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Abbreviation list

Term	Description
A	Agreement
BG	Bulgaria
C	Comprehensive
Ch	Chapter
CS	Consensus across opinion
D	Deliverable
DE	Germany
EU	European Union
FG	Focus groups
FL	Futures literacy
FLL	Futures Literacy Lab
G	Groundedness
ICT	Information and communications technology
JTF	Just Transition Fund
LEC	Least-engaged community
M	Milestone or Month
MLG	Multi-level governance
NGO	Non-governmental organisation
PF	Preferred future
PL	Poland
PR	Policy relevant
PS	Polarisation between groups
RFLL	Regional Futures Literacy Labs
SE	Sweden
SS	Seed statements
TC	Territorial capital
TJTP	Territorial Just Transition Plan
WG	Working group
WP	Work package
WS	Workshop

Executive summary

This deliverable (D) 4.4 Evaluation and handbook of the Regional Futures Literacy Labs (RFLLs) evaluates the results of the RFLLs, which are the experimental part of the Democratising jUst Sustainability Transitions (DUST) project. The RFLLs happened in four case study regions in Norrbotten (Sweden), Katowice (Poland), Stara Zagora (Bulgaria), and Lusatia (Germany) between December 2024 and June 2025. The labs tested a novel hybrid format combining design-led territorial and digital tools for the participation of least-engaged communities (LECs) in place-based sustainability transition policymaking. Engaged LECs were a rural community (Norrbotten), generations in mining families (Katowice), a community of citizens (Stara Zagora), and young people (Lusatia). The findings presented in this document elaborate to what extent the RFLL format has empowered these LECs to anticipate and envision regional structural change, how it has supported them in the building of social capital in a pluralistic and inclusive decision environment, and how it has helped the strategic and proactive positioning of their concerns in the multi-level deliberative governance of place-based sustainability transition policymaking and democratic life at scale.

In theoretical terms, the conception of RFLL format recognizes the importance of and challenges to citizen participation in place-based policymaking in the continuous, complex, and uncertain setting of sustainability transitions. Building on knowledge from the fields of public policy, spatial planning, spatial design, future studies, and democracy studies, the format emphasizes the role of anticipation and imagination, and reflexivity in the consideration of territorial, temporal, and organisation aspects of transitional development for policy learning, argumentation, and negotiation. The format also acknowledges that engaging a distinct LEC in public policymaking resembles the involvement of an 'advocacy community' or 'advocacy coalition', which requires particular attention to how community and policy fields of interest are thematically bounded, structured by narratives, and intersect.

The RFLLs from a comprehensive perspective

The RFLLs included four analogue and one digital deliberative encounters between LEC members and - at times - policymakers and the public. During the RFLL processes these encounters were systematically documented, analysed, and represented. Central in the processing of information was the concept of 'territorial capital' (TC), which recognizes the specific development potentials upon which place-based policymaking draws. The comprehensive and comparative post-RFLL assessment of results from intermediate analyses demonstrates that a deliberative process of opinion formation has taken place. The process started with the formulation of LECs' concerns at the periphery of the public sphere (RFLL workshop (WS) 1), proceeded to translate these concerns into more detailed positions (WS2-3), continued with deliberating these positions among a larger and more representative segment of the public (digital Pol.is application), and concluded with a final dialogue on concrete community-led policy recommendations for place-based policymaking at sectors and levels of government (WS4). A series of findings on how specific aspects and elements of the RFLL format have influenced argumentation and opinion formation are summarized below.

Futures literacy in the RFLLs

The combination of the Futures Literacy Lab (FLL) format and regional design approaches in the RFLLs has enhanced an understanding of time, triggered more positive perspectives on transitional development, and increased LECs' social capital and agency. Analysis of the

development of futures literacy during the RFLLs revealed that all LECs developed long-term visions and that this development proved central to an understanding of time. In the imagination of futures, LECs showed an ability to construct complex visions by relating different aspects of transitional development. Complexity varied, reflecting diverse forms of futures literacy. Several factors influenced shifts of LECs' perspectives across temporal perspectives. These include knowledge about transitional development in regions, age, sentiments about and the felt emotional distance to development, and the experienced or imagined agency in steering development. Participants felt empowered when imagining 'own community futures', integrating their interests in social capitals with specifically tangible spatial elements of transitions.

Framing

Open framing of deliberations at the intersection of LEC, policy, and media narratives and the allowance for reframing by LECs motivated participation in RFLLs. LECs understand sustainability transitions through the lens of human - and particularly social - capitals, focusing on aspects that directly matter for their lives and place of living. Their narratives show that these concerns guide how they perceive broader transitional development. In contrast, sustainability transition policies pursue comprehensive transition concepts but typically overlook social capitals. Policy narratives often begin from economic capitals, structuring transitions around economic diversification and treating the development of other capitals as instrumental to these goals. Media perspectives also pursue wide perceptions of sustainability transitions but commonly highlight the effects of top-down or autonomous economic and infrastructural developments at local levels. Across LEC, policy, and media viewpoints, differences in emphasis and rationales indicate that inclusive frames are required to not only safeguard a common thematic ground for deliberation, but also be sufficiently open to allow for the re-structuring of existing disordered discourses. Against this background, the RFLLs started with a broad thematic framing at the intersection of the aforementioned perspectives. When LECs were given space to reframe discussions, they reaffirmed their core concerns about transitions while keeping a broad range of related interests in play. This demonstrated their readiness to situate their priorities within wider transition debates and motivated further deliberation.

Negotiation

The adapted FFL format supported the inclusion of policy-relevant aspects of transitional development in LECs' imaginations of the future. While all LECs continued to base their reasoning on social and human TC aspects, several recurring argumentation lines involving aspects from other domains appeared. Quality of life, affordable housing, and the natural environment formed key rationales for sustainable regional development. Although natural and cultural TCs were less grounded in discussion, they frequently served as shared background concerns. Community participation in inclusive regional governance was also of importance in many narratives, with LECs emphasising empowerment, capacity building, and the cultivation of social capital. In terms of sentiments, the TC sub-categories that most often elicited emotional responses were green growth and low-carbon transition, future jobs, skills and competences, participation and public-institution quality, community and family life, and education. Notable differences between cases emerged in the emphasis placed on specific TC aspects, indicating a contextualisation of conversations.

The comparison between LECs' visions to those in key sustainability transition measures elicited thematic fields and narratives of both community and policy relevance as well as fields and narratives of sole community interest. Shared interests in aspects of transitional development and thus common ground for negotiation between LECs and policymakers varied between cases, highlighting context dependence of developing place-based policy rationales of

community relevance. However, analysis also revealed a series of communalities between LEC and policy visions across cases. All LECs' interests in social capitals expanded during the imagining of preferred futures, commonly increasing the distance between community and policy perspectives in the social dimension. Shared fields of interest consistently included the development of tangible assets, indicating a role for spatial planning in negotiating these community and policy concerns. Specific shared narratives emerged around demographic stability, attractive and affordable living and housing environments, education, and public services, alongside common policy and LEC calls for fair development of peripheral and rural areas. Consistently divergent views appeared around the economic value of nature. **More generally, the comparisons indicated how communities can contribute to place-based policymaking.** LECs often added practical, action-oriented perspectives to otherwise abstract policy rationales. At the same time, they perceived policy responses to negative impacts of transitions as overly abstract or optimistic. Comparisons also underlined that, while LECs and policies may consider similar issues, they frequently value them from different standpoints.

When preparing for public digital deliberation, LECs engaged in internal negotiation, developed different tactics in respect to public opinion formation, and concluded with positions of increased context sensitivity. When drafting policy statements for public digital deliberation, LECs translated their earlier visions into a selection of more concrete positions of various policy relevance. When preparing these statements, internal LEC negotiations aimed at balancing perceived wins and losses. This often led to more or more complex statements, deferring unresolved decisions to the public deliberation. The number and complexity of outputs suggest differing tactics in engaging with the public: expanding options to widen public choice, presenting clear opposing views to prompt alignment, or developing detailed arguments to invite in-depth responses. The possibility of 'mirror statements' absorbing opposing views played a key role in moderating conflicting LEC members' positions. The need for focused, action-oriented messages encouraged substantial discussion on policy implications and highlighted contextual aspects of transitional development and policy frameworks. Adjustments in communication style and language - particularly important for statements touching on polarising topics - were largely guided by younger participants, reflecting their strong skills in shaping content for public digital engagement.

Participation and representation

Several aspects of the labs shaped participation across cases. **Open framing** that allowed restructuring of opposing narratives enhanced engagement, reflected in the stable frames LECs defined in the first RFLL workshop. The **adapted FFL format** both broadened and deepened deliberative reasoning and drove major argumentative shifts. Providing **safe spaces** for internal community deliberation enabled expansive reasoning, while the **sequential workshop structure** supported continuous movement from broad framing to precise positions. **Keeping LECs' interests central** was essential for both participation and outputs. Deliberation was nudged toward policy relevance through **interactions with policymakers and comparisons between community and policy interests**, helping LECs position their concerns within multilevel governance. **Policymakers' supportive role,** especially in the final workshop, strengthened community positioning. Alternating deliberation with **complexity-reducing strategies** helped manage the depth of argumentation required by the RFLL format. **Moderation** that encouraged openness, creativity, and nuance supported active participation. **Diverse and intergenerational participation** fostered deep negotiation and detailed, well-formed community positions.

The RFLLs achieved representation indirectly and through a combination of several ways. Using the **e-democracy tool Pol.is** offered a means to bring LEC positions into the public realm

and **assess their representativeness and legitimacy**. Situating LEC **deliberations at the intersection of sustainability transition policymaking** further supported perceived legitimacy. **Media analysis** emerged as a promising element for evaluating representativeness, while **outreach through the arts** proved powerful yet sensitive. **Contextual factors** influencing varieties in representativeness and legitimacy formation included the presence of organized interests, the scope of selected policy measures, regional political dynamics, and recognition of less-engaged LECs in policymaking and public debates.

Democratic life at scale (Pol.is)

Digital deliberation enabled democratic life at scale and transparency. Equality was enhanced but continued to depend on eliciting less-heard voices during earlier analogue deliberations. The RFLL format expanded participation beyond workshops through using the open-source consensus-oriented deliberative decision-making software Pol.is. Its use enabled democratic life at scale and generated multiple opinion groups and engagement with territorial sustainability transition issues. Policy-relevant statements tied to everyday services achieved the most consensus across opinion groups. However, implementation choices requiring concrete trade-offs in terms of costs and benefits often caused high polarisation, even when overall agreement was strong. Statements strongly grounded in LEC visions (Preferred futures) performed as well or better than non-grounded ones. Preferred future statements were widely accepted, showing resonance with broader publics. Pol.is participants contributed new statements on particularly human and tangible TC aspects. Pol.is design features like equal vote weighting, and the impossibility of adding direct replies to the comments of other participants, supported fair consideration and thus equality in participation. However, overall equality through ensuring visibility for smaller but significant positions depended on eliciting these voices during earlier analogue deliberations in the RFLL workshops.

The performance of the RFLLs in place-based policymaking

The RFLLs recurringly involved policymakers and other institutional stakeholders in ongoing key sustainability transition policy measures that correspond to the characteristics of place-based policymaking. After the conclusion of the labs, some of these participants were interviewed. A series of findings on the performance of the RFLL format in place-based policymaking came to the foreground during interviews and are summarized below.

Policy relevance and participation

Mentioned policy-relevant messages from the RFLLs highlighted the importance of **policies addressing the social dimension** of sustainability transitions, contributing to greater recognition of these aspects by policymakers. Insights into LECs' social diversity, differing lived realities, and awareness of local policy impacts underscored the perceived **need for LECs' concerns to be considered in place-based policymaking**. The labs **revealed LECs' capacities and willingness to participate**, including young people's motivation for critical engagement. Mentioned policy barriers to RFLL implementation included **weak links to ongoing policymaking** and **difficulties mobilizing LECs**, while community barriers included **lack of representation and scepticism toward institutions**. **Framing deliberation around topics relevant to both LECs and policymakers** was seen to have facilitated meaningful conversations, and practical measures - such as personal contact, trusted intermediaries, accessible venues, friendly atmospheres, and concise communication - enhanced participation and deliberation.

Giving communities a voice

The RFLLs strengthened LECs' ability to voice their concerns, particularly when participants could **speak freely and raise issues important to them**. Young people's willingness to contribute increased when their **opinions were valued** and **considered seriously**. **Informality**, **openness**, and collaborative **co-creation** were critical in fostering participants' voices, while **distance from formal planning and policymaking processes** was especially important for allowing free expression and ensuring contributions were heard without institutional constraints. **Barriers** to giving communities a voice included the **feasibility** of the RFLL format and, more importantly, translating results into concrete policy action, with particular challenges in **meeting LECs' expectations regarding impact.**

Collaboration and social governance

The RFLLs contributed to building LECs' social capital and trust through active **face-to-face interactions**, **recognition of communities** as genuine groups, and enabling them to **shape outcomes**. Relations between LECs and policymakers were strengthened by demonstrating **policymakers' capacity to listen and learn**, and by providing **insight into decision-making processes**. Key elements of the RFLL format that supported collaboration included **active participation, informality**, and **continuity** across a series of workshops. These aspects facilitated meaningful dialogue, reinforced trust and mutual understanding between communities and governance actors, supporting the development of social networks and collaborative governance practices within the sustainability transition context.

Targeting policy and governance arenas

LECs' comprehensive positions on place-based policymaking were seen to be **relevant for multiple governance levels**, including national, regional, and local arenas. The **national level** was considered **important yet sensitive**, highlighting the interplay of top-down versus bottom-up dynamics in sustainability transition policymaking. **Local and regional levels** were recommended for targeted engagement, especially through existing sector initiatives and networks. **Non-governmental and public audiences** were also considered important for disseminating LEC positions and stimulating debate. Barriers to dissemination included the complexity of RFLL outputs versus the sectorial orientation of government bodies.

The performance of RFLL elements

According to policymakers, distinct RFLL elements influenced place-based policymaking in multiple ways. **Co-design** fostered more **positive and optimistic perceptions** of transitional development, though barriers included participant representativeness, issue complexity, and mobilizing a sufficient number of LEC members. Effective co-design requires diversity, local grounding, leadership, feedback, and informal exchange. **Futures literacy** enhanced democratic decision-making by supporting legitimacy, transparency, and forward-looking policymaking, while facing challenges in time commitment, skills, knowledge, and policymakers' readiness. **Visual language** bridged gaps between LECs and policymakers, making abstract topics tangible and engaging, especially for young participants, though accuracy and local reflection were occasionally questioned. **Digital deliberation** promoted conversation, transparency, and wider audience reach but faced participation, contextualization, and institutional uptake challenges. Recommendations emphasize embedding digital tools in policy processes, clear communication, and building institutional capacity for effective engagement.

1 Introduction

Citizen participation in sustainability transitions is important as the shift to carbon neutrality involves profound socio-economic, cultural, and spatial transformations that present a wide array of challenges and opportunities for citizens. In this context, citizen participation ensures that sustainability transition policies are accountable, transparent, socially fair, and address citizens' needs. DUST contributes to the democratization of sustainability transitions through the development and implementation of Regional Futures Literacy Labs (RFLLs). RFLLs combine innovative design-led territorial and digital tools to enhance direct citizen participation in just sustainability transition policy processes.

The RFLLs focus on communities that are vulnerable in the face of the transitional challenges but have no or only little engagement in related policy decision-making – e.g. youth groups, communities residing in peripheral areas, and specific sectoral workers communities (such as miners and employees of mining-related companies). The RFLLs are designed to empower these least- engaged communities (LECs) by enhancing their ability to anticipate and envision regional structural change, voice their ideas and interests, build capacity through consensus formation in a pluralistic and inclusive decision environment, and position their concerns more strategically and forcefully in sustainability transition policymaking processes and democratic life at scale.

The DUST RFLL experiments were conducted in the case study regions of Norrbotten (Sweden), Katowice (Poland), Stara Zagora (Bulgaria), and Lusatia (Germany) between February 2024 and July 2025. During and after their implementation they were critically evaluated on their performance in respect to the aforementioned objectives. Evaluation drew on three types of assessment, notably (1) a comparative assessment of the output that was generated in the four RFLL case study regions, (2) a comparative assessment of citizens' learning, emphasizing the retrospect perspectives of participating LEC members, and (3) a case-specific analysis of citizens' positions in the multi-level deliberative governance of sustainability transitions.

Underlying all assessments was a monitoring and assessment framework, which has been formulated prior to the RFLL implementation. By assigning propositions to key features of the lab format, the framework established the key criteria for assessment and structured these to capture various perspectives on the labs. In an instrumental dimension criteria concerned changes in LECs' attitudes towards and willingness to act in sustainability transition policymaking. To trace the positioning of LECs' interests in the deliberative governance of sustainability transitions criteria concerning participation in democratic life and democratic life at scale were established. Criteria concerning enhanced place-based policymaking and local knowledge were set out to capture the performance of the lab format in just sustainability policymaking. Additional propositions were assigned to a communicative dimension of the RFLL format and concerned the performance of visual and affective communication and narrative construction. Table 1 lists the RFLL assessment criteria and propositions, highlighting those that are discussed in this report.

Table 1 Criteria in the RFLL monitoring and assessment framework in overview.

RFLL key criteria	Key propositions for assessment	Criteria and features assessed in D4.4
Instrumental dimension		
Social capital	RFLLs build social capital and trust in democratic governance.	
Futures literacy, resilience, and adaptive capacity	RFLLs increase the resilience, adaptive capacity of citizens and communities.	Chapter 5

RFLL key criteria	Key propositions for assessment	Criteria and features assessed in D4.4
Citizen empowerment	RFLLs empower citizens to voice their concerns in the multi-level deliberative governance of just sustainability transitions effectively and efficiently.	
Citizen learning	RFLLs enhance citizens' learning about sustainability transitions and place-based policymaking as well as their participatory skills.	
Democratic life	RFLLs enable inclusive and transparent citizen participation in democratic life.	
Deliberative participatory processes	RFLLs promote deliberative participatory processes, which consider different arguments, weigh the implications of alternative solutions, and facilitate consensus on the basis of these.	Chapter 6
Democratic life at scale	RFLLs enable democratic life at scale.	Chapter 7
Place-based policymaking	RFLLs support policymaking that builds upon a region's territorial assets and responds to communities' needs.	Chapter 8
Local knowledge	RFLLs inject new local knowledge and ideas into policymaking.	Chapter 8
Policy co-creation	RFLLs enhance citizen participation in policy co-creation processes.	Chapter 8
Communicative dimension		
Narrative construction	RFLLs support the emergence of new narratives about sustainability transitions	
Affective communication	Communication in the RFLLs is affective and inclusive.	
Visual language	Visual communication about the RFLLs is clear, informative, and persuasive.	

The results from the RFLL experiment are presented in several DUST deliverables (Table 2). Results from the ex-post assessment of the labs by participating citizens is published in D5.3 *Citizen learnings report* (Jungsberg et al., 2025). The deliverable D5.1 *Citizen position papers* bundles the citizens' strategic positions that were negotiated during the labs (Chilvers et al., 2025). Policy recommendations drawing on the RFLL experience are summarized in D5.2 (upcoming) *Policy briefs: Expanding the participation of least-engaged communities in just sustainability transitions*.

This report D4.4 *Evaluation and handbook of Regional Futures Literacy Labs* complements these deliverables. It consists of two parts. Part 1 presents an analysis of the conversations that were held during the labs. As opposed to D5.3, which assesses the labs through the lens of its participating citizens, the analysis presented here emphasizes a more distant observation of the conversations. In methodological terms it relies on the comparison of the results from text analysis of audio recordings, policy documents, and workshop reports (amongst others), with incidental triangulation of findings by results of interviews with citizens and policymakers as well as results of the questionnaires that were set out after the conduction of RFLL workshops. A series of earlier DUST data deliverables have made some empirical materials already publicly available. These include the deliverable D4.1 *Spatial representation of the just sustainability transition policy context in case study regions* (Ramirez Aranda & Wandl, 2024), D4.2 *Regional designs: Imagining community-led just sustainability transition policies* (Pfannes et al., 2025), and D4.3 *Pol.is output: Rated statements on alternative community-led just sustainability transition policies* (Forgaci, Ramirez Aranda, et al., 2025). Part 2 of the deliverable presents results from interviews with policymakers and other institutional stakeholders who have participated in the labs and highlights how these have perceived the format as a contribution to place-based policymaking for just sustainability transitions.

The deliverable is further structured as follows. Chapter 2 describes how the RFLL experiment was implemented in practice. It explains the steps that were taken during the labs, and portrays the RFLL case study regions, participants, and context. Chapter 3 outlines the theoretical foundations of the experiments. Chapter 4 summarizes the RFLL assessment strategy. Chapters 5-8 present findings from the analysis per RFLL key criteria and feature.

Table 2 lists these criteria and features, and shows which chapters are dedicated to their evaluation.

Table 2 DUST deliverables related to the RFLLs.

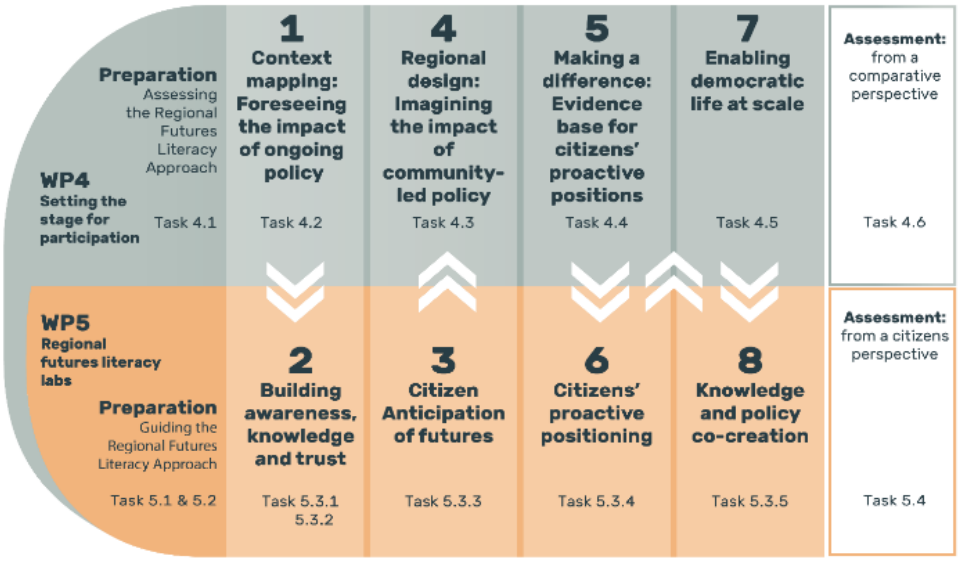
No	Deliverable name	Lead partner	Description	Audience	Empirical material and methods
D4.4	Evaluation and handbook of Regional Futures Literacy Labs (RFLLs): Design-led territorial and digital instruments for citizen participation in just sustainability transitions	TUD	This deliverable is a scientific report assessing the RFLL format on its design-led territorial and digital aspects	Academics in the fields of public policy, the political sciences, the democracy studies, spatial planning, Urbanism, and the future studies	The report draws on a comparative analysis of data generated by the four RFLLs. Methodologically the analysis used qualitative text analysis and semi-structured interviews with policymakers
D5.1	Position papers: Community-led just sustainability transition policies	NR	These four position papers promote the policy statements, which were co-designed by LECs during the four RFLLs	Policymakers in place-based policymaking that affects the individual RFLL regions, LECs and the general public in these regions.	The papers draw on case-specific results from the RFLLs. Methodologically the analyses used participant observation, qualitative text analysis and an analysis of Pol.is results
D5.2	Policy briefs: Expanding the participation of least-engaged communities in just sustainability transitions	NR	These policy briefs present recommendations for positioning LECs' concerns in the multi-level governance of sustainability transitions	Policymakers in place-based policymaking in the EU, Civil Society Organisations (CSOs), and other facilitators of participatory processes	The briefs draw on a comparative analysis of the RFLLs presented in the deliverables D4.4 and D5.3
D5.3	Citizen Learnings Report: On involving least-engaged communities in just sustainability transition policies	NR	The DUST Citizen Learnings Report is a scientific report assessing the RFLLs through the lens of participating citizens	Academics in the fields of public policy, the political sciences, democracy studies, spatial planning, urbanism, and future studies	The report draws on a comparative analysis of all four RFLLs. Methodologically the analyses used semi-structured interviews with participating LEC members and questionnaires

2 The RFLLs in practice

2.1 The RFLL components and process

With the core ambition to strategically and proactively position the concerns of LECs in the deliberative multi-level governance of sustainability transition policymaking in mind, the RFLL format was designed as a sequence of steps that alternate active deliberation in four RFLL workshops and one digital application with the remote analysis and representation of results per deliberation (see Figure 1 and Table 3). This alternation allowed for a course that proceeds from the outline framing of conversations by key sustainability transition themes towards a precise positioning of LECs' interests vis-a-vis policymaking at distinct levels of government. Additionally, the alternation between active participation and remote data processing allowed for eliciting different perspectives, which can be compared, reflected upon, and used to identify detailed conflicts and consent between the stances of RFLL participants. The alternating steps that constituted the RFLL format are described in more detail below.

Figure 1 Stages of the RFLLs in overview.



The preparation and planning phase

In the preparation and planning phase of the RFLLs, WP4 and 5 elaborated the documents 'Framework for monitoring and assessing the RFLLs' (M1), 'RFLL Guidelines' (M3), and 'RFLL Action Plans' (M4). The monitoring and assessment framework identified the key assessment criteria and the methods to evaluate and compare the DUST RFLLs held in the four case study regions. The M3 document was designed to guide case study partners in the preparation and implementation of the labs. A detailed agenda was proposed for each of the four RFLL workshop, including a description of methods for data collection per workshop. In this phase, case study partners were also asked to complete specific Action plans (M4) for the collection of data that contextualizes the different labs in countries. Additionally, WP4 leads set up an analytical framework to map territorial aspects that are meaningful for policymakers and LECs and can thus support the comparison of perspectives expressed during the labs. The theoretical

foundation of the framework became the concept of Territorial Capital (TC), which is widely used in place-based policymaking to describe territorial development assets.

Steps 1-2

In **Step 1** of the RFLLs, the aforementioned TC framework was used to predict the territorial impact of key sustainability transition policy measures in each region. The outcome of the analysis was a catalogue, which systematically presented policy-relevant TC aspects per region (see D4.1 (Ramirez Aranda & Wandl, 2024)). The results were then combined with the outcomes of an analysis of TC aspects, which were mentioned by LEC members during discussions on the relevance of transitions for their lives in focus groups in WP3 as well as results from an earlier analysis of media narratives in regions. Shared interests in TC categories were used to define key sustainability transition themes, which were deemed suitable to initially frame the discussion between LEC representatives and policymakers in the first RFLL workshop. In **Step 2**, the RFLL Workshop 1 brought together these participants. Their discussion was structured around more detailed aspects of the earlier identified themes with the goal to build trust between participants and raise awareness of the scope of ongoing sustainability transition policymaking. As a concrete result of the workshop, LEC members selected a final series of themes relating to their particular interests for further discussion in the next steps of the RFLLs.

Steps 3-4

Step 3 of the RFLLs was the RFLL Workshop 2, which was attended by LEC members only, and focused on the articulation of their hopes, dreams, and expectations. The themes that were prioritized by LEC members in Workshop 1 were re-introduced as a base for storytelling and the formulation of new narratives. During WS2, communities envisioned their expected plausible and Preferred futures, using the FFL approach (for a description of the approach, see Chapter 3). In this step, listening to communities was central, and affective communication played an important role. The output of the workshop were reports and audio recordings tracing the conversations on the different futures. In **Step 4**, the material was analysed using the TC framework to depict the impact of imagined community-led sustainability transition policies. Identified territorial impacts of both key sustainability transition policy measures (see D4.1 (Ramirez Aranda & Wandl, 2024)) and imagined community-led sustainability transition policies were illustrated in regional design visualisations. Ooze architects - as art directors in the DUST projects - and WP4 leads created the visual representations. Using meaningful visual language defined for each case study region, they juxtaposed the different futures in triptychs to encourage comparison, reflection, and the emergence of new storylines.

Steps 5-6

In **Step 5**, the policy and the community perspectives were compared in more detail, for the purpose of a more sophisticated understanding of the differences between policy and community perspectives. Using the TC analytical framework, mappings of the territorial impacts of key sustainability transition policy measures produced in Step 1 were systematically contrasted with mappings of TC aspects that were mentioned by community members when speaking about their Preferred futures. Based on this comparison, which highlighted TC clusters of strategic relevance for both LECs and policymakers, draft policy statements were formulated by case study partners for discussion in the next RFLL workshop (see D4.3 (Forgaci, Ramirez Aranda, et al., 2025)). In **Step 6**, the RFLL Workshop 3 was held to finalize these statements for the upcoming digital deliberation with a wider public, using the e-democracy tool Pol.is. During the workshop citizens (and in some cases policymakers) discussed, amended, and prioritized the statements. The regional design visualisations were also introduced to support citizens' proactive positioning in policymaking, and as a base for storytelling and inspiration. The key

output of this workshop was a list of refined statements for use in the Pol.is application (see D4.3 (Forgaci, Ramirez Aranda, et al., 2025)).

Steps 7-8

The final stage of the RFLL experiments firstly enabled a digital deliberation on the statements that were prepared during the RFLL WS3 with a wider public in case study regions. In **Step 7**, WP4 leads supported the RFLL case study partners in the preparation and implementation of the open-source consensus-oriented deliberative decision-making software Pol.is. Pol.is guidelines introduced the digital instrument, and offered instructions on turning the earlier refined statements into Pol.is input, for attracting Pol.is users via a dedicated information campaign (using the earlier accomplished regional design visualisations), for moderating the online deliberation, and for harvesting results. Pol.is results identified participation by the public and amended and new statements, including agreement and disagreement, and opinion groups and consensus areas around these. These results were used in the final **Step 8** of the RFLLs / RFLL Workshop 4. The workshop invited the LEC members and policymakers who had attended earlier workshops to discuss the results. Participants drew conclusions on policy recommendations, which strategically positioned the LECs' concerns in the multi-level governance context of sustainability transition policymaking. Concretely, they selected statements for publication in community position papers.

Table 3 DUST RFLL key stages and DUST project tasks.

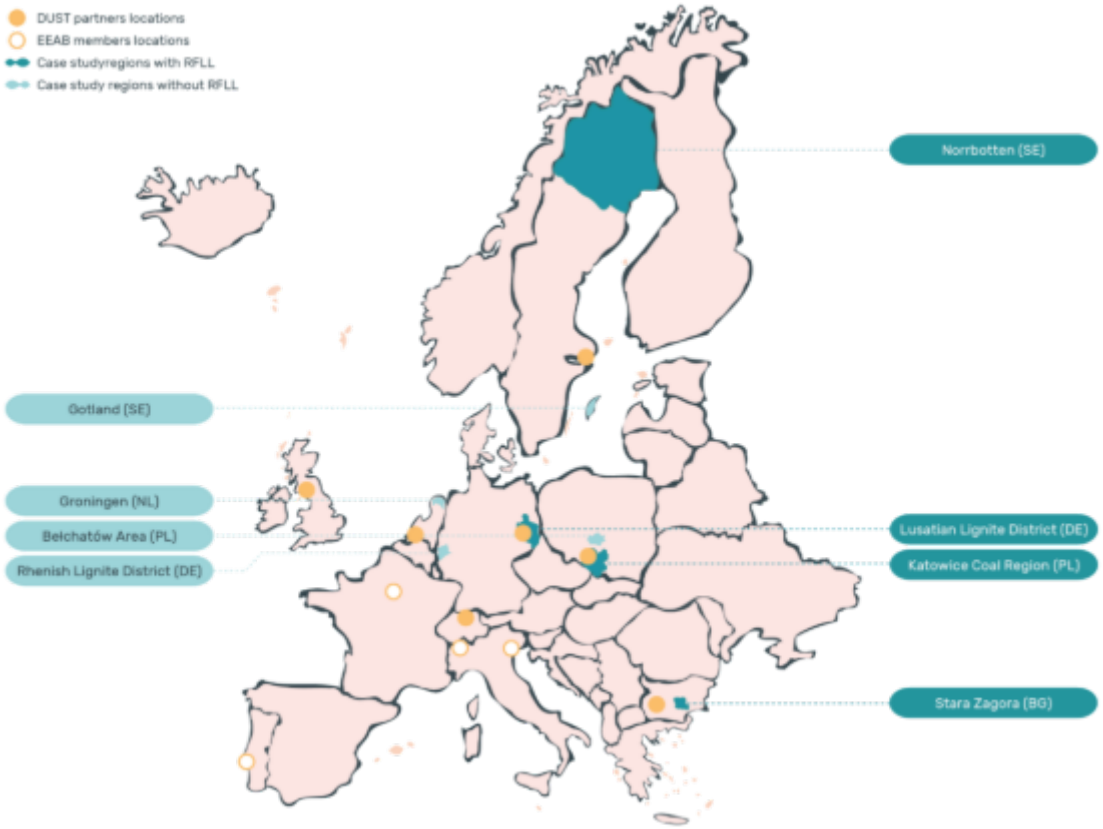
RFLL Phase	Task 4.1: A framework for monitoring and assessing the RFLLs	RFLL Task Time Frame
RFLL Planning and Preparation	**Task 4.1:** A framework for monitoring and assessing the RFLLs	**March - July 2024**
	Task 4.2: Context mapping: Foreseeing the impact of ongoing policy	**March - July 2024**
	Task 5.2: Regional Future Literacy Lab Planning and Citizen Engagement	**March - July 2024**
	Sub-task 5.3.1: Building awareness, knowledge, and trust (Workshop 1)	**September 2024 – February 2025**
RFLL Implementation	**Sub-task 5.3.3:** Citizen anticipation of futures (Workshop 2)	**September 2024 – February 2025**
	Task 4.3: Regional design: Imagining the impact of community-led policy in regions	**December 2024 – May 2025**
	Task 4.4: Making a difference: Evidence base for citizens' proactive positioning in policy co-creation	**November-February 2024**
	Sub-task 5.3.4: Citizens' proactive positioning (Workshop 3)	**February – May 2025**
	Task 4.5: Enabling democratic life at scale: Use of Pol.is	**February – May 2025**
	Sub-task 5.3.5: Knowledge and policy co-creation (Workshop 4)	**March = June 2025**
RFLL Assessment	**Task 4.6:** Assessing the performances of the design-led territorial and digital instruments	**July - November 2025**
	Task 5.4: Citizen learning and capacity building/resilience	**July - November 2025**

2.2 The RFLL case study regions

The DUST analytical WPs 2 and 3 were coordinated to strengthen understanding of the intensity of participation in sustainability transition policies and the factors that explained variation in this in eight case study regions. Aiming to focus on parts of Europe where sustainability transitions pose the greatest challenges, these regions were selected by their classification as structurally weak due to their strong reliance on energy-intensive industries and their eligibility for the

European Union's (EU) Just Transition Fund. **Four of these regions became the location of the DUST experiments** (Figure 2). This research design allowed us to draw on earlier acquired empirical research findings in the design and running of the RFLLs, specifically findings about factors influencing participation of LECs and sustainability transition policymakers.

Figure 2 DUST case study regions.



Norrbotten (Sweden)

- **Geographical characteristics:**
  Size: 98,245 km^2.
  Population: 248,480 inhabitants.
  Population density: 3 inhabitants per km^2.
  Classification: Northern Europe, intermediate region, remote.
  Characteristics of the region: The Norrbotten region is one of the largest in Sweden and shares borders with Finland and Norway. Its diverse landscape, comprising high mountain ranges, forests, and a vast archipelago, has played a significant role in shaping local livelihoods, agricultural systems, and resource extraction practices. The region's cultural identities are deeply influenced by the relationship between people and the environment.
- **Energy-intensive industries:** In Norrbotten, energy-intensive industries focus on iron ore extraction and the steel industry. The key industrial sectors in Norrbotten undergoing transition concern cement, steel, and basic chemicals. The regional economy focuses on commodities with limited substitutability by fossil-free alternatives, which calls for just sustainability transition policies. There is a need to involve local communities that are economically dependent on these industries in decision-making on the future of the region.
- **Just sustainability transition policy landscape:** EU-funded interventions related to EU Territorial Just Transition Plans (TJTP) are in place. In addition, the transition process is

supported by the National Strategy for Sustainable Regional Development 2021–2030, the Smart Specialisation Strategy Norrbotten, and the Strategic Innovation Programme for mining and metal extraction. Spatial planning is conducted via local spatial plans, while the region has regional spatial planning strategies for mobility, employment, and energy.

- **Governance:** Draft EU TJTPs are developed in collaboration between national government and agencies, sub-national authorities, and sectoral actors. Municipal actors are critical to ensure the collaboration between local welfare plans, local industry development and involvement of private sector and non-governmental organisations (NGO).

Katowice Coal Region (Poland)

- **Geographical characteristics:**
  Size: 380 km^2.
  Population: 685,600 inhabitants.
  Population density: 1,804 inhabitants per km^2.
  Classification: Central Europe, predominately urban.
  Characteristics of the region: The Silesian region, located in southern Poland, is where patterns of urban development have historically evolved in parallel with the coal industry, which maintains a strong spatial and economic presence across the territory. The region's dynamic history and diverse cultural influences have fostered a distinct regional identity that remains deeply intertwined with its industrial heritage.
- **Energy-intensive industries:** The main sector affected by the sustainability transition in Katowice is coal mining. The Katowice area is the largest coal-mining region in Poland. The region's economy is diversified (with intra-regional disparities), but coal mining and related industries still provide most of the jobs.
- **Just sustainability transition policy landscape:** The transition process in this highly urbanized coal mining region is supported by the TJTP for the Silesia Voivodeship, and the Regional Operational Programme (ROP) for Silesia Voivodeship 2021-2027, funded via EU Cohesion Policy. This process is also supported by the National Just Transition Plan, the National Fund for Environment Protection and Water Management, and sectoral programmes funded via European Regional Development Fund (ERDF) and European Social Fund (ESF+). Spatial planning is conducted via regulatory local and regional land-use programmes and spatial plans, the region has a regional spatial plan for just sustainability transitions. TJTPs in Poland are under negotiation at the time of writing of this document.
- **Governance:** The governance of just sustainability transitions uses a hybrid model oriented at mediating tensions between national and regional levels of management of the JTF. Recent JTF planning involved the Silesian Marshal's Office (regional authority).

Stara Zagora (Bulgaria)

- **Geographical characteristics:**
  Size: 5,152 km^2.
  Population: 291,852 inhabitants.
  Population density: 57 inhabitants per km^2.
  Classification: South-East Europe, predominately urban.
  Characteristics of the region: The Stara Zagora region, located in the Bulgarian hinterland, is characterized by an abundance of water resources, including rivers, lakes, and mineral springs. These provide favourable conditions for agriculture, particularly the production

of food and roses. The region is also a significant cultural centre for Bulgaria, with a history that can be traced back to ancient Thracian settlements.

- **Energy-intensive industries:** This is also a coal-mining region and hosts the most lignite-fired energy plants as well as the largest lignite coal deposits in the country. Other industrial sectors are also present (mechanical engineering, food, and electronics), albeit the region remains heavily dependent on mining.
- **Just sustainability transition policy landscape:** EU-funded interventions related to the TJTP are under negotiation. The shift towards more a sustainable future for the region is supported by the National Recovery and Resilience Plan, the Modernisation Fund, ESF+, and other programmes funded through EU Cohesion Policy. The key national and regional interventions of relevance are the National Innovation Fund and the Smart Specialisation Strategy for Stara Zagora. Spatial planning in the region is conducted via the National Concept for Spatial Development and the general development plan for Stara Zagora. The JTF has not been allocated yet.
- **Governance:** The governance of just sustainability transitions is steered at the national level. Parallel consultations with local and regional stakeholders are ongoing. Disputes between the EU and the national level cause political and regulatory uncertainty.

Lusatian Lignite District (Germany)

- **Geographical characteristics:**
  Size: 9,421 km^2.
  Population: 770,703 inhabitants.
  Population density: 82 inhabitants per km^2.
  Classification: Central Europe, intermediate region, close to a city.
  Characteristics of the region: The Lusatian region is situated between the city of Berlin and the Polish border and has a dual spatial structure composed by the city of Cottbus and rural municipalities around this centre. The region's culture includes the Sorbian/Wendish ethnicity. Its landscape of vast pine forests, heathlands, meadows, and the Spree River was, over time, transformed by extensive open-pit mining, resulting in a distinctly man-made terrain. Today, Lusatia is one of the most important energy and industrial regions in eastern Germany.
- **Energy-intensive industries:** This Eastern German region is undergoing a structural change, moving away from lignite mining, which was the foundation of the region's economy. The current planned phasing-out of the sector is part of a permanent and wide-ranging transition that has been ongoing since the early 1990s.
- **Sustainability transition policy landscape:** The key EU-funded policy interventions in this area are related to the TJTP for Brandenburg's and Saxony's parts of Lusatia (started autumn 2022) and other programmes funded by EU Cohesion Policy. The key national policy interventions relate to funding for phasing-out coal extraction in the country. Spatial planning is conducted through land-use planning at regional and municipal levels, alongside informal spatial planning instruments.
- **Governance:** The governance of just sustainability transitions focuses on the national level and the federal state level of Brandenburg and Saxony. Several attempts to strengthen a more integrated and decentralized regional governance have been hampered by territorial and administrative divisions between these two federal states (entailing competition for funds).

Sources: Data on size, population, and population density were obtained from Norrbotten County - Wikipedia, Info Mapa - InfoGZM, Stara Zagora Province - Wikipedia, Brandenburg – Wikipedia on 10 November 2025. Classifications used Territorial typologies manual - urban-

rural typology systematics by Eurostat. Descriptions of characteristics of regions were based on a web-based inquiry into remarkable characteristics of landscapes and cultures. Other information was collected by DUST case study partners.

Figure 3 Impressions from the RFLL case study regions.

Picture credits: Evgenia Vamvakousi (Norrbotten), Aleksandra Kurkierewicz (Katowice Coal Region), Julien81 - Wikimedia Commons (Stara Zagora), Sharon Hahn Darlin – Wikimedia Commons (Stara Zagora), Annboeva - Wikimedia Commons (Stara Zagora), Peter Becker - Wikimedia Commons (Lusatian Lignite District), SPBer - Wikimedia Commons (Lusatian Lignite District), Stefan Fussan - Wikimedia Commons (Lusatian Lignite District)

Contextual factors influencing the RFLLs

Analysis in the DUST WP3 has identified a series of contextual factors that were anticipated to vary across case study regions and potentially impact on the participation of LECs. These are described in detail in the deliverable D3.4 (Georgieva & Ferry, 2024b). An important factor influencing deliberations in the RFLLs concerned the pace of ongoing sustainability transitions. To portray this pace Table 4 below provides a brief assessment of key national energy transition decisions over time.

Table 4 Timeframe of key national energy transition decisions.

Contextual factor	Norrbotten	Katowice	Stara Zagora	Lusatia
Timeframe of key national energy transition decisions	Energy policy measures to reduce dependence on fossil fuels implemented since 1990s. Sweden Climate Act adopted in 2018.	Growing focus on phasing out lignite and conventional energy, shaped by EU-level debates (EU Green Deal (2019), Just Transition Mechanism (2021)), Mines closed abruptly in the 1980s, with transition and industrial restructuring ongoing since the 1990s.	Political commitments and policy developments are recent and linked to timelines set in the EU Green Deal (adopted 2019) and the introduction of Just Transition Mechanism (2021).	Federal government's energy concept adopted 2010. Climate Action Plan 2050 adopted in 2016 provide the basis for Germany's energy and climate action policy. A Commission on Growth, Structural Change and Employment, established in 2018 to develop a roadmap for

				phasing out coal-fired power generation in Germany.

2.3 The RFLL participants

Least-engaged communities

To investigate citizen participation in sustainability transition policymaking, DUST research used the concept of 'least-engaged communities'. Building on OECD work (OECD, 2009), the concept combines two binary categories of non-participants in public policymaking: those who are able to get involved but are unwilling to do (the 'apathetic majority'), and those that are unable to participate no matter their willingness (for a more detailed description of the conceptualisation, see D1.1 and D3.4 (Balz et al., 2023). This latter group includes people who would be willing to engage if the barriers were removed, but it would be a mistake to assume that they all would. It is important to note that while the conceptualisation recognizes ability and willingness for engagement, it also acknowledges possible combinations of these. The framework was used to identify LECs in case study regions, specifically for focus group research. A detailed documentation of the selection process can be found in Chapter 5 of the DUST deliverable D3.2 (Georgieva & Ferry, 2024a). The same communities became involved in the RFLLs.

Participating LEC members

The RFLL workshops engaged a broad and diverse range of LEC groups across the four case study regions. In Katowice, these included generations in mining communities - comprising retirees, youth from mining families, and workers in conventional energy sectors. Young people aged 18 to 33, many of whom grew up in communities affected by transitional sector development, were represented in Lusatia. Additionally, these participants differed by residence in urban or rural parts of the region. Rural inhabitants formed the participant base in Norrbotten, where small business owners and forest landowners were represented. Stara Zagora had women as a predefined LEC of focus. However, participation reflected a broader set of sub-communities such as students, civic activists, and the former mining community from the region. In total, a number of 186 participants represented the four LEC meta-communities across the case study regions (see Table 5).

Table 5 Participating LEC members in the RFLLs.

Participants	Norrbotten	Katowice	Stara Zagora	Lusatia
LEC meta-community	**Rural community**	**Mining community**	**Citizens**	**Young people**
LEC sub-communities	Small business owners / forest landowners Youth (18-24) Residence in the Boden, Kalix, or Luleå municipalities	Retirees from mining or energy sector Miners and workers in the conventional energy sector or related industries Young people from mining or energy sector families (18-19)	Retired employees of the mining and energy sector Employees of the mining and energy sector Youth Some participants are students or civic activists	Age 18–33 Female and/or male Residence in urban or rural areas Various tertiary educations Some participants are active in youth organisations and/or otherwise politically engaged
Total LEC participants	40	53	41	52
Gender distribution (male/female)*	21/19 (52.5% men, 47.5% women)	31/22 (58.5% men, 41.5% women)	22/19 (53.7% men, 46.3% women)	33/19 (63.5% men, 36.5% women)
Age span	30–75	21–66	18–80	18–33

*Please note that participants were generally not asked to self-identify their gender.

Participating policymakers

Involvement in the RFLLs knew a conceptual distinction between LEC members and policymakers involved in place-based sustainability transition policymaking. When reviewing the affiliations of participants who were involved as 'policymakers' it becomes apparent that the term found a wide interpretation. The workshops included representatives of local and regional government bodies - including municipalities, regional councils, housing committees, and development and strategic planning departments - political parties, child and youth engagement offices, and cultural and heritage organisations (Table 6). Initially, the RFLL workshop format was designed to include these policymakers in WS1 and 4. However, their inclusion was different in individual case study regions. In Norrbotten, WS1 and 4 included both LEC members and policymakers, and WS2 and 3 included LEC members only. While WS4 was attended by policymakers, the proceedings strongly prioritized LEC's contributions. In Katowice, the same sequence and structure concerning the inclusion of participants was followed. However, WS2 also invited policymakers in this case. In Lusatia, policymakers only attended WS4, while institutional stakeholders in youth participation and heritage were present in all four workshops. In Stara Zagora, the implementation of the RFLL format followed guidance but knew an overall higher ambiguity in the distinction between LEC members and policymakers. While the implementation of individual RFLLs distributed the participation of LECs and policymakers differently, focus and objectives of the sessions remained unison across the cases.

Table 6 Participating policymakers and institutional stakeholders in the RFLLs.

	Norrbotten	Katowice	Stara Zagora	Lusatia
Institutions/policymakers	Local municipalities, regional governance bodies, political actors, and project specific stakeholder advisory board group	Regional government bodies, municipal departments, trade unions, civil society organisations, and major industrial employers	Municipalities, local government bodies, employment services, civil servants, and non-governmental organisations	Regional political bodies, youth and civic engagement offices, state-level administrative departments, urban planning authorities, trade unions, and cultural heritage organisations
Number of institutional participants	12	19	8	7
Attendance at RFLL workshops	1, 4	1, 2, 4	1, 2, 3, 4	Institutional stakeholders 1, 2, 3, Policymakers 4

Affiliations of LEC members

Workshop reporting listed affiliations of LEC members participating in the RFLLs. This data shows that the RFLL workshops involved persons with links to various organisations. In Lusatia, affiliations included youth organisations, universities, peer-to-peer networks, trade unions, and cultural heritage projects. In Stara Zagora, facilitators reported involvement of LEC members with ties to NGOs, youth clubs, universities, business organisations, and digital innovation actor groups. In Norrbotten, local organisations and businesses were represented by rural associations and local civic groups involved in sports, hunting, and other community activities. In Katowice, affiliations also mentioned local NGOs, businesses, along with one major employer within the mining industry in that specific region. In conjunction the data indicates that individual LEC members had different degrees of engagement, and that LECs in cases ranged between being less and least engaged.

RFLL facilitators

The RFLLs in each case study region were facilitated by DUST partners with different ties to LECs, different relations to regions, and different degrees of the organisation of interests (Table 7).

- The **Norrbotten,** RFLL workshops were organized by the DUST project partner **Nordregio** and facilitated by the societal partner **Hela Sverige Ska Leva Norrbotten**, an NGO and interest organisation working for rural and local development in the region. Hela Sverige Ska Leva Norrbotten is a small organisation, with two persons employed at a project basis at the regional secretariat (2025), and dependent on their board members engagement and voluntary work. The organisation has close collaboration both with rural interest organisations and municipalities in Norrbotten, which served as a springboard and important contact point for engaging the LEC.
- In **Katowice**, the workshops were organized by the DUST project partner **University of Economics in Katowice** (UEKAT) and the societal partner **Porozumienie Związków Zawodowych** (KADRA). KADRA represents workers in the mining sector in the transitioning out of coal in Polish mining and serve as an important voice for workers and communities in the industry. KADRA is an affiliate of the national trade union centre in Poland. It is anchored regionally and helped connect the RFLL to the mining community in Katowice.
- In **Stara Zagora**, the RFLLs were co-organized by the DUST project partner **Centre for the Study of Democracy** (CSD) and **Stara Zagora Regional Economic Development Agency** (SZ REDA), which provides support for local and regional authorities and civic organisations in sustainable innovation and business development. It also trains and retrains workers and those in unemployment. SZ REDA has around 15 employees. In terms of local anchoring, the eleven municipalities of the Stara Zagora Region are members of the agency.
- In **Lusatia**, the RFLL organizers were the DUST academic project partner **Brandenburg University of Technology Cottbus-Senftenberg** (BTU), and the societal partner **HumaJu - Humanistisches Jugendwerk Cottbus**. HumaJu is a youth organisation based in the region. It serves as a contact point for children and young people, with focus on supporting individual development and group learning activities. HumaJu has approximately 50 employees and depends on engaging volunteers and board members.

Table 7 Facilitators of the RFLLs.

DUST partners	Norrbotten	Katowice	Stara Zagora	Lusatia
DUST academic partner	**Organisation:** Nordregio **Location**: Stockholm, Sweden, outside case study region	**Organisation**: University of Economics in Katowice (UEKAT) **Location**: Bogucice–Zawodzie district (main campus), within case study region	**Organisation**: Center for the Study of Democracy (CSD) **Location**: Sofia, Bulgaria, outside case study region	**Organisation**: Brandenburg University of Technology (BTU) Cottbus-Senftenberg **Location**: Cottbus, Brandenburg, within case study region
DUST societal partner	**Organisation**: Hela Sverige Ska Leva Norrbotten **Location**: Norrbotten county, within case study region **Scope**: Regional (part of national Organisation) **Relation with LEC**: serves as an interest organisation for rural development and networks, in collaboration with local municipalities	**Organisation**: Porozumienie Związków Zawodowych (KADRA) **Location**: Konin, Poland, department within case study region **Scope**: National/regional **Relation with LEC**: represents workers in the mining sector and supports mining communities in the Katowice region	**Organisation**: Stara Zagora Regional Economic Development Agency (SZ REDA) **Location**: Stara Zagora, within case study region **Scope**: Regional **Relation with LEC**: offers support to civil society organisations as well as training and retraining of workers and unemployed in Stara Zagora	**Organisation**: HumaJu – Humanistisches Jugendwerk Cottbus **Location**: Cottbus, Brandenburg, within case study region **Scope**: Local **Relation with LEC**: Provides education, leisure opportunities, and life support for young people in Lusatia

Figure 4 Impressions from the RFLL workshops.

Picture credits: Myriam Chilvers (Norrbotten), Porozumienia Związków Zawodowych KADRA (Katowice Coal Region), Agentiya za Regionalno Ikonomichesko Razvitie - SZ REDA (Stara Zagora), Tihomir Viderman and Maximiliano Flores (Lusatian Lignite District)

3 The RFLLs in theory

3.1 Positioning the RFLLs in research fields

The RFLL experiments are framed by a series of concepts that were more widely used to position the DUST project in research fields. Concepts were first defined in the DUST deliverable D1.1 Theoretical and conceptual framework (Balz et al., 2023) and further developed during the analysis of factors influencing participation in the DUST work packages (WP) 2 and 3 (for results of this analysis see D3.4 (Georgieva & Ferry, 2024b). Table 8 provides brief definitions of these concepts, which in conjunction with each other describe the particular setting of participation in the deliberative governance of sustainability transitions.

Table 8 Key concepts in the DUST research in overview.

