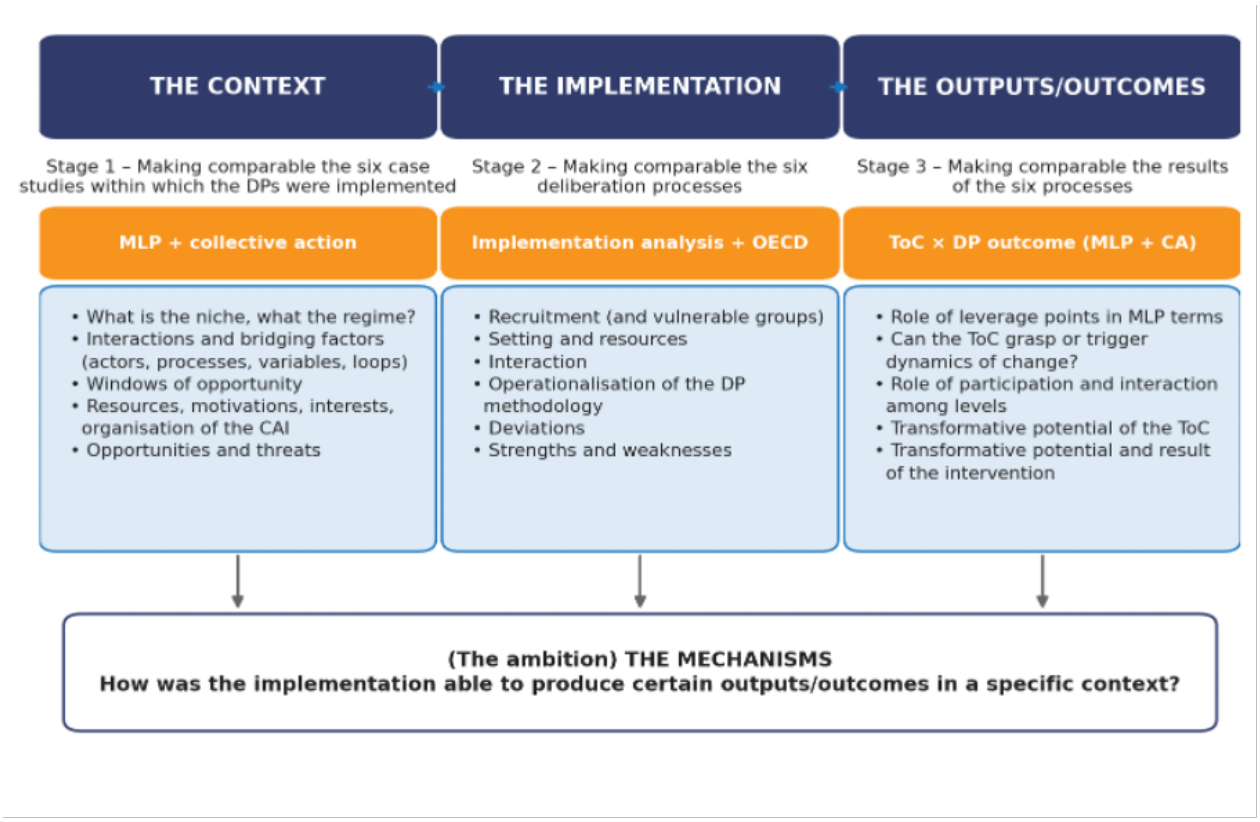
1) **Context** = the case study. The context is the configuration of the socio-technical system in which the CAIs and the panels were embedded, read through the MLP and the theory of collective action. It includes what the niche and the regime are, how they interact and which bridging factors connect them, which windows of opportunity are open or closing, and which resources, motivations, interests and organisation the CAI can rely on.
2) **Intervention** = the implementation process. The intervention is the deliberation process as it was designed and run, and the way participants responded to it: who was invited and who came (including vulnerable groups), in which setting and with which resources, how participants interacted, how the D2.4 methodology was put into practice, which deviations were introduced, and with which strengths and weaknesses.
3) **Outcomes** = ToC and the change in the participants' arena. The outcome side combines two elements: the Theory of Change produced in the panels, read through the MLP (which levels, loops and intervention points it addresses, and what its transformative potential is), and the changes observed in the arena of participants, in terms of action, interaction and awareness, as documented by the IAF in D4.1. The five outcome dimensions used in Stage 3 (Section 3.2.3) translate these two elements into a common grid.

The realist logic suits CO-SUSTAIN for three reasons. It matches the project's question, which asks under which conditions participation produces which effects rather than whether it works on average. It is consistent with the Theory of Change, itself a theory-based evaluation approach (Weiss, 1995), so that the programme theories built by participants can be compared with the configurations observed. And it accommodates the heterogeneity of the cases as the same design was implemented in contexts that differ in the nature of the niche, the stance of the regime and the window of opportunity, which is precisely the variation a CMO analysis needs.

2.3.2 The ambition: identifying mechanisms

Figure 3 summarises the overall design of the comparative analysis of the CO-SUSTAIN case studies. Three stages make comparable, respectively, the six contexts within which the deliberation processes were implemented (Stage 1), the six deliberation processes (Stage 2) and their results (Stage 3). Each stage has its own lens and its own guiding questions. The ambition of the comparison, however, lies in the link between them: the mechanisms, i.e. how the implementation of the panels was able to produce certain outputs and outcomes in a specific context. Mechanisms are not observed directly in any of the three stages; they are inferred by crossing them (Chapter 8).

Figure 3: The comparative analysis of the CO-SUSTAIN case studies: overview



Source: UNITO elaboration.

The comparison is configurational rather than variable-based. With six cases, we cannot isolate the net effect of any single factor. We look instead for combinations of conditions associated with characteristic patterns of outcomes, in the spirit of case-oriented comparative research (Ragin, 1987; Byrne and Ragin, 2009) and of typological theory (George and Bennett, 2005). The resulting CMO configurations are propositions that hold for these cases and can be tested elsewhere. They also provide the context-sensitive basis that the policy recommendations of T4.3 require.

2.4 IAF and CA: an integrated approach

WP4 approaches the outcomes of the deliberation panels through two exercises that run in parallel: the Impact Assessment Framework (IAF) of T4.1, whose results are reported in D4.1, and the comparative analysis (CA) of T4.2, reported here. The two exercises share one overarching question (*what happens, where, why, and with what results?*) and one objective: understanding what the deliberative interventions produced. They differ, however, in their research posture and, partly, in their data. Making this difference explicit is necessary both to avoid duplication and to clarify how the evidence of D4.1 is used in this deliverable (Table 3).

The IAF adopts a case-specific posture. It starts from the premise that processes and impacts vary case by case, and it does not need or expect a general understanding to emerge. It works in the field, without strong theoretical premises: its categories of change are partly grounded in what is observed, in the spirit of grounded theory, and its typical product is an impact story, an account of what changed for whom and through which events in a specific case. Its data are generated by the research teams during and after the panels: the access survey, pre- and post-panel surveys and interviews, observation notes, focus groups with participants and validation with external experts (see D1.3, available on the project website).

The CA, by contrast, adopts a generalising approach: it looks for aspects that can be compared across the case studies and builds categories that make their heterogeneity manageable, in order to understand the dynamics behind the differences. Most of its data are products of the deliberative process re-read through theoretical lenses: the MLP version of the merged CLDs for Stage 1; the implementation record documented in D3.1 and the materials discussed at the Barcelona consortium meeting of June 2026 for Stage 2; the ToCs produced in DP3 and part of the IAF evidence for Stage 3. The two approaches are complementary rather than mutually exclusive. While cross-case comparison risks overlooking the specificities of individual cases, case-specific assessments may produce recommendations with limited applicability beyond their original contexts.

Table 3: IAF and CA: similarities and differences

	Impact Assessment Framework	Comparative Analysis
Shared question	What happens, where, why, and with what results?	
Research posture	Case-specific: processes and impacts vary case by case; no general understanding needed or expected	Generalising: identify comparable aspects; abstract categories to make heterogeneity manageable; grasp common dynamics
Use of theory	Grounded: categories emerge from observation in the field	Theory-driven: MLP, collective action theory and implementation analysis used as an abstraction
Main data	Access survey; pre/post panel surveys and interviews; observation notes; focus groups; expert validation; impact stories, collected case by case	MLP-labelled CLDs elaborated by the consortium; D3.1 and the Barcelona workshop recording; partner validation templates; ToCs; Stage 3 workshop
Typical product	Impact story of each case	Typologies of contexts and arenas; CMO configurations across cases

Source: UNITO elaboration.

3. METHODOLOGY

3.1 The abstraction and categorisation engine

The six cases differ considerably in terms of socio-technical system (energy, food, urban space), forms of participation (ranging from involvement to activism), characteristics of the CAI (from grassroots initiatives to municipality-led processes, with no established initiative in one case), and national and political culture. Comparing such diverse cases requires a degree of abstraction and the identification of analytical categories that are broad enough to apply to every case, while remaining sensitive to the contextual differences that shape their dynamics.

The categories rest on three components, one for each stage of the comparison:

Stage 1 (Context) categories are defined by combining:

- the MLP, which makes the socio-technical systems comparable. Each factor of the merged CLDs is labelled as niche, regime (with its sub-regimes: policy, culture, economy and markets, industry and infrastructure, science and technology), niche–regime interference or landscape, and the feedback loops are identified within and across levels. This turns six participatory maps of very different systems into comparable representations. The same operation was used in WP2 to compare the historical examples (D2.3);
- collective action theory, which makes niche mobilisation dynamics comparable. The mobilisation model (Tilly, 1978) provides common questions about the resources, motivations, interests and organisation of the CAIs, and about the opportunities and threats they face, whether the CAI is an energy community, a network of food banks or a protest movement.

Stage 2 (Implementation) categories draw on implementation research (Hawe, Shiell and Riley, 2004) and on the OECD (2021) evaluation guidelines for representative deliberative processes. Each process is coded on the same six dimensions: framing and entry point; recruitment and composition, including vulnerable groups; setting and logistics; method operationalisation and deviations; interaction and facilitation; closure and feedback.

Stage 3 (Outputs and outcomes) categories combine the references of the first two stages with those of the IAF. They define the main effects of the deliberation process on participants (niche, regime and their interaction) and on the way the issue at stake was finally understood and represented (Theory of Change).

Every category simplifies, and this has a cost. A label such as ‘niche’ or ‘regime’ can hide the hybrid positions that several partners emphasised, and comparing factor counts across maps of different size and density is necessarily approximate. We have tried to contain this cost in two ways: by asking partners to validate every category applied to their case (Sections 3.2.1–3.2.3), and by using the categories to put questions to the case evidence rather than to score cases.

3.2 The analytical grid

The comparative analysis was jointly designed and organised with the consortium partners according to a three-stage process, involving the collection of inputs and feedback from the research teams at each stage, followed by a cross-stage synthesis. We adopted a structured, focused comparison (George and Bennett, 2005), in which the same questions are applied to each case, and a case-oriented, configurational logic (Ragin, 1987). The cases are similar in the intervention they received (the same deliberative process design, implemented within the same time window) and different in almost everything else (country, socio-technical system, form of participation, type of CAI). This allows us to ask what the same intervention did in different contexts, which is the question a CMO analysis requires.

The process followed the three-stage workflow summarised in Figure 3. For each stage, UNITO prepared a template (the Stage 2 template is reported in Annex A) and guidelines (in Stage 1, together with BOKU), partners provided their inputs, and UNITO produced a first reading that partners could confirm, integrate or change. The aim was to keep the generalising approach of the CA anchored to the knowledge that each team has of its own case, and to leave an explicit trace of how the categories were applied.

To help the reader, the three stages can be summarised as follows. Stage 1 asks where participation takes place: it uses the MLP-labelled CLDs and the partners' answers to four blocks of questions (C1–C4), and its results are presented in Chapter 5, ending with a typology of contexts. Stage 2 asks what was done: it uses D3.1 and the partners' validation of six implementation dimensions (D1–D6), and its results are presented in Chapter 6, ending with a typology of deliberative arenas. Stage 3 asks with what results: it uses D4.1 and the workshop of 7 October 2026 on five outcome dimensions, and its results are presented in Chapter 7. Chapter 8 combines the three stages in CMO configurations.

3.2.1 Stage 1: context

Stage 1 makes the six contexts comparable by asking partners to read their own system in the same language. UNITO and BOKU provided a template and guidelines structured in two steps, preceded by a common definition of the two main categories of the analysis.

Operationalisation of niche and regime. Before labelling the maps, partners specified which actors, practices, initiatives and institutional arrangements they assigned to the niche and to the regime in their case. Given the variety of socio-technical systems involved (energy, food, urban space), this preliminary step provides the reference point for interpreting the rest of the analysis (Section 5.1).

Step 1 – MLP mapping. Partners labelled each factor of the merged CLD produced in the panels as niche, regime (specifying the sub-regime: policy, culture, economy and markets, industry and infrastructure, science and technology), niche–regime interference or landscape. They then identified the feedback loops that remain within one level, those that cross levels, and the direct connections between levels that do not form loops (Section 5.2). Finally, they read the labelled CLD along four dimensions (Section 5.3):

- regime stability and lock-in: the loops that reproduce existing arrangements and constrain the development of CAIs;
- destabilisation of the regime and emergence of alternative dynamics: the loops through which collective action or external pressures challenge those arrangements;
- nested niche dynamics: how the development of CAIs depends on institutional arrangements, social conditions and external pressures beyond the initiatives themselves;
- cross-level interactions: the loops and connections that link niche, regime and landscape.

Step 2 – Reflection. Partners answered four blocks of questions derived from the MLP and from the mobilisation model:

- C1, collective action mobilisation: resources, motivations, values and interests, organisation and coordination of the CAI (Section 5.4);
- C2, windows of opportunity: which windows can be detected in the historical pathway, which landscape framings or shocks opened or closed them, and how niche and regime actors responded (Section 5.5);
- C3, niche–regime interaction: forms of interaction, bridging actors and infrastructures, and loops shaping the interaction (Section 5.6);

- C4, transition pathways: how the niche and the regime evolve over time, and how their interactions change (Section 5.7).

The results of the two steps are combined in a typology of contexts (Section 5.8), which is the main output of Stage 1 and provides the context side of the CMO configurations discussed in Chapter 8. Stage 1 is triangulated with the context and stakeholder analyses carried out in Task 3.1 and reported in D3.1.

3.2.2 Stage 2: implementation

Stage 2 makes the six deliberation processes comparable. UNITO coded all the available materials on six dimensions derived from the OECD (2021) evaluation guidelines and from the design of the deliberation process itself: (D1) framing and entry point; (D2) recruitment and composition, including vulnerable groups; (D3) setting and logistics; (D4) method operationalisation and deviations; (D5) interaction and facilitation; (D6) closure and feedback. The coding was then read through three lenses drawn from the literature on democratic innovations (Table 4): design (D1–D4; Section 6.2), practice (D2 and D5; Section 6.3) and coupling (D6; Section 6.4). Adaptations of the common design were assessed by whether each step kept its function rather than its form (Hawe, Shiell and Riley, 2004): mapping the system in DP1 and DP2, bringing niche and regime into dialogue in DP3, and taking the other's perspective in the role-playing game. Evaluation criteria were chosen to fit the type of device: since the panels were stakeholder forums rather than mini-publics, inclusion is assessed as positional inclusion, i.e. which positions of the niche–regime field were present, and as quality of process (Rowe and Frewer, 2000; OECD, 2021), rather than as statistical representativeness.

Table 4: The three lenses of Stage 2

Lens	Key concepts	Guiding question
Design	Varieties of participation (Fung, 2006); partisan forums (Hendriks et al., 2007); invited and claimed spaces (Cornwall, 2004); public vs government participation (Mees et al., 2019); fidelity of function (Hawe et al., 2004); design features of deliberative mini-publics (OECD, 2020; Curato et al., 2021)	Who was invited, with what promise of influence; which local adaptations kept the function of each step?
Practice	Internal and external exclusion (Young, 2000); type I and II deliberation (Bächtiger et al., 2010); agonism (Mouffe, 1999); micropolitics of facilitation (Moore, 2012; Escobar, 2019); representative claims (Saward, 2010); access, interaction and participation (Carpentier, 2016)	Who was heard, in which registers, with what room for disagreement; how did researchers shape the outputs?
Coupling	Deliberative systems (Mansbridge et al., 2012); coupling (Hendriks, 2016); uptake (Goodin and Dryzek, 2006; Jacquet and van der Does, 2021); opening up and closing down (Stirling, 2008)	Did the forum connect niche and regime or run parallel to them; through which channels could its outputs travel?

Source: UNITO elaboration.

UNITO coded D3.1 on the six dimensions and asked each partner to validate the coding. To leave an explicit trace of the validation, partners copied each item into a validation column if they agreed, or integrated or changed it. They were also asked to challenge a preliminary typology of arenas and to answer five reflective questions on how implementation shaped what the panels produced. The template is reported in Annex A; the resulting typology of deliberative arenas is presented in Section 6.5.

3.2.3 Stage 3: outcomes

Stage 3 makes the results of the six processes comparable. It builds on the Impact Assessment Framework developed in D1.3 and combines it with the references used in Stages 1 and 2. The IAF draws on the OECD evaluation guidelines (OECD, 2021) and on a partial application of the logical framework approach, distinguishing outputs, short-term outcomes and, more speculatively, longer-term impacts. Research on the consequences of deliberative processes shows that their effects run along several channels, on participants, on public debate and on policy, and that impacts on policy are the hardest to observe and attribute (Goodin and Dryzek, 2006; Jacquet and van der Does, 2021). Within the project's time frame, the comparison therefore concentrates on outputs and short-term outcomes, while institutional and systemic effects are traced as plausible pathways.

Outcomes are compared on five dimensions (Table 5), which translate the categories of the IAF into the language of the MLP and of collective action and correspond to Sections 7.1–7.5: niche capacity, relational effects, collective learning and reframing, governance and institutional effects, and substantive and systemic outcomes. Within the project's time frame, dimensions 1–3 can be observed, while dimensions 4–5 can at most be traced as plausible pathways. The ToC produced in each case is read through the MLP as part of the fifth dimension, by asking which levels and loops its leverage points address and what transformative potential it has (Section 7.6).

Table 5: The five outcome dimensions of Stage 3

Dimension	What we are looking for
1 Niche capacity (actor capacities)	Knowledge, agency, empowerment, skills, organisational capacity, resources, coordination, consolidation and strengthening of niche initiatives
2 Relational effects	Trust, recognition, cohesion, new relationships, cooperation and networks, within the niche and between niche and regime
3 Collective learning and reframing	Shared understanding, new framings, systems thinking, collective learning, convergence on a vision
4 Governance and institutional effects (collective activation)	Niche–regime relations, institutional recognition, co-governance, decision-making, resources
5 Substantive and systemic outcomes	Proposals, implementation, organisational or policy change, system transformation

Source: UNITO elaboration based on D1.3.

Evidence on the five dimensions comes from D4.1 and from a workshop with all partners held on 7 October 2026. UNITO circulated a note with the five dimensions and six guiding questions, which were discussed in a round-table format (one question at a time, each team in turn):

1. What changes did the deliberative process produce among niche participants and initiatives, and in the relationships between the actors involved? Consider changes in knowledge, agency, recognition, trust, cooperation, networks or organisational capacity. (dimensions 1 and 2)
2. Did the deliberative process alter participants' understanding of the problem, its causes, or potential solutions? If so, what new shared understandings, framings or forms of systemic learning emerged? (dimension 3)
3. How did the interaction and collaboration between niche, regime and other relevant stakeholders influence the development of the Theory of Change and the identified pathways for change? (dimension 5)
4. Did the deliberative process lead to changes in collective action, governance arrangements or niche-regime relations? If so, how did institutional recognition, cooperation, decision-making, resources and co-governance change? (dimension 4)

5. To what extent was the deliberative process able to favour the convergence of participants from an initial collection of different perspectives to a kind of common understanding and shared vision of the issues at stake (framing of the problems, main dynamics and possible interventions)? (dimension 3)
6. How do you see such solutions and points of intervention (concrete changes in practices, collaborations, organisational arrangements or ways of working) being practically implemented? (dimension 5)

All six teams answered all six questions. The views of participants and external experts collected in D4.1 are reported in Section 7.7.

3.2.4 Cross-stage synthesis

The three stages are brought together in three grids. The first compares the cases as socio-technical systems and leads to a typology of contexts (Stage 1; Table 10). The second compares the deliberation processes and leads to a typology of deliberative arenas (Stage 2; Tables 11 and 14). The third crosses contexts and processes with outcomes (Tables 15 and 17) and leads to the CMO configurations (Table 18). The grids are used in a case-oriented way: each cell is filled from the case evidence, and patterns are identified by comparing rows rather than by scoring variables.

4. THE SIX CASE STUDIES: AN OVERVIEW

In the rest of the deliverable, the cases are referred to by the name of the city: Tartu, Espoo, Vienna, Turin, Barcelona and Órgiva.

4.1 Tartu (Estonia): public space in Annelinn

The Estonian case study focuses on a 10-hectare area of Annelinn district in Tartu, a large Soviet-era housing estate with multi-storey prefabricated panel apartment buildings, still functioning as the city's main residential district. Its urban form contributes to urban heat island effects and restricts rainwater infiltration, increasing vulnerability to climate-related risks. Moreover, the area is characterised by extensive mown lawns, limited multifunctional green infrastructure and relatively weak community cohesion and civic participation.

Consequently, this case addresses two closely interconnected challenges: how to make the neighbourhood's public spaces more climate-resilient, attractive and socially functional, and how to involve residents meaningfully in creating and sustaining these changes. The objective is to transform the underused green spaces into more functional, climate-resilient and attractive public space, while strengthening community connections, local climate awareness and cooperation between residents, housing associations, public authorities and other local organisations.

The deliberative process, embedded within a broader participatory planning context developed under the Greener Annelinn (Rohelisem Annelinn) initiative of the municipality of Tartu (supported by ongoing projects and investment plans by the city), brought together residents, community organisations, and municipal specialists from different policy and administrative fields to examine the challenges affecting Annelinn's public spaces and identify opportunities for more collaborative and climate-resilient urban development.

4.2 Espoo (Finland): participation in large-scale energy projects

The Espoo case study initially focused on small modular reactors (SMRs) as a potential solution for low-carbon district heating, within Finland's long-standing reliance on nuclear power and the city of Espoo's ambition to achieve carbon neutrality by 2030.

The initiative was launched in 2017 and the following year, the city council decided not to pursue SMRs. However, the topic of SMR was mentioned again in the 2021–2025 council strategy and SMRs continue to be mentioned in the city's current "Carbon neutral Espoo 2030" roadmap as a technology to look into in the future. Espoo is not the only Finnish city to have investigated SMRs (Kojo et al., 2026). An overall reform of the Nuclear Energy Act of 1987 was passed in June 2026 (Eduskunta, 2026). The reform also addresses the regulation and licensing of SMRs.

During the KoM, one participant expressed concerns about whether the research project was promoting and lobbying for nuclear power, although the city of Espoo is currently not moving forward with the SMR initiative. Consequently, the focus of the deliberation process shifted towards participation in a hypothetical large-scale energy project scenario with the term 'SMR' removed from the guiding question. The deliberative process then moved towards exploring ways to strengthen participation in the preparation and decision-making of significant individual projects in the city of Espoo.

4.3 Vienna (Austria): the Westbahn area

The Austrian case study is situated in Vienna's 15th district, where an area of land next to the Westbahnhof train station is currently up for redevelopment. The district is among Vienna's densest and - critically - provides only about three m² of green space per resident (city goal: eight m²).
At the landscape level, the Westbahnareal is situated within converging macro-developments that press urban systems toward socio-ecological transformation. Vienna faces intensifying urban heat, high population density, and inequitable green access, particularly in Rudolfsheim-Fünfhaus, which offers few and small open green spaces. For this reason, for several years, different civic actors and initiatives have been advocating for a new green space to be created on the site, arguing that a park could ameliorate the significant lack of green space in the densely built 15th district, as well as strengthen a cold air corridor to counter heat and reconnect the northern and southern halves of the district.
The deliberative process brought together members of the WESTBAHNPARK.LIVE initiative - an 'action platform' that combines civic activism with artistic practice and environmental education, transforming protest into creative engagement - and stakeholders with expertise in urban development, municipal administration, workers' interests, accessibility, urban research and public space. The overall aim of the process was to investigate how creative and activist forms of political participation can make future urban development processes in the field of climate protection and climate change adaptation more democratic.

4.4 Turin (Italy): food solidarity

The Turin case study focuses on how local organisations and initiatives mobilised during and after the Covid-19 pandemic to provide food aid, essential goods, and community-based support.
Two main models of food solidarity coexist in Turin: a traditional model, based on the logic of donation, in which the main goal is to address food poverty and food waste by collecting surplus food and redistributing it to charitable organizations, which then deliver it to the final recipients; and a transformative model, in which food is not an end in itself, but rather a vehicle for social reactivation and rebuilding community ties. In the latter case, this transformative (or post-assistential) model is defined by the strong, active involvement of recipients and aims to promote pathways to reintegration and the restoration of individual capabilities.
The Covid-19 pandemic disrupted the normal flow of food distribution and triggered a food supply crisis, prompting civil society to self-organise. Formal and informal initiatives brought together a heterogeneity of actors, including students, third-sector associations, religious organisations, and local businesses. Beyond distributing food and essential goods, these initiatives provided social mediation and connected people to education, social services, and community support.
The deliberative process explored the evolving relationships between collective action initiatives and institutional actors and produced a collective representation of Turin's food solidarity system, emphasizing the key factors, dynamics, relationships, and feedback mechanisms that have influenced its development over time.

4.5 Barcelona (Spain): Energies Compartides al Raval

Energies Compartides al Raval is a community energy initiative promoted by La Traginera, a network of foundations, cooperatives, and civil society organisations operating in Barcelona's Ciutat Vella district.
The initiative emerged in response to the intersection of two major societal challenges: energy poverty and the unequal distribution of benefits associated with the energy transition. The aim of the initiative is therefore to install photovoltaic panels on buildings owned by public or private organisations and allocate at least 10% of the generated electricity to vulnerable households identified through existing

social support mechanisms. In the future, the project also intends to expand its activities through educational programmes, equipment recycling initiatives, and other community-oriented services. The underlying objective is not only to produce renewable energy but also to create a more democratic and inclusive energy system capable of strengthening local resilience and reducing social inequalities.

The deliberative process sought to balance the inclusion of institutional actors, project promoters, intermediary organisations, and representatives of vulnerable groups, including also participants with technical expertise, policy perspectives, territorial experience, and first-hand understanding of social vulnerabilities. The guiding question of the process was: how can energy communities become genuinely inclusive, and what changes are needed for a model such as Energies Compartides al Raval to succeed and be replicated?

4.6 Órgiva (Spain): the Alpujarra Energy Community

The case study of the Alpujarra Energy Community (AEC), created in Órgiva in the Alpujarra region of Granada (Andalusia), focuses on the implementation of energy transition through small-scale, socially embedded, and environmentally sensitive approaches rather than through centralized and profit-oriented megaprojects.

The origins of the initiative date back to 2024, when several residents of Órgiva participated in a training programme on energy communities organised by the School for Social Economy of Osuna. It was also a response to local opposition to a large-scale photovoltaic megaproject that threatened agricultural land, irrigation systems, and the cultural landscape of the area. Residents perceived these large-scale renewable developments as externally imposed and disconnected from local needs, motivating the creation of a community-led alternative based on collective self-consumption and local ownership.

The AEC combines collective self-consumption with democratic governance and social objectives, in particular support for households affected by energy poverty.

The deliberative process attempted to bring together the AEC and the municipal government, which, however, did not take part, reflecting its limited willingness to engage with the initiative. The objective of the deliberative process was to establish a participatory space in which diverse social actors could analyse the barriers facing the energy community, identify systemic leverage points and co-create a roadmap for future action.