Definition	Sources
Just sustainability transitions	
Sustainable development is defined as development that meets present needs without compromising the needs of future generations. The concept of **just sustainability** combines sustainable development with social-ecological justice goals and offers a space for exploring and promoting distributional, procedural, and restorative justice in sustainable development. While the above concepts concern normative aspirations, the concept **sustainability transition** describes the slow, evolutionary process of realizing these. Sustainability transitions are transformative, require long-term systemic change, new relations between market, government, and society, as well as an economic order that is based on new virtues and values.	(Grin et al., 2011, Grossmann et al., 2022, McCauley & Heffron, 2018, Moodie, 2025, Purvis et al., 2019, United Nations, 1987)
Place-based approaches	
Place-based approaches recognize that the relative costs and benefits of development policies have political, economic, and social consequences with a clear territorial dimension. Against this background, they typically (1) use regulatory and strategic frameworks to articulate a logic or vision for development, based on the interaction of local community and general knowledge and the input of endogenous and exogenous actors), (2) use multi-level governance structures to mobilize local actors to contribute to decisions targeting investment, enhance local capacities for co-design of policies, and strengthen local commitment, and (3) target the needs and potentials of specific territories or communities, based on a multisectoral perspective that incorporates and supports social, economic, and environmental dimensions according to their specificities.	(Barca et al., 2012, Green, 2023, Medeiros & Rauhut, 2020, Rodríguez-Pose & Ketterer, 2020)
Citizen participation	
The term **citizen participation** refers to the involvement of citizens in policymaking and service delivery. While there are various definitions of citizen participation, they all emphasize its direct impact on policy formulation and implementation, with the focus on direct participation, where citizens are actively engaged in decision-making, rather than indirect participation, where citizens elect others to represent them.	(Arnstein, 1969, Callahan, 2007, OECD, 2022)
Deliberative democracy	
Deliberative democracy involves weighing and reflecting on preferences, values, and interests regarding matters of common concern. It is the opposite of aggregative democracy in which votes are counted. Deliberation emphasizes community involvement and collective decision in a state of disagreement and highlights legitimacy as the key defining element of democracy. Four key ingredients characterize deliberation, notably (1) the careful weighting of implications of alternative options as well as the views of different stakeholders on	(Bächtiger et al., 2018; Callahan, 2007; OECD, 2020; Thompson, 2008; Mansbridge, 2015)

Definition	Sources
these, (2) the presence of accurate and relevant information, which reflects diverse perspectives and arguments, (3) broadly-shared evaluative criteria for considering solutions and reaching decisions, (4) the application of evaluative criteria to proposed solutions, to weigh trade-offs, and find common ground to reach a group decision.	
Community	
In the political sciences **community** is defined as a collective of individuals that are formed by a perception of common identity and feelings of belonging, shared interests, values and norms, a territorial place, and/or distinct roles in influencing policymaking and political decisions. Within the DUST research, 'community' is defined vis-a-vis sustainability transitions and related policymaking. There are several rationales behind this definition: (1) transitions are experienced differently across and within regions reliant on carbon-intensive sectors or fossil fuel extraction but have consistently significant (either positive or negative) impacts on distinct, often vulnerable and structurally marginalized, societal groups, (2) groups are affected by transition policies to different degrees, (3) there are normative, ethical reasons for defining communities in transition policymaking, specifically the least-engaged, and (4) there is a more pragmatic reason to focus on community involvement in sustainability transition policymaking. If transition policies and plans are to succeed, they must mobilize the commitment of communities in the face of the transitional challenge.	(Adger, 2002; Carley & Konisky, 2020; European Commission, 2020, 2022; OECD, 2021; Pasetto et al., 2019; Wang & Lo, 2021)
Multi-level social governance	
Multi-level governance refers to a political system in which authority and decision-making are shared across multiple levels of government - local, regional, national, and supranational (e.g., the European Union). It emphasizes cooperation and interaction among these levels rather than a strict hierarchy. The concept of **social governance** emphasizes sociality, community, and interdependencies between 'territorial proximity' and communities' capacity for collective action. In social governance citizen participation is understood as an integral part of a governance system. It is aligned with a post-functionalist theory of multilevel governance, which maintains that governance arrangements at the local level need to be understood as the interaction between a functional logic and social identity.	(Hooghe & Marks, 2002, 2016; Morgan, 2018, p. 42; Rhodes, 1996)

3.2 Key concepts in the RFLLs

The RFLLs were conceived as a hybrid format that applies design-led territorial and digital tools for citizen participation in just sustainability transitions. Developed in a transdisciplinary setting at the intersection of the fields of public policy, spatial planning, spatial design, and democracy studies, a series of core theoretical notions underpinned this initial conception. These are described briefly below. More detailed theoretical notions are assigned to the criteria that are assessed in Chapters 5-8.

Design-led territorial tools: Drawing on knowledge from the fields of future studies (in particular knowledge about foresight methodology and futures literacy), and spatial design (in particular regional design), design-led territorial tools emphasize the role of **imagination, anticipation, and futures literacy** in policy co-creation (Davoudi et al., 2018; Miller, 2018; Van Dijk, 2011). Futures literacy, which plays a prominent role in the RFLL format, is "[...] the skill that allows people to better understand the role of the future in what they see and do. Being futures literate empowers the imagination, ability to prepare, recover and invent as changes occur" (UNESCO, 2021). Design-led territorial tools also **emphasize the concepts of space, place, and territory** in place-based policymaking and (social) multi-level governance (MLG). According to scholars, effective place-based policymaking requires an experimentalist governance setting and

deliberative **instruments for reflexivity and learning** therein (Morgan, 2018; Sabel & Zeitlin, 2012). Regional design theory conceives design as a discretionary practice that reveals the implications of generally applicable abstract policy decisions at high levels on the ground (Balz, 2018, 2024). Building on this theory, design-led territorial tools produce comparisons between local LEC positions and policy positions to test, evaluate, and revise positions during sequences of interactions between RFLL participants.

Digital deliberation: Participatory digital tools support decisions by mediating large-scale collaboration among various stakeholders, through the exchange of data, endorsement, and opinion. Drawing on knowledge from the field of e-democracy, the RFLLs tested the digital tool Pol.is, which is a consensus-oriented deliberative decision-making software enabling consent formation at scale in situations where there is a low level of trust in pre-existing social networks (Deseriis, 2023). In the RFLLs it was examined how this tool can enable **democratic life at scale, transparency, and equality** (Mikhaylovskaya, 2024a). Theories on deliberative democracy and discourse theory were used to examine how the tool can be embedded in a deliberative **process of opinion formation** that starts with the formulation of a LEC's opinion at the periphery of the public sphere (RFLL WS1-3), continues with deliberating this opinion among a larger and more representative segment of the public (Pol.is application), and concludes with a final dialogue - or moment of 'will formation' - including governmental actors and experts (RFLL WS4) (Lafont, 2015; Mansbridge, 2025).

Affective communication and narrative construction: Affective communication focuses on the expression of feelings surrounding content and relates to the affective domain of learning and knowing (Gudykunst & Ting-Toomey, 1988). Being different yet inextricably intertwined with the cognitive domain that centres on understanding, comprehension, and application, affective communication values 'othered' knowledge expressed through emotions, attitudes, and engagement, and rooted in identity and values and thus combats testimonial injustice (Fricker, 2007). The RFLLs emphasized affective knowledge through attention to LECs' expressions of lived experiences, sentiments, local knowledge, memories, and attachment to places and practices. They sought to utilize this knowledge in the **construction of LECs' narratives** about sustainability transitions and transition policymaking. Narrative construction is generally perceived as a democratic and inclusive activity (van Hulst, 2012) and one that enables positionality (Evans, 2014). In the RFLLs LECs' narratives were spatially represented in **regional design visualisations** in the RFLLs (Van Dijk, 2011). Spatial representations, in word and image, are socially constructed perceptions produced by socio-political "struggles about conception, perceptions and lived experiences of place" (Davoudi et al., 2018, p. 101). They are expressions of what different actors find important and what they are willing to neglect, as well as being indicative of the power relations of these varying actors (Davoudi et al., 2018; Neuman, 1996; Van Dijk, 2011).

4 Assessing the RFLLs

4.1 The RFLL assessment strategy in outline

The RFLL monitoring and assessment framework facilitated evaluation of the experiments from both a comparative and case-study-specific perspective. Against this background, the framework was developed as a flexible yet robust approach centred around a series of key criteria that reflect the main objectives, propositions, and features of the RFLLs. Criteria were structured to facilitate a policy and community perspective on the labs, and to distinguish the effects of the use of instruments and communication (in alignment with a perceived instrumental and communicative dimension of the overall DUST research). Several criteria were also adopted to prolong scientific attention to issues that were examined in the DUST WPs 2 and 3, specifically factors influencing communities' willingness and ability to participate, and policy factors influencing participation in place-based just sustainability transition policymaking.

4.2 Methods for assessing the RFLLs

The monitoring and assessment of the RFLLs utilized a mix of qualitative and quantitative research methods. Table 24 in Annex F lists these methods per RFLL criteria and sub-criteria as well as more detailed indicators assigned to criteria. The below brief descriptions provide an overview of the methods with an emphasis on those that were most pertinent for this report. Additional detailed descriptions of methods are assigned to the content Chapters 5-8.

Qualitative text analysis

The most important method underlying this report is qualitative text analysis. Data used in analysis is various but was consistently collected by case study partners during or shortly after the RFLL workshops. It included notes from participatory observation in workshop reports, audio recordings, and prepared transcripts from these recordings. Most of this data was analysed by WP4 leads during the course of the labs with the aim to enable a continuous deliberation across the interactive elements of the RFLLs. The most important qualitative text analysis drew on data from WS2 when LECs were discussing their hopes, dreams, and expectations about sustainability transition in their region. The analysis used transcripts from the workshop and is described in more detail in Chapter 4.4. Results of this analysis fed into regional design visualisations (T4.3), comparisons between policy and community perspectives (T4.4), and community-led policy statements (T4.5). To frame deliberation in the RFLL Workshop 1, additional text analysis used data from media analysis and focus groups research in WP3. For consistency, the TC analytical framework was applied to outputs from the Task 3.3 and the D3.2 report (Georgieva & Ferry, 2024a). Finally, the workshop reports produced by case study partners shortly after the reports provided data for qualitative text analysis. The workshop reports used pre-produced templates and thus included the possibility of a comparative reading of results.

Policy document analysis

To assess the potential impact of key place-based sustainability transition policy measures a mapping of a selection of 2-3 measures per case study region was carried out during the DUST Task 4.2, which formed part of the preparatory stage of the RFLLs. To make projected impact comparable to LECs' interests expressed during the RFLLs and across case study regions, the TC analytical framework was adopted in analysis. As a key operational step in Task 4.2, a Geographic Information Systems (GIS) application was used to build a geographic database per

policy document, capturing data on tangible TC aspects to be depicted in visual representations. The output from Task 4.2 as well as a more detailed description of methods used can be found in the DUST deliverable D4.1 (Ramirez Aranda & Wandl, 2024).

Analysing Pol.is results

During Step 7 of the RFLLs, the e-democracy tool Pol.is was used to set out LECs' positions among a wider public in case study regions. To produce intermediate results for the ongoing RFLLs, data and metadata from Pol.is was collected and analysed using Pol.is embedded tools. Open-source algorithms in Pol.is allowed for the quantification of the number of participants and their interaction with the content in Pol.is - so-called seed statements (SS) - and the number of opinion groups, consensus or polarisation, and agreement or disagreement around these statements. An additional qualitative analysis of the Pol.is results used the Atlas.ti software and was employed to observe the development of statements across stages of the labs. To compare content and community positioning, the TC analytical framework was used. Detailed data and results from these analyses are presented in the DUST deliverable D4.3 (Forgaci, Ramirez Aranda, et al., 2025). For the final cross-case comparison case-specific results were analysed on similarities and differences. Methods used in, and the results from, this evaluation are presented in Chapter 7 of this report.

Semi-structured interviews with policymakers

Semi-structured interviews with participating policymakers and other institutional stakeholders were used to understand an in-depth retrospective policy perspective on the labs. The interviews were carried out after the labs had been implemented, during the DUST Task 5.4. Chapter 8 of this report includes findings from these interviews as well as a more detailed description of the interview method used.

Semi-structured interviews, questionnaires, and participant observation capturing LECs' perceptions of the RFLLs

Several methods were used to gain an in-depth understanding of a LEC perspective on the labs. Questionnaires were used to assess their perception of the activities carried out in the labs shortly after the workshops were concluded (when the experience was still fresh in their minds). The questionnaires had a maximum of ten questions and covered assessment criteria that could be judged on a workshop-by-workshop base. Participant observation, both qualitative and quantitative, was carried out during both the workshops' plenary and break-out sessions. Observation was guided by assessment sheets to quantify the number and diversity of participants. Qualitative aspects were captured in rating scales, notes, or photos. Importantly, semi-structured interviews with participating LEC members were carried out after the labs were implemented. Results from the use of these methods were synthesized in the D5.3 Citizen learning report (Jungsberg et al., 2025). Incidentally, these results are used to underpin findings presented in this report.

Research into artistic expressions

For the purpose of representing LECs' positions in regional design visualisations, research into artistic expressions was conducted per case study region to inform the visual language and affective communication specific and meaningful to each RFLL's LEC. WP4 and WP6 leads created a catalogue of artistic expressions for each case study country and region, including documentary and landscape photography, murals, fine arts, traditional handicrafts, and literature fragments. To understand and represent LECs perspectives and regional cultures, the style for the visualisations was further defined by OOZE architects through visual timelines created for each case study region. These timelines captured spatial, social, and cultural

aspects from the regions. Both these art-based explorations defined the artistic expressions of the spatial representations of LECs' imagined futures in T4.3. Results from this task, as well as additional notes on methods used, are documented in the DUST deliverable D4.2 (Pfannes et al., 2025). The regional design visualisations were used during the RFLL WS3. Storytelling with communities, captured through video recordings and workshop questionnaires, were used to assess how participants perceived visual representation and communication. After the conclusion of the RFLLs the visuals were curated for public exhibition. The DUST deliverables D4.5 provides detailed insights into this exhibition (Forgaci, Hartenberg, et al., 2025).

4.3 Baselines in assessing the RFLLs

Many RFLL key criteria that were used to evaluate the RFLL approach were investigated during earlier DUST research, specifically in the Task 3.2 Focus groups and interviews, and the Task 3.3 Media analysis. Findings from the earlier research could therefore be used as baseline indicators to accurately reflect the particular circumstances in case study regions. The aforementioned Table 25 in Annex F presents these baseline indicators. Table 9 shows the most important output from earlier tasks that informed baselines for assessing the RFLLs.

Table 9 Output of WP2, 3, and 6 tasks as input for baselines.

Task	Output	Baseline for …
Task 3.2 Focus groups		
Task 3.2 Focus groups: **Information about LECs**	**Information about focus group participants** Description of the characteristics of each group	**(Basic description for comparative assessment)**
Task 3.2 Focus groups: **LECs' perceptions about and desired improvements from sustainability transitions**	Participants **experienced or foreseen impacts** of sustainability transitions **Feelings/emotions** about transition processes (experienced or foreseen) **Ways participants identify themselves** with sustainability transitions	**Futures literacy** **Deliberative participatory processes**
	Desirable improvements in relation to the sustainability transitions	
	Awareness of actions related to sustainability transitions and participants' involvement	
Task 3.2 Focus groups: Factors affecting **willingness** for political participation	**Trust** Factors, broader context, actors, solutions, perceived importance	Social capital
	Inclusivity/relevance Factors, broader context, actors, solutions, perceived importance	Social capital **Deliberative participatory processes**
	Empowerment/powerlessness Factors, broader context, actors, solutions, perceived importance	Social capital
	Social influence Factors, broader context, actors, solutions, perceived importance	Social capital
	Social/cultural traditions, norms, and values Related to gender, hierarchy, other Factors, broader context, actors, solutions, perceived importance	Social capital
Task 3.2 Interviews: The policy perspective		
Task 3.2 Interviews: Deliberative participatory processes	**Motivations** for pursuing deliberative participatory processes **Rationale and criteria to involve LECs** **Key deliberative participation mechanisms** Characteristics, rationale, stages, arenas, role of LECs	**Deliberative participatory processes** **Place-based policymaking**
	Quality of deliberative participatory processes (from the perspective of the inclusion of LEC) Relevance of objectives, accessibility, efforts to involve LEC	**Deliberative participatory processes** **Place-based policymaking**
	Results and benefit of deliberative participatory processes Evaluation and monitoring, perceived benefits	**Deliberative participatory processes** **Place-based policymaking**
	Barriers and facilitators of deliberative participatory processes	**Deliberative participatory processes** **Place-based policymaking**

Task	Output	Baseline for …
	LECs and policy perspective, access, aspects of processes, resources, support and capacity building activities, commitment	
Task 3.3 Media analysis		
Task 3.3 Media analysis: Thematic scope of transition narratives	**Thematic scope of transition narratives** What are promoted issues and themes? How place-based are narratives? What are relations between issues and communities?	**Deliberative participatory processes**

4.4 The Territorial capital (TC) concept in the DUST experiment

Territorial capital (TC) concept: A main principle underlying place-based policy intervention is that all territories have development potential. Instruments that are tested in the DUST experiments draw on theoretical notions and concepts that detail potential and, in this way, support an account of this potential in deliberation and policy argumentation as well as a more accurate description of how place-based policy objectives relate to communities' hopes and expectations concerning the development of their places and identities. To take account of potential, the concept of 'territorial capital' was used in the DUST experiments. This concept considers a variety of aspects beyond the more usual descriptions of potential for economic development. It includes environmental indicators such as climate and natural resources, as well as social indicators, such as traditions and quality of life. Because of the concept's comprehensive perspective on development potential, it is well suited to frame a multi-dimensional and inclusive discussion of policy options in place-based policy approaches (Orsi et al., 2022).

TC categories in DUST take as a starting point the framework developed by Orsi et al. (2022) and adapt it to better suit the context of the DUST project and its stakeholders (Table 10). The TC categories defined in DUST included a new proposed category TC X. **TC X** allows for a nuanced categorisation of TCs - depending on the context, a capital might fit in more than one category or in neither at all. In such cases, the X category can be used to classify those capitals that do not have a clear delimitation.

Table 10 TC categories in DUST.

Colour code	Territorial Capital	Definition	Colloquial term	Example
	Built Environment Capital (settlement capital)	Refers to assets in spatial conditions, buildings, and built-up areas	Construction and spatial assets	Building density, spatial availability
	Economic Capital (entrepreneurial capital)	Refers to assets in economic activities, sectors, and clusters, including their distribution and diversity across areas	Economic assets	Economic activities, investors, regional economic attractiveness
	Comprehensive (C) Human Capital (human + social + cultural capital)	A comprehensive category, combining the below listed human, social, and cultural capitals	People-related assets (individual and collective)	See examples under human, social, and cultural capitals
	Human Capital (knowledge and skills capital)	Refers to assets of individuals and groups, specifically their knowledge and skills	Individual assets (closely related to collective and cultural advantages)	Knowledge, education, skills, jobs, abilities (e.g. creativity)

Colour code	Territorial Capital	Definition	Colloquial term	Example
	Social Capital (social dynamics and cohesion capital)	Refers to assets in social groups and networks, specifically social interaction, relations, and cohesion	Collective assets	Social networks, collective capacity demographics, societal values (trust, cooperation, engagement)
	Cultural Capital (material and immaterial cultural capital)	Refers to assets in material and immaterial cultural artefacts and practices	Cultural values	Heritage, traditional knowledge, language, food, shared identity
	Infrastructure Capital (relational capital)	Refers to assets in infrastructure enabling transport, connectivity, mobility, and exchange (including exchange of data)	Networks and facilities assets	Infrastructure capacity, density, connectivity, accessibility, Services and facilities
	Natural Capital (environmental capital, ecological capital)	Assets in nature, including natural resources, biodiversity and eco-systems, and cultural & natural landscapes	Natural assets	Ecosystem services, biodiversity, climate and weather conditions, Deposits of natural/raw materials
	Capital X	Often some capital might fit in more than one category or in none at all. In such cases the X category can be used to classify those capitals that do not have a clear delimitation	X capital	Farming as economic, cultural, and social capital, forests as economic and natural capital, family

The TC framework was consistently applied across the DUST project — from focus groups and media analysis (WP3) to policy analysis and assessment of community perspectives in the RFLLs (WP4-5). The TC concept and framework provided a shared analytical framework (a system of reference), supporting comparative analyses across project steps and case-study regions. In RFLL WS2, the framework was **integrated into a qualitative text analysis** of the workshop transcripts, using **CAQDAS Atlas.ti**. This integration enabled (1) a thematic narrative approach, and (2) a combined deductive-inductive approach.

(1) **A qualitative narrative approach** focuses on how a community experiences a phenomenon, requiring less interpretation from the researcher and expert's perspectives, and allowing for systematic and less subjective analysis of community input.

(2) **A combined approach is both inductive (bottom-up, close to the data) and deductive (using conceptual frameworks based on literature).** In the inductive part of the process, codes are formed very close to the data, identifying TC sub-aspects, even preserving the language nuances used by communities. The deductive part is structured by the TC categories and the two future types (Preferred and Probable futures). At this stage, codes (sub-aspects) are grouped into higher-level code categories, defining TC aspects (Table 10). The two approaches are integrated at the level of code categories (Figure 5) - they emerged from data but are critically framed by theory.

Groundedness and coding are core aspects of the text analysis in Atlas.ti software. A code is a keyword attached to a text sequence, and groundedness indicates how often a code was applied, thus how frequently it appears in the dataset. In the context of qualitative analysis, groundedness does not necessarily measure importance, but helps understand which ideas were the most discussed and represented in the text.

After the coding was completed, **3 types of analytical visualisations were used to interpret results: 1) co-occurrence tables, 2) Sankey diagrams** — based on co-occurrence analyses between codes, and **3) TC clusters** — based on network analyses, groundedness, and relations

drawn by LECs across TC aspects and TC categories. In Figure 6, the circles indicate which data were used as input for each analytical tool.

TC clusters integrated information at the level of themes (Figure 5) to further understand patterns and relations across TC aspects and categories. They are defined by the groundedness and the relations across TC aspects and categories, as drawn by LECs in the second RFLL WS2. In WS2, LECs imagined futures for their region and shared their hopes, dreams, and expectations. The clusters were developed as an analytical instrument to map and compare community and policy perspectives in Tasks T4.3 (regional designs considering community perspectives) and T4.4 (comparison between community and policy perspectives). They use the TC concept and framework to map different perspectives, and they offer a portrait of the discussion in RFLL WS2 for each RFLL case study region. Two types of TC clusters diagrams were developed: **(1) the coloured TC clusters**, focusing on the groundedness of TC categories and TC aspects in futures imagined by communities, and **(2) the blue TC clusters** focused on the community - policy comparison. Across the four RFLL case studies, the TC clusters varied in number, complexity and typology, diversity of TC categories, TC aspects covered, or in the density of relations drawn across TC aspects. These variations demonstrate their role for narrative construction (and deconstruction) and for assessing different dimensions of the RFLLs. The TC clusters include different layers of information attributed as icons to each TC aspect box in the diagram - for example, information about the feelings expressed (positive or negative) around the emerging TC aspects - using manual coding, part of the text analysis, a **sentiment analysis** was conducted. The collection of TC clusters is included in the Annex A.

TC clusters are formed by **TC sub-clusters -** each defined predominantly by a TC category and centred on highly grounded TC aspects**.** When TC aspects categorisation is not obvious, they might be exceptionally included in TC sub-clusters defined by another TC category. To recognize and analyse these nuances, the TC X concept was introduced in the analysis - TC X allows for a nuanced TC categorisation, and careful contextualisation of perspectives.

TC sub-categories were established for the cross-case comparison of community, policy, and media perspectives. Methodologically their construction started off with the collection of all accounts of TCs collected during the RFLL process, including the above-named TC aspects (derived from an analysis of WS2 transcripts), identified TCs in focus group reports and media analysis data, and TCs brought to the foreground through policy analysis. Aspects with an only slightly different name or a highly similar scope were then assigned to the aggregation level of sub-categories sited between TC main categories and the aforementioned TC aspects. If the sub-category gathered more divers aspects, this was expressed in the title of the sub-category (for instance ‘community & family life’). When compared to the aforementioned sub-clusters, the sub-categories form groups that are thematically and not argumentatively motivated. Comparative analysis using the sub-categories thus presents a more sectoral perspective on results. A list of sub-categories per main category can be found in Table 13 in Annex D.

Figure 5 Explanation of the coding process in Atlas.ti.

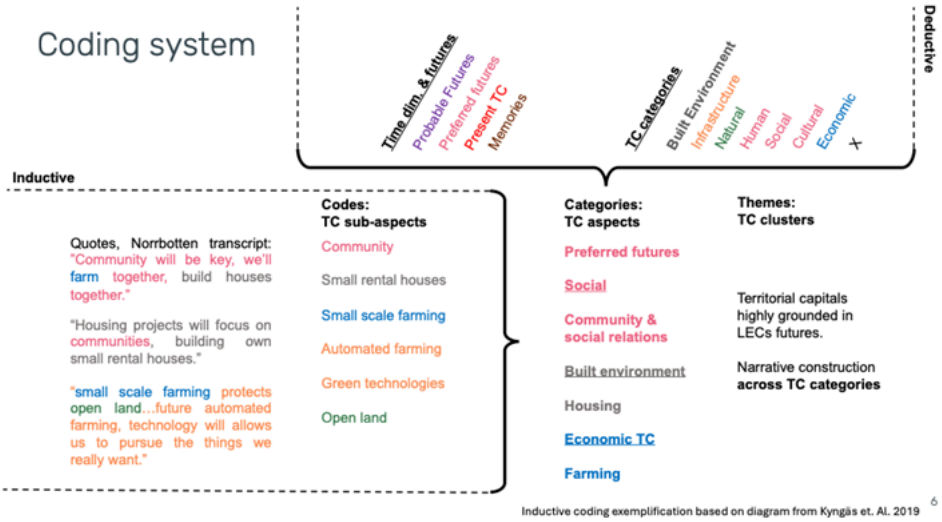
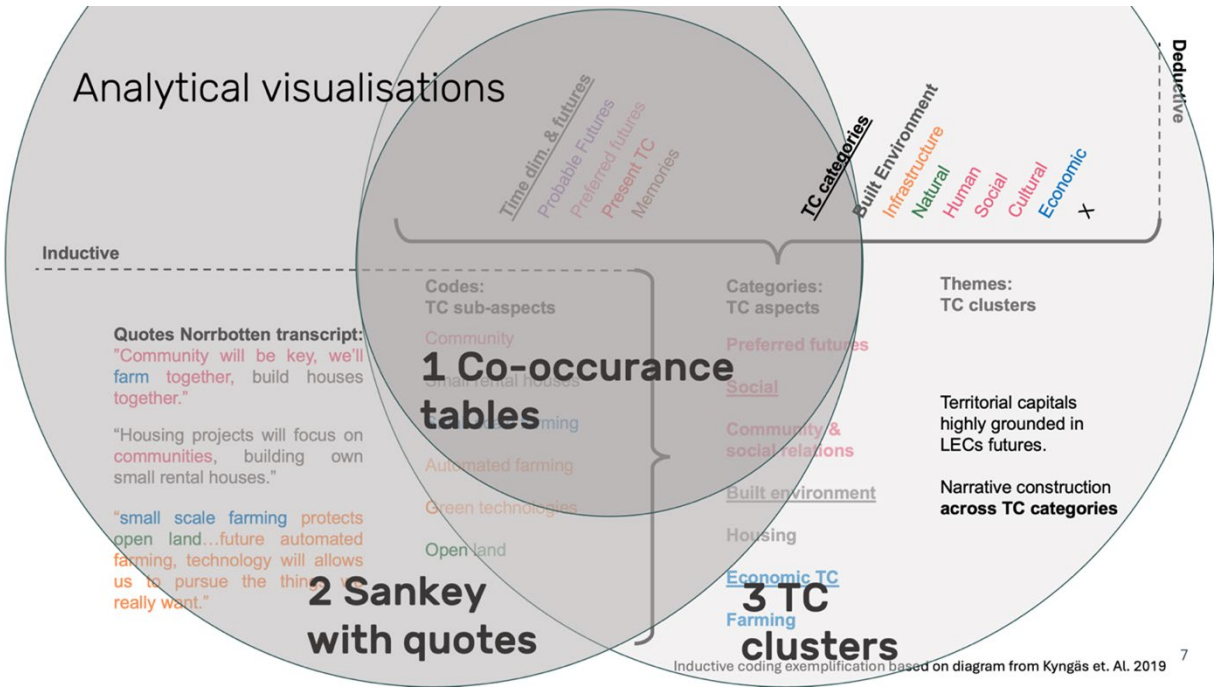


Figure 6 Explanation of analytical tools in relation to the coding process.



4.5 Limitations of data and methodology

The RFLLs as living labs: Conceived in a transdisciplinary research environment, the RFLL format was intended to support a flow of argumentation, moving from openly framed themes toward the increasingly precise positions of LECs' in the complex MLG landscape of sustainability transition policymaking. The format iterated interaction and analysis, design, representation, and reflection, emphasis on community and policy interests, internal and external public communication, participatory and representative functions, and affective and cognitive forms of knowing and reasoning. Seen that the RFLLs were experimental open-innovation environments, reflecting the complexity of real-life co-creative participatory processes, they can be conceptualized as living labs oriented at the assessment of the intricate

RFLL methodology, To counteract deficiencies of living labs - specifically their rare systematic evaluations (Bronson et al., 2021; Paskaleva & Cooper, 2021) - continuous documentation and analysis using a dedicated monitoring and assessment framework was implemented. However, results from evaluation require critical reading in respect to the diversity of contextual factors and, thus, their transferability, and the possibility of unaccounted power imbalances in the labs. Living labs typically operate simultaneously as research spaces and policy-testing arenas and in this way blur the boundaries of research and policymaking. While it was consistently explained to participants that the RFLLs are part of a research project, results from specifically post-RFLL interviews with participating LEC members and policymakers clearly show that participants struggled to understand whether they are research subjects, or policy co-designers. Acknowledging the importance of concrete outcome as a motivational factor influencing participation, variations in this understanding have likely shaped participatory behavior in the RFLLs.

Considering and integrating data from various methods: During the RFLLs a wide range of data was generated through audio and video recording, participant observation, questionnaires, art-based research, interviews, and other methods. The data was systematically obtained and linked to distinct assessment criteria. However, it became evident in the assessment phase that a full and fully integrated use of this data was restricted by time constraints. A lack of consideration of data specifically relates to the criterium 'democratic life' (investigating factors influencing LECs' ability to participate). A lack of integration of data specifically relates to the criteria belonging to the communicative dimension of the labs, including narrative construction, affective communication, and visual language. A systematic account of how these aspects of the RFLLs influenced processes and outcomes is therefore not incorporated in findings presented in this report.

Data gaps: A few gaps in data need to be reported. While the RFLL WS4 outcome is well-documented in D5.1 Citizen position papers (Chilvers et al., 2025), the workshop proceedings lack full documentation. For this reason, this report considers the results of position papers but excludes the analysis of the course of deliberation during this last interaction between LECs and policymakers. Other limitations arose when data was inconsistently collected or when there were gaps in one of the case studies. To estimate the influence of missing data, gaps are reported as part of the more detailed descriptions of methods in the content Chapters 5-8.

Varieties in the implementation of RFLL workshops: While the document M3 RFLL Guidelines has provided clear templates for the implementation of RFLL interactive workshops, it has also allowed for flexibility in adjusting formats to the specificities of regions and LECs. This flexibility has led to variations among proceedings in workshops. In terms of the internal organization of workshops, there were different strategies for managing the complexity of discussions. For instance, individual case study partners used voting mechanisms differently, alternated plenary and group discussions in different ways, and used different supportive techniques to visualize and structure discussions. Another variety was in the way in which LEC sub-groups were engaged individually or commonly in discussions. Specifically, WS2 in Stara Zagora was implemented differently using interviews with LEC members instead of a workshop format. Lastly variations concern the periods between workshops. Analysis indicates that the input and output of workshops was very similar and that, therefore, the overall RFLL format was observed in all cases. However, varieties certainly influenced the course of deliberations within workshops. For this reason, important accounted deviations are noted in the content Chapters 5-8. Unaccounted ones may also have influenced results.

Comparing LECs' and policy perspectives: An important aspect of the RFLL format was in the comparisons of policy and community perspectives on transitional development. The selection

of place-based key sustainability transition measures considered in the analysis was highly influential for the outcomes of these comparisons. The selection drew, firstly, on the measures that found attention in the DUST WPs 2 and 3. Before the RFLLS started, case study partners prioritized 2-3 measures for consideration in the RFLLs and, incidentally, added new measures. All case study partners were advised to include the TJTP for their region in their selections. The selection of additional measures needed to consider if (1) measures were ongoing, (2) were located at other governmental levels, and (3) had an explicit and important territorial impact on the regional scale. Selected measures are documented in the DUST deliverable D4.1 (Ramirez Aranda & Wandl, 2024). The restricted attention to a few of the measures implies that findings from comparisons are indicative only. Specifically, in regions that are well aware of other place-based sustainability transition policy measures (including more sectoral ones) where findings from comparisons need to be read in relation to the selected measures rather than the wider sustainability transition policy landscapes.

Harmonizing TC aspects through TC sub-categories: To allow for the comparison of interests, the categorization of TC capitals needed to be aggregated on various levels. The assignment of detailed aspects to more abstract categories and sub-categories required estimations of perspectives on development. Against this background, results on concerns about transitions and transition policymaking do not describe detailed interests but, rather, describe softly bounded fields of interrelated interests.

Building baselines for LECs' perceptions of sustainability transitions: Finally, it is important to note that focus group results, which are used in this report as a baseline describing LECs' understandings and experiences of transitions and transition policymaking, are likely influenced by the scope of this earlier research, specifically its attention to the relevance of sustainability transition policy measures as a factor influencing participation.

5 Futures literacy in the RFLLs

Box 1 Futures literacy in the RFLLs: Summary of findings.

Futures literacy in the RFLLs increases resilience and adaptive capacity of citizens and communities.

Understanding of time

- **'Guiding long-term visions' emerged as an indicator of the understanding of time.** In RFLL WS2, LECs related long-term visions to shorter-term actions and goals to not only plan, but to also explore futures and learn. **All LECs succeeded in constructing such long-term visions.**
- **Collective reflection enhanced the understanding of time**, observed as a discrete process.
- **Sharing stories and knowledge about regions** enabled meaningful **correlations between long-term visions and short-term actionable goals.** When long-term visions were not associated with local knowledge, own experiences, or shorter-term actions, they stayed abstract or out of reach.

Imagination

- **LECs were capable developing complex future visions** through drawing relations across TC categories and between TC aspects in their discussions. **Visions varied greatly by case.** Across the four RFLL case studies, a different number of visions were identified in the TC clusters, and these varied in degree of complexity, sub-cluster typology, diversity of covered TC categories and TC aspects, and density of relations drawn between these. **Variations indicate that different forms of futures literacy emerged. The involvement of different LECs and different workshop processes are explanatory factors.**
- **Not all groups were able to clearly differentiate between types of futures** or between actions possible now and in the future. Young age is an apparent explanatory factor in this context.
- **Variations in the extent of discussion around Preferred vs. Probable futures** influenced these futures.
- **When debate about expected Probable futures was poor, Preferred futures** turned out to be more **abstract.**
- **When Preferred futures had a higher importance** in the discussion than Probable futures, the discussion overall was **more unbalanced in terms of sentiments**, and **Preferred futures were less diversified** in terms of TC categories addressed.
- **Most Probable futures were perceived in emotionally balanced ways**, meaning that the negative and positive sentiments that were expressed are close in number.
- In all case studies, the **most extended discussions were on Present TC aspects** compared to Probable or Preferred futures. When LECs were **positive about certain TCs at Present,** these TCs tended to **re-appear as important assets in their Preferred futures**. Discussions on present regional values highlight **LECs' stories and knowledge about their regions.**
- **No correlation** is observed between **mentions of Present TC and a lower capacity to formulate Preferred futures.**

Change of perspective

- When comparing predominant TC categories discussed in LECs' futures, in most case study regions **LECs change their perspective from Probable to Preferred futures.**
- Only in Norrbotten and Lusatia, **did Preferred futures take a different perspective from both Present and Probable futures**. The shift between perspectives is expressed in new values and innovative ideas and associated with **perceived agency in imagined development.**
- **Participants with policy knowledge change their focus on TCs less across the Present, Probable, and Preferred futures.** These LEC members offer a nuanced perspective, and TCs in their futures often overlap with important policy discourses.
- When participants are **positive about** certain **TCs in both Probable and Preferred future**, those **TCs become central to their 'guiding longer-term visions'.**
- **The further away the futures, the less tangible they become.**

Social capital, agency, and futures literacy

- LEC members across case studies had the **capacity to creatively envision 'own community futures'**. Across cases, these own futures often **include TC aspects addressed by policy, but offer more nuanced, different, or specific positions.**
- Visions (including LECs' 'own futures') centred on social and human TCs often integrate TC categories through linking these intangible to tangible spatial TCs. Such links highlight that **LECs recognize that key tangible TC aspects (e.g. infrastructure and built environment) can enhance social capital.** All LECs developed visions centred on human, social, and cultural TCs, revealing **the importance of these human (C) capitals** in community futures and **for social-spatial imaginaries.**
- **Perceived agency motivates and expands LECs' capacity to imagine futures**. It leads to shifts of perspectives, new values, and innovative ideas. LEC members of young and old age excel in perceiving themselves as agents. Across cases, LECs hope for more capacity to influence regional transformations in the future.
- LEC members who were aware of their role in transitional development imagined more Preferred futures. This indicates that **taking on a specific actor perspective expands the capacity to imagine.**
- **Distancing from own futures** (one's own community is not projected into that future) and less expression of high hope or fears, **results in enhanced imagination.**

Regional Design in the RFLL

- **Combining the regional design-led territorial approach and the 'use of futures'** supported the analysis and representation of LECs' imagined futures for place-based policymaking. Employing the TC analytical framework and representing LECs' futures systematically in TC cluster diagrams **made a comparison of different future perspectives possible and made the revelation of 'guiding long-term visions' possible.**
- The use of TC clusters provided specific insights into the **influence of narrative construction and de-construction on futures literacy** and turned out to be a powerful method to analyse community input more broadly.

Affective communication

- **Affective communication styles** created a friendly and safe space for deliberation, and **stimulated collective future imagination** and emotional expression.

- **Reframing LECs' 'own futures' was often triggered by memories.**

5.1 Introduction

5.1.1 The role of futures literacy in policy co-creation

Futures literacy was a central component of the DUST RFLL experiments, which adapted the UNESCO Futures Literacy Lab (FLL) format. Instruments and processes tested in the RFLLs considered futures literacy aspects, such as anticipation and imagination to build capacity for change. Several theories underpin the importance of futuring abilities as participation skills for sustainability transitions, which rely on an increased **resilience and adaptive capacity of communities**. This capacity depends on communities' ability to maintain positive attitudes towards the transformation of their lives and places of living in the face of change and uncertainty, and on their ability to "anticipate threats, reduce the impact of these threats by taking pre-emptive action, (and) respond appropriately when these threats materialize "[...] (Dabson et al., 2012, p. 6). Miller (2018) argues for the importance of **'futures literacy'** - "the skill that allows people to better understand the role of the future in what they see and do. Being futures literate empowers the imagination, ability to prepare, recover and invent as changes occur" (UNESCO, 2021). A series of participatory approaches in the fields of future studies, spatial design, and spatial planning recognize that the role of imagination and anticipation for policy co-creation is significant and identify related aspects, instruments, and their intended results.

Futures literacy entails **distinguishing between types of futures**, and how they were created (Mangnus et al., 2021; Miller, 2007, 2015, 2018). There are **futures literacies**, and there is a relation between **futures literacy, agency, and reflexivity** (Mangnus et al., 2021). In DUST, the RFLLs used a hybrid format with future imaginaries based on 'Probable futures' and 'Preferred futures'. The aim was to explore future perspectives situated between experimental (Preferred futures) and transformative approaches (plausible futures). Probable and Preferred futures intertwine, and their conscious use and differentiation entails futures literacy (Balcom Raleigh & Lianaki-Dedouli, 2020). In the RFLLs, conversations and LECs' future imaginaries went beyond probability and desirability, unfolding into what Riel Miller describes as anticipation for emergence (Miller, 2018), related to learning and embracing uncertainty, novelty, and difference. LECs' conversations and the use of futures were mapped and captured in a series of diagrams (TC clusters), providing a portrait of the discussions in the labs. These reveal the use of future types, own community hopes and expectations, as well as emerging collective visions across case studies.

Table 11 Glossary of terms in futures literacy.

Definition	Sources
Futures literacy (FL)	
Futures literacy is the **skill** that allows people to **understand** the role of the future and **use futures** to increase their **resilience and adaptive capacity**	(Miller, 2018; UNESCO, 2021)
Futures Literacy Labs (FLL)	
A Futures Literacy Lab (FLL) is a **participatory, experiential workshop process** designed to **enhance people' capability to use the future** for new sense-making, decisions, and collective action in the present	(Miller, 2018; UNESCO, 2021, 2023)

Definition	Sources
Regional Futures Literacy Labs (RFLL)	
RFLL experiments combined the **FLL with a design-led territorial approach in a hybrid format,** integrating **face-to-face and digital engagement** with analytical frameworks across four workshop series	(Balz et al., 2023)
Anticipation	
The future manifests itself at present through anticipation. Anticipation entails **understanding of time** and can take two forms: goal oriented, or involve **emergence of alternative futures**, shifts in perspectives, new ideas, and values that enable present-day decisions and mobilize joint action	(Fuller & Loogma, 2009; Miller, 2018; UNDP Global Centre for Public Service Excellence, 2018)
Imagination	
Futures are non-existing, they must be imagined, it is the mental faculty to **'bring into view'** and generate metal future images. Imagination and anticipation are embedded capacities, which can be cultivated to enhance the use of future. A central hypothesis in DUST is that agency is triggered by imagination, and collective knowledge creation can overcome 'poverty of imagination'	(Miller, 2011) (Balz et al., 2023)
Probable futures	
Probable futures are **likely and possible to happen**, ideas about what could happen next. They are associated with anticipation for planning and goals. Probability better suits practitioners, and decreases with time horizons and complexity	(Balcom Raleigh & Lianaki-Dedouli, 2020; Mangnus et al., 2021; Miller, 2018)
Preferred futures	
Preferred futures describe **hopes, dreams**, **desirable futures.** Imagination of Preferred futures can open towards more experimental, novel, (co-)creative engagement with the future	(Balcom Raleigh & Lianaki-Dedouli, 2020; Miller, 2018)
Communities' 'own futures'	
Communities' own hopes and expectations describe **own perspectives** (from own mind, or ideas of a smaller group), **different from** views influenced by **policy and media discourses**. FL enables communities to formulate own futures and to 'owning futures'. In FL work, community's own futures involve collective imaginaries and reflection, beyond dominant narratives to mobilize community co-creation and action	(Mangnus et al., 2021; Miller, 2015)
Guiding long-term visions	
'Guiding long-term visions' are situated between **exploration and action**, they include Preferred and Probable futures as baselines. They not only **support action and planning**, but also **learning, exploration, reframing**	The term describes the community visions that resulted from the RFLLs WS2.

5.1.2 Futures literacy aspects in the RFLLs

The assessment of futures literacy was guided by **four prepositions**, which emerged at the intersection of theory and empirical results from the labs. The propositions highlight different futures literacy aspects, including anticipation and imagination, and the role of social capital, regional design, and affective communication.

Anticipation and imagination empower communities to use the future for decisions, actions, new ideas and values in sustainability transitions. In the context of futures literacy, anticipation and imagination are a manifestation of the future at present (Miller, 2018). Anticipation can reveal alternative futures: new ideas and ways of thinking, including non-linear changes which are not necessarily rooted in past and present needs (Mangnus et al., 2021). Foresight methodology is a systematic, participatory, future-intelligence-gathering practice, implying medium-to-long-term vision-building and understanding of time. It involves the

anticipation of alternative future scenarios to enable present-day decisions, mobilize joint action, and reflect on new values (Fuller & Loogma, 2009, UNDP Global Centre for Public Service Excellence, 2018). Alternative futures and new ideas involve changes of attitudes and perceived relevance to enable shifts of perspectives. To recognize anticipation, alternative futures, and shifts of perspective in the RFLLs, community futures from WS2 were carefully analysed, comparing how attitudes towards and the valuing of TC aspects changed across the typology of Preferred futures, Probable futures, and the 'Present' appreciation of regional values. The findings section in this chapter discusses community imagination and anticipation vis-a-vis the emergence of 'guiding long-term visions', a term used to describe community visions resulting from the RFLL WS2. Guiding long-term visions are a hybrid between exploration and action, combining longer-term visions and shorter-term actionable goals to not only to act and plan, but also to explore, reframe, and learn.

Social capital plays an important role in futures literacy. The RFLLs were based on the FLL format, oriented at overcoming 'poverty of the imagination' and providing a sustainable source of hope for a 'better life' in the future, while also **building social capital** by enhancing the participants' networks (Miller, 2018). Futuring approaches have social functions that relate to futures literacy (Mangus et al. 2021). The RFLL format adds a regional territorial dimension to the conception of FLLs, building on the hypothesis that **spatial imaginaries can enable collective spatial practices**. Davoudi et al. (2018, p. 101) notes that spatial imaginaries are "tacit, taken-for-granted understandings of spatiality that give sense to, enable and legitimate collective spatial practices". The FLL format enables people's skill to imagine future development and intentionally act rather than react based on anticipation (Miller, 2018). The RFLLs likewise emphasize that **futures based on communities' hopes and expectations cultivate agency.** Central to the DUST experiments is the hypothesis that the agency which is triggered by anticipation and imagination also needs to be rooted not in pre-conceived ideas about territorial development behind policymaking but in **communities' own hopes and expectations concerning the development of the places they inhabit**.

Regional design plays an important role for futures literacy in the RFLL format through enhancing agency via argumentation on territorial development. Regional design is a type of foresight methodology that emphasizes the concepts of space, place, and territory as culturally produced social constructions. It shares a series of conceptual foundations as well as aspirations with foresight methodology. As foresight is perceived in the realm of public policy, regional design has: (1) an interest in futures, (2) a central concern about representation, (3) a reliance on simulation and imagination of alternative futures as a way to **produce argument**, and (4) the recognition that communication and interaction are central to **the production of agency around arguments** (Lingua & Balz, 2020, Neuman & Zonneveld, 2021). In the RFLL format regional design concepts and methods are introduced to capture and represent community perspectives on place-base sustainability transition policymaking. It is recognized that community's input is often overlooked in formal policy decision-making. The way their input is taken into consideration is usually not based on systematic analyses and thus stays unaccounted in a 'black box' (Eriksson et al., 2022). In response to this challenge, an important aspect of the RFLL process was to first carefully analyse and represent LECs' perspectives on transitional territorial development. Communities were, thus, not asked to react to ideas in policymaking, but to independently co-design futures by imagining and reflecting on their own hopes and expectations. Employing the TC analytical framework the regional design approach was then used to (1) compare perspectives of communities, policymaking, and the larger public on transitional territorial development, (2) reflect on interrelations between perspectives, (3) and finally position LECs' interests in arenas of sustainability transition policymaking.

Affective communication nurtures futures literacy through enhancing narrative construction, imagination, and new storylines. In the RFLLs, the role of affective communication for futures literacy was explored through considering spoken language and visual representation. In WS2, communities focused on the imagination of futures, through an analysis conducted on WS2 transcripts it was explored to what extent memories, the share of personal stories, or specific communication styles supported dialogue and collective imagination. Questionnaires introduced in WS2 and post-RFLL interviews with participating LEC members also have investigated how communities perceived the affective representation of their imagined futures. Results from these analyses are presented in D5.3 (Jungsberg et al., 2025). An analysis of storytelling activities conducted in WS3 could provide further meaningful findings to conclude on the role of affective communication for futures literacy.

5.1.3 Research design

Research questions

- What components of the RFLL format help or hinder futures literacy?
- How does 'regional futures literacy' result in resilience and adaptive capacity for communities?

Methods

The aspects of futures literacy fostered in the labs were assessed through qualitative text analysis of transcripts, questionnaires from the RFLL WS2, and post RFLL interviews with participating LEC members and policymakers. In WS2, LECs imagined futures for their region. This chapter focuses on the results of the text analysis. For the futures literacy assessment, aspects of the overall RFLL setup, as well as the design and implementation of the WS2 format in individual cases, were taken into consideration. The qualitative text analysis method is described in detail in Chapter 4, Sections 4.2 and 4.4. The indicators and research questions for each aspect of futures literacy assessed are listed in Table 12. The findings draw on detailed cross-case comparative research per assessment criteria. Additional information on criteria can be found in Table 5 and 6 in Annex C. and referenced across the chapter.

In the course of the RFLLs, the WS2 was centred on the anticipation and imagination LECs. Communities were asked to imagine Probable and Preferred futures for their region in the next 20-30 years. In WS2, LECs shared their thoughts in break-out rooms and then reflected on these discussions in plenary sessions with all participants. The workshop format was adapted and applied in each of the four RFLL case study regions, considering differences between LECs and regional contexts - see cross-case comparison in Table 7 Annex C. LECs' future perspectives shared in WS2 were further compared to policy projections and were the starting point for larger-scale digital deliberation on the Pol.is platform. Findings from an analysis of these steps are presented in the Chapters 6 and 7.

Table 12 Futures literacy aspects assessed in the RFLLs.

What aspects of futures literacy are fostered by the RFLL format?		
Future literacy aspects in the RFLLs	**Research questions**	**Method**
Anticipation and imagination of futures		
LECs' understanding of time	What was LECs' understanding of time across case study regions? (**medium-to-long-term** visions, as **opposed to actionable short-term goals**)	Qualitative text analysis WS2
	To what extent could participants **distinguish between futures types** (Preferred and Probable) and between **what can happen now/at present and in the futures**?	Qualitative text analysis WS2
	To what extent did LECs have the **capacity to imagine futures**?	Qualitative text analysis WS2

What aspects of futures literacy are fostered by the RFLL format?		
Future literacy aspects in the RFLLs	**Research questions**	**Method**
LECs' capacity to imagine futures	To what extend did participants imagine **'own futures'** (different from media and policy discourses)?	Comparison to media discourses (T3.3) Comparison to policy themes (T4.4/ WS1)
LECs' change of perspective	How do LECs' **perspectives change from Preferred to Probable futures** and LECs' current perspectives on their regions?	Qualitative text analysis WS2 WS1 report
	How do **TC categories and TC aspects change** in Preferred futures compared to Probable futures and the Present across case studies?	Qualitative text analysis WS2
	How do **LECs' sentiments and attitudes change** in Preferred futures compared to Probable futures and the Present across case studies?	Qualitative text analysis WS2 WS2 reports
	To what extent did the discussion in the RFLL enhance **hope, as opposed to fear** of the future, or not feeling in control of one's future?	Qualitative text analysis WS2 WS2 reports
Social capital **Regional design**		
Spatial imaginaries and collective spatial practices	What mentions of **'spatial imaginaries'** and **'collective spatial practices'** can be identified in LECs imagined futures across case studies? (tangible vs. intangible TCs, relations between social- spatial TCs, number and types of places)	Qualitative text analysis WS2
	What is the **role of social TC in LECs futures** across case studies?	Qualitative text analysis WS2
	Number of places	Qualitative text analysis WS2
	Types of locations	Qualitative text analysis WS2
	Co-occurrences between social TC aspects and tangible TCs	Qualitative text analysis WS2
Affective communication		
Aspects of affective communication around Preferred and Probable futures	What is the role of **memories, collective experience, and communication styles** for futures literacy?	Qualitative text analysis WS2
	What was **LECs' perceptions of the regional designs** representing their dreams?	Questionnaires WS2

5.2 Findings

This chapter offers a cross-case perspective on futures literacy findings from the RFLLs, which established LECs' Probable and Preferred futures to involve them in policy argumentation. The first part focuses on aspects of futures literacy, including anticipation and imagination. Secondly, the assessment explores the role of social capital. The third part briefly evaluates regional design representation, and affective communication for futures literacy.

5.2.1 LECs' anticipation and imagination of futures

Anticipation entails **understanding of time**, and differentiation between short-term actions and long-term guiding visions, indicating understanding of what can happen 'now' and what can happen in the future. **Preferred and Probable futures were used as a key indicator for imagination and anticipation**. Another indicator was in imagined **'communities' own futures'** - rooted in community imagination and a LEC member's own thoughts and hopes rather than in in existing policy and media discourses. Communities' 'own imagined futures' were revealed through the content of **spatial imaginaries** and hope for **agency**, emphasising the role of social capital in futures literacy. Imagination and anticipation were further determined by observed **changes of perspective**, and, more specifically, by the perceived ability to control the future, and attitudes towards futures, such as the acceptance of uncertainty. More generally, imagination and anticipation were identified by the emergence of **new ideas and values**.

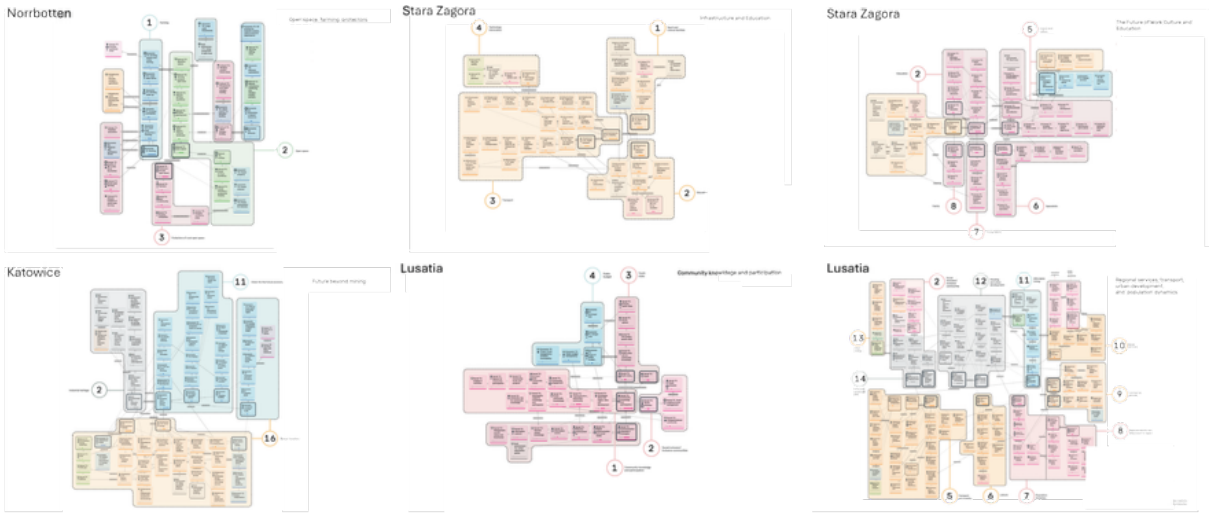
Understanding of time

'Guiding long-term visions' emerged as an indicator of understanding time. All LECs succeeded in constructing such long-term guiding visions. The term 'guiding long-term visions' was introduced to describe community visions that resulted from RFLL WS2. It refers to futures that are situated between exploration and transformation and indicates capacity to not

only act and plan, but also to learn, explore, and reframe. Guiding visions relate long-term visions from the community's Preferred futures to shorter-term goals formulated as part of either Preferred or Probable futures. In theory, 'guiding long-term visions' would be situated between anticipation for planning (shorter term, actionable) and anticipation for emergence (related to novelty, change, uncertainty) (Miller, 2018, Miller, 2015). They demonstrated the value of combining Probable and Preferred futures in the RFLL format and the valuable integration between the FLL format and the TC framework.

The resulting 'guiding long-term visions' varied greatly by case. This variation across community-constructed visions is reflected by the TC clusters (Figure 7). These diagrams mapped the discussion, highlighting the relations drawn by participants across TC categories and specific TC aspects. Across the four RFLL case studies, **TC clusters varied in number, complexity, and typology, in diversity of TC categories, or TC aspects covered, and density of relations across TC aspects.** For example, in Katowice, participants formulated four complex visions focusing on diverse TC categories, with many connections across TCs, youth in Lusatia developed one main vision based mostly on social, human TCs, such as community knowledge, social inclusion, the role of youth and intergenerational aspects. In Stara Zagora three visions were developed, varying from predominantly tangible aspects related to infrastructure (focused on mobility and facilities) to dreamy and less intangible aspects about the future of work and education. In Norrbotten three visions emerged, closer to policy and media than in other case studies, tackling, for instance housing or the future of the rural and vast open space. **The process to develop guiding visions varied by case, involving different LECs, an adapted lab format (Table 7 in Annex C), case-specific communication styles for each RFLL region (Table 12 in Annex C). We recognize differences in the resulting visions as different forms of futures literacy.**

Figure 7 TC clusters reflecting the variation in community -constructed visions.



The extent of discussion around Preferred vs. Probable futures varied across cases. **Not all groups were able to clearly differentiate between types of futures** or between actions possible now and in the future (notable in the case of youth in Lusatia). **Collective reflection enhanced understanding of time**, observed as a discrete process (Table 11 Annex C). **When debate about Probable futures was poor, the Preferred futures imagined by the same group turned more abstract. When Preferred futures had a higher groundedness in the discussion than Probable futures, the discussion overall was more unbalanced in terms of sentiments, and Preferred futures were less diversified in terms of TC categories addressed.** In Lusatia and Stara Zagora, communities discussed Preferred futures more than

Probable futures, while in Norrbotten and Katowice, participants envisioned more Probable futures (Table 13). In Stara Zagora Probable futures and the Present were least discussed. In Katowice it was observed, and enclosed in final reporting, that imagination of Probable futures was perceived as more difficult than imagining Preferred futures. **Except for Stara Zagora, Probable futures were perceived in a balanced way**, meaning that the expressed numbers of negative and positive sentiments were close (Table 14).

Even though communities were asked to discuss futures, **in most case studies, there was extended discussion on Present TC aspects compared to Probable or Preferred futures** (Table 13). **In these cases, Preferred futures were more diverse in terms of TC categories and sentiments were overall balanced.** When communities were positive about certain TCs at Present, these TCs tended to re-appear as highly grounded in their Preferred futures, and as aspects that communities recognize as important and want to preserve, to be further developed, or to be developed differently. Such aspects include, for instance, regional identity, regional awareness, and sense of community in Katowice, inclusive and knowledgeable communities in Lusatia, and green and healthy environments in Stara Zagora. **No correlation is observed between mentions of Present TC and a lower capacity to formulate Preferred futures.** During discussions on the Present, highlighting current regional values and past TCs, participants share stories and knowledge about their regions.

Table 13 Groundedness of TCs in Probable and Preferred futures and Present.

Groundedness in discussion	Norrbotten	Katowice	Stara Zagora	Lusatia
Probable futures	**55** Probable futures	**221** Probable futures Youth — miners' families: **92** Working miners: **57** Retired miners: **36**	**28** Probable futures	**51** Probable futures
Preferred futures	**47** Preferred futures	**182** Preferred futures Youth — miners' families: **40** Working miners: **75** Retired miners: **47**	**52** Preferred futures	**62** Preferred futures
Present TC	**71** Present TCs	**150** Present TCs Youth — miners' families: **26** Working miners: **41** Retired miners: **65**	**28** Present TCs	**141** Present TCs

Table 14 LECs' sentiments around TCs in Probable and Preferred futures and Present.

LECs' sentiments	Norrbotten	Katowice	Stara Zagora	Lusatia
Probable futures	**Balanced** (22 positive – 20 negative)	**Negative** (102 negative – 86 positive) Youth: negative (38 - 9) Miners: balanced (44 - 41) Retirees: positive (25 – 10)	**Positive** (23 positive – 4 negative)	**Balanced** (31 negative –25 positive)
Preferred futures	**Positive** (52 positive)	**Positive** (143 positive – 22 negative) Youth: positive (34 - 2) Miners: positive (63 - 14) Retirees: positive (40 – 6)	**Positive** (54 positive – 3 negative)	**Positive** (40 positive – 18 negative)
Present TCs	**Negative** (49 negative – 26 positive)	**Balanced** (69 positive – 68 negative)	**Balanced** (19 positive – 15 negative)	**Balanced** (67 negative – 66 positive)

Sharing personal stories and knowledge about their region enabled LECs to establish meaningful correlations between long-term visions and short-term actionable goals. When

long-term visions were not anchored in community experiences (local knowledge and stories), they remained abstract or out of reach. The specific ideas that form short-term/long-term relations are visible in the depth of the TC cluster diagrams, they often refer to TC aspects as less grounded in the WS2 discussions and were based on the communities' own views (the light blue areas of the TC cluster diagrams, Annex A). When such short-term/long-term links were not formed, TC cluster diagrams did not gain depth and had a lower density of relations across TC aspects. Consequently, the discussion gained depth resulting in 'guiding long-term visions'. The two TC clusters diagrams in Lusatia illustrate well these contrasting situations between 'horizontal discussions' without depth vs. complex 'long-term guiding visions'. Comparing Lusatia and Stara Zagora to Norrbotten and Katowice, also shows that **abstract and less transformative visions correlate with less discussion about Probable futures, Present TC, and the lowest number of spatial references across case studies** (e.g., half in Stara Zagora when compared to the other cases) (Table 10 in Annex C).

Change of perspectives

When comparing TC categories discussed in communities' futures, in all case study regions, except for Katowice, communities change their perspective from Probable to Preferred futures. This is visible when comparing the most grounded TC categories across cases (Table 15, and Table 8 in Annex C). In the table, the colours represent different TC categories: grey for the built environment, orange for infrastructure, blue for economic TC aspects, and pink for social. **In Norrbotten and Lusatia, Preferred futures show a different perspective from Present or Probable futures. In the conversation, perceived agency enabled shifts of perspective (new values, innovative ideas).**

Participants with policy knowledge change their perspective less across the Present, Probable and Preferred futures. Their TCs of focus are addressed in policy, but communities propose a nuanced or different perspective. For example, rural communities in Norrbotten are knowledgeable about policies in the region and formulate desired policies as part of their Preferred futures. For instance, a sustainable tax system, or more permissive housing policies in the rural areas, which would allow for small-scale housing development projects driven by communities themselves. Similarly, in Katowice, working miners and retirees have policy knowledge, and these TC aspects are projected in their imagined futures as well (e.g., industrial heritage transformation, reskilling strategies).

Table 15 Most grounded TC categories in Present, Preferred and Probable futures.

Most grounded TC categories (groundedness, number of TC aspects)	**Norrbotten**	**Katowice**	**Stara Zagora**	**Lusatia**
Present	Bulit Environment TC (24, 3)	Bulit Environment TC (57, 9)	Infrastructure TC (16, 8)	Infrastructure TC (71, 13)
	Economic TC (23)	Economic TC (80, 13)	Social TC (12, 4)	Social TC (65, 8)
	Infrastructure (23, 10)	Infrastructure (53, 10)	Human TC (11, 7)	Built environment TC (38, 8)
	Social TC (22, 4)	Human TC (35, 9)	Economic TC (8, 2)	Economic TC (15, 5)
	Natural TC (17, 4)	Social TC (33, 8)	Natural TC (3, 2)	Human TC (12, 4)
	Human TC (9, 4)	Cultural TC (14, 4)	Built environment TC (1, 1)	Natural TC (7, 3)
	Cultural TC (7, 3)	Natural TC (10, 4)	Cultural TC (0)	Cultural TC (1)

Most grounded TC categories (groundedness, number of TC aspects)	Norrbotten	Katowice	Stara Zagora	Lusatia
Probable futures	Economic TC (25, 7) Social TC (24, 4) Infrastructure TC (20, 9) Human TC (15, 4) Built environment TC (15, 4) Natural TC (12, 4) Cultural TC (11, 3)	Economic TC (134, 13) Human TC (80, 9) Social TC (69, 8) Infrastructure TC (58, 10) Built environment (54, 8) Cultural TC (20, 4) Natural TC (12, 3)	Economic TC (19, 3) Social TC (17, 5) Human TC (12, 6) Infrastructure TC (9, 7) Natural TC (6, 4) Built environment (2, 2) Cultural (0)	Infrastructure TC (25, 14) Economic TC (20, 5) Human TC (15, 3) Social TC (15, 12) Built environment (12, 5) Natural TC (6, 2) Cultural (3, 1)
Preferred futures	Infrastructure TC (32, 11) Social TC (30, 5) Economic TC (14, 8) Human TC (13, 3) Cultural TC (11, 3) Natural TC (10, 4) Built environment TC (8,4)	Economic TC (105, 13) Human TC (68, 9) Infrastructure TC (56, 10) Built environment (49, 9) Social TC (43, 8) Natural TC (10, 4) Cultural TC (4, 3)	Infrastructure TC (32, 9) Human TC (23, 7) Social TC (22, 5) Economic TC (13, 3) Built environment TC (8, 3) Natural TC (7, 3) Cultural TC (2, 2)	Social TC (37, 10) Infrastructure TC (31, 12) Built environment (10, 6) Economic TC (7, 2) Natural TC (6, 2) Human TC (2, 2) Cultural TC (1, 1)

When participants are positive about certain TCs in both Probable and Preferred future, those TCs become central to their 'guiding longer-term visions'. Across cases, participants are building towards long-term visions based on highly grounded TC aspects that they are positive about in both their Probable and Preferred futures.

The further the futures, the less tangible they become. Across cases, the discussion on Present TCs focuses on tangible aspects of infrastructure and the built environment. Probable futures are centred on economic and infrastructure TC aspects, while Preferred futures shift focus towards social, human, cultural TCs (even though infrastructure and economic aspects are still key to enable social capital). The most recognisable shift of future perspectives is in the case of Lusatia, from infrastructure at Present and in Probable futures to social TCs in Preferred futures.

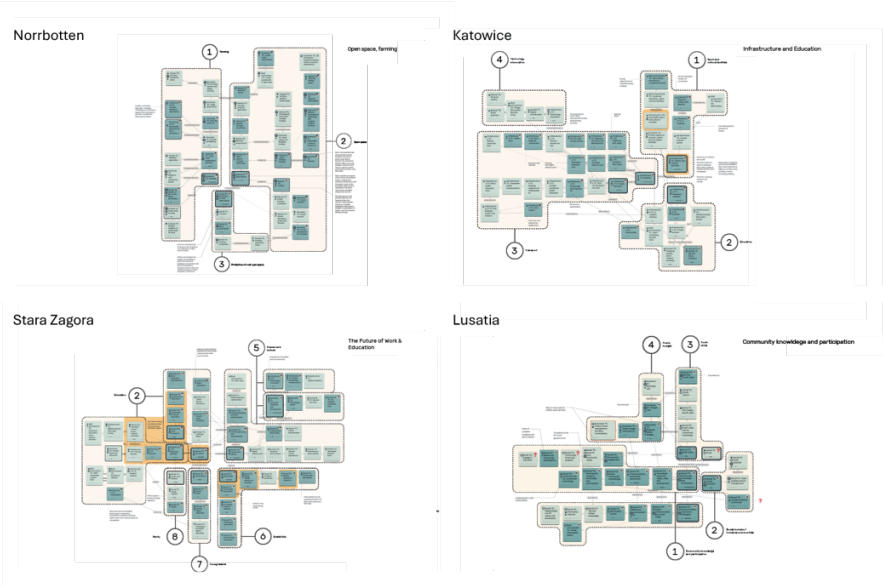
5.2.2 Social capital, agency, and futures literacy

LECs across case studies had the capacity to envision 'own futures' perspectives, which were creative and more specific than those from policies. The blue TC clusters' diagrams map out the policy-community weight of perspectives, demonstrating that communities were able to formulate their own future views (Figure 8). In the comparative TC clusters diagrams, the two shades of blue indicate where policy and community positions overlap (dark blue) and the community's own perspectives (light blue). Examples of own community perspectives per case study region are: circular regional tax system and community housing projects in Norrbotten, inclusive and diverse schools in Stara Zagora, metropolitanization enhancing local governance and community power in Katowice. **Across cases, own community perspectives most often related to general TC aspects addressed by policy, but offer a nuanced and more specific perspective.**

'Own futures' cross TC categories, relating social to spatial, and intangible to tangible TCs. Links reveal future spatial imaginaries of LECs and explain why certain economic, infrastructure, and built environment aspects have social value, and can enhance quality of life, attractiveness, inclusion, and empowerment. Examples of tangible TC in this context

are water and farms in Norrbotten, technology development in Stara Zagora, youth clubs in Lusatia, and mines in Katowice.

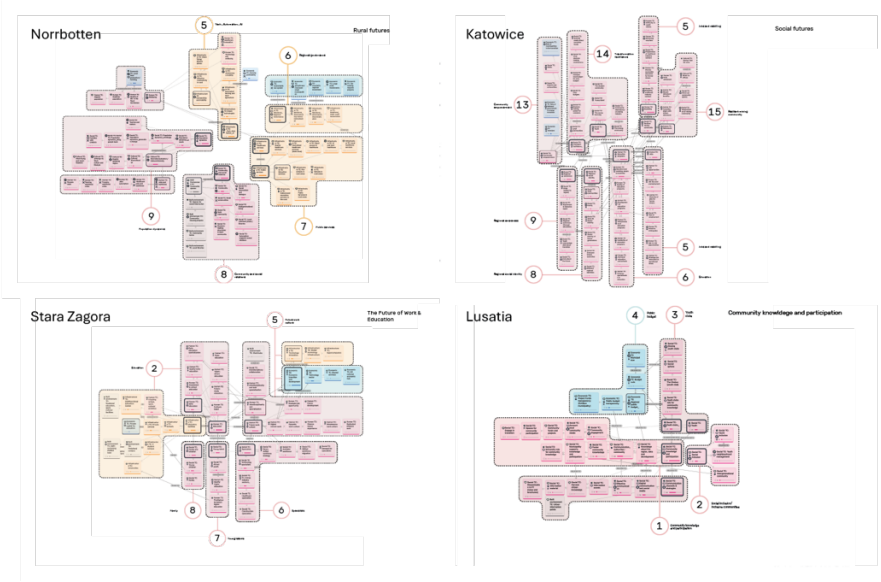
Figure 8 TC clusters comparing overlap between 'own' community and policy perspectives.



All LECs developed visions centred on human, social, and cultural TCs, revealing the importance of social capital in community futures and of social-spatial imaginaries. Long-term guiding visions centred on human, social, and cultural TCs became a recognisable typology across case studies. This is reflected by the TC cluster diagrams that were used to map the discussion. In these diagrams, the colours represent different TC categories addressed by communities in their discussions. Pink areas, focused on social, human, and cultural TCs, occur in all case-specific sets of diagrams (Figure 9).

Key TC capitals in visions are: internationalisation and diversity in rural Norrbotten, which is imagined to be enhanced by technology and automation, in Katowice, decentralized governance is envisioned to enhance equity between small towns and regional urban hubs, empowering small-scale communities. Young mining communities in Katowice see 'regional awareness' as the foundation for education and the future human capital. In Stara Zagora, the future work culture in the region is associated with future specialists and a technology-centred culture. In Lusatia, community knowledge, and capacity to participate are central in regional futures, young people emphasize aspects such as youth centres, intergenerational support, and inclusive neighbourhood planning.

Figure 9 TC clusters revealing the diversity of LECs' human and social centred visions.



Perceived agency motivates and expands LECs' capacity to imagine futures (e.g. young people in Lusatia, retirees in Katowice). **It leads to shifts of perspectives, new values, and innovative ideas. Across cases, LECs hope for more capacity to influence regional transformations in the future**. They refer either to their own community (e.g. youth in Lusatia) or to empowering other local communities in their region, such as farmers in Norrbotten, or small municipalities in Katowice or Norrbotten region.

Social-human centred visions integrate TC categories, linking social and spatial TCs, and tangible to intangible TCs aspects. Social-human TCs relate, for instance, to infrastructure, built environment, economic aspects, explaining the value of the more tangible TCs for building social capital. Examples from case studies are youth clubs in Lusatia, mines in Katowice, the future work culture in Stara Zagora, or water and farms in Norrbotten - these aspects gain social value, beyond their economic or infrastructure role. In the process of mapping community perspective, the newly established category of 'TC X', allowed for such nuanced understanding.

LEC members being aware of their role in transitional development imagined more Preferred futures. This indicates that taking on a specific actor perspective expands the capacity to imagine. This is evident in the case of young people in Lusatia, and retirees in Katowice, it is also reflected in the sentiment analysis about the present and futures. **Balanced attitudes about Present TCs and Probable futures enabled a change of perspectives** (Table 9 in Annex C). Young people in Lusatia wish for enhanced knowledge, communication, and inclusion of youth and local communities for shaping the transition of their region. Throughout the conversation, they built a transformative vision, providing examples of actionable goals derived from current experiences. They were the main actor in these futures. Another example is retirees from Katowice. They did not project themselves into their imagined futures but understood their role in the futures and how they could support the transition, they believed they could contribute to the transition with their knowledge. Their conversation included fewer expressions of hopes and fears, the retiree group was highly imaginative and creative.

Distancing from own futures (one's own community is not projected into that future) and less expression of personal hope or fear results in enhanced imagination. This is the case for rural communities in Norrbotten, retirees in Katowice, and participants in Stara Zagora. When the future represents a personal threat, fear translates into poverty of imagination, and fewer

new ideas (as in the case of youth and working miners in Katowice). In the case of miners in Katowice, fear kept them outside some of their long-term visions, considering other actor groups responsible for action in these futures (e.g., governmental, or public institutions). In the end, the miners reflected on their discussion about futures and embraced uncertainty - this can be interpreted as a shift of perspective and a form of learning.

5.2.3 Affective communication and futures literacy

Affective communication styles and a friendly (safe) space for debate stimulated collective imagination and emotions. For example, affective communication in the RFLL WS2 took the form of humour and care for each other in Katowice, a cultivated debate culture in Norrbotten, openness and curiosity in Lusatia, or the sharing of personal stories across all cases. Besides recent memories, no patterns of affective communication are recognized in the case of Stara Zagora.

Communities' 'own futures' reframe TCs from memories (Table 12 in Annex C). In Stara Zagora, communities refer to Covid times to suggest ideas for a new work culture in the future, integrating technology, and remote-living in rural areas, which can offer a better quality of life and a healthier living environment. The vision relates to TCs grounded in polices, such as technology, but gives this emphasis a community-centred perspective. In Norrbotten, a region facing high global pressure, rural communities wished for highly innovative and sustainable rural futures. They were inspired by their historical small-scale farming culture, with farmers being the guardians of the vast open landscape. Farming aided by technology was imagined making the region self-sufficient, attractive, and healthy. The vision relates to the vast open landscape, a highly present topic in policy and media, offering new angles. Similarly, in Katowice participants imagined empowered communities with regional awareness specialized and innovative education, and innovative energy infrastructures - all rooted in memories of mines as social hubs, or mining as a knowledge sector. Both in Katowice and Norrbotten there was a call from the communities to consider the need for innovation and innovators and a reminder that there was an established knowledge culture and knowledge infrastructure in the regions around mining and industry.

5.2.4 Identifying futures – reflection and discussion

The RFLL format enables futures literacy, enhancing the capacity and resilience of communities facing regional transitions. The integrated approach, combining design-led territorial methods and the use of futures, proved to be a powerful combination for the emergence of futures literacy. The **RFLL format advances knowledge on futures literacy**: how the concept can be further employed and assessed in relation to regional design. Key components in this process were the TC concept and TC framework. **The TC clusters are an analytical instrument developed to map and compare future perspectives.** The TC clusters provided a portrait of LECs' discussions, revealing the emergence of 'long-term guiding visions'. **The TC clusters highlighted the role of narrative construction in futures literacy. Narrative construction and deconstruction through the lens of TCs is a powerful instrument to analyse community input.** Collective narrative construction was enabled by the RFLL format through the FL format and affective communication aspects.

A deeper understanding and further application of the Territorial capital (TC) X concept is needed. **TC X is an emerging concept,** defined during the RFLL analyses of community and policy future perspectives, it is useful for those TC aspects that cannot be easily categorized. TC X allows for contextual and nuanced interpretation when mapping and comparing community

and policy futures. Conceptual frameworks, such as the TC X, enhanced the integration between regional design and futures literacy approaches, allowing for nuanced qualitative interpretation, yet providing a systematic and contextual analysis.

The open and inclusive format for the RFLLs carefully focused on LECs' input, their imagination and anticipation of futures during transitions of their regions. The exercises were based on imagination of Probable and Preferred futures. The format encouraged communities to express their own views about the future, i.e., their possible hopes and dreams, and to share and reflect on them in groups. The conversations led to the emergence of new values and ideas, and non-linear shifts of between personal and collective perspectives. The RFLL format did not include planned exercises on extreme or disruptive futures. It is an open question whether including such exercises impede or enhance community FL and inclusive policy goals in RFLLs.

The RFLL WS2 format was adapted to each case study region to respond to the local social context and other context-specificities, which led to **inconsistent implementation of the workshop format**. However, this adaptable workshop format led to a less explicit implementation of the imagination exercises, resulting in different introductions, workshop lengths, different number of participants and participating communities, as well as merging of workshops - all of which influenced WS2 output. On the one hand, the flexible FLL framework enables affective communication in the implementation of the lab in different contexts, but on the other hand, it also led to a partially inconsistent format of the imagination exercises, challenging the comparative assessment of the RFLLs.

6 The RFLLs from a democratic perspective

6.1 Introduction

Deliberative democracy involves weighing and reflecting on preferences, values, and interests regarding matters of common concern (Bächtiger et al., 2018). It emphasizes collective decision-making in situations of disagreement and highlights legitimacy as the key defining element of democracy (Callahan, 2007, Carpini et al., 2004, OECD, 2020, Ryfe, 2005, Thompson, 2008). Four key ingredients characterize deliberation: (1) the careful weighing of the implications of alternative options as well as the views of different stakeholders on these, (2) the presence of accurate and relevant information that reflects diverse perspectives and arguments, (3) shared evaluative criteria for considering solutions and reaching decisions, and (4) the use of these criteria and information in negotiating solutions, weighing trade-offs, and finding common ground for group decisions (OECD, 2020). Deliberative practices enhance inclusive and egalitarian democratic processes (input legitimacy), lead to better informed decisions (output legitimacy), and increase the overall quality of decision-making in terms of accountability and transparency (throughput legitimacy) (Scharpf, 1999). Deliberation is also associated with ethical benefits, as it fosters mutual recognition and respect (Bächtiger et al., 2018).

Sustainability transitions involve profound social, economic, cultural, spatial, and institutional transformations in regions (Moodie, 2025), and tend to generate not only low trust and feelings of being left behind (Dijkstra et al., 2020; Pike et al., 2007; Rodríguez-Pose et al., 2024), but also coalitions that are diametrically opposed in terms of their core beliefs about the root causes and possible solutions to the crisis (Nohrstedt & Weible, 2010). In this contentious context - and building on the concepts of social governance and place-based policymaking - the RFLL format was conceived as attempt to position the concerns of LECs in deliberative governance processes, thereby enabling decisions that are more self-authored by those directly affected by transitions.

When conceptualizing the RFLL format through the lens of deliberative democracy it differs from widely discussed deliberative formats such as mini-publics and citizen assemblies, by involving a group that does not represent a general public but instead is constituted by distinct shared identity, values, norms, and a territorial place. The involvement of this group in deliberation can be described as advocacy and the format as one that engages an ‘advocacy community’ or ‘advocacy coalition’ (in cases where organized interests are strongly present) in deliberation and policy argumentation (Jenkins-Smith & Weible, 2025) and collaborative governance (Koebele, 2019). Conceptualizing participation in the RFLL format as advocacy-based implies that propositions for the assessment of the lab format through the lens of deliberation concern policy learning on the one hand (Jenkins-Smith & Weible, 2025). Policy learning is evidenced by increased internal depth of deliberative reasoning, the acknowledgement of arguments of others, and evolving agreement between participants. Against this background, research results presented in this chapter trace and seek to explain the framing of deliberation in the individual labs and the shifting differences and communalities between LECs’ and policies’ fields of interests that were the results of deliberations in the RFLL workshops. Focus is on the relevance of aspects of sustainability transitions and transition policymaking for LECs and policies. Earlier DUST research into factors influencing participation found that LECs’ participation in transition policymaking mainly depends on their cognitive and emotional understanding of how these

transitions impact their lives and places (Georgieva & Ferry, 2024b) (for a summary of these findings see Box 2). This implies that findings on learning and new argumentation about transitions and transition policymaking can also be read as factors influencing communities' willingness to participate.

On the other hand, the conception of participation in the RFLLs as a form of advocacy raises critical questions about how the participation of a distinct community in deliberation and the outcomes thereof were representative in the context of public discourses structuring the wider deliberative governance of sustainability transitions in case study regions. Below, we therefore also discuss how elements of participation and representation were combined in individual labs and how these different constellations have influenced legitimacy.

Box 2 Relevance as a factor influencing participation - detailed findings from WP3.

Communities' participation in transitions largely depends on how they perceive the relevance of these transitions to their lives. This perception shapes their emotional disposition and initial reactions to anticipated changes.

Communities interpret sustainability transitions based on how they expect them to affect individual or collective assets, with some viewing impacts predominantly positively and others negatively.

Communities that anticipate negative consequences, such as loss or disruption, are more likely to respond with resistance or disengagement from transition interventions.

In addition, when communities perceive that sustainability policies do not align with their own understanding of sustainability, this also increases distrust in public institutions. This is especially true when policies appear to be driven by international or national agendas rather than local needs.

Perceptions of relevant or desirable policies vary across communities, influenced by occupation, age, and location.

A perceived lack of relevance between transition policies and community concerns or aspirations is a significant barrier to participation. When policies are framed in terms that align with community interests, people are more likely to engage and feel empowered to participate in policy design and implementation.

Policies that do not allow sufficient space for citizens to contribute, especially in defining problems, lead to exclusive and unrepresentative policies. According to communities, more open policy processes that allow communities to identify their own concerns and interests are key to creating more inclusive policies.

Policies should be articulated more clearly at the local level, highlighting their specific consequences for communities. Providing detailed, multidisciplinary data on the future impacts of policies can help communities understand the relevance of these measures.

Even if policies do not directly address a community's concerns, communities who understand what is at stake for them are motivated to engage, often driven by a desire to ensure more fairness and transparency in the policy process.

Source: D3.4 (Georgieva & Ferry, 2024b)

Research questions

- **Framing:** What was the framing of deliberation in the individual labs? and how has this framing influenced negotiation and negotiated outcomes?
- **Negotiation:** What are differences and communalities between LEC and policymaking interests? and how can shifts in interests be explained by the set-up of the individual labs?
- **Advocacy-based participation and representation:** What was participation and representation in the individual labs? and how have these different constellations influenced legitimacy?

Indicators

In our assessment of the labs through the lens of deliberative democracy the most important research object was the interests of communities. We traced how these interests shifted in respect to policy interests and media discourses during the course of labs, and reflected upon what can explain the shifts. To be able to observe changes in the scope of argumentation, the TC analytical framework was used. Table 14 in Annex D lists the different perspectives at moments of the labs as well as the TC aspects, categories, and clusters that were used to capture argumentation. TC sub-categories combining thematically related TC aspects were used to observe shifts of argumentation on a higher level of aggregation (see Table 13 in Annex D). Baselines were formed by initial configurations of these indicators in separate community, media, and policy perspectives at the beginning of the labs.

Methods

Methods for assessing deliberative processes were qualitative text analysis, using and comparing intermediate results from workshop recordings, workshop reports drawing on participant observation techniques by case study partners, and policy documents. Incidentally, results from questionnaires conducted at the end of the individual workshops and post-RFLL interviews were used for underpinning results from the text analysis.

6.2 Findings

6.2.1 Framing deliberation by key sustainability transition themes

Box 3 Framing: Summary of findings.

RFLLs promote deliberative participatory processes, which consider different arguments, weigh the implications of alternative solutions, and facilitate consensus on the basis of these.

Framing through the lens of LECs

- **LECs' understanding of and experiences in transitions emphasize human (C) - specifically social - capitals.** Their main concerns are about (future) jobs, skills and competences, and participation and the quality of public institutions.
- **LECs' narratives** about transitions demonstrate that they **structure wider perceptions of transitional development** - including attention to infrastructure, built environment, economic, and natural development - **through the lens of these human (C) capitals, which directly matter for their lives and place of living.**

Framing through the lens of policy

- **Key sustainability transition policy measures in regions pursue comprehensive conceptions of sustainability transitions** seen from their attention to a wide array of aspects of transitional development. Variations in their scope stem from differences in the detailing of economic and human capitals, attention to tangible spatial development, and high emphasis on individual aspects, such as education and demographic development. Policies commonly **exclude attention to social capitals.**
- **Interpretations of transitions in policies commonly take economic capitals as a starting point for** wider understandings of (future) transitional development and **the pragmatic structuring of narratives where the development of various capitals serves economic diversification.**

Framing through the lens of media

- **Media narratives** concerning sustainability transitions in regions show a persistent and **most detailed concern about aspects in the human and social capital categories.**
- Narratives often emphasize impact of top-down or autonomous economic and infrastructure development on tangible and human (C) capitals on the ground.

Comparing LECs', media, and policy perspectives on transitions

- When considering community, policy, and media interests in conjunction, it appears that there is attention to high diversity of aspects of transitional development in all perspectives. However, **aspects of common main interest are restricted. Additionally, wider perceptions of transitional development are ordered by highly different narratives.**
- These conditions imply that inclusive frames are required to not only safeguard a common thematic ground for deliberation, but also **be sufficiently open to allow for the re-structuring of existing disordered discourses.**

WS1: Re-framing by communities

- When given the opportunity to reframe deliberation, **LECs reasserted their initial interest in transitional aspects** that they perceive as assets for their and their communities' life and place of living. However, all LECs deliberately **maintained a broad field of interests around these core concerns.** This signals their willingness to negotiate their interests as part of wider understandings of transitions.
- Building on earlier research findings concerning framing and relevance as factors influencing participation (D3.4), it can be assumed **that the involvement of a LEC perspective in framing and the allowance for their reframing motivated LECs' participation in the further RFLL proceedings.**

Research question

- What was the framing of deliberation in the individual labs? and how has this framing influenced negotiation and negotiated outcomes?

Introduction

A *frame* is a "perspective from which an amorphous, ill-defined, problematic situation can be made sense of and acted on" (Rein & Schon, 1993, p.146). Framing processes involve "selecting, organizing, interpreting, and making sense of a complex reality to provide guideposts for knowing,

analyzing, persuading, and acting" (ibid., p.146). The importance of framing in collaborative decision-making is widely recognized across various disciplines. In democratic theory, Dryzek, (1993, p.225), for example, argues that frames are "sources of arguments that make no claim to be authoritative": they constitute an "open forum" (ibid., p.228) necessary for identifying stronger arguments. According to Dryzek, open frames expand the planning audience's bandwidth for political consent and thereby improve the quality of democratic decision-making. Planning scholars likewise argue that the 'field of choice' or 'room for interpretation' embedded in frames is essential for encouraging the consideration of alternative solutions and legitimating decisions (Booth, 2007; Faludi & Altes, 1994; Tewdwr-Jones, 1999). In public policy, framing is understood as shaping how a problem or challenge is interpreted, which in turn influences policymaking - particularly decisions about who should be involved in policy argumentation and how (Dekker, 2017). This is confirmed by DUST WP3 research, which shows that the way transition policies are framed greatly influences citizen and community participation. Technical or sectoral framings tend to limit engagement, while more flexible approaches that include societal and territorial dimensions, as well as social capital and other soft development factors, create space for greater involvement (Georgieva & Ferry, 2024b).

Well-framed argumentation enhances the depth of deliberative reasoning and the multiplicity of considered perspectives while not letting argumentation go astray. However, framing processes also face significant challenges (Barisione, 2012). When frames are employed for policy argumentation, they often reaffirm the "cognitive and normative expectations of [...] actors by shaping and promoting a common worldview as well as developing adequate solutions to sequencing problems, that is, the predictable ordering of various actions, policies, or processes over time" (Jessop, 2001, p.1230). Specifically, framing is vulnerable to elite capture and power imbalances, as it matters greatly who initiates the conversation and with what objectives (Carpini et al., 2004).

Conceived as a form of advocacy within the complex and contentious context of sustainability transitions, the RFLL format anticipated on **initial framing of deliberation through broadly defined key sustainability transition themes and sub-themes emphasizing common ground between community and policy interests.** These themes were determined prior to interaction in the labs and based on an analysis of TC aspects occurring in: (1) the scope of a selection of key sustainability transition policy measures, (2) understandings of LEC members of transitions expressed during earlier focus groups in WP3 (Georgieva & Ferry, 2024b, 2024a), and (3) dominant media discourses on sustainability transitions in the regions, also gained during earlier WP3 research (Aleksieva et al., 2024; Georgieva & Ferry, 2024b). The resulting aspects were then compared and consolidated into purposefully ambiguous themes, creating an initial common ground for deliberation. During the first workshop, LECs were given the opportunity to modify themes in order to shape subsequent deliberations according to their interests.

6.2.1.1 Findings on framing

Framing through the lens of LECs' interests

Framing through the lens of LECs' interests was derived from focus group research into the relevance of sustainability transitions and transition policymaking for LECs in the DUST WP3. Question posed to members of these communities concerned their understanding of transitions and transition policymaking and the perceived implications of these items for their life and place of living (Georgieva & Ferry, 2024a). Results of this prior investigation were then analysed using the mentions of TC aspects (see Table 17 in Annex D). A total of 74 aspects with a relatively equal spread across case study regions were considered.

When framing deliberation through the lens of LECs' understanding of and experiences in transitions emphasis is on human (C) - specifically social - capitals. An assessment of mentions through the lens of the number of aspects in TC categories shows a persistent dominant interest of LECs in aspects in this capital category (ca. 60% of named aspects fall into this category, ca. 35% of these 60% are social, and ca. 5% are cultural capitals), followed by aspects in the infrastructure (ca. 15%), natural (ca. 10%), built environment (ca. 5%), and economic (ca. 5%) capital categories. A qualitative analysis of TC mentions in the original text data, revealing groundedness around discussed TC categories and aspects supports this finding (see Table 15 in Annex D).

When detailing what human (C) TC sub-categories are of specific interest to LECs, it appears that they are mainly concerned about (future) jobs, skills & competences, and participation & the quality of public institutions. Other concerns are about family & community life, health & well-being, cultural practices (way of life) & traditions, and demographic change. In the realm of infrastructure, concern is about (renewable) energy infrastructure, in the realm of the built environment there is nearly equal attention is for aspects of public buildings & services, and attractive and affordable housing & living environments. Interest in natural TC aspects is overall low but includes attention to cultural & natural landscapes and climate change adaptation and mitigation & natural resources (specifically water), and environmental externalities impeding health.

When assessing interests case by case, the **attention to aspects in the sub-category participation & the quality of public institutions and (future) jobs, skills & competences appears to be consistent.** In **Norrbotten**, entries from the rural community highlight aspects related to participation & the quality of public institutions, (future) jobs, skills & competences, and cultural practices (way of life) & ethnicity. In **Katowice**, LEC members from generations in mining families also place highest emphasis on participation & the quality of public institution and also have concentrated interests in aspects related to (future) jobs, skills & competences and some concern about climate change adaptation and mitigation & natural resources. In **Stara Zagora**, references to TC aspects by citizens indicate main concerns with (future) jobs, skills & competences, community & family life, cultural practices (way of life) & traditions, and (renewable) energy infrastructure. In **Lusatia** young people's interests focus strongly on aspects of participation & the quality of public institutions next to a broad array of interests in other sub-categories.

LECs' narratives about transitions demonstrate that they structure wider perceptions of transitional development through the lens of the human (C) capitals that directly matter for them. The relatively consistent attention to sub-categories becomes more diverse when individual TC aspects are considered. The variety of mentioned aspects are a testimony of the nuanced account of the impact of transitions on communities' lives and places. However, an expression of interest in terms of a collection of individual aspects excludes an account of a relational perspective emphasizing argument and rationality. To capture this perspective, it was investigated how TC aspects are combined in understandings and experiences of transitions and consequently argument for change (Table 16). The collected narratives demonstrate that LECs' interpretations of transitions take indeed human (C) - specifically social - capitals as a starting point for attention to other aspects in more detailed argumentation. For framing, this implies that a field of choice needs to include LECs' concerns about their lives and places and allow for the develop broader interpretations of transitional development through the lens of these concerns.

Table 16 Community narratives through the lens of TC aspects.

	Norrbotten	Katowice	Stara Zagora	Lusatia
Community Textual description of community perspective (focus group)	**Quality of life and community well-being:** impact of the development of public services, transport, jobs/economic opportunities **Demographic change:** impact of (de)population, jobs, development of public services (health, education, leisure) **Economic growth:** impact of growth on rural lifestyle, landscapes, nature and ecology, indigenous communities' livelihood **Mobility infrastructure:** impact on accessibility in rural areas **Energy infrastructure:** impact of new infrastructure on natural land, small businesses, and the livelihood of the Sami community **Nature and landscape:** resources for small scale economies (food, leisure) **Local community and civic / political networks:** youth councils, schools, municipalities, Sami (and Sami leaders), broken or weak relation between networks	**Jobs:** the future of the job market, impact of education and specialized knowledge, impact of new carrier opportunities on community life **Quality of life and community wellbeing:** impact of environmental and spatial projects on the future quality of life, community culture, and (community) environment **Redevelopment of mining areas:** as a social-spatial project **Local community and civic / political networks:** a need for dialogue, consensus, and cooperation across and within communities, role of online environments and educational institutions for dialogue arenas	**Local community and civic / political networks:** accessible spaces for democratic activities (public buildings, local schools, and community centres), the role of investment into the 'social fabric of the region' and community activities as foundation for future economy **Energy infrastructure:** land-use conflict between arable land, and new energy infrastructure, wrongful repurposing of arable land **Economic growth / green industrialization:** impact of new production facilities, and green industries **Jobs:** impact of reskilling programmes to create and new jobs and avoid risk of depopulation and relocation, reskilling, and future jobs as a cultural transition of different generations, predominately positive / negative **Quality of life and community wellbeing:** impact on quality of food, recreational facilities, healthcare facilities, environmental quality (water, air) and health, energy renovation of homes	**Local community and civic / political networks:** vision and knowledge for local and regional spatial improvements, know-how to relate knowledge to policy, digital infrastructure (platforms/tools for communication, education on regional structural change) **Quality of life and community wellbeing:** enhancing quality of life through better infrastructure, services, and local spatial improvements. Preserve regional industrial identity (crucial for the sustainability transition) **Land development** of former mining areas, vision and concern **Jobs:** impact on future jobs, associated with economic instability and insecurity, affordability, and the future of communities **Energy infrastructure:** renewable energy infrastructure, a positive perspective (jobs, green industry development, environmental benefits, land-use transformation of former mining areas) **Disconnected rural and remote areas** (public transportation, fewer job opportunities) **Preserve natural landscape** (regional identity at risk, cultural identity, environmental risks, a recreation, ecological value, and economic resource)

Framing through the lens of policy

Framing through the lens of policy was derived from an analysis of TC aspects mentioned in a series of key sustainability transition policy measures in case study regions, consistently including the Territorial Just Transition Plans (TJTP) as well as additional significant place-based measures with a regional or supra-regional scope. A detailed account of the measures as well as results from the initial analysis is presented in D4.1 (Ramirez Aranda & Wandl, 2024). It is important to note that the analysis included significant differences in the number of the 193 total aspects across the four countries: Katowice (71) and Norrbotten (60) provided many entries, while Lusatia (32) and Stara Zagora (30) provided fewer (see Table 17 in Annex D). Additionally, it must be noted that the analysis reveals attention to individual aspects but not the importance given to these aspects.

Policies pursue comprehensive conceptions of sustainability transitions seen from their attention to TC aspects but which fail to take account of social capitals. An assessment of the number of mentioned TC aspects in TC categories shows that there is an equal attention to TC aspects in the economic, infrastructural, and human (C) categories (between 20-25% of named aspects fall into these categories) as well as moderate attention to aspects in the category built environment (ca. 15%), and natural (ca. 15%). Remarkably, the human (C) TC category includes only a few cultural aspects (5%) and no social aspects. When assessing the

number of mentioned TC aspects in TC sub-categories it becomes apparent that policies across regions give high attention to (new) industries & services, green growth & the transition towards a low-carbon economy, and demographic change. Also, the sub-categories transportation systems & connectivity, climate change adaptation and mitigation & natural resources, cooperation & (social) governance, biodiversity, education & research infrastructure, and green growth industrial infrastructure accumulate many aspects. Other sub-categories include few (but still some) aspects.

Across regions, transition policies show variations in their scope. These stem from differences in the detailing of economic and human (C) capitals, attention to tangible development, and emphasis on individual TC sub-categories. A case-specific analysis of the number of mentioned TC aspects in TC sub-categories confirms the comprehensiveness of policies but shows some varieties (Table 17). In **Norrbotten**, interests in aspects in TC sub-categories show a - relative to other cases - nuanced concern about economic development and cooperation while governance gets uniquely high attention. In **Katowice**, there is relatively high attention to tangible impacts of the transition and human (C) capitals. Also in **Lusatia**, tangible spatial and infrastructural aspects of development are highlighted. In **Stara Zagora**, the accumulation of interests in sub-categories implies an emphasis on infrastructural development and highlights education.

Table 17Interests in TC sub-categories through the lens of policies.

Policy	Norrbotten	Katowice	Stara Zagora	Lusatia
Attention to TC sub-categories Indicated by the number of aspects	In **Norrbotten** policymaking highlights (new) industries & services, green growth (infrastructure) & transition towards a low-carbon economy, cooperation & (social) governance, climate change adaptation and mitigation & natural resources and - to a lesser degree - education & research infrastructure, cultural practices (way of life) & ethnicity and cultural landscapes. Other sub-categories also gain attention	In **Katowice** there is main interest in aspects of the sub-categories green growth & the transition towards a low-carbon economy, demographic change, and transportation systems & connectivity. Interests in sub-categories of the main category built environment are also remarkable and include settlement structure, and cultural facilities, and services. There is also attention to climate change adaptation and mitigation & natural resources	In **Stara Zagora**, the focus of transition policy measures is on education & research infrastructure), and transition-related development (including (new) industries & services, green growth & the transition towards a low-carbon economy, green growth industrial infrastructure, and (renewable) energy infrastructure). There is also attention to climate change adaptation and mitigation & natural resources, cultural facilities, and services, demographic change, and transportation systems & connectivity	In **Lusatia** interests are distributed across sub-categories that concern the development of cultural practices, services, and landscape, education & research infrastructure, attractive and affordable housing & living environments, biodiversity, and (new) industries & services

Interpretations of transition in policies take economic capitals as a starting point for pragmatic wider understandings of transitions. In conjunction, the analyses of the scope of selected transition policy measures reveal a broad scope of these measures with consistent detailed attention to the development of economic capitals and broadly spread interests in other sectors. This diversity is confirmed by the multiplicity of mentioned individual TC aspects in policies and demonstrates a broad field of choice for aspects that can be framed for deliberation of public policy relevance. Expressing interests in categories and aspects, however, excludes an account of a relational perspective emphasizing argument and rationality, as noted above. To capture this perspective, it was investigated how TC aspects are combined to form policy rationales (Table 18). This investigation demonstrates that **TC aspects in the economic category play a central structuring role in policy argumentation, aspects in the human (C), infrastructure, natural, and built environment TC categories are usually seen as capitals that serve economic diversification.**

Table 18 Policy narratives through the lens of TC aspects.

Thematic clouds	Norrbotten	Katowice	Stara Zagora	Lusatia
Policy	**Vast extent of the area and its large unbuilt (not empty) landscape** with its specific natural and human (C) TCs: Cultural Heritage: Sami People and their knowledge based on living in vast nature and extreme climatic (H+N+B), Tourism: (H+I+N+E) eco-tourism and Indigenous hub **Abundance of cheap energy and raw materials**, both renewable and non-renewable, supported by a highly developed network of research education and manufacturing. Industrial foundations: tradition and high-quality manufacturing and cheap energy (I+E) Strong research design and innovation ecosystem: (H+I+E) people with technical skills, education facilities and industries behind them (e.g. space research, polar hub)	**Presence of good infrastructure**, both digital and logistical, as a foundation for a green economy. Connectivity: geographic advantages including the polycentric structure of the area, Digital infrastructure, digital care and health sector as a growing sector (I+B+E) Potential of the transformation of the **mining sites** and what they can mean in regenerating the water-, soil- and ecosystems and related economic potentials (B+N+E) **Educational facilities and networks** (H+I) as well as cultural, sports and fine ats institutions and networks (H+E)	**Cultural heritage**, which includes both built and natural TCs, which provide economic potential mostly for tourism Cultural heritage: Archaeological sites + Fine arts Cultural landscape: natural areas and springs with well-developed tourism infrastructure (I+H+E) **Strong foundation for a manufacturing-based transition towards a greener economy**, which is supported by both physical and relational infrastructure. Manufacturing logistics foundations: Large workforce in medium and high tech manufacturing, low local taxes, (E+I+H) Infrastructure: educational networks, roads, logistical hubs (I+E+H)	**Strong industrial foundations in (traditional) energy, chemical, logistic, and (modern) health sectors**, which are assets in the just sustainable transition **Economic capital:** high diversity of SMEs in manufacturing. Infrastructure and built environment capital: infrastructure, rail, land availability, former mines (E+I+B) **Human capital:** knowledge of how to produce things human capital: The health sector is the strongest growing sector Human social capital: strong cohesion based on many clubs and associations (human Capital: cross border cultural heritage based on Sorbian minority) (H+E) **Infrastructure capital**: Education in the sense of a network of educational institutions, building upon existing ones, is crucial for the transition (I+E) **"Countryside living."** This is not a rural lifestyle but a way of life in a polycentric settlement structure with high cultural and natural landscape values. Settlement capital: settlement structure that provides countryside living (B+H) **Built environment capital:** The role of the mining areas, landscape and settlement, logistic infrastructure, and railways. Economic Capital for fishing and landscape-based tourism (B+E)

Framing through the lens of media

In order to position deliberations in the labs with respect to public discourse, and thus gain an impression of their relevance in this realm, a media perspective was involved in the framing. The perspective was derived from a media analysis in the DUST WP3. The analysis was conducted to explore the impact of (dis)information on the public discourse surrounding just sustainability transition processes and included a mapping of local narratives in the media space of case study regions. A detailed account of the results from the analysis is presented in D3.3 and D3.4 (Aleksieva et al., 2024; Georgieva & Ferry, 2024b). For the purpose of the research presented in this report, the narratives were analysed on the mentions of TC aspects. A total of 71 aspects were considered with different contributions from case studies: Katowice 32, Norrbotten 19, Lusatia 12, and Stara Zagora 8 (see Table 17 in Annex D).

Media narratives show a persistent most detailed concern about aspects in the human (C), specifically social capital category. Assessing media narratives on the number of mentioned TC aspects in TC categories shows a persistent highest concern about aspects in the human (C) - specifically social - capital category (ca. 45% of named aspects fall into this category, including ca. 5% cultural and 25% social capitals), followed by aspects in the infrastructure (ca. 20%), economic (ca. 15%), natural (ca. 10%), and built environment (ca. 10%) capital categories. These fields of interests resemble the ones of LECs. An assessment of media discourses through the lens of more detailed TC sub-categories and distinguishing narratives in case study regions shows that there are sub-categories that are persistently addressed in all countries. These are (future) jobs, skills & competences, (renewable) energy infrastructure and climate change

adaptation and mitigation & natural resources. Other sub-categories, such as cultural & natural landscapes and decarbonising the building stock, and health & wellbeing occur in few case-specific media discourses only.

Media narratives often emphasize (negative) impact of top-down or autonomous economic and infrastructure development on tangible and human (C) aspects on the ground. The above assessment reveals media attention to a broad set of aspects of transitional development and thus high potential for deliberation of public relevance. However, when assessing the groundedness of aspects (how often individual aspects were mentioned), interests accumulate in the economic and infrastructure TC categories, with only few variations across case study regions (see Table 16 in Annex D). This indicates that while media mention multiple aspects, their combinations in narratives emphasize fewer main messages. When investigating these narratives in more detail it becomes apparent that aspects in various TC categories are frequently associated with aspects of economic development. When assessing narratives in conjunction it appears that associations often link top-down or unplanned autonomous development with negative local impact such as undesirable local spatial development, pressure on land-uses, and loss of nature (Table 19).

Table 19 Media narratives through the lens of TC aspects.

Media perspective	Norrbotten	Katowice	Stara Zagora	Lusatia
	Growth in global networks vs. local (spatial) development: large industrial developments, green steel production, exploitation of rare metals and minerals, alignment with global scale economy, the risks and effects for local land (nature, culture), local economy (local businesses and livelihood, dependence on growth, economic risks) **Population growth in the region** (attract workforce, European migrants), skills/knowledge needed for new green industries, new jobs results in attractive living environments (attract workforce/the lifestyle migrants) with spatial development, good transportation and public services, leisure landscapes **Economic growth vs. the quality of open land:** untouched nature and cultural land, attractive nature, land of future lifestyles, pressured land for growth (industries/ports expansion/housing/infrastructure) **Collaboration and the governance of transitions:** community and political networks, education and knowledge, transdisciplinary collaboration to train skills for future industry and future jobs, local networks, enhance local knowledge and dialogue to balance conflicts and support local TCs, find balance between local and global expectations/visions	**Green jobs and re-skilling** (green jobs, transition and job loss) The future energy and mobility infrastructure for the green economy provides (green) jobs and lower negative impact on the environment **Investment in communities vs. investment in 'infrastructure'** (serves and facilitates large economic developments and actors), infrastructure projects for economy and quality of life (mobility, water/sanitation) **The unnecessary transition?** Paradox: (understanding) environmental quality and climate change vs. 'unnecessary transition', jobs, (coal) status quo and community future - culture/quality of life in the region, gradual change **Transformation of mining areas:** new energy, decontamination, repurposing, leisure, (needed) freed land donated to municipalities	**Economic decay:** closure of coal-fired power plants and thermal power plants will lead to economic decay, regional energy crisis, end of industrial economy, loss of jobs, no future vision, future regional depopulation **Future industries** (battery industry) and future energy infrastructure (photovoltaics fields and agro-photovoltaics). Pressure on fertile land	**The feasibility of the energy transition:** the coal and nuclear phase-out, (un)reliable renewable energy, a negative perspective on energy transition: energy infrastructure and energy supply for local economy and communities **Globalization vs. local and national economy:** the future of local and national industries and businesses **Decarbonizing the building stock** by 2050 (peripheral topic)

Comparing LECs', media, and policy perspectives on transitions

The above described analyses into interests of LECs, policies, and media in TC aspects identified an initial field of choice to support processes of framing of deliberation in individual labs. In order to provide for a conversation situation that avoids polarisation and stimulates policy learning, case study partners were advised to use the results from analyses to capture aspects at the intersection of specifically community and policy interests and translate these into an initial thematic framing of deliberations in the first RFLL workshop. When considering matches and

mismatches between interests ex post and for the purpose of forming a baseline for the understanding of shifts in argumentation across the RFLL processes, a set of observations can be made.

When looking for fields of shared interests using the number of TC aspects in TC categories as an indicator, the human (C) TC category appears to be the most binding category across all perspectives: ca. 40% of aspects identified in LEC, policy, and media perspectives belongs to this category, with strong representation in focus groups (ca. 60% of aspects named by focus groups are human (C) TC aspects), media (ca. 40% of TC aspects identified in media narratives are human (C) TC aspects), and policy (ca. 25% of the TC aspects mentioned in policy are human (C) TC aspects). **It is hereby important to note that there is a highly different emphasis on social aspects.** While these dominate the LEC and media perspectives with, respectively, ca. 35% and 25%, they play no role in the policy perspective. Infrastructural capital follows with 20% of all aspects falling into this category, attention to these aspects is concentrated in policy (ca. 20%) and media (ca. 20%), with smaller contributions from focus groups (ca 15%). Economic capital also reaches a total of around 20% of all aspects, again driven by policy (ca. 25%), while focus groups (ca 5%) and media (15%) provide more limited contributions. Built environment accumulates ca. 10% of all aspects, primarily from policy (ca. 15%), with fewer references in focus groups and media (ca. 5%). Similarly, natural capital accumulates ca. 10% of all aspects, with equal contributions from policy, focus groups and media (ca. 10%).

A distinction between TC sub-categories by the number of community and policy relevant TC aspects they include hints at categories that are of mainly policy, community, or mixed interest. In **Norrbotten**, policy-driven sub-clusters include most prominently (new) industries & services, green growth & the transition towards a low-carbon economy, and cooperation & (social) governance. Sub-clusters accumulating mixed-interests are climate change adaptation and mitigation & natural resources, and (future) jobs, skills & competences. Finally, the most important community-driven cluster is participation & the quality of public institutions. Prominent policy-driven sub-clusters in **Katowic**e are green growth & the transition towards a low-carbon economy, and transportation systems and connectivity. Mixed-interest are in demographic change and also climate change adaptation and mitigation & natural resources. Sub-clusters dominated by community interests are participation & the quality of public institutions, and (future) jobs, skills & competences. Policy-driven sub-clusters in **Stara Zagora** highlight (new) industries & services. Mixed-interest ones are green growth & the transition towards a low-carbon economy, and (renewable) energy infrastructure. Also, climate change adaptation and mitigation & natural resources appear as a sub-category of common concern. Community-driven themes are centred on (future) jobs, skills & competences. In **Lusatia**, the most dominant policy-driven sub-cluster is (new) industries & services. Mixed-interest sub-clusters include attractive and affordable housing & living environments, and (future) jobs, skills & competences. The community-driven cluster that stands out most strongly is participation & the quality of public institutions.

When considering community, policy, and media interests in conjunction, it appears that there is attention to high diversity of aspects of transitional development in all perspectives. However, aspects of common main interest are restricted. Comparing interests in aspects per TC category and sub-category and within and across case study regions reveals common and/or uncommon ground for framing deliberation in regions. When considering results from this analysis, it appears that there is an array of aspects of transitional development of community, policy, and media concern but a restricted overlap specifically between aspects of main concern in perspectives. Additionally, as noted above, **wider perceptions of transitional development are ordered by highly different narratives.** LECs

structure the field of aspects of their interest through the lens of the implications of transitions and transition policymaking for their life and place of living, policies structure aspects of transitional development through the lens of economic restructuring, and media emphasize the impact of top-down economic development on the ground. For the framing of deliberation, these conditions imply that **inclusive frames are required to not only safeguard a common thematic ground, but also - and possibly more importantly – to be sufficiently open to allow for the reordering of existing compartmentalized and disordered discourses.**

WS1: Initial framing differed in terms of the inclusion of LECs' core concerns

Based on the initial analysis of community, policy, and media interests, case study partners identified key sustainability themes for the first interactive workshop in the labs. They were provided with guidelines for the definition of themes. A first important principle was that any sub-theme needs to include community concerns. A second important principle was in attention to TC aspects that matter in both, community, and policy perspectives. Seen the key sustainability transition themes and sub-themes that were presented to LECs and policymakers at the beginning of the first RFLL workshop, case study partners complied with these guidelines but chose for different frames in terms of the inclusion of the multitude of earlier identified policy and community interests (Table 20).