5. STAGE 1: COMPARING CONTEXTS

As explained in Section 3.2.1, Stage 1 was carried out in two steps. In the first, partners labelled their merged CLDs according to the MLP and identified the feedback loops within and across levels (Section 5.2); they then read the labelled CLDs along four dimensions (Section 5.3):

1. *regime stability and lock-in mechanisms;*
2. *destabilisation of regime and emergence of alternative dynamics;*
3. *nested niche dynamics;*
4. *loops that facilitate interactions between niche, regime and landscape.*

In the second step, partners answered four blocks of questions derived from the MLP and from the mobilisation model, on collective action mobilisation (Section 5.4), windows of opportunity (Section 5.5), niche–regime interaction and bridging actors (Section 5.6) and transition pathways (Section 5.7). Section 5.8 combines the results of the two steps in a typology of contexts.

Before turning to the two steps, Section 5.1 clarifies how niche and regime were operationalised in the six cases, i.e. which actors, practices, initiatives and institutional arrangements were assigned to each level. Given the variety of socio-technical systems involved, this provides the reference point for the rest of the chapter.

5.1 Operationalisation of niche and regime

In all six case studies, stakeholders were identified using the MLP (Geels, 2002, 2005; Section 2.2.1).

Across the six case studies, the operationalisation of niches and regimes was carried out reflecting the characteristics of the socio-technical system, the nature of the Collective Action Initiatives (CAIs), and the specific dynamics of change under investigation.

5.1.1 Operationalisation of the niche

The niche was broadly defined in terms of collective actors and civil-society initiatives seeking to promote alternative practices or visions within their respective socio-technical systems. In contrast, regime actors represent entities operating within the institutional, regulatory and governance areas, which are more firmly established within the existing processes and practices of the systems under investigation.

However, the differences between these cases lie less in the underlying definition of the niche than in the forms of collective action through which it is expressed. In Turin, Barcelona, Órgiva and Vienna, niches were broadly defined in terms of collective action and the ability to propose and pursue alternatives to existing systems. These took the form of a network of grassroots and third-sector organisations in Turin; a socially oriented, shared-energy initiative in Barcelona; a locally embedded energy community in Órgiva; and a civic-action constellation advocating an alternative vision for urban development in Vienna. In the **Turin** case study, the niche encompasses the network of collective actors from civil society and alternative collective actions engaged in food surplus management and food solidarity practices, which developed both in the pre-pandemic context and in response to new vulnerabilities that emerged during and after the pandemic, as forms of grassroots collective action. This network focuses on redefining the link between access to food and social justice, as well as between cooperation, mutual aid, and citizenship. In the **Barcelona** case study, the niche is more specifically identified with the 'Energies Compartides al Raval', a socially just shared-energy initiative developed by La Traginera, a network of social organisations based in the Raval neighbourhood, which

combines grassroots mobilisation with institutional collaboration. Rather than being a purely citizen-led initiative or a top-down public policy programme, the initiative occupies an intermediate position, relying on the cooperation of civil society organisations, public institutions and private actors. Therefore, several participants from the niche belonged simultaneously to the initiative and to regime-level organisations, acting as *bridging actors* with the socio-technical regime. As regards the **Alpujarra** Energy Community (AEC), located near Granada in Southern Spain, the niche consists of locally embedded actors - AEC members and actors representing the social sector and the local level, whose activities are primarily locally rooted and operate outside established institutional structures. Several of the AEC members involved in the process have backgrounds in environmental or civic activism, and some are linked to (and some of them are also part of) left-wing municipal groups, which appear to prioritise technical aspects over the social, participatory and organisational dimensions of the initiative. In **Vienna**, the niche is primarily referred to as the civic-action constellation around WESTBAHNPARK.LIVE, a "protective space" in MLP terms (Smith and Raven, 2012), comprising activist practices, artistic interventions, participatory formats, alliances with researchers and cultural actors, petitioning activities, and framing work around climate justice, green space, and democratic renewal. The niche is not identified with the Westbahnareal as such, but with the socio-material and symbolic space of experimentation through which the initiative produces and communicates an alternative vision for the site.

Despite their differences in organisational form and substantive objectives, these four cases share the same understanding of the niche as a space of collective agency, through which alternative practices, proposals and visions can emerge and develop.

The Tartu and Espoo cases adopt different operationalisations of the niche: Tartu focuses on community capacity-building and Espoo on the potential development of new participatory practices. In Tartu, the distinction between niche and regime is less clear-cut than in cases where an autonomous grassroots innovation develops outside and challenges an established regime. The Tartu Collective Action Initiative (CAI) is municipality-led: the city of Tartu initiated the broader Greener Annelinn process. Together with additional municipality-led projects and activities (e.g. ClimaGen, urbanLIFEcircles), this created an experimental space in which established practices can interact with community knowledge and new forms of co-creation. Against this background, the niche was defined as the community sphere through which residents develop capacity to collectively take responsibility for their neighbourhood and influence how it is developed. It includes residents, community organisations such as housing associations, local libraries and local initiatives such as Annelinna Selts, Tartu Maheaed and the Risttee congregation. In the **Espoo** case study, in the absence of an established grassroots initiative centred on small modular reactors (SMRs), the niche was defined in terms of potential participatory activities in the context of large-scale energy projects pursued by municipalities. The analytical emphasis therefore shifted from an alternative technological initiative to the development of participatory practices that could create new opportunities for public involvement in energy planning.

Overall, the six cases suggest **that the niche can be operationalised in various ways**, reflecting the socio-technical system under investigation**, while maintaining a common feature: it is a space in which different forms of collective action and participatory practices can emerge outside of, or on the fringes of, institutionalised regimes.** These include: a network of grassroots initiatives (Turin); a specific experimental project (Barcelona); a constellation of locally embedded actors (Órgiva); a civic space for articulating alternative visions (Vienna); a community sphere that builds collective capacity (Tartu); and the potential development of new participatory practices (Espoo).

5.1.2 Operationalisation of the regime

The operationalisation of the regime also varied, although a common feature can be identified across the six case studies: it encompasses institutional arrangements, practices and structures that shape the development of the CAIs. In the **Tartu** case study, the regime was identified with the Tartu municipality's various resources, implementation practices and regulations through which public space is planned, regulated, financed, implemented, and maintained. A very similar definition can be found in **Barcelona**, where the regime includes the structural and formal framework of energy and social systems, as well as the operations and regulations governing community energy projects and the identification and alleviation of energy poverty. In the **Turin** case study, the regime is the set of policies, regulatory mechanisms, and models of production, distribution, sale, and service that characterize the urban food system's stability and daily reproduction. In this case, the regime is the urban food infrastructure that results from the integration of processes carried out by public and private actors and that is well established in the city's daily life. In **Espoo**, the regime was defined in terms of the legislative and institutional frameworks governing nuclear power and other large-scale energy projects, such as SMRs, including the established mechanisms for public participation in decision-making.

The **Órgiva and Vienna** cases adopted a broader understanding of the regime. In Órgiva, it includes institutional actors and non-institutional actors, such as companies, that operate at wider geographical scales, across territories and in conjunction with institutions. In Vienna, the regime was defined as the existing planning, infrastructural, political, economic, and cultural configuration that governs the Westbahnareal and constrains its possible futures. It can be identified with the City of Vienna's planning departments and formal development instruments, ÖBB as landowner and rail infrastructure operator, municipal coalition politics, planning expertise, funding and valuation logics, and the broader cultural framing of Vienna as a 'garden city' and participatory planning pioneer.

These differences highlight that the regime was not solely equated with public authorities: depending on the case, it also incorporated established practices, and infrastructural and cultural configurations that contributed to the reproduction of the incumbent system configurations.

5.2 The CLDs read through the MLP

This section illustrates how the Causal Loop Diagrams of the six case studies were labelled and interpreted using the Multi-Level Perspective framework, providing the analytical basis for comparing how the six case studies represent processes of regime stability, destabilisation and the emergence of alternative dynamics, nested niche dynamics and loops facilitating interactions between niche, regime, and landscape.

Partners were asked to label each factor as: niche, regime (specifying the sub-regime: policy, culture, economy and markets, industry and infrastructure, science and technology), niche-regime interference or landscape.

5.2.1 Tartu (Estonia)

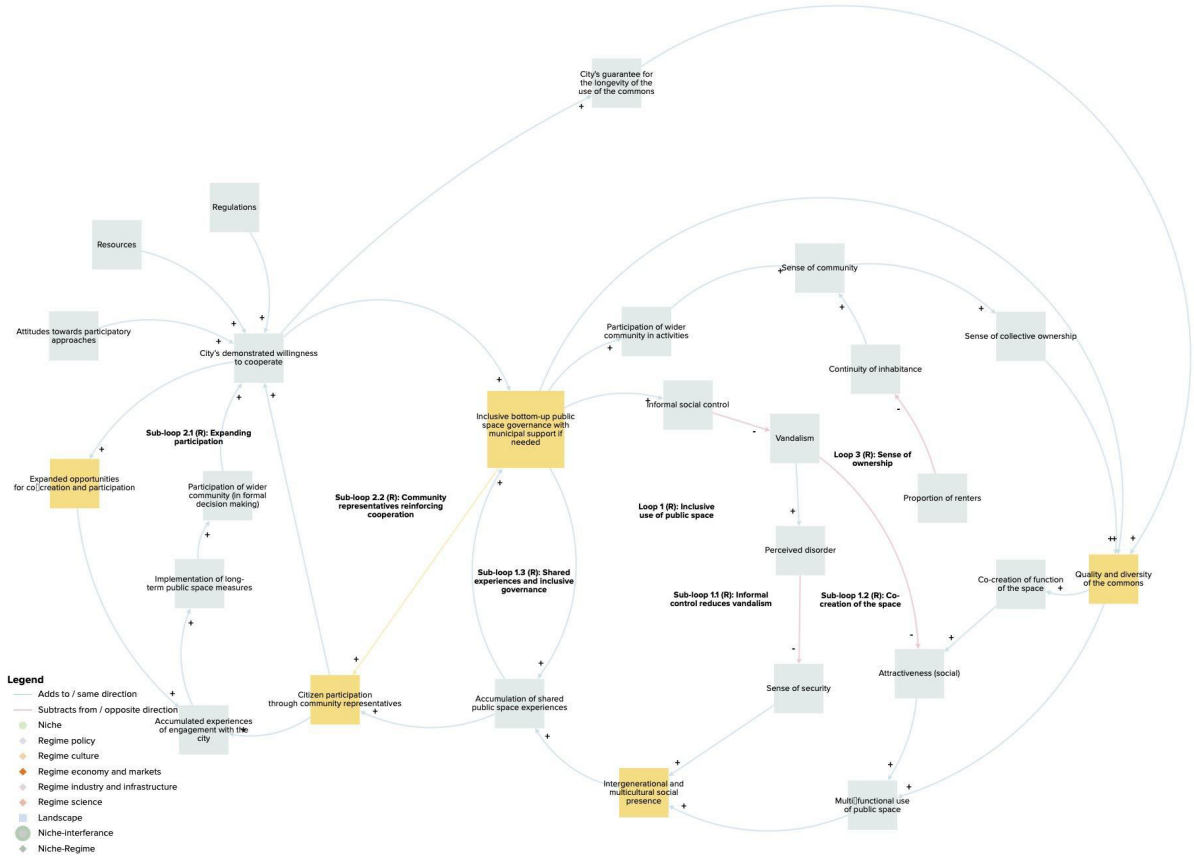


Figure 4: MLP-labelled merged CLD, Tartu

Source: Stage 1 document of the Tartu research team.

In Tartu, partners identified 26 variables, of which:

- **Seven are niche-related**: Sense of collective ownership; Informal social control; Participation of wider community (in formal decision making); Sense of community; Accumulation of shared public space experiences; Perceived disorder; Sense of security.
- **Five are regime-related**: City's demonstrated willingness to cooperate (regime policy); Regulations (regime policy); Resources (regime economy and markets); Implementation of long-term public space measures (regime policy); City's guarantee for the longevity of the use of the commons (regime policy).
- **Two are landscape-related**: Attitudes towards participatory approaches; Vandalism.

The remaining variables identify cross-level dynamics between niche and regime, between regime and landscape, and between niche and landscape. In particular, as regards the connections between niche and regime, they reflect the central role of cooperation between community actors and the municipality. These include expanded opportunities for co-creation and participation, accumulated experiences of engagement with the city, inclusive bottom-up public-space governance with municipal support, and co-creation of the function of public space. The importance of these factors suggests that change depends less on either community initiative or municipal intervention alone than on their

ability to develop sustained forms of cooperation. Several reinforcing feedback loops identify these connections:

1) **R1: Expanding participation**: City's demonstrated willingness to cooperate (Regime) → Expanded opportunities for co-creation and participation (Niche-Regime) → Accumulated experiences of engagement with the city (Niche-Regime) → Participation of wider community in formal decision-making (Niche) → City's demonstrated willingness to cooperate (Regime)

This loop links institutional openness with participation and accumulated engagement experiences.

2) **R2: Community representatives reinforcing cooperation**: Inclusive bottom-up public space governance with municipal support (Niche-Regime) → Citizen participation through community representatives (Niche-regime) → City's demonstrated willingness to cooperate (Regime) → Expanded opportunities for co-creation and participation (Niche-Regime) → Inclusive bottom-up public space governance with municipal support (Niche-Regime)

This loop captures the bridging role of community representatives between residents and municipal institutions.

3) **R3: Co-creation of public space**: Quality and diversity of the commons (Niche-Regime) → Co-creation of function of public space (Niche-Regime) → Attractiveness (social) (Niche-Regime) → Participation of wider community in activities (Niche-Regime) → Sense of collective ownership (Niche) → Quality and diversity of the commons (Niche-Regime)

This loop connects public-space improvement, participation and collective ownership.

As regards the interaction between regime and landscape, one loop was identified by partners:

4) **R4: Participatory governance and changing attitudes**: Attitudes towards participatory approaches (Landscape) → City's demonstrated willingness to cooperate (Regime) → Expanded opportunities for co-creation and participation (Niche-Regime) → Accumulated experiences of engagement with the city (Niche-Regime) → Attitudes towards participatory approaches (Landscape)

R4 is the clearest loop connecting all three MLP levels.

Finally, the interaction between niche and landscape is represented through the loops:

5) **R5: Ownership and neighbourhood stability**: Sense of community (Niche) → Sense of collective ownership (Niche) → Attractiveness (social) (Niche-Regime) → Continuity of inhabitance (Niche-landscape impact) → Sense of community (Niche)
6) **R6: Social presence, informal control and safety**: Intergenerational and multicultural social presence (Niche-Regime) → Informal social control (Niche) → Vandalism (Landscape) → Perceived disorder (Niche) → Sense of security (Niche) → Intergenerational and multicultural social presence (Niche-Regime)
7) **R7: Shared experiences and participatory culture**: Participation of wider community in activities (Niche-Regime) → Accumulation of shared public space experiences (Niche) → Sense of community (Niche) → Attitudes towards participatory approaches (Landscape) → Participation of wider community in activities (Niche-Regime)

5.2.2 Espoo (Finland)

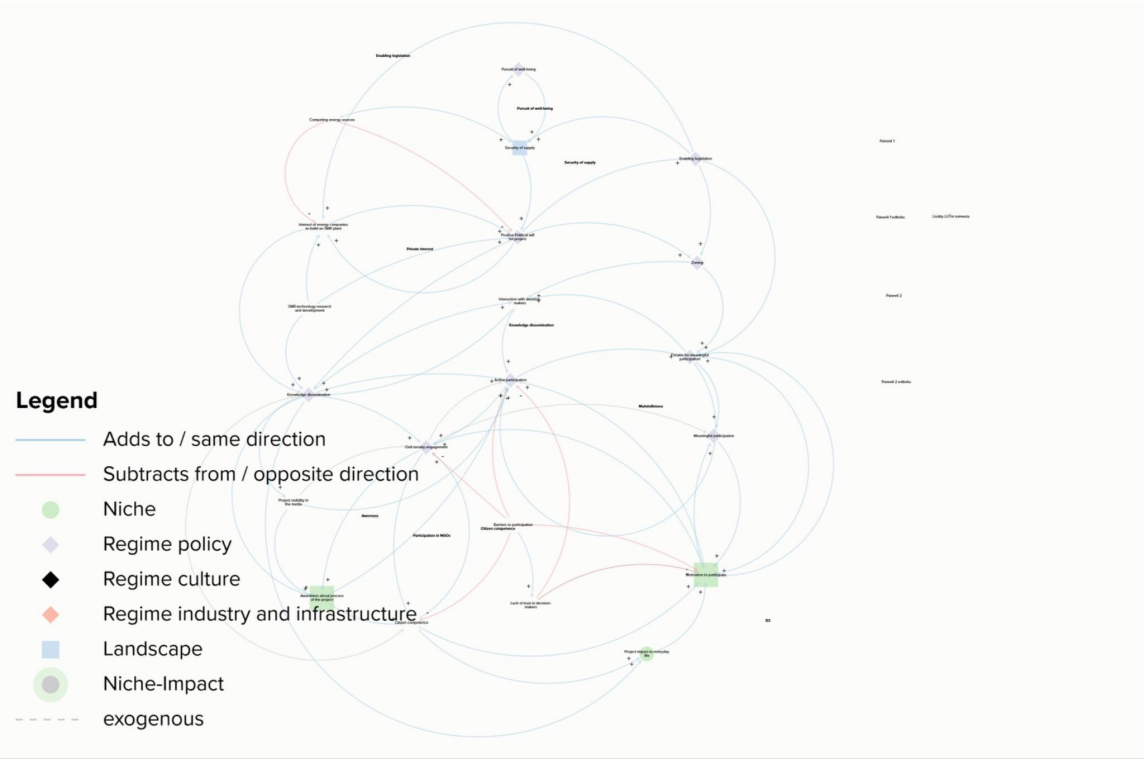


Figure 5: MLP-labelled merged CLD, Espoo

Source: Stage 1 document of the Espoo research team.

In the case of Espoo, partners identified 21 variables, of which:

- **One is niche-related**: Project's impact in everyday life.
- **One is landscape-related**: Security of supply.
- **Seventeen are regime-related**: Interaction with decision makers (regime culture); Obstacles for participation (regime culture); Media visibility (regime culture); Citizen competence (regime culture); Lack of trust towards decision-makers (regime culture); Active participation (regime policy); Impact forums (regime policy); Zoning (regime policy); Information dissemination (regime policy); Meaningful participation (regime policy); Civil society engagement (regime policy); Pursuit of welfare (regime policy); Enabling legislation (regime policy); Positive political will (regime policy); Competing forms of energy production (regime economy and markets); SMR technology development and research (regime technology); Energy companies' willingness to build new power plants (Regime industry and infrastructure).
- **Two define both the regime culture and the impact of the niche on the regime:** Awareness of the project; Motivation to participate.

Cross-level dynamics were identified through several reinforcing feedback loops. In particular, as regards the relation between niche and regime:

1) **R1**: awareness about process of the project (regime culture/niche-impact) → citizen competence (regime culture) + → civil society engagement (regime policy) + → awareness about the project (regime culture /niche impact)

2) **R2**: citizen competence (regime culture) + → motivation to participation (niche impact/regime culture) + → civil society engagement (Regime policy) + → citizen competence (regime culture)
3) **R3**: citizen competence (Regime culture) + → motivation to participate (niche impact/regime culture) + → active participation (regime policy) + → civil society engagement (regime policy) + → citizen competence (regime culture)
4) **R4**: Motivation to participate (regime culture/niche-impact) + → Active participation (regime policy) + → Forums for Meaningful participation (regime policy)

These loops highlight a key topic in the panels: access to information and generally being informed about different forums of participation was seen as a key enabling factor for participation. Additionally, participating in civil society activities was raised as an important platform that adds knowledge on current issues and available methods of participation.

As regards the landscape, the Espoo CLD shows no direct connection between niche and landscape. The only landscape variable, 'Security of supply', is linked to geopolitical changes, to the concerns they raised about access to energy and to the city's general pursuit of its residents' well-being. It appears in two loops:

5) **R5**: positive political will (regime policy) + → enabling legislation (regime policy) + → security of supply (landscape) + → positive political will
6) **R6**: security of supply (landscape) + → pursuit of well-being (regime policy) + → security of supply (landscape)

Both connect the regime and landscape levels.

5.2.3 Vienna (Austria)

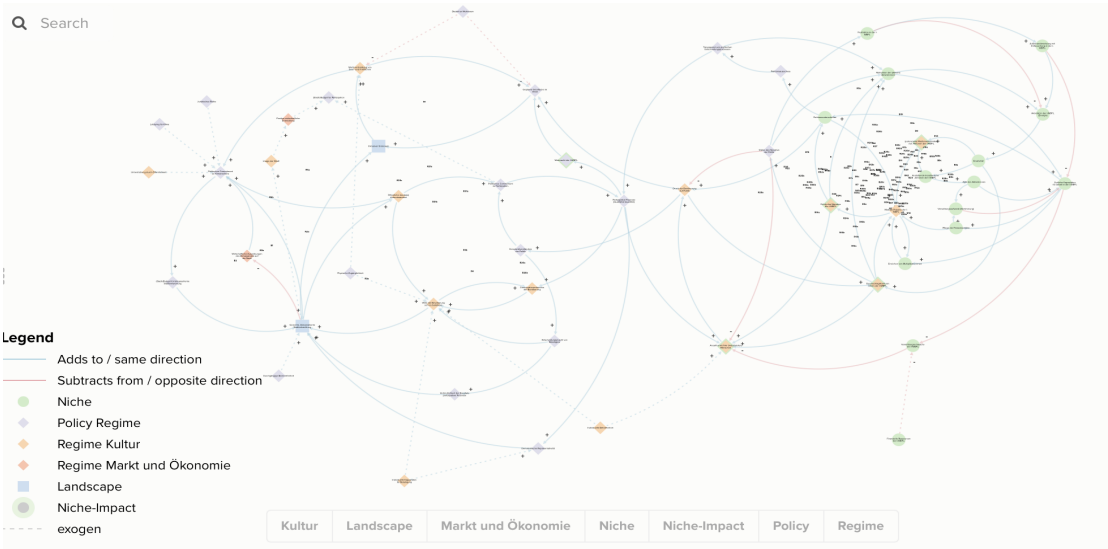


Figure 6: MLP-labelled merged CLD, Vienna

Source: Stage 1 document of the Vienna research team.

In Vienna, partners identified 51 variables, of which:

- **Thirteen are niche-related**: Activity level in the initiative; Administrative workload; Controversial artistic interventions of the initiative; Creativity; Cultivation of press contacts; Dealing with disappointment(s) within the initiative; Feelings of frustration within the

initiative; Financial resources of the initiative; Initiative's lack of effectiveness in conveying its message; Motivation levels of the (active) activists; Number of activists; Petition signatures; Time available to work within the initiative.

- **Thirty-one are regime-related**: Access to/reaching multipliers; Citizens' notion of democracy (regime culture); Image of the City (regime culture); Individual capacity (resources available) for participation (regime culture); Media presence of the initiative (regime culture); Personal affectedness (regime culture); Public (media) attention (regime culture); Public pressure on politicians (regime culture); Public support (regime culture); Value ascribed to green and open spaces (regime culture); Willingness of citizens to participate/engage (regime culture); Economic impacts of climate change on the City (regime economy and markets); Positive economic development (regime economy and markets); (City's) budget for climate resilient urban development (regime policy); (City's) budget for participation (regime policy); Committee on petitions (regime policy); Consistent physical accessibility (inclusivity) (regime policy); Decision-making power of participants (regime policy); Democratic representativeness of decisions (regime policy); Enforceability of the outcomes of participatory processes (regime policy); Legal risks (regime policy); Lobbying for the climate (regime policy); Need for housing (regime policy); Participatory processes (quality and quantity) (regime policy); Physical accessibility (regime policy); Planned green spaces on the site (regime policy); Political commitment to participation (regime policy); Political commitment to climate resilience (regime policy); Politicians' notion of democracy (regime policy); Power of the political narrative (regime policy); Transparency of political decision-making processes (regime policy).
- **Two are landscape-related**: Inclusivity of green spaces; Socially just, climate resilient urban development.
- **Five represent dynamics that pertain to the regime, as well as the niche's influence on the regime:** (Potential) media appeal of the initiative's interventions; Effectiveness/power of initiative's ideas; Number of people reached (engaged/mobilized); Power of the initiative's narrative; Initiative's scope of influence.

Of the 225 feedback loops identified in the merged CLD, 217 (96%) span more than one MLP level.

The merged CLD shows cross-level feedback loops between regime and niche as well as the regime and landscape. Nevertheless, as partners suggest, in real life the relationship between landscape and regime can be read as a directed (one-way) connection rather than a closed loop. This issue emerges particularly due to temporal delays (e.g., Political commitment to climate resilience → Socially just, climate resilient urban development), and power asymmetries diminishing impacts on landscape factors. This point is discussed further in Section 5.3.

5.2.4 Turin (Italy)

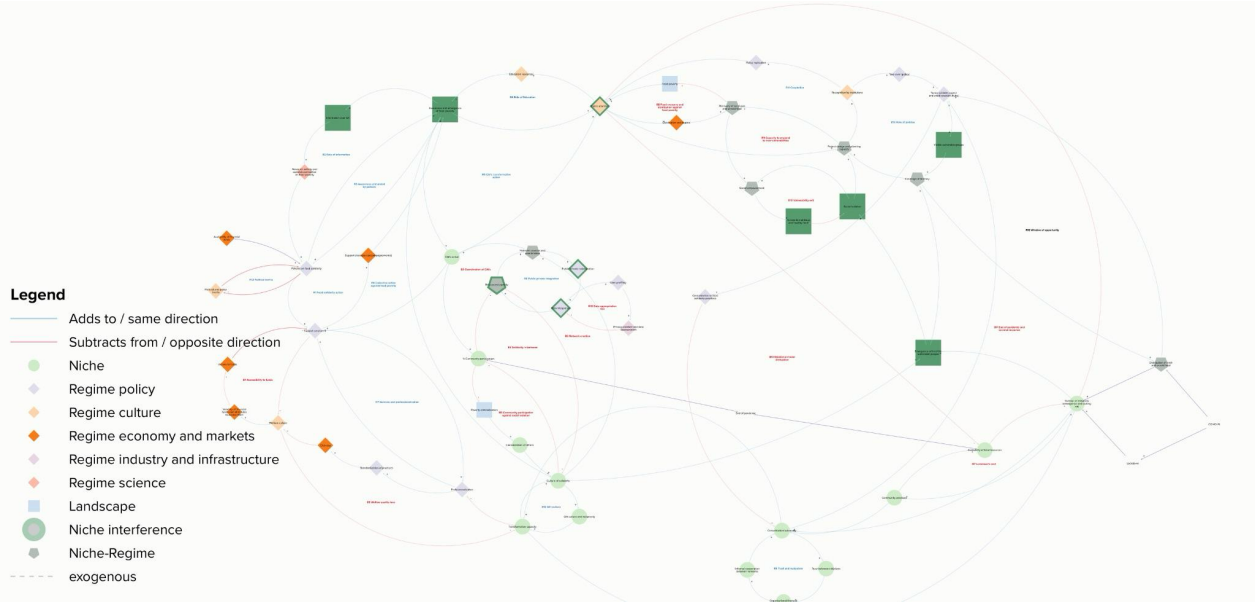


Figure 7: MLP-labelled merged CLD, Turin

Source: Stage 1 document of the Turin research team.

In the case of Turin, 55 variables were identified, of which:

- **Thirteen are niche-related**: % Community participation; Informal cooperation between networks; CAI's active; Trust between initiatives; Culture of solidarity; Consideration of others; Organisational/financial mutualism; Transformative capacity; Community practices; Gift culture and reciprocity; Consolidation/autonomy; Number of initiatives (emergence and scaling up); Availability of time/resources.
- **Twenty-one are regime-related**: Recognition by institutions (regime culture); Political and policy inertia (regime culture); Education resources (regime culture); Welfare culture (regime culture); Professionalization (regime policy); Standardization of practices (regime policy); User profiling (regime policy); Centralization of food solidarity practices (regime policy); Take over (policy) (regime policy); Policies on food solidarity (regime policy); Torino solidale project and snodi creation (hubs) (regime policy); Policy replication (regime policy); Support services (regime policy); Access to funds (regime economy and markets); Click-day (regime economy and markets); Availability of financial funds (regime economy and markets); Distribution and logistic (regime economy and markets); Volatility of financial funds and strict (regime economy and markets); Support strategies (*accompagnamento*) (regime economy and markets); Privacy problem and data appropriation (regime industry and infrastructure); Research activity and social dissemination on food poverty (regime science).
- **Two are landscape-related**: Food poverty; Poverty criminalization.
- **Three are exogenous variables**: End of pandemic; Lockdown; COVID-19.
- **Sixteen variables represent dynamics that pertain to both the niche and the regime, as well as the niche's influence on the regime**: Public/private collaboration (niche-regime interference); Information over SA (niche-regime interference); Coverage of territory (niche-regime); Recovery of surpluses and unsold food (niche-regime); Public attention (niche-regime interference); Resources/capacity (niche-regime interference); Access to nutritious and healthy food (niche-regime interference); Emergence of invisible vulnerable people (niche-regime interference); Social empowerment (niche-regime); Data integration (niche-regime

interference); Project design and planning capacity (niche-regime); Distribution of fresh and unsold food (niche-regime); Visible vulnerable groups (niche-regime interference); Network creation and coordination (niche-regime); Social isolation (niche-regime interference); Awareness and emergence of food poverty (niche-regime interference).