- **Norrbotten:** The analysis of LEC and policy interests in Norrbotten revealed a strong shared interest in the **governance of sustainability transition.** Within this participation of rural communities emerged as a central concern for the LEC community. Consequently, case study partners chose for an initially relatively narrow framing, closely aligned with development in these domains. Other aspects, such as SMEs, networks of entrepreneurs, and infrastructure were integrated in initial arguments for greater participation and cooperation within the rural region.
- **Katowice:** Case study partners in Katowice determined a very broad thematic framing by proposing the sub-themes of **skills and jobs, infrastructure, education, culture and sport, mining sites, health care, and green tourism** for deliberation. Under the header Dynamic Katowice these sub-themes aligned differently with earlier identified policy and community interests. While the sub-theme 'skills and jobs' figured prominently in community perspectives, and the sub-themes of education, culture and sport, and mining sites (as a location for re-development) were of importance to both members of LECs and policy, the sub-themes of infrastructure, health care, and green tourism were policy inspired. Specifically, the theme infrastructure launched a wide field of choice with various possibilities for interpretation.
- **Stara Zagora:** Case study partners in Stara Zagora used a relative middle ground in framing through establishing sub-themes that corresponded to several but distinct clusters of TC aspects. Under the header 'Regional economic transition with a focus on sustainable development' sub-themes paid attention to **workforce reskilling, future industries, renewable energy, sustainable land use, infrastructure for green economic growth, cultural landscapes, tourism, quality of life, and environmental health**. In conjunction themes displayed a high overlap with both community and policy perspectives.
- **Lusatia:** The analysis of LEC and policy interests in Lusatia showed shared LEC and policy interests in attractive living environments and cultural landscapes. Against this background case study partners in the region chose for an initial framing that emphasize these issues under the header 'Countryside living'. More detailed aspects included **polycentric settlements, urbanized landscape, new neighbourhoods, public**

spaces, green areas, and mobility and public transport. Youth leisure centres were identified as a theme of particular relevance for young people.

To allow for the adaptation of framing to the conditions of regions and communities, case study partners were given the freedom to propose key sustainability themes according to their deeper knowledge of situations and contextual givens. The selected themes reflected the aforementioned principle of common ground but also emphasized the disciplinary expertise and practical occupations of partners. In this way the intermediate themes underpin **a need to observe the interests of all involved actors during framing processes and safeguard the ones that should be central in deliberation.**

Table 20 Key sustainability themes and sub-themes presented in WS1.

Key sustainability transition themes	**Norrbotten**	**Katowice**	**Stara Zagora**	**Lusatia**
Key sustainability transition themes / input WS1 - proposed by case study partners (source WS report 1)	**New Ways to Collaborate in the Green Transition - Collaboration and Networking in Rural Norrbotten**	**Dynamic Katowice**	**Regional Economic Transition with a Focus on Sustainable Development**	**Countryside living**
Key sustainability transition sub-themes / input WS1 - proposed by case study partners (source WS report 1)	Entrepreneurs and their networks in the green transition Dissemination of information about the green transition in Norrbotten Ensuring the activities of civil society in the green transition Collaboration and dialogue between the municipality and citizens in the work on the green transition Networking and connections between people and groups in rural areas of Norrbotten Cooperation and dialogue between rural areas and urban hubs Infrastructure - the importance of physical links to facilitate collaboration in Norrbotten Entrepreneurs and their networks in the green transition	Skills and jobs Infrastructure Education, culture, and sport Mining sites Health care Green tourism	Workforce reskilling and adaptation for future industries Development of renewable energy and sustainable land use Strengthening infrastructure for green economic growth Transforming cultural landscapes for sustainability and tourism Enhancing quality of life and environmental health	Landscape with polycentric settlements Living in urbanized landscape Youth Leisure Centres in Cottbus Projects to develop new neighbourhoods Projects to transform public spaces Trees and green areas in the city Mobility and public transport Public space

WS1: Re-framing by communities

The first RFLL workshop introduced the above described initial key sustainability themes and sub-themes, gave policymakers an opportunity to explain their policymaking agendas, and finally allowed communities to suggest and prioritize themes for further deliberation in next RFLL workshops. This allowance has led, in most cases, to substantial reframing of the key sustainability transition themes that were presented at the beginning of the workshop. Input and output themes and detailed arguments for individual shifts are presented in Table 21. More comprehensive arguments were:

Norrbotten:

- **Input theme (partners):** New ways to collaborate in the green transition – collaboration and networking in rural Norrbotten
- **Output theme (LECs):** Population increase and regional attractiveness in the future
- **Argument for reframing:** Participants reframed the discussion away from collaboration as a process and toward the concrete outcome of making the region attractive for people to live and work in. In the workshop, several possible themes were considered - civil society, labour market diversification, industry responsibility, and the role of small

business in transformative development - but during a voting on themes the overwhelming consensus centred on population increase and attractiveness

Katowice:

- **Input theme (partners):** Dynamic Katowice
- **Output themes (LECs):** Three themes emerged due to the particular set-up of WS1 in the Katowice case, where generations of mining families were initially consulted apart: **Young people**, focused on education programmes and their links to the needs of labour markets, and on the region's brand and identity, **Miners** emphasized retraining, new industries and diversification, and regional attractiveness, and **Retirees/Seniors**, were concerned with stable jobs, heating transformation, and metropolitan development
- **Argument for reframing:** The reframing emphasized sub-themes tied to the generational perspectives. For youth, the key was pride in the region and alignment of education with future labour markets. For miners, the emphasis was on security through retraining and diversification, reflecting the structural shift from coal mining to new industries. Seniors stressed job stability, affordable heating, and better urban integration. Together, these outputs led to the reframing of the vague idea 'Dynamic Katowice' into a more practical multi-generational agenda

Stara Zagora:

- **Input theme (partners):** Regional economic transition with a focus on sustainable development
- **Output themes (LECs):** Retraining and workforce transition, renewable energy deployment
- **Argument for reframing:** Participants reframed the focus from broad sustainability goals to more immediate needs. Retraining and workforce transition emerged as central due to the vulnerability of workers in the coal and energy sectors. Participants stressed that without urgent retraining programmes tailored to displaced workers, social instability could undermine the transition. Renewable energy deployment, particularly solar, was selected as the most viable pathway for local growth, given the region's favourable conditions. This theme was seen to reflect both alignment with global climate commitments and the creation of local job opportunities. The arguments for reframing highlighted pragmatism: while education reform or exploring wind power were considered as alternatives, retraining and solar deployment were considered more urgent, feasible, and likely to yield visible benefits. Concerns remained about financial and regulatory barriers, but there was strong agreement that these two themes form the foundation for a just and effective transition in Stara Zagora

Lusatia:

- **Input theme (partners):** Countryside living
- **Output theme (LECs):** Mobility, accessibility, and liveability of the region
- **Argument for reframing:** Participants reframed the input theme of Countryside living, which evoked lifestyle and rural identity, into the more structural issues of mobility, accessibility, and liveability. In the view of participants, this shift reflected the recognition that sustainable rural life depends on adequate infrastructure, affordable housing, and access to services. Public transport, cycle paths, and centrality of regions were highlighted as priorities to strengthen connectivity within Lusatia and beyond. Moreover, liveability was linked to the quality of public space as a driver of social cohesion and youth engagement, tying into broader demographic challenges. Rising housing prices and

the need for economic diversification were identified as threats to accessibility. The argument for reframing therefore interpretated the original theme toward the material and institutional conditions that make living in the countryside feasible, sustainable, and attractive for future generations

When assessing the shifts of attention described above in respect to LECs' interests expressed during focus groups, it can be concluded that during the RFLL WS1 **LECs reasserted their initial interests in the TC aspects and categories that they perceived as assets for their and their communities' lives and places of living earlier on**. Where initial framing was narrowly focused on few and specialized themes, reframing expanded the field of choice to include wider or more softly defined topics of high relevance for LECs (Norrbotten). Where initial framing was wide, LECs reframed argumentation to focus on fewer (Stara Zagora) or more specific (Lusatia and Katowice) topics of their particular relevance. The reassertion of interests, however, did not lead to an exclusive perspective. As the self-selected themes demonstrate, **LECs deliberately maintained a broad field of interests around their core concerns.**

Research into factors influencing community participation has revealed that policies that do not allow sufficient space for citizens to contribute, especially in defining problems, lead to exclusive and unrepresentative policies. According to communities, more open policy processes that allow them to identify their own concerns and interests are key to creating more inclusive policies (Georgieva & Ferry, 2024b). This stance is underpinned by the arguments for reframing that LECs presented during WS1. Across all regions, LECs gave pragmatic reasons: they sought to foster concrete outcomes, and strove for a more accurate account of the material and institutional contextual conditions that help or hinder development of their particular concern. These practical and relevant aspects were taken as a starting point for broader observations about transitional development with implications and meaning for LECs. Seeing these findings and comparing them to earlier research, it can be assumed **that the involvement of communities in framing and the allowance for reframing was an important motivation for (continued) participation in the RFLLs.**

Involving LECs in framing caused first deliberative reasoning, specifically where a diversity of LEC members was involved. Some observations on additional factors influencing re-framing can be made. Results show that the task of framing has not only produced the frames themselves but also inspired strong initial deliberative reasoning. Where diversity of LEC members was high and a relatively large number of participants were known (Katowice), framing suggested by LECs stayed relatively broad, where the group knew lower internal diversity or was a small group, frames stayed narrow. In the case of Norrbotten, a voting mechanism was used. Framing in this case was initially relatively narrow. During WS1 a broad series of themes emerged during conversations and voting was seen as a necessary step towards an effective continuation of deliberation.

Table 21 LECs' arguments for re-framing during WS1.

Key sustainability transition themes	Norrbotten	Katowice	Stara Zagora	Lusatia
Key sustainability transition themes / input WS1 - proposed by case study partners (source WS report 1)	New ways to collaborate in the green transition - Collaboration and networking in rural Norrbotten	Dynamic Katowice	Regional economic transition with a focus on sustainable development	Countryside living
Key sustainability transition themes / output WS1 - proposed by participants (source WS report 1) **Argument for reframing**	Population increase and regional attractiveness in the future **Argument for reframing** At the end the session, the facilitator asked the entire group, based on the day's discussion what key topics they felt they might want to be the	LEC1: YOUTH (1) Development of educational programmes to improve qualifications on the labour market (2) The specificity and brand of the region **Argument for reframing**	**Retraining and Workforce Transition** **Argument for reframing** This theme was chosen due to the significant impact of the energy sector transition on local employment. Participants highlighted the need for tailored retraining programmes to	Mobility, accessibility, and liveability of the region **Argument for reframing** Mobility and connections recognized as important themes (cycle paths, public transport, centrality of regions). The quality of public space as a foundation for social cohesion

Key sustainability transition themes	Norrbotten	Katowice	Stara Zagora	Lusatia
	focus of WS2. 5 themes were identified by the group to vote on: The role of civil society, Population increase and attractiveness, Diversification, Industry responsibility towards nature, and The role of small businesses A large majority of the group voted for "Population increase and regional attractiveness in the future"	To better adapt to needs of the labour market To be proud of the region (Silesia), because it successfully transforming and developing into new, attractive industries LEC2: MINERS (3) Retraining of people involved in the coal and energy sector (retraining) (4) Development of new industries - diversification based on existing industries (economic diversification) (5) Maintaining the attractiveness of the region - retaining people (attractiveness of the region) **Argument for reframing** It seems to be a reasonable package of subthemes including well thought out future competences towards new and diversified industries that can guarantee the economic attractiveness of the place where green and cultural identity is appreciated LEC3: Retirees / Seniors (6) Jobs (work) (7) Transformation of heating - system heat (transformation costs) (8) Further metropolization (metropolization) **Argument for reframing** The most important issue is a stable labour market. People need to have jobs, and the economy should be characterized by a high level of competitiveness It is one of the biggest challenges of the transformation in Silesia. It will be felt by many households Strengthening and increasing the attractiveness of all cities within the metropolitan area	address the skills mismatch for displaced workers in industries like Maritsa East. Alternatives included focusing solely on education reform, but many agreed that retraining programmes needed to be prioritized for immediate results. There was consensus on the urgency of providing workforce support, though some debated the effectiveness of current initiatives **Renewable Energy Deployment** **Argument for reframing** Participants emphasized the region's potential for solar energy development, including rooftop installations and larger renewable projects. This theme was chosen as it aligns with global sustainability goals and offers opportunities for local job creation. Alternatives included exploring other renewable energy sources like wind, but solar was seen as the most feasible given regional conditions. While most community members supported the idea, there was concern over the financial and regulatory barriers that need to be addressed	and youth participation. The ability to access affordable housing, services, and opportunities, which touches demographic change, rising prices, and economic diversification

6.2.2 Negotiation

Box 4 Negotiation: Summary of findings.

RFLLs promote deliberative participatory processes, which consider different arguments, weigh the implications of alternative solutions, and facilitate consensus on the basis of these.

WS2: Diversification of LECs' interests in comparison to focus groups

- When comparing LECs' conversations about transitions during WS2 with those held earlier in focus groups, a **diversification of attention** to aspects of transitional development can be observed. The diversification of interests signals **an increasingly detailed account of structural spatial and economic transitional development.**
- Also, a further detailing of interpretations of transitions through the lens of human and social capitals occurred. This implies that, while overall attention has diversified, **LECs' main concerns about their and their communities' lives and places of living remained central in argumentation**.

WS2: Emphasis on TC aspects and sub-categories in WS2

- While across cases emphasis on specifically social TCs remained stable, peaking case-specific emphasis on individual aspects related to jobs and skills, economic transitional development, tangible infrastructural and built environment, and education caused **an overall spread of attention to a wider set of aspects of transitions.** This implies that LECs specified their interest in wider transitional development during the futuring exercise in WS2.
- There are strong differences in the importance given to TC categories when a relation to types of imagined futures is considered. **In expected territorial development (Probable futures), economic and infrastructure TC categories gained most attention** across all cases; in **LECs' hopes and dreams (Preferred futures), infrastructure and social TC categories figured most prominently. Tangible spatial TC categories were emphasized in perceptions of the Present**; memories highlighted various categories, indicating that these are highly context-specific.
- Across all time perspectives and cases, **the human (C) TC main category remained to be of highest importance.** In young people's perspective, social and human capitals figure most prominently and are significantly more grounded in the discussions than economic TCs.
- In conjunction, these findings show that **the adapted FLL approach has supported an expansion of interests while LECs' core interests were maintained.**

WS2: Argumentation through the lens of TC clusters

- When considering the most important starting points in discussions, it appears that **LECs in all cases continue to understand and build argument through the lens of the social and human TC aspects that matter for their lives and places of living.**
- A series of **specific lines of argumentation** re-occur across cases. **Quality of life, affordable housing, and natural environment aspects** establish LECs' key rationales for **sustainable regional development** across cases. Despite being least grounded in discussions, **natural and cultural TCs occur in many argumentations as a binding concern** and meaningful background of discussions. Aspects of **community participation in inclusive (regional) governance** form an important part of many LECs' rationales. Across cases, they argue for community empowerment, capacity building, and the importance of cultivating social capital.
- While all LECs developed intricate narratives, the **diversity and complexity of argumentation differed significantly across cases**. The depth of argumentation was influenced by the **number and diversity of participants** and **knowledge about the region**. **Age and cognitive versus affective and experiential knowledge** are correlated with different **mechanisms for gaining depth** of argumentation. All LECs across cases value **tacit experiential 'regional knowledge'** in the building of argument for community action. Few perceive this knowledge as a barrier to innovative ideas about transitional development.

WS2: Sentiments about TC aspects

- TC aspects which triggered **sentiment** during WS2 accumulate in the TC sub-categories **green growth and transition towards a low-carbon economy, (future) jobs, skills, and competences, participation and the quality of public institutions, community and family life, and education.** This demonstrates LECs' emotional entry in deliberating these aspects.
- Positive and negative **sentiments about specifically policy-relevant TC aspects** are shown to be mixed. A comparison with earlier research findings (D3.4) indicates that

feelings about sustainability transition policymaking **have become more ambiguous** since focus groups were held.

WS2: Comparing community and policy perspectives post WS2

- An overall **shift of the deliberation towards policy-relevance** can be observed when comparing WS2 and focus group results. However, LECs did not lose sight of their own concerns while policy-relevance of their stances expanded.
- Interests in social capital aspects - specifically those related to community and family life - expanded across cases during WS2. **This widened the gap between policy and community interests in the social dimension of transitions.**
- **Common ground to negotiate LEC and policy interests** is highly various across cases. Shared fields of interests that occur in several cases are few and relate to **transitional economic development** (in regions where this development is pertinent), **education, and the development of tangible infrastructural and the built environment aspects** (specifically transport and housing). This underlines **the importance of context-specific approaches to negotiation.**

WS2: Comparing community and policy interests through the lens of narratives in TC clusters

- Across cases and TC clusters, argumentations show an overall balanced attention between communities' own interests and overlapping community-policy interests. **This implies that all LECs led discussions of both policy- and community relevance.**
- Variations in how argumentation integrated the fields of LECs' own and policy interests occur across cases and within TC clusters belonging to the same case. **This underlines that the formation of common ground to negotiate LEC and policy interests was highly context specific.**
- A comprehensive assessment of how individual LEC narratives intersect with TC aspects of policy relevance brings few shared LEC and policy rationales to the foreground. The most important of these **shared rationales build relations between demographic stability, attractive living and housing environments, education, and public services. Across cases, LECs also advocate with policymakers for fair development and inclusion of peripheral areas** and neighbourhoods, remote rural, and smaller towns.
- Across cases, there are **divergent LEC and policy views around the economic value of nature.** This implies possible tensions around this aspect of transitional development.
- **LECs tend to add a practical, action-based, and goal-oriented dimension to more abstract policies.**
- **Policy responses addressing negative impact of transitional development on LECs are perceived to be abstract and overly positive.** This concerns issues, such as natural territory conflicts, difficulty in reskilling, disappearance of cultural and social TCs, or housing issues.
- LECs and policies often focus on the same aspects but **value these aspects from entirely different perspectives.**

WS3: Preparing policy statements for public digital deliberation

- In the **drafting of policy statements** for public digital deliberation LECs' interests - earlier expressed through their Preferred futures - the policy relevance of discussions were maintained across cases. Due to different approaches to the implementation of WS3 in cases, the resulting **draft statements were highly varied** in their detailing of LEC positions.

WS3: Explaining shifts in argumentation

- Attempts to balance wins and losses during LECs' internal negotiations on statements led to **modifications of statements, most often through broadening their scope**. This implies that pending decisions were often passed on to the upcoming public deliberations.
- Variations in the complexity and number of output statements indicate that **different tactics in respect to the upcoming public Pol.is deliberation** were conceived, namely increasing options and thus presenting a wider field of choice for deliberation; articulating accurate opposing views and thus encouraging the public to take sides, and building detailed argument and thus encouraging detailed responses and commenting.
- The allowance for **mirror statements absorbing opposing views were essential for moderating** lively discussion.
- The call for **pointed messages** emphasizing actionable and concrete outcomes stimulated substantial discussion on the **implications of ongoing policy and realistic implementation issues**. The messages also led to attention to contextual transitional development and policy frameworks.
- **Adjusting communication and language to meet the requirements of a public digital deliberation was led by young people** and most important in situations where statements concerned polarizing public discourses. This demonstrates their participatory skills in this important domain.

Research question

- What are differences and communalities between LEC and policymaking interests? and how can shifts in interests be explained by the set-up of the individual labs?

Introduction

Deliberation has at its root the idea of weighing alternatives for the purpose of negotiation and consent formation in pluralistic decision-making environments (Mansbridge, 2015). It is hereby important to note that negotiation is "not seeking for compromise but strives to get 'beyond the positions to the interests', to probe for possible ways of meeting underlying interests at lower cost to the negotiator than the other's original demand" (Mansbridge, 2025, p.10). Negotiation involves the trading of losses and gains, which requires the visibility of interests of negotiating partners as well as their explanation (Mansbridge, 2025).

The RFLLs centrally assumed that negotiation requires learning and that learning is supported by reflexive comparison of community interests, rooted in their understandings and experiences of transitions, and policy interests. Scholars from different fields underline the importance of comparison and reflexive feedback but highlight different territorial, spatial, and temporal dimensions in these comparisons. In the realm of place-based policymaking, Morgan (2018) emphasizes the importance of "a recursive process of provisional goal setting based on learning from the comparison of alternative approaches" at levels of government. In the field of the democracy studies, Dryzek and Pickering argue that reflexive deliberation is needed to reconcile local and expert knowledge, divers and consensus-oriented public discourses, central and decentral institutional architectures, and flexible and robust institutional dynamics (Dryzek & Pickering, 2017). Scholars in the field of future studies note that insights generated through the comparison between envisioned desirable futures and perceptions of real current situations generate meaning during interpreted feedback loops (Fuller & Loogma, 2009). Spatial design concerns the imagination of spatial change for the purpose of improved decisions in the realms

of architecture, urbanism, and spatial planning (Balz, 2019, 2021). Spatial design theory emphasizes an explorative, conjecture-and-refutation logic (reflexivity) in design practice for the production of argument for change (Schön, 1983).

Recognizing the complexity and contentiousness of place-based sustainability transition policymaking, the RFLL format aimed at the positioning of LECs' concerns in the wider MLG landscape of this policymaking instead of producing concrete decisions about distinct policy measures. Therefore, outcomes of comparisons were in softly bounded argumentative systems (or clusters) around interests that can structure further negotiation in distinct social governance arenas. Theoretically such structuring of interests has several advantages. Firstly, it allows for distinguishing between argumentative clusters where core values and beliefs of participants in negotiations are overlapping or not. The former clusters are opportunities for advocacy coalition formation and policy learning (Jenkins-Smith & Weible, 2025) and lend themselves for pragmatic approaches to the trading of losses and gains during further negotiation. The latter areas - where core values are not aligned and deeply held identities and core beliefs are likely to cause agonistic situations - indicate challenges to negotiation, addressing these requires mediation (Forester, 2006) and an active and passionate recognition of contradictory positions limiting the possibility of negotiated outcomes (Hillier, 2003). Next to the structuring interests, according to matches and mismatches between fields of interests, other aspects of argumentative clusters around interests are indicative for future negotiation and decision-making. The depth of clusters provides insights into how advanced argumentation is and who can learn from whom. Earlier DUST research indicates that negotiating sustainability transition policies likely involves high emotions and sentiments (Georgieva & Ferry, 2024b). Early insights into these provides for the possibility to structure negotiation around more cognitive or affective ways of knowing and learning.

In the first RFLL workshops, LECs forcefully reasserted their understanding of sustainability transitions and reframed themes to centre deliberation around the perceived implications of transitions and transition policymaking for their life and place of living. The RFLL WS2 invited communities to express their expectations, hopes, and dreams around these self-selected key sustainability themes and sub-themes (see also Chapter 5). After WS2 the conversations about Preferred futures in sustainability transitions were analysed on TC aspects and interrelations between these, and the results of this analysis were compared to the earlier identified TC scope of key sustainability transition policy measures. Comparison led to insights into differences and communalities between communities' and policy interest in individual TC aspects, the identification of clusters of aspects of common or uncommon concern, as well as observations about lines of argumentation linking aspects of various significance for LECs and policy. An assessment of aspects on their importance for communities, future value, associated sentiments, and belonging to tangible spatial TC categories allowed for additional qualifications of LECs' stances in respect to the investigated policy measures. Results of the comparison - titled 'blue TC cluster diagrams' - are presented in Annex A. These diagrams informed the positioning of LECs' interests in place-based sustainability transition policymaking during the RFLL WS3. In retrospect the construction of the diagrams allowed for observing argumentation and negotiation across the RFLL workshops.

6.2.2.1 WS2: Diversification of LECs' interests in comparison to focus groups

When comparing LECs' conversations about transitions led in WS2 with those led in focus group, a diversification of attention to aspects in TC categories can be observed. There is a continuing main but slightly diminished attention to divers aspects in the human (C) capital

category (from ca. 60% to 40% of named aspects fall into this category). Of the human (C) capital aspects discussed during focus groups 35% were categorized as social and 5% as cultural capitals. Of the aspects discussed during WS2 15% were social and 5% were cultural capitals. This shift is compensated by diversified attention to aspects in the infrastructure (from ca. 15% to 20%), economic (from ca. 5% to ca. 15%), and built environment categories (from ca. 5% to 15%). The diversity of aspects in the natural TC category remains the same (ca. 10%).

The diversification of interests signals an increasingly detailed account of structural spatial and economic transitional development. This is evidenced by an increasing number of aspects in of transportation systems & connectivity across case studies, and more incidental shifts of interests towards growth & transition towards a low-carbon economy, and (new) industries & services. These findings imply a more comprehensive and structural interpretation of transitional development.

Also, a further detailing of interpretations of transitions through the lens of human and social capitals occurred. This implies that, while overall attention has diversified, LECs' main concerns about their and their communities' lives and places of living remained central in argumentation. When comparing TC aspects identified in focus groups and WS2 conversations through the lens of the TC sub-categories it also appears that most TC aspects continued to accumulate in the human (C) TC sub-categories that were already dominant across focus groups. These include most prominently (future) jobs, skills & competences, participation & the quality of public institutions, and cultural practices (way of life) & traditions. However, new aspects in human (C) TC sub-categories, specifically the sub-category of community & family life, are added. This implies that LECs detail their own interests during conversations (Table22).

Table 22 Diversification of attention between focus groups and WS2.

# of aspects in TC sub-categories	Norrbotten	Katowice	Stara Zagora	Lusatia
Sub-categories with high diversity of aspects	Participation & the quality of public institutions (future) jobs, skills & competences Cultural practices (way of life) & ethnicity	Participation & the quality of public institution (future) jobs, skills & competences Climate change adaptation and mitigation & natural resources	(future) jobs, skills & competences Community & family life Cultural practices (way of life) & traditions (renewable) energy infrastructure	Participation & the quality of public institutions
Sub-categories with maintained high diversity of aspects	Cultural practices (way of life) & traditions was maintained	Participation & the quality of public institutions Future) jobs, skills, and competences	(future) jobs, skills & competences	Participation & the quality of public institutions
Sub-categories with new or increased high diversity of aspects	Community & family life (New) industries & services Social infrastructure Climate change adaptation and mitigation & natural resources	Green growth & the transition towards a low-carbon economy Community & family life Social infrastructure Transportation systems & connectivity	Transportation systems & connectivity Community & family life Education	Social infrastructure Community & family life Transportation systems & connectivity

6.2.2.2 WS2: Emphasis on TC aspects and sub-categories

The identification of new aspects described above shows a diversification of attention but does not reflect the importance given to these aspects. This importance comes to the foreground when also considering how often individual aspects were mentioned, indicating their groundedness. It is hereby important to note that the number of mentions strongly differed across cases: In Katowice three generations in mining families deliberated. This delivered ca. 60% of all mentions of aspects across cases. 20% of the remaining mentions came from Lusatia, 12% from Norrbotten, and 8% from Stara Zagora.

While across cases emphasis on specifically social TC aspects remains stable, peaking case specific emphasis on jobs and skills, economic transitional development, tangible

infrastructural and build environment aspects, and education causes an overall spread of attention across TC main categories. When assessing the groundedness instead of the number of mentioned TC aspects in WS2 conversations, TC categories are emphasized slightly differently. There is a continuing focus on aspects in the human (C) capital category (45% of mentions of aspects fall into this category, of which 20% are social, and ca. 5% are cultural aspects), followed by importance given to economic (ca. 20%), infrastructure and built environment (both ca. 15%) capital. The groundedness of, and thus importance given to, aspects in the natural TC category remains low (ca. 5%). When investigating the groundedness of TC sub-categories, the economic sub-category mentioned most frequently is green growth & the transition towards a low-carbon economy, followed closely by the human (C) category (future) jobs, skills & competences (as is shown in the more detailed case-by-case analysis below, both peaks stem from the transition regions of specifically Katowice and Stara Zagora). Other strongly represented sub-categories belong to the human-social TC main categories, and include community & family life, and participation & the quality of public institutions. Mid-level attention is given to the tangible sub-categories attractive and affordable housing & living environments, (renewable) energy infrastructure, social infrastructure, transportation systems & connectivity, and settlement structure. Still significant are cultural practices (way of life) & traditions, location factor, and education.

There are strong differences in the groundedness of (and thus importance given to) TC categories when a relation to types of imagined futures is considered. When considering the groundedness of TC categories from different time perspectives, emphasis on specifically human (C) (including social and cultural), economic and infrastructure TC categories shift (Table 23). **In expected development (Probable futures), economic and infrastructure TC categories gained most attention across all cases, in LECs' hopes and dreams (Preferred futures), infrastructure and social TC categories figure most prominently** (in Lusatia social TC receive specific attention). This implies that the social TC category appears as highly grounded in Preferred futures only, reflecting that hopes and dreams are centred around this capital. The cultural and natural TC categories are the least grounded TC categories in communities' futures across cases. Positive and negative sentiments in Probable and Preferred futures differ substantially across cases, with the strongest contrast appearing in cases where communities are directly or substantially negatively affected by the transition.

Tangible spatial TC categories are emphasized in perceptions of the present, memories highlight various categories, indicating that these are highly context-specific. There are similarities about the most grounded TC categories in perceptions of the present and memories across cases. When looking at the present, aspects belonging to the tangible Infrastructure and the built environment categories are emphasized in all case study regions. More tangible TC categories tend to have a higher groundedness in discussions about the Present and Probable futures than in memories and Preferred futures. In memories, the most grounded TC categories differ significantly by case, being closely associated with community experiences and local context. Across cases, feelings around memories are positive or balanced. Only in Lusatia, memories are mostly negative and used as a form to argue the need for action and change.

Table 23 Groundedness of TC categories in different futures.

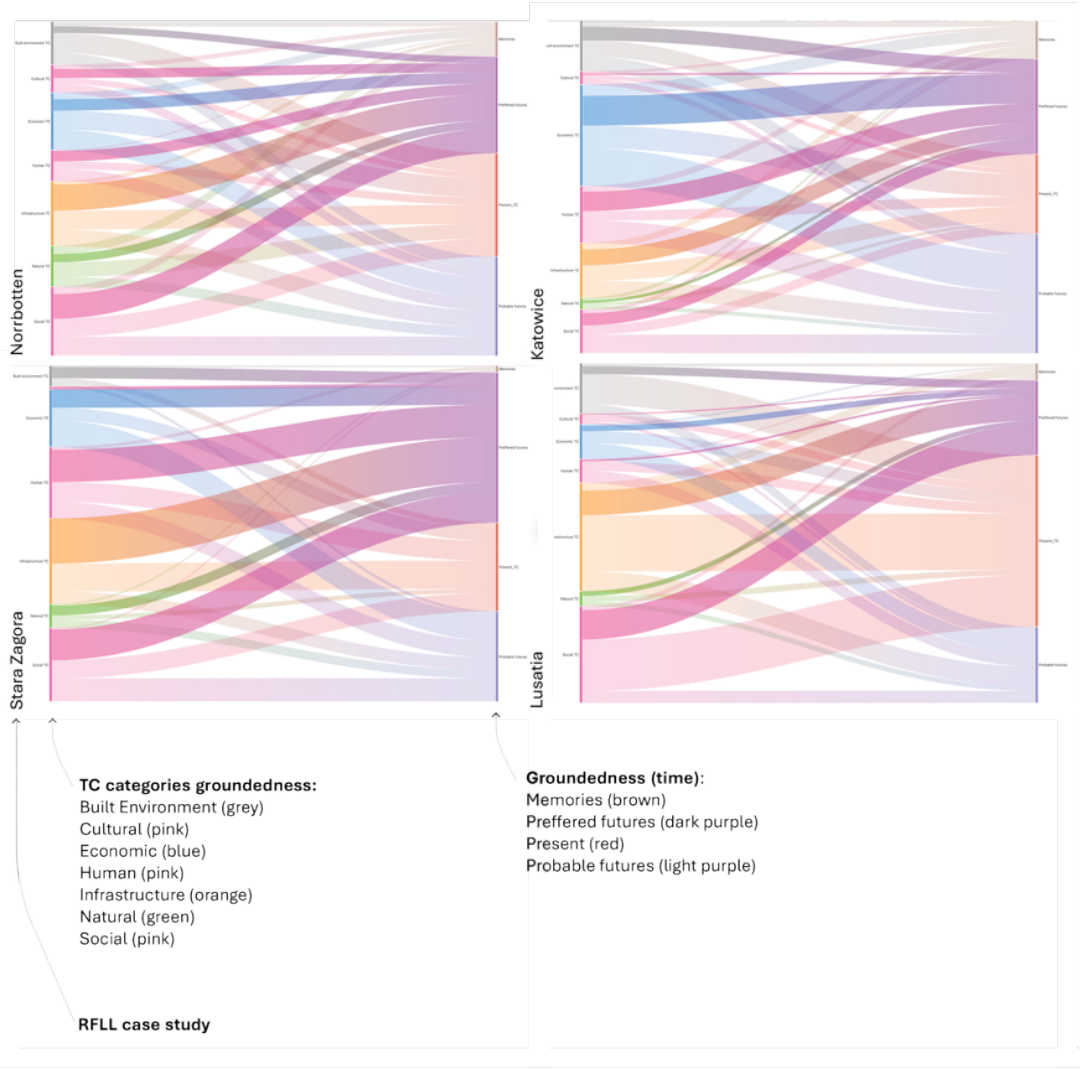
TC groundedness	Norrbotten	Katowice	Stara Zagora	Lusatia
Futures — Probable & Preferred	**Probable futures** focus on **economic TC** **Preferred futures** are centred on **infrastructure TC,** followed closely by **social TC**. These two TC categories are linked in the discussion	**Probable futures** focus on **economic TC** category **Preferred futures** in Katowice, are significantly and exceptionally grounded in the **economic TC** category, **followed by human TC**. These	**Probable futures** focus on **economic TC** **Preferred futures** focus on **infrastructure TC**, **followed closely by social TC** (similar to Norrbotten) — these TC categories are associated in the discussions, meaning that	**Probable futures** focus on **infrastructure TC** category **Preferred futures** focus on **social TC**, with the highest level of groundedness of all cases, **closely followed by infrastructure TC**

TC groundedness	Norrbotten	Katowice	Stara Zagora	Lusatia
		two TC categories are closely related in the discussion For example, that communities are preoccupied about investors and investments because they translate in jobs and opportunities for their family, pears or children, metropolitan strategies are an opportunity to shift hierarchies in regional governance and empower local communities	infrastructure and social capital are linked	
Present TC	**Built environment, economic and infrastructure TCs** are the most referenced at present	**Built environment, economic and infrastructure TCs** are the most referenced (similar to Norrbotten)	**Infrastructure and social TC** categories are the most grounded	**Infrastructure and social TC** categories are the most grounded in Lusatia
Memories	**Natural TC and social TC** are most grounded	**Memories vary per LEC** group: **miners and former miners focusing on economic TCs**, while **youth memories focus on social and cultural TC** categories	In Stara Zagora very **few memories** are shared, included in **natural and human TC** categories	Memories focus on **infrastructure and social TC**
Across time perspectives	**Social TC** shows the highest level of groundedness, **followed by infrastructure TC**	In Katowice, the highest grounded TC category was the **economic TC**, considerably more discussed than the others, and **followed by human TC** **For youth, social and human TC categories** are significantly more discussed than the economic TCs. This is **in contrast with the overall portrait of the discussions** - when including the miners' and retirees' perspectives focus on **economic TC** category, equally grounded to the sum of social, human, cultural TC categories	**Infrastructure TC** is the most discussed category, **followed by human and social TC categories**, equally addressed	**Social TC** shows the highest level of groundedness, **followed by infrastructure TC** For youth in Lusatia, the **social TC** is **significantly more grounded than economic TCs**

(analysis is based on Table 1-4 Annex B).

Across all time perspectives and cases, the human (C) TC category remains to be of highest importance. When distinguishing between social, human and cultural TC categories, there are variations in how these capitals weight and are combined with other TC categories - see Table 23 and Figure 10. Social TC remains highly grounded across cases and time perspectives (most grounded in Lusatia and Norrbotten), while tangible TC categories become most prominent in Katowice and Stara Zagora, followed by human TC, which reflects individual rather than collective values in these two cases. **In young people's perspective (both in Katowice and Lusatia), social and human capitals figure most prominently and are significantly more grounded in the discussions than economic TCs. In conjunction these findings show that the adapted FLL approach has supported an expansion of interests while LECs' core interests were maintained.**

Figure 10 Groundedness of TC categories in WS2 per case study.

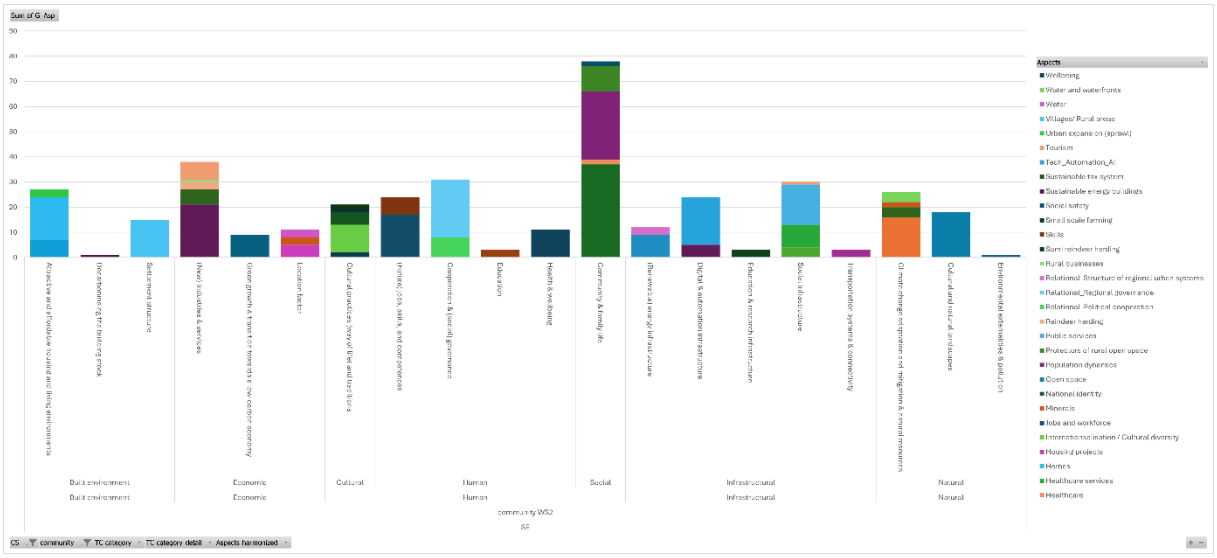


Above, it was noted that the groundedness of individual TC aspects per case study region contributed to overall shifts in the emphasis given to TC categories and sub-categories. The analysis of TC aspects below identifies these aspects and their relation to categories. Figures 11-14 illustrate these relations.

- In **Norrbotten**, the groundedness of TC aspects strongly emphasizes the sub-category of **community & family life**. The highest grounded individual TC aspects contributing to this emphasis are **community and social relations,** and **population dynamics**. Groundedness also places near to equal weight on the sub-categories (new) industries & services (with the aspect **farming** strongly contributing, cooperation & (social) governance (with the aspect **relational regional governance** strongly contributing**)**, social infrastructure (with strong contributions from the aspects **public services** and **healthcare services)**, climate change adaptation & natural resources (with strong contributions from the aspect **climate),** (future) jobs, skills & competences (with the aspect **jobs and workforce** strongly contributing), digital and automation infrastructure (with strong contributions from the aspect **technology and automation),** attractive and

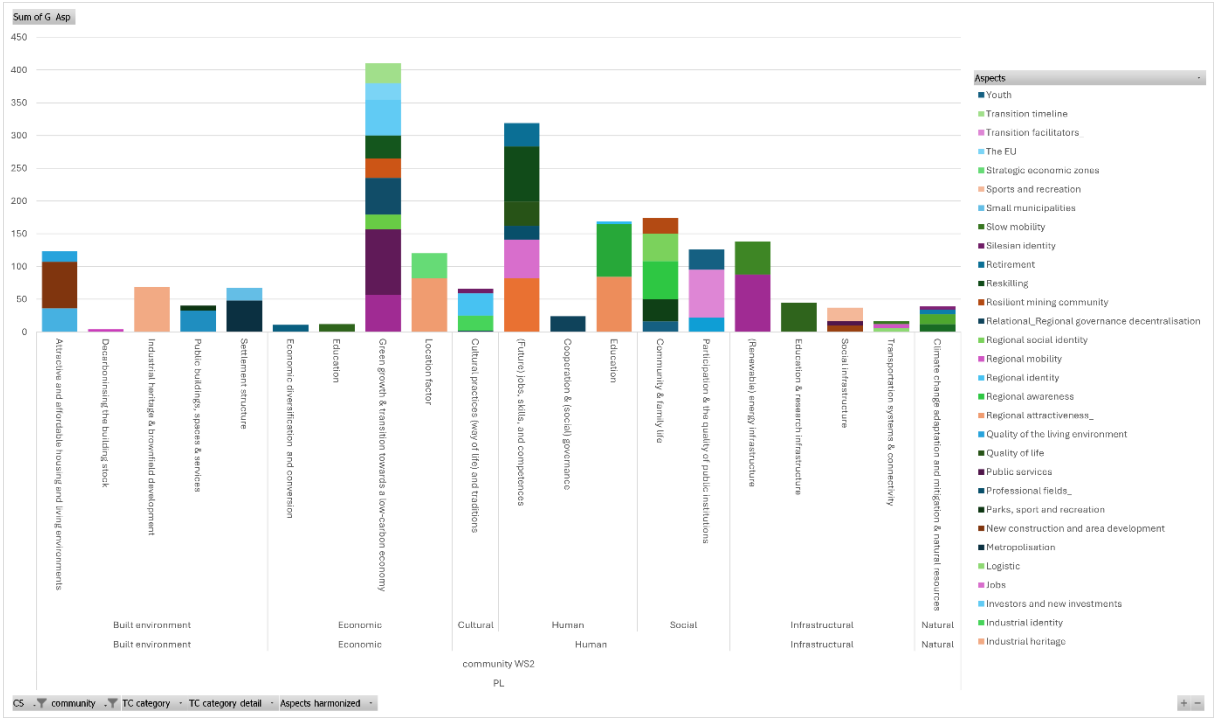
affordable housing & living environments (with the aspect **homes** strongly determining emphasis), and finally cultural practices (way of life) & traditions (with strong contribution from the aspect **internationalisation and cultural diversity**). Lower emphasis on sub-categories established by just one aspect are on settlement structure / **villages and rural areas**, cultural & natural landscapes / **open space**. Minor weight is on other sub-categories, such as location factor, and green growth & transition (low-carbon economy).

Figure 11 Groundedness of TC aspects per TC categories in Norrbotten.



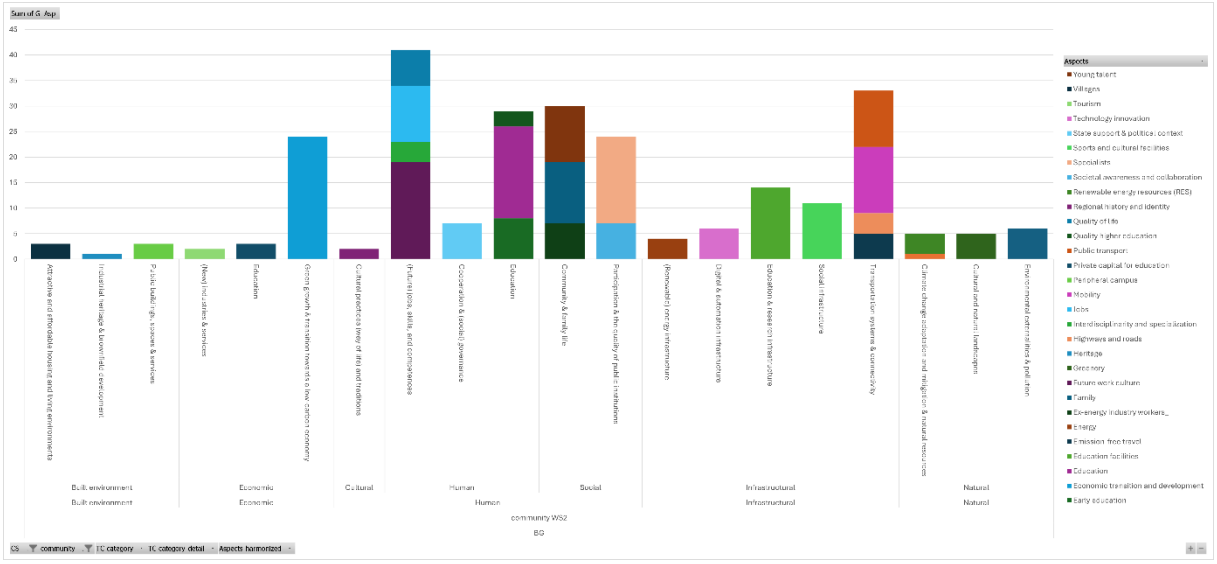
- In **Katowice**, the groundedness of TC aspects strongly emphasizes two sub-categories. The first is **green growth & the transition towards a low-carbon economy.** Several highly grounded individual TC aspects strongly contribute to this emphasis, notably **economic vision beyond mining**, **investors and new investment,** and **conventional energy**. The second is **(future) jobs, skills & competences**, with the aspects **reskilling** and **career prospects** being determining contributors. Groundedness also places considerable weight on the sub-categories **education** (including education infrastructure), with the aspects **education programmes for miners** and **education programmes** fully establishing this category**,** and **community & family life**, with strong contributions from the aspects **regional awareness**, **regional social identity**, and **demographic stability**. Medium emphasis is on the sub-categories (renewable) energy infrastructure (with the aspects **conventional energy** and **green energy** contributing), participation & the quality of public institutions (with a dominant contribution from the aspect **transition facilitators**), attractive and affordable housing & living environments (with **construction and area development** and **housing** mainly contributing), and location factor (mainly constituted by the aspect regional attractiveness). Minor weight on some sub-categories is near to fully established by some highly grounded TC aspects. Aspects are **industrial heritage** (belonging to the sub-category industrial heritage & brownfield development), **metropolitanization** (settlement structure), and **regional identity** (cultural practices (way of life) & traditions). Minor emphasis is on the sub-categories of transportation systems & connectivity, and climate change adaptation and mitigation & natural resources.

Figure 12 Groundedness of TC aspects per TC categories in Katowice.



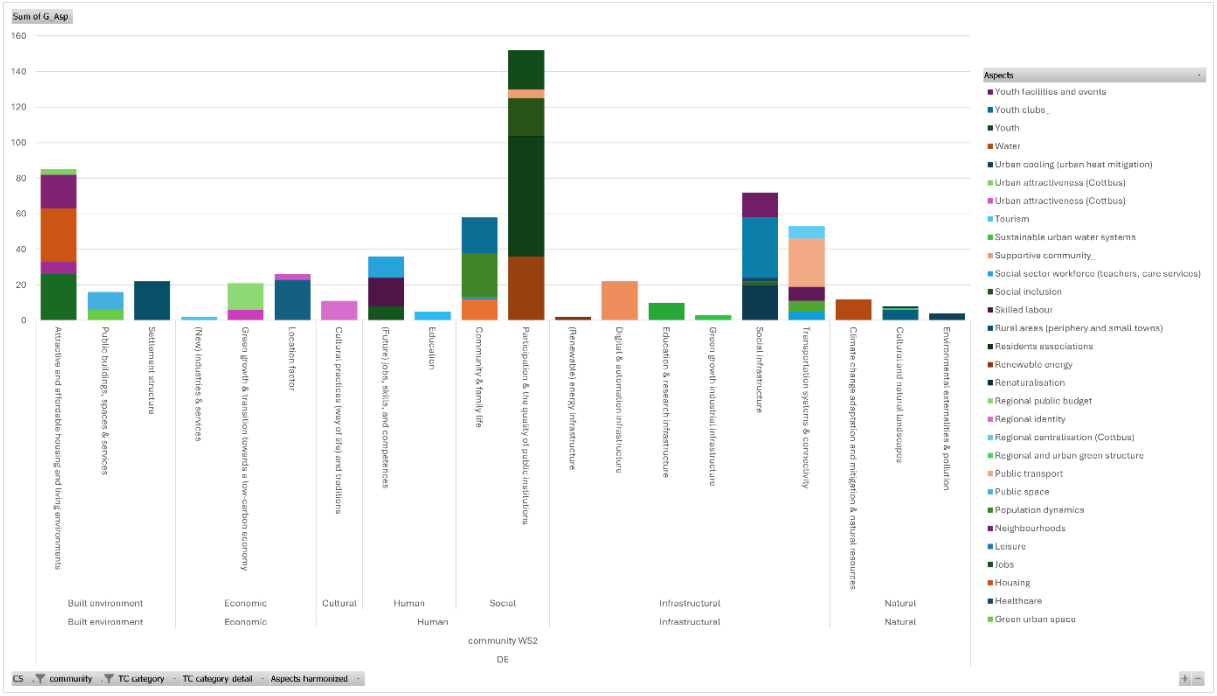
- In **Stara Zagora**, the groundedness of TC aspects strongly emphasizes the sub-category of **(future) jobs, skills & competences.** The highest grounded individual TC aspects contributing to this emphasis are **future work culture**, **jobs**, and **quality of life**. Groundedness also places near to equal high weight on the sub-categories transportation systems & connectivity (with strong contributions from the aspects **mobility** and **public transport**), community & family life (emphasized by the aspects **family**, and **young talent**, also mentioning **energy industry workers**), **education** (broadly discussed as education with some specific attention to early education), green growth & the transition towards a low-carbon economy (also broadly discussed as **economic transition and development**), and participation & the quality of public institutions (dominated by the aspect **specialists**). Medium weight on some sub-categories is near to fully established by some highly grounded TC aspects. These include **education facilities** (belonging to the sub-category education & research infrastructure), **sports and cultural facilities** (social infrastructure), **state support & political context** (cooperation and social governance).

Figure 13 Groundedness of TC aspects per TC categories in Stara Zagora.



- In **Lusatia**, the groundedness of TC aspects strongly emphases the sub-category of **participation & the quality of public institutions**. The highest grounded individual TC aspects contributing to this importance are **community knowledge and participation**, **communication channels & strategies**, **youth**, and **social inclusion**. The groundedness of TC aspects also places high weight on the sub-categories attractive and affordable housing & living environments (with contributions of the aspects **housing**, **building construction and renovation**, and **neighbourhoods**), social infrastructure (with the aspect **leisure** strongly contributing), community & family life (with strong contributions of the aspects **population dynamics**, and **youth clubs**), and transportation systems & connectivity (the most important contributing aspect being **public transport**). Also, the sub-category (future) jobs, skills & competences receives some weight (contributing aspects are **skilled labour**, and **social sector work force**). Minor weight on some sub-categories is near to fully established by some highly grounded TC aspects. These include **e-commerce and digitalisation** (belonging to the sub-category digital and automation infrastructure), **affordable living costs** (location factor), and **rural** areas (settlement structure).

Figure 14Groundedness of TC aspects per TC categories in Lusatia.



6.2.2.3 WS2: Argumentation through the lens of TC clusters

The assessment through the lens of TC clusters identifies the territorial capitals that formed starting points for argumentation per case study region, as well as similarities and differences in how territorial categories were combined to form arguments and storylines in sub-clusters across cases. The chapter includes a description of these storylines as part of the territorial clusters in each case study region, offering a portrait of the discussions and an accurate base for the cross-comparison in terms of argumentation.

Box 5 The two types of TC cluster diagrams.

The **TC clusters** are defined by highly grounded TCs and links across TC aspects and TC categories, as drawn by LECs in the second RFLL WS2. In WS2, LECs imagined futures for their region and shared their hopes, dreams, and expectations. The clusters combine and compare multiple futures perspectives that emerged from participants' conversations in WS2 with results from policy analyses conducted across RFLL case study regions. To achieve this, two types of TC clusters diagrams were developed: **(1) the coloured TC clusters**, which focus on the groundedness of TC categories and TC aspects in futures imagined by communities, and **(2) the blue TC clusters,** which focus on the community–policy comparison. The full collection of TC clusters is included in the Annex A. The reading of the two types of TC clusters is described below:

(1) **The coloured TC clusters** map the groundedness and relations of TC aspects and TC categories in LECs' imagined futures. In the clusters, the different colours represent the TC categories as defined in DUST: grey for aspects related to the built environment, orange for infrastructure, blue for economic, and pink for social, human and cultural TC categories. The vertical and horizontal lines in the diagram refer to the same TC aspect, unfolding perspectives from more general and more grounded aspects at the centre of the diagram to more specific and less grounded TC sub-aspects towards the edges. The diagram includes layers of information on the sentiments and groundedness associated with the TC aspects in LECs' Preferred, Probable futures, as well as their perception of TCs at Present or in memories. The information on

sentiments and groundedness is presented as icons for each TC aspect or TC sub-aspects — each represented by a coloured box according to the TC categories colour code. The icons and colour code are described in the legends of the TC cluster diagrams.

(2) **The blue TC clusters** use the coloured TC clusters as a base to compare community and policy perspectives using two shades of blue. Dark blue indicates when policy and community views overlap, the icons assigned to the dark blue boxes (each box representing a TC aspect or sub-aspects) indicate if community and policy perspectives fully align, partially overlap or oppose. Light blue maps own community perspectives - their own thoughts, less influenced by media and policy discourses. Findings from the comparative community–policy perspective, through the lens of TC clusters, are included in section 6.2.2.5, as part of the findings on Negotiation in the RFLLs.

When considering the most important starting points in discussions, it appears that LECs in all cases continue to understand and build argument through the lens of the social and human TC aspects that matter for their lives and places of living (Table 24). When considered separately, social TC shows the highest level of groundedness in Lusatia. This indicates that argumentation is strongly motivated by collective and community values, rather than on individual ones. Rural communities in Norrbotten have a similar position with significantly greater emphasis on social and cultural TCs. In Katowice and Stara Zagora, the levels of groundedness between social and human TC are more balanced, with social TC still weighing more than human TC in Katowice. In Stara Zagora, human TC is the most grounded TC category. In these latter two latter cases, results reflect that LEC strongly advocate for future employment, reskilling, and education.

A series of lines of argumentation re-occur across cases:

- **Quality of life, fair housing, and natural environment aspects (indirectly reflecting environmental care and awareness) establish LECs' key rationales for sustainable regional development across cases.** In LECs' perspectives, these TC aspects are directly related to, and will influence, balanced demographic development, the out-migration of youth, and responses to climate change and other natural environment issues.
- **Seeing emphasis, natural and cultural TCs play a minor role in argumentation. However, they occur in many argumentations as a binding concern and meaningful background of discussions**. natural and cultural TCs are the least grounded in the discussions across all cases, yet the most binding. Key TC aspects within these categories act as connectors between highly grounded TC aspects. In contrast to other cases, natural TC (referring to open space) is central in the case of Norrbotten, becoming significant through its dense network of relations with other important TC aspects, revealing the social, cultural, and economic value of open space. In Norrbotten, natural and cultural TCs also weigh more in the discussion than in the other cases and form the basis for the most divergent perspectives between policy and community.
- **Aspects of community participation in inclusive (regional) governance form an important part of LECs' argumentations.** Communities indicate territorial units, spatial scales, and social hubs which can support reforms for more inclusive governance. Clear links to D3.2(Georgieva & Ferry, 2024a) and D3.4(Georgieva & Ferry, 2024b) - see D3.4 Section 8.3 for findings related to importance of community capacity-building and empowerment (Georgieva & Ferry, 2024b). **Across cases, they argue for community**

empowerment, capacity building, and the importance of cultivating social capital. LECs refer in their imagined futures to their own community or other key local actors. They are creative and knowledgeable about key local hubs and resources that can cultivate social capital, such as community spaces, community collectively initiated projects (Norrbotten), and youth clubs and neighbourhood centres (Lusatia). To enhance this, key human and social assets mentioned across all RFLLs are collaboration, knowledge, and inclusivity. Named approaches to the realisation of these assets are building bridges between society and workers affected by transitions (Stara Zagora), intergenerational support (Lusatia, Norrbotten, and Katowice), and enhanced regional collaboration and fair decentralisation (Norrbotten, Katowice, and Lusatia).