Cross-level dynamics were identified through several reinforcing and balancing feedback loops. In particular, as regards the relation between niche and regime, two balancing loops were identified:

1) **B2: Welfare and quality loss**: Welfare culture (regime culture) → - Transformative capacity (niche) → - Professionalization (regime policy) → + Standardization of practices (regime policy) → + Click-day (regime economy and markets) → + Welfare culture (regime culture)
2) **B13: Relational model disruption**: Consolidation/autonomy (niche) → + Torino Solidale project and snodi creation (hubs) (regime policy) → + Centralization of food solidarity practices (regime policy) → - Consolidation/autonomy (niche)

Only one loop was identified representing the relation between niche and landscape:

3) **B5: Community participation against social isolation**: Culture of solidarity (niche) → + % Community participation (niche) → - Poverty criminalization (landscape) → + Consideration of others (niche) → + Culture of solidarity (niche)

Eight reinforcing loops and two balancing loops were identified crossing regime and landscape, as well as dynamics occurring at the niche-regime interface:

4) **R1: Food solidarity action**: Policies on food solidarity (regime policy) → + Support services (regime policy) → + Support strategies (accompagnamento) (regime economy and markets) → + Awareness and emergence of food poverty (niche-regime interference) → + Policies on food solidarity (regime policy)
5) **R2: Role of information**: Awareness and emergence of food poverty (niche-regime interference) → + Information over SA (niche-regime interference) → + Research activity and social dissemination on food poverty (regime science) → + Policies on food solidarity (regime policy) → + Awareness and emergence of food poverty (niche-regime interference)
6) **R3: Awareness stimulated by policies**: Awareness and emergence of food poverty (niche-regime interference) → + Policies on food solidarity (regime policy) → + Awareness and emergence of food poverty (niche-regime interference)
7) **R4: Role of Education**: Public attention (niche-regime interference) → + Education resources (regime culture) → + Awareness and emergence of food poverty (niche-regime interference) → + Public attention (niche-regime interference)
8) **R8: Public-private integration**: Network creation and coordination (niche-regime) → + Public/private collaboration (niche-regime interference) → + Data integration (niche regime interference) → + Resources/capacity (niche-regime interference) → + Network creation and coordination (niche-regime)
9) **R10: Role of policies**: Project design and planning capacity (niche-regime) → + Recognition by institutions (regime culture) → + Take over (policy) (regime policy) → + Torino Solidale project and snodi creation (hubs) (regime policy) → + Visible vulnerable groups (niche-regime interference) → + Coverage of territory (niche-regime) → + Project design and planning capacity (niche-regime)
10) **R11: (Risk of) Cooptation**: Project design and planning capacity (niche-regime) → + Recognition by institutions (regime culture) → + Policy replication (regime policy) → + Public attention (niche-regime interference) → + Project design and planning capacity (niche-regime)

11) **R13: Windows of opportunity**: Covid-19 (exogenous) → + Distribution of fresh and unsold food (niche-regime) → + Torino Solidale project and snodi creation (hubs) (regime policy) → + Visible vulnerable groups (niche-regime interference) → + Coverage of territory (niche-regime) → + Distribution of fresh and unsold food (niche-regime)
12) **B8: Food recovery and distribution against food poverty**: Food poverty (landscape) → + Public attention (niche-regime interference) → + Distribution and logistics (regime economy and markets) → + Recovery of surpluses and unsold food (niche-regime) → − Food poverty (landscape)
13) **B12: Data appropriation risk**: Data integration (niche-regime interference) → + User profiling (regime policy) → + Privacy problem and data appropriation (regime industry and infrastructure) → - Data integration (niche-regime interference)

Finally, two reinforcing loops and four balancing loops were identified capturing dynamics between the niche and the regime, with one loop also involving a landscape-level variable:

- **R5: CAI's transformative action**: Support services (regime policy) → + Support strategies (accompagnamento) (regime economy and markets) → + Awareness and emergence of food poverty (niche-regime interference) → + Public attention (niche-regime interference) → + CAI's active (niche) → + Support services (regime policy)
- **R6: Collective action against food poverty**: Support services (regime policy) → + Support strategies (accompagnamento) (regime economy and markets) → + Awareness and emergence of food poverty (niche-regime interference) → + CAI's active (niche) → + Support services (regime policy)
- **B3: Coordination of CAIs**: End of pandemic (exogenous) → % Community participation (niche) → (-) Resources/capacity (niche-regime interference) → + Network creation and coordination (niche-regime) → + CAI's active (niche) → + % Community participation (niche)
- **B4: Solidarity in between**: Resources/capacity (niche-regime interference) → - Culture of solidarity (niche) → - % Community participation (niche) → - Resources/capacity (niche-regime interference)
- **B6: Network creation**: Culture of solidarity (niche) → + Network creation and coordination (niche-regime) → + CAI's active (niche) → + % Community participation (niche) → - Poverty criminalization (landscape) → + Consideration of others (niche) → + Culture of solidarity (niche)
- **B11: End of pandemic and societal response**: Number of initiatives (emergence and scaling up) (niche) → - Public attention (niche-regime interference) → - Availability of time and resources (niche) → - Number of initiatives (emergence and scaling up) (niche)

5.2.5 Barcelona (Spain)

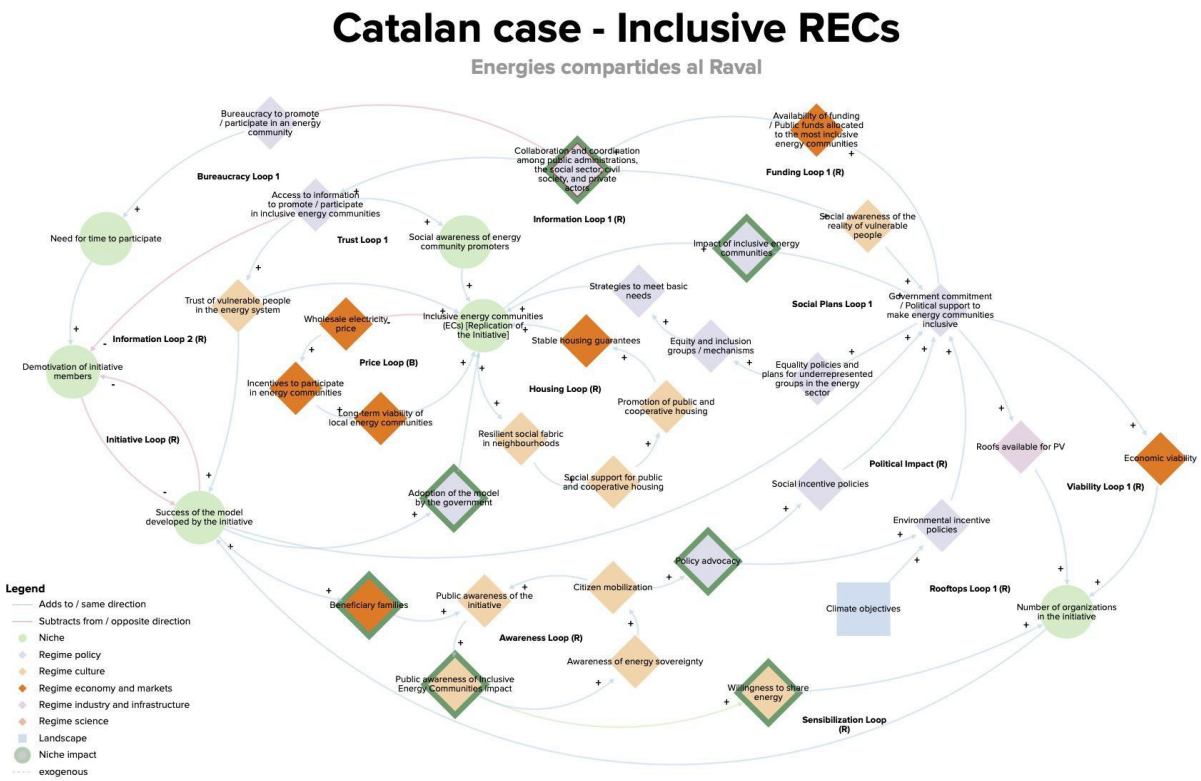


Figure 8: MLP-labelled merged CLD, Barcelona

Source: Stage 1 document of the Barcelona research team.

In the case of Barcelona, 37 variables were identified, of which:

- **Six are niche-related**: Success of the model developed by the initiative; Inclusive energy communities (ECs) [Replication of the Initiative]; Number of organizations in the initiative; Social awareness of energy community promoters; Need for time to participate; Demotivation of initiative members.
- **Twenty-three are regime-related**: Public awareness of the initiative (regime culture); Awareness of energy sovereignty (regime culture); Citizen mobilisation (regime culture); Social awareness of the reality of vulnerable people (regime culture); Promotion of public and cooperative housing (regime culture); Social support for public and cooperative housing (regime culture); Stable housing guarantees (regime economy and markets); Trust of vulnerable people in the energy system (regime culture); Resilient social fabric in neighbourhoods (regime culture); Social incentive policies (regime policy); Environmental incentive policies (regime policy); Government commitment / Political support to make energy communities inclusive (regime policy); Equality policies and plans for underrepresented groups in the energy sector (regime policy); Equity and inclusion groups / mechanisms (regime policy); Strategies to meet basic needs (regime policy); Access to information to promote / participate in inclusive energy communities (regime policy); Bureaucracy to promote / participate in an energy community (regime policy); Long-term viability of local energy communities (regime economy and markets); Incentives to participate in energy communities (regime economy and markets); Economic viability (regime economy and markets); Availability of funding / Public funds allocated to the most inclusive energy

communities (regime economy and markets); Wholesale electricity price (regime economy and markets); Roofs available for PV (regime economy and markets).

- **Seven indicate niche-regime interferences**: Adoption of the model by the government; Policy advocacy; Collaboration and coordination among public administrations, the social sector, civil society, and private actors; Impact of inclusive energy communities; Beneficiary families; Willingness to share energy; Public awareness of Inclusive Energy Communities impact.
- **One is landscape-related**: Climate objectives.

As regards the cross-level dynamics captured by reinforcing and balancing loops, partners identified loops representing mainly niche–regime interactions (loop R1, which also involves the landscape, is discussed in Section 5.3.4):

1) **R1: Political impact**: Success of the model developed by the initiative -(+) → Beneficiary families -(+) → Public awareness of the initiative -(+) → Public awareness of Inclusive Energy Communities impact -(+) → Awareness of energy sovereignty -(+) → Citizen mobilization -(+) → Policy advocacy -(+) → Social incentive policies (Also via: Environmental incentive policies) -(+) → Government commitment / Political support to make energy communities inclusive -(+) → Availability of funding / Public funds allocated to the most inclusive energy communities -(+) → Collaboration and coordination among public administrations, the social sector, civil society, and private actors -(+) → Access to information to promote / participate in inclusive energy communities (Also via: -(-) → Bureaucracy to promote / participate in an energy community -(+) → Need for time to participate) -(+) →) -(-) → Demotivation of initiative members -(-) → Success of the model developed by the initiative
2) **R2: Bureaucracy**: Government commitment / Political support to make energy communities inclusive -(+) → Availability of funding / Public funds allocated to the most inclusive energy communities -(+) → Collaboration and coordination among public administrations, the social sector, civil society, and private actors -(-) → Bureaucracy to promote / participate in an energy community -(+) → Need for time to participate) -(+) → Demotivation of initiative members -(-) → Success of the model developed by the initiative -(+) → (Also via: -(+) → Adoption of the model by the government -(+) → Inclusive energy communities (ECs) [Replication of the Initiative] -(+) → Impact of inclusive energy communities) -(+) → Government commitment / Political support to make energy communities inclusive
3) **R3: Information**: Government commitment / Political support to make energy communities inclusive -(+) → Availability of funding / Public funds allocated to the most inclusive energy communities -(+) → Collaboration and coordination among public administrations, the social sector, civil society, and private actors -(+) → Access to information to promote / participate in inclusive energy communities -(+) → Social awareness of energy community promoters -(+) → Inclusive energy communities (ECs) [Replication of the Initiative] -(+) → Government commitment / Political support to make energy communities inclusive
4) **R4: Information and CAI**: Government commitment / Political support to make energy communities inclusive -(+) → Availability of funding / Public funds allocated to the most inclusive energy communities -(+) → Collaboration and coordination among public administrations, the social sector, civil society, and private actors -(+) → Access to information to promote / participate in inclusive energy communities -(-) → Demotivation of initiative members -(-) → Success of the model developed by the initiative (Also via: Adoption of the model by the government -(+) → Inclusive energy communities (ECs) [Replication of the Initiative] -(+) → Impact of inclusive energy communities) -(+) → Government commitment / Political support to make energy communities inclusive

5) **R5: Information and trust**: Government commitment / Political support to make energy communities inclusive -(+) → Availability of funding / Public funds allocated to the most inclusive energy communities -(+) → Collaboration and coordination among public administrations, the social sector, civil society, and private actors -(+) → Access to information to promote / participate in inclusive energy communities -(+) → Trust of vulnerable people in the energy system -(+) → Inclusive energy communities (ECs) [Replication of the Initiative] -(+) → Government commitment / Political support to make energy communities inclusive
6) **R6: Social plans**: Government commitment / Political support to make energy communities inclusive -(+) → Equality policies and plans for underrepresented groups in the energy sector -(+) → Equity and inclusion groups / mechanisms -(+) → Strategies to meet basic needs -(+) → Inclusive energy communities (ECs) [Replication of the Initiative] -(+) → Impact of inclusive energy communities -(+) → Government commitment / Political support to make energy communities inclusive
7) **R7: Available rooftops**: Success of the model developed by the initiative -(+) → (Also via: Adoption of the model by the government -(+) → Inclusive energy communities (ECs) [Replication of the Initiative] -(+) → Impact of inclusive energy communities) -(+) → Government commitment / Political support to make energy communities inclusive -(+) → Roofs available for PV -(+) → Number of organizations in the initiative -(+) → Success of the model developed by the initiative
8) **R8: Economic viability**: Success of the model developed by the initiative -(+) → (Also via: Adoption of the model by the government -(+) → Inclusive energy communities (ECs) [Replication of the Initiative] -(+) → Impact of inclusive energy communities) -(+) → Government commitment / Political support to make energy communities inclusive -(+) → Economic viability -(+) → Number of organizations in the initiative -(+) → Success of the model developed by the initiative
9) **R9: Sensibilization**: Success of the model developed by the initiative -(+) → Beneficiary families -(+) → Public awareness of the initiative -(+) → Willingness to share energy -(+) → Number of organizations in the initiative -(+) → Success of the model developed by the initiative
10) **R10: Social fabric**: Inclusive energy communities (ECs) [Replication of the Initiative] -(+) → Resilient social fabric in neighbourhoods -(+) → Social support for public and cooperative housing -(+) → Promotion of public and cooperative housing -(+) → Stable housing guarantees -(+) → Inclusive energy communities (ECs) [Replication of the Initiative]
11) **B11: Energy price**: Inclusive energy communities (ECs) [Replication of the Initiative] -(-) → Wholesale electricity price -(+) → Incentives to participate in energy communities -(+) → Long-term viability of local energy communities -(+) → Inclusive energy communities (ECs) [Replication of the Initiative]

5.2.6 Órgiva (Spain)

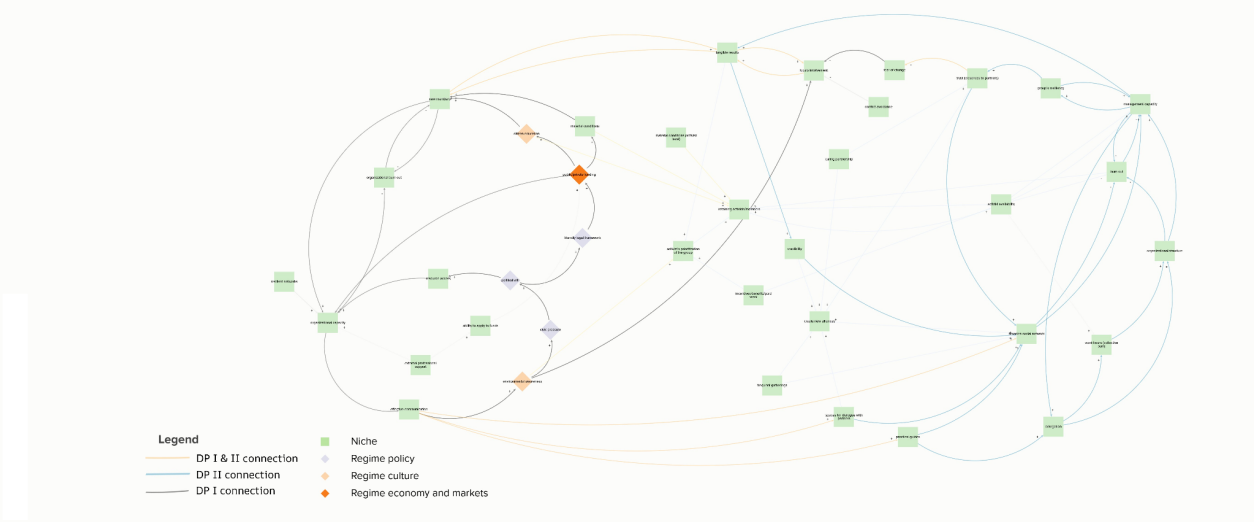


Figure 9: MLP-labelled merged CLD, Órgiva

Source: Stage 1 document of the Órgiva research team.

In the case of Órgiva, 38 variables were identified, of which:

- **Thirty-two are niche-related**: Resilient networks; External professional support; Ability to apply to funds; Organizational capacity; Material conditions; Resource access; New members; Organizational burnout; Effective communications; Locals' involvement; Fear of change; Conflict avoidance; Activist availability; Material conditions (activist-level); Retaining activist/members; Activist prioritization of the group; Group resiliency; Credibility; Work hours (collective sum); Caring partnerships; Spaces for dialogue with partners; Frequent gatherings; Practical guides; Burn out; Management capacity; Delegation; Keeping members; Broadening the social network; Create new alliances; Tangible results; Organizational structure; Trust (closeness to partners).
- **Six are regime-related**: Public/private funding (regime economy and markets); Citizen education (regime culture); Friendly legal framework (regime policy); Political will (regime policy); Civic pressure (regime policy); Environmental awareness (regime culture).

No landscape or niche–regime interference variables were identified.

Only five loops were identified representing more than one MLP-level, and all of them represent niche-regime interactions:

1) **R15**: Organisational capacity (niche) → + effective communication (niche) → + environmental awareness (regime culture) → + civic pressure (regime policy) → + political will (regime policy) → + resource access (niche) → organisational capacity (niche)
2) **R17**: Organisational capacity (niche) → + effective communication (niche) → + environmental awareness (regime culture) → + locals involvement (niche) → + tangible results → + new members (niche) → + organisational capacity (niche)
3) **R21**: Organisational capacity (niche) → + effective communication (niche) → + environmental awareness (regime culture) → + civic pressure (regime policy)→ + political will (regime policy) → + friendly legal framework (regime policy) → + public/private funding (regime economy and markets) → organisational capacity (niche)

4) **R29**: Organisational capacity (niche) → + effective communication (niche) → + environmental awareness (regime culture) → + civic pressure (regime policy) → + political will (regime policy) → + friendly legal framework (regime policy) → + public/private funding (regime economy and markets) → + citizen education (regime culture) → + new members (niche) → + organisational capacity (niche)
5) **R30**: Organisational capacity (niche) → + effective communication (niche) → + environmental awareness (regime culture) → + civic pressure (regime policy) → + political will (regime policy) → + friendly legal framework (regime policy) → + public/private funding (regime economy and markets) → + material conditions (niche) → + new members (niche) → organisational capacity (niche)

5.3 Cross-level dynamics

The merged CLDs of each case study resulting from DP3 offer a comprehensive overview of the relationships between niche, regime and landscape dynamics. This section examines how these interactions influence the reproduction of existing arrangements, the development of CAIs and the potential for change in established governance practices. The analysis focuses on four dimensions:

1. *regime stability and lock-in mechanisms;*
2. *destabilisation of regime and emergence of alternative dynamics;*
3. *nested niche dynamics;*
4. *loops that facilitate interactions between niche, regime and landscape.*

These dimensions provide a common analytical framework for examining the cases while accounting for differences in CLD composition and dynamics identified through the deliberative process.

5.3.1 Regime stability and lock-in mechanisms

The merged CLDs identify the reinforcing and balancing loops that influence the stability of the regime and at the same time constrain the development and continuity of CAIs.

In **Turin**, one example is *B3 Coordination of CAIs*: it demonstrates how the end of the pandemic can diminish community participation and the availability of resources, thereby weakening the capacity of CAIs to sustain coordination and collective action. At the same time, the regime stability is reproduced and represented through the loop *R12 Political inertia*: it indeed captures a self-reinforcing dynamic in which the limited development of food solidarity policies maintains political and policy inertia. Together, these dynamics emphasise how a decline in external pressure and mobilisation can perpetuate pre-existing arrangements, leading to a lock-in by limiting the capacity to sustain alternative forms of collective action.

In **Tartu**, the merged CLD contains no clear balancing loop that independently reproduces regime lock-in. Instead, the reinforcing loops can support either continuity or incremental change, depending on how participation develops.

Loops *R1 Expanding participation* and *R2 Community representatives reinforcing cooperation* may stabilise existing governance arrangements when they improve participation without substantially changing the distribution of authority. Municipal actors continue to initiate participation, while a relatively small number of active residents and community representatives mediate between the municipality and the wider community. This arrangement can make existing participation structures more effective and legitimate, but it may also reproduce invited participation. This risk was visible during the deliberative process, where participation remained concentrated among relatively active

residents and several groups including young people and older residents were underrepresented. At the same time, R1 and R2 are not inherently regime-stabilising. If repeated interaction broadens participation and increases community capacity, the same mechanisms may support gradual regime adaptation. They therefore represent ambivalent pathways of continuity and change.

In **Barcelona**, only one loop was identified as possibly leading to regime stability, and this is the loop *B11 Energy price*. It is based on the assumption that a greater number of inclusive energy communities would have an impact on energy prices, bringing costs down and thereby removing one of the main incentives for participating in energy communities, namely the high price of energy. This dynamic corresponds to the archetypal systemic behaviour known as 'Shifting the burden', because it relieves a symptom without bringing about a fundamental solution in the form of systemic change to the energy system as a whole. Therefore, whilst self-organisation for energy production has many positive aspects, it fails to bring about systemic change if it does not replace the prevailing system. Applying a niche solution to the symptom of high energy prices alleviates the most visible part of the energy system's problem and ultimately can stabilize the energy market regime.

In **Espoo**, the loop linking citizen competence, motivation to participation, active participation and civil society engagement shows how existing regime-level dynamics may reproduce established patterns of participation in decision-making processes concerning large-scale energy projects, rather than representing a regime lock-in mechanism or necessarily implying a transformation of energy governance itself. Greater citizen competence may strengthen residents' motivation to participate, while active participation and civil society engagement may further develop their knowledge and capacity to engage with decision-making processes. Increasing general awareness of opportunities to influence energy projects, alongside access to information about ongoing projects, and options for participation were seen as enabling conditions.

In **Vienna**, the CLD suggests that the initiative's dynamics are best interpreted as an interplay between destabilising reinforcing feedbacks and stabilising balancing feedbacks, with several loops nested within one another and many factors participating in multiple dynamics at once. In particular, there are numerous balancing dynamics that stabilise the regime by constraining the initiative's growth and by channeling conflict into manageable forms. A recurrent pattern is that increasing political salience or activist momentum generates frustration, disappointment, administrative workload, and reduced time available for sustained engagement in the initiative. These factors weaken activity levels, limit message delivery, and may ultimately reduce the initiative's outreach. Hence, the same mobilization that creates pressure on the regime can also generate internal fatigue and organisational fragility, thereby limiting the durability of contention. Particularly important in this regard are the loops that route through "petition committees", "transparency", and "participatory processes". These loops indicate that contestation may be institutionalised in ways that improve procedural openness without fundamentally redistributing power. From a regime perspective, such dynamics are stabilizing because they translate critique into recognised formats of consultation and deliberation, thereby reducing the likelihood of more disruptive forms of opposition. Participation may thus expand in formal terms while remaining bounded in substantive terms, which allows the regime to accommodate dissent without undergoing structural transformation.

Órgiva differs from the other cases, since the cross-level analysis does not identify any reinforcing or balancing feedback loops that directly reproduce regime stability or lock-in mechanisms. The five loops identified by partners connecting niche and regime are all reinforcing. Therefore, they point to potential dynamics through which niche-level organisational capacities can influence regime factors, including political will, access to resources, the legal framework, public/private funding, and environmental awareness.

5.3.2 Destabilisation of the regime and emergence of alternative dynamics

Other loops can illustrate how collective action and external pressures can support processes that challenge established arrangements and create opportunities for alternative dynamics to emerge.

In **Turin**, two cross-level feedback loops point to mechanisms that may destabilize existing regime arrangements: loop *B5 Community participation against social isolation* shows how niche-level practices of solidarity and participation can lead to a reduction in poverty criminalisation, as well as strengthening a culture of solidarity. This has the potential to challenge the individualised and assistentialist logic of the existing regime. Loop *R13 Windows of opportunity* shows how the rapid expansion of food recovery and distribution practices during the pandemic contributed to the institutionalisation of Torino Solidale and the territorial expansion of solidarity infrastructures. Although R13 is triggered by an exogenous shock rather than niche actions alone, it demonstrates how external pressures can create opportunities for niche practices to become embedded in, and potentially transform, regime arrangements.

In **Tartu**, the strongest regime-challenging dynamic is represented by the loop *R3 Co-creation of public space*. This loop moves beyond traditional consultation by positioning residents not only as users of public space but also as active contributors to its design, function and governance. As collective ownership increases, residents become more willing to participate in shaping and maintaining public spaces, creating a stronger role for community actors within urban governance. *Loop R4 Participatory governance and changing attitudes* extends this mechanism across MLP levels. Broader societal support for participation can increase municipal openness, while positive experiences of co-creation can reinforce the legitimacy of participatory governance. However, these loops do not demonstrate that regime transformation has already occurred, but they identify a potential shift from project-based consultation towards more continuous co-creation and enabling governance if experimental practices become repeated and institutionalised.

In the **Barcelona** case study, participants in the deliberative process identified several niche-regime, cross-level reinforcing feedback loops with the potential to produce change in the current system. The loop *R1 Political impact* illustrates this dynamic. Their assumption is that the success of the initiative 'Energies Compartides al Raval', which aims to include vulnerable people in a shared-energy community, could have a political impact by demonstrating the benefits of the developed model. The successful implementation of the initiative and its impact on beneficiary families may increase public awareness of both the project and the potential of inclusive energy communities. This awareness can foster citizen mobilisation and policy advocacy, strengthening political support for social and environmental incentive policies. Greater institutional commitment may then facilitate access to public funding and strengthen collaboration between public administrations, civil society organisations and private actors. These forms of support can address some of the practical barriers faced by initiatives, including bureaucratic burdens and limited access to information, thereby reinforcing their capacity to operate and demonstrate their value. The loop thus describes a potential pathway through which niche-level innovation and mobilisation can influence the political regime and generate more favourable conditions for further experimentation.

Several other loops elaborate on the ways in which that political commitment could impact the development of inclusive energy communities. The loop *R2 Bureaucracy* focuses on one of the potential outcomes of securing political support. Building on the previously described process of political support providing funding and collaboration mechanisms between the administration and

initiatives to identify needs and implement solutions, this loop links political support to reducing bureaucracy to promote or participate in an energy community. Streamlining bureaucracy would reduce the time involved in participating in community energy initiatives and reduce people's reluctance to join or promote these communities. This, in turn, could contribute to the initiative's success, which, as mentioned, could influence political support through political pressure (loop R1), by demonstrating its benefits, or by getting the government to adopt the model, producing more cases and impact. Loops *R3 Information* and *R4 Information and CAI* focus on the impact of political support in improving access to information and knowledge, potentially encouraging the development and replication of inclusive models of energy communities. Similarly, loop *R5 Information and trust* shows the importance of accessible information to build trust among vulnerable people and to facilitate their participation in energy communities. Finally loop *R6 Social plans* describes tools for political regime reform that could be implemented with sufficient political commitment. With sufficient support, equality policies and plans for under-represented groups in the energy sector could be established. This would lead to the formation of working groups and mechanisms to promote equity and inclusion. This would improve the living conditions of vulnerable people, meaning that their basic needs would be met and they would have the opportunity to devote time to participating in niche initiatives that could continue to influence policy.

These loops suggest that the development of alternative energy practices depends not only on niche initiatives' capacity to demonstrate viable models, but also on their ability to mobilise public support and influence institutional arrangements. Meanwhile, regime-level interventions in the form of funding, information provision, administrative simplification and social policies may strengthen the capacity of niche initiatives to consolidate and expand. While these dynamics point to the potential for reciprocal interactions between niche innovation and institutional change, they do not themselves demonstrate that a transformation of the prevailing energy regime has occurred.

In **Espoo**, a potential destabilizing dynamic could be represented by the loop *Security of supply*, at the landscape level, which has become a significant theme over the past years due to geopolitical changes. In particular, the latter have increased the salience of energy security, reinforcing the pursuit of well-being through regime-level policies and encouraging the exploration of alternative methods of energy production in order for cities to be self-sufficient. Therefore, the loop connects landscape-level pressures with regime-level policy priorities: greater concern about security of supply strengthens the pursuit of well-being, which, in turn, reinforces the importance of security of supply. This dynamic may create opportunities to reconsider existing energy arrangements and explore alternative energy production pathways. However, the loop represents a potential driver of change rather than evidence of an actual transformation of the current regime.

In **Vienna**, a central destabilizing dynamic is the accumulation of reinforcing loops around "mobilization", "petitioning", "public pressure", "media presence", and the "power of the initiative's narrative". As more people are reached and mobilized, public pressure on politicians increases, which can enhance the perceived effectiveness of the initiative's ideas and strengthen its narrative power. This, in turn, supports further outreach, signatures, and media attention, thereby intensifying the initiative's capacity to challenge existing political priorities and to render its claims harder to ignore. Such loops are particularly destabilizing when they connect grassroots contention to broader public visibility and issue salience, since they enlarge the arena of conflict beyond the immediate local setting. At the same time, the CLD indicates that destabilization is not linear but mediated by discursive and organisational amplification. Several reinforcing loops link the "effectiveness of the

initiative's ideas" to the "motivation of activists", their "level of activity", "creativity", "controversial artistic interventions", and media appeal. These dynamics suggest that the initiative does not merely accumulate supporters; it also develops repertoires of action that can disrupt routine governance by introducing symbolic irritation, public controversy, and alternative framings. In this sense, destabilization operates not only through numerical growth but also through the displacement of dominant narratives, manoeuvring regime actors into reactive positioning.

In **Órgiva**, the five loops identified connecting niche and regime-level factors are interpreted by partners as potentially destabilizing the current regime. They connect niche-level organisational capacities with regime-level conditions (e.g. access to resources, the legal framework and public/private funding), suggesting that the strengthening of collective initiatives can be associated with changes in the institutional and political environment in which they operate. In particular, loop R15 links organisational capacity, effective communication and environmental awareness with civic pressure, political will and access to resources. Loop R21 extends this dynamic by including a more favourable legal framework and public/private funding. Loops R29 and R30 further incorporate citizen education and material conditions, respectively, alongside the involvement of new members. Loop R17, in turn, connects organisational capacity and communication with local involvement, tangible results and the recruitment of new members. Overall, these loops suggest that the development and consolidation of niche initiatives may reinforce their capacity to exert pressure on, and interact with, established regime arrangements. However, the loops describe potential reinforcing dynamics rather than evidence that regime transformation has already taken place.

5.3.3 Nested niche dynamics

Nested niche dynamics refer to the ways in which the development of CAIs is shaped by processes operating beyond the initiatives themselves. These processes include institutional arrangements, wider social conditions, and external pressures. CLDs demonstrate how niche development can depend on these broader dynamics, and how niche practices can influence relationships and arrangements at other system levels.

In **Turin**, the loop which provides the clearest example of nested niche dynamics is *R13 Windows of opportunity*, by showing how an exogenous shock (the Covid-19 pandemic) created conditions for niche food recovery and distribution practices to expand and become connected to regime-level infrastructures, particularly through the establishment and territorial expansion of Torino Solidale. Thus, niche development was shaped by dynamics operating at higher system levels, while niche practices also contributed to changes in regime arrangements. Added to this, several other loops illustrate how niche dynamics are nested within and shaped by regime-level or landscape processes. For instance, *R10 Role of policies* shows that the design and planning capacity of CAIs contributes to institutional recognition and policy uptake, which in turn expands the territorial reach of CAIs. Closely connected to R10, but extending its implications for CAIs, is *R11 (Risk of) Cooptation*, which highlights the ambivalence of institutionalization: indeed, institutional recognition and policy replication may strengthen niche capacity, while simultaneously increasing the risk of co-optation and dependence on regime structures. Finally, *B13 Relational model disruption* illustrates the opposite dynamic: the incorporation of CAIs into centralised governance arrangements can undermine the autonomy and relational capacity that originally sustained the niche. Together, these loops demonstrate that niche development is influenced by both internal processes and processes of institutionalisation, incorporation, and reconfiguration across different levels of the system.

In **Tartu**, loops R5 *Ownership and neighbourhood stability*, R6 *Social presence, informal control and safety*, and R7 *Shared experiences and participatory culture* show how community-level processes

interact with broader contextual conditions. In particular, loop R5 links community attachment and residential continuity. Stronger community ties and sense of collective ownership may increase neighbourhood attractiveness, while residential stability provides time for social relationships and attachment to develop. This process is simultaneously affected by wider housing-market and demographic conditions. Loop R6 demonstrates the relationship between social presence, informal control and safety. Participants associated active and diverse public-space use with stronger informal social control, lower vandalism and perceived disorder and greater security. This creates a reinforcing community-level mechanism that can improve neighbourhood conditions without relying primarily on formal enforcement (e.g. through police). R7 connects shared experiences with participatory culture. Participation in activities generates common experiences and stronger community ties, which may contribute over time to more favourable attitudes towards participation and further community involvement. Overall, the cross-level dynamics suggest that change in the Tartu case is driven less by technological innovation and more by the gradual strengthening of relationships between residents, community organisations and municipal actors. Trust, participation, community ownership and co-creation function as the principal mechanisms through which local governance arrangements can gradually evolve.

In **Espoo**, there are several loops that characterize nested niche dynamics. In particular, these are primarily associated with the relation between information, citizen competence, motivation to participate and civil society engagement. One loop explores how awareness of the project and opportunities for participation strengthen citizens' competence, encouraging engagement in civil society and reinforcing awareness of the project. A related dynamic connects citizen competence with motivation to participate, civil society engagement and active participation, suggesting that these factors may mutually reinforce one another. The deliberative process highlighted access to information and awareness of different participation forums as key enabling factors for participation. Civil society activities were also identified as important opportunities to develop knowledge of current issues and available forms of engagement. These dynamics suggest that the development of participatory capacity depends not only on the availability of formal opportunities but also on the knowledge, motivation and collective experiences through which citizens can engage with them. The loops therefore illustrate how niche-related participation and engagement may interact with regime-level cultural and policy dynamics, although the available evidence does not establish whether these processes have led to lasting changes in institutional arrangements.

Also in **Barcelona**, several loops represent nested niche dynamics. Loop *R7 Available rooftops* shows that one of the key factors behind the success of the inclusive shared-energy initiative *Energies Compartides al Raval* is its ability to generate solar energy. To do this, it needs access to rooftops on which to install photovoltaic panels. From the outset, the initiative was conceived as a neighbourhood project, with various local organisations working together to set up an energy generation scheme based on the roofs of local institutions, which have large roof areas. A proportion of this energy will be channelled to vulnerable households. Many of the organisations that could participate in the project are public or public-private partnerships. Therefore, the greater the local government's commitment to the initiative, the more rooftops will be available for energy production. Consequently, more organisations will be able to participate, increasing the project's success and its capacity to influence local administration, thereby closing the reinforcement loop. Loop R8 Economic viability concerns the economic conditions required for the initiative's management and for the institutions' producing the energy. Indeed, funding opportunities are considered essential to the economic viability of photovoltaic installations and project management, encouraging further organisations to join and reinforcing the initiative's success. The Barcelona team also highlights the difficulties arising from the initiative's organisational form: as a network of organisations rather than

individuals, it does not fit easily within existing energy community funding schemes and has not been legally established as an energy community.

Two other loops describe how political commitment can directly strengthen the operational capacity of *Energies Compartides al Raval*. Loop *R9 Sensibilisation* describes how the initiative's success may encourage more organisations with rooftops to join. In DP1, the initiative's members predicted that reaching out to vulnerable families would impact the neighbourhood's cultural regime, familiarising residents with the initiative and raising awareness of the benefits of inclusive shared energy schemes. It was emphasised that people working at organisations likely to join the project are also local residents or have strong ties to the neighbourhood. They would therefore also become aware of the importance of the initiative and might develop a willingness to generate and share energy. This would lead to a greater number of participating organisations, creating a virtuous cycle and leading to greater success for the project. Loop *R10 Social fabric* illustrates how inclusive community projects foster a resilient social fabric that can help tackle other issues related to those addressed by the initiative. If there is a resilient social fabric in the neighbourhood, there will be greater capacity to tackle the housing problem, for example by promoting cooperative housing. This approach could improve people's housing conditions and increase the number of citizens with stable housing, thereby facilitating their participation in shared energy projects.

Together, these loops show how niche development is shaped by interactions between organisational resources, institutional support and broader social relations. They also suggest that the effects of niche initiatives may extend beyond the specific socio-technical problem they address, potentially contributing to changes in neighbourhood-level cultural and economic conditions.

In **Vienna**, nested niche dynamics concern the interplay between the initiative's organisational capacity, its mobilisation and communication practices, and the resources available to sustain collective action over time. The CLD identifies a set of interconnected niche-level factors, including the number of activists, their motivation and activity levels, the time and financial resources available to the initiative and its ability to communicate its message and engage with the media. These factors highlight the importance of organisational resources and the initiative's ability to develop effective action plans. In particular, the initiative's communication and mobilisation capacities are connected to its ability to generate public visibility and exert political pressure. Activists can attract attention, broaden the reach of the initiative's message and strengthen its public presence through creativity, controversial artistic interventions, cultivating press contacts and collecting petition signatures. These activities are closely related to the motivation of the activists and the number of people involved in organising and implementing interventions. The resulting dynamics suggest that internal mobilisation and communication practices can reinforce each other, thereby supporting the initiative's capacity to sustain public engagement and challenge existing political priorities. At the same time, the CLD draws attention to organisational constraints that could hinder these processes. Factors such as administrative workload, limited time and financial resources, frustration, disappointment, and difficulties in conveying the initiative's message can undermine activists' motivation and reduce their level of activity. These factors highlight the fragility of internal mobilisation processes, as the efforts required to maintain public visibility and political pressure can also create organisational burdens and emotional exhaustion, which could reduce the initiative's ability to act over time. Overall, Vienna's nested niche dynamics reveal the ambivalent relationship between mobilisation and organisational sustainability. The initiative's ability to generate visibility, develop creative forms of intervention, and attract public support hinges on its internal resources and the continued engagement of its activists. However, the same activities can also intensify administrative and emotional demands, creating constraints that may interrupt or slow down mobilisation. These dynamics help to explain why the

initiative's influence may manifest as intermittent periods of heightened visibility and activity, followed by phases of fatigue and internal reorganisation.

In **Órgiva**, partners identified several niche-level loops, all centered on organizational capacity, tangible results, locals involvement and the recruitment of new members. For instance, R4 connects tangible results with the recruitment of new members, while R5 links tangible results with local involvement. Other loops have different combinations of a broader set of niche factors, such as tangible results, new members, organisational capacity, effective communication, practical guides, spaces for dialogue with partners, delegation, work hours (collective sum), organisational structure, burnout, broaden social network, credibility, management capacity, group's resiliency, trust, fear of change and locals' involvement. Although organisational burnout is not part of a loop involving regime factors, other factors connected to these niche-level dynamics, particularly organisational capacity and the recruitment of new members, also feature in the cross-level loops. The resulting configuration suggests that changes in the internal organisation, resources and relational capacities of initiatives may have implications beyond the niche level, insofar as they affect factors involved in interactions with the regime.

5.3.4 Loops that facilitate interactions between niche, regime and landscape

Finally, this subsection examines feedback loops and direct connections that link variables across MLP levels and that facilitate interactions between the three levels. The focus is on the mechanisms through which collaboration, information, institutional responses and external pressures connect the development of niche initiatives with broader system dynamics. Where a loop does not directly involve all three levels, its contribution to cross-level interaction is specified rather than assuming that every relevant mechanism constitutes a three-level feedback loop.

In **Turin**, *R8 Public-private integration* is the primary feedback loop that facilitates interaction between niche and regime actors. This loop shows how institutional collaboration can support the consolidation of CAIs while establishing infrastructures for more integrated governance. Two additional loops highlight complementary cross-level mechanisms. Loop *R2 Role of information* illustrates how recognising and raising awareness of food poverty can stimulate the production and dissemination of information, feeding into the development of food solidarity policies and, in turn, increasing awareness of food poverty further. Loop *B8 Food recovery and distribution in response to food poverty* illustrates how the system responds to food poverty. Increasing public attention supports the distribution and logistics of food, as well as the recovery of food surpluses, which can help to alleviate food poverty. Together, these loops demonstrate how collaboration, knowledge production and practical responses to systemic pressures can link the various levels of the food solidarity system.

In **Tartu**, loop *R4 Participatory governance and changing attitudes* provides the clearest three-level connection. It links attitudes towards participatory approaches (Landscape) with municipal openness (Regime) and concrete experiences of co-creation (Niche–Regime). Wider support for participatory governance can therefore enable local experimentation, while positive local experiences may contribute to the continued legitimacy of participatory approaches. At the niche-regime interface, loops *R1 Expanding participation* and *R2 Community representatives reinforcing cooperation* are particularly important. R1 represents relational learning through repeated interaction: institutional openness creates opportunities for engagement, while accumulated experiences shape future willingness to participate. R2 highlights the role of community intermediaries, including active residents and neighbourhood organisations, in maintaining communication between residents and municipal structures. The overall cross-level dynamic can therefore be summarised as: institutional

openness → participation opportunities → repeated interaction → engagement experience and trust → community capacity and ownership → further cooperation. From an MLP perspective, change in Tartu is thus driven less by technological innovation or direct niche-regime confrontation than by relational learning and gradual hybridisation between community and municipal governance. The same reinforcing dynamics may reproduce municipality-led participation if they remain narrow and project-based, or contribute to more transformative co-governance if participation broadens, produces visible outcomes and becomes embedded in longer-term practices.

In **Espoo**, there are no loops that facilitate interactions between niche, regime and landscape. Instead, the CLD represents interactions only between regime and niche, or regime and landscape. As already argued above, the loop *Security of supply* shows how landscape pressures can influence regime-level policy priorities (Husu et al., 2025), while the participation-related loops focus on the relationship between citizen engagement and regime-level culture and policy. These connections provide insights into how external pressures and participatory processes may influence the existing energy system, but the absence of loops spanning all three levels limits the extent to which the CLD captures their combined feedback dynamics.

In **Barcelona** loop *R1 Political impact* involves interaction between the three levels: niche, regime and landscape. It refers to changes in the political regime when it comes under pressure from both the landscape - in this case, European laws and directives relating to the 2030 Agenda - and the niche - in this case, citizen mobilisation resulting from the initiative's impact on the cultural regime.

In **Vienna**, the CLD contains no three-level feedback loops connecting simultaneously niche, regime, and landscape levels. Cross-level feedback is confined to the niche-regime interaction, while the landscape functions as an exogenous driver rather than a participant in the feedback structure. Since the CLD is highly nested and overlapping, these mechanisms should not be interpreted as separate or mutually exclusive; rather, they co-produce a dynamic field in which destabilisation and stabilisation continuously interact, while the objective is that of examining which combinations become dominant under particular conditions and how they shape the extent to which collective action can move from contention to transformation.

In **Órgiva**, as already argued, the only cross-level feedback loops identified connect niche and regime-level factors. No landscape factor was included in the CLD, and therefore there are no feedback loops that directly involve all three MLP levels, or linking the landscape to other levels. The five loops already described (R15, R17, R21, R29 and R30) represent the main mechanisms through which niche and regime dynamics are interconnected. They link the organisational and relational capacities of collective initiatives - including organisational capacity, effective communication, local involvement and the recruitment of new members - to regime-level factors such as political will, access to resources, the legal framework and public/private funding. According to the Órgiva team, R15, R29 and R30 display a more balanced combination of niche- and regime-level factors, and therefore represent particularly relevant points of interaction between the two levels. Overall, Órgiva CLD depicts cross-level change primarily through the interaction between the development of collective initiatives and the political, institutional and material conditions shaping their activities, while leaving landscape-level influences outside the system boundaries.

To summarize, four comparative themes emerge from the analysis:

1. The stability of the system is often indirect. This depends not only on opposition to initiatives, but also on political inertia, administrative constraints, organisational fatigue and the institutionalisation of participation without redistribution of power.

2. Opportunities for change manifest in various ways: mobilisation and public pressure (Vienna); experimentation and co-creation (Tartu); political influence (Barcelona); external shocks (Turin); energy security (Espoo); and organisational strengthening (Órgiva).
3. Niches are not autonomous. Their evolution depends on internal resources, territorial relationships, knowledge, institutional recognition and material conditions. Institutionalisation can be both a resource and a risk.
4. The landscape is unevenly represented. Barcelona and Tartu demonstrate connections between all three levels, whereas in other cases, interactions are more limited or the landscape is excluded from the feedback structure.

One aspect to take into account is that the varying presence of the landscape should not automatically be interpreted as a difference in the relevance of external pressures across the six contexts. In some cases, such as Turin and Vienna, these pressures are acknowledged in the narrative, but not formalised as variables within three-level loops. In Órgiva, by contrast, they are excluded from the representation.

5.4 Collective action mobilisation

In the second step of the context comparison, partners answered four blocks of questions based on the CLDs produced in the panels.

The first block of questions regards collective action mobilization, and particularly, the resources - e.g. financial, organisational, relational -, motivations, values, and interests that underpin CAIs actions, as well as their governance models, degrees of institutionalisation, legal forms, and networks.

In this regard, Table 6 summarises the different configurations that collective action may assume, as well as the main motivations, resources and organisational challenges faced by CAIs in each case study.

Table 6: Comparative overview of collective action mobilisation across the six case studies

Case study	Configuration of collective action	Main motivations	Main resources	Main organisational challenges
Turin (Italy)	Grassroots network that cooperates with institutional actors and organisations	Food justice, solidarity, mutual aid, social empowerment	Food donations and surplus, volunteer engagement, territorial networks, knowledge	Coordination among CAIs, balancing institutionalisation and autonomy
Tartu (Estonia)	Municipality-enabled, hybrid and networked arrangement	Climate resilience, quality of public space, safety, community belonging and participation	Municipal and EU funding, planning expertise, intermediaries, community knowledge	Dependence on a small group of active residents and organisations, strengthening community ownership
Barcelona (Spain)	Network of social organisations combining bottom-up mobilisation,	Energy as a common good, environmental sustainability, social	Relational networks, public and regional funding, legitimacy, local knowledge	Access to funding and recognition within existing institutional

	public institutions and private actors	inclusion		frameworks
Órgiva (Spain)	Formal association guided by a small core group	Environmental awareness, collective energy production, building alternative to centralised energy	EU funding, training, technical expertise	Limited institutional support, internal coordination, concentration of responsibilities
Espoo (Finland)	No established CAI, participatory mobilisation; the original SMR initiative of 2017 was launched by city councillors who supported nuclear power	Influence decision-making, national energy security, environmental and technological concerns, city-level climate policy	Knowledge, time, accessible and inclusive information, institutional participation channels	Establishing meaningful participation and clarifying responsibility for its provision
Vienna (Austria)	Network based civic-action platform with a moderate/low degree of formalisation and institutionalisation	Climate and environmental justice, spatial justice, democracy, place-based concerns	Organisational, relational and knowledge-based,	Precarious and limited financial resources, limited institutionalisation

Source: UNITO elaboration.

A first result emerging from the analysis is that collective action can take different forms, ranging from the highly informal to the highly formal and institutionalised. While some initiatives retain an informal and voluntary structure, others have gradually adopted more structured forms of association, coordination groups and decision-making procedures. In other cases, collective action emerges through platforms and networks connecting civil society organisations, citizens, and institutional actors. The relationship with institutions is particularly significant as it can provide resources, legitimacy and implementation capacity. However, it can also lead to greater dependence on public funding and the associated organisational constraints. Thus, the case studies show that collective action does not necessarily occur outside institutions, but can also develop through hybrid forms of collaboration and interaction with regime actors.

The motivations underpinning collective action mobilisation also vary. In some cases, the action stems from the need to address concrete problems - such as food poverty in Turin or energy poverty in Barcelona - but tends to be situated within a broader perspective focused on social justice, solidarity, and the creation of alternatives to existing models. In other cases, environmental and spatial justice, the quality of urban spaces, democracy, and the ability of citizens to influence decisions affecting their communities take center stage. However, the desire to promote alternative forms of organisation and management of resources and collective assets emerges in all cases.

The resources mobilised are not solely material or financial. Alongside funding, food supplies, infrastructure and institutional support, relational resources, local knowledge and technical and organisational skills are also crucial. Networks among citizens, associations, civil society organisations and institutions enable complementary resources and capabilities to be pooled, facilitating the implementation of initiatives. Knowledge of local needs and community characteristics is also an important resource for defining interventions and developing responses that are tailored to local

contexts. However, these resources are unevenly distributed: in some cases, they are concentrated within institutions or among a small group of particularly active individuals, while in others, they depend on organisations' ability to build and maintain collaborative networks.

Finally, the main organisational challenges concern ensuring continuity in collective action and distributing responsibilities and workloads sustainably. In several cases, activities depend on a small number of highly motivated individuals, which carries the risk of overburdening them and makes it difficult to involve new members and encourage broader participation. There are also problems regarding the availability of financial and time resources, the need to strengthen internal coordination, and building external alliances and partnerships. In cases involving close interaction with institutions, there is an additional tension between organisational consolidation and preserving autonomy: while formalisation and institutional recognition can strengthen initiatives, they can also limit their flexibility and transformative capacity.

5.5 Landscape factors and windows of opportunity

The second block of questions regards the windows of opportunity detected in the historical transition pathways, the landscape factors or external shocks that contributed to the opening or closing of these windows of opportunity, and how niche and regime actors responded to them.

In the **Turin** case study, two main WoOs were identified. The first one followed the 2008 global economic crisis and the innovation in fresh food reuse and redistribution. Indeed, with the emergence of the economic crisis and related 'new poverty', a fresh food redistribution model emerged (e.g. with Fa Bene!, 2013), improving upon the charitable paradigm of dry food distribution. This model was characterized by territorial network diversification in Aurora and Barriera di Milano, as well as early experiments in zero-threshold services for invisible and marginalized populations (e.g. Eco dalle Città). In the regime field, there was a partial recognition of the food solidarity initiatives. This commitment was revitalised with the signing of the Milan Urban Food Policy Pact in 2015 and the creation of the Metropolitan Turin Food Atlas (2015–2017). The network now involves university centres and key local stakeholders, representing an important tool for the analysis of Turin's food system and its policies (e.g. the Food Metrics Report).

The second window of opportunity was opened by the COVID-19 pandemic, understood as an exogenous variable that exposed existing vulnerabilities, exacerbated pre-existing poverty and created new socio-economic vulnerabilities. In the CLDs this broader context was captured through two landscape factors: food poverty and poverty criminalization. The first factor is defined as the "structural socio-economic vulnerability affecting access to adequate food", while the second as the "cultural and political tendency to frame poverty and vulnerable groups through a security and moral deficit lens rather than a rights lens". From the niche's perspective, the pandemic accelerated food solidarity initiatives and the formation of new bottom-up groups. Fifteen territorial hubs were created with Torino Solidale, to support the increasingly vulnerable populations, both visible and invisible. From the regime's perspective, there was an extraordinary resource allocation and the creation of a formal co-governance platform (Torino Solidale). Consequently, as the regime and its distribution practices began to destabilise, the niche emerged through various experiments and innovations in the field of food solidarity. It then entered a process of 'symbiotic interaction' (Geels and Schot, 2007), whereby the regime absorbs niche innovations without undergoing structural transformation.

In Tartu, two landscape factors were included in the CLD: attitudes towards participatory approaches and vandalism. The former captures wider societal and policy-level changes in the legitimacy of citizen

participation and collaborative governance. Increasing support for participation at European, national and municipal levels creates a favourable environment for municipal experimentation with co-creation and can influence the city's willingness to cooperate with community actors. By contrast, vandalism emerged from the deliberative process as participants repeatedly raised concerns about damage to common property and its impact on the appeal and usage of public spaces. Landscape factors played a relatively limited role in the deliberation process compared to the niche and regime levels, as the focus was primarily on issues related to neighbourhood governance and community relations that were directly experienced and potentially actionable.

In Órgiva, three major WoOs were identified along the historical transition pathway of the AEC: the legal recognition of energy communities in Spain, which provided the institutional basis for their creation; the availability of European funding for community energy projects, enabling the implementation of the initiative's first photovoltaic installation; and more recently, the approval of Royal Decree-Law 7/2026, which extended the maximum distance between electricity generation and consumption in collective self-consumption projects in rural areas from 2 km to 5 km. For the AEC, this latter regulatory change removed one of the main structural constraints identified throughout the deliberative process and previous interviews. Under the previous regulations, the initiative relied almost entirely on access to municipal rooftops within a 2 km radius. However, this option was repeatedly blocked by the Órgiva Town Council. The new regulation substantially increases the potential area of participation, enabling households that had previously shown interest but were excluded due to their location to become members. This legal reform therefore represents a significant step forward for the initiative, reducing its dependence on municipal infrastructure, expanding the pool of potential participants and improving its long-term viability.

This WoO was enabled by broader landscape developments, including European climate and energy transition policies, concerns about energy security and decentralised renewable energy systems, which encouraged regulatory reforms supporting energy communities. These landscape pressures materialised at the regime level through changes in Spanish self-consumption legislation. The AEC is now exploring the incorporation of new members located within the newly eligible area, with the Provincial Council’s Energy Office acting as an important intermediary by informing and advising the initiative on the legislative changes. However, the Órgiva municipal government has not modified its position, meaning that while the reform reduces dependence on municipal support, institutional tensions remain.

In the **Espoo** case study, security of supply was identified as the main, and the only, landscape factor. This issue gained prominence in the context of the war in Ukraine and the COVID-19 pandemic, which heightened concerns about energy security, the price of imported electricity, and the need for greater self-sufficiency (Kari et al., 2023). These developments have increased public awareness of the prices of imported energy and of nuclear safety, partly shaped by past accidents such as Chernobyl and Fukushima, which might negatively influence public opinion on SMRs.