Table 24 Cross-case analysis of TC clusters storylines.

TC clusters storylines	Norrbotten	Katowice	Stara Zagora	Lusatia
TC clusters across RFLL cases	**Rural futures** (living in the rural, social and infrastructure aspects are dominant) **Open space and farming** (natural TC aspects central) **Housing** (in the rural)	**Regional attractiveness** **Metropolitanization** **Social futures** (work, education, empowerment) **Futures beyond mining** (economic)	**Future of work and education** **Infrastructure and education** **Economic futures** (technology and society)	**Community knowledge and participation** **Regional services, transport, urban development, and population dynamics** (collection of several smaller clusters discussed one-by-one)
TC clusters across RFLL cases	**Rural futures** (living in the rural, social and infrastructure aspects are dominant) **Open space and farming** (natural TC aspects central) **Housing** (in the rural)	**Regional attractiveness** **Metropolitanization** **Social futures** (work, education, empowerment) **Futures beyond mining** (economic)	**Future of work and education** **Infrastructure and education** **Economic futures** (technology and society)	**Community knowledge and participation** **Regional services, transport, urban development, and population dynamics** (collection of several smaller clusters discussed one-by-one)
Key TC categories (ordered by groundedness and central role in TC clusters)	**Social, human, cultural** **Infrastructure** **Economic** **Natural** **Built environment** **Notes:** The only case study with a vision centred on natural TC. Economic and infrastructure TCs categories are highly grounded in the TC clusters, but they gain importance when related to natural TC (specifically, Open space), or the built environment TC (housing, farms) or when linked to social and human TC categories. For example, in the TC cluster related to Rural futures and living in the rural, the economic and infrastructure TCs reflect social needs closely interrelated to social capital (e.g. quality and availability of services influencing population dynamics, or, a 'circular' tax system from large investments can support smaller municipalities.)	**Social, human, cultural** **Economic** **Built environment** **Infrastructure** **Notes:** Economic TC is the most grounded TC category in the TC clusters. However, the combined grounding of Social, human, and cultural TCs is 40% higher than economic TCs The built environment TC category is also highly grounded in the discussion with a focus on industrial heritage, new construction and area development, housing, and regeneration of smaller towns. infrastructure TC is discussed 46 % less, mainly addressing aspects related to regional mobility and energy	**Human, Social** **Infrastructure** **Economic** **Natural** **Notes:** Infrastructure and economic TCs are highly grounded but closely linked to Social and human TC categories. This connection highlights key infrastructure and economic values that support social capital and underline the need to strengthen social and human capital through these technical TC categories Human TC alone is approx. 13% more grounded in the discussion than infrastructure TC. Social TC is 30% less address than human TC, and overall, human centred TC (social, human, cultural) are the central and most grounded in the clusters Natural TC has a low level of groundedness (it is not often discussed), yet it plays a key role in community perspectives. The quality of the environment is seen as a new value, tied to hopes for the future and to positive memories, serves as an indicator of quality of life and well-being	**Social, human, cultural** **Infrastructure** **Built environment** **Notes:** Social TC is the most discussed Tc category, central in community hopes and perceived as a key TC in the region at present. The focus is on community positioning, and capacity building Human TC is little discussed (10% of the discussion on Social TC). The group's focus is on collective/social values rather than on the individual. As a sum, social/human/cultural TC categories weight the most in the discussion There are two TC clusters in Lusatia: One, is a general portrait of the discussion with a collection of sub-clusters - these topics were discussed one-by-one under clear TC categories. Sub-clusters cover a limited number of TC aspects (typically, one to two per sub-clusters). While there are key links across TC categories, the density of these relations is lower than in the other cases and TC clusters. The most grounded TC categories are infrastructure and the built environment The other TC clusters is centred on the social TC category, depicting a cohesive vision and aspirations of young people to strengthen social and human capital for youth and local communities. social TC is

TC clusters storylines	Norrbotten	Katowice	Stara Zagora	Lusatia
				central in this cluster, with some references to economic TC
Key TC sub-clusters (themes and TC aspects central and representative of sub-clusters)	**Public services** (in rural, healthcare, care, education, culture) **Technology and automation** **Community** (rural, social relations) **Population dynamics** (balance, internationalisation, and cultural diversity) **Regional governance** **Farming** **Open space** **Protectors of rural open space** **Housing** **Rural areas/villages**	**Economic vision beyond mining** **Regional attractiveness** and (investors, branding, new economic zones) **Regional identity** (social-cultural vs. economic) **Energy transition** (feasibility, green energy) **Metropolitanization** **Equitable regional transition** **Regional governance** **Regional mobility** **Construction & area development** **Industrial Heritage** **Housing** **Education** **Jobs, career prospects, reskilling** **Demographic stability** (reference to youth) **Quality of life** (reference to quality housing) **Community empowerment** **Transition facilitators**	**Economic transition** (based on technology, green economic and state support) **Technology innovation** **Education** (and education facilities) **Future of work** **Specialists** **Young talent** **Collaboration** **Families** **Mobility infrastructure** **Services** (sports, culture, education)	**Community knowledge and participation** **social inclusion** (of youth, across generations) **Communication and transparency** (of public information, public budget) **Services - infrastructure** (Leisure, commercial, social) **Transport infrastructure** **Neighbourhoods and peripheral areas** **Housing and urban development** **Affordable living** **Population dynamics** **Regional identity and attachment to region**

An assessment of differences between TC clusters offers a comparative portrait of the discussions across cases and provide a different angle to assess argumentation, one that is based on the depth and diversity of TC clusters instead of their thematic orientation (Table 25). Conclusions highlight typical interrelations between TC aspects, TC categories, or sub-clusters, revealing typical narratives.

While all LECs developed intricate narratives, the diversity and complexity of argumentation highly differed across cases. When discussions associated TC categories, sub-clusters and TC aspects, the clusters and argumentations became more diverse and complex (in the TC diagrams diversity is indicated by colourful vs. more homogenous clusters, and complexity by the density of relations). Across all cases, LECs developed intricate narratives by integrating several TC categories in clusters, and by drawing links across TC aspects and TC categories/sub-categories. However, there are variations across cases. In the case of **Stara Zagora and Lusatia** the clusters depict more homogenous argumentation and less integration across TC categories. In contrast, most of the clusters in **Katowice** integrate several TC categories, and there is a higher complexity in each cluster. Central highly grounded TC aspects became part of different narratives and were set in relation to different TC categories. The aspect heritage, for instance, came to be seen as an economic, social, and cultural assets. In **Lusatia**, the integration of sub-clusters in cohesive narratives is less evident, the discussion is represented as a collection of clearly categorized sub-clusters within TC categories. **These differences in the TC clusters across cases are interpreted as different forms of argumentation**.

The depth of argumentation was influenced by the number and diversity of participants and knowledge about the region. There are several factors explaining the above observed diversity and complexity - or overall depth - of argumentation. Firstly, difference between the depth of discussion depends on the LECs and the number of participants involved. When more LEC sub-communities were involved, then the discussion gained significant depth. An additional factor for in-depth discussions may be cultural aspects, such as the debate culture in Norrbotten, leading to more balanced discussions and diverse arguments. Second, we see

knowledge about the region as a key factor. This is evidenced by contributions of youth communities in Katowice and Lusatia, which tend to include a lesser account of distinct regional development. This aspect is also noticeable in Stara Zagora, where depth is less based on knowledge about the region (expressed as Probable futures or Present TC), but on hopes, wishes and dreams.

Age and cognitive versus affective and experiential knowledge are correlated with different mechanisms for gaining depth of argumentation. When observing parallels between TC clusters and how discussions developed, two mechanisms for achieving depth can be observed. One the one hand, depth developed based on cognitive knowledge on specifically policy and media discourses. In this case, argumentation developed from a main concern about a TC aspect in the centre of the cluster outwards. This was particularly the case when older generations, such as the rural LECs in Norrbotten, retirees and working miners in Katowice, engaged in argumentation. In 3.4 we also concluded that age has an impact on whether communities considered themselves knowledgeable or not (Georgieva & Ferry, 2024b). On the other hand, depth was gained through collective reflection on wishes and experiences and thus more affective knowledge. In this case, argumentation developed inward, starting from a TC aspect at the margin of the cluster towards the centre. A reflection is that innovation, futures literacy, and a shift of perspectives can arise from both cognitive knowledge and the collective exploration of more affective accounts of development, and that affective knowledge can help to distance oneself from dominant discourses.

All LECs across cases value tacit 'regional knowledge' in the building of argument for specifically community action (the youth groups in particular). When participants are knowledgeable about regional transformations and challenges in the transition, they recognize a need for more innovative thinkers (the retirees in particular) and open up to new argument. In the case of miners, knowledge and experience also translate in fear towards change, indicating challenges to learning in a context of uncertainty.

Table 25 Analysis of TC clusters typologies.

TC clusters typologies	Norrbotten	Katowice	Stara Zagora	Lusatia
Number per RFLL case study	3	4	3	2
Depth	The clusters and the discussion gain depth. Communities' argument and take position. In all clusters there is balance between moderate alignment with policy, perfect alignment and disagreement or diverging perspectives	Discussion on TC aspects and TC sub-categories gained depth	Clusters gain moderate depth Depth is based less on present, memories, experience, knowledge about the region, more	The discussion gains moderate depth
Diversity and complexity (integration of TC categories, TC sub-categories, density of relations)	Moderate to high All clusters integrate different TC categories There is a high density of links drawn across TC aspects from TC sub-categories	High Clusters forming guiding visions integrate a variety of TC categories There is a very high density of connections that participants draw between TC aspects within and across TC sub-categories, leading as well to more consistent visions and number of TC clusters in Katowice The higher number of cluster visions when compared to the other cases is related to the complex workshop setup with three LECs being engaged in the discussion, and plenary reflection moments with all the groups. The plenary reflection had a role in integration, links and shifts of perspective	Moderate to high All clusters integrate different TC categories	Moderate to low The mapping of the discussion in clusters portrays less connections across TC categories and a discussion one-by-one of several TC topics. The discussion is overall varied, but TC categories topics are less integrated/mixed The second cluster is a general portrait of the discussion with a collection of mini-clusters focused each predominantly on one TC category and less TC aspects

TC clusters typologies	Norrbotten	Katowice	Stara Zagora	Lusatia
Typical relations in the clusters	Natural TC - social TC Natural TC - economic TC Farming - Technology	Economic TC - social TC Industrial heritage related to/included in infrastructure TC, economic TC, social TC	Social TC - economic TC Human/social TC - Infrastructure TC Human TC - natural TC (quality of life related to quality of the environment/air quality proximity to nature)	Social - spatial TCs (links between tangible - intangible TCs) Links drawn across TC from social, human, cultural reveal key institutional and social TCs important in the transition, as perceived by LECs. For instance, the role of municipalities for communication and capacity building (through dissemination in digital and everyday urban settings, such as campus), the role of neighbourhoods, neighbourhood centres and youth centres as knowledge and action platforms
Typical clusters	**Centred on natural TC** (unique across RFLL cases) **Emphasis on social TC** (across the three clusters, highly grounded in two of the clusters)	**Diverse clusters, integrating a variety of TC categories.** **A cluster centred on future economy and economic TC mainly focuses on technical aspects,** such as energy (Infrastructure TC), industrial heritage redevelopment, new economic sectors and funds. **One TC cluster centred on Social and human TC**	**TC cluster centred on infrastructure** **TC cluster centred on social and human TC** **Very diverse TC cluster centred on economic** and social TC	**TC clusters centred on social - human TC aspects**, they relate to TC categories such as built environment, economic, infrastructure, revealing social-spatial imaginaries and value of these TCs for social capital **Diverse collection of mini-clusters, less depth,** less TC aspects covered, less links across TC categories

6.2.2.4 WS2: Sentiments about TC aspects

Case study analysis of factors influencing participation has revealed that the perceived relevance of transitions for communities shapes their emotional disposition and initial reactions to anticipated changes. Communities interpret sustainability transitions based on how they expect them to affect individual or collective assets, with some viewing impacts predominantly positively and others negatively (Georgieva & Ferry, 2024b). Against this background, TC aspects that were mentioned during WS2 were associated with positive and negative expressions. When analysing this data these findings come to the foreground.

TC aspects which triggered sentiment accumulate in the TC sub-categories green growth & the transition towards a low-carbon economy, (future) jobs, skills & competences, participation & the quality of public institutions, community & family life, and education. Other areas of emotional concern include attractive and affordable housing & living environments and (renewable) energy infrastructure. Investigating how positive and negative sentiments of communities overlap with areas of policy concerns reveals negotiation topics of high emotional sensitivity.

Positive and negative sentiments about policy-relevant TC aspects show to be mixed. This indicates that feelings about policies have become more ambiguous since focus groups were held. As indicated in Table 26, LECs' sentiments show different relations with policy-relevant aspects. Policy-relevant TC aspects triggering negative community sentiments cluster in the sub-categories of (future) jobs, skills, competences, and green growth & the transition towards a low-carbon economy. Sub-categories of moderate overlap are attractive and affordable housing & living environments, education & research infrastructure community & family life, participation & the quality of public institutions; cultural practices & identity, transportation systems & connectivity, and (renewable) energy infrastructure. Policy-relevant TC aspects triggering positive community sentiments often clusters in the same TC sub-categories related to education, skills, and competences, green growth and transition, participation and the quality of institutions, community and family life, and attractive and affordable housing & living environments. This indicates that feelings about TC aspects that matter in policies are likely to

be mixed. This also implies that feelings about policies have become more ambiguous since focus groups were held.

Table 26 LECs' sentiments in respect to policy-relevant TC aspects.

TC sub-categories	Negatives in Community WS2	TC Aspects in LECs perspectives (examples)	Related TC Aspects in policy
(Future) jobs, skills, competences	~130	Career prospects, jobs, reskilling, quality of life, professional fields	Competence, labour market, green jobs
Green growth & the transition towards a low-carbon economy	~110	Conventional energy, beyond mining, exploitation resources, future energy, transition timeline, investors	Green growth, energy, labour market, resource management, waste management
Attractive and affordable housing & living environments	~70	Housing, building renovation, new construction, neighbourhoods, city centre, living environment	Real estate market, attractiveness, prosperity, countryside
Education & research infrastructure / Education	~70	Education programmes, facilities, services, early education	Education, research, excellent research environment
Community & family life	~65	Community relations, demographic stability, population dynamics, regional social identity, youth clubs	Demographic change, social cohesion, wellbeing
Participation & the quality of public institutions	~65	Knowledge and participation, transition facilitators, communication channels, youth, empowerment	Engagement, civil society, social cohesion, institutions
Cultural practices & identity	~45	Regional identity, industrial identity, awareness, diversity	Cultural heritage, identity, indigenous traditions
Transportation systems & connectivity	~40	Public transport, car infrastructure, cycling, regional mobility	Connectivity, international and local transport, transport systems
(Renewable) energy infrastructure	~35	Conventional energy, green energy, general energy	Renewable energy, industrial energy, infrastructure
TC subcategories	**Positives in Community WS2**	**TC Aspects (examples)**	**Related TC Aspects in policy**
Education & research infrastructure / Education	~175	Education programmes, education for miners, education (general), facilities, services	Education, research, excellent research environment
(future) jobs, skills & competences	~150	Jobs, career prospects, reskilling, future work culture, quality of life	Competence, labour market, green jobs, reskilling
Green growth & the transition towards a low-carbon economy	~150	Economic vision beyond mining, investors/new investments, future sectors, energy funds, equitable transition, future energy	Green growth, energy, waste/resource management, innovation
Participation & the quality of public institutions	~145	Knowledge & participation, transition facilitators, communication channels, empowerment, youth	Engagement, civil society, social cohesion, institutions
Community & family life	~120	Social relations, demographic stability, population dynamics, regional identity, family, youth clubs	Demographic change, social cohesion, wellbeing
Attractive and affordable housing & living environments	~100	New construction, housing, building renovation, homes, neighbourhoods, living environment	Attractiveness, prosperity, real estate, countryside
Social infrastructure	~70	Education and cultural centres, cultural services, sports & recreation, leisure, tourism	Cultural facilities, heritage, tourism, services
Cultural practices & identity	~60	Diversity, industrial identity, regional identity, cultural change	Cultural heritage, identity, traditions, diversity

6.2.2.5 Comparing community and policy perspectives post WS2

Comparing community and policy interests through the lens of TC categories and sub-categories

Analysis following WS2 investigated once more if aspects of community interest were aligned with policy interests and therefore of common or uncommon relevance. For the comparison of interests, the number of policy-relevant TC aspects in TC categories and sub-categories continued to be an important indicator. The groundedness of TC aspects in community perspectives (how often aspects were named during WS2) was used to focus attention on LECs' main interests. It is important to note that results from the comparison only emphasize discrepancies or communalities between communities and policies' *main* concerns and are an approximation of situations across and in regions. Lastly it is important to note that the analyses highlight interests, aspects of common interest may still be discussed controversially. A summary of results is presented in Table 27.

Interests in social capital aspects - specifically those related to community & family life - expanded across cases during WS2. This widened the gap between policy and community interests (policy pays no attention to social capitals as noted before). When investigating which TC sub-categories include highly grounded TC aspects in community perspectives and - relative to this attention - no policy relevant aspects the sub-categories of community & family life, (future) jobs, skills & competences, and participation & the quality of public institutions appear prominently in most cases.

Common ground to negotiate LEC and policy interests shows few similarities across cases. These are in TC sub-categories related to transitional and tangible (infrastructural) spatial development. When investigating which TC sub-categories include highly grounded TC aspects in community perspectives and also many policy relevant aspects and are thus of shared LEC and policy relevance, the sub-categories green growth & the transition towards a low-carbon economy, education, attractive and affordable housing & living environments, transportation systems & connectivity, and location factor come to the foreground in several cases. When reviewing the occurrence of sub-categories as platforms for negotiation it can be observed that aspects related to transitional development occur where transitional development is pertinent. It can also be concluded many of the sub-categories that gather both community and policy interests belong to the more tangible TC main categories built environment, and infrastructure, and - incidentally - nature.

Variations in common ground for negotiating LEC and policy interests underlines the importance of context-specific approaches to negotiation. When looking at aspects of both high community and policy relevance, in **Norrbotten** the sub-category of co-operation and (social) governance comes to the foreground, in **Lusatia**, there is specific common ground in the sub-categories of attractive and affordable housing & living environments, and location factor (reflecting a discussion on the role of the city of Cottbus in the wider and more rural region), in **Stara Zagora and Katowice** green growth & the transition towards a low-carbon economy are of shared highest interests. In **Katowice**, the sub-category gathers both the TC aspects of highest community and policy interest. In **Stara Zagora**, shared emphasis is less pronounced. All case study regions show, next to these most important shared interests, a variety of sub-categories of more or less common LEC and policy interest.

A shift of the deliberation towards policy-relevance can be observed when comparing WS and focus group results. In Chapter 6.2.1, TC aspects that were mentioned during focus groups were compared to aspects mentioned in policies. When using the results from this comparison as a baseline, an expansion of policy relevance can be observed across cases. In **Norrbotten**, this field continues to include a concern about climate change adaptation and mitigation & natural resources. Policy-relevant sub-clusters of heightened community concern are cooperation & (social) governance, and (new) industries & services. In **Katowice**, earlier main concern about the policy-relevant sub-clusters climate change adaptation and mitigation & natural resources as well as demographic change diminished in comparison to focus groups. Highly debated new policy-relevant sub-clusters include green growth & the transition to a low carbon economy, attractive and affordable housing & living environments, settlement structure, and industrial heritage & brownfield development. In **Stara Zagora**, interest was also focussed on climate change adaptation and mitigation & natural resources lowered in WS2. High interest in green growth & transition to a low carbon economy as well as (renewable) energy infrastructure was maintained. New interest at the intersection between high policy and community concerns were prominently in transportation systems & mobility and education. In **Lusatia**, the policy-relevant sub-clusters attractive and affordable housing & living environments, and future jobs,

skills & competences continued to be central in discussion. New areas of policy-relevance include location factor and climate change adaptation and mitigation & natural resources.

However, LECs' did not lose sight of their own concerns while policy-relevance of their stances expanded. As noted above, communities also expanded their own interests in specifically social capitals. Across cases, this includes new attention to community & family life and - with lesser emphasis - social infrastructure. In Norrbotten, there is an increased concern about health & well-being and a lower concern about participation & the quality of public institutions (likely absorbed in debate about wider governance issues), while the LECs in Katowice and Stara Zagora expanded interest in this latter sub-cluster, in Lusatia it was maintained. As noted above, these results describe discrepances between the main attention given to sub-clusters by communities only. However, these results imply that LECs' did not lose sight of their own concerns while policy-relevance of their stances expanded.

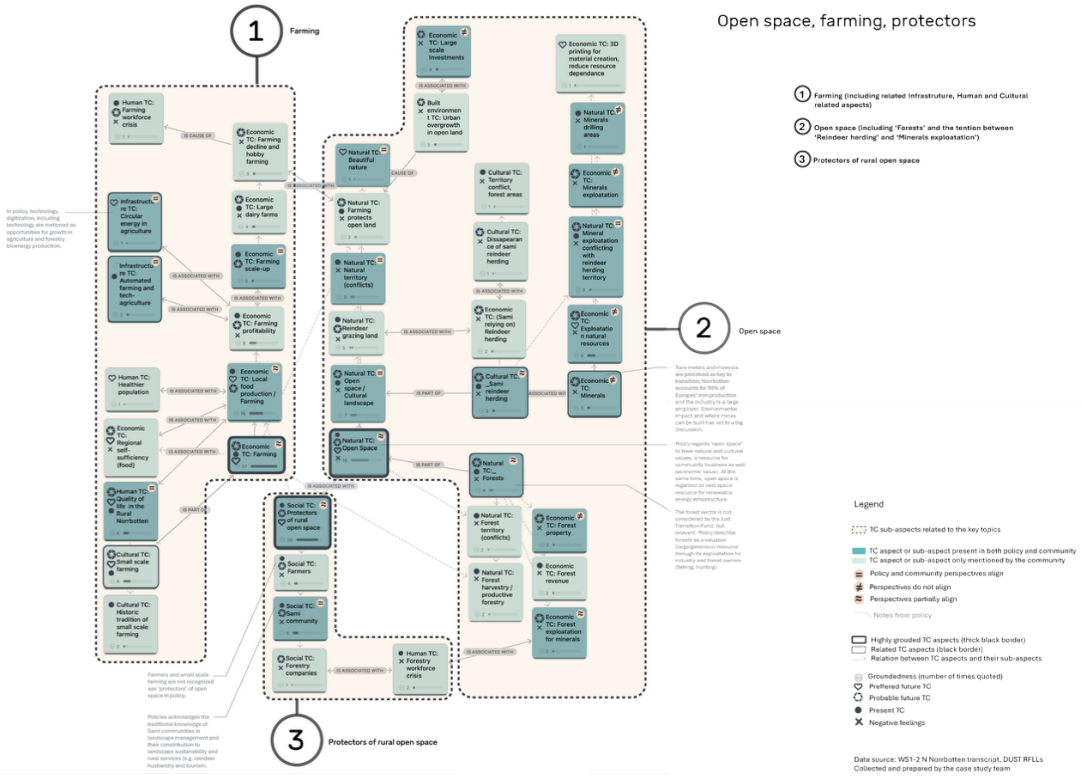
Table 27 Sub-categories of common community and policy relevance.

Relevance	Norrbotten	Katowice	Stara Zagora	Lusatia
Sub-categories including aspects of high and sole community relevance	**Community & family life** Social infrastructure Health & well-being	**(future) jobs, skills & competences** Community & family life (renewable) energy infrastructure Participation & the quality of public institutions	**(future) jobs, skills & competences** **Community & family life** **Participation & the quality of public institutions** Social infrastructure Cooperation & (social) governance Digital and automation infrastructure	**Participation & the quality of public institutions** Community & family life Transportation systems & connectivity Social infrastructure (excluding education)
Sub-categories including aspects of common high community and policy relevance	**Cooperation & (social) governance** **(New) industries & services** Location factor Climate change adaptation & natural resources	**Green growth & the transition towards a low-carbon economy** Attractive and affordable housing & living environments Settlement structure (metropolitanization) Industrial heritage & brownfield development	**Green growth & the transition towards a low-carbon economy** **Transportation systems & connectivity** **Education (including education & research infrastructure)** (renewable) energy infrastructure	**Attractive and affordable housing & living environments** **Location factor** (specifically the role of the city of Cottbus in the region) (future) jobs, skills & competences Climate change adaptation & natural resources
Sub-categories including aspects of common moderate community and policy relevance	Attractive and affordable housing & living environments Digital and automation infrastructure, (future) jobs, skills & competences, (renewable) energy infrastructure Cultural practices (way of life) & traditions	Education (including education & research infrastructure) Cultural practices (way of life) Traditions Transportation systems & connectivity	Cultural & natural landscapes Climate change adaptation & natural resources Environmental externalities and pollution	Cultural & natural landscapes Digital and automation infrastructure

Comparing community and policy interests through the lens of TC clusters

The blue TC cluster diagrams show how and to what degree community and policy perspectives overlap and are thus of common relevance. The assessment below explores if argumentation during WS2 has increased or decreased this policy relevance. TC aspects and sub-aspects are key indicators for this assessment: the results are influenced by the degree of alignment between community and policy around TC aspects and their groundedness in the discussion. The TC cluster diagrams map in light blue the communities' own thoughts and hopes, while dark blue identifies overlapping community-policy perspectives (Figure 15), each line in the diagram focus on one specific TC. The different patterns that emerged across cases and clusters can be interpreted as different forms of argumentation and positioning vis-à-vis policy. These patterns show in the two shades of blue how the community and policy perspectives are interrelated.

Figure 15 Example of a blue TC cluster diagram.

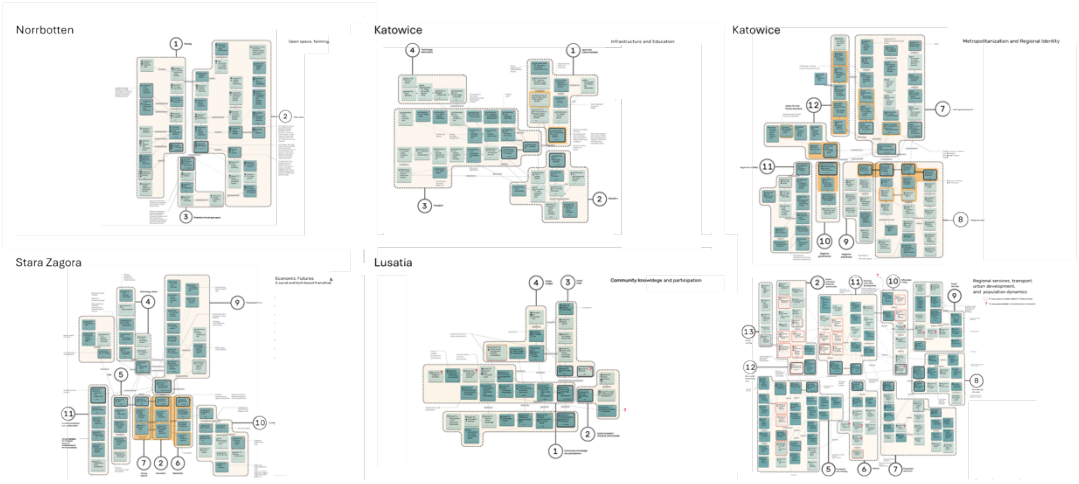


Across cases and clusters, there is an overall balanced attention between communities' own interests (light blue) **and overlapping community-policy interests** (dark blue) - this is visible in the balanced weight of the two shades of blue in the cluster diagrams. In most cases, overlapping perspectives coincide with the most grounded TC aspects, placed at the centre of the clusters. 'Own community perspectives' are less grounded, located deeper into the clusters or towards the margins. Results from WS2 across cases indicate a consistent higher attention to development that is both community and policy-relevant than only community-relevant. **Overall, this implies that all LECs led policy-relevant discussions.**

Variations in the integration of fields of communities' own and shared interests (blue and light blue TC clusters) occur across cases and even within TC clusters belonging to the same case (Figure 16). In Norrbotten, patterns show that community and policy perspectives are highly integrated and equally discussed - dark blue and light blue alternate along the entire lines of the TC cluster diagram (from centre to margin). Individual community members' own thoughts and hopes (not acknowledged by policy, light blue) rarely build relations to the centre of the diagrams, representing TC aspects of importance for communities, but less grounded in the group discussion. In contrast to the Norrbotten case, **community and policy interests in Katowice, Stara Zagora, and Lusatia tend to be more separated**. In Katowice, communities engage with topics of both high community and policy relevance but also develop nuanced argumentation vis-a-vis policy around issues of more marginal interest (positioned in the depth of the clusters). In Lusatia, there is less or no integration between the two shades of blue along the lines. These patterns, visible in several cases, might be influenced by moderation, media, and LEC characteristics, resulting in **communities** not articulating or integrating their own wishes and thoughts with the policy relevant topics they bring into the discussion. Particularly in

the case of Lusatia and Stara Zagora, communities elaborate on their own thoughts and interests rather than reflecting upon these in a wider policy relevant context. This appears in the TC clusters as predominantly light blue lines that go close to the centre of the diagram, parallel to policy-relevant aspects (represented in dark blue).

Figure 16 Variety of argumentation patterns in TC clusters.



A comprehensive assessment of how individual LEC narratives intersect with TC aspects of policy relevance is presented in Table 28 and brings these findings to the foreground:

- **Relations between demographic stability, attractive living and housing environments, education, and public services form important shared LEC and policy rationales across all RFLL cases.** There is common concern for demographic stability or retaining and attracting population in transitional development (specifically youth and workforce). Attractiveness is mainly related to the quality of life (reflected in housing, work culture), education, and public services (health, transport, care).
- **Across cases communities advocate for fair development and inclusion of peripheral areas** and neighbourhoods, remote rural, and smaller towns. Remote areas and communities living there are perceived as more vulnerable in the transition. Remoteness is directly related to poor-quality services and challenges to maintain them. Related social-spatial narratives focus on mobility, healthcare, social services, and cultural services.
- **Intergenerational and international relations are an important social aspect in LECs' perspectives across several RFLL cases**. They advocate for inclusivity, international knowledge exchange and support, and intergenerational living as key values for regional development.
- **Across cases, there are divergent LEC and policy views around the economic value of nature. This implies possible tensions around this aspect.** In Katowice, such tensions also regard industrial heritage transformation.
- **LECs tend to add a practical, action-based, and goal-oriented dimension to more abstract policies**, specifically when policies are about human (C) TCs. LECs also add a social dimension to infrastructure and economic TCs, outlining and explaining their social value. Communities demonstrate in the discussion that they are keen to take a position, argue and negotiate in these policy fields.
- **Policy responses addressing negative impact of transitional development on LECs are perceived to be abstract and overly positive.** This concerns issues, such as natural territory conflicts, difficulty in reskilling, disappearance of cultural and social TCs, or housing issues. In several RFLL cases, communities across generations are able to

recognize these aspects when building their argument and relate them to the relevant policy fields. The contrast between common perspectives and alignment on general TC aspects, placed next to negative community perspectives and experiences, highlights that policies stay positive and abstract, offering less ground for negotiation and community arguments.

- **LECs and policies often focus on the same aspects but value these from entirely different perspectives.** The TC X category was established to identify aspects that are seen to be valuable in several TC main categories. The collection of aspects in this category highlights divergent views between the community and policy perspectives. Communities associate key regional TCs with human and social needs and values, while policies attribute economic and infrastructure value to the same TCs.

Table 28 Comparing LEC and policy perspectives in TC clusters.

TC clusters, comparative perspectives (community – policy)	**Norrbotten**	**Katowice**	**Stara Zagora**	**Lusatia**
Common perspectives (key TC themes / TC categories / sub-categories representative in common perspectives) - represented dark blue in TC clusters and "=" in the TC clusters	Views align on new **rural futures and rural potential.** More specifically on aspects, such as **population dynamics, internationalisation, cultural diversity, and automation** The potential of **farming** is discussed both by communities and policy, namely the value of local **small farming and farming automation**. However, policy doesn't acknowledge the decline and crisis in farming	**Communities add creative and action-oriented own views in areas of common ground and agreement** There is **alignment on economic TCs, yet communities add a social dimension to these aspects**, such as equitable transition across the region with share of capital and collaboration between big hubs and small municipalities There is **alignment about infrastructure TCs** and regional mobility, to which LECs add the slow mobility dimension into the discussion **Common perspectives cover most of the economic TCs referring to economic attractiveness in the region**, such as special tax zones, investors and investment	**Common perspectives are overall more aligned than in the other RFLL cases** (alignment is represented with '=' icon in TC cluster diagrams). Perspectives align on economic futures, on Technology, economic aspects, and social TC relevant for future economies, such as societal awareness and collaboration, specialists, young talent **Common perspectives cover mostly aspects related to social TC and economic TC in the transition**. They refer to specialists and youth, to future economic guidelines, new economic sectors, and technological advance	**There is common ground with policy on the central and most grounded social TC aspects in the discussion**, such as community knowledge, communication, participation, inclusivity and transparency - these are present and taken into account in policy, but in an abstract way, without accounts of actions and goals. However, policy touches upon all these aspects highly relevant for LECs **Youth and policy align about regional transportation and mobility.** However, community experiences can bring knowledge into policy on how transport gaps and over-centralisation on Cottbus can be overcome Balanced **integrated perspectives, and alignment** appear around TC aspects, such as **services and population dynamics** **Alignment on generic cultural aspects**
Community perspectives (key TC themes / TC categories/ TC aspects representing own community perspectives) - represented light blue in TC clusters	**Communities acknowledge and share their experience in regard to vulnerability and negative aspects around Natural and cultural TC**, such as conflicts related to forest territory and open space, global pressure for mineral exploitation, sprawl, and large scale investments, disappearance of reindeer herding as a natural, economic, cultural practice of Sami	**Own LECs perspectives are very well represented in the diagrams** **Community own perspective dominates TC-subcategories related to social and Human TC**, such as knowledge on regional social capital, knowledge and awareness about regional identity and transition **In areas of aligned common perspectives, LECs add a social dimension to Infrastructure and economic TCs** **When a sub-category or aspect is highly relevant for the community, argumentation develops upon mainly/exclusively own perspectives**, for instance about transition funds, transition timeline, retirement **When LECs have knowledge about certain TC aspects and sub-categories, arguments develop around own perspectives, which are creative, pertinent and action oriented.** For instance,	**Communities have their own perspectives mostly in relation to human TC and social TC, such as Education, future work, family values, and children wellbeing. These perspectives target overall quality of everyday life,** they are creative and accept change and innovation when debating futures of work and education **Community perspectives are dominant in discussions about services**, referring to education cultural and sports facilities or transport **Many community perspectives are rooted in daily experiences or Present TC.** For instance, related to transport and mobility, education **Many community perspectives are practical, specific, and goal oriented, imagined as both Probable and Preferred futures** **Community perspectives are creative when reframing nice memories or are inspired by other places and good examples.** They relate to	**Community own perspective dominates the discussion when LECs have experience** with TC aspects such as youth clubs or involvement of youth in the transition **Entire TC sub-categories focused on inclusivity aspects are based only on community perspectives, not addressed in policy**. For instance, communities refer to affordability of housing and living costs, or attention to youth and elderly needs in peripheral or rural areas. In general **attention and inclusive development in regional peripheries** of Cottbus, small town, rural do not appear in policy perspectives

TC clusters, comparative perspectives (community – policy)	Norrbotten	Katowice	Stara Zagora	Lusatia
		transition from conventional energy and green energy infrastructure development, transformation of industrial heritage, changes needed in education **LECs add an eye level perspective to metropolitanization, and area development based on their experience and knowledge. Their accounts are spatial and experiential,** such as the image of Silesia as park with unperceivable borders, or the need to develop spatial plans for a balanced transformation taking the image and identity of the region into account	Natural TC, transport and mobility, technology	
Diverging perspectives (notes on nuances and differences between community and policy) - represented dark blue and "≈" or " ≠" in TC clusters	Communities advocate for cultivating **local values and potential (vs. global value),** referring to housing development, food, tourism, and natural TCs (water, forest, farming areas). They call for **policies to support local actors and enhance local values**. In contrast, policies focus on global value and challenges **Views diverge on the economic vs. social value of natural** TCs, such as forests, minerals, water, vulnerability of the open space. Policies tend not to acknowledge negative aspects about natural and cultural TC. For instance, vulnerability of the open space, forests and small scale farming facing social capital crisis and global economic pressure Views **diverge about housing availability, affordability, and development models**. LECs are concerned about affordability and availability - not acknowledged in policy. They find water attractive for development, while policy considers these models unsustainable. Communities ask for revised housing policy in favour of local communities, against large scale investments	**Across all groups, there is misalignment and opposing views with policy regarding reskilling, retirement and future jobs** resulting from closure of mines. Arguments and accounts from all three communities demonstrate that inclusive grounds of negotiation and fair planning are currently missing in regard to information, preparation, education, and diversity for future jobs **Youth miners disagree and oppose currently practices for urban development and transformation**, outlining that edification and construction is **not detached from social and cultural identity either from the past or from the future. All three groups call for awareness and caution during transition, when implementing policies on tax breaks and economic zones** **Communities have a diverging perspective on Metropolitanization, based on regional governance decentralisation with more capital and opportunities for smaller municipalities and local communities vs. top down governmental decisions and support only for large regional hubs.** They advocate for fair share of knowledge and experience, funds, and collaboration during the transition. They see the transition as an opportunity and exercise for equitable metropolitanization models	**Perspectives diverge on education, future work culture, mobility, and integration of services across the city and in schools** (referring to cultural and sports facilities) **Less alignment on key TC aspects is always correlated with 'own community perspectives,'** particular views not included in policies	There is overall a **low level of opposition** or diverging perspectives from policy. However, when comparing the common perspectives to community experience and negative 'own perspectives', it results that **policies do not address or acknowledge negative key aspects,** such as housing and living affordability, lack of services in peripheral neighbourhoods and rural areas, gaps and exclusion in regional transportation. The contrast between common grounds and alignment on general TC aspects next to negative community perspectives highlights that **policies stay positive and abstract about these aspects, offering less ground for negotiation and community arguments** **Youth unfold perspectives for policy based on their personal experience**. They call for consideration and inclusive development in **peripheral neighbourhoods and rural areas**. Second, from the policy - community comparison it results that mobility systems in the region are planned with the 'worker commuter' in mind, excluding youth and students living and studying across the region. Their views propose inclusive transport solutions
Comparative notes	**Balanced weight and distribution of arguments between the common LEC - policy perspective (dark blue) and own community perspectives (light blue representation)**. This reflects that communities have policy knowledge, engage well with the topics, take their own position and form nuanced arguments vis-a-vis policy At the cluster level, when evaluating the common ground areas (dark blue), there is **balance between alignment and disagreement with policy**	Comparing to areas of common views, **community own perspectives are well represented in the case of Katowice. This is the case across all four clusters, with a similar weight between clusters focused on economic and infrastructure TCs, and clusters in which are more representative for social, human, and cultural TCs** There is **less integration between own and common perspectives with 'own community perspectives' covering 'areas of the debate', detaching from policy perspectives**. These are visible as entire light blue lines or only light blue areas in the comparative blue TC clusters	**There is overall a good balance and integration between policy and community perspectives** **Most common grounds and alignment are on economic TC and closely related social TC. These aspects are more abstract, while 'own perspectives' and divergence relates to aspects close to communities' daily experiences and are more specific, covering mostly human TC, such as education, future work**	**Compared to common perspectives, own community perspectives are less prominent** in the community main vision on 'community knowledge and participation'

6.2.2.6 WS3: Preparing policy statements for public deliberation

Argumentation in WS3 through the lens of TC aspects and clusters

The third RFLL workshop was attended by LEC members only and intended to develop a first draft of community-led policy statements reflecting communities' positioning in the deliberative governance of sustainability transitions. Because these statements were to also serve deliberation with the public using the e-democracy tool Pol.is they were to be formulated as brief and accurate messages. The Pol.is application is oriented at digital deliberation and therefore askes for the entry of nuancing 'mirrored statements' reflecting diverging points of views. This possibility was adopted in descriptions of intended WS3 results.

To prepare WS3 case study partners used the TC cluster diagrams (Annex A) to draft statements that reflect communities' argument expressed during WS2. A set of more detailed guidelines for drafting were given. Case study partners were asked to take a variety of indicated relations between TC aspects as starting points for an array of initial statements or arguments. They were advised to focus on statements around TC aspects that were mentioned often by the LEC in WS2 and are thus of high community relevance. Additionally, they were to preferably focus on aspects that play a role in communities' Preferred futures to guarantees that statements refer to communities' true hopes and dreams. Lastly draft statement were to be positioned in areas of both policy and community relevance.

The drafted so-called 'seed statements' were presented to communities during WS3. During the workshop, communities negotiated statements, so they reflect their interests accurately. The workshops were conducted in sub-group discussions, usually using a world café format. In the Lusatia case this format was expanded to include two sessions spread over two days. The Norrbotten case functioned as a pilot case for the preparation of the Pol.is application. As is described below both conditions strongly influenced results.

The statements that were the input and output of WS3 are documented in D4.3 (Forgaci, Ramirez Aranda, et al., 2025) (for a summary see Table 29). The documentation includes an assessment of statements on their compliance with the above-described guidelines. LECs' responses to individual statements during WS3 were documented in workshop reports. When assessing these materials on negotiation and shifts in argumentation, a series of observations can be made.

Variations in negotiation per case

- **Norrbotten:** In the beginning of the Norrbotten WS3, 34 draft seed statements were introduced. Of these 17 were mirrored statements, 16 related to communities Preferred futures, and nine were policy relevant. The statements were closely aligned with the TC cluster diagrams and concerned the sub-clusters around housing, regional governance, schools, families, healthcare services, farming, green technology, renewable energy, digitalization, and culture. The output of WS3 was in 109 seed statements of which 38 were mirror statements. 43 statements clearly related to communities Preferred futures, and 16 were policy relevant statements.
- The remarkable increase in the number of statements is due to a high level of detailing of statements during WS3. The original statement on housing was, for example, "housing policy should promote large scale housing projects in Norrbotten' s urban areas, capital cities, and towns". New statements absorbing detail around this statement concerned detached houses and villas, community and social living, loans, planning permissions, protected areas such as shorelines, innovative ownership, rental housing, brownfield development, taxation, and ownership by foreigners. While statements on housing became the most detailed, statements around other issues also multiplied to capture

detail. This implies that, during negotiation, differences in opinion were resolved by adding statements. As noted above, the Norrbotten case functioned as a pilot for the preparation of the Pol.is application. Before the other cases started, the high number was critically assessed as a barrier to online deliberation. Other case study partners were advised to conclude WS3 with not more than 20 statements (excluding mirrored statements).

- **Katowice:** The WS3 in Katowice started with 30 seed statements of which 16 were mirrored statement, 13 related to LECs' Preferred futures, and 11 were policy relevant. The statements were closely aligned with the TC clusters and concerned industrial heritage, education, jobs and reskilling, the energy transition, and metropolitanization. The output was in the same 30 statements and thus a maintained balance between mirrored, community, and policy-relevant statements. Changes in statements often concerned their wording and nuances only. For example, an input statement was "revitalization of post-industrial areas with the participation of the local community is necessary because it better meets social needs." During the workshop, the statement became shorter and more pressing: "Revitalization of brownfield sites in Silesia must involve the local community." Another example of modification is the statement "Changing careers at the age 40+ is the new norm." This input statement raised vivid discussion and was finally changed to: "Changing professions after the age of 40 will become a new life necessity."
- It is important to note that the statements in the Katowice case touched upon some core discourses structuring public and policy debates around, specifically, the energy transition in this region. They concerned, for example, radical versus gradual transformations, the fair distribution of funding and support for the energy transition, and the use of the industrial post-mining infrastructure in future energy production. Other fundamentally important issues concerned the attractiveness of the region for youth, the role of industrial heritage in a future identity of Silesia, and cooperation between municipalities in the region. The sensitivity of positions is a likely explanation of the high attention to the accuracy of formulations of opposite views. In this context, it is also likely that the consensus seeking function of Pol.is - specifically the possibility to formulate mirrored statements - was essential.
- **Stara Zagora:** At the beginning of WS3 in Stara Zagora 30 draft seed statements were set out. Of these 15 were mirrored statements, 10 belonged to communities Preferred futures, and 12 were of policy relevance. Statements strongly drew on the TC cluster diagrams and concerned education, jobs, career development, technology and digital transformation, public facilities and services, and public transport. Statements paid particular attention to education, 14 of the 30 statements included attention to this topic. Detailed aspects that were set out for discussion concerned, for instance, the connection of education to labour markets, and the role of digital technology in learning. The workshop concluded with 26 statements. The overall balance between mirrored, community and policy relevant statements was maintained.
- When comparing input and output statements, it appears that, also in this case, many changes were in the nuancing and re-wording. However, some statements were significantly altered. For example, the statement "high-speed Internet and 5G networks should be a priority for the region's digital transformation" was turned into the statement "high speed Internet is key to digitization and the future of young people." Additionally, few statements were entirely removed. These concerned the organizational model of a specific university, investment of local government in public transport, and the role of foreign investment. The workshop report notes that during the workshop participants expressed a wide range of opinions, revealing differences in what people consider

important for community life. It is also reported that the consensus seeking function of mirrored statements was essential in moderating controversial views.

- **Lusatia:** As noted above, the WS3 format was altered to fit the LEC involved in the Lusatian case - young people - and with the specific aim to relate abstract policy concepts to their experiences and diverse viewpoints. After an introduction to the two-day workshop, participants engaged in an 'folded story' exercise, using 22 seed statements and the TC cluster diagrams to discuss their meanings and relevance. On the second day, discussions evolved into collaborative visualization and mapping activities, helping participants identify relationships among themes and revise or add new statements. While the statements were not assessed in respect to their community and policy relevance in the same way as statements in other cases, an outline estimation of the 22 output statements showed that these related exceptionally well to the LEC's Preferred futures and also had high policy relevance.
- When comparing input and output statements, it becomes apparent that the approach succeeded in encouraging the building of story lines and argumentation. For example, one of the input statements was: "Young people from the region should be trained and encouraged to pursue social professions such as care or education". After WS3, the statement was: "Young people from the region should be specifically encouraged and trained to pursue social professions such as care work or education. Since these roles are currently performed mainly by older people, better training pathways and working conditions are needed to make these careers more attractive for the younger generation". This modification and other similar ones show that, while the number of input and output statements remained the same, high levels of detail were absorbed in individual statements to form more complex and argumentative messages.

WS3 maintained LECs' interests, earlier expressed through Preferred futures, and the policy relevance of discussions. The above results indicate a continuity in terms of the substantial scope of discussions between WS2 and 3. The argumentation included in the TC cluster diagrams was covered by thematically diverse both input and output statements in all cases. While there are some variations in the number of statements related to LECs' Preferred futures and of policy relevance, as well as the emphasis given to some statements, it can also be concluded that a proximity to both LECs' and policy interests was largely maintained. **In two cases, deliberating the concrete policy messages led to a high detailing of earlier argument. Detailing is reflected in the expansion of the scope of statements and the adding of new statements. In the other two cases statements remained moderately or highly stable. This implies a high variety of output from WS3.**

Table 29 Varieties in WS3 input and output.

Seed statements	Norrbotten	Katowice	Stara Zagora	Lusatia
# of input vs. output statements	34 > 109	30 > 30	30 > 26	22 > 22
# of mirrored statements in input vs. output	17 > 38	15 > 15	15 > 13	
# of Preferred future statements in input vs. output	16 > 43	13 > 15	10 > 9	Consistently high
# of policy relevant statements in input vs. output	9 > 16	12 > 11	12 > 10	Consistently high
Increasing / degreasing detail across input and output	High	Low	Low	High
Topics	Accessibility Circular ta1 system Communities Culture Digitization E1ports Energy Energy production	Education Energy transition Industrial heritage Jobs and reskilling Metropolization	Bike infrastructure Businesses Car free areas Car infrastructure Career Development Digitalisation Education Green space	affordable living costs car infrastructure city centre area communication channels & strategies community knowledge & participation cycling infrastructure

Seed statements	Norrbotten	Katowice	Stara Zagora	Lusatia
	Families Farming Forestry Green technologies Healthcare Housing Internationalisation Large companies Mineral e1traction Mining and Energy companies Nature Nursing homes Public transport Regional governance Regional identity regional economy Schools Teachers Transport		Green technology Institutional capital International companies Jobs Local businesses Private capital Public transport Sports and cultural facilities Technology & Digital Transformation Traditional industries	Housing leisure neighbourhoods Public transport regional public budget rural areas skilled labour social inclusion social sector workforce sustainable mobility services youth youth facilities and events

Explaining shifts in argumentation

WS3 reporting in combination with the above results allows for the observations of a mechanism behind the change or, likewise, stability of argumentation during WS3.

- **Attempts for balancing wins and losses during LECs' internal negotiations led to modifications of statements, often through broadening their scope.** A reoccurring topic in discussions concerned the balancing of wins and losses that are the result of the development rationales that most seed statements incorporated. For example, young people in Lusatia showed a concern about how the upgrading of neighbourhoods can be combined with measures counteracting displacement. In Stara Zagora negotiation concerned education supporting the development of both local and international businesses. The wish for balancing triggered argumentation and led to the modification of statements. This is a clear indication that LECs engaged in internal negotiation during WS3 and that negotiated outcome shaped the final output statements of WS3. When investigating how these statements absorbed negotiated outcomes, differences come to the foreground. The addition of new statements, the absorption of detail in more complex statements, and an increase of the ambiguity of statements broadened the scope of statements. In several statements a high level of abstraction was maintained. In fewer cases input statements were narrowed in scope through adding detail while maintaining simplicity.
- **Variations in output statements indicate that different tactics in respect to the upcoming public Pol.is deliberation namely increasing options, articulating opposing views, and building argument.** As noted above, strategies for accommodating different views, differed per case study. While in Norrbotten the number of statements highly increased through including a wide range of detailed aspects of development, in other cases the number of statements remained relatively stable. Changes in Katowice were in the careful rewording and nuancing of mirrored statements; in Stara Zagora, some statements were more fundamentally altered or removed; and in Lusatia, statements evolved into more complex story lines. In practical terms these differences can be attributed to different workshop formats and differences in guidance. However, when assessing differences through the lens of negotiation, they also point at different tactics in respect to the upcoming public Pol.is deliberation, namely **increasing options and thus present a wider field of choice for deliberation, articulating accurate opposing views and thus encourage the public to take sides, and building detailed argument and thus encourage detailed responses and commenting.**
- **The mirror statements were essential for moderating opposing views.** In several workshop reports the important moderating function of mirrored statements was highlighted. Specifically, where statements related to sensitive issues of high relevance

for communities as well as public discourse, the possibility to accommodate opposing views seems to have been an essential feature of the WS3 format.

- **The pointed messages emphasizing actionable and concrete outcomes stimulated substantial discussion on the implications and implementation of policy rationales.** With an eye on the upcoming Pol.is application, the guidelines for drafting input seed statements for WS3 advised short and action-oriented messaging. While some entries in WS3 reports note that the draft statements were seen to be too simplistic, more entries highlight that the pointed messages encouraged discussion, argumentation, and agency. Most statements were pointed towards tacit development and thus resembled concrete policy messages. This led to argumentation about practical implications and implementation as well as attention to related and more detailed TC aspects. It is hereby important to note that not all deliberation found an entry into the final output statements. This points to a deficiency of the format of seed statements as they were not able to absorb the richness and nuances of the deliberations led during WS3 (and before). The allowance for a high number of statements is underlined by this observation, specifically against the background of the RFLL objectives.
- **The pointed messages stimulated an account of contextual transitional development.** During the above described argumentation around concrete policy messages, attention to contextual factors influencing development increased. This is evidenced by numerous references to contextual development, such as demographic trends, demands for housing or particular labour, and existing spatial conditions.
- **The pointed messages also stimulated an account of contextual policy frameworks.** Some statements triggered specific debate on the existing policy context, including a detailed account of policy frameworks influencing addressed development. This is evidenced by references to actions and policies at distinct governmental levels, the availability of financial support (at levels of government), and legal preconditions. This way of detailing statements was particularly practiced by more senior LEC members and members with more policy experience.
- **Popular statements became more detailed and accurate.** Several notions in WS3 reports on responses by LECs to the draft seed statements indicate that some statements triggered more discussion or were more popular than others. Why it is not possible to identify the reasons for this?, it is evident that in most cases attention and discussion was not spread equally across statements. The statements gaining highest attention usually gained the most detail.
- **Adjusting communication and language was led by young people and most important in situation where statements concerned polarizing public discourse.** Responses to the initial statements also considered communication and language. Comments concerned the length and complexity of sentences, hidden main messages due to emphasis of words, the ambiguity of expressions, possibilities for dis- and misunderstandings of specific terms and sentences hurtful language, among other things. It is remarkable that responses and related advisories for revision stemmed predominately from young people. This can be attributed to their acquaintance with digital and social media communication. It is also remarkable that communication and language received most attention in cases where the statements bordered with highly sensitive public debate on transitional development
- **Guidance on the thematic scope of deliberation safeguarded the continuity of deliberation and maintained attention to a wider policy landscape:** The vivid discussions around individual statements highlight the potential of concrete messaging for deliberation, argumentation, and negotiation. Firm guidance by means of the TC cluster diagrams from the side of WP4 and the decisive implementation of workshop

formats encouraging comprehensive attention to multiple statements by case study partners were decisive for observing equal attention to all.

- **Regional design representations prompted critical remarks but also acted as catalysts for sense-making, emotional response, and critical comparison.** To inspire discussion, the regional design visualisations (D4.2 (Pfannes et al., 2025)) that were produced earlier were introduced to LECs. To maintain core attention to the development of statements, the presentations of and discussions on the designs were intentionally set in the informal settings of welcome or coffee break moments. The visualisations prompted different reactions. In **Norrbotten**, visual materials initially slowed discussion as participants worked to interpret unfamiliar elements, yet the Preferred future map eventually stimulated richer dialogue. Its warmer and more inviting aesthetic generated positive reactions, while exaggerated features - such as extensive housing, misplaced landscapes, and large numbers of reindeer or migrants - provoked emotional responses and scepticism about authorship and political intent. By contrast, in **Katowice**, visualisations were a minor element, participants focused primarily on seed statements and moderators had to actively prompt engagement with the posters. When discussed, reactions were mixed, many felt the visuals exaggerated or misrepresented their region, though the Probable-future poster was viewed more favourably than the Preferred-future one. In **Stara Zagora**, visualisations elicited strong positive engagement. The emotionally charged imagery - especially the human-head poster combining smoke and greenery - prompted reflection on both challenges and opportunities, aligning closely with themes from earlier workshops. In **Lusatia**, posters were discussed informally yet sparked substantial interest, particularly among participants involved in earlier RFLL rounds. Comparing policy-based and participatory futures encouraged reflection on underlying assumptions and how their own contributions had been translated into visual form. Overall, visualisations acted as catalysts for sense-making, emotional response, and critical comparison across contexts.