Several potential WoOs were identified during the deliberative process. Participants raised zoning as a significant leverage point, during which the participation of residents could be increased. In addition to zoning, one of the impact proposals was related to the piloting of new participatory forums or participation strategies. The panelists referred to previous examples, such as land-use contract models, and considered the possibility of piloting new types of inclusion strategies to be a viable option. The idea was to assemble a group and test participation methods in practice, where it could be assessed whether it would increase inclusion. Piloting could therefore produce positive experiences, which could then be built on to become common practices. Electoral cycles at both parliamentary and municipal levels were considered potential opportunities to raise awareness and

advance specific projects, although electoral promises may not translate into concrete actions. Finally, municipal strategies, such as Espoo's "Espoo story", can provide opportunities to inform residents about the city's priorities and involve them in defining its future direction.

These potential windows are shaped by broader landscape developments, including geopolitical instability, fluctuations in energy prices, and concerns about supply security. However, the implications of these developments for the development of SMRs and public participation remain uncertain. The main response identified during the deliberative process was to pilot new participatory forums and strategies, potentially drawing on the experiences of other cities. Such initiatives could encourage niche actors and municipal institutions to explore more inclusive approaches to energy planning. However, their implementation and influence on decision-making remain to be seen.

However, unlike in Órgiva, where regulatory changes represent a relatively concrete opportunity, the opportunities identified in Espoo are primarily potential and procedural. Zoning, election cycles and municipal strategies do not necessarily represent open windows of opportunity; rather, they are processes through which it may be possible to increase participation.

In the **Barcelona** case study, only one landscape factor was included in the CLD: *climate objectives*. This factor was identified by participants in the deliberative process and understood as an external pressure on the political regime, particularly in relation to environmental policies, that could lead to the kind of social-environmental policies the initiative is calling for.

Several WoOs emerged from the interaction between broader landscape developments and local institutional initiatives. At the niche level, the introduction of a two-year grant by the local government in 2022 to promote the formation of urban communities enabled La Traginera to develop projects to identify and alleviate energy poverty in the neighbourhood. A second round of funding in 2024 subsequently supported the launch of 'Energies Compartides al Raval' project, at a time when many energy communities had emerged in the region and energy poverty was a clear concern.

These opportunities were shaped by broader pressures, including the European directives to tackle energy poverty, which in Spain led to the development of the National Strategy on Energy Poverty, as well as pressure from social movements such as the Alliance Against Energy Poverty (APE) and external pressures linked to geopolitical energy crises. Furthermore, worsening weather conditions, particularly rising summer temperatures, are fuelling social concern about people's living conditions and energy costs during the summer.

Together, these developments have increased the visibility of energy poverty and created a favourable context for initiatives related to the issue. Public bodies and third-sector organisations invited to the deliberative panels responded very positively, reflecting this climate of interest and the search for solutions. Niche actors responded by securing public funding, building on the fact that they were already addressing energy poverty as a neighbourhood problem and had direct links to the administration. At the regime level, European directives and resources, including the guidance offered by the Energy Poverty Advisory Board, have shaped the policy response. The CO-SUSTAIN deliberative process has also opened a window of opportunity for some of the actors within the policy regime to learn about innovative best practices and reflect on how energy communities could become more inclusive.

Finally, in the **Vienna** case study, the principal window of opportunity identified in the recent transition pathway was the launch of *Mitte 15*, a participation-oriented urban development process

initiated by the city of Vienna (the regime). This opportunity emerged as a consequence of landscape pressures, including the intensification of urban heat and the need for climate adaptation, and the global and European discourses on climate resilience, biodiversity restoration, and just green transitions, as well as land scarcity and real-estate valorisation pressures affecting the Westbahnareal. Long-term trends in public participation and environmental democracy also shape expectations, as the public increasingly expects to act as co-designers of transformations rather than consultees. These macro trends exert pressure on the incumbent regime and open WoOs that grassroot movements such as WESTBAHNPARK.LIVE seek to exploit, redefining what urban development 'ought' to mean in a warming Europe.

Seeking to capitalize on this window of opportunity, WESTBAHNPARK.LIVE engaged in various forms of mobilisation, including a petition that gathered over 11,700 signatures, media outreach, forming alliances and participating in the Mitte 15 process. However, the opening of participatory channels did not result in a transfer of decision-making power; the city of Vienna retained control over the final decisions. This case therefore illustrates the ambivalent nature of windows of opportunity: while pressures on the landscape and institutional openings may enable CAIs to contribute to urban development processes, this does not necessarily guarantee that their demands will be incorporated into political decisions.

Across the six case studies, it emerges that the landscape level (and consequent factors) is operationalised in different ways, encompassing different external pressures that range from major crises and geopolitical developments to climate objectives, changing societal expectations and broader socio-economic trends. In particular, it is interpreted in relation to the socio-technical problem addressed in each case study, the scale of analysis and the aspects that emerged during the deliberation process. These differences are summarized below:

- In Turin: structural vulnerabilities and processes of poverty stigmatization, made particularly visible by economic crises and the pandemic.
- In Barcelona: climate goals as a factor formally included in the CLD, within a broader context of policies to combat energy poverty.
- In Órgiva: pressures related to the energy transition and energy security, which contribute to regulatory changes.
- In Espoo: energy supply security, linked to geopolitical crises and price volatility.
- In Vienna: climate pressures, demand for green spaces, expectations regarding participation, and tensions related to real estate development.
- In Tartu: attitudes toward participation and concerns about vandalism, with landscape playing a relatively limited role in the deliberation.

At the same time, the landscape factors included in the CLDs do not necessarily encompass all the external dynamics that influence the cases. Table 7 provides an overview of the different WoOs identified in all cases - which also offered varying prospects for niche development. Indeed, some broader dynamics remained outside the scope of the CLDs or received limited attention during deliberations, particularly when the focus was on issues that participants could experience or influence directly.

Table 7: Windows of Opportunity in the six case studies

Case	Typology of WoOs	Examples
Turin (Italy)	Crises that accelerated pre-existing innovations	2008 financial and economic crisis, COVID-19 pandemic
Barcelona (Spain)	Fundings that enable the development of initiatives	2022 and 2024 municipal calls for proposals
Órgiva (Spain)	Regulatory changes that remove structural constraints	European funding, expansion of the permitted distance for collective self-consumption
Vienna (Austria)	Institutional processes that open new spaces for participation	Mitte 15
Espoo (Finland)	Potential procedural opportunities	Pilot projects on participatory forums, zoning processes, and municipal strategies
Tartu (Estonia)	External pressures with a limited role in the deliberative process	Landscape remains relatively marginal in relation to neighborhood governance

Source: UNITO elaboration.

5.6 Niche–regime interaction and bridging actors

The third block of questions concerns the relationships between niche and regime across the six case studies and the shape that they take (e.g. cooperation, conflict, co-optation, hybridisation). Attention is also paid to the role of bridging actors, processes and infrastructures in shaping these relationships.

In **Turin**, alternative food solidarity practices coexist and interact with the established food distribution chain, and the consumption practices already existing in the city. In particular, stakeholders generally handle CAIs through attempts at coordination and co-participation rather than direct governance (e.g., Torino Solidale: a city-wide food solidarity network founded in March 2020 to coordinate emergency food assistance through a hub-based distribution model). Since the COVID-19 pandemic, there has been an ongoing effort to establish frameworks for collaboration and alignment between different stakeholders. However, a fully formalised network is still lacking, and most initiatives continue to operate independently. The goals of stakeholders focus on stabilising emergency responses, integrating grassroots actions into broader welfare and food security strategies, and strengthening the capacity of the welfare system to learn, adapt and transform without collapsing. They also aim to foster synergies with grassroot actors by leveraging their proximity, trust and community engagement. From the CAIs' perspective, institutional recognition and the availability of funding can support the assumption of political responsibility and the stabilisation of initiatives. However, these same mechanisms can also generate dependency, co-optation or bureaucratisation, thereby reducing the flexibility and autonomy of community practices. Nevertheless, the idea of a more integrated and synergistic system emerged during the third deliberative panel, supported by the increased co-creation of data and knowledge among different stakeholders. Integration was understood as overcoming fragmentation between the public, private, and agri-food sectors, as well as the ability to make data actionable by bridging the gap between knowledge production and policy implementation. From this perspective, the university was seen as a bridge between niche and regime, supporting systemic analysis processes and the operational translation of information. Torino Solidale

is another important bridging infrastructure between niche and regime. As argued by several actors during the second DP (regime's deliberative table), through "Torino Solidale" during the COVID-19 pandemic, a city-wide coordination effort was formally established to publicly recognize networks that were already active. In this sense, Torino Solidale can be seen as an attempt to transform pre-existing networks into a recognized governance structure, as well as to leverage the expertise, local presence, and material and logistical resources that the third sector had already put in place - especially following the 2016–2021 period, during which the previous municipal administration had scaled back support for policies and initiatives aimed at combating food insecurity.

In Órgiva, interactions between niche and regime actors are characterised by selective cooperation, institutional mediation, and conflict. The interviews and deliberative process showed that the AEC has developed and strengthened cooperative relationships with several regime actors, particularly the Granada Provincial Council's Energy Office, as well as with public institutions providing technical support, funding opportunities and an enabling regulatory framework. The deliberation panels also fostered new cooperative relationships between regime actors and other niche organisations, creating opportunities for future collaboration. No conflicts or tensions arose during the deliberative process itself, which was characterised by constructive dialogue, mutual respect, and a willingness to cooperate. However, the relationship between the AEC and the Órgiva municipal government remains conflictual. The main source of disagreement is the AEC's request to use publicly owned rooftops for photovoltaic installations, a request that the municipality has consistently refused to support, thereby limiting the initiative's development. Consequently, the regime is internally differentiated: while some institutional actors facilitate niche development, others constrain it. This results in a combination of cooperation and conflict that shapes the transition pathway. The main bridging actor identified through the interviews and deliberative process was the Energy Office of the Provincial Council of Granada. As a public institution, it acted as an intermediary between the AEC and the Órgiva Town Council, although its mediation was ultimately unsuccessful in establishing cooperation between the two parties.

In addition to this mediating role, the Energy Office has provided technical advice, disseminated information on funding opportunities and legislative changes, and supported the AEC in navigating administrative procedures. The evolving regulatory framework for energy communities has also created new opportunities for interaction between collective action initiatives and public institutions, functioning as an institutional bridge.

In Tartu, the relationship between the niche and the regime is characterised primarily by cooperation and gradual hybridisation rather than conflict or co-optation. While the municipality retains formal authority, resources and implementation responsibility, residents and community organisations contribute local knowledge, networks and emerging capacity for collective action. Nevertheless, the relationship remains asymmetrical. Participation opportunities are largely created by the municipality or externally funded projects, and community actors mainly become involved through invited participation. At the same time, however, deliberations revealed an aspiration to move beyond consultation towards more continuous co-creation and shared responsibility for public spaces. Several actors function as bridges between the niche and the regime. The Institute of Baltic Studies and the University of Tartu facilitate dialogue, translate knowledge and create structured opportunities for interaction, acting as intermediaries in this way. Community organisations and active residents, including Annelinna Selts, Tartu Maheaed and the Risttee congregation, connect residents with municipal institutions. Apartment owners' associations, the local library and other neighbourhood institutions can perform similar boundary-crossing functions. The Living Lab itself is an important bridging infrastructure. Other projects (especially ClimaGen) provided an institutional space for

experimentation, while the CO-SUSTAIN project itself created structured encounters in which municipal and community actors could jointly identify system dynamics, leverage points and possible solutions.

In **Espoo**, too, the relationship between the niche and the regime is characterised by cooperation in identifying functional solutions to improve accessibility to participation. Several institutional processes and infrastructures can facilitate communication between the two levels. These include the city council's existing participatory strategies, which facilitate interaction between residents, companies and municipal stakeholders. Introducing participation forums and piloting new practices and lessons learned from other cities have been identified as possible ways of developing and testing new cooperative approaches. Furthermore, formal planning and regulatory frameworks, such as Environmental Impact Assessments (EIAs), zoning procedures and the Nuclear Energy Act, provide institutional channels through which public participation can be integrated into decision-making processes. Research projects can contribute to this by facilitating knowledge exchange and supporting the development of new participatory approaches. However, concerns were raised during the deliberative process regarding the possible co-optation of participatory strategies. Some representatives of regime-level actors expressed doubts about whether it is realistic to expect companies, cities or municipalities to have the resources to develop new participation strategies or organise events. There were also concerns that participatory activities would be organised merely as a formality to demonstrate an attempt at participation without providing any meaningful opportunity for input.

In **Barcelona**, niche-regime hybridisation occurs through representatives of the CAI's constituent organisations, some of which are public or semi-public bodies. Furthermore, the CAI and its constituent organisations collaborate directly with the administration on a regular basis. Nevertheless, the CAI is asking for greater involvement of the district and neighbourhood administration. Therefore, the forms of interaction can qualify as cooperative or even characterized by a high level of hybridization at some points, and neutral on others. Boundary organisations such as the MACBA (Barcelona Museum of Contemporary Art) are involved in the core group of the CAI, and are part of the pilot scheme. The museum is installing solar panels on its roof to power its own operations and share 10 percent of the energy produced with vulnerable families in the neighbourhood. Other boundary organisations include the Ciutat Vella Environmental Centre, which is part of the district administration and acts as an indirect communication channel with the initiative, and the CCCB (Barcelona Centre for Contemporary Culture), a public facility.

Finally, in **Vienna**, the WESTBAHNPARK.LIVE initiative operates at the interface between niche experimentation and regime-level negotiation, seeking to move from marginality to influence by coupling three mechanisms: framing, mobilisation, and procedural insertion. Boundary-spanning actors such as Gebietsbetreuung Stadterneuerung (a public service and advisory body of the city of Vienna dedicated to urban regeneration and neighborhood support) and Arbeiterkammer Wien (the Vienna Chamber of Labour) play an important role as intermediaries between the initiative and established institutional structures. Depending on the sub-regimes, the form of interaction varies: cooperation and exchange dominate in the culture (sub-)regime, whereas relations with the policy, economy and markets, and industry and infrastructure (sub-)regimes are predominantly conflictual.

What emerges from this comparison is that the relation between niche and regime is neither inherently cooperative nor conflictual. Rather, it depends on the institutional framework, actors and processes through which they interact. The comparison reveals three overlapping dynamics of niche–regime interaction: cooperation and hybridisation, risks of co-optation, and conflict. First, in Turin, Barcelona and Tartu the interactions involve forms of cooperation, coordination, and hybridisation. In

Turin, Torino Solidale network connects food solidarity initiatives with established institutions and organizations, although these relationships have not developed into a fully formalised network. In Barcelona, hybridisation between niche and regime is partly due to the presence of actors and organisations operating at the intersection of civil society and institutions, and collaboration with public bodies such as MACBA and Ciutat Vella Environmental Centre. In Tartu, cooperation among residents, associations and municipal administration is accompanied by a gradual hybridisation of participatory practices and a persistent asymmetry in resources and decision-making power. Second, the case studies of Turin and Espoo highlight concerns about co-optation. In Turin, for example, the institutional recognition of CAIs could undermine their autonomy, potentially increasing their dependence on established institutions and exposing them to bureaucratisation. In Espoo, there were similar concerns about incorporating participatory practices into formal processes without significantly altering the decision-making process. Third, the relationship between the AEC and the municipal government in Órgiva, as well as between the WESTBAHNPARK.LIVE initiative and the established urban planning and development framework governing the Westbahn area in Vienna, is characterised by conflict.

In all cases, bridging actors play a key role in facilitating dialogue between niche and regime and mediating their different interests. These include public institutions, universities, research organisations and community organisations, supported by institutional arrangements and participatory frameworks that facilitate niche–regime interactions. However, their capacity to support effective collaborations or institutional change is influenced by the conditions under which they operate, the distribution of decision-making power, and the extent to which the niche can maintain its autonomy while gaining institutional recognition.

5.7 Transition pathways

Finally, the fourth block of questions explores how niche initiatives and regime structures evolve over time, with a focus on the dynamics of system change that emerge from their interactions. Particular attention is paid to the processes of niche development and regime adaptation, as well as the possible pathways through which these dynamics contribute to broader socio-technical transitions.

Table 8: Comparative overview of transition pathways and system change across the six case studies

Case study	Niche evolution	Regime adaptation	Niche-regime interaction and emerging pathway
Turin (Italy)	Professionalization, standardization of practices, expansion of services and increasing organisational structure, loss of autonomy	Partial incorporation of CAIs into existing formal welfare arrangements, particularly through Torino Solidale network	Increasing integration and coordination, but persistent tensions between system efficiency and grassroots autonomy. Risk of co-optation and weakening of transformative practices
Barcelona (Spain)	Organisational and technical consolidation of the initiative, development of a pilot project and preparation for potential scaling-up	No observable policy or structural changes yet, although institutional actors have shown some interest in the deliberative process	Collaboration with local authorities is limited but is considered important for future recognition and scaling-up of the model

Órgiva (Spain)	Formal institutionalisation as a legal energy community, strengthened technical and organisational capacities, but only partial scaling-up and dependence on a small core group	More favourable national regulatory conditions for collective self-consumption, but limited adaptation at the local level	Selective alignment with institutional actors, persistent conflict with local government, and growing organisational autonomy of the niche
Vienna (Austria)	Evolution from protest and traditional activist mobilisation towards an experimental and a more diversified and professionalised action platform	Mainly through procedural participation and changes in planning discourse, rather than through structural transformation	Persistent tension and partial integration, alongside the exclusion of more radical/progressive demands, and niche's limited decision-making power
Espoo (Finland)	No established CAI; potential development of new participatory platforms and practices remains under consideration	Possible development of more accessible participatory strategies and new forums, and changes in the legislative framework	Cooperation remains prospective, accompanied by concerns about possible co-optation, however no clearly defined transition pathway has emerged
Tartu (Estonia)	Gradual strengthening of community capacity and emerging community-led activities, without substantial institutionalisation, professionalisation or autonomous scaling of the niche	Experimentation with co-creation and participatory governance, with the potential to move beyond project-based consultation	Increasing alignment and partial integration, through gradual hybridisation and institutionalisation, dependent on the embeddedness of Living Lab practices into neighborhood governance

Source: UNITO elaboration.

The comparison of the six case studies shows that transition pathways are not uniform. They depend on the level of niche development, the system's capacity to adapt and the nature of niche-regime interaction.

In Turin, the growing professionalisation and integration of initiatives into welfare services has strengthened coordination and intervention capacity, while simultaneously generating tensions related to the standardisation of practices and loss of autonomy. In Tartu, change is primarily manifested through the development of community capacities and experimentation with collaborative governance forms, although institutionalisation remains uncertain. In Órgiva, the formalisation of the energy community and the development of skills have fostered the niche's growth, but organisational issues and limited collaboration with the local government continue to hinder its expansion. In Barcelona, the initiative is consolidating its organisational and technical capabilities by focusing on implementing a pilot project to gain institutional recognition and facilitate potential expansion. In Espoo, however, the potential transition pathway remains largely hypothetical and focuses on the potential for developing new forms of participation in large-scale energy projects. Finally, in Vienna, certain aspects of the niche are being selectively integrated into planning processes without any substantial transformation of the regime's structures.

Overall, these cases demonstrate how interactions between niches and regimes can produce different outcomes, ranging from partial institutional integration and collaboration to persistent conflict and experimentation with new forms of governance. While institutionalisation and collaboration with

regime actors can provide initiatives with resources and legitimacy, they do not necessarily lead to systemic transformation. It is therefore important to consider not only which elements of the niches are incorporated into existing structures, but also which practices and demands remain marginal and to what extent the initiatives succeed in preserving their autonomy and transformative capacity.

5.8 Comparing the contexts of the deliberation processes : main findings and a typology

5.8.1 Main findings

First, the operational definition of niche and regime is an analytical tool, useful to identify actors, resources, capacities, practices and structures that characterise the system. However, **the boundaries between niches and regimes are often blurred**. Indeed, as shown, **CAIs are not always outside of, or against, institutions; on the contrary, they can cooperate and collaborate with regime actors, use public resources, participate in decision-making processes, and incorporate expertise from the regime**. This is particularly evident in Barcelona, where some actors participate simultaneously in the CAI and in organizations affiliated with the regime; in Tartu, where the initiative itself is promoted by the municipality; and in Espoo, where the niche is defined through potential opportunities for participation within existing institutional processes. Even in Turin and Vienna, although there is a more recognizable distinction between grassroots and institutional actors, interactions and collaborations blur the line between them.

Second, there is a **tension between transformation of the status quo and collaboration with the regime**. In all cases, the **CAIs and the actors** involved in the deliberative process **recognize limitations or critical issues in the existing structure** and identify the need to improve or transform them. However, this **does not mean that the system must be completely changed**: in many cases, indeed, the goal is to change its practices, procedure, and models of governance through collaboration. Strategies therefore oscillate between cooperation, autonomous experimentation, the pursuit of institutional recognition, and conflict. These strategies are also shaped by different resources, motivations and organisational capacities underpinning collective action mobilisation. Across the six cases, CAIs mobilise different material, organisational, relational and knowledge resources. These initiatives are driven by motivations ranging from solidarity and social inclusion to environmental justice and climate resilience, as well as quality of public space and neighbourhood improvement. However, their capacity to mobilise and sustain collective action varies considerably. While some initiatives rely on established networks and more institutional partnerships, others depend on a small core of committed individuals or project-based resources, which can limit their continuity and development. This tension is particularly evident in Turin, where institutional recognition can strengthen the CAIs but also lead to dependency, bureaucratization, and co-optation; in Órgiva, where cooperation with certain institutions coexists with conflict with the Municipality of Órgiva; and in Vienna, where the initiative seeks to influence planning processes without having access to decision-making power. Barcelona and Tartu, on the other hand, exhibit configurations characterized by more structured forms of collaboration and hybridization, while in Espoo the central issue concerns whether participation can be truly meaningful rather than purely formal. Collaboration with the regime is therefore not necessarily synonymous with transformation, just as conflict does not preclude the possibility for cooperation.

Third, in all cases the **relationship between niche and regime is facilitated by the presence of bridging actors**, such as universities and research institutions, public institutions, civil society organisations and local associations, often supported by specific governance mechanisms. They help translate different

languages, needs, and priorities. Examples of bridging actors include: Torino Solidale and the University of Turin; the MACBA and the Ciutat Vella Environmental Center in Barcelona; the Energy Office of the Province of Granada in Órgiva; universities, associations, and the Living Lab in Tartu; the participatory strategies and forums of the City of Espoo (arrangements rather than actors); Gebietsbetreuung Stadterneuerung and the Arbeiterkammer in Vienna. However, their role is not limited to facilitating communication: they can provide resources, knowledge, legitimacy, technical support, and access to decision-making processes. At the same time, **their capacity for mediation depends on power asymmetries and institutional conditions**; therefore, they do not automatically guarantee a balanced or transformative relationship between niche and regime.

Fourth, the landscape is a differentiated and selectively relevant context. The six case studies are influenced by **different external pressures and opportunities, depending on the nature of the socio-technical system and scale of analysis**. In Turin, economic crises, socioeconomic vulnerabilities, and the pandemic are prominent; in Barcelona, climate goals and policies addressing energy poverty; in Órgiva, the energy transition, security of supply, and regulatory changes; in Espoo, primarily energy security and geopolitical tensions; in Vienna, climate change, a shortage of green spaces, and expectations regarding participation; and in Tartu, attitudes toward participation and concerns related to vandalism. These external factors have not always been incorporated into the CLDs, since they carry different weights across the cases. In some contexts, such as in Turin and Órgiva, external shocks and changes help open up concrete opportunities for the development of initiatives; in others, such as Espoo, the opportunities are primarily potential and procedural.

Fifth, no single configuration of niche–regime relationships consistently supports the transformative potential of CAIs. The opportunity for action depends on a combination of the niche's organizational capacities, the regime's openness or resistance, the availability of resources, and the presence of bridging actors. In some cases, collaboration and hybridization prevail; in others, the relationship is more conflictual or characterized by asymmetries; in still others, the niche is defined primarily as a potential space for participation. These different configurations also influence the transition pathways for change. CAIs development takes different forms across the six case studies, including professionalisation, organisational and technical consolidation, community capacity-building and the development of participatory strategies. Regime's responses also vary, from the partial incorporation of CAIs into existing formal welfare arrangements to procedural adaptation or persistent tensions. These pathways are therefore uneven: institutionalisation, professionalisation and growing collaboration may strengthen the visibility, legitimacy and operational capacity of initiatives, but they do not necessarily lead to broader transformations of established practices, governance arrangements or decision-making processes. **The six cases illustrate various configurations of interaction, accommodation and contestation between niche and regime dynamics, which are shaped to varying degrees by landscape pressures**. This comparative perspective highlights the importance of examining not only whether CAIs interact with established institutions, but also the conditions under which such interactions preserve autonomy, strengthen transformative capacity, or reproduce existing governance arrangements.

5.8.2 A typology of contexts

Recombining the dimensions of analysis of the two steps, the six contexts can be described along eight dimensions, two for each of four components: the niche, the regime, their interaction and the window of opportunity (Table 9).

Table 9: Analytical dimensions for the comparison of case study contexts

Dimensions		Values
Niche	**1 Origin and formalisation**	*Origin:* citizen-led · led by a network of organisations · regime-initiated · absent *Formalisation:* informal · semi-formal network · formal legal entity · project-based
	2 Forms of action	prefigurative / service provision · contentious / making claims · community building · procedural participation
Regime	**3 Core and decisive scale**	*Core:* political-institutional · socio-economic / infrastructural · mixed. *Scale:* local · national · multi-level
	4 Stance towards the niche	host / promoter · coordinator / incorporator · partner · selective (internally split) · adversarial · not applicable
Interaction	**5 Modes and main risks**	*Modes:* hybridisation · asymmetric cooperation · coordination · conflict · procedural integration *Risks:* reproducing invited participation · co-optation / dependency · dissent absorbed without power shifting · resistance · treating only the symptom · exclusion and reproduction of existing arrangements
	6 Bridging	boundary organisations · formal coordination body · public brokers · intermediaries without decision power · led by researchers or community intermediaries · formal procedures
Window of Opportunity	**7 Type**	Crisis · policy and funding · regulatory · institutional process · project · potential / procedural
	8 Status at the time of the panels	Open · closing · opening outside the process · tied to the project · potential

Source: UNITO elaboration.

By combining two analytical dimensions, the origin of participation (bottom-up or regime-led) and the nature of niche–regime interactions (cooperative or conflictual), three distinct types of context can be identified: **embedded niches** (Barcelona and Turin), **contested niches** (Vienna and Órgiva) and **invited participation** (Tartu and Espoo). Table 10 describes them along the eight dimensions.

Table 10: A typology of case study context

Dimension	Type 1 – Embedded niches (Barcelona, Turin)	Type 2 – Contested niches (Vienna, Órgiva)	Type 3 – Invited participation (Tartu, Espoo)
1 Niche origin and formalisation	Organisation- or third-sector-led · semi-formal networks	Citizen-led · informal (Vienna) or formal entity (Órgiva)	Regime-initiated or absent · project-based

Dimension	Type 1 – Embedded niches (Barcelona, Turin)	Type 2 – Contested niches (Vienna, Órgiva)	Type 3 – Invited participation (Tartu, Espoo)
2 Niche forms of action	Prefigurative / service provision	Contentious (Vienna) or prefigurative (Órgiva)	Community building / procedural
3 Regime core and decisive scale	Political-institutional or mixed · local to multi-level	Mixed, with economic and infrastructural interests · local decision-holder	Political-institutional · local (national for Espoo)
4 Regime stance towards the niche	Partner or incorporator	Adversarial or selective: the decision-holder refuses	Host / owner of the process
5 Interaction modes and main risks	Hybridisation or incorporation · co-optation, symptom treatment	Contention or cooperation and conflict · blockage, accommodation of dissent	Asymmetric or procedural · formalism, reproduction of invited participation
6 Interaction bridging	Dense: boundary organisations, coordination infrastructure	Weak: intermediaries without decision power, failed broker	Research-led or procedural
7 Window type	Policy and funding, or crisis · EU policy, economic crisis, pandemic	Institutional process or regulatory change · climate adaptation, energy transition	Project or procedural · legitimacy of participation, energy security
8 Window status at the time of the panels	Open (Barcelona) or closing (Turin)	Closing (Vienna) or opening outside the process (Órgiva)	Project-bound or potential

Source: UNITO elaboration based on Table 9.

When read through the lens of these eight dimensions, the six case studies reveal three recurring configurations of the socio-technical system in which the same deliberative intervention was implemented, rather than six unique contexts. **Two dimensions** are enough to distinguish them: the **origin of participation** (bottom-up, through citizens or organisations, or led by the regime), and the **relationship between the regime actor responsible for making decisions and the niche** (cooperative or conflictual). Their combination produces three types, each with two cases, while the fourth cell - regime-led participation in conflict with the regime - is empty.

In **embedded niches** (Barcelona and Turin), initiatives led by organisations or the third sector, mostly prefigurative and service-oriented, interact with relatively cooperative regimes through an established network of intermediary actors. However, these relationships also entail risks of co-optation, loss of autonomy and of addressing immediate needs without tackling underlying structural problems.

In **contested niches** (Vienna and Órgiva), citizen-led initiatives interact with a regime that refuses cooperation, bridging is weak or unsuccessful, and the transition pathway is shaped by resistance or by the accommodation of dissent.

In contexts of **invited participation** (Tartu and Espoo), the regime owns the participatory process itself, while the niche is activated from outside or has yet to emerge, and the main risk is that participation remains formal or reproduces existing invited arrangements without creating opportunities to influence decision-making.

The remaining dimensions help differentiate between the cases within each typology. In particular, the status of the window of opportunity at the time of the panels distinguishes Barcelona (open) from Turin (closing) and Vienna (closing) from Órgiva (opening outside the deliberative process). All eight dimensions describe conditions that precede the deliberative process. Landscape pressures enter the grid as the triggers of the windows of opportunity, including economic crises, the COVID-19 pandemic, EU energy and energy-poverty policies, climate adaptation and energy security. The landscape factors represented in the CLDs, being products of the deliberation panels, are further discussed in Chapter 8 as outputs of the deliberative arenas. Similarly, the forms of participation used to select the cases (Ekman and Amnå, 2012) is not a dimension of the typology, but its comparison with the three configurations is instructive: formal political participation coincides with invited participation, while involvement emerges in both an embedded (Barcelona) and a contested niche (Órgiva), showing that the form of participation does not predict the nature of the relationship with the regime. The three typologies provide the contextual dimension of the CMO configurations discussed in Chapter 8.

6. STAGE 2: COMPARING THE DELIBERATION PROCESSES

This chapter compares the six deliberation processes, answering the second part of the overarching question: what happened? It is based on UNITO's coding of D3.1 and of the materials presented at the Barcelona consortium meeting, as validated, integrated or corrected by each partner in the Stage 2 templates (Annex A), and on the partners' answers to five reflective questions on how implementation shaped what the panels produced. The coding covered six dimensions (framing, recruitment and composition, setting and logistics, method operationalisation and deviations, interaction and facilitation, closure and feedback); in this chapter they are read through the three lenses introduced in Section 3.2.2: Design (6.2), Practice (6.3) and Coupling (6.4). Section 6.1 first characterises the six processes as a type of democratic innovation, and Section 6.5 condenses the comparison in a typology of deliberative arenas.

6.1 What kind of democratic innovation?

Participants were recruited purposely from the stakeholder analyses, mainly as representatives of organisations. No process was linked to a formal decision. In what follows, 'deliberation process' refers to the sequence of events (KoM, DP1, DP2 and DP3) run in each case, and 'arena' to the configuration of actors that met at DP3 (Section 6.5).

Read through Fung's (2006) democracy cube, the six processes share purposive selection and a mode of communication that combines deliberation with systems methods and serious games, but differ in their output. At one end, in Barcelona, the ToC produced can be acted upon directly by a hybrid network that includes public institutions, so that the output has the character of co-governance. In Turin and Tartu the output is advice to institutions that took part in the process. In Órgiva it takes the form of self-governance plans of the initiative. In Vienna and Espoo it consists of recommendations addressed to decision-makers who did not take part. In the terms of Mees et al. (2019), the processes also differ in who initiated and structured participation: in Tartu and Espoo the object of the panels was a process promoted by government (public participation in a strict sense), while in Órgiva, Barcelona, Turin and Vienna it was an initiative originated by citizens and organisations, to which government was invited to contribute (government participation). In all cases, however, the panels themselves were initiated and structured by researchers, a third configuration that the dichotomy does not foresee and whose implications are discussed in Section 6.3.

This has two main consequences. First, these processes rest almost entirely on informal channels: who was in the room, what participants took back to their organisations and what follow-up was organised. Second, where regime actors were absent, the authority of the output did not vanish but moved to the initiative's own capacity to act. Both consequences make the composition of the arenas, and in particular of DP3, the critical feature of the comparison.

6.2 Design: selection, arenas, adaptations

6.2.1 Recruitment and composition

All partners selected participants by mapping stakeholders and organisations according to their position, experience and relevance in the system, but with different tools and emphases. In **Tartu**, the research team combined stakeholder and community mapping with existing contacts, including interviewees from the preparatory phase, and supplemented personal invitations with public announcements through several channels, which had limited effect. Municipal presence was strong at the KoM and in DP1, where it concentrated on urban design, and residents formed DP2, organised

in thematic groups (cooperation with the city, accessibility, community relations). The process reached about fifty participants overall, but young people, older residents and Russian-speaking residents remained under-represented despite personal invitations, while women were overrepresented at every event. In **Espoo**, the research team mapped 25 key stakeholders on a power-interest grid (context setters and key players, crowd and subjects) and identified vulnerable groups through a political ecology framework, deliberately excluding the media; after the KoM, the invitation pool was expanded to rebalance participation towards the third sector. Despite the large number of invitations sent out for the four events, turnout remained very low, and three of the four participants in DP2 were retirees. Among the barriers identified by the Espoo research team were the timing of the invitations, the fact that most events were organised during working hours, and the possibility that the term 'deliberation panel' sounded too academic, whereas the term 'workshop' might have been more accessible and approachable.

In **Vienna**, the research team combined desktop research with snowball sampling and built trust by attending the initiative's own events, such as its neighbourhood walks. Regime actors largely declined because the Mitte 15 process was at an advanced and politically sensitive stage: DP1 brought intermediaries and municipal departments with limited decision power, while DP2 and DP3 were dominated by the initiative (four of the five participants in DP3). An organisation advocating for people with disabilities and the workers' association (Arbeiterkammer) took part in the KoM and DP1.

In **Turin**, the research team mapped about 35 organisations on four criteria (positional and functional diversity, territorial coverage, reach to vulnerable groups), with priority for fresh-food distribution, territorial networks in Aurora, Barriera di Milano and Porta Palazzo, organisations that coordinated food solidarity responses during COVID-19 and low-threshold initiatives. Sixteen of the eighteen organisations invited to the panels took part at least once; attendance was moderate and stable (11, 6, 8, 9). The recruitment method, based on exploratory interviews, snowballing and trusted intermediaries, favoured well-connected and institutionally visible actors: some grassroots initiatives critical of institutionalised and charitable models declined to participate, which reduced the visibility of internal political disagreements (D4.1).

In **Barcelona**, the research team adopted a purposive, context-sensitive selection that included the core of La Traginera, a driving group of social entities and external actors (museums, a union, a university), public administrations at local, provincial and regional level, and intermediaries working with vulnerable groups and energy communities. Recruitment drew on La Traginera's history of joint work in other domains and on its relationships with district technical staff; the Barcelona team stresses that this pre-existing foundation was crucial to recruit institutional stakeholders, and that the topic itself, the inclusiveness of energy communities, attracted interest beyond the local level, including representatives of the Government of Catalonia and a senior official of the Department of Social Economy. The process achieved the highest turnout among the cases (29 participants on the first day, 11 in the inner and 18 in the outer group; about 30 organisations overall). In Órgiva, the **research team** built a stakeholder database from interviews and online sources and sent invitations by email and WhatsApp, with posters on social media and reminders before each event; political actors received a separate, more detailed invitation intended to build trust. Turnout fell sharply after the KoM (11, 3, 3, 6; 12 distinct participants out of 61 invited), and no representative of the municipal governing team took part at any stage.

6.2.2 Arenas, venues and timing as filters

Venues carried meaning and acted as filters. A university campus or seminar room was chosen as neutral ground in Turin (the Luigi Einaudi Campus) and Vienna (BOKU University); in Turin, participants

described it as a space in which they could sit alongside more powerful partners as equals. In Órgiva, all events were held in the plenary hall of the Town Hall, to encourage institutional participation; the expert validators noted that this venue may instead have deterred actors critical of the local government. In Barcelona, the first day was held at the Convent dels Àngels, next to MACBA, a public institution that is at the same time a member of the initiative and its first pilot site, and DP3 at the premises of a member association. In Tartu the venues followed the arenas: the institutional panel met in the City Hall building, on the municipality's own ground; the residents' panel in the Anne Youth Centre, close to residents; the KoM and the joint panel in the Tartu Nature House, which linked the process to its green and climate focus. In Espoo, the KoM venue was judged too remote, even though the building was a venue for the provision of public services, and later events moved to central public libraries reachable by public transport, while DP1 was held in the City Council building.

Timing filtered participation in opposite directions. Events held during working hours suited officials but not residents or volunteers: the Tartu joint panel, held partly during working hours, was attended by five of the fifteen invited residents; in Espoo, the working-hours KoM and DP1 were criticised, while the evening slot of DP2 was appreciated; in Turin, weekday mornings disadvantaged volunteers and people with precarious jobs or care responsibilities, and work calls interrupted participation. In Barcelona, merging the KoM and the two separate panels into a single day lowered the time burden and turned networking into an incentive, but on the day of DP3 a general strike cut public transport and roads, preventing some registered participants from reaching the venue, while local organisations could walk to it. Sessions lasted between about two and a half and five hours; in Espoo, fatigue was evident in the last hours of each panel. Accessibility measures were adopted by all partners, from food and transport vouchers in Turin to questions on accessibility needs in Vienna and adjustments of breaks and group formats in Tartu; but in Órgiva a participant with a hearing impairment did not return after the KoM, since no specific adaptation was implemented.

6.2.3 Adaptations of the common design

Table 11 lists the main deviations from D2.4 and assesses whether each step kept its function. Two kinds of adaptation can be distinguished. **Adaptations of format** responded to local constraints and generally preserved the function of the step: merging the first three events into one day in Barcelona; carrying out the Life Line collectively on a whiteboard in Turin; replacing the timeline with a mind map in Espoo; removing the time-consuming 'living loop' game and translating technical terms (CLD, output, outcome, input) into plainer Spanish in Órgiva; using collective storytelling at the KoM and replacing post-panel interviews with an in-panel focus group in Vienna, because participants were not willing to take part in another interview. **Adaptations of substance** changed the object or the authorship of the process: the reframing of the Espoo case from participation in an SMR project to participation in large-scale energy projects after the KoM; the pre-selection of leverage points by the research teams in Turin, Tartu and Espoo; the completion of maps after the session by researchers (Turin DP1, the Barcelona outer group, Espoo) and the redesign or removal of the role-playing game where regime actors were missing.

The role-playing game illustrates how the implementation and outcomes of the methodology were influenced by participant composition (Frolova et al., forthcoming). It ran with real counterparts in Barcelona, where the Barcelona team judged it highly effective for perspective-taking and for designing creative and tangible actions, and in Turin, where three groups (public administration, external actors, local actors) each worked on one leverage point. In Tartu it was adapted from the energy scenario of D2.4 to local public-space and community challenges; it worked well in one group and less well in the other but produced ideas that had not emerged in earlier panels. In Espoo it was well received, with three roles (an energy company, the city council, a local residents' association). In

Vienna it was redesigned into a single group alternating the perspectives of the initiative and of the city administration, because of the low number of participants. In Órgiva it was dropped: regime actors were under-represented and the outcomes selected concerned actions primarily involving AEC members, so that enacting regime roles would, according to the Órgiva team, have confused participants and added little value. We note that the role-playing game was, in principle, also the tool meant to bring an absent perspective into the room (Goodin, 2003): where the counterpart was missing, it could only simulate the encounter that the design had planned.

Table 11: Main adaptations of the D2.4 design and fidelity of function

Case	Main adaptation(s) and stated reason	Did the step keep its function?
Tartu	City-led initiative, so DP2 gathered residents and local organisations rather than members of one CAI; moderators translated contributions into maps and the team pre-selected five leverage points; DP3 limited to previous participants, with external validation afterwards; role-playing adapted to local public-space challenges	Mapping: yes, but led by moderators and validated by participants. Encounter: weakened at DP3 (one municipal actor), partly recovered at the round table with the City. Perspective-taking: worked in one group, less in the other; produced new ideas
Espoo	Topic reframed after the KoM (from SMRs to participation in large-scale energy projects); timeline replaced by a mind map in DP2; leverage points pre-selected by the team and voted by participants; diagrams edited afterwards into causal loops; game-based KoM exercises poorly received	Mapping: partly (diagrams resembled mind maps). Encounter: at very small numbers. Perspective-taking: yes, well received
Vienna	Collective storytelling at the KoM; CLD merge done by researchers (sent for feedback, none received; no changes requested at DP3); single-group role-playing; post-panel interviews replaced by an in-panel focus group	Mapping: yes. Encounter: no (regime absent at DP3). Perspective-taking: simulated within one group
Turin	Niche panel before regime panel (reverse of D2.4 order); Life Line done collectively; DP1 CLD completed by the research team; six leverage points pre-selected by researchers, three prioritised by participants; DP3 rescheduled	Mapping: yes, with strong research synthesis. Encounter: yes, but regime-weighted. Perspective-taking: yes (three role groups)
Barcelona	KoM, DP1 and DP2 merged into one day (logistics, engagement); outer CLD completed after the session and validated by participants	Mapping: yes, with post-session refinement for the outer group. Encounter: yes, from the first day. Perspective-taking: yes, judged highly productive
Órgiva	'Living loop' game removed (time, fatigue); technical terms translated into plainer Spanish; merged CLD simplified by the research team; no role-playing game in DP3 (regime under-represented; outcomes did not involve regime actors)	Mapping: yes. Encounter: partly (some regime actors at DP3, but not the municipality). Perspective-taking: not performed

Sources: D3.1; Stage 2 validation templates and questions D.2 and D.4.

6.3 Practice: inclusion, registers, consensus and the researchers' role

6.3.1 Double exclusion

Following Young (2000), we distinguish external exclusion, being absent from the forum, from internal exclusion, being present but not heard. **External exclusion** affected vulnerable groups in all cases. In Órgiva, one of the AEC's target groups, women in precarious situations, was not reached, nor were its representatives, and female participation dropped to zero in DP3; the Órgiva team considers the composition of the panels the single factor that most shaped the results, since the absence of women

limited the integration of gender perspectives. In Espoo, none of the carefully mapped vulnerable groups attended any event; the barriers identified were impersonal invitations, academic language in Finnish only and the unclear benefit of taking part. In Tartu, young people, older residents and Russian-speaking residents were few throughout, and a welfare organisation representing people with special needs was absent from DP3. In Turin, organisations representing migrants took part only in the early sessions. External exclusion also affected decision-holding regime actors, most clearly the municipal governing team in Órgiva and the planning departments, political representatives and land owner in Vienna.

Internal exclusion took subtler forms. In the outer panel in Barcelona, energy and governance experts spoke more often and at greater length than other participants. In Espoo, D3.1 recorded dominance by professionals and city officials, and men steered the discussion towards the technology of SMRs; the Espoo team's validation adds that at the KoM local politicians, who were women, spoke out a great deal, while others may have been cautious because of the controversial nature of nuclear power. In Tartu, the research team stresses that most discussions were inclusive, that a few participants sometimes dominated, mainly in groups that spent much time on personal experiences and frustrations, and that moderators intervened to balance participation. In Turin, actors with long experience in food solidarity intervened more often and more critically, while younger or less experienced participants were more reserved, and differences in professional jargon and familiarity with participatory methods affected the ability to intervene equally. A third form of internal exclusion is produced by the methods themselves: in several cases, participants engaged most readily with stories and concrete issues and least with the abstraction of causal mapping (Tartu, Turin, Espoo, the Barcelona outer group), so that those familiar with systems language had an advantage in shaping the maps. In Carpentier's (2016) terms, the processes guaranteed access and interaction more consistently than equal participation in the production of the outputs.

6.3.2 Representation by proxy

Where vulnerable groups were included, it was mostly through organisations that work with them: social workers, volunteers and third-sector organisations in Turin; intermediaries, energy advice points and the Energy Poverty Office in Barcelona; a disability advocacy organisation and the workers' association in Vienna; an occupational centre for people with disabilities (El Romero) in Órgiva. Partners justify this choice on several grounds. For example, the Barcelona team argues that including residents in a process involving institutional organisations would have been inconsistent with La Traginera's approach and principles; the Turin team, instead, favoured a form of representation in order to avoid potential discomfort and language barriers for people living in precarious conditions. As a result, these perspectives were more often incorporated in terms of needs rather than recognised as expressions of initiative and agency.

The Tartu ToC shows this clearly: those present designed actions for the missing groups (intergenerational and multicultural social presence was one of the two top-voted leverage points, and one of the three priority actions aims to increase the participation of the Russian-speaking community). The Barcelona team, similarly, identifies district-level social services as the voice missing from DP3, whose frontline knowledge could have better connected the ToC with the realities of the most vulnerable households. Representation by proxy is a reasonable choice for stakeholder forums; but it means that the panels can hardly be credited with the empowerment of vulnerable groups, one of the dimensions the IAF was designed to observe.

6.3.3 Registers of deliberation and the place of conflict

All processes are described as respectful and constructive. Open tension appears only at the Espoo KoM, where misunderstandings about the topic led to an uneasy atmosphere and to questions about the motivations of the project and the promotion of nuclear power; the atmosphere became significantly lighter after the reframing, with a friendly, professional tone. In Vienna, frustration about decision-makers' absence was voiced openly, and the Vienna team observed an initial reluctance to trust the one stakeholder present at DP3, followed by a visible reduction of hierarchy as the panel went on. In Órgiva, initial disappointment at the low turnout gave way to more speaking time per person, and feelings check-ins and check-outs were used at every event. In Tartu, emotional topics (vandalism, alcohol, the inclusion of Russian speakers) were handled through personal experience rather than as opposing positions.

The multi-method design widened the registers of deliberation beyond argument: body mapping, storytelling, life lines and role-playing, forms of what Bächtiger et al. (2010) call type II deliberation, were consistently valued by participants. At the same time, the sequence of methods has a direction. The CLD opens up the framing of the system; leverage points and the ToC close it down around a limited set of actions (Stirling, 2008). With cohesive niche groups and consensus-oriented formats, conflict with the regime tends to be displaced out of the room rather than deliberated. Where conflict was present in the room, it took the form of competing narratives: in Turin, the niche and regime Life Lines told two different histories of the food solidarity system, which the merged CLD placed side by side and which DP3 converted into shared concerns about the future; in the role-playing, a service-efficiency logic, focused on optimising redistribution, met a justice-oriented logic, focused on the structural conditions of food insecurity.

6.3.4 Researchers as translators

Partners' answers to the reflective question on the role of the research team make that role explicit (Table 12). Interventions range from visual digitisation only (Órgiva, DP1 and DP2) to the selection of the most relevant factors for the merged CLD (Órgiva, Vienna, Turin), the completion of maps after the session (Turin DP1, the Barcelona outer panel), the conversion of mind-map-like diagrams into causal loops (Espoo) and the translation of residents' talk into maps by moderators (Tartu). Leverage points were pre-selected by the research teams in Turin (six, of which participants prioritised three), Tartu (five, all confirmed, two prioritised by vote) and Espoo (a preliminary set accepted by participants, three voted: zoning, dissemination of information and positive political will). ToCs were, by contrast, generally reported as direct products of the DP3 sessions, with no later changes (Barcelona, Vienna, Órgiva), although in Tartu the team wrote the ToC up after DP3 and in Turin facilitators clustered proposals in real time.

The CLD thus worked as a boundary object (Star and Griesemer, 1989) whose grammar was controlled by researchers. This is consistent with the design, since participatory system mapping always involves facilitators' choices (Barbrook-Johnson and Penn, 2022), but it has two consequences. First, ownership of the outputs was higher for the ToCs, produced in the room, than for the merged CLDs: the Vienna team notes that not having time to merge the CLDs together with participants probably limited the depth of their systemic understanding and their sense of ownership. Second, researchers held multiple roles: they designed, recruited, facilitated, synthesised and evaluated. In Turin the University was also an actor in the system, as Atlante del Cibo[2] took part in the regime panel and in DP3, and Stage 1 identifies it as a bridging actor. These multiple roles highlight the researchers' contribution to

[2] Promoted by the University of Turin in collaboration with other partners, it is the first project in Italy to develop integrated and participatory knowledge of food systems as a foundation for inclusive and sustainable local food policies.

shaping the deliberative outputs, which cannot therefore be regarded as entirely independent products of participant interaction, and they are one of the reasons why in this deliverable CLDs are treated as products of the arenas rather than as neutral descriptions of the systems.

Table 12: Authorship of the outputs: participants and research teams

Case	Causal Loop Diagram (CLD)	Leverage points (LPs) and Theory of Change (ToC)
Tartu	Content from participants' stories; moderators translated contributions into maps; synthesis largely by the research team	Five LPs pre-selected where loops meet; participants confirmed all and prioritised two; ToC from DP3 group work, written up by the team
Espoo	Diagrams resembling mind maps; edited into causal loops by the team after the panels	Preliminary LPs proposed by the team, accepted and voted by participants; ToC discussed in plenary
Vienna	Highly structured mapping following participants' stories; merge by the team, sent for feedback (none received), no changes requested at DP3	LP discussion productive on importance, less on interventions; ToC loosely moderated, derived from participants' input
Turin	DP1 CLD completed ex post; merged CLD of 16 core variables built by the team on Kumu	Six LPs pre-selected by the team, three prioritised; role-playing on each LP; ToC co-built on Miro with real-time clustering
Barcelona	Inner CLD retained as produced; outer CLD refined after the session and validated by participants	ToC a direct reflection of participants' work in DP3, no later changes
Órgiva	DP1 and DP2 CLDs digitised without content changes; merged CLD simplified by the team for group work	LPs selected and ToC developed by participants in DP3

Source: Stage 2 validation templates, question D.4; D3.1.

6.4 Coupling: the DP3 encounter and channels of uptake

DP3 was the moment of coupling: the design split niche and regime in DP1–DP2 and brought them together at the end, in a single arena in which the merged map, the shared vision, the role-playing game and the ToC were meant to connect the two levels. In five of the six cases, attendance narrowed at DP3, and in four of them the regime side thinned out. Partner validation adds three qualifications to this picture.

Narrowing has different causes. In Barcelona, the drop from 29 to 15 participants was largely due to the general strike; the Barcelona team stresses that the institutional participants who attended (district, municipal and regional representatives of the relevant departments) were a very good fit with the initiative's goals and were very engaged in the role-playing game. In Tartu, it was linked to working-hours timing and to the choice of inviting only previous participants to DP3; only one of ten invited municipal actors attended. In Turin, DP3 was rescheduled at participants' request but lost participants on the new date; the validators read the absence of 10 of the 18 invited organisations as evidence of the structural lack of time and resources that participants themselves prioritised as the first leverage point. The composition also shifted: at DP3 two niche organisations met seven regime-side or intermediary organisations, and no actor with direct decision-making authority took part.

Which regime matters more than whether the regime is present. In Órgiva, the Granada Energy Office, a consulting firm working with the AEC and an opposition councillor (himself an AEC member) took part in DP3; what was missing was the municipal governing team, the actor at the centre of the conflict mapped in Stage 1. In Vienna, intermediaries and departments with limited decision power took part in DP1, while the planning departments, political representatives and ÖBB did not. In Espoo, the small group at DP3

was mostly composed of institutional and professional participants, but no actor was responsible for a concrete energy project.

Channels of uptake are informal and depend on follow-up. They include the restitution of results to participants (all cases, through reports, websites, Prezi presentations or the Recapsy platform), the presentation of the policy recommendations and the follow-up of the ToC at La Traginera's next assembly (Barcelona, foreseen), a round table with the City and local organisations on implementation (Tartu, 10 June 2026), where municipal representatives re-entered the process after their near absence at DP3, although agreements on responsibilities remain preliminary and no implementation plan has yet been agreed, and the policy recommendations of T4.3. The Órgiva team notes that implementation would require follow-up and support during the implementation phase, which is not foreseen once CO-SUSTAIN funding ends in late 2026.

Read through the deliberative systems approach (Mansbridge et al., 2012), the six deliberation processes were loosely coupled to the decision-making arenas of their systems. Coupling was strongest where the process overlapped with an existing network that includes institutions (Barcelona, Turin) or where the convenor of the substantive process was the regime itself (Tartu); it was weakest where the decision-holders declined (Órgiva, Vienna) or where there was no concrete project-level decision to couple to (Espoo). The Espoo case is nevertheless useful as an example of a very early planning stage, in which preparations are being made for possible future projects: residents would like to be involved before decisions are made, but find it difficult to engage until a concrete project exists.

6.5 A typology of deliberative arenas

Combining the initiative's prior relation with the regime (Stage 1) and who was actually present at the DP3 encounter, UNITO proposed a working typology of four arenas and asked partners to challenge it. Their answers (Table 13) confirmed the placements, but led us to refine the criterion: the type depends not only on the composition of DP3 but on **which part of the regime** took part and on the **orientation of the deliberation** that resulted.

Table 13: Partner feedback on the preliminary typology

Case	Proposed type	Partner response	Consequence for the typology
Tartu	B-Institution-hosted	Fits broadly: the process sat inside the municipality's initiative; municipal presence was strong at KoM and DP1 and fell to 1 of 10 at DP3. Two qualifications: the niche–regime line was blurred by hybrid municipal staff; the regime re-entered at the round table on implementation. At DP3 the case also shows a type C feature: few real counterparts for the role-playing	Confirmed; type B extended to hybrid municipal actors and to a regime that re-enters after DP3
Espoo	D-Regime-framed without niche	Fits: most participants represented institutional and professional actors	Confirmed
Vienna	C-Niche-enclosed	Fits, but deliberation was not only internal reflection: the initiative focused on the need for change at regime level (policy, culture, market), while seeing its own agency as limited	Sub-type added: niche-enclosed but regime-addressed
Turin	A-Bridged	Fits, with qualifications: both levels and bridging actors at DP3 and real counterparts in the role-playing, but the regime side outweighed the niche (7 to 2 organisations) and no decision-maker took part; the arena re-enacted existing municipal coordination	Confirms A, with a regime-weighted variant and co-optation risk
Barcelona	A-Bridged	Agrees. Rejects the idea that the regime thinned out: the drop at DP3 was due to a strike; regime actors were very engaged in the role-playing game and their contribution was crucial to the ToC	Confirms A; DP3 attendance must be read with its causes
Órgiva	C-Niche-enclosed	Largely fits: the absence of the municipal governing team shifted the process towards strategic reflection and internal capacity-building. But some regime actors were present at DP3; the type reflects the focus and outcomes more than the composition	Criterion refined: the decision-holding regime is absent; deliberation turns inward

Source: Stage 2 validation templates, part C.

The refined typology (Table 14) distinguishes five configurations. Its main analytical gain is the split of the niche-enclosed arena into two variants with different outcomes. In Órgiva, the absence of the municipal regime turned the ToC inward, towards organisation, communication and local alliances. In Vienna, the same absence produced claims addressed to the regime, but without what the Vienna team calls 'transformational knowledge' at regime level (how could we get there?) as opposed to 'target knowledge' (how should things be?). A second gain is the recognition that the bridged arena can itself be uneven: in Turin the regime side outweighed the niche at DP3, which may explain why the ToC concentrates on coordination, data and resources, the concerns shared by the actors present.

Table 14: A typology of the six deliberative arenas

Arena	Configuration	Scope of the ToC	Cases
A Bridged	Initiative with an institutional interface; niche and decision-relevant regime actors both present at DP3; bridging actors; role-playing game with real counterparts	Outward and multi-level: co-governance proposals, institutional coordination	Barcelona, Turin
B Institution-hosted	Process inside a municipal initiative, with municipal staff in a hybrid position; regime strong early, thinning at DP3 and possibly re-entering afterwards; residents and community organisations form the niche	Implementation actions (events, community spaces) that depend on the host institution	Tartu
C1 Niche-enclosed, inward	Initiative in tension with the local regime; decision-holding regime absent; supportive or technical regime actors present	Internal capacity, organisation, communication, local alliances (self-governance)	Órgiva
C2 Niche-enclosed, regime-addressed	Initiative in contention with the planning regime; decision-makers decline; intermediaries early, initiative alone at DP3	Claims and recommendations addressed to an absent regime; target rather than transformational knowledge	Vienna
D Regime-framed without niche	No active initiative; object reframed during the process; small, mostly professional participation	Conditions for participation itself (early, continuous, predictable engagement)	Espoo

Source: UNITO elaboration, refined with the partners' Stage 2 validation.