6.2.3 Participation and representation

Box 6 Participation and representation: Summary of findings.

RFLLs promote deliberative participatory processes, which consider different arguments, weigh the implications of alternative solutions, and facilitate consensus on the basis of these.

Aspects of the labs influencing participation

- Allowing for the re-structuring of (opposing) narratives through **open framing** has strongly enhanced participation and deliberation. This is evidenced by the stability of frames self-selected by LECs during WS1.
- The adapted **Futures Literacy Lab format** has enhanced the breadth and depth of deliberative reasoning and caused the most important argumentative shifts during the RFLLs. This is evidenced by the findings on the format presented in Chapter 5.
- **Safe spaces** for extensive and sole internal community deliberation and negotiation has enabled deep deliberative reasoning. This is evidenced by the expansion of the scope of argumentation during the workshops that were attended by LEC members only.
- Continuous deliberation that flowed from outline framing to precise positions was supported through the **series of four workshops** and the **backstage processing of**

input for and output of the individual participatory encounters. This is evidenced by the continuity of the thematic scope of deliberations across workshops.

- **Maintaining LECs' interests** as a central starting point and structuring element for deliberation was decisive for both participation and the output of the labs. This is evident in the text data.
- **Nudging deliberation towards policy relevance** through **ways both direct (recurring attendance of policymakers) and indirect (comparison of policy and community interests)** has helped the strategic positioning of LECs' concerns in the MLG of sustainability transition policymaking. This is indicated by observed shifts in the policy relevance of argumentation across workshops.
- **Having policymakers as support** for LECs' positioning (instead of the other way around) helped the building of community positions, specifically during WS4. This is evidenced by a comparison between the WS4 inputs and outputs.
- Alternating deliberation with **strategies for reducing the complexity of argumentation** was essential for maintaining the objectives of the RFLL format, notably its aim of positioning LECs' concerns in the wider MLG landscape of transition policymaking. This is evidenced by notions on proceedings in workshop reports.
- **Workshop moderation** that has **maintained openness and fostered creativity** and nuanced perspectives supported participation and deliberation. This became evident though the tracing of moderators' interventions in the WS2 text data.
- Inter-community negotiation and consequently deep deliberative reasoning occurred where **divers LEC members** participated. **Intergenerational deliberation** and negotiation led to specifically detailed argumentation and viable LEC positions. This is evidenced by the voices of LEC members in the WS2 text data.

Aspects of the labs influencing (indirect) representation

- Using **an e-democracy tool, such as Pol.is,** was shown to have high potential for transferring LECs positions into the public realm and thus gain insight into their representativeness and legitimacy (see also Chapter 7).
- Deliberating ongoing public policy is likely perceived to be more legitimate than deliberating issues of low policy relevance. Against this background, **structurally positioning LECs' deliberation at the intersection with sustainability transition policymaking** can be assumed to have enhanced representativeness and legitimacy of the RFLL output.
- Involving a **media analysis** in framing is a promising pathway to the creation and evaluation of the representativeness and legitimacy of deliberations in respect to public discourse.
- **Reaching out to the public via the arts** is a powerful but highly sensitive endeavour.
- The presence of **organized interests** has influenced the balancing between participatory and representational elements of the RFLLs. Where organized interests were strongly present, higher attention was given to representativeness and legitimacy formation.
- **Positioning LECs' concerns in multi-level governance** was hindered by the narrow selection of key sustainability policy measures and emphasis on the local level through the participation of policymakers. In several cases, these conditions have led to the strengthening of negative **perceptions of bottom-up versus top-down dynamics in sustainability transition policymaking.**
- **Contextual factors** influencing output legitimacy were the comprehensiveness of selected transition policy measures, political dynamics of transition policymaking in regions, and the existing recognition of least engaged LECs in ongoing policy making and public debate.

Research question

- What was participation and representation in the individual labs? and how have these different constellations influenced legitimacy?

Introduction

While the term 'participation' describes the direct involvement of citizens in decision-making, the term 'representation' discusses who speaks for others. The deliberative democracy literature recognizes tensions between participation and representation. Specifically, it acknowledges that direct participation enhances the quality of deliberation but resists upscaling and thus the representativeness and legitimacy of results (Lafont, 2015). The RFLL format has involved groups that are constituted by shared identity, values, norms, and a territorial place. The involvement of this group conceptualizes involvement in the RFLLs as a form of advocacy and has implications for participation, on the one hand. Questions arise how the format has addressed the generally perceived barriers to participation and how it has responded to the more specific challenges of involving an advocacy community or coalition in deliberation and policy co-design on the other hand.

The main aim of the RFLLs was, however, to not only support LECs' participation in public policymaking but also to position the interests that were elicited during interactive encounters in the deliberative governance of sustainability transitions. This raises questions about the insertion of conclusions from participatory events into policy dialogue, political processes, and public debate, and the legitimacy that was reached by these attempts for representing LECs in broader democratic life (at scale) (Lafont, 2015). The concept of situated legitimacy assumes that the involvement of local actors in deliberation results in divers and complex situations concerning legitimacy (Connelly, 2011). In this section we discuss the participatory and representational elements of the individual labs and how combinations of elements have influenced or are likely to influence legitimacy formation.

6.2.3.1 Aspects of the labs influencing participation

- In terms of participation, the RFLL format was conceived as a series of deliberative encounters between, first, LEC members and policymakers and then the wider public. LECs were defined based on an expected high impact of transitions on groups and their low motivation and ability to participate (source D3.4 (Georgieva & Ferry, 2024b)). The labs involved each had around 10-15 LEC members, a majority of these attended all four workshop sessions of the labs. Members were invited by the DUST societal case study partners - civil society organisations with ties to communities. Selection criteria emphasized diversity within groups, including age, gender, and residence in different locations within regions and urban or rural settings. When using the results of text analyses for the reviewing of factors that have influenced participation and deliberation, the below described observations about causes for shifts in argumentation can be made:
- **Allowing for the re-structuring of (opposing) narratives through open framing has strongly enhanced participation and deliberation.** Despite the vulnerability of frames to the capturing by (dominant) policy discourse, LECs powerfully reasserted their interests while re-framing the scope of RFLL deliberations during WS1. The openness of frames and the allowance for reframing facilitated this important shift. Through observing shifts in negotiation across labs, it can also be concluded that the key sustainability

themes, which were self-selected by LECs during WS1, remained stable guideposts across the workshops.

- **The FFL format has enhanced the breadth and depth of deliberative reasoning and caused the most important argumentative shifts during the RFLLs.** The understandings of transitions as structural development specifically expanded during WS2, this speaks for the success of the RFLL format. More detailed evidence on the functioning of the format as part of the labs is presented in Chapter 5.
- **Safe spaces for extensive and sole internal community deliberation and negotiation has enabled deep deliberative reasoning.** The RFLL workshops have alternated participation of LEC members and policymakers (WS1 and 4) with participation of LEC members only (WS2 and 3). In this way, the format has created abundant opportunity for communities to develop their own perspectives and interests in sustainability transition policymaking. Although this division became defuse because of the attendance of LEC members and case study partners with deep knowledge about and links to formal policymaking as well as policymakers in few cases, text data suggests that the **safe spaces for sole internal LEC deliberation** has contributed to the deepening an expansion of communities deliberative reasoning. Results from interviews underpin the importance of these spaces where communities developed future perspective, negotiated among themselves, and built social capital.
- **Continuous deliberation that flowed from outline framing to precise positions was supported through the series of four workshops and the backstage processing of input for and output of the individual participatory encounters.** The RFLL format foresaw a trajectory for negotiation, flowing from the outline framing of deliberation by key sustainability themes to the precise positioning of communities concerns in transition policymaking at levels of government. Text data from WS1 to WS4 suggests that this intended flow has occurred. Specific evidence is in a continuing dedication of deliberation to the territorial aspects that were selected by LECs during WS1 and that were detailed in community-led positions that are the outcome of WS4. Two aspects of the labs stand out as explanatory factors enhancing continuity: notably, the lasting interaction in a series of four workshops, and the support of this interaction through the processing of output from workshops to become input for the next one. While the first factor has provided for sufficient time to develop positions, the second has guaranteed an increasing depth of discussion. Additionally, the processing of data and presentation of intermediate results have **increased transparency** as an important factor for deliberation. It is hereby important to note that the backstage function of the RFLLs was time intensive and thus raises questions on feasibility.
- **Maintaining LECs' interest as a central starting point and structuring element for deliberation was decisive for both participation and the output of the labs.** Research into factors influencing the participation of LECs has identified relevance as one of the most important factors. Accordingly, the lab format has sought to guarantee that the interests of communities expressed during WS1 to 4 were maintained as central starting points and structuring elements for argumentation and deliberation. An important moment for maintaining interests occurred during WS1 when communities were given the opportunity to determine the framing of deliberations later on. Maintaining LECs' stances was also pertinent during the processing of text data from workshops and included the prioritization of territorial aspects in communities Preferred futures, an account of the groundedness of and interrelations between these aspects in TC clusters, the organization of narratives around these starting points, and the presentation of these narratives as policy rationales in the statements suggested for WS3. The adoption of these statements by community members in WS3 suggests that these external analytical

efforts were accepted by communities. Interviewees in post RFLL interviews indicate that this perspective presented a strong motivational factor for continued participation and supported the reached depth of argumentation.

- **Nudging deliberation towards policy relevance through direct (recurring attendance of policymakers) and indirect (comparison of policy and community interests) ways has helped to address situations where trust in policy is low and confrontational situations are likely.** The initially conceived RFLL format foresaw two ways to involve policy rationales in deliberation. The first was in involving policymakers during WS1 and 4. A second way was in positioning deliberation at the intersection of policy and community interests. This second found expression in the framing of deliberation and in a persistent attention to overlaps between interests during the backstage processing of data from workshops. Additional policy relevance found its way into deliberations in more unplanned ways and via the involvement of least-engaged community members with knowledge about policies and the expertise and experience of DUST case study partners. The comparison of interests in territorial capital aspects described above demonstrates that policy relevance remained considerably high across deliberations. This indicates that shifts in LECs' interests in policy fields can be nudged by a combination of indirect and indirect ways, and that a mix of approaches may be suitable to address situations where trust in policy is low and confrontational situations should be avoided.
- **Workshop moderation that has maintained openness and fostered creativity and nuanced perspectives has supported participation and deliberation.** The differences across RFLL cases in moderation strategies highlight the role and impact of these strategies on deliberation in participatory environments, especially when the goal is to involve and represent LECs. In the RFLL workshop environments, neutral moderation provided participants the space to approach themes from various critical angles, at times shifting their focus entirely. In contrast, when discussions were more guided, frequent moderation interventions and predefined exercises influenced the overall workshop results. Transcripts from the workshops highlight participants' reluctance to follow predefined topics and their tendency to express their own position, interests, and concerns. This dynamic indicates that the open structure of the labs effectively encouraged participation, fostering creativity and nuanced perspectives on specifically regional futures.
- **Having policymakers as support for LECs' positioning (instead of the other way around) helped the building of community positions, specifically during WS4.** As noted above, policymakers were structurally involved in the RFLL WS1 and 4. Interview data provides strong evidence that their recurring attendance has strongly contributed to the building of trust. When seen from the perspective of deliberative reasoning and argument, their influence is less easy to trace. Deliberation, following WS1, increased the policy relevance of community argumentation. This may have been partially caused by the presentations on key sustainability transition policy measures that policymakers gave during the first workshop. More clearly identifiable influence occurred during WS4. The translation of statements developed during WS3 and the deliberative Pol.is platform into community-led policy recommendations (D5.1 (Chilvers et al., 2025)) clearly shows detail that has not or only marginally been discussed before. It is therefore likely to have been contributed by participants with extensive knowledge about transition policymaking. It is hereby important to note that the core content of statements was maintained. In this sense, additions by policymakers can be conceived as support for the development of communities' stances.
- **Alternating deliberation with strategies for reducing the complexity of argumentation was essential for maintaining the objectives of the RFLL format,**

notably, its aim of positioning LECs' concerns in the wider MLG landscape of transition policymaking. The scope of deliberations in the RFLLs was consistently broad. The broadness was intentional and aligned with the objectives of the format, which was not intended to produce distinct policy decisions, but to position communities interests in the wider landscapes of sustainability transition policymaking. Deliberating complex issues presented a challenge to communities, as is also evidenced by interview data. Results from text analysis indicate strategies to deal with this complexity. In several cases, deliberation in the workshops alternated discussion on several and broader topics with voting mechanisms to select the most important ones among these. The labs also knew other techniques to foster effective deliberation. In some cases, sub-communities deliberated their stances first and then brought these to a plenary setting. In other cases, first deliberation was organized by topics, etc.

- **Inter-community negotiation and consequently deep deliberative reasoning occurred where diverse LEC members participated.** When comparing the depth of deliberative reasoning across the labs, it is evident that the scope of argumentation expanded most significantly where a **diversity of sub-communities** engaged in internal discussions and negotiations.
- **Intergenerational deliberation and negotiation led to specifically detailed argumentation and viable LEC positions.** The Katowice lab stands out as a successful model here.

6.2.3.2 Aspects of the labs influencing representation

The originally conceived RFLL format foresaw several measures for the representation of communities concerns in the deliberative governance of sustainability transitions and to a wider public. Planned measures were in the reoccurring interaction of LEC members with policymakers, the comparison between LECs' and policy interests, the use of the e-democracy tool Pol.is for the upscaling of deliberation, and the (visual) representation of communities' concerns via regional design exhibitions and position papers. The assessment below shows how the labs have enhanced representation and includes attention to these measures:

- **Using an e-democracy tool, such as Pol.is, has high potential for transferring LECs' positions into the public realm and thus gain insight into their representativeness and legitimacy**: The RFLLs were conceived as a hybrid format, combining analogue and digital participation. The digital application Pol.is was included to set out and deliberate LECs' positions in the public realm. An assessment of the outcomes of this application is presented in Chapter 7 of this report. When considering the use of Pol.is as part of a wider strategy for representativeness and legitimacy formation, some main observations can be made. Participation in digital deliberation differed significantly across individual labs. The most important explanatory factor for participation was the involvement of organized interests in setting out and advertising the application. The comprehensiveness of LECs' positions presented challenges to public digital deliberation. This is evidenced by the fact that the application was more successful in regions that set out fewer and shorter policy messages. However, the possibility for launching positions in the public realm was widely embraced by both policymakers and LEC members (see also interview results in D5.3 (upcoming) and Chapter 8 of this report). This implies that the order of analogue and digital deliberation as foreseen in the RFLL format is a promising pathway for representing LECs' concerns in wider public debate and thus legitimizing the concerns of a distinct advocacy coalition or community. It is

important to add that specifically privacy requirements made an assessment of the overall representativeness of responses difficult.

- **Structurally comparing LECs' deliberation to the scope of sustainability transition policymaking enhanced representativeness and legitimacy:** A central element of the RFLL format was a continuous account of how LECs' interests compare to the interests in public sustainability transition policymaking. This comparison informed the initial framing of deliberation at the intersection of policy, community, and media perspectives on transitions, steered LECs' deliberations on Preferred and plausible futures during the RFLL WS2, and guided the purposeful positioning of their final statements in transition policy realms during WS3 and 4. Specifically, LECs' final positions underpin the performance of these attempts for relative representativeness and legitimacy of results since positions in policy areas that are covered by ongoing policymaking are likely to be perceived as more legitimate than positions in other areas.
- **Involving a media analysis in framing is a promising pathway to the creation and evaluation of representativeness:** As noted above, a media perspective was included in the initial framing of deliberation in the labs. The underlying media analysis demonstrated that community interests are included in many narratives circulating in the media spaces of case study regions. While the analysis was not intended to indicate the public relevance and thus representativeness of deliberations in the labs, in retrospect it is perceived as having potential for such an estimation. Early insights into media attention given to topics of deliberation can provide insights into representativeness and enhance strategies to effectively launch positions for debate in the public realm. Additionally, such insights can give direction to actively addressing dis- and misinformation.
- **Reaching out to the public via the arts is a powerful but highly sensitive endeavour:** As described in Chapter 5 of this report, backstage activities after the RFLL WS2 included the visualization of LECs' and policy futures in regional design visualisations (D4.2 (Pfannes et al., 2025)). The designs were accomplished by art directors in in the DUST project and in collaboration with WP4 leads and case study partners. The designs were intended to stimulate deliberation among LEC members and policymakers in the labs, on the one hand, while on the other hand, once accomplished, the attractive visualizations were to serve as an important mean for presenting community positions to a wider public within and across the regions. For this purpose, the designs were curated to form part of a mobile exhibition (D4.5 (Forgaci, Hartenberg, et al., 2025)). While it is too early to assess the overall performance of this exhibition in triggering public debate, different initial appreciations and adoptions of this exhibition indicate sensibilities. Firstly, LEC members' responses during and after the labs demonstrate that not all members felt that the designs represented their interests accurately. This implies that before setting out such artwork in the public realm, those whose interests are represented need to be given the opportunity to review the work and provide consent. Secondly, the adoption of the exhibition for events in case study regions and international settings shows that different epistemic communities show highly different appreciations. Academic audiences and policymakers who operate at high levels tended to show high appreciation, policymakers who operate at the local level of case study regions tended to be more hesitant in adopting the artwork, which they perceived as abstract and overly optimistic in terms of the futures that were depicted, for example. Also, a cultural context seems to influence appreciation and adoption, the designs were, for instance, read differently in a context that is more acquainted with a visual expression of policymaking. In conjunction, these findings indicate that while art is an effective and engaging way to represent the results of participation in the public realm, a highly sensible and contextual approach is required for engaging the public via the arts.

- **The presence of organized interests:** Individual RFLLs have combined participatory and representational elements in different ways. When observing these differences, the presence of organized interests appears to have been a decisive factor. Organized interests are formally structured groups that aggregate and advocate the political demands of their members or constituencies with the aim of influencing public policy within democratic systems. The RFLLs knew the presence of such interests mainly through the involvement of the DUST case study partners. Societal case study partners were all civil society organisations with relations to LECs. However, they differed in size, organizational capacity, and expertise on the policy argumentation in the labs. All labs also involved the DUST academic case study partners. Differences among these included their residing in the actual case study regions versus in other parts of countries, their attention to and knowledge about concrete sustainability transitions in regions, and contacts to and recognition among communities and policymakers in transitions. Evidence suggests that close ties to LECs and transitions has greatly supported participation in the RFLL format. The presence of these interests also influenced an emphasis on participatory and representational elements. Where there was a strong presence of organized interests and a tight-knit and well-organized community, representational elements (e.g. Pol.is) were treated with priority, where organized interests were less evident and a loosely established community was involved, participatory elements were emphasized.
- **Contextual factors influencing output legitimacy:** When discussing output legitimacy it is, firstly, important to reiterate that the RFLL format is not oriented at producing decisions about distinct policy measures but at the positioning of LECs' concerns in the wider MLG landscape of place-based transition policymaking. Therefore, outcomes are in identified arenas and policy sub-systems for further negotiation rather than effective concrete policy decisions. These arenas and systems have been identified, as is evidenced by the Citizen position papers (see D5,1). Variations in the output legitimacy of these position papers know several contextual factors. A first important factor is the comprehensiveness of transition policymaking. Where investigated policies were comprehensive positions were more likely to show output legitimacy. A second factor is in the political dynamics of transition policymaking in regions. Specifically in the regions where transitions are most virulent, the positioning of communities concerns was observed more carefully. Sensitivities led to the modification of, or even ruling out of, some of the positions. Another factor was the recognition of LECs in ongoing policymaking and public debate. Where communities were already formally recognized as being strongly affected by transitions and in transition policymaking, the positions that were the out of the RFLLs were received with more urgency from the side of policymakers.
- **Positioning LECs' concerns in multi-level governance was hindered by the narrow selection of key sustainability policy measures and emphasis on the local level.** The original RFLL format intended the precise positioning of communities concerns in the multi-level governance of place-based sustainability transitions policymaking. While the Citizen position paper (D5.1(Chilvers et al., 2025)) clearly identify government levels and institutions that are targeted by individual positions, a more comprehensive and systematic account of how positions relate to levels has not occurred. Several explanatory barriers stand out. The initial mapping of policy impact considered a narrow selection of key sustainability policy measures in regions only. Because this mapping has strongly influenced subsequent comparisons these selected measures dominated outcome. A second explanatory factor is in the involved policymakers who in all cases were engaged with local municipal or regional policymaking. In conjunction the restricted view on policy measures has shaped deliberation in the labs. **In several cases it has led**

to the strengthening of perceptions of policy at high levels as negative and top-down.

7 Democratic life at scale (Pol.is)

Box 7 The RFLLs and democratic life at scale: Summary of findings.

RFLLs enable democratic life at scale.

- **The hybrid RFLL–Pol.is format broadened participation** well beyond the RFLL workshops, creating multiple opinion groups and intensive engagement with territorial sustainability transition issues.
- **Policy-relevant (PR) statements that were concrete and close to everyday services** (such as mobility, public services, and skills) **were most likely to gain cross-group consensus.**
- However, **transition trade-offs led to high polarization** (e.g., energy transition modalities in Katowice, private low-emission vehicles in Stara Zagora, selected agri-food/health measures in Norbotten). Implementation choices (e.g., who pays and benefits, pace, and distribution) split opinion groups even when overall agreement is high.
- **Policy-relevant (PR) statements that were grounded in the perspectives of LECs tended to perform better or at least equally well on overall** acceptance than non-grounded PR statements.
- **Preferred-future (PF) statements were broadly accepted**, indicating that futures articulated by LECs can resonate in wider publics, even though their relative amount changes as digital deliberation broadens.
- **Pol.is participants added substantial numbers of new PR and PF statements** specifically related to TC aspects in human (C) and tangible TC categories like youth, jobs and reskilling, energy transition, mobility, housing, and social capital.
- Design features of Pol.is, like the absence of direct replies and equal weighing of votes, supported more equal consideration of contributions. Nevertheless, **equality still depended on RFLL-based agenda-setting and on sustained attention to the visibility of smaller but significant positions.**

7.1 Introduction

This chapter examines how the RFLL format performs when extended into wider democratic life through the Pol.is application. The focus is on how futures and policy concerns that originated in work with LECs appeared, changed, or persisted when exposed to a broader public in the four case study regions. In this way, the chapter complements the futures literacy lens developed in Chapter 5 and the democratic perspective outlined in Chapter 6.

Pol.is was used in DUST as a digital prolongation of deliberation in the RFLL workshops. The tool enables large numbers of participants to vote “agree”, “disagree”, or “pass” on short statements and to propose additional statements themselves. An algorithm groups participants into opinion clusters according to their voting patterns and identifies statements that attract broad agreement, cross-group consensus, or polarisation. In each case study region, seed statements for Pol.is were derived from RFLL WS3 outputs and related to Preferred futures (PF) and policy-relevant (PR) concerns (as described in earlier chapters), and then opened to broader public(s) through online engagement. Where Chapter 5 analysed the LECs’ futures emerging from the RFLL WS2 in TC clusters, and Chapter 6 research focused and analysing the course of deliberation

and negotiation across the RFLL WS1-3, this chapter follows these dynamics as it is observed how the results from these deliberations were upscaled through Pol.is.

To assess whether the use of Pol.is contributed to a successful deliberation of the intermediate RFLL results, we follow Mikhaylovskaya (2023) and examine "three features of online deliberation that matter for deliberative democracy: scale, transparency, and the facilitation of equality" (Mikhaylovskaya, 2024b, p. 1). Scale refers to the reach and intensity of participation compared to the smaller, more intensely facilitated RFLL groups. Transparency concerns how clearly the transformation from seed statements to final outputs can be traced, particularly for policy-relevant statements. Pol.is demonstrates a semi-transparent logic, where users can see statements and indicate their agreement or disagreement. However, the way clusters are created may not be easily understood by everyone. Equality addresses the visibility and influence of LEC-grounded Preferred futures in the overall Pol.is results. Together, these dimensions provide a basis for assessing how the RFLL–Pol.is combination supported democratic life at scale in territorial sustainability transitions. Pol.is has in principle certain equality features built in. For example, by making participants anonymous and removing direct replies, it strips away some obvious status markers and reduces the chance that loud or high-status people dominate, which helps equality of consideration and freedom from domination.

7.1.1 Research design

Research questions

- How do the outcomes of the Pol.is application (public opinion) relate to earlier RFLL results on LECs' Preferred futures and policy-relevant concerns (comparison of Pol.is input and output)?
- To what extent does deliberation in Pol.is increase or decrease agreement on policy-relevant statements? and how transparent is the transformation from seed statements into policy-relevant output?
- To what extent does the Pol.is process emphasize or marginalize statements grounded in LECs' perspectives? and what does this imply for equality in the final set of outputs?

Baselines and indicators

To address these questions, baselines were constructed at the level of statements entering and exiting the Pol.is process. Policy relevance (PR) and Preferred-future content (PF) were identified for both input and output sets, and counts and proportions were compared to trace whether policy-relevant and Preferred-future content gained or lost relative weight through deliberation. Within each analytical subset - PR-only, PF-only and the combined set of these attributes in outputs - statements were further split by groundedness (G = yes/no), indicating whether they were emphasized in LECs' perspectives. For each split, the shares of statements with high overall agreement (A), cross-group consensus (CS), and polarisation between opinion groups (PS) were calculated. This enabled an assessment of whether grounded statements were more, less, or similarly likely to achieve broad agreement, cross-group consensus or polarisation compared to non-grounded statements. Additionally, the number of new statements and the related TC aspects were investigated to see whether the added wider public statements were policy relevant and/or related to the Preferred futures of the LECs.

These quantitative indicators were then read alongside TC aspects. This allowed interpretation of patterns not only in terms of deliberative quality (agreement, consensus, polarisation), but also in terms of the thematic focus on aspects of sustainability transitions and transition policies within and across the case study regions.

Methods

The analysis compared the seed statements entering the Pol.is process ('input') with the researcher-qualified statements emerging after around four weeks of the process ('output'). Two main data sources were used: (1) the official Pol.is reports for each case study region, and (2) supplementary case-specific tables in which statements are coded by the research team. Both data sources can be found in D4.3 (Forgaci, Ramirez Aranda, et al., 2025). The supplementary tables add three dimensions that were not present in the original Pol.is outputs indicate: (1) whether a statement was policy-relevant (PR), (2) whether it described a Preferred future (PF), and (3) whether it was highly grounded in the perspectives of least-engaged communities (G). For the output set, the analysis additionally drew on Pol.is-derived flags that indicate high overall agreement (A), consensus across opinion groups (CS), and polarisation between groups (PS). Identified findings summarize end-state distributions only; they do not imply change over time, with the exception of new statements, which were added during the Pol.is process. Coding choices may have affected fine-grained attribution by theme, and small counts may have influenced apparent subgroup differences.

Statement texts were normalized to align input and output records. Based on the indicators described above, counts and proportions were calculated overall and by TC aspect. Three analytical subsets were constructed: (1) policy-relevant statements (PR only), (2) Preferred-future statements (PF only), and (3) all outputs containing PR or PF content. Within each subset, statements are split by groundedness (G = yes vs. G = no), and for each split the rates and counts of A, CS and PS are computed. The unit of analysis is the individual statement. It is critical to acknowledge that policy-relevant TC aspects co-occur with local and regional contexts; therefore, similarities should be read as patterns, not uniform effects. A/CS/PS categories are not mutually exclusive, so shares should always be interpreted together with sample sizes (N) and, where relevant, opinion-group contrasts when drawing further conclusions for the individual cases and across cases.

7.2 Findings

The results in the following subsections present the main overall finding across the cases. More detailed results per case are presented in tables in Annex E of this deliverable. Furthermore, due to significant methodological variations in generating the input statements, the case of Lusatia is not considered.

7.2.1 Scaling up deliberation with Pol.is

Addressing the first research question, this subsection examines how the use of Pol.is scales up deliberation compared to the smaller, more intensely deliberation facilitated by the RFLL workshops. Table 30 summarizes levels of engagement with Pol.is across the four case study regions.

Pol.is can substantially broaden participation of the RFLL format: After the application has run around four weeks Katowice registers by far the largest public: 502 people voted, compared to 55 in Norrbotten, 108 in Stara Zagora and 97 in Lusatia. The number of votes cast follows the same pattern (16,567 in Katowice, 3,667 in Norrbotten, 2,520 in Stara Zagora, 3,058 in Lusatia), indicating that **Pol.is can substantially broaden participation of the RFLL format**. This conclusion is also substantiated by the fact that in all cases, a substantial number of new statements have been added in relation to a variety of TC aspects.

Table 30 Summary of Pol.is use in case study regions.

Pol.is use	Norrbotten	RFLL Katowice	Stara Zagora	Lusatia
People voted	55	502	108	97
Votes casted	3667	16567	2520	3058
Votes per voter on average	66	33	23	31
Statements submitted	124	168	73	43
Statements per author on average	7	5	7	3
Size of opinion groups	5/43	81/190/138	19/27/40	40/38/16
NR of new statements	24	14	18	-
TC aspects of new statements	Community Regional governance Farming Local food Green technology Housing Along coastal area Open space Indigenous community Public services Public transport Rural entrepreneurship Schools Tax system Young people Healthcare system Investment	Education Energy transition Jobs and reskilling Metropolization Social capital	Active mobility infrastructure Car infrastructure Green technology Climate and environment Community Cultural programmes Decentralized local economy Education Private capital Institutional capital (municipal) Green space Jobs Collaboration Municipal property Participation Social inclusion Public transport Regional circular economy Sports and recreation facilities	

Nevertheless, caution is warranted given the significant difference in the number of statements between the cases. Norrbotten has by far the most, which may also be the reason for the higher casts of votes. This may also explain the differences between cases when looking at the intensity of individual engagement. However, differences between cases are less pronounced. Norrbotten when looking at votes per voter, for example, shows twice as many votes per voter (66) as Katowice (33), with Stara Zagora (23) and Lusatia (31) in between. The number of statements submitted is more similar across cases than participant numbers might suggest (124 in Norrbotten, 168 in Katowice, 73 in Stara Zagora; 43 in Lusatia), with statements per author ranging from 3 in Lusatia to 7 in both Norrbotten and Stara Zagora. **This indicates that smaller publics can also generate broad and intense online discussion.**

In all four cases, participation is structured into multiple opinion groups (ranging from two in Norrbotten to three in the other regions), indicating that the exercise did not simply amplify a single dominant (interest)group but also supported the articulation of diverse positions within the upscaled deliberative setting. Overall, the evidence suggests that the hybrid RFLL–Pol.is format increased the scale of deliberation in all cases. **These numbers indicate that Pol.is reached broader publics than the earlier RFFL phase while still generating structured deliberation.**

7.2.2 Transparency in policy-relevant statements

Addressing the second research question, this subsection focuses on transparency by tracking how policy-relevant (PR) seed statements perform from input to output and by examining levels of agreement, consensus, and polarisation around PR content.

Regarding transparency, we examined two factors: first, how the policy-relevant input seed statements performed in terms of share of statements, as a proxy for a rising or falling policy relevance, and second, the level of agreement to understand how open and diverse the

discussion was. Additionally, the analysis investigated how many new policy relevant statements were added during the Pol.is process, and which TC Aspects they concerned. Table 31 presents the evolution of PR statements.

Table 31 Overview of policy-relevant statements from input to output.

Policy relevant statement (PR)	Norbotten	Katowice	Stara Zagora
Number of Input statements	12	13	9
Number of output Statements	9	17	12
Share in the Input statements	14.1	43.3	32.1
Share in output statements	9.9	38.6	42.9
High Agreement	66.7% (6/9)	82.3 (14/17)	91.7% (11/12)
Consensus	44.4% (4/9)	11.8% (2/17)	50.0% (6/12)
Polarising	33% (3/9)	23.5% (4/17)	8.3% (1/9)
New Statements	2	4	8
TC Aspects of new Statements	Farming Local food	Education Energy transition Jobs and reskilling	Car infrastructure Car infrastructure / Green technology Climate and Environment Cultural programs Green space Jobs Municipal property Sports and recreation facilities / Green space

High agreement(A) is about the overall approval level (e.g., "high overall agreement" across all participants). Consensus (CS) across opinion groups is about alignment among groups (no divergence).Polarising (PS) is the opposite of CS: groups diverge in their votes.

- In **Norrbotten**, the number of PR items decreased from 12 at input to 9 at output and their share among all statements fell from 14.1% to 9.9%. Two-thirds of the remaining PR items achieved high overall agreement (6 out of 9), and almost half reached cross-group consensus (4 out of 9), but a third were polarising (3 out of 9). This suggests that the PR space narrowed over time: fewer PR items remained at the end of the process, and a small but polarising minority persisted, indicating shrinking common ground and a concentration of disagreement.
- In **Katowice**, the number of PR items increased from 13 to 17, but their relative share declined from 43.3% to 38.6%, as non-PR content grew. High overall agreement on specific PR statements was common (14 out of 17). Still, these statements were not widely shared across opinion groups: only two out of 17 reached cross-group consensus, while four were polarising. This combination of high agreement and limited consensus indicates that different groups supported different subsets of policy-relevant measures, and that polarisation remained visible.
- In **Stara Zagora**, both the number and the share of PR items grew (from 9 to 12 and from 32.1% to 42.9%). High agreement was almost universal (11 out of 12 PR statements) and translated into a comparatively strong overall consensus (6 out of 12), with only one PR item emerging as clearly polarising. Overall, the Stara Zagora pattern suggests a more apparent convergence around policy-relevant content than in the other cases.

Across all three cases, high overall agreement on PR statements was thus common, indicating broad receptivity to policy-framed ideas at the end of the process. Consensus was more selective. A shared descriptive pattern is that **PR statements which are concrete and close to everyday services (e.g. mobility and transport options, alignment between education and skills, health and public services) are more likely to register cross-group consensus than abstract or identity-laden framings.** This is a descriptive tendency seen across sites, not a statistically tested causal claim.

A polarising minority of PR items persisted in each case. These items are typically linked to transition trade-offs, such as energy transition modalities in Katowice, private low-emission vehicles in Stara Zagora, and selected agri-food/health measures in Norrbotten. **Implementation choices (who pays, who benefits, pace, and distribution) can split opinion groups even where overall agreement is high.**

Grounded (i.e. important for LECs) PR statements tended to fare better on acceptance where a grounded vs. ungrounded contrast existed, though small numbers and uneven availability limit the strength of this conclusion. Finally, discussions around PR statements in all cases touched on across cases recurring TC aspects such as mobility, education and skills, and everyday quality-of-life issues (including transport and energy infrastructure and public services), suggesting a shared emphasis on aspects in the human (C) and tangible TC categories within sustainability transition policymaking. The prominence of policy-relevant statements on mobility, education, and everyday services also echoes the TC clusters that reflect communities' guiding long-term visions in Chapter 5, while the selective nature of consensus resonates with the situated legitimacy dynamics discussed in Chapter 6.

7.2.3 Equality and Preferred futures

Addressing the third research question, this subsection assesses equality by examining Preferred-future (PF) statements as a proxy for the visibility of LECs' perspectives in the final output, and by analysing agreement, consensus, and polarisation around PF content. Additionally, the analyses interpret the number of new Preferred-future statements and their related TC aspects.

Table 32 shows that **PF statement counts grew in all three cases.** In Norrbotten, PF items increased from 39 at input to 46 at output, with their share among all statements rising from 45.9% to 50.5%. In Stara Zagora, PF statements increased from 11 to 16 and their share from 39.3% to 57.1%. In Katowice, PF counts also grew (from 15 to 20), but their share declined slightly from 50.0% to 45.5%, reflecting an increase in non-PF content. Given that Katowice had by far the most voters among all cases, this slight decline can be interpreted as a potential indication that PF content rooted in LECs becomes relatively less prominent as the participating population broadens.

Table 32 Overview of Preferred future statements from input to output.

Case	Norbotten	Katowice	Stara Zagora
Number of Input statements	39	15	11
Number of output Statements	46	20	16
Share in Input statements	45.9	50.0	39.3
Share in output statements	50.5	45.5	57.1
High Agreement	73.9% (34/46)	75.0% (15/20)	93.8% (15/16)
Consensus	19.6% (9/46)	25.0% (5/20)	43.8% (7/16)
Polarising	15.2% (7/46)	25.0% (5/20)	6.3% (1/16)
New Statements	17	5	8
TC Aspects of new statements	Community Regional governance Farming Local food Green technology Housing Open space Public services Public transport Rural entrepreneurship Schools Tax system	Education Energy transition Jobs and reskilling Social capital	Active mobility infrastructure Car infrastructure Green technology Climate and environment Cultural programmes Education Private capital Institutional capital Green space Jobs Municipal property Public transport

	Young people Healthcare system		Sports and recreation facilities

PF statements are broadly accepted. PF outputs show high overall agreement in all cases (ranging from around three-quarters to more than nine-tenths of PF items), and cross-group consensus is present but variable: highest in Stara Zagora, lowest in Norrbotten, and intermediate in Katowice. This pattern is consistent with PF statements being aspirational and accessible across audiences. Additionally, in both Norbotten and Stara Zagora, nearly 50% of new statements appeared to be PF-relevant after the use of Pol.is. This could be interpreted as the PFs of the LECs being widely shared. Recurring TC aspects in PF statements include mobility and transport and everyday quality of life, such as housing, green space, and public services.

Cross-group consensus (CS) for PF statements varies across cases but does not show a systematic relation with groundedness. Across cases, PF items tend to show high acceptance regardless of whether they are coded as grounded in LECs' perspectives (G = yes) or not, and differences between grounded and ungrounded PF items are often small due to very small ungrounded counts, especially in Norrbotten. As a result, any claim that groundedness systematically raises PF acceptance should be treated with caution.

Despite these commonalities, there are **clear differences in polarisation around PF statements**. Katowice shows the strongest PF polarisation, with roughly one in four PF items qualifying as polarising, suggesting a discussion of trade-offs (who wins, who loses) in how urban and energy futures are framed. Norrbotten sits in between, with some PF polarisation but overall lower levels than in Katowice. Stara Zagora, by contrast, has only minimal PF polarisation: disagreements are largely confined to a single thematic cluster around low-carbon mobility and its related infrastructure. Reading PF patterns as a proxy for the visibility of LECs' perspectives directly connects to the representation of the concerns of an advocacy community raised in Chapter 6.

Overall, equality is partly supported: PF statements linked to LECs remain strongly present and broadly accepted, but the relative prominence of PF content and the degree of polarisation vary across cases, and equality of visibility and influence cannot be assumed.

7.2.4 Democratic life at scale – reflection and discussion

Taken together, the DUST experiments suggest that the hybrid format of RFLLs using Pol.is has succeeded in scaling up deliberation, while only partially resolving challenges around transparency and equality.

In terms of scale, all cases demonstrate that Pol.is is capable of broadening participation beyond the smaller, more intensely facilitated RFLL workshops. Katowice stands out with by far the highest number of voters and votes cast, but the comparison of votes per voter and statements per author shows that smaller publics, such as in Norrbotten and Stara Zagora, can generate equally intense and wide-ranging online discussions. The presence of multiple opinion groups in each case further indicates that the exercise did not simply amplify a single dominant group, but instead supported a more diverse engagement with questions of territorial sustainability transitions.

Transparency was assessed by following policy-relevant seed statements through the Pol.is process and examining their performance in terms of their share among all statements and their levels of agreement, consensus, and polarisation. **Across all three cases, a large share of policy-relevant statements achieved high overall agreement**, indicating that policy-framed

ideas can resonate broadly when presented in an accessible format. At the same time, **consensus across opinion groups was more selective**, typically emerging around concrete, everyday issues such as mobility and transport options, public services, skills and education. **A persistent polarising minority of policy-relevant items remained in each case**, often linked to transition trade-offs and implementation questions. These findings emphasize that the process reveals not only areas of broad agreement but also where deeper value conflicts and distributional issues most likely persist.

An important additional aspect is the role of new statements. In **all three cases, participants added substantial numbers of new policy-relevant and Preferred future statements**, often linked to further TC aspects such as youth, jobs and reskilling, energy transition, mobility, housing, or social capital. This shows that the broader public did not only react to RFLL-derived statements but actively expanded the agenda. In Norrbotten and Stara Zagora, in particular, a significant share of new PF-relevant statements suggests that futures articulated by the LECs resonate widely. Moreover, new policy-relevant statements sometimes introduced emphases that went beyond the original RFLL focus, underlining that **upscaling can both reinforce and reframe LEC priorities**.

Equality was operationalized in relation to both the design features of Pol.is and the groundedness of statements in the perspectives of the LECs. By anonymising participants, removing direct replies, and treating each vote as a single unit, Pol.is reduces some of the familiar effects that can distort face-to-face deliberation and make both majority and minority clusters of opinion visible. However, equality also depends on who gets to shape the agenda. Here, the RFLL process plays a crucial compensatory role: by giving the LECs dedicated time and support to formulate seed statements, it increases the chances that their concerns enter the digital deliberation on more equal terms. The analysis of Preferred future (PF) statements suggests that such futures-oriented contributions are widely accepted across cases, with especially strong agreement and consensus in Stara Zagora, more mixed patterns in Norrbotten and higher polarisation in Katowice. **This indicates that while the hybrid format creates space for marginalized perspectives to be heard and taken seriously, equality remains reliant on continuous attention to agenda-setting, thematic framing, and the visibility of smaller but significant positions.**

Overall, the cases illustrate different starting points and trajectories. Where consensus is already high, as in Stara Zagora for both policy-relevant and Preferred future statements, regions may be closer to implementation or piloting, albeit with the caveat that high agreement does not automatically resolve tensions around ‘who pays, who benefits’ and the pace of change. Where polarisation persists or is more pronounced, as in Katowice’s policy-relevant and Preferred-future clusters or specific measures in Norrbotten and Stara Zagora, the results point to the need for targeted follow-up deliberation that makes trade-offs explicit and supports evidence-sharing across groups. At the same time, the experiments highlight a measurement gap: to fully assess reach, learning, and shifts in consensus over time, **future iterations should more systematically track participation baselines, the evolution of new statements and per-statement trajectories from input through intermediate stages to final outputs.**

8 The RFLLs in a place-based policy perspective

8.1 Introduction

Place-based approaches recognize that the relative costs and benefits of development policies have political, economic, and social consequences with a clear territorial dimension. Against this background, they typically (1) use regulatory and strategic frameworks to articulate a logic or vision for development, based on the interaction of local community and general knowledge and the input of endogenous and exogenous actors, (2) use multi-level governance structures to mobilize local actors to contribute to decisions targeting investment, enhance local capacities for co-design of policies, and strengthen local commitment, and (3) target the needs and potentials of specific territories or communities, based on a multisectoral perspective that incorporates and supports social, economic, and environmental dimensions according to their specificities.

Various benefits of citizen participation in place-based sustainability transition policymaking are identified in the literature (Georgieva & Ferry, 2024b). Transitions are potentially contentious processes. In this context participation is needed **to articulate and legitimize priorities at governmental and community levels** (Mercier, 2020; OECD, 2019) and participatory governance is crucial to address mismatches between the territorial scale of transitional development, the multi-level institutional boundaries of public authorities, and the places of affected communities (Sandercock, 2005). Communities hold important **local knowledge about needs and development potentials**. Informing policies by this knowledge can act as a driver of collective action and identity (Morgan, 2018). Neglecting places and communities that are the most vulnerable in the face of the transitional challenge erodes trust in governance, and increases resistance to change (European Commission, 2022; Wanzenböck & Frenken, 2020). Participation in place-based measures can support inclusion of specific social groups and communities and **increase their trust** (Green et al., 2017; Lee, 2019). In the context of trust, participation is also crucial to recognize the emotional and cultural dimension of place-specific structural changes and to ensure affective policy response to the damage to and loss of cultural identity, social capital, and livelihoods (Beer et al., 2020). In theory, place-based approaches to sustainable transitions benefit from addressing complex linkages and interactions between different issues in a given territory. To achieve this, place-based measures assume multi-level governance structures that can achieve necessary **interaction and coordination** within functional geographies and **foster bottom-up contributions to social governance** by - amongst others - local communities and citizens (Benz, 2021, Rodríguez-Pose & Ketterer, 2020).

The RFLL format was developed to involve communities that are affected by sustainability transitions but least-engaged in deliberating place-based policymaking. Through the positioning of deliberation at the intersection of ongoing policy and community interests, the lab format sought to contribute to **legitimacy formation around ongoing policymaking**. Through the comparison of interests, it was to contribute to identifying matches and mismatches between these interests. Extensive deliberation about transitions and transition policymaking was intended to bring **local knowledge** to the foreground. Interaction with policymakers and the facilitation of reflexive learning processes aimed at the **building of social capital including trust**. Visual representation considered emotions and cultural identities and, thus, **affective communication and knowledge production**. The labs did not aim at concrete policy decisions,

but the positioning of communities interests in multi-level social governance of transition policymaking. This **contribution to social governance** was to be fostered through broad framing, the successive detailing of multiple community-led policy statements, and the final targeting of policy arenas with these positions.

Each RFLL involved policymakers and other institutional stakeholders in ongoing key sustainability transition policy measures that correspond to the characteristics of place-based policymaking. After the conclusion of the labs, two of these participants were interviewed. This chapter presents an assessment of the RFLL format through the lenses of these policymakers.

Research questions

- What aspects of the RFLL format influenced the targeting territories and communities in place-based policymaking?
- What aspects of the RFLL format have influenced cooperation among communities and between communities and policymakers in place-based policies?
- What was the perceived performance of the RFLL components policy co-creation, the adapted FLL format, visual language, and digital deliberation in place-based policymaking?

Baseline indicators

The DUST analytical WPs 2 and 3 have investigated policy factors influencing participation. Results from this research, synthesized in the DUST deliverable D3.4 (Georgieva & Ferry, 2024b), has informed the set-up of the RFLLs and contributed to the structuring of attention to the performances of the format in place-based policymaking. Detailed results from the earlier were also considered as baseline indicators in the assessment of interviews (Table 33).

Table 33 Interviews with policymakers in the RFLLs – indicators.

Indicator group	Indicator
Targeting of specific territories and communities in place-based sustainability transition policymaking	Knowledge and understanding of the implications (benefits and drawbacks) of policy design for local places and communities
	Consideration of local places and communities in policy rationales and strategic objectives
	Consideration of vulnerabilities of communities and places that are due to sustainability transitions
	Consideration of less- and least-engaged communities' interests in policymaking
	Targeting and mobilization of less- and least-engaged communities in policymaking
	Perceived 'closeness to people' of place-based policymaking
Decentralized and collaborative social governance in place-based sustainability transition policymaking	Delegation / decentralisation of tasks to regional or local levels and to territorial stakeholders and communities
	Perceptions of 'bottom-up' vs 'top down' governance dynamics
	Skills to implement citizen participation in a MLG setting
	Capacity to reach out to citizens at the local level (particularly to less- and least-engaged communities)
	Capacity to mobilize citizens at the local level (particularly less engaged communities)
	Sector collaboration between governmental, private (market), and community (third-sector) actors
	Low rivalry between local actors involved in sustainability transition measures
Local knowledge in place-based sustainability transition policymaking	Broad local knowledge
	Knowledge about the particularity / uniqueness of a place / region
	Knowledge about the specificities of sustainability transitions in a place / region
	Knowledge exchange between local and supra-local actors
	Links between theoretical and practical knowledge / experiences

Source: D3.4 (Georgieva & Ferry, 2024b).

Methods

To identify a policy perspective on the RFLL format, semi-structured interviews were conducted with policymakers who participated in the labs. The online interviews were carried out after the

conclusion of the last workshop in the labs and lasted between 30 and 60min. Interviews used predefined questions, structured around several topics. Table 35 lists these questions and topics. All interviews followed the guidance with minor variations concerning emphasis. After the conclusion of interviews, these were translated from national languages into English, and assessed on individual answers. Answers were then firstly structured and adopted in tables, and secondly summarized. Summarizing similar answers and answers clustering around distinct sub-topics used an LLM. To guarantee correct conclusions the output of this use was carefully compared to table entries and revised accordingly.

A set of critical remarks on the used method are required. As noted above, the interviews were carried out after the conclusion of the last workshop in the labs. There were, however, various periods between conclusion and interview conduction. Additionally, there are variations in how often interviewed policymakers frequented RFLL workshops. Last but not least, interviewees had different functions in place-based policymaking in regions (Table 34). Another critical remark concerns the interview questions. Several questions related to nuanced aspect of place-based policymaking. Responses to questions indicate that some of these nuances were not fully taken account of during the restricted interview time.

Table 34 Interviews with policymakers in the RFLLs - interviewees.

Interviewee	Case region	Affiliation of interviewees	Participation in RFLL workshops	Date of the interview 2025	Format (face to face/online)
1	Norrbotten	Region Norrbotten	First, second, and fourth	July 2025	No data
2	Norrbotten	Municipality of Boden	Third and fourth	July 2025	No data
3	Lusatia	District of Spree-Neiße (delegate for gender equality, and child and youth participation)	Fourth	10 July 2025	In-person
4	Lusatia	UNESCO 5 - Heritage of Lusatia, UNESCO	Fourth	10 July 2025	In-person
5	Katowice	Marshal's Office of the Silesian Voivodeship	In two	July 2025	No data
6	Katowice	University of Economics Katowice	All	14 July 2025	Online
7	Stara Zagora	Municipal government	No data	July 2025	No data
8	Stara Zagora	Government	No data	July 2025	No data

Table 35 Interviews with policymakers in the RFLLs - interview questions.

Indicator group	Indicator
Targeting of specific territories and communities in place-based sustainability transition policymaking	What new place-based policy-relevant messages / narratives / storylines - if any - emerged during the labs?
	What is your opinion about the relevance of discussions in / outcomes of the RFLLs for policymakers?
	What aspects of the lab have helped or hindered this relevance?
Decentralized and collaborative social governance in place-based sustainability transition policymaking	Which aspects of the labs - if any - have supported or hindered giving communities a voice in policy deliberations at different levels of government?
	Which elements of the labs - if any - have strengthened collaboration (or social networks?) either within communities or between communities and policymakers?
	How - if at all - have the labs changed your perceptions of / attitude towards / knowledge about involving LECs in sustainability transition policymaking?
Local knowledge in place-based sustainability transition policymaking	What new local knowledge about involved LECs - if any - have you gained during the labs?
	What new local knowledge about the region - if any - have you gained during the labs?
Policy dissemination	Which policies should the RFLL results be targeted at?
	Where should the RFLL results be disseminated and to whom?
Policy co-creation	What elements of the co-design process worked well?
	What was most challenging about the co-design process?
	Would you consider using citizen co-design processes in the future?
Futures literacy	Is there a place for the FFL format in policymaking?

Indicator group	Indicator
	In what ways can citizen futures literacy inform policymaking?
Visual language	What - if any - value do you see in these visualisations?
Digital deliberation	To what extent did the results of the Pol.is online deliberation meaningfully inform or influence the discussions and outcomes of the RFLLs?
	Would you consider using digital citizen engagement tools like Pol.is in the future?

8.2 Findings

8.2.1 The performance of the RFLLs in place-based policymaking

Box 8The RFLLs for place-based policymaking: Summary of findings.

RFLLs support policymaking that builds upon a region's territorial assets and responds to communities' needs.

Messages of relevance for place-based policymaking and participation

- Highlighted policy-relevant messages from the RFLLs emphasize policies addressing **the social dimension of sustainability transitions.** This indicates that the labs have contributed to a greater recognition of this dimension by policymakers.
- Accounts of the social diversity and polarisation within LECs, significant differences in their lived realities as well as their awareness of the local impact of policymaking revealed **the importance of considering LECs' concerns** to place-based policymakers.
- The labs generated insights into **LECs' willingness and capacities for participation** in place-based policymaking. Specifically, they increased policymakers' understanding of young people's motivation and knowledge for critical engagement.
- **Perceived policy barriers** to the implementation of the RFLL format were in missing links to ongoing place-based policymaking and difficulties in mobilizing LECs. Perceived **community barriers** were a lack of representation and deeply-rooted scepticism toward institutional processes.
- **Framing deliberation with topics of both LEC and policy concern** acted as a door-opener for meaningful conversations between LEC members and policymakers and has enhanced common understanding. The adapted **FFL format** was seen as a specifically important instrument for inclusive and meaningful deliberation.
- Practical measures that were associated with **enhanced LECs' ability** to participate in the RFLLs include personal contact, trusted intermediaries, convenient venues, and a friendly atmosphere. Concise communication was also seen as an important feature of the labs and of participation more broadly.

Giving communities a voice in place-based policymaking

- Policymakers observed that giving LECs a voice was greatly enhanced by the possibility of **letting participants speak freely** and **raise their own issues**. Specifically young peoples' willingness to contribute grew when they realized that their opinions were valued and taken seriously.
- Perceived barrier to the platforming of voices by the RFLL format were in feasibility and - more importantly - in turning the RFLL results into concrete policy action. A specifically

pertinent challenge was seen in **meeting LECs' expectations** concerning impact of the RFLLs.
- The informality and openness of the RFLL format as well as its orientation to collaborative co-creation were seen to be important for fostering LECs' voices. The **distance of the labs from the formal planning and policymaking apparatus** was perceived to be crucial for the platforming of LECs' voices.

Collaboration and social governance

- According to policymakers, the RFLLs contributed to **LECs' social capital and trust** through active and extensive face-to-face interaction, the recognition of LECs as genuine groups, and through providing LECs with the possibility to actively shape outcomes.
- The RFFLs improved relations between LECs and policymakers through demonstrating **policymakers' ability to listen and learn** and through providing insights into policy decision-making.
- Mentioned specific aspects of the RFLL format that have strengthened collaboration highlight the importance of **active participation, informality**, and the **continuity of interaction** across a series of workshops.

Targeting policy and governance arenas

- The comprehensiveness of LECs' positions on place-based policymaking was associated with their **relevance for a wide array of MLG arenas.**
- **Higher levels of government** were portrayed as desirable recipients of LECs' recommendations. **Specifically, the national level** was perceived as an important but sensitive target arena. The RFLLs captured the top-down versus bottom-up dynamics in sustainability transition policymaking landscapes; results were perceived as potentially **enforcing local perspectives in this national context.**
- Also, the **local and regional levels** were seen as relevant arenas for the uptake of LECs' positions. Specifically, it was recommended to target existing (sector) initiatives and networks at these levels. LECs' social concerns were seen to constitute a need for policy sector integration specifically at the municipal level.
- **Non-governmental and public audiences** were seen as important for the dissemination of LECs' positions and for triggering debate around these.
- Barriers to dissemination were seen in the **complexity of the RFLL output** on the one hand and the often **sectorial orientation of specifically government bodies and programs** on the other.