7. STAGE 3: COMPARING OUTCOMES

This chapter compares the outcomes of the six deliberation processes, answering the third part of the overarching question: with what results? It combines three sources. The first is D4.1, which reports, case by case, the evidence collected through the IAF: access surveys, pre- and post-panel surveys and interviews, field observation, focus groups, expert validation, impact stories and the partners' preliminary conclusions. The second is the set of answers given by the six research teams to the six questions discussed at the T4.2 workshop of 7 October 2026. The third is the reflective part of the Stage 2 templates. The workshop answers are the research teams' own accounts of their cases; they are triangulated with the evidence from participants and external experts reported in D4.1.

Two caveats apply to the whole chapter. First, the quantitative evidence is thin: survey samples are small and pre- and post-panel respondents are rarely the same people (16 pre- and 9 post-panel responses in Turin; 7 matched questionnaires in Barcelona; 8 and 5 in Espoo; 9 and 4 in Órgiva, with half of the initial respondents not completing the follow-up; in Vienna, only one non-initiative stakeholder completed the post-panel survey). Changes in survey responses are therefore reported only as indicative. Second, the assessment closes a few months after the final panels, so that institutional and systemic outcomes can only be traced as plausible pathways. Table 15 gives the overview by dimension; the sections that follow discuss each dimension in turn and then read the ToC through the MLP.

Table 15: Outcomes by dimension and case

Case	1 Niche capacity	2 Relational effects	3 Learning and reframing	4 Governance and institutional	5 Substantive and systemic
Tartu	Municipal officials learned that deliberative events are useful and need careful organisation; individual rather than collective agency	Reduced distance between residents and officials; new contacts and WhatsApp groups; "I am not alone"; active community members identified	Problem redefined as social rather than environmental; more belief that change is doable, but not that it produces institutional change	No formal uptake; a relational infrastructure; at the round table with the City, agreement but no commitment (time, burnout)	Narrow pathways, "nothing systemic"; possible entry through participatory budgeting
Espoo	Awareness that fear of conflict and negative consequences keeps people out of participation; appetite for the methods	Respectful, light interaction after a tense KoM; limited by very small numbers	No new learning on the guiding question; confirmation of the importance of early communication by decision-makers (zoning)	Confirmation for the City that participatory methods should continue to be used; idea of piloting a new forum for participation before decisions are made	Responsibility and resources for new engagement strategies unclear; political inertia
Vienna	Younger initiative members and the participating stakeholder learned most; leading circle (academics) little new learning	Trust with the one intermediary present at DP3; some new contacts among local actors; frustration with the city reinforced	New ideas (e.g. targeting international media) met with cynicism; focus on how decisions are produced	No change in co-governance for the initiative	Too early; at least five years and commitment from the city would be needed; new municipal office for participation as a positive context

Turin	Systemic knowledge of the food system; methods seen as transferable; structural lack of funds limits niche participation	Trust increased; proposals of collaboration beyond the tables, niche–niche and niche–regime; deeper rather than new relationships	Shared view of problem and causes; different solutions (assistance vs relational model); "from waste reduction to food justice"	Higher cooperation, but no change in governance or co-governance; institutional and political inertia	First concrete collaborations; proposal to upgrade existing bodies rather than create new ones; no institutional uptake yet
Barcelona	Niche members moved from local specifics to a systemic view; regime actors learned from tangible local action; activist members moved from contesting narratives to feasible actions	Mutual understanding within the network and between niche and regime; mutual stereotypes dropped; recognition of the CAI by public stakeholders; new contacts	Agreement on leverage points; role-playing reframed strategies on both sides; inclusion reframed as a challenge for the institutional environment	A "shy yes": ToC includes a working group and a neighbourhood coordination board; implementation still to be seen	First pilot under way (PV on MACBA, energy shared with vulnerable households); campaign towards other public rooftops planned; regulatory proposals uncertain
Órgiva	Niche actors learned to think strategically with a broader view; the AEC recognised the need to rework its internal structure (low member participation)	Mutual recognition of initiatives working on similar issues that had not worked together; trust and a regional network; distance from the municipal government made explicit	From installing solar panels and getting funds to the organisational, relational and associative dimensions of an energy community	None with the municipality: members have given up on it; internal restructuring and strategic work started	Uncertain; short-term actions may be taken up; risk of returning to previous dynamics; no follow-up after the project

Sources: D4.1; T4.2 Stage 3 workshop; Stage 2 validation templates, Part D.

7.1 Actor capacities

All partners report capacity effects, but their content depends on the starting point of the niche. Where niche actors were absorbed by the practical running of their initiative, the panels gave them a broader, strategic view. In Órgiva, the AEC had concentrated on obtaining funds and installing solar panels; through the process its members realised that the low participation of members and local people was linked to the organisation's own structure and relationships, and that an energy community cannot focus solely on energy and technical matters. At the time of the workshop, the AEC had started a process of internal restructuring (bylaws revision, new working groups). In **Barcelona**, member organisations of La Traginera that rarely take the time to reflect together aligned their goals, and those more oriented to activism and to contesting dominant narratives were pushed to formulate tangible, feasible options. In **Turin**, participants gained knowledge of the food system as a whole; interviewees described the process as an opportunity to step back from everyday operational pressures and to 'open the gaze' to other dimensions of the system, and saw the methods (role-playing above all, but also system mapping and the ToC) as potentially transferable to their organisations. The process also made visible the structural lack of funds and time that limits the participation of grassroots initiatives, the same condition participants prioritised as the first leverage point.

Learning also flowed towards regime actors. In **Barcelona**, actors used to broad policy frameworks learned from concrete local action and from the practical barriers faced by organisations working on

the ground. In **Tartu**, municipal officials, who attended in large numbers in the early events, learned that deliberative activities are useful and that they need to be organised with care rather than left to flow by themselves; municipal actors also identified residents whose initiatives and willingness to be active could be supported. Capacity effects were weakest where participants already had high expertise or where the object was not their own. In **Vienna**, the younger members of the initiative and the participating stakeholder learned most, while the academic leading circle reported little new learning; D4.1 speaks of 'uneven learning'. In **Espoo**, participants already knew the enabling and hindering factors of participation and learned mainly about the methods; the clearest new awareness concerned exclusion, since after the panels all post-panel respondents selected fear of conflict or negative consequences as a barrier to participation for the general public, a factor rarely mentioned before.

These effects had two limits. First, the capacities that improved among the actors were primarily cognitive, resulting from a better understanding of the system in which they operated and the relationships that constitute it, rather than from the acquisition of new tools or material resources. The exception is the methods and tools that actors can reproduce in their own activities (e.g. PSM, role-playing or deliberative formats). Second, they concerned individuals more than collectives: the Tartu team stresses that the Tartu process produced individual rather than collective agency, and that increased awareness and willingness to contribute did not consistently translate into commitments. In Turin, survey responses suggest a stronger recognition of the potential of food solidarity initiatives: the share of responses attributing them a 'considerable potential' to contribute to the sustainable transition rose from 29% before the panels to 75% after, and all post-panel respondents considered expanding the network of groups involved 'very important' (D4.1). With non-matched samples of 16 and 9 respondents, these figures indicate a direction rather than measure a change.

7.2 Relational effects and collaboration

Relational effects are the most consistent outcome across the six cases, but their direction depends on the arena. In **bridged and institution-hosted arenas**, relations across the niche-regime boundary improved. In **Barcelona**, CAI members and institutions stopped seeing each other as 'those who always ask' and 'those who always block', and public stakeholders came to recognise the initiative; new contacts were made between organisations and administrations at different levels. In **Turin**, actors who already knew each other moved to proposals of collaboration beyond the panels, niche-niche and niche-regime, and to sharing resources, information and invitations to each other's events; an interviewee stressed that the process deepened existing relationships rather than producing many new ones, which suggests that its relational effect concerned the quality of relations within an existing ecosystem more than its extension. In **Tartu**, residents discovered officials, and even a police officer, willing to come and listen, and gained the sense of not being alone in wanting change; new contacts and communication channels, including WhatsApp groups, emerged. The Tartu team stresses that this relational result, the trust built and the identification of active community members, was one of the main outcomes of the process, and that the follow-up focus group reported improved dialogue and greater confidence in the community's capacity to act collectively.

In **niche-enclosed arenas**, relations strengthened among niche and supportive actors, while the relation with the absent regime deteriorated or became explicit. In Órgiva, initiatives working on similar issues in the territory, which had not worked together before, recognised each other and built trust and a regional network, which the Órgiva team expects to remain after the project; at the same time, the refusal of the municipal government to engage became clearer than ever. In **Vienna**, an

intimate final panel built trust between the initiative and the one intermediary present, after an initial reluctance, and some new contacts among local actors emerged; but the absence of the city administration reinforced the initiative's view that participation is treated by the city as a duty to be discharged rather than as a source of knowledge. In **Espoo**, the respectful and light interaction that followed the tense KoM was limited by the very small number of participants.

Read through the collective action lens, these effects concern the relational resources of the niche (Tilly, 1978) and, in the bridged arenas, the bridging capital between niche and regime. They are consistent with the finding of WP2 that civic networks and bridge-building actors are among the key enabling factors of political participation (D2.3). They are also fragile: they depend on the continuity of the contacts after the end of the project, which, as all partners noted, is not guaranteed.

7.3 Collective learning and reframing

Reframing was strongest where different positions met. In **Turin**, participants described a shift 'from waste reduction to food justice'. D4.1 shows that this was not a change in participants' core positions, but a change in the level at which the problem was collectively framed: from food provision and redistribution to food insecurity as a matter of rights, structural inequality, governance and long-term resilience. The guiding question shifted from 'how can we provide food now?' to 'how can food solidarity systems remain capable of responding to future crises?'. The language used in the panels also evolved, from assistance and beneficiaries to community, dignity, participation, choice and justice. In **Barcelona**, the focus on leverage points and the role-playing helped both sides understand the blockages at the other level and reframe their strategies; inclusion, initially seen as a challenge for the initiative, was reframed as a challenge for the institutional environment, which must create the conditions for vulnerable groups to take part in energy communities.

Elsewhere, reframing turned towards the social and procedural side of the problem. In **Tartu**, participants recognised that relations, ownership and activation had to be addressed before climate adaptation, and the climate focus faded towards community development, reshaping the problem as a social rather than an environmental one. In Órgiva, niche actors moved beyond funding and technical installations to the associative and internal causes of the initiative's difficulties; in **Espoo**, participants reported no new learning on the guiding question but confirmed the importance of early communication by decision-makers, especially around zoning. In **Vienna**, new ideas emerged (for instance, targeting international media) but were met with cynicism, since frustration left little room to consider them constructively; the focus shifted to how decisions about urban development are produced.

The deliberation process also fostered a greater shared vision and consensus on several issues, although differences remain. The Barcelona team reports a widely shared vision of inclusive energy communities in which vulnerable groups are active actors rather than beneficiaries, with differences only on how to get there. The Órgiva and Turin teams report convergence on common problems and directions for action, but not a unified vision; the Órgiva team notes that political and ideological views were deliberately not discussed. The Espoo team reports respectful collaboration and a shared vision and steps, but notes that participants' professions shaped their positions and that men tended to steer the discussion towards the technology of SMRs, while at the KoM two women had held dominant positions. The Vienna team answers no: people may share views as individuals, but in their institutional roles these views have no space. The Tartu team questions the notion itself: in a

demographically and positionally uniform group, convergence risks producing a comfortable agreement in which failure is not admitted and cannot inform learning.

Two further patterns emerge. First, **change concerned how existing knowledge was connected more than what participants believed**: D4.1 consistently reports little change in core values and attitudes, and attributes the observed changes to the connection, articulation and collective reconsideration of knowledge already present in the room. This is the kind of learning that Collins and Ison (2006) call social learning, and it is precisely what participatory system mapping is designed to support. Second, **understanding complexity can lower perceived feasibility**: in Turin the share of respondents considering a sustainable transition 'rather possible' fell from 80% to about 67%; in Tartu, two respondents who had expected deliberation to have a significant potential for change downgraded their assessment; in Órgiva one participant moved from considering a just transition probable to being unsure. In Tartu, participants developed a renewed sense of confidence in terms of possibility of change, while also recognising that deliberative processes do not necessarily translate into institutional change.

7.4 Governance and institutional effects

Changes in collective action, governance arrangements and niche–regime relations were limited. Four teams (Vienna, Órgiva, Espoo and Tartu) reported no significant change; the Turin team reported no change in governance but an increase in cooperation; the Barcelona team gave a cautious but positive assessment. In **Barcelona**, mutual stereotypes were dropped and the ToC includes two actions that create new spaces for dialogue between the initiative and the institutions, a working group and a neighbourhood-level coordination board, as well as the proposal of regional participation forums for all actors involved in inclusive energy initiatives; whether they will be implemented remains to be seen, and D4.1 stresses that stronger public-sector involvement remained a recognised need rather than an achieved outcome. In **Turin**, cooperation increased (sharing of resources and information, mutual participation in events), but co-governance is a long-term change and the validators pointed to institutional and political inertia as a major barrier; participants proposed to upgrade existing bodies (GIPA, Atlante del Cibo) with new functions rather than create new ones. In **Tartu**, the process created a relational infrastructure and some officials welcomed the approach, but at the round table with the City on 10 June everyone agreed on the need for change while nobody committed to taking responsibility, citing time, resources and the risk of burnout.

In the niche-enclosed and niche-less arenas, the answer is a clear no. In Órgiva, the members of the AEC have given up on the municipal government and turned to other stakeholders and to their own internal processes. In **Vienna**, there was no change in co-governance for the initiative. In **Espoo**, participants agreed that existing pathways to participation are insufficient but doubted that anything would change; the only institutional idea was to pilot a new forum for participation before decisions are made. The Espoo team adds that the legitimacy of any new forum would depend on its consistency over time, which in turn depends on someone taking responsibility for it.

In Mees et al.'s (2019) terms, none of the processes produced a durable form of government participation in citizen initiatives, nor a new arrangement of public participation. What they produced, at most, were the premises of such arrangements: proposals for spaces of dialogue (Barcelona, Turin, Espoo), a relational basis for future cooperation (Tartu, Turin) and a clearer map of which regime actors are willing to cooperate (Órgiva).

7.5 Substantive and systemic outcomes

Within the project time frame, no substantive change in the socio-technical systems can be observed. The answers on practical implementation, however, distinguish three situations (see also Table 17). In **Barcelona**, implementation is already under way where the initiative controls the action: the first pilot (photovoltaics on a public museum, with part of the energy shared with vulnerable households) has been agreed, other institutions learned through the process how the museum handled the tender, and a campaign towards other public rooftops in the neighbourhood is planned. The regulatory proposals, which would produce more systemic change, are uncertain: one is local and was suggested by the local institutions themselves, the other requires resources and a political momentum that is currently lacking.

In **Turin** and **Vienna**, partners see first concrete collaborations (invitations to joint events, a cooperation among local initiatives) but expect institutional change only in the long term; the Vienna team estimates that at least five years and a commitment from the city would be needed, and notes that the external experts consulted found the initiative's recommendations understandable but with limited potential for implementation. In Órgiva, **Espoo** and **Tartu**, partners are skeptical: short-term actions may be taken up, but the initiative may return to previous dynamics (Órgiva), responsibility and resources for new engagement strategies remain unclear (Espoo), and the pathways identified are narrow, with 'nothing systemic' (Tartu), although Annelinn's absence from the city's participatory budget emerged as a possible entry point.

The external validators in D4.1 converge on the same diagnosis. In Turin, they confirmed the relevance of the three leverage points but stressed that identifying the changes needed is only a first step, and that substantial institutional and structural barriers remain. In Barcelona, they found the pathway relevant and feasible, while D4.1 concludes that the process identified a plausible pathway towards change, not evidence that the pathway has already produced systemic effects. In Tartu, experts and participants pointed to continuity, visible results and institutional responsiveness as the conditions for longer-term impact, and participants stressed that the greatest risk is that the process remains at the level of consultation.

7.6 The ToC read through the MLP

Table 16 reads the leverage points and Theories of Change of the six cases through the MLP, indicating which levels and loops they address and which of the policy intervention points identified by Kanger, Sovacool and Noorkõiv (2020) they correspond to.

Table 16: Leverage points and Theories of Change read through the MLP

Case	Main content of the ToC and leverage points (LPs)	Level and loops addressed	Policy intervention points (Kanger et al., 2020)
Tartu	Two top-voted LPs, including intergenerational and multicultural social presence; three priority actions: community events, a seasonal community café, activities with the Russian-speaking community; municipal role (infrastructure, permissions)	Niche reinforcing loops (R5–R7) hosted by the regime; climate-adaptation loops faded	(1) experimental niche; (4) inclusion of vulnerable groups; (2) cooperation with the city, proposed in its absence
Espoo	LPs: zoning, dissemination of information, positive political will; earlier communication, continuous and predictable participation, clarity of responsibility; piloting a new forum for participation	Regime procedures of participation; no transition-specific loops	(3–5) participation in the planning of system change
Vienna	Demands to the city: transparency, recognition of grassroots initiatives, dialogue on equal terms; recommendations on democratic processes for urban development	Regime (policy, culture, market) as target; limited transformational knowledge on how to get there	(6) public pressure; (2) acknowledged cooperation, as a claim
Turin	LP1 stabilisation of time and resources; LP2 stable spaces for co-design and collective learning (upgrading existing bodies); LP3 information flows and data integration	Interface; LP1 targets the resource-volatility loop; the asymmetry between participation in implementation and in policy design (raised by experts) is not addressed	(2) cooperation of niches with governance; (5) coordination of intersectoral conflicts (food and welfare)
Barcelona	Local demonstration of an inclusive model; alliances; institutional coordination across levels; regulatory pathways suggested by regime actors; spaces for dialogue (working group, neighbourhood board, regional forums); intermediary support for vulnerable households	Niche–regime interface across several levels of government; addresses policy and administrative lock-ins (Loops 1–6)	(1) niche; (2) cooperation; (3) removing impeding conditions; (4) alleviating outcomes for the vulnerable; (5) coordination
Órgiva	Internal organisation, communication, recruitment of members, local collaboration; shared vision of "a cohesive Alpujarra driving a just ecological transition through local collaboration"	Niche reinforcing loops; the conflict with the municipal regime is not addressed	(1) strengthening the experimental niche

Sources: D3.1; D4.1; partners' Stage 1 and Stage 2 documents; Stage 3 workshop.

Three patterns emerge. First, across cases, the leverage points mostly target **reinforcing loops of the niche and the conditions of participation** (resources, information, coordination, communication), rather than the stabilising mechanisms identified in Stage 1 (co-optation, political inertia, conflict with decision-holders). Barcelona is the exception: the bridged arena, and the role-playing game with real regime counterparts, allowed participants to address regulatory and institutional barriers directly. Second, read through Kanger, Sovacool and Noorkõiv's (2020) policy intervention points, the six ToCs cover the whole range of points, but each covers only a few: the creation and strengthening of experimental niches (Órgiva, Tartu, Barcelona), the acknowledged cooperation of niches with governance (Turin, Barcelona, and as a claim in Vienna), participation in the planning of system change (Espoo, Barcelona) and public pressure (Vienna). Only the Barcelona ToC addresses the alleviation of negative outcomes for the vulnerable as a structural objective, while in Tartu the inclusion of vulnerable groups is pursued through community activities. The breadth of the ToC appears to depend

on the breadth of the arena. Third, in Meadows's (1999) and Abson et al.'s (2017) terms, most leverage points belong to the realms of feedbacks (information flows, coordination) and design (rules, spaces, resources); interventions in the realm of intent, which concern the goals and paradigms of the system, appear as reframings rather than as actions: food solidarity as food justice in Turin, inclusion as an institutional responsibility in Barcelona, change as relational in Tartu.

As to their transformative potential, the ToCs are best read as **programme theories of the niche-regime interface**: they describe how the initiatives could gain resources, recognition and influence, and how institutions could cooperate with them, more than how the socio-technical system could change. This is consistent with the scale of the cases and with the time frame of the project. It also means that their transformative potential depends on whether the regime actors they address take them up, which brings us back to the composition of the arenas in which they were produced.

7.7 What participants and experts say

Three messages recur across participants' interviews, focus groups and expert validations in D4.1. First, **the methods were valued but demanding**. The role-playing game is praised everywhere as a tool for perspective-taking and for relaxing the discussion; system maps are judged useful to organise complexity and to hear others, but hard to intuit and to use without facilitation, and experts in Espoo and Tartu note that they do not represent power relations well. In Turin, participants likewise found the maps and tools useful, although difficult to follow during the initial system-mapping sessions of DP1 and DP2.

The inclusiveness of the deliberative process itself was also identified as a weakness. In the case of Tartu, experts noted that public officials were disproportionately represented in some sessions, while in Órgiva, a gender gap was highlighted, reflecting a broader issue within the energy sector as a whole; in Espoo, participants and experts pointed to targeted and personalised recruitment, practical help to participate and clearer communication of why participation matters.

Third, **follow-up is decisive**: the experts in Tartu, Turin and Barcelona all point to continuity, visible results and institutional responsiveness as the conditions for longer-term impact, and in Vienna one expert noted that the period after formal participation has ended was insufficiently addressed and proposed mandatory use assessments and procedures for revising decisions that do not work for the population.

The research teams' own reflections at the workshop add a self-critical layer. The Vienna team speaks of disillusionment: good methods produce little real-life impact if decision-makers are not in the room. The Órgiva team acknowledges that implementation would have been more likely with a follow-up phase, which the project does not foresee once the panels are over. The Espoo team links the legitimacy of any new forum to its consistency over time, and argues that knowledge and information can create participation. The Tartu team argues that change must first be understood as relational, without which resources and training will not help, and warns against a consensual reading of results in which failure is not admitted.

8. CROSS-STAGE SYNTHESIS: MECHANISMS

The three stages described in previous chapters compared, respectively, the contexts of the deliberation processes, the deliberation processes themselves and their outcomes. This chapter provides a cross-stages analysis in order to address the ambition of the whole comparison exercise: identifying the mechanisms through which the implementation of the panels produced certain outputs and outcomes in specific contexts. Section 8.1 provides a descriptive summary of the process across the stages; Section 8.2 builds on that and identifies possible mechanisms brining the deliberation processes, i.e. CMO configurations; Section 8.3 reflects on how the findings relate to the results of the comparison among the 19 historical examples reported in Deliverable 2.3.

8.1 A descriptive summary of the deliberation processes along the three stages

Table 17 brings the three stages together for each case. It shows the niche–regime relation (Stage 1), the implementation of the deliberation process, with a specific focus on DP3's participants and the emerging CLD (Stage 2), and the scope of the ToC and the main outcomes (Stage 3).

Table 17: Context, process and outcomes by case

Case	Niche–regime relation (Stage 1)	Implementation, DP3 (Stage 2)		Main outcomes (stage 3) From arenas -> ToC scope
		Participants	Emerging CLD	
Tartu	*Invited participation* Asymmetric cooperation; regime hosts the niche	Community organisations and five residents; one of ten invited municipal actors	an interface-heavy map from a regime-hosted arena; the risk of reproducing invited participation mapped in Stage 1 (R1–R2) materialised at DP3	B → implementation actions → relational effects; follow-up depends on the City
Espoo	*Invited participation* No active niche (regime-internal SMR initiative of 2017)	Small, mainly institutional and professional; no vulnerable groups	no niche in the system, no niche in the room; participation becomes the object	D → ToC on participation → awareness of exclusion; pilot forum idea
Vienna	*Contested niche* Cooperation with culture sub-regime; conflict with policy and economy sub-regimes	Initiative members (4 of 5) and one intermediary	a niche room produced a regime-heavy map; the regime is mapped as adversary and target without being present	C2 → claims to an absent regime → learning within the niche; frustration reinforced
Turin	*Embedded niche* Symbiotic incorporation with co-optation risks	Two niche and seven regime-side organisations; university as broker; no decision-makers	the room re-enacts municipal coordination with the university as neutral broker; the post-COVID window is closing	A (regime-weighted) → interface ToC → relational effects and reframing towards food justice
Barcelona	*Embedded niche* Cooperation and hybridisation through boundary organisations	Inner and outer groups; public administrations at three levels; district social services missing	the hybrid initiative brings the regime into both map and room; the gap is the same in system and arena (district level)	A → multi-level ToC → reframing of inclusion; routes for influence; pilot under way
Órgiva	*Contested niche* Selective cooperation; conflict with the municipal council	Three AEC members (one an opposition councillor), Granada Energy Office, consulting firm, occupational centre; no municipal governing team; no women	a niche-centred room produced a niche-centred map; the conflict with the council is not deliberated; the regulatory window opens outside the process	C1 → inward ToC → capacity and network effects within the niche

Source: UNITO synthesis of Stages 1–3.

Five main cross-readings can be derived from this grid.

Conflict becomes absence. Where Stage 1 records conflict between the initiative and the decision-holding regime (Órgiva, Vienna), those regime actors did not take part in the panels; where it records cooperation or hybridisation (Barcelona, Turin, Tartu), they did, at least in the early panels. The researcher-convened deliberative spaces did not, by themselves, overcome existing niche–regime conflicts, but largely reflected the relationships already established between these actors. For a project that set out to design new pathways for dialogue and cooperation between citizens and local governments, this is an important result, and it is consistent with the literature on invited spaces (Cornwall, 2004): authorities decide whether to accept an invitation according to their stake in the issue, and an invitation from a research team carries no obligation. In Vienna, the planning process was at an advanced stage; in Órgiva, the municipal government had already refused the initiative's main request. In both cases, the cost of entering a deliberative space with the initiative was higher than the cost of staying out.

CLD mirrors the arena that drew it. For example, a niche-centred room in Órgiva produced a niche-centred map, while a regime-centred room in Espoo produced a regime-dominated map; and a hybrid arena in Tartu produced an interface-heavy map. Vienna is the exception: a niche-only room produced the most regime-heavy map of all, in which the regime appears as adversary and target. A mirroring map represents the system as seen by the actors who were in the room and can act on it; a refracting map represents an absent actor as seen by those who oppose it.

Regime only partially involved. The parts of the regime and the administrative levels that cooperate with the initiative (the Provincial Energy Office in Granada, culture-regime intermediaries in Vienna, technical departments and the Catalan administration in Barcelona) were present more often than those in conflict with it or holding the relevant decision (the municipal government in Órgiva, the planning departments and ÖBB in Vienna, district services in Barcelona). Comparing 'niche versus regime' is too coarse: the relevant comparison is between the parts of the regime that were present and those that were absent. The regime is internally differentiated, as Stage 1 already showed for Órgiva and Vienna, and deliberation selects the parts of it that are already open to the niche.

Windows affected by timing. Processes that met a closing window faced either regime refusal (Vienna) or the proposal of stabilising existing coordination (Turin). When a window opened outside the process (Órgiva), the initiative could act without the regime, and the deliberation became a moment of internal reorganisation in view of the new opportunity. Where the window was policy-driven and open (Barcelona), the panels could connect the initiative with the regime actors who govern it. Where the window was project-driven (Tartu), the panels were part of the project and shared its temporariness.

Reinforcing leverage points. The leverage points selected in the panels mostly addressed reinforcing niche loops and the conditions of participation, not the stabilising loops of the regime. The stabilising mechanisms mapped in Stage 1 (co-optation, absorption of dissent, political inertia, administrative complexity) were rarely chosen as points of intervention, except in the Barcelona case, where regime actors themselves suggested regulatory routes.

8.2 CMO configurations

Moving from the description to the analysis of the cross-stage comparison three main Context–Mechanism–Outcome (CMO) configurations seem to emerge, corresponding to the three types of socio-technical context identified in Stage 1, namely embedded niches, contested niches and invited participation. Within these contexts, the deliberative interventions implemented in Stage 2 gave rise to five different types of deliberative arena, characterised by varying patterns of actor involvement, interaction and institutional coupling. The CMO analysis therefore examines how different forms of implementation, within each contextual configuration, activated particular mechanisms and contributed to different patterns of outcomes. It is worth noticing that the resulting configurations represent context-sensitive explanatory propositions, rather than generalisable causal relationships.

In table 18, Context (C) refers to the conditions preceding the panels, Implementation (I) describes how the common deliberative design was actually enacted with deliberative arenas emerging as within-context variations, Outcomes (O) are the observed or reported changes in capacities, relationships, learning, governance and substantive action, together with the scope of the ToCs and Mechanisms (M) refer more narrowly to the responses and reasoning activated when participants encounter the opportunities and constraints offered by that implementation in a particular context.

Table 18. Contexts, implemented arenas, candidate mechanisms and outcomes

Stage 1: context (C)	Stage 2: implemented intervention / arena (I)	Stage 3: outcomes (O)	Candidate mechanisms (M)
1. Embedded niches Barcelona and Turin. Organisation-/third-sector-led initiatives with established institutional interfaces and dense bridging; relatively cooperative but potentially incorporating regimes. Window open in Barcelona, closing in Turin.	Bridged arena (A) in both cases, but not identical. Barcelona included public actors across levels with substantive contributions to DP3 and the role-playing game; in Turin regime-side and intermediary organisations outweighed niche organisations, without direct decision-makers at DP3.	Shared reframing around inclusion and food justice, cross-boundary relational gains and institutional/interface-oriented ToCs. Barcelona reports initial pilot implementation under initiative control; Turin chiefly shows relational and cognitive effects. Wider institutional uptake remains unproven.	Where relevant institutional counterparts engage, exchange of insider knowledge and mutual recognition help participants translate needs into feasible strategies (clearest in Barcelona). Facilitation can convert different accounts into shared concerns. Where decision authority is missing or representation is unbalanced, this translation may instead reinforce coordination within existing institutional boundaries (risk in Turin).
2. Contested niches Vienna and Órgiva. Citizen-led initiatives encounter refusal or conflict with the decision-holding local regime. Bridging has limited authority. Window closing in Vienna; regulatory opportunity opening outside the panels in Órgiva.	Niche-enclosed arenas (C1 and C2) with absent decision-holders. In Órgiva, supportive technical and provincial actors participated, the role-playing game was dropped and discussions moved towards the initiative's own organisation. In Vienna, deliberation addressed a mapped but absent planning regime; the game was simulated within the participating group.	Órgiva: strengthened strategic perspective, networks and self-governance-oriented ToC, with municipal conflict unresolved. Vienna: some internal learning, demands aimed at absent authorities and reinforced frustration, with no demonstrated change in co-governance.	In Órgiva, participants appropriated the available deliberative space for strategic reflection and internal problem-solving in response to an external opportunity. In Vienna, the absence of an institutional interlocutor constrained reciprocal testing of proposals and supported renewed oppositional framing and frustration. These are different responses to a related contextual obstacle, not effects mechanically determined by the arena label.
3. Invited participation Tartu and Espoo. Participation is initiated or structured by regime actors; an autonomous niche is	Institution-hosted arena (B) in Tartu: municipal involvement earlier, thin at DP3, re-entering at a subsequent round table; moderators translate residents'	Tartu: social reframing, new contacts, less distance between residents and officials, but agreement without firm implementation	In Tartu, facilitated articulation of residents' experiences and re-entry of municipal actors allowed limited mutual recognition

institutionally fostered (Tartu) or not active in the panels (Espoo). Opportunities are project-bound or mainly potential.	concerns into mapping outputs. Regime-framed arena (D) in Espoo: small, professional/institutional participation and a shift from SMRs to participation in future energy projects.	commitment. Espoo: reflection on the design of future participation and a possible pilot forum; no demonstrated substantive transition pathway.	and problem reframing, while continued action depended on the municipal host. In Espoo, the lack of a concrete active niche or project redirected participants' attention towards the prerequisites of participation itself (early information, responsibility and fear of conflict), rather than a substantive transition strategy.

Source: UNITO synthesis of Stages 1–3 (see tables 10, 14, 15–17)

In *embedded niches* (Barcelona and Turin), although pre-existing interfaces between initiatives and public or intermediary organisations made an encounter across the niche-regime boundary possible, yet the same broad contextual type did not yield the same degree of coupling. In Barcelona, the contribution of regional and local representatives to the role-playing and action proposals illustrates a plausible mechanism of institutional knowledge becoming usable strategic information for the initiative. The ToC could consequently identify multi-level routes for action, and implementation of a pilot had begun. In Turin, the forum re-enacted established coordination relationships, with regime-side organisations numerically dominant and no direct decision-maker at DP3. Here, the plausible mechanism is closer to mutual recognition and facilitated reframing within an existing interface; food justice emerged as a shared concern, but the analysis cannot demonstrate institutional uptake or a comparable route to implementation.
The contrast suggests that bridging creates access, whereas the specific authority, contributions and reciprocal engagement of those present affect what the encounter can accomplish.

In *contested niches* (Vienna and Órgiva) shared conflict with the relevant local decision-maker, which did not participate in the decisive joint panel. This contextual condition constrained the intended niche–regime encounter, but did not determine a single deliberative response. In Órgiva, the initiative used the space for internal reflection, organisation and alliances while a regulatory opening developed outside the process and the ToC consequently addressed capacity and self-governance. In Vienna, participants represented the absent planning regime as the target of change, but could not test pathways with those holding relevant powers. The process generated some learning but also reinforced frustration
Rather than treating these two arenas as two different contexts, the comparison can interpret them as *two responses to a similar constraint, differentiated by the initiative's strategic orientation, the opening or closure of external opportunities and how the methods were adapted*.

In *Invited Participation* (Tartu and Espoo) were both marked by participation initiated or structured within the regime, but the processes had different objects and participant configurations. In Tartu, residents' concerns were translated through the facilitation and mapping process and subsequently reconnected, to a limited extent, with municipal actors. This supported relational change and reframing, while implementation still depended on the municipal host. In Espoo, the absence of an active initiative in the panels, alongside the shift away from a concrete SMR proposal, meant that the deliberation chiefly concerned when and how residents should be included in future large-scale energy decisions. The case should not be read as lacking any niche history as in the 2017 council initiative influenced city planning, but it was not an active collective-action niche in the panels.
In both cases, *institutional framing limited autonomous follow-through, albeit in different ways*.
Three further candidate mechanisms emerge across the different deliberative arena configurations, although their effects depend on the context and the way the panels were implemented.

First, *representation by proxy* made the needs of vulnerable or absent populations available for discussion through intermediaries, without necessarily creating opportunities for those groups to exercise agency themselves.
Second, *facilitation oriented towards consensus supported shared problem definitions but often displaced direct confrontation* with actors holding decision power; where such actors were absent, consensus could not resolve the underlying conflict.
Third, *researchers' translation of discussion into CLDs and leverage points made complex systems legible and comparable, while partly relocating authorship and choices about representation from participants to the research teams*. The evidence indicates that ownership of ToCs, developed in the panels, was generally stronger than ownership of merged CLDs. These processes should be treated as possible mechanisms only insofar as the empirical record shows how participants responded to them, rather than as automatic effects of facilitation techniques.
These CMO configurations allow to identify a possible answer to the question raised in Section 2.2.3: could the panels, as temporary invited spaces, prefigure the niche–regime relations that the initiatives seek?

In the bridged arenas, to a degree they did the encounter of niche and regime actors on an equal footing, which one Turin participant described as a form of participation she had not previously considered, is itself a small-scale enactment of the co-design spaces that the ToCs propose. In the other configurations, the panels reproduced the relations already in place, or showed their absence.

8.3 Integration with the comparative analysis of CO-SUSTAIN historical examples

In *Deliverable 2.3 - Analysing best (and worst) practices to support and manage latent and manifest forms of political participation (D2.3, available at https://co-sustain.eu/project-results/)* five key enabling factors of political participation in transition contexts were identified:

(1) political openness and institutional alignment at regime level;
(2) well-resourced, autonomous civic spaces and niche-level innovation, with a strong correlation between their educational and empowerment capacities;
(3) civic networks and multi-scalar coordination, with bridge-building actors ensuring vertical integration;
(4) strong internal capacities (leadership, knowledge, governance and reflexivity); and
(5) systemic pressures that open windows of opportunity, among which political pressures were the most frequent.

The deliverable also identified four key hindering factors:

(1) limited access to funding and infrastructure;
(2) internal and external tensions, power asymmetries and misaligned incentives;
(3) system rigidity and the absence of collaboration with the public sector; and
(4) adverse or unclear legal frameworks, together with a misalignment between technological possibilities and public policies (D2.3).

The comparative analysis of the six case studies confirm most of these findings and add three elements. The confirmation is clear for **bridge-building actors**, present in all six cases and decisive for the arenas that achieved coupling; for **funding**, whose scarcity and volatility appear in every Stage 1 document and became the first leverage point in Turin; for **system rigidity**, which in Órgiva and Vienna took the form of a decision-holding regime that declined to deliberate; and for **legal frameworks**, which in the energy cases acted both as enablers (the 2 to 5 km extension in Spain) and as constraints (the legal definition of energy communities in Catalonia). The case studies also confirm the enabling role of **spaces for collective reflection and learning**: where the panels worked best, they offered

actors a temporary space to reflect away from operational pressures, and participants valued them as such.

The first addition concerns the **object of comparison**. WP2 compared initiatives and the conditions of their success; the case studies allow us to observe the effect of the same deliberative intervention across different niche–regime configurations. They show that the intervention tends to reproduce, rather than change, the configuration it enters, unless decision-relevant regime actors are present at the moment of encounter. Political openness, identified in D2.3 as an enabling condition for participation, emerges in the case studies as a key factor shaping the involvement of decision-making authorities in deliberation and the potential influence of its outcomes: deliberation took place even where the regime was closed to the initiative, but without the actors who held the relevant decisions. The second addition concerns **the regime as a differentiated actor**. D2.3 found medium levels of political openness in 14 of 18 historical examples, with selective access in several Italian cases. The case studies show that openness is selective within the same regime: across administrative levels (provincial versus municipal in Órgiva; regional versus district in Barcelona) and across sub-regimes (culture versus policy and economy in Vienna). Policy recommendations should therefore address specific regime actors rather than 'the regime'. The third addition concerns **the conditions of participation within participatory processes**. The access barriers recorded in the panels (timing during working hours, academic language, impersonal invitations, lack of resources and time, fear of conflict) reproduce on a small scale the barriers that D2.3 identifies in the historical examples, and show that the deliberative format does not neutralise them by itself.

9. CONCLUSIONS

This deliverable reports the results of the comparative analysis of the deliberation processes designed and ran in the six heterogenous contexts of the CO-SUSTAIN case studies of political and civic participation. The overall objective *is to understand which effects on democratic pathways to transition are produced by participation under which conditions and through which mechanisms*. To achieve such objective, we opted for the adoption of a qualitative approach inspired by the tradition of realistic evaluation and we proposed a Context-Mechanisms-Outcome framework developed along three stages applied to the Context (Stage 1), Implementation (stage 2) and Outcomes (Stage 3) of the deliberation processes. This chapter summarises the main findings (Section 9.1), the contribution of the deliverable to the project's objective (Section 9.2), a few preliminary implications for policy and practice that will be further developed in the upcoming *Deliverable 4.3 – Policy recommendations for a sustainable and democratic transition* (Section 9.3), and the limitations of the analysis together with some directions for further research (Section 9.4).

9.1 Main findings

Four findings summarise the comparison, each answering one part of the overarching question defined in par 2.1 to close the project's cycle: *what happens, where, why, and with what results?*

What happens: the same intervention produced different arenas. All six processes followed the same design, but the deliberative arena that took shape at the final joint panel (DP3) varied with the context. Where conflict with the decision-holding regime preceded the project, those regime actors did not take part, and the researcher-convened spaces largely reflected existing niche–regime relations instead of changing them. The regime, moreover, proved to be plural: openness to the initiatives varied across levels of government (provincial and municipal in Órgiva, regional and district in Barcelona) and across sub-regimes (culture, policy and economy in Vienna). What mattered most was therefore not whether 'the regime' was present, but which part of it was present when niche and regime were meant to meet.

Where: participation is a niche–regime relation. The prior relation between the initiative and the regime that holds the relevant decisions shaped who took part in the panels and what the panels could produce. Three types of context emerge from Stage 1. In embedded niches (Barcelona and Turin), initiatives led by organisations and by the third sector cooperate with a regime that acts as a partner or incorporates them, and the main risk is co-optation and the treatment of symptoms rather than structural causes. In contested niches (Vienna and Órgiva), citizen-led initiatives encounter resistance from decision-making authorities. In contexts of invited participation (Tartu and Espoo), the participatory process is initiated and controlled by regime actors, and the niche is externally stimulated or has yet to emerge. In all cases, regime stability rests less on open opposition than on political inertia, administrative constraints, organisational fatigue and forms of participation that do not redistribute power.

Why: four mechanisms connect context and outcomes. The encounter between niche actors and decision-relevant regime actors, supported by a role-playing game with real counterparts, turned institutional knowledge into strategy for the niche, as in Barcelona and Turin. Where the counterpart was missing, the same tools could only simulate the encounter. Three further mechanisms cut across all cases: representation by proxy, through which intermediary organisations brought the needs of vulnerable groups into the outputs, but rarely their agency; a consensus orientation that produced shared visions while keeping conflict with the regime out of the room; and the translation of participants' knowledge into maps by researchers, which made complex systems discussable but placed part of the authorship of the outputs with the research teams.

With what results: outcomes are real but early. The effects observed by the end of the project are mostly cognitive and relational: a more systemic understanding of the problem, its reframing in terms of justice, mutual recognition and trust. Governance effects are limited to proposals and to closer cooperation, and implementation has started only in Barcelona, where the initiative controls the proposed actions and regime actors helped design them. All partners, participants and experts agree that follow-up is the condition of impact. Without it, the gains of the process may fade or even reinforce the scepticism that participants brought to it.

9.2 Contribution of the deliverable

As introduced in paragraph 2.1, the comparative analysis of the six cases concludes the CO-SUSTAIN research cycle by providing empirical evidence to answer the overarching question in three main ways. First, it links a typology of contexts, derived from the MLP reading of the case studies, with a typology of deliberative arenas based on coupling, i.e. on which actors met at the moment of encounter, and combines them in a subset of context–mechanism–outcome configurations. These configurations are propositions supported by six cases, which can be tested in other contexts. Second, it proposes a way of comparing participatory system maps across very different socio-technical systems. By labelling the factors of the merged CLDs according to the MLP and reading their loops along common analytical dimensions, it makes maps of energy, food and urban-space systems comparable without losing their specificity. Third, it complements the analysis of nineteen historical examples. The case studies confirm the role of bridging actors, funding and legal frameworks, while also highlighting how political openness shapes the involvement of decision-making authorities in deliberation. This openness proves to be selective within the same regime, and the access barriers identified in the historical examples are reproduced, on a small scale, even within deliberative processes.

9.3 Implications for policy and practice

The main implication for policy recommendations (that will be further developed in the upcoming deliverable 4.3 – Polciy Recommendations is that participatory measures should be differentiated by type of context rather than follow a single model.

In embedded niches, the priority is to protect the autonomy of the initiatives while consolidating their relationship with institutions: multi-annual rather than short-term funding, and the upgrading of existing coordination bodies with new functions rather than the creation of new ones, as proposed in Turin (GIPA, Atlante del Cibo) and Barcelona (a neighbourhood-level coordination board).

In contested niches, the priority is to involve from the start the level of government that holds the relevant decision, to link deliberation to formal planning or decision-making procedures, and to support supra-local allies that can act as brokers, such as the provincial Energy Office in Órgiva.

In contexts of invited participation, the priority is to move from consultation to shared responsibility: clarifying who is responsible for follow-up, committing resources to the actions agreed, and opening participation before decisions are taken, as suggested by the idea of a new forum for participation discussed in Espoo.

In all contexts, the material conditions of participation matter: timing outside working hours, accessible language, personal invitations and support for the time and resources of grassroots organisations. Vulnerable groups should be involved directly and not only through the organisations that represent them, and follow-up and implementation support should be planned from the outset, including after the end of research projects.

9.4 Limitations and further research

The analysis has some limitations, which also call for reflection on the process itself. First, six cases do not allow us to isolate the effect of single and context-specific factors, and the configurations identified should be read as plausible propositions rather than robust generalisations. Second, the categories used to compare the cases simplify hybrid situations, as partners repeatedly pointed out. Partner validation reduced this risk but did not eliminate it. Third, the assessment closes a few months after the final panels, so that institutional and systemic outcomes, which unfold over longer time horizons, cannot yet be observed. Finally, the research teams designed, recruited, facilitated, synthesised and evaluated the processes, and in Turin the convening university was also an actor in the system. These multiple roles shaped the outputs of the panels, which cannot be regarded as entirely independent products of participant interaction. The validation procedure used in Stage 2, in which partners confirmed or changed each coded item, is a simple way of leaving a trace of interpretation, and could be used more widely in action-research projects that both run and evaluate deliberation.

Three directions for further research follow from these limitations. First, a longitudinal follow-up of the implementation of the Theories of Change, to observe whether and how the early outcomes translate into institutional change and which effects of the deliberation processes were just temporary and which ones stabilized Second, the application of the CO-SUSTAIN typologies of contexts and deliberative arenas to other deliberative processes, in order to test the CMO configurations. Third, the development of participatory mapping methods that represent power relations more explicitly, a weakness of the CLDs consistently noted by participants and external validators, which could limit the capacity of the maps to support sustainable pathways.

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ANNEXES

Annex A) Stage 1 - Guideline to apply MLP to CLDs

A) Contextualising the CLD through the MLP

A1. Define and describe niche and regime

Briefly explain how the concepts of niche and regime have been operationalized in your case study.

Answer the following questions:

- How did you define the niche?
- How did you define the regime(s)?
- Which factors belong to which level?
- Why?

A2. Define and describe landscape

Instructions:

Describe the external developments that influenced the system but were not directly shaped by niche or regime actors.

Questions:

- Which landscape factors were included?
- Why were these factors considered relevant?
- Which important landscape dynamics remained outside your analysis?

A3. Compile the factors, their MLP labels and descriptions into a table

Label	***MLP-Level***	***Description***
Inclusivity of green spaces	*Landscape*	*Landscape imperative: Global framing of accessibility and inclusivity of green public spaces as conditions for sustainable urban environments*
Socially just, climate resilient urban development	*Landscape*	*Landscape imperative: Global framing of socially just, climate resilient urban development as conditions for sustainable urban environments*
Access to/reaching multipliers	*Culture regime*	*Successful cooperation with multipliers who spread the initiative's ideas and narratives across different media platforms.*
Citizens' notion of democracy	*Culture regime*	*Citizens' perception and performance of democracy, including values, processes, and representation.*
Etc…	*Etc…*	*Etc…*

B) **Identifying cross-level dynamics**

Instructions:
Cross-level dynamics may appear either as feedback loops or as analytically relevant direct connections between factors at different MLP levels. For each interaction, provide a short description of the dynamic at stake.

B1. Identify feedback loops involving more than one MLP-level, also providing involved variables and connections:

- niche ↔ regime
- regime ↔ landscape
- niche ↔ landscape

B2. Describe and interpret each feedback loop and connection detected at B1.

Guiding questions:

- Which cross-level loops (re)produce regime stability or lock-in mechanisms? These are usually balancing loops.
- Which cross-level loops destabilize the current regime(s)? These are usually reinforcing loops.
- Which loops characterize nested niche dynamics? (e.g., niche loops influencing key regime or landscape factors, or regime loops influencing key niche factors)
- Which loops facilitate interactions between niche, regime and landscape?

C) Interpret and describe transition mechanisms through MLP

Instructions: Using both the CLDs and the deliberative discussions, interpret the transition process emerging from your case study. The objective is to understand how the interactions between niche and regime actors, factors, and feedback mechanisms shape pathways of continuity and change over time.

Address the following analytical dimensions.

C1. About the collective action mobilization

- What are the main resources (financial, organizational, relational, knowledge-based) mobilised by CAIs?
- What motivations, values, and interests underpin their action?
- How are CAIs organized and how do they coordinate (e.g., governance models, degree of institutionalisation, legal forms, networks…)?

C2. About the Windows of Opportunity

- Which key windows of opportunity can be detected in the historical transition pathway?
- Which landscape framings or external shocks contribute to the opening or closing of these (potential) windows of opportunity?
- How did niche and regime actors respond to these windows of opportunity?

C3. About the niche-regime interaction

- What forms of interaction emerge between niche and regime actors (e.g. cooperation, conflict, co-optation, hybridisation)?
- Which actors, processes or infrastructures act as “bridges” between niche and regime (e.g. boundary organisations, intermediaries, shared platforms)?
- Which feedback loops or mechanisms are particularly important in shaping these interactions?

C4. About transition pathways and system change

- How does the niche evolve over time (e.g. consider institutionalisation, scaling-up, diversification, fragmentation, professionalisation, loss of autonomy)?
- How does the regime adapt or transform (e.g. consider policy change, organisational restructuring, new governance arrangements, shifts in dominant practices)?
- How do niche-regime interactions evolve (e.g. consider increasing alignment, persistent tensions, partial integration, resistance, co-optation, transformation of regime structures)?

Annex B) Stage 2 - Validation template

Stage 2 compares how the six deliberation processes were implemented, from the KoM to the validation phase. We are comparing the deliberation process, not the initiative. As agreed in Barcelona, UNITO has done the first coding, using D3.1. What we need from you is validation: tell us where we got your case right or wrong, and add what D3.1 does not say.

Time needed: about 45-60 minutes.

How to fill it in

1. **Part A: fact sheet.** Check the figures and complete the fields marked “please complete”.
2. **Part B: coding.** For each row, tick one box in the ‘Your check’ column. Confirm it and where possible, point to the evidence (D3.1 section, observation notes, recording, survey).
3. **Part C: pattern.** Say whether our preliminary cross-case placement of your case fits.
4. **Part D: reflection.** Five short open questions (max. 150 words each) on how implementation shaped what the panels produced. These answers are needed to link Stage 2 to Stage 3.

Part A: process fact sheet

Item	Your data
Events, dates and venues	
Attendance by event	
Distinct participants	
DP3 composition	
Pre/post interviews	
Working language(s)	

Part B: validation of the implementation coding

The six dimensions are the same for all cases so that the answers can be compared. Each item below is a summary of D3.1, not a judgement.

D1. Framing and entry point

What was the process about?

#	Item	UNITO coding (from D3.1)	Your check	Evidence
1.1	Nature of the CAI / entry point		☐ Confirm ☐ Amend ☐ Reject	

1.2	Guiding question(s) and any reframing		☐ Confirm ☐ Amend ☐ Reject	

D2. Recruitment and composition

Who participated and who not? How did this change over time?

	Item	UNITO coding (from D3.1)	Your check	Amendment /evidence
2.1	Recruitment strategy		☐ Confirm ☐ Amend ☐ Reject	
2.2	Attendance trajectory and niche/regime balance		☐ Confirm ☐ Amend ☐ Reject	
2.3	Inclusion of vulnerable groups		☐ Confirm ☐ Amend ☐ Reject	

D3. Setting and logistics

How did place, time and format act as filters on participation?

#	Item	UNITO coding (from D3.1)	Your check	Amendment / evidence
3.1	Venue(s) and their meaning		☐ Confirm ☐ Amend ☐ Reject	
3.2	Timing, format and accessibility measures		☐ Confirm ☐ Amend ☐ Reject	

D4. Method operationalisation and deviations

How was the D2.4 design translated locally, and why?

#	Item	UNITO coding (from D3.1)	Your check	Amendment / evidence
4.1	KoM and DP1/DP2 implementation		☐ Confirm ☐ Amend ☐ Reject	
4.2	DP3: vision, role-playing game, Theory of Change		☐ Confirm ☐ Amend ☐ Reject	
4.3	Main deviation(s) and rationale		☐ Confirm ☐ Amend ☐ Reject	

D5. Interaction and facilitation

What was the quality of deliberation? Was there any conflict, or did some actors shape the conversation more than others?

#	Item	UNITO coding (from D3.1)	Amendment / evidence
5.1	Atmosphere and conflict		
5.2	Power dynamics and dominance		
5.3	Engagement with methods / role of facilitators		

D6. Closure and feedback

How was the process validated and returned to participants?

#	Item	UNITO coding (from D3.1)	Amendment / evidence
6.1	External validation		
6.2	Restitution and follow-up with participants		

Part C – Placement in the cross-case patterns

From the first reading of all six processes, we distinguish four types of deliberative arena. The main criterion is who was actually in the room at DP3, the moment when niche and regime were supposed to meet. This is a working hypothesis, and we want you to challenge it.

Type	Arena	Description	Tick
A	**Bridged arena**	Niche and regime both present at the DP3 encounter, with actors bridging the two levels; the role-playing game has real counterparts.	☐
B	**Institution-hosted arena**	The process sits inside a municipal initiative; the regime is strong early on but thins out by DP3; residents form the niche.	☐
C	**Niche-enclosed arena**	Regime actors decline or withdraw; deliberation turns into the CAI's internal reflection and capacity-building, and the role-playing game loses its counterpart.	☐
D	**Regime-framed arena without niche**	No active CAI; the topic is reframed during the process; small numbers of mainly institutional or professional participants.	☐

Does the placement fit? Why or why not? Is a type missing?	

Part D: reflection on implementation

Maximum 150 words per question. Report specific episodes.

D.1	**Which single implementation choice (recruitment, format, method adaptation, facilitation) most shaped what your panels produced (CLD and leverage points, ToC)? In what way?**

D.2	**Which deviation from the D2.4 design proved productive and which one limited the process?**

D.3	**Whose voice was missing from the DP3 room and how does that absence impacted or not the Theory of Change?**

D.4	**How much were the final CLD and ToC shaped by the research team (synthesis, translation into the map, completion after the session) rather than by participants in the room?**

D.5	**Is there anything important about how your process unfolded that this template does not capture?**

Annex C) Stage 3 - Analytical Dimensions

Guidelines (from the Barcelona meeting):

MLP and Collective Action, *combining ToC X DP outcome*

- What is the role of the leverage points in MLP terms?
- Is the ToC able to grasp/trigger dynamics of change in the ST system?
- What is the role of participation and interaction among levels?
- What is the transformative potential of ToC?
- What is the transformative potential/result of the intervention?

Table 1.

Dimensions	**What are we looking for?**
1. Niche capacity	Knowledge, agency, empowerment, skills, organizational capacity, resources, coordination, consolidation and strengthening of niche initiatives
2. Relational effects between niche and niche-regime initiatives	Trust, recognition, cohesion, new relationships, cooperation, networks
3. Collective learning & reframing	Shared understanding, new framings, systemic thinking, collective learning
4. Governance & institutional effects **(collective activation)**	Niche-regime relations, institutional recognition, co-governance, decision-making, resources
5. Substantive & systemic outcomes	Proposals, implementation, organizational/policy change, system transformation

Starting from Table 1, please consider the following five questions and prepare to discuss them during the meeting on **7 October**. No written output is expected from you. The questions are intended to guide and support the discussion.

1. What changes did the deliberative process produce among niche participants and initiatives, and in the relationships between the actors involved? Consider changes in knowledge, agency, recognition, trust, cooperation, networks or organisational capacity.
2. Did the deliberative process alter participants' understanding of the problem, its causes, or potential solutions? If so, what new shared understandings, framings or forms of systemic learning emerged?

3. How did the interaction and collaboration between niche, regime and other relevant stakeholders influence the development of the Theory of Change and the identified pathways for change?
4. Did the deliberative process lead to changes in collective action, governance arrangements or niche-regime relations? If so, how did institutional recognition, cooperation, decision-making, resources and co-governance change?
5. To what extent was the deliberative process able to favour the convergence of participants from an initial collection of different perspectives to a kind of common understanding and shared vision of the issues at stake (framing of the problems, main dynamics and possible interventions)?
6. How do you see such solutions and points of intervention (concrete changes in practices, collaborations, organisational arrangements or ways of working) being practically implemented?