Messages of relevance for place-based policymaking

Policy-relevant messages generated by the RFLLs emphasize the social dimension of transitions and place-based transition policymaking. This indicates that the labs have contributed to a greater recognition of this dimension by policymakers. When asked what new place-based policy-relevant messages - if any - emerged during the labs, one interviewee pointed at the perceived importance of housing construction and communication in policymaking (Interviewee 2). Two interviewees mentioned challenges in education and skills development (Interviewees 7, 8). A third interviewee highlighted the role of local youth clubs, describing them as central spaces for social cohesion and participation (Interviewee 3). These messages reflect LECs' specific concerns about social and human capital development expressed during the RFLL workshops and are thus indicative for a higher recognition of these concerns by policymakers.

An account of the social diversity and polarisation within LECs, significant differences in their lived realities as well as their awareness of the local impact of policymaking revealed the importance of considering LECs' concerns to place-based policymakers. When asked for new place-based policy-relevant messages, one interviewee explained that the labs demonstrated the social diversity within LECs and, by visualizing their polarization, illustrated how difficult it is to unite everyone behind a single transition agenda (Interviewee 5). Other interviewees emphasized an account of significant differences in LECs' lived realities and concluded on a need to take these differences seriously in uniting policy responses (Interviewee 3). A third participant noted that conversations with LEC members often focused on the local impact of policymaking and that such exchanges revealed to him/her how regional-level decisions can affect people in their everyday lives and how important it is to engage in dialogue with LECs therefore (Interviewee 1). Other interviewees highlighted that the labs demonstrated the importance of taking local perspectives seriously (Interviewee 4) and pointed at LECs' willing to cooperate and the importance of a broader and more inclusive perspective against this background (Interviewee 6). In conjunction these notions demonstrate that the RFLLs have increased policymakers' consideration of LECs' interests and concerns.

The labs generated insights into LECs' willingness and capacities for participation in place-based policymaking. When asked about the relevance of discussions in and outcomes of the RFLLs for place-based policymaking, interviewees recognized that LECs not only want to be involved but are also well-informed, critical, and aware of regional problems (Interviewees 3, 7). **Specifically, they increased policymakers' understanding of young people's motivation and knowledge for critical engagement.** One of the RFLLs was dedicated to youth participation, while two others involved young people as sub-communities or individual participants. Interviewees often referred to these youth communities, with some finding the level of activity among young people remarkable and others their participatory skills (Interviewee 3, 5, 7). One respondent detailed that they have the desire, knowledge, and potential to engage productively, contributing meaningfully to formats like the RFLLs (Interviewee 7). The same respondent also emphasized how actively young people seek opportunities to get involved and express their opinions and observed that young people are acutely aware of the most fundamental problems affecting the region, actively seeking out information, and critically assess it. The respondent concluded that young people deserve to be part of the process and that those in positions of power should listen and engage with them collaboratively, as only through such engagement can trust in the system and the process grow.

Policy barriers to the implementation of the RFLL format were in missing links to ongoing place-based policymaking and difficulties in mobilizing LECs. Perceived community barriers were a lack of representation and scepticism toward institutional processes. When reflecting on what has hindered the policy relevance of the RFLLs, interviewees identified several barriers, spanning both policy and community dimensions. On the policy side, the difficulty to situate the RFLLs within the broader planning and policymaking context was mentioned (Interviewee 2). This reflection indicates a lack of integration between the lab format and established administrative structures. An interviewee who has worked with a rural community in the labs also emphasized the persistent challenge of mobilizing groups representing this community (Interviewee 2). On the community side, one respondent pointed out that while young people do have political concerns, they often lack the representative structures to express these (Interviewee 4). Another community barriers related to trust and participation. One respondent noted that many decision-makers lack support of the public, reflecting widespread scepticism toward institutional processes (Interviewee 3).

Framing deliberation with topics of both LEC and policy concern acted as a door-opener for meaningful conversations between LEC members and policymakers and has enhanced common understanding. When reflecting on how the RFLL format as a whole has enhanced policy relevance and participation, one of the respondents highlighted the importance of topics of shared community and policy concern for initiating meaningful conversations: "Shared topics are definitely a door-opener. When people realize they have similar concerns, conversations begin" (Interviewee 3). Another one emphasized that the format brought together perspectives from LECs and policymakers in an engaging and inclusive way, and that this convening has promoted understanding across the diverse groups (Interviewee 5). **The RFLL format was seen as a specifically important instrument for inclusive and meaningful deliberation.** One interviewee noted that "[t]he Futures Literacy Lab format was really helpful in that regard because it enabled shared discourse. And citizen engagement was tangible - it made a difference" (Interviewee 3). Another interviewee, referring to the futuring exercise, said that "[t]he process helped bring together perspectives of very different stakeholders in an engaging and inclusive format" (Interviewee 4). Reflecting on the role of the WS2 (using the adapted FLL format) within the wider RFLL process, one interviewee emphasized that connecting LECs' Preferred future with the public (digital) deliberation was particularly effective and the most important aspect of the RFLLs (Interviewee 6). A more comprehensive appreciation of the FL approach was that it demonstrated that traditional research methods used for involving a community perspective in policymaking - such as questionnaires - are insufficient and do not provide a full picture (Interviewee 6).

Practical measures that have enhanced LECs' ability to participate in the RFLLs include personal contact, trusted intermediaries, convenient venues, and a friendly atmosphere. When asked about individual aspects of the RFLL format that enhanced policy relevance and participation, participants highlighted several practical points. They noted that personal contact was essential and that dialogues were effective because they were facilitated by trusted intermediaries (Interviewees 3, 5), with one respondent emphasising that trust and grown relationships - whether personal or institutional - were key to fostering engagement (Interviewee 5). The interviewee also summed up several other practical aspects of the workshops fostering participation. The choice of venue was seen to be important, with workshops held in comfortably accessible locations for LECs, a friendly atmosphere encouraged engagement, the diverse composition of the participant group mattered, and that it included local people who were genuinely concerned about what happens in their city and region. **Concise communication was also seen as an important feature of the labs and of participation more broadly.** One of the interviewees noted that communication in the labs allowed people to express themselves and made sure that they are heard, highlighting the significance of listening (Interviewee 3). Another respondent pointed at the importance of extensive dialogues for an understanding of the meaning of the lab processes (Interviewee 1). Lastly one interviewee reflected on the RFLL WS3 when pointed policy messages for digital deliberation were to be formulated. The respondent observed that these short, single-sentence messages avoided complicated vocabulary and helped making information accessible (Interviewee 5).

Giving communities a voice in place-based policymaking

Giving LECs a voice was greatly enhanced by the possibility to let participants speak freely and raise their own issues. When asked which aspects of the labs had influenced giving communities a voice in policy deliberations at levels of governance, interviewees highlighted that creating an environment that allowed everyone to express their views equally and gave participants the opportunity to speak freely about sensitive topics such as the transition was highly valuable (Interviewees 5, 6). Another respondent observed that all participants had the

chance to raise issues, and additionally noted that the synthesis of views in summaries strongly supported giving LECs a voice (Interviewee 1). One respondent noted that **specifically young peoples' willingness to contribute grew when they realized that their opinions were valued and taken seriously** (Interviewee 3), while another remarked that the RFLLs were worthwhile for fostering exchange and bridging the gap between politics and youth (Interviewee 4).

Barrier to the platforming of voices by the RFLL format were in feasibility and - more importantly - in turning the RFLL results into concrete policy action. Several interviewees highlighted challenges involved in giving communities a voice in policymaking via the RFLLs. One respondent noted that the RFFLs required significant effort (Interviewee 4). Several interviewees pointed at difficulties concerning the concrete outcome and impact of the labs. One of these remarked that the step of determining how to process the outcomes in policymaking is particularly important but challenging, emphasizing the difficulty of translating dialogue into concrete action (Interviewee 1). Others referred to the challenge of converting participants' messages into policymaking and highlighted the uncertainty about whether the results of the workshops will genuinely influence future policy (Interviewees 5, 6). **A specifically pertinent challenge was seen in meeting LECs' expectations concerning impact of the RFLLs.** One participant recalled: "They like to participate in the labs, but they always ask us how we use the results of the lab, [..] if the result will really impact the future policy measures" (Interviewee 6). In conjunction these reactions point at missing channels for the uptake of RFLL results in policymaking.

The informality and openness of the RFLL format as well as its orientation to collaborative co-creation were important for fostering LECs' voices. When discussing what aspects of the labs have supported giving communities a voice in policymaking, one interviewee highlighted the engagement of specifically young people in collective co-creation processes: "I think the most important thing was collaboration. Truly working together on topics - not just side by side. When young people see they're not just invited but actually allowed to co-create, it opens up a whole new level of engagement" (Interviewee 3). Others pointed to the openness and inclusivity of the format as well as its low-threshold as factors influencing the voicing of communities' concerns (Interviewees 4, 5). Additionally, the welcoming family-like atmosphere of the labs was seen to be of importance. Specifically, it was highlighted that this atmosphere placed the labs at a distance to policymaking, and that **this distance of the labs to the formal planning and policymaking apparatus was most crucial for the platforming of LECs' voices** (Interviewee 6).

Collaboration and social governance

The RFLLs contributed to LECs' social capital and trust through active and extensive face-to-face interaction, the recognition of communities as genuine groups, and through providing LECs with the possibility to actively shape outcomes. When asked which aspects of the labs had strengthened collaboration, either within communities or between communities and policymakers, several respondents emphasized that direct face-to-face interactions helped foster a climate of cooperation and were likely beneficial for future collaboration and dialogue (Interviewees 1, 4). One interviewee underlined the importance of active participation in the RFLLs by noting that "[f]ormats that allow [participants] to actively shape things are [...] important. It's about opening spaces, not just providing information" (Interviewee 3). Another respondent emphasized the recognition of young people as a politically active community: "When young people feel they're genuinely addressed - and not just treated as a target group - they get involved" (Interviewee 4). Finally, one of the respondents highlighted that the labs helped create connections through providing participants with sufficient time to understand each other's perspectives (Interviewee 1).

The RFFLs improved relations between LECs and policymakers through demonstrating policymakers' ability to listen and learn and through providing insights into policy decision-making. Some interviewees elaborated benefits from the participatory encounters for relations between LECs and policymakers. One of the interviewees noted that the format demonstrated policymakers' willingness to engage in dialogue and to consider different perspectives, signalling openness and the ability to listen and learn (Interviewee 1). The labs were also valued for providing LEC members with an opportunity to gain insight into decision-making processes and to understand how decisions are made, helping them better grasp institutional procedures and reasoning (Interviewees 1, 3). As one interviewee put it: The labs provided an "[…] opportunity to get a glimpse into decision-making processes - to understand how decisions are made - that was very helpful" (Interviewee 3).

Specific aspects of the RFLL format that have strengthened collaboration highlight the importance of active participation, informality, and the continuity of interaction across a series of workshops. When reflecting on how the RFLLs have strengthened collaboration, some concrete elements of the format were named. Dynamic group work, discussions on topics of shared community and policy concern, and conversations of cross-sector relevance were noted to have strengthened cooperation and social networks (Interviewee 5). Two interviewees considered the series of four workshops as a crucial component of the format, as building on each previous session supported collaboration and allowed for the accumulation of understanding and knowledge (Interviewees 3, 5). The repeated interactions were also associated with emerging trust. One respondent explained that when people meet regularly, recognize familiar faces, and genuinely listen to one another, trust is built (Interviewee 3). Informal moments were seen as significant for collaboration, with one participant observing that casual interactions, such as coffee breaks, provided valuable opportunities for participants to meet, talk, and bond (Interviewee 6).

Targeting policy and governance arenas

The comprehensiveness of LECs' positions on place-based policymaking was associated with their relevance for a wide array of MLG arenas. At the end of interviews respondents were asked which policy arenas should be targeted with the RFLL results. When interpreting answers to this question as recommendations for social governance around the RFLL results, some indicative conclusions can be drawn. Most respondents highlighted the comprehensiveness of the RFLL results (specifically those presented in the citizen position papers) and concluded that this comprehensiveness implies a broad array of policy arenas, which can be targeted with results. As one interviewee noted: "the more areas involved the better" (Interviewee 3). One policy field gained particular attention by one respondent, who recognized the emphasis given to quality of life issues by communities. The respondent highlighted that these **LECs' social concerns constitute an important field for needed policy sector integration specifically at the municipal level** (Interviewee 5).

Higher levels of government are desirable recipients of LECs' recommendations. Specifically, the national level is perceived as an important but sensitive target arena. When considered through the lens of governmental levels, several participants in interviews argued that the results should be communicated beyond the local scale (Interviewees 3, 4). An exemplary notion was that "[…] most importantly: [the results] should be carried to the next level, not just thought of locally" (Interviewee 4). Several interviewees emphasized that specifically the national level represents a significant audience for the outcomes of the RFLLs (Interviewees 1, 2). One respondent remarked that addressing issues at the national scale requires careful consideration, reflecting the sensitivities of MLG coordination in the context of transition policymaking. Another noted that many challenges that were identified by LECs are already

recognized within municipal policy practice, but often meet obstacles from national politics. The same participant further stressed the importance of determining how the state can support municipalities undergoing industrial transformation. In conjunction these notions indicate that **the RFLLs captured the top-down versus bottom-up dynamics in sustainability transition policymaking landscapes and that results are perceived as potentially enforcing local perspectives in this context.**

Also, the local and regional levels were seen as relevant arenas for the uptake of LECs' positions. Specifically, it was recommended to target existing (sector) initiatives and networks at these levels. One of the respondents suggested that the results should be directed to local and regional decision-makers, underscoring the importance of addressing the levels at which policies are implemented. In the view of the respondent lessons learnt about participation should be included when reaching out to these levels: "I think [results] should go to local and regional decision-makers. The process and the way [the RFLL format) engaged residents should be shown to those making policy" (Interviewee 5). Another interviewee emphasized that specifically regional governance arenas should be targeted, noting that there are many networks involving politicians from both the regional and municipal level. The RFLL findings were also considered relevant for more sectoral initiatives, including initiatives for sustainable regional development, decentralization, youth participation, and education (Interviewee 8).

Non-governmental and public audiences were seen as important for the dissemination of LECs' positions and for triggering debate around these. Several respondents recommended target arenas beyond the public policymaking ones. Non-governmental organizations were identified as potential audiences for the RFLL results, with a specific emphasis on those maintaining social networks across regions. Several interviewees referred to a public audience as important recipients of results. One of the respondents suggested using local newspapers, official bulletins, digital channels, printed formats, and social media in making the content visible and debatable in the public realm (Interviewee 3). Finally, disseminating the findings to workshop participants was seen as providing important and valuable feedback (Interviewee 5).

While reflecting on the uptake of RFLL results interviewees identified some challenges. **Barriers to dissemination were seen in the complexity of the RFLL output on the one hand and the often sectorial orientation of specifically government bodies and programs on the other.** In this context the importance of strategic communication was emphasized, with one respondent noting that while there are different target groups for results, it is necessary to consider carefully what exactly should be highlighted to whom (Interviewees 1, 4).

8.2.2 The performance of RFLL elements in place-based policymaking

Box 9 The RFLLs for elements in place-based policymaking: Summary of findings.

RFLLs support policymaking that builds upon a region's territorial assets and responds to communities' needs.

Policy co-design

- According to policymakers, co-design in the labs contributed to **a more affective, positive, and optimistic perception of transitional development.**
- Perceived barriers to co-design were in a lack of **representativeness of participants**, the **complexity of issues** discussed, and the mobilization of sufficient LEC members.

Future co-design in RFLLs should consider a diversity of LEC members, local grounding, leadership, feedback to participants, and enhanced informal exchange.

Futures literacy

- The adapted FFL format was seen to have enhanced the **quality of democratic decisions** in place-based policymaking as it contributes to legitimacy, transparency, and efficacy.
- The FFL format was seen to have **addressed fears about structural change**, and **supported a more forward-looking, proactive, and aspirational place-based policymaking.**
- Barriers to the FFL format were seen in required **time commitment,** the availability of **knowledge and skills** needed for implementation, and - more broadly - the institutional readiness of policymaking to adopt the format, specifically seen **existing planning cultures.**

Visual language and representation

- According to policymakers, visual representation **bridged gaps between LEC members and policymakers**, and made abstract policy topics tangible, accessible, and relatable.
- Visual representation was seen to have **sparked discussion and engagement** specifically among young people.
- Critical remarks on the visualizations concerned their **accurate and sensible reflection of local situations and LECs.**

Digital deliberation

- Policymakers noted that digital tools can help spark conversations and make place-based policymaking **more transparent,** thereby also reaching **wider audiences.**
- Identified challenges and barriers to the RFLL digital deliberation were in **motivating participation**, **contextualizing the application**, and a **missing pathway to institutional uptake.**
- Recommendations for digital deliberation highlighted the integration of applications in ongoing policy processes, clear communication, and the **building of institutional capacity for digital engagement.**

Policy co-design

Co-design in the labs contributed to a more affective, positive, and optimistic perception of transitional development. When asked which elements of the co-design process in the RFLLs worked well, one respondent referred to the interaction between LEC members and municipal and regional policy actors and additionally noted that the visual materials were powerful in fostering this interaction (Interviewee 2). Other respondents appreciated working together on ideas and noted that the process created shared understanding (Interviewees 2, 4). The combination of factual topics with emotions - and thus the combination of cognitive and affective communication - was seen to be also of value for co-design (Interviewee 4). One of the respondents reflected that what stood out most was how the whole model focused on opportunities, resources, and potential and thus positive aspects of and prospects on transitional development. The same respondent underlined a need to emphasize such aspects in transition policymaking to encourage constructive, proactive and hopeful mindsets and attitudes (Interviewee 5).

Barriers to co-design were in a lack of representativeness of participants, the complexity of issues discussed, and the mobilization of sufficient LEC members. When reflecting on barriers to co-design in the RFLLs, a number of respondents pointed at a lack of diversity and representation, noting that sometimes more participants, and particularly more diverse participants, would have been desirable (Interviewees 1, 2, 5). Practical challenges also arose around managing the complexity of deliberating multiple topics and the sheer number of contributions (Interviewee 4). The mobilisation of LEC members for the intricate RFLL co-design process was recurringly identified as problematic, specifically considering that sustained engagement over the course of four workshops was needed (Interviewees 2, 5). Another interviewee emphasized that the co-design format needed more commitment from experts for the validation of outcomes (Interviewee 4).

Future co-design in RFLLs should consider a diversity of LEC members, local grounding, leadership, feedback to participants, and enhanced informal exchange. When asked for recommendations for improved co-design in the RFLL model, the aforementioned barriers were mirrored. One respondent re-iterated the importance of direct dialogue with participants from diverse social and professional backgrounds, and recommended enhanced representativeness of groups. Additional advisories concerned better local grounding, greater leadership from academic institutions, and more informal exchanges (Interviewee 5). Another interviewee recommended allowing more time for small group discussions and providing clearer feedback to strengthen reflection and continuity within the process (Interviewee 8). The size and structure of workshops were considered crucial elements that should be maintained, with one respondent noting that having just the right number of participants allowed everyone to speak (Interviewee 1).

The adapted Futures Literacy Lab format

The adapted FLL format can enhance the quality of democratic decisions in place-based policymaking as it contributes to legitimacy, transparency, and efficacy. During the RFLLs the adapted FLL format was used to establish LECs' plausible and Preferred futures. When asked if this format has a place in place-based policymaking, generally positive answers were given and several reasons for including future thinking and visioning in decision-making were linked to the quality of democratic processes. One of interviewees noted that the approach is a viable policy instrument because "[...] it increases the legitimacy of policies and leads to better reflection of the real needs of society. (Interviewee 8)" The futuring exercises were similarly described as providing valuable insights into how people really think and as helping policymakers' understanding what motivates LECs' actions (Interviewee1,4). Involving communities directly in imagining and discussing transition futures was also associated with transparency and efficacy, as it enabled both participants' understanding of how political decisions are made and their contribution of their perspectives on decisions (Interviewee 4).

The adapted FFL format can address fears about structural change, and support a more forward-looking, proactive, and aspirational place-based policymaking. The format was described as helping to change attitudes towards transitions. One interviewee noted that it "[...] offers space for visions, for positive future images. And it can help address fears - like those around structural change. The region has potential, even if there are concerns" (Interviewee 4). The FL approach was also seen as helping to define how to move beyond an expected plausible and closer to an imagined Preferred future, encompassing dreams and aspirations (Interviewee 6). Future literacy - and visioning processes more broadly - were further regarded as valuable tools for bringing structure and direction to policymaking, which was described as often reactive instead of active. Drawing on this observation of a lack of forward-looking strategy, one respondent explained that "[p]lanning is a kind of promise to residents and stakeholders - and

some may prefer not to promise anything at all. But Future Literacy Labs can really help here" (Interviewee 5).

Barriers to the adapted FFL format are seen in required time commitment, the availability of knowledge and skills needed for implementation, and - more broadly - the readiness of policymakers to adopt the format seen existing planning cultures. During the interviews, several challenges, and barriers to implementing the FFL format and other futuring and visioning approaches were identified. One recurringly mentioned challenge was that implementing these approaches requires substantial effort from those involved (Interviewee 5). One of the interviewees explained that all participants needed to invest time and prepare in order to contribute meaningfully, and underlined that such co-creation, while valuable, is a demanding process (Interviewee 5). Some structural challenges to the FLL format as it was implemented in the RFLLs were also mentioned. Referring to the regional scope of the futuring exercise, one respondent emphasized the difficulty of envisioning development at this scale. Balancing tensions between imaginations of local and broader national-level, urban and rural areas, and the centre and periphery was described as a specific challenge (Interviewee 2). Reflecting on contextual conditions for implementing the FL format, another interviewee pointed to difficulties caused by existing planning cultures. They remarked that planning for the future ideally happens with care and respect. However, the skills needed for working with future perspectives and futuring were seen to be insufficiently developed in local authorities (Interviewee 5).

Visual language and representation

Visual representation bridged gaps between LEC members and policymakers, and made abstract policy topics tangible, accessible, and relatable. During the RFFLs futures imagined by communities and in policies were represented in the form of regional design visualisations for informal discussion with lab participants. Responding to the question what - if any - value was in this visual representation, most interviewees agreed that it was a helpful or even powerful tool. Several interviewees pointed out that the visuals bridged gaps between LEC members and policymakers and are - in more general terms - a promising pathway to communicate policymaking (Interviewees 1, 5, 6). A specific contribution of visual representation was seen in its capacity to make abstract issues more accessible and engaging (Interviewees 3, 4). One respondent explained in more detail that the visuals helped LEC members understand and engage with transition policymaking that is often discussed behind closed doors and thus absent from the public discourse and consciousness (Interviewee 5).

Visual representation sparked discussion and engagement specifically among young people. Several notions associated visual representation with engagement. One respondent noted that visuals "[...] make complex topics tangible and create a shared reference point" (Interviewee 3), highlighting their communicative power in facilitating collective understanding. Another respondent noted that visual materials prompted almost everyone to contribute, illustrating their capacity to spark engagement (Interviewee 6). Several respondents highlighted visualization as a tool for specifically involving young people. One of these argued that visual tools can foster their sense of identification and belonging: "Especially for young people, that's important - they can see themselves in it, see their ideas on a map, in an image. That creates identification" (Interviewee 3). Visualization was additionally described as an entry point into civic and political engagement of young people (Interviewee 4). Broader benefits of visual representation were located in the public realm. One interviewee noted that visual materials are much more attractive and user-friendly for the general public, and can capture attention (Interviewee 5). Another interviewee concluded reflection by noting that "[a] picture says so much more than a document" (Interviewee 1).

Critical remarks on the visualizations concerned their accurate and sensible reflection of local situations and communities. Mentioned barriers to the production and use of visualization included scale and engagement. One respondent observed that creating visuals at too high a regional scale is challenging, as visuals can dilute that issues vary significantly between localities (Interviewee 2). Another challenge concerned facilitating dialogue around visual materials. One interviewee reflected that at the beginning of the WS3 - when the visualisations were first introduced - participants did not immediately engage with these and that discussion only emerged when facilitators initiated it during coffee breaks, suggesting that visualization alone does not automatically generate interaction and sometimes requires active moderation (Interviewee 6). When reflecting on how to enhance the use of visualisations in policymaking, one respondent recommended that visual representations "must be discussed with both those who created them and others seeing them for the first time" (Interviewee 2), underscoring sensitivities around understandings of visual languages. The same respondent noted that the visuals should be "bold rather than bland" (Interviewee 2), indicating that they need to capture attention and provoke thought instead of simply illustrating information.

Digital deliberation

Digital tools can help spark conversations and make place-based policymaking more transparent, thereby reaching wider audiences. When asked to what extent did the Pol.is online deliberation meaningfully inform the RFLLs, one interviewee emphasized that, although digital tools should not replace in-person engagement, the application contributed significantly to the objectivity of the RFLL process and were a useful means for highlighting consensus and disagreement around LEC positions, thereby potentially supporting more informed and balanced policy decisions (Interviewee 8). Another respondent highlighted that the online statements that were drafted for the Pol.is application helped initiate lively discussions (Interviewee 3). In answers interviewees often reflected not on the concrete RFLL Pol.is application but a more general use of digital tools in policymaking. In this context it was mentioned that digital deliberation is a way to engage broader and more diverse audiences, with one interviewee suggesting that digital tools should be explored for particularly reaching young people (Interviewee 5). Another observed that digital participation can enhance openness and accountability by making work processes more transparent (Interviewee 4). One respondent noted that digital tools could be applied to gather public input for policymaking more interactively than in traditional consultation, suggesting their value in enriching consultation and broadening the range of voices involved (Interviewee 2).

Challenges and barriers to the RFLL digital deliberation were in motivating participation, contextualising the application, and a missing pathway to institutional uptake. When reflecting on barriers and challenges to the Pol.is online deliberation, one respondent noted that it was difficult to reach a broad and diverse audience, suggesting that despite their potential, online platforms can struggle to engage widely (Interviewee 2). Another respondent reflected that the online deliberation felt disconnected, with important contextual information missing (Interviewee 3). Moreover, institutional uptake was seen as conditional, with one respondent noting that if communities perceive value in digital participation, political actors are more likely to engage as well (Interviewee 2). Interviews also provided recommendations for using digital tools in participatory processes in place-based policymaking.

Recommendations for digital deliberation highlighted the integration of application in ongoing policy processes, clear communication, and the building of institutional capacity for digital engagement. When reflecting on a future use of digital citizen engagement tools like Pol.is, one respondent stressed that such tools need to be anchored locally and clearly linked to decision-making to ensure that online participation produces tangible outcomes (Interviewee 2).

Another interviewee expressed appreciation for digital tools but noted that “they need to be well-integrated. Just putting a survey online - that’s not enough. It needs framing, explanation, and a connection to reality” (Interviewee 3). Similarly, a third interviewee highlighted that digital tools are most effective when well-integrated into broader processes, rather than standing alone, and when combined with needs assessments and clear points of contact (Interviewee 4). Several interviewees emphasized the importance of clear and inclusive communication. Observing one case of the Pol.is applications, respondents noted that topics and questions were formulated too complexly and suggested clustering questions and including interactive elements to enhance understanding (Interviewees 3, 4). Others noted that introducing digital tools in a participant-friendly manner helps increase engagement (Interviewee 5). Finally, one interviewee underscored the need to build institutional capacity, indicating that investment in learning and resources is essential to support meaningful digital engagement (Interviewee 5).

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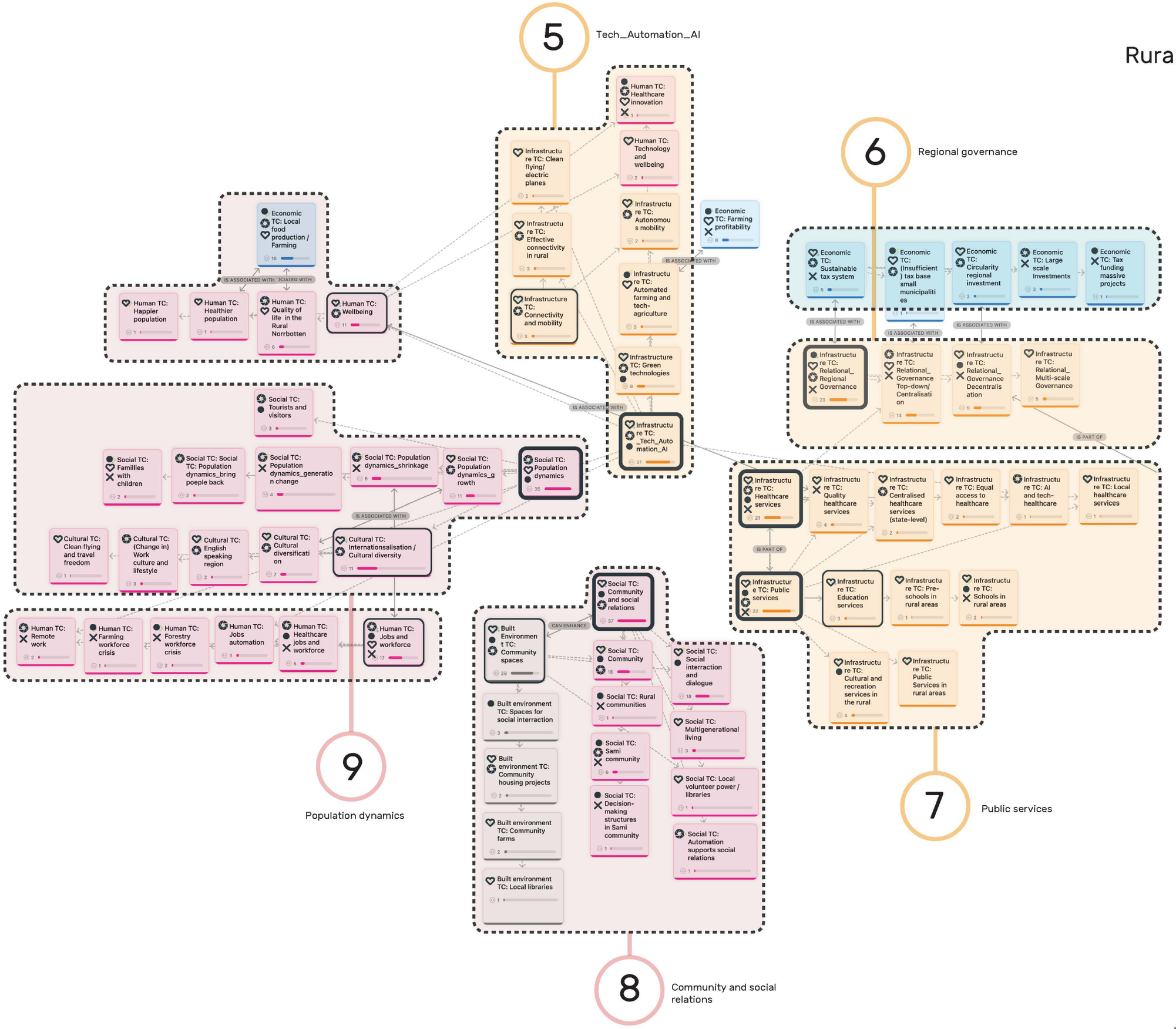
A. TC clusters

Norrbotten

Rural futures. Living in the rural



5 Tech_automation_AI
(related to farming, regional mobility and wellbeing)

6 Regional governance
(related to sustainable tax system)

7 Public services (including health and education services)

8 Community and social relations (including community spaces)

9 Population dynamics (related to jobs, workforce and internationalisation)

The future rural is imagined as an attractive living environment with vibrant, inclusive and innovative communities. Infrastructure and Social TC play the key role in these future visions. Such TC aspects are:

- Tech Automation AI (its role for small farms and local food production; for mobility and connectivity; for home comfort or remote work; healthcare automation; tackeling workforce crisis in forestry, farming and healthcare)
- Public Services, particularly healthcare services (access to quality services; centralisation of healthcare; education, cultural/recreation, essential services)
- Changes in regional governance and regional cooperation (decentralisation and multi-level governance; interregional cooperation with Finland, Norway, and global relations; detachment from Stockholm)
- Community spaces, Community projects and Community interraction
- Population dynamics
- Internationalisation and cultural diversity

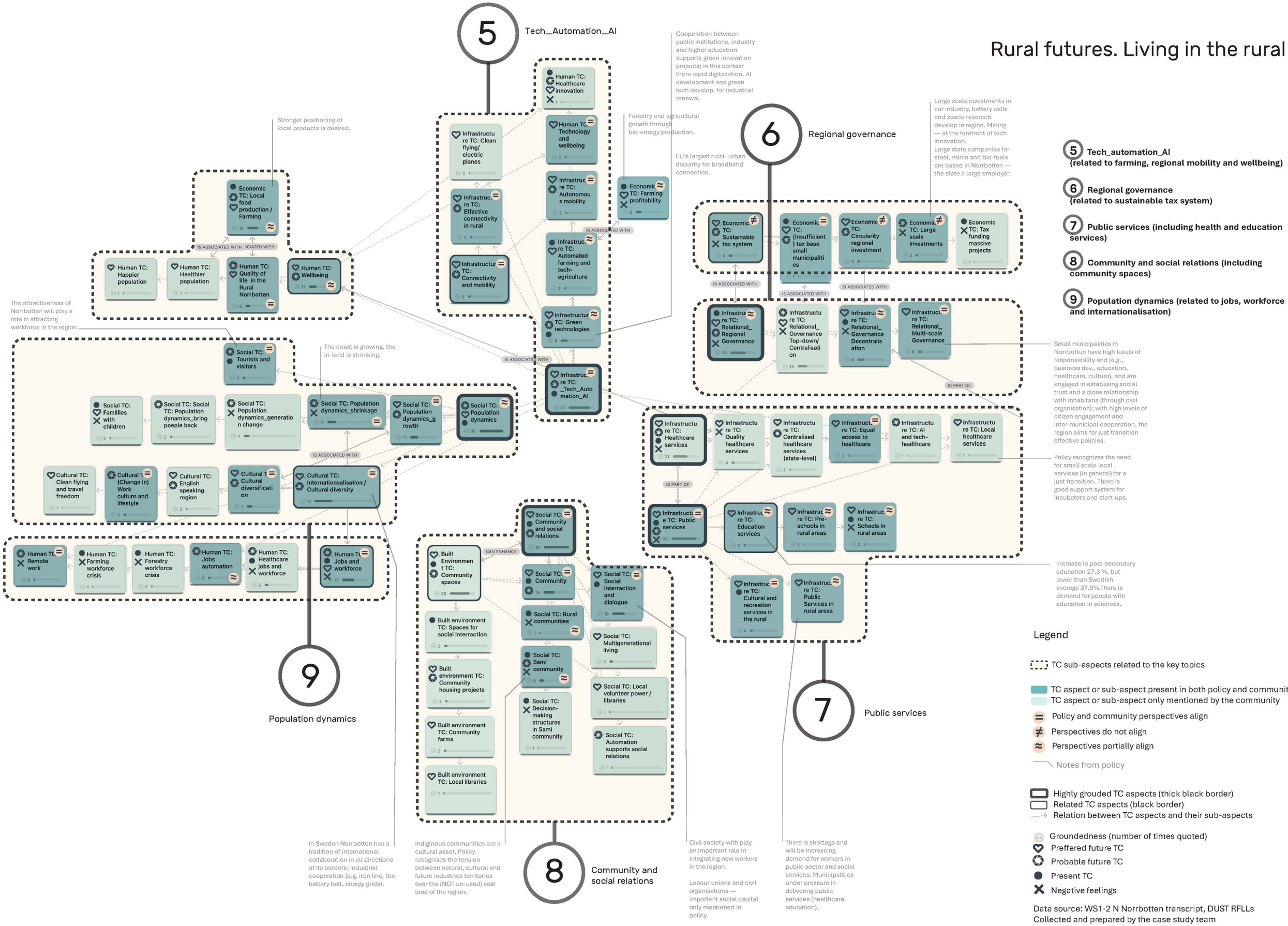
Legend

- Groundedness (number of times quoted)
- Preffered future TC
- Probable future TC
- Present TC
- Negative feelings

- Highly grouded TC aspects (thick black border)
- Related TC aspects (black border)
- Relation between TC aspects and their sub-aspects
- Economic TC aspects and sub-aspects
- Infrastructure TC aspects and sub-aspects
- Social and Human TC aspects and sub-aspects
- Built Environment TC aspects and sub-aspects

Data source: WS1-2 N Norrbotten transcript, DUST RFLLs
Collected and prepared by the case study team

Rural futures. Living in the rural



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Legend

- TC sub-aspects related to the key topics
- TC aspect or sub-aspect present in both policy and community
- TC aspect or sub-aspect only mentioned by the community
- = Policy and community perspectives align
- ≠ Perspectives do not align
- ≈ Perspectives partially align
- Notes from policy
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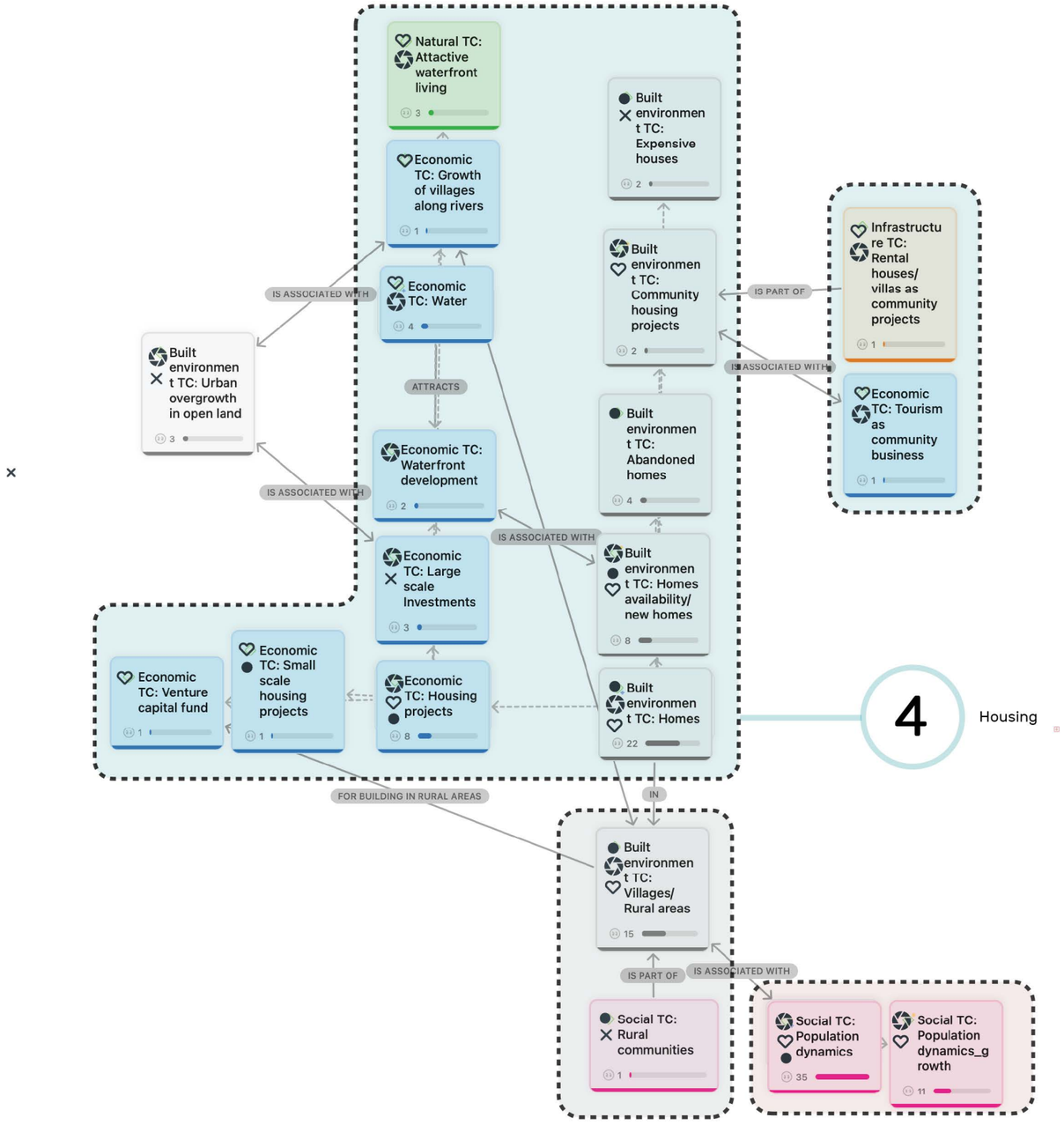
- Negative feelings

Data source: WS1-2 N Norrbotten transcript, DUST RFLLs
Collected and prepared by the case study team

Housing in the rural

4 Housing

This diagram brings together TC aspects related to housing in villages. Built environment aspects (homes) are Economic aspects (types of housing projects) are the key TC categories and have a high overall groundedness. Natural and Social TC aspects, such as consolidating community relations and status, or the attractiveness and value of water are less mentioned TCs, yet meaningful for future approach to housing, and homes. Indirectly, participants note that a resilient growth, depends on population growth and enough local tax base to support spatial growth, services and infrastructure in the rural. The TC aspects related to housing in the rural are more grounded in discussions about the present or probable futures and less mentioned in preffered futures.



Legend

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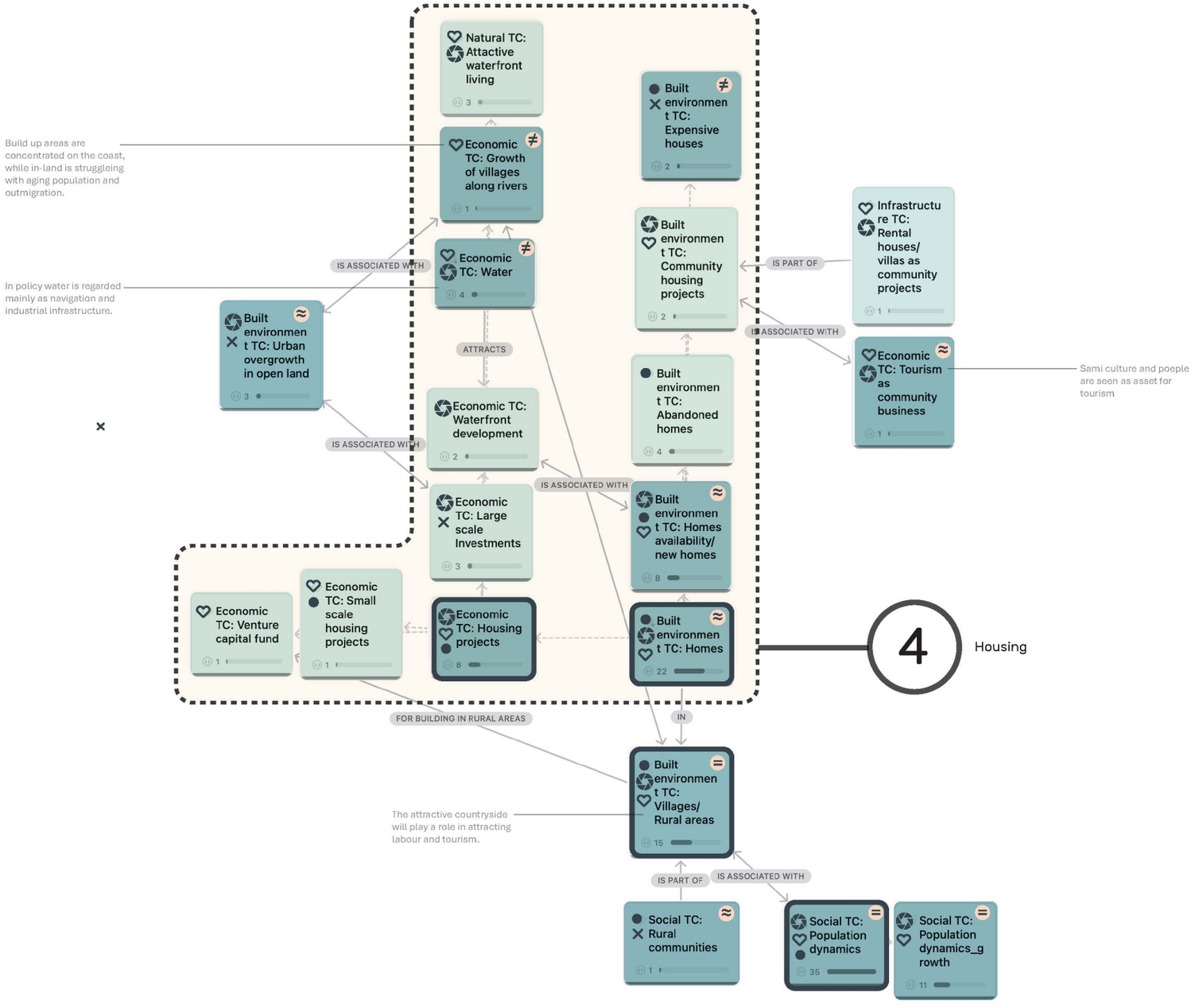
Data source: WS1-2 N Norrbotten transcript, DUST RFLLs
Collected and prepared by the case study team

Housing in the rural



4 Housing

Legend

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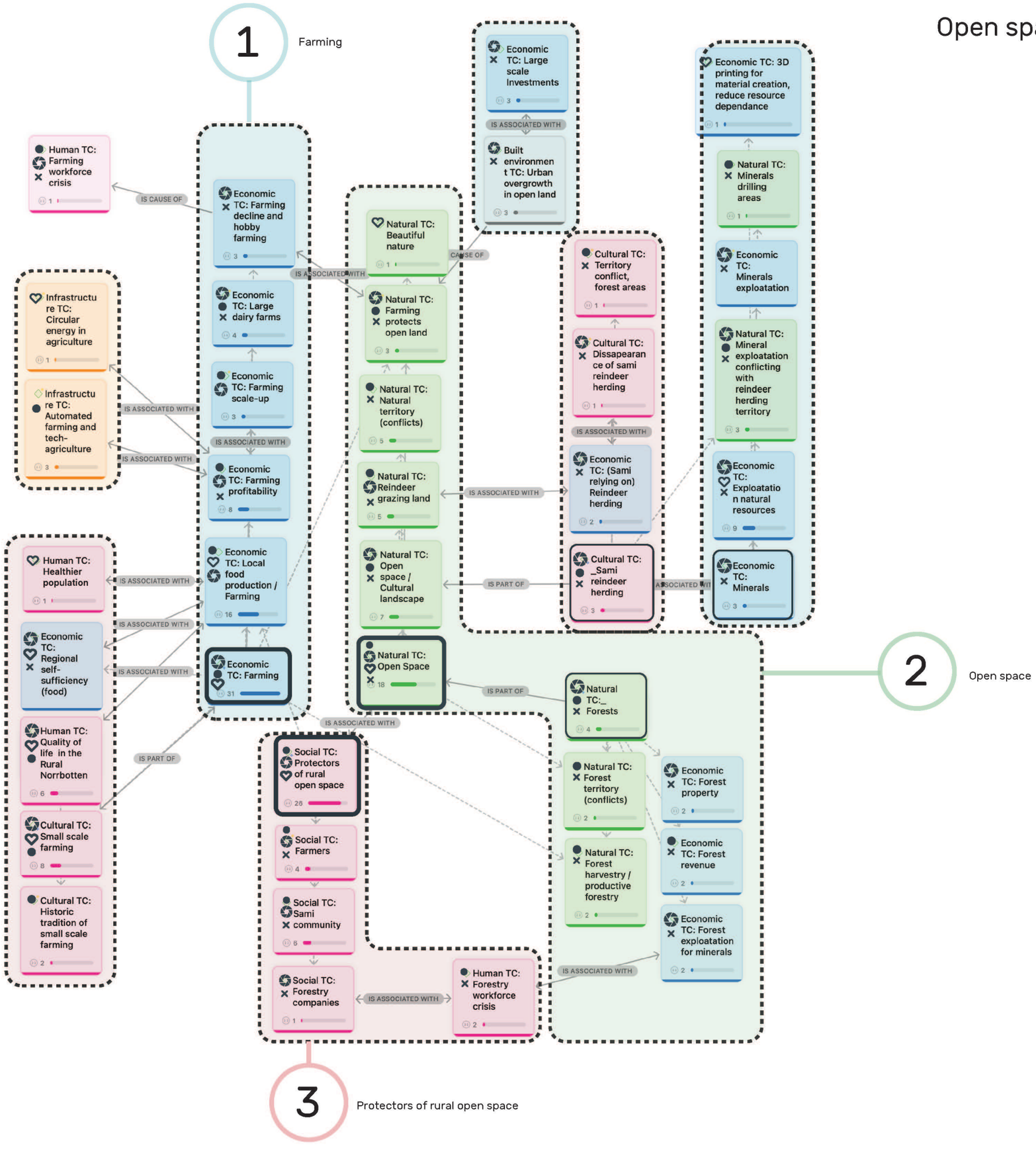
Data source: WS1-2 N Norrbotten transcript, DUST RFLLs
Collected and prepared by the case study team

Open space, farming, protectors



1 **Farming (including related Infrastruture, Human and Cultural related aspects)**

2 **Open space (including 'Forests' and the tention between 'Reindeer herding' and 'Minerals exploatation')**

3 **Protectors of rural open space**

This diagram brings together TC aspects related to 'Open space' (including the related aspects about farming and forests). Even though these TC aspects are highly mentioned in probable futures, at present, and in memories, they are underepresented or missing from preffered futures or visions. Besides mentions of farming and open space presentation and attractiveness, forests, reindeer herding or solutions for natural territory tensions are not part preffered futures. Such TC aspects related to open space are:

- Farming, farmers and small scale farms is perceived as a practice to protect open space. Lack of profitability puts this relation at risk and open space can become vulnerable to urban overgrowth and exploatation of minerals and forests. Large scale farms are not culturally specific, but technology and automation can lead to preservation of farms and open space. Additionally local food production can be an asset for lifestyle migrants, healthy and happy locals, and regional self-sufficiency (in case of crisis or war)
- Reindeerherding and the Sami community are protectors of the open space, but equally part of natural territory conflicts with mineral and forests exploatation companies, as well as hunters, or small scale local businessmen.
- Natural territory conflicts expand to businessmen privatising forest territory, risk of waterfront developments, restricting access to the beautiful nature and lakes for locals and visitors.
- Forests overlapp geographically with minerals, becoming a natural territory of conflict.
- Lack of human capital leads to workforce crisis in forestry, farming, making open space more vulnerable to exploatation. Forest companies play a key role for future forest privatisation and exploatation.

Legend

- Groundedness (number of times quoted)
- Preffered future TC
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Open space, farming, protectors

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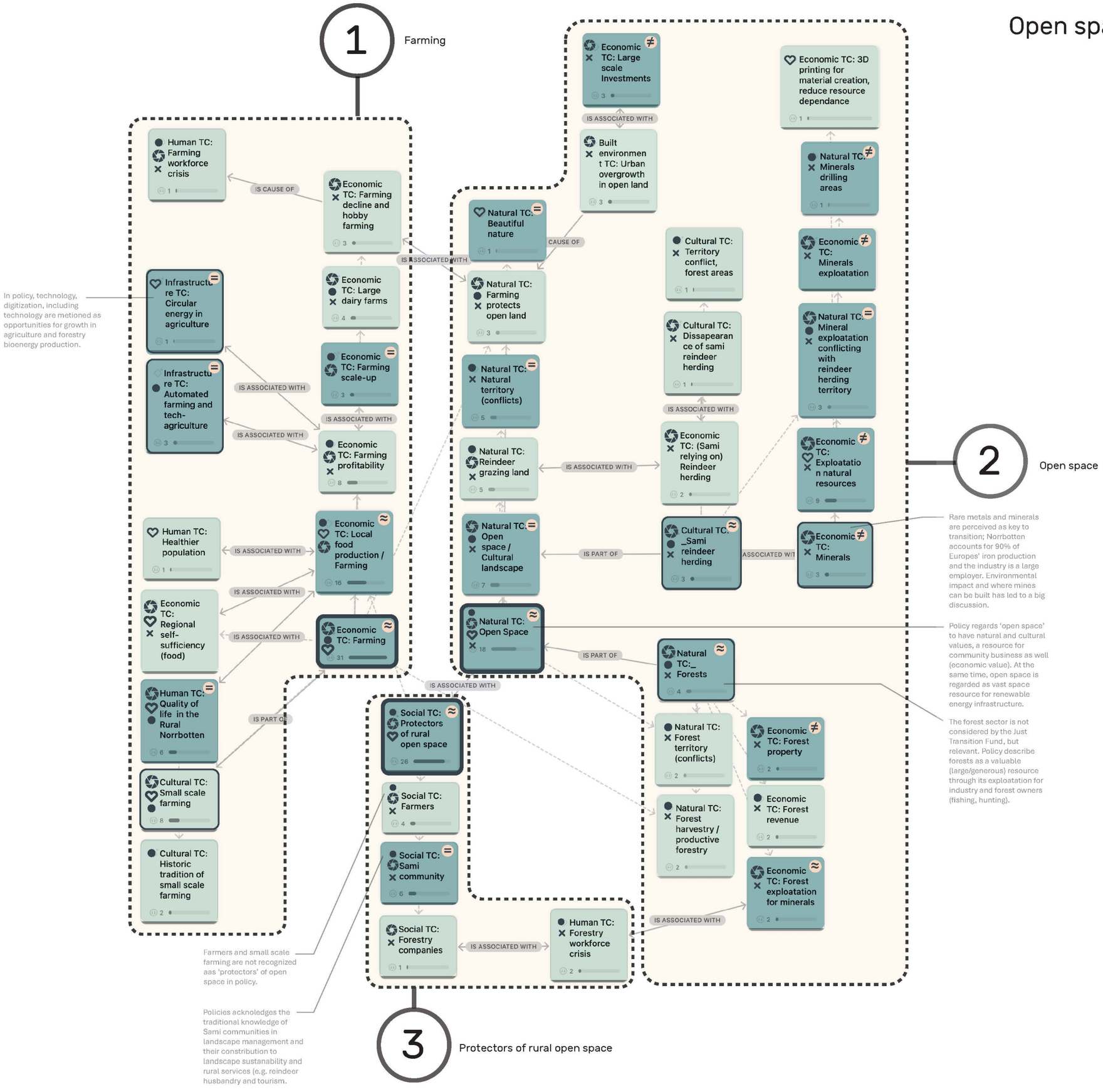

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Data source: WS1-2 N Norrbotten transcript, DUST RFLLs
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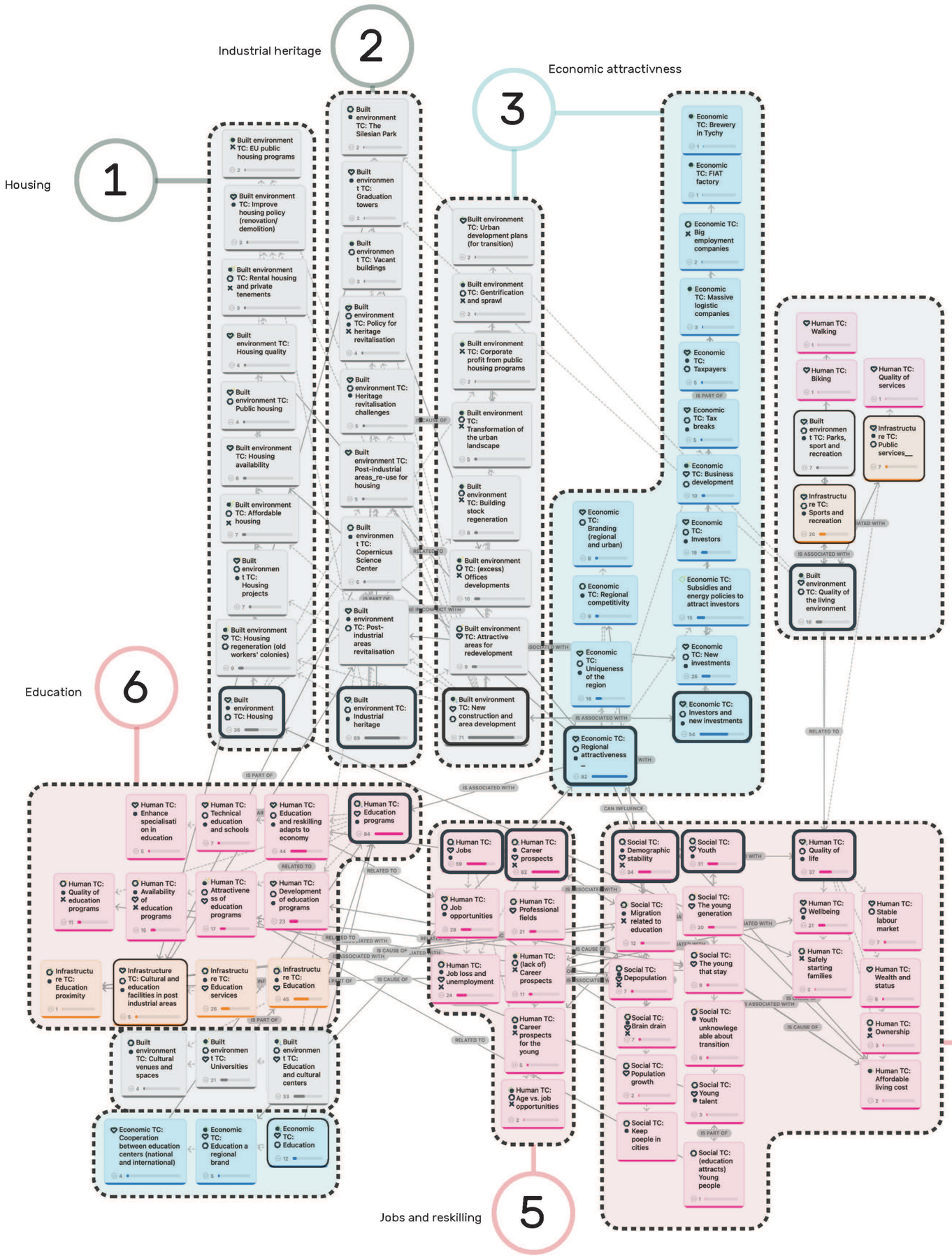
Katowice



Regional attractiveness

1 **Housing** should be affordable, available, good quality. For this, building stock regeneration and improved policy for renovation and demolition in former workers neighbourhoods is needed. Private tenements and public housing programs are seen as obstacles and should change. These aspects are mostly discussed by retirees and working miners.

2 **Industrial heritage** and its revitalization is recognized as a great regional value. Desired futures about revitalization recall impressive projects from the region, such as the Copernicus science center or graduation towers being turned into a spa. Retirees envision a practical future for the industrial infrastructure, which can be technically repurposed for new heating methods and still exploit natural resources (not fully sustainable) — not detailed in this cluster. Special economic zones for industrial areas can enhance revitalization. Policy should be adapted to overcome industrial revitalization challenges.

3 **Economic attractiveness :** The region should be attractive for **investors, investments,** but also use its uniqueness for local business development (example of Brewery in Tychy). Market conditions should be created through better national energy policies, subsidies and tax breaks. Preffered futures overall differ regarding subsidies and openness to internationalization. Retirees and miners wish for a regional economy of production, not consumption.

4 **Demographic stability** New construction and area development is a key TC aspect for the future economic development of the region, and it will be unlocked by attractive areas for development made available during transition. To avoid a negative impact driven, for instance, by corporate profit, developing Urban development plans is important.

5 **Job and reskilling :** Creating job opportunities both for youth and former industry workers can avoid depopulation and counteract brain drain

6 **Education :** Making available attractive, diverse and accessible education programs, which provides **career prospects.** Both university education programs and reskilling programs should be well adapted to economy. Furthermore, retirees suggest that technical education and specialization can provide more stable jobs, wealth and status. Proximity to home and family is an advantange. Education can be a regional brand.

Legend

- Groundedness (number of times quoted)
- Preffered future TC
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- Negative feelings

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Data source: WS1-2 N Katowice transcript, DUST RFLLs
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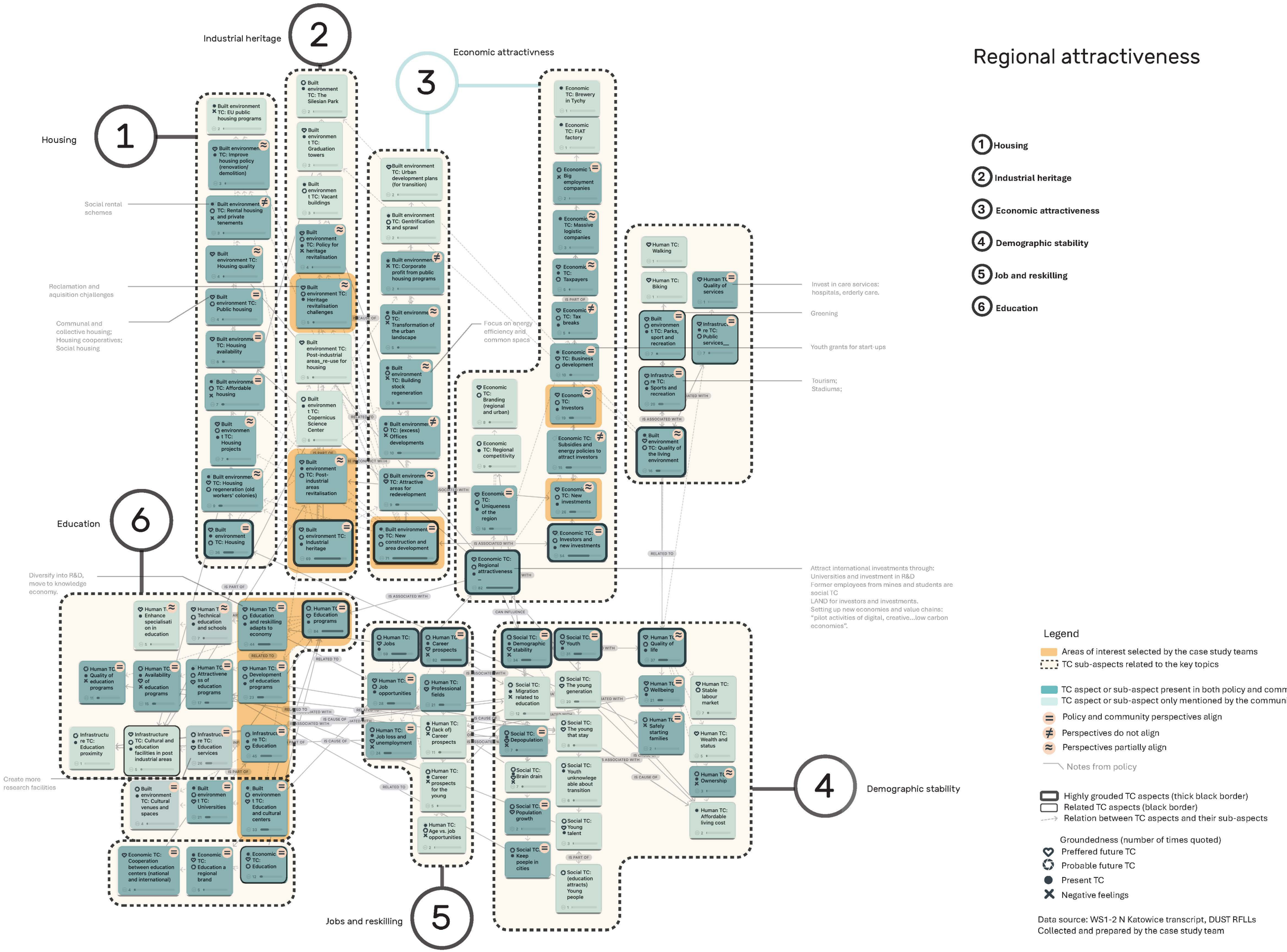
Regional attractiveness
1 Housing
2 Industrial heritage
3 Economic attractiveness
4 Demographic stability
5 Job and reskilling
6 Education
Legend
Areas of interest selected by the case study teams
TC sub-aspects related to the key topics
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Data source: WS1-2 N Katowice transcript, DUST RFLLs
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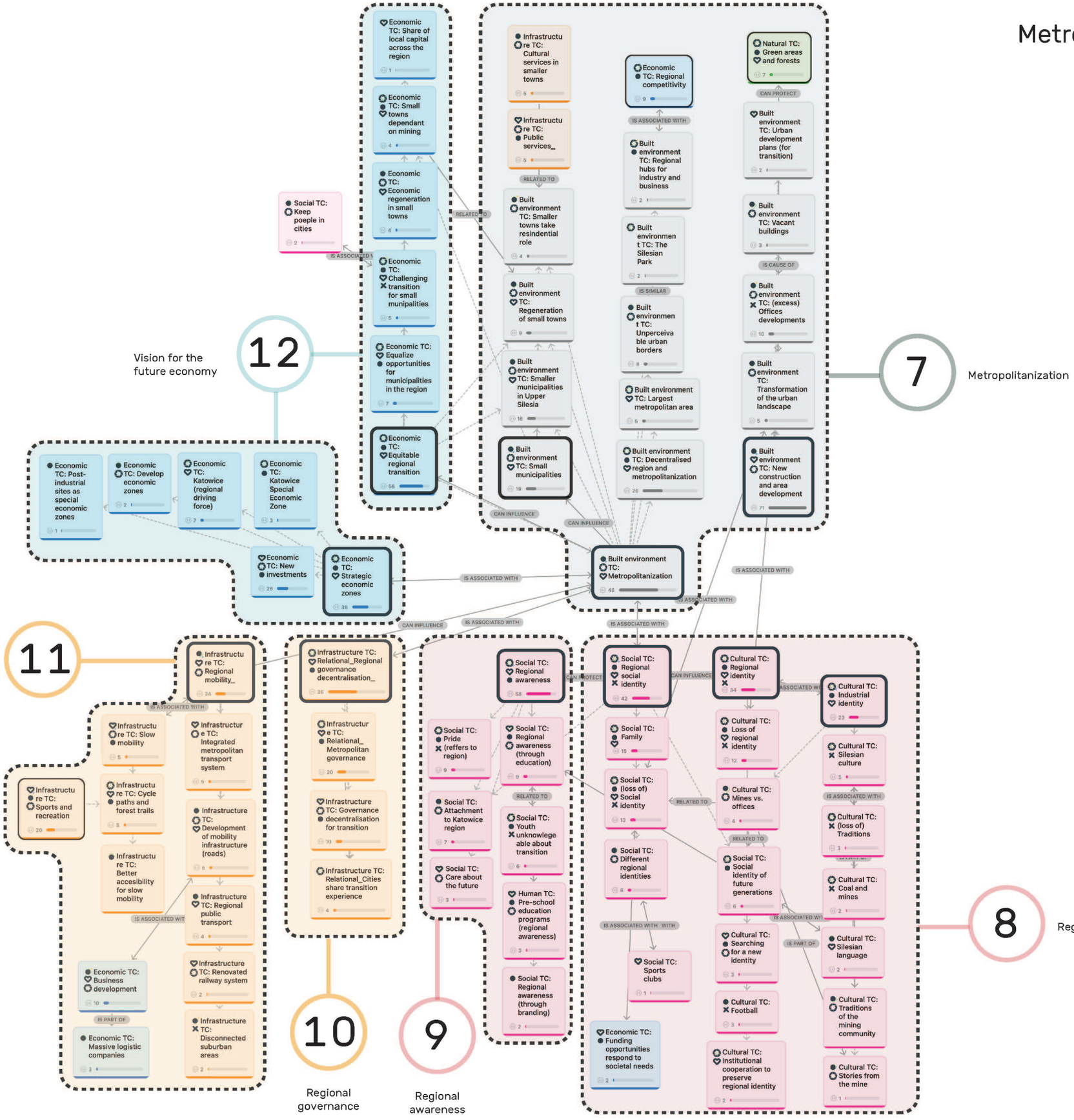
Metropolitanization and Regional Identity



7 **Metropolitanization** focuses on new construction and spatial development. New housing and neighbourhood regeneration, new business hubs and industries are highly desired in the region, however, the youth point to excess office development and consequent vacant buildings, which affects regional identity. Retirees indicate that spatial development plans can protect green space in and outside cities, pointing to strategic areas available areas for development.
At local level, crossing municipal borders already offers a metropolitan experience, feeling like “a Silesian park”. Participants wish for a decentralised metropolis with spatial connections and spatial governance relations between smaller municipalities. Regional governance should preferably be tailored to local context, give more control to municipalities and involve local communities. Funds should also respond to local needs.

8 **Regional identity** indicates the need for regional awareness: being aware and preserving the industrial identity and current social values, as well as, being aware and caring about the transformation ahead. Education and branding can support building awareness. The youth worry about future social identity: family, mining culture, future identity. Education can be a regional brand if attractive education programs are available — not detailed in this cluster. Miners and retirees indicate the different local identities, exemplifying through sports clubs.

9 **Regional awarness**

10 **Regional governance** focuses on equality in regional development, considering the development and role of small municipalities in the metropolitan systems (think beyond main regional hubs). Participants believe that decentralized governance and sharing transition experience could support this.

11 **Regional mobility** is a strong point and should be further developed by enhancing local mobility and services across the region (see top orange edge in diagram — services). Besides developing “dormitory communities”, improving local infrastructure (slow mobility, cultural and recreation services) can define the vibrant metropolis. Better regional mobility between the small municipalities and regional hubs is also wished for.

12 **Vision for the future economy:** Equitable regional transition is a key economic TC aspect during the process of metropolitanization and transition from mining. Fair regional governance, and equal economic opportunities for smaller towns in the region can enable support and equal development beyond main hubs. Regional competitivity should shift towards equitable regional development. **Strategic economic** zones can attract new investors and business development.

Legend

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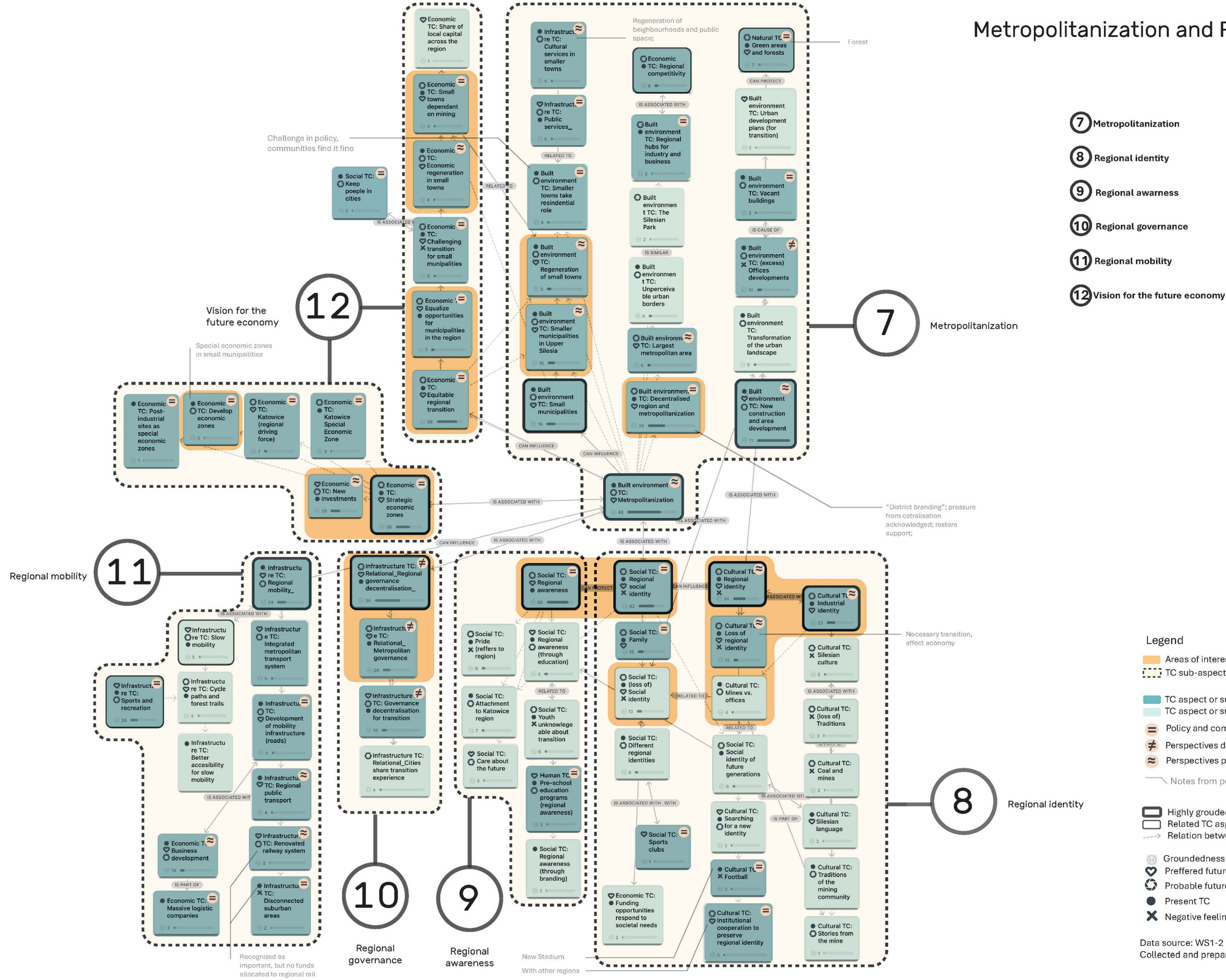
- Built Environment TC aspects and sub-aspects

Data source: WS1-2 N Katowice transcript, DUST RFLLs
Collected and prepared by the case study team

Metropolitanization and Regional Identity



7 Metropolitanization
8 Regional identity
9 Regional awarness
10 Regional governance
11 Regional mobility
12 Vision for the future economy

Legend

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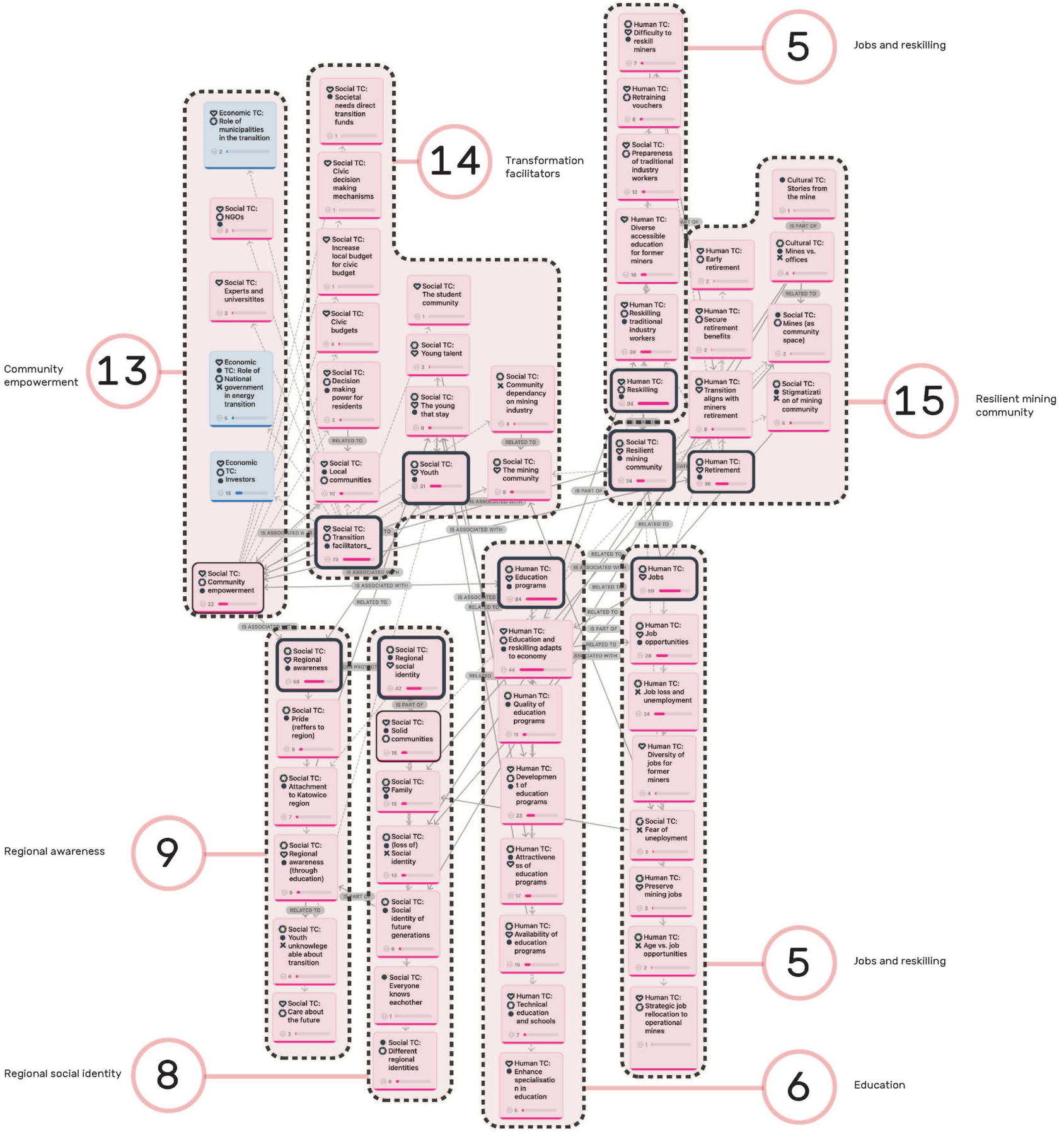

Social futures

5 **Jobs and reskilling** Retirees recognize that reskilling miners is difficult, but as the debate develops and as dreamed by youth (for their families) reskilling is desired and can happen, if programs are diverse, accessible, targeting a diversity of jobs. Miners wish for solid communities that are empowered to have a voice in the transition.

6 **Education** All groups emphasize that education programs should adapt to the new economy, and be well aligned with job opportunities. The youth wish that regional awareness should be raised through education for the young. At the same time, miners and retirees emphasize that the youth are less knowledgeable about the transition impact on the region and that should be addressed through education.

8 **Regional social identity**

9 **Regional awarness**

13 **Community empowerment** should play an important role in the transition miners and retirees wish that local communities are empowered through civic budget, local budget and transition funds responding to their needs. In this context, the young generation is recognized to have a key role in the transition.

14 **Transition facilitators** (which could empower communities) are university experts, universities and students, NGOs and municipalities, which should have more power in the transition. The role of the national government is seen as less important, while the “EU” top-down culture is seen as negative.

15 **Resilient mining community** is a preffered future of all three groups and arises from freeing the community from mining dependency, the fear of losing their job, stigmatization in the context of a future-oriented society and fear the loss of the community’s social values. Miners wish that their retirement aligns with the closure of mines, or that mining jobs could be preserved and strategically relocated until the last mine closes.

Legend

- Groundedness (number of times quoted)
- Preffered future TC
- Probable future TC
- Present TC
- Negative feelings

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- Built Environment TC aspects and sub-aspects

Data source: WS1-2 N Katowice transcript, DUST RFLLs
Collected and prepared by the case study team

Social futures

5 Job and reskilling

6 Education

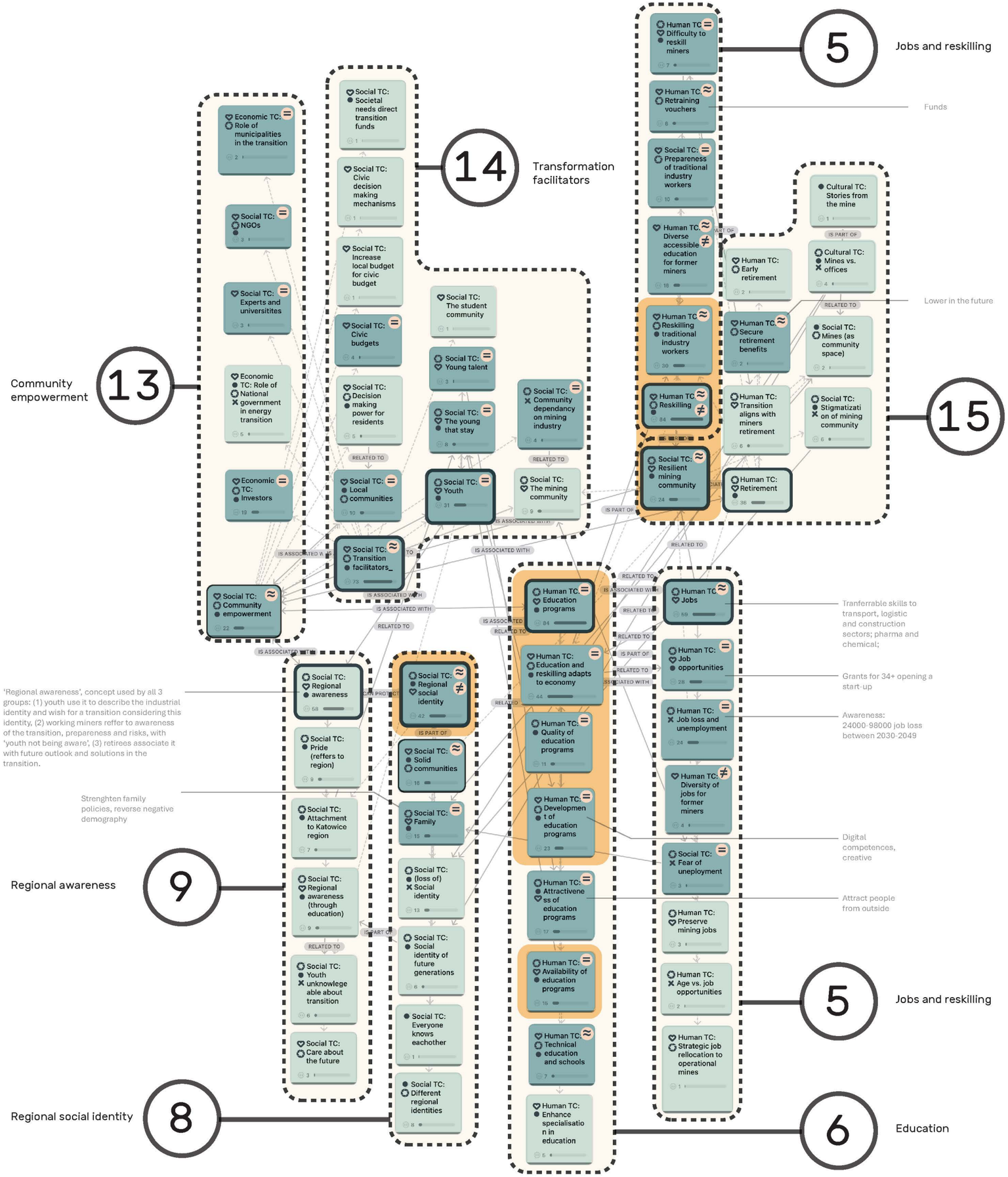
8 Regional social identity

9 Regional awarness

13 Community empowerment

14 Transition facilitators

15 Resilient mining community



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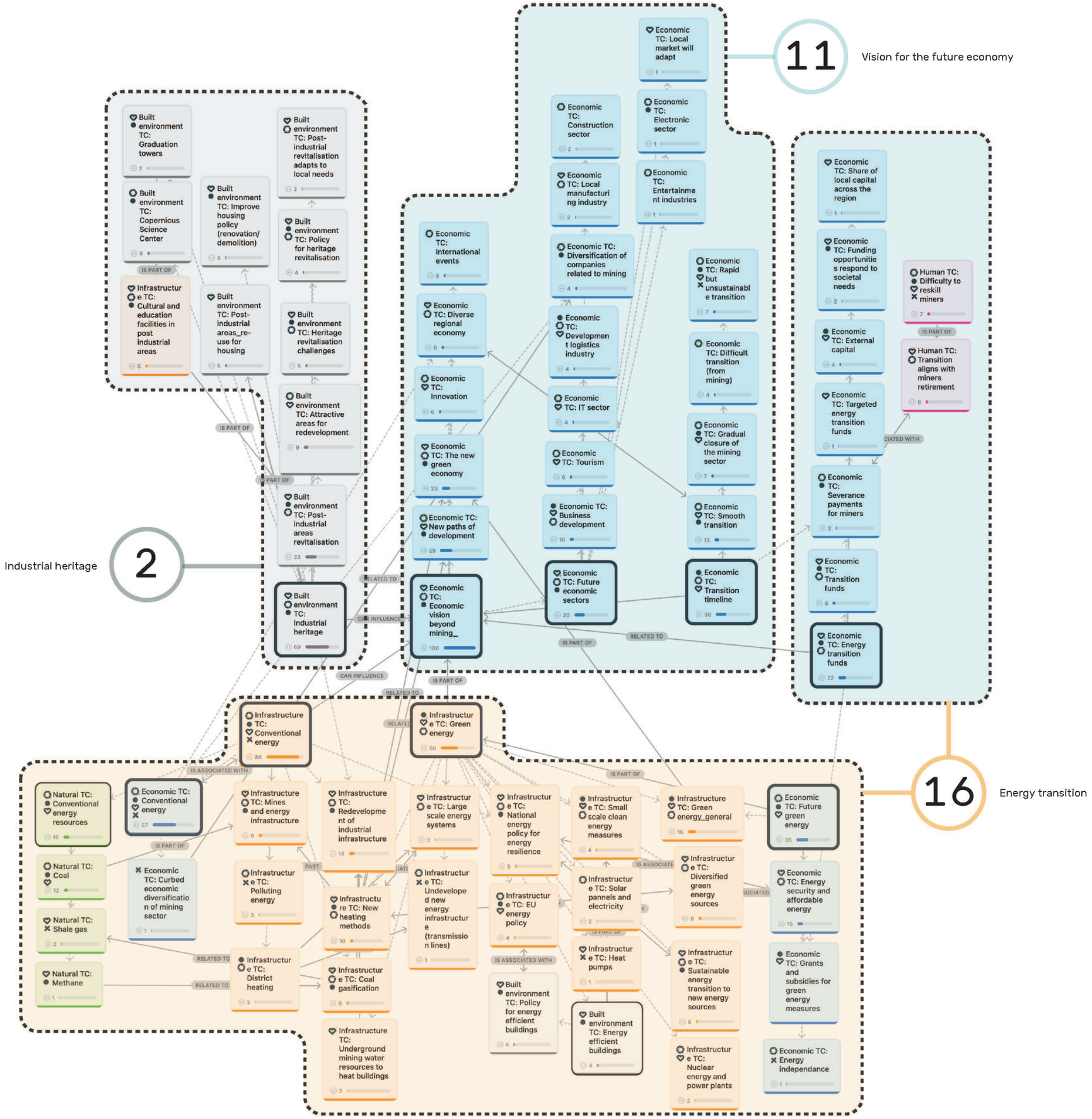

Future beyond mining

2 Industrial heritage is perceived as a spatial resource for development into housing, education, cultural and recreation services. Beyond that, retirees emphasize their wish for technical revitalization and re-using former industrial space for future energy production, wishing for an economy of production, not consumption, which they associate with cultural services. Participants wish for improved industrial revitalization policies to overcome current challenges, such as meeting housing standards and local needs.

11 Vision for the future economy is a quest for new paths of economic development and future economic sectors which all groups debate from a Silesian Sylicon Valley and different new economic sectors to an economy that will create itself. Economic diversification can open up new development paths.

15 Energy transition is discussed from two perspectives that meet: green energy infrastructure and reuse of conventional energy systems. Future energy should be available, affordable and diversification of energy sources can support this. There are divided future perspectives about the feasibility of the energy transition. While there is openness and good implementation of several small-scale green energy measures, participants consider that future energy will be feasible if solutions are found for larger urban scales (e.g. district heating). In this context, retirees embrace development and industrial revitalisation, however, their dream is 'beyond musea', wishing that the resources and infrastructure would still be used to produce energy for the region. They imagine new heating methods and the technical transformation of the mines into a space of new energy production to heat districts with water from mines (depth) or using coal gasification. Participants wish that national energy policies would be developed for energy transition and resilience.

11 Vision for the future economy and 16 Energy transition: The transition process should follow a gradual and "natural" transition timeline. Hopefully it will align with the miners' retirement, as it is difficult to reskill miners. Transition funds should be targeted and respond to societal needs. Retirees recall how at the smaller scale, subsidies for green energy measures have been effective.

Legend

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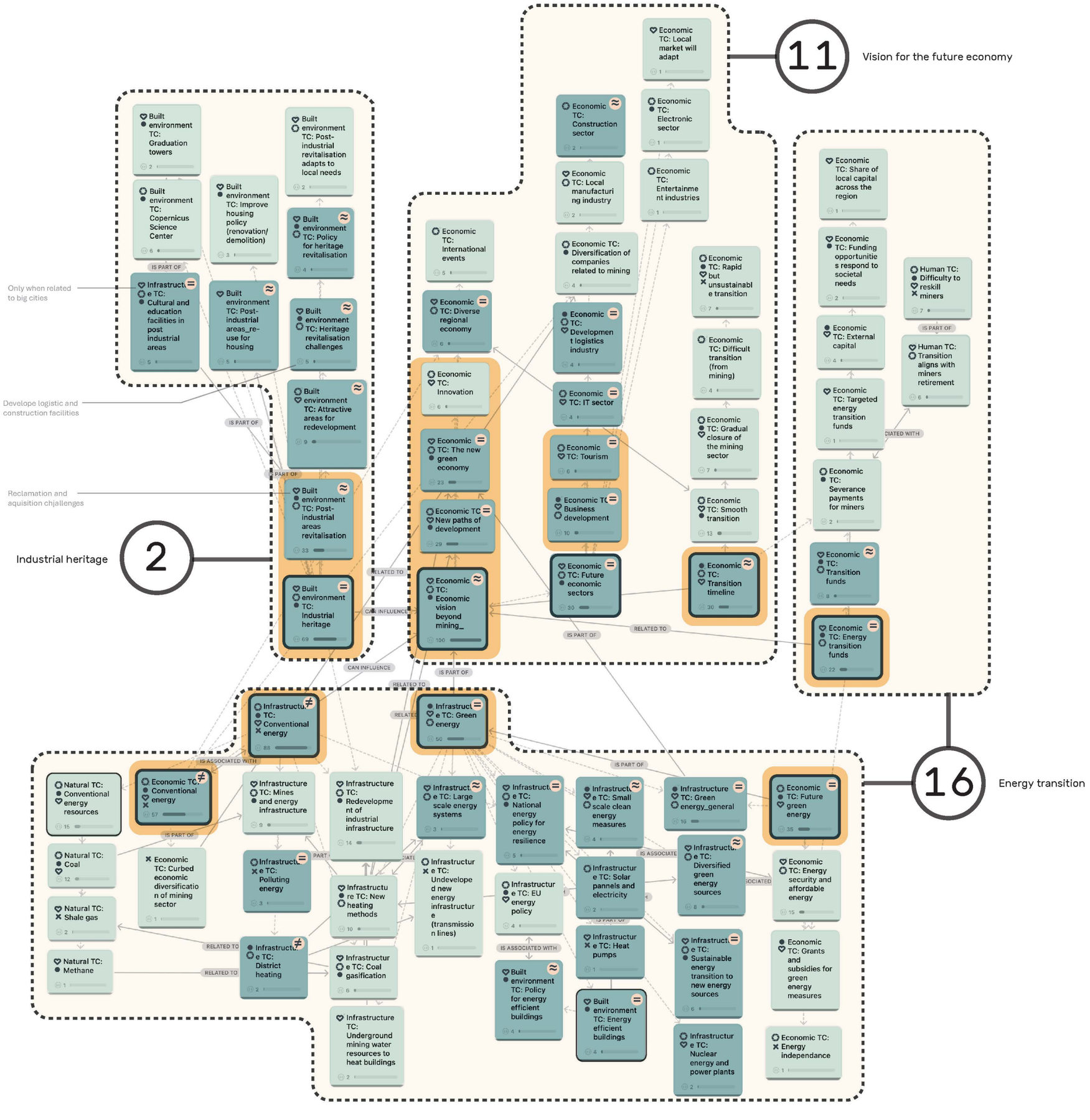
Future beyond mining

2 Industrial heritage

11 Vision for the future economy

16 Energy transition



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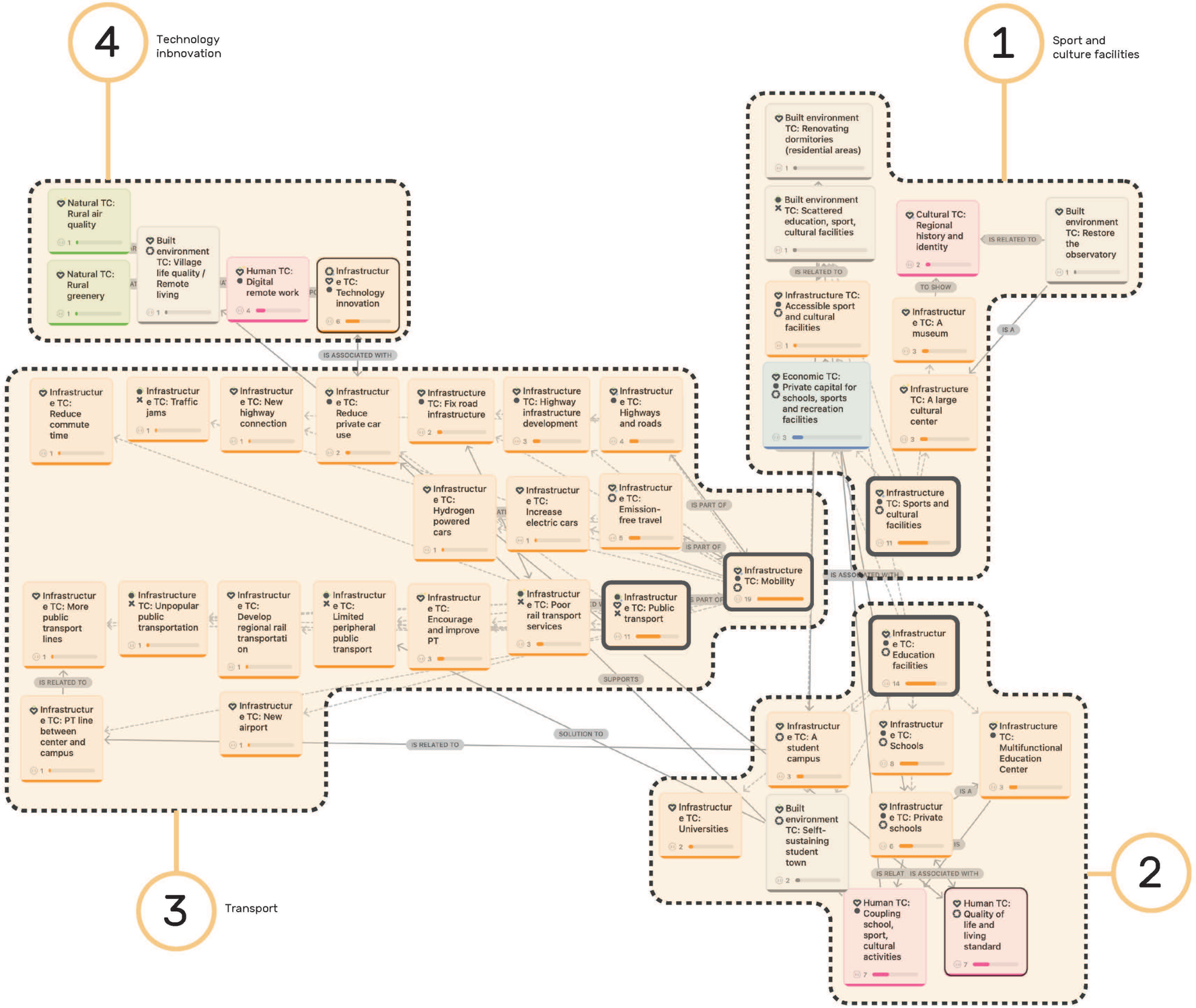
Stara Zagora



Infrastructure and Education

1 **Sport and culture facilities**

2 **Education**

3 **Transport**

4 **Technology innovation**

• **More (mixed) services** can improve quality of life and lead to a deep cultural change as exemplified by participants. Participants want more educational, sports and cultural services. Furthermore, mixed use development can support regional development, and enhance quality of life in the context of poor quality mobility. :

- **Schools and centers that integrate education, sport and recreation** facilities support **'future-ready education'**, improve every day life through less commute/car-use in the city, or work efficiency and life quality of parents. Participants believe that only private capital can develope such services. **Families** would be open to support a private education system (detailed in TC cluster "Future of work'). Currently, education, cultural and sport services are scattered in the city, limiting access to recreation and sport for some groups.

- Peripheral and rural areas are attractive, but **Public transport (PT)** connections are limited and of poor quality. Participants dream of a university campus, like in the West. It can be a self-sufficient student town (if PT and rail are less developed), or, there can be a campus rail line to connect the **campus** to the center of Stara Zagora. Another back-up for mobility infrastructure development is technology infrastructure and digital work, which can also support remote living and turn Stara Zagora into a national, or even global economic hub (after Sofia) (for detail, see TC cluster on future of work).

- **The observatory** ("jewel of the region"), can be revived into a mixed use, large, cultural center, including a stage and a museum. It could store and showcase the recent history and industrial identity of the region by, for example, exhibiting a model of the former mine.

• **More (and better) mobility infrastructure** is desired. Participants want the expansion of highways, however, the discussion on PT is more elaborated. PT can reduce commute time, car dependancy and traffic congestion. A new rail system can lead to regional development opportunities, such as building a campus. On the other hand, in the context of technology infrastructure, alternative or parallel solutions to large infrastructure projects can be developing mixed use services. There are ocasional mentions about energy infrastructure (wish to expand heating network), but these are not further elaborated.

Legend

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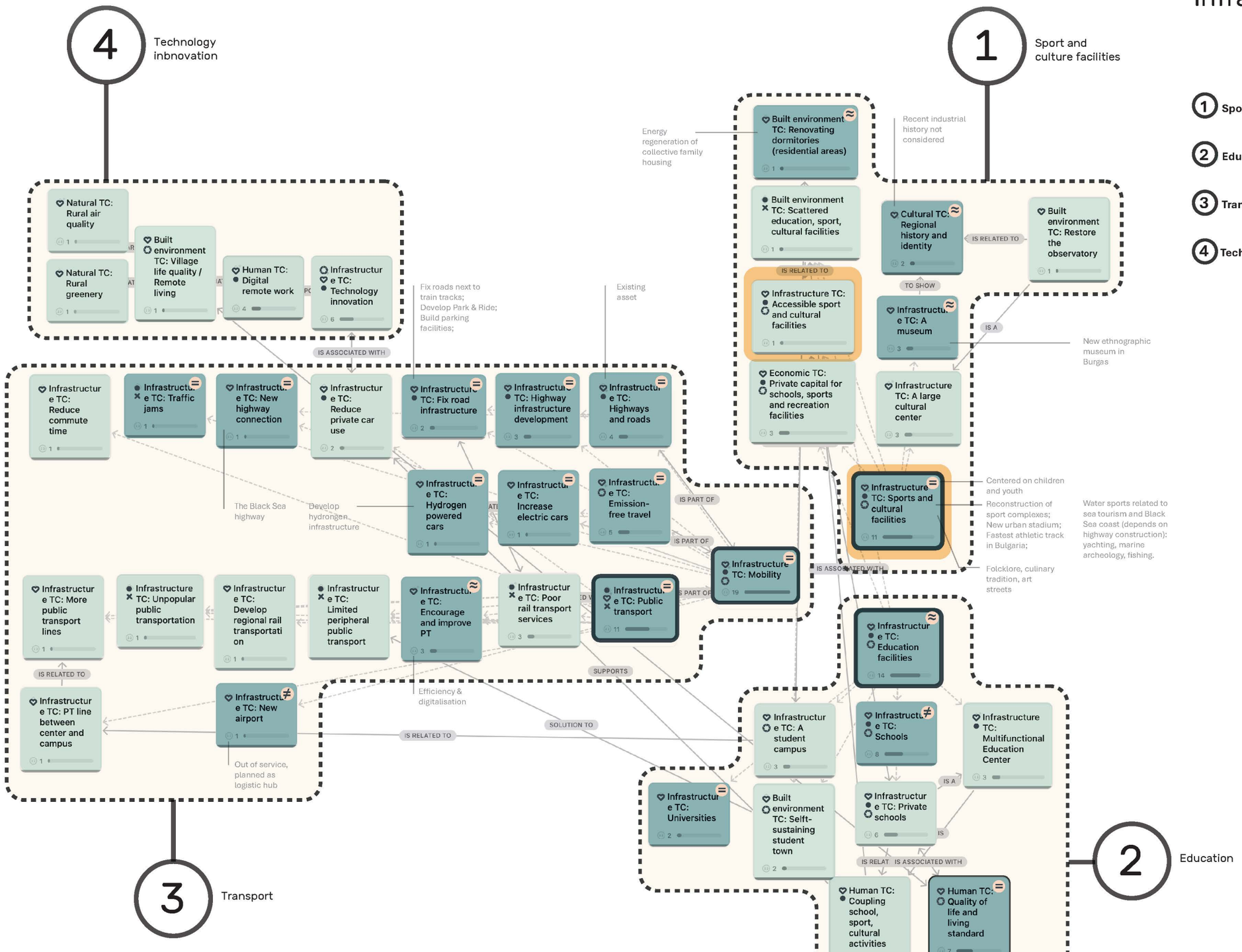
Infrastructure and Education

1. Sport and culture facilities
2. Education
3. Transport
4. Technology innovation



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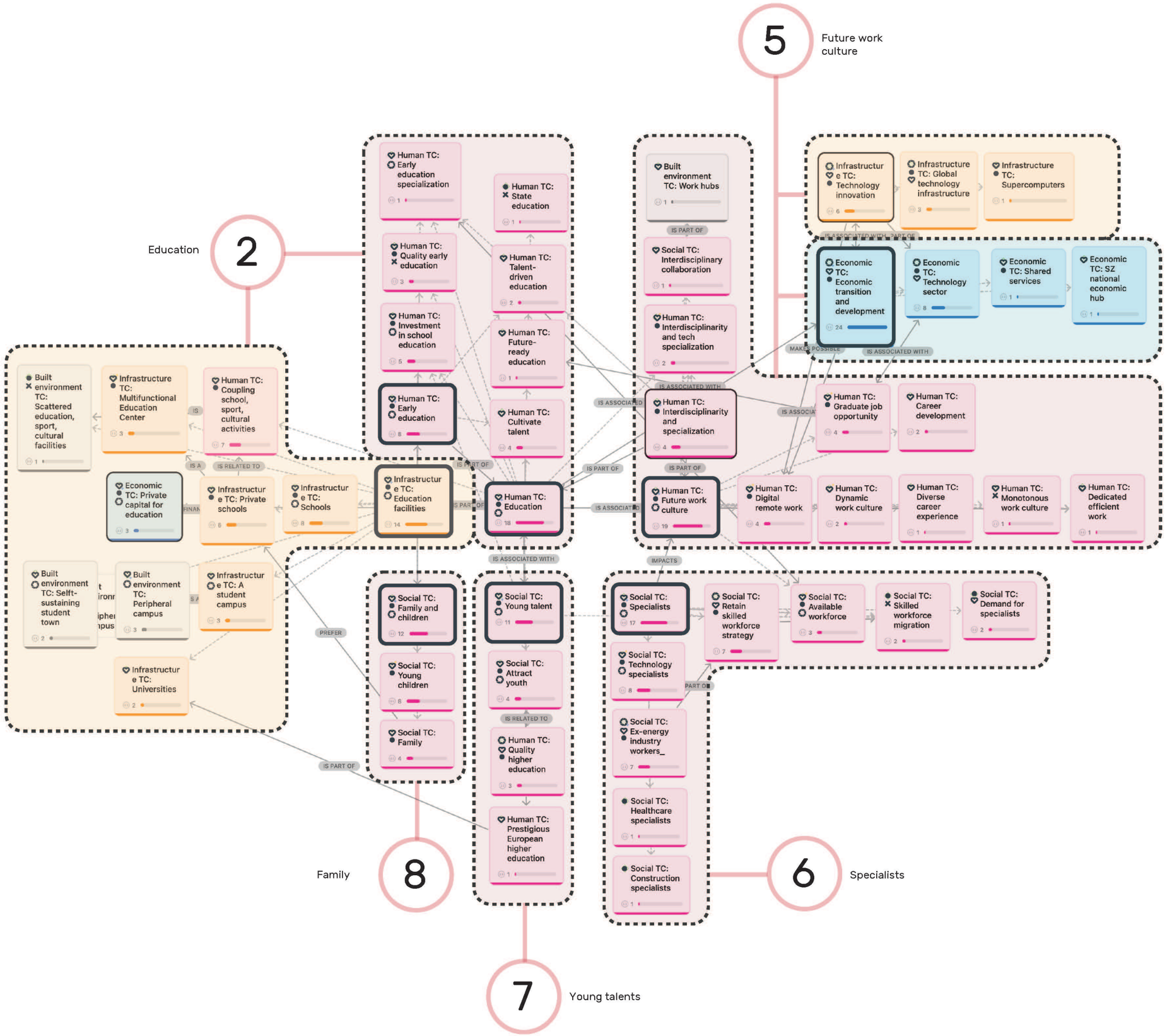
The Future of Work Culture and Education



2 **Education:** Quality early education and young talent is considered key for the positive long-term future of work. 'Future-ready education' requires 'talent-driven education', 'early specialisation', and can be developed in mixed use education services, which brings schools, sport and cultural facilities together. Participants consider that such education facilities can be only developed through private capital and market research,

5 **The future of work culture** is based on new work values, such as interdisciplinarity, collaboration; on job and career opportunities, as well as changes in work culture based on a diverse career experience, flexibility, digital work. Such changes can be supported by tech economy, technology innovation and work hubs, where people work together and collaborate.

6 **Specialists** represent a key social TC of the region, and they should be convinced through attractive work conditions and reskilling.

7 **Young talents:** Higher education facilities can attract youth and young talent to the region. In this preffered future, the region could provide prestigious education, and build a student campus like in the West. Right after graduation, there should be job opportunities in the region, with a promissing career development.

8 **Family:** Participants are conviced that families are open to invest more in education services for their children. The integrated of education facilities would also be confortable for parents, implying less commute and more work focus (see detail in TC cluster Economic Futures).

Legend

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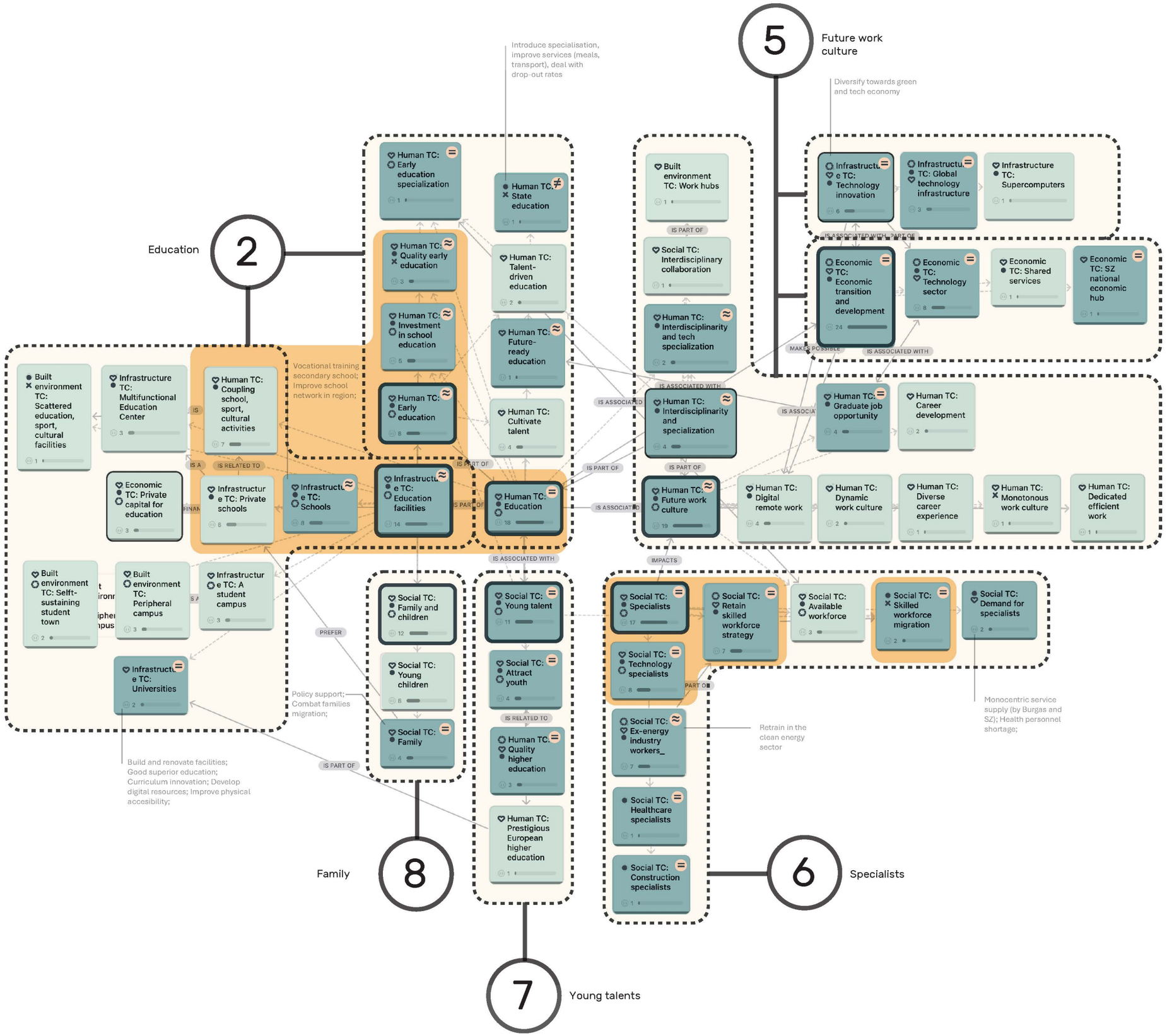
The Future of Work Culture and Education



2 Education

5 Work

6 Specialists

7 Young talents

8 Family

Legend

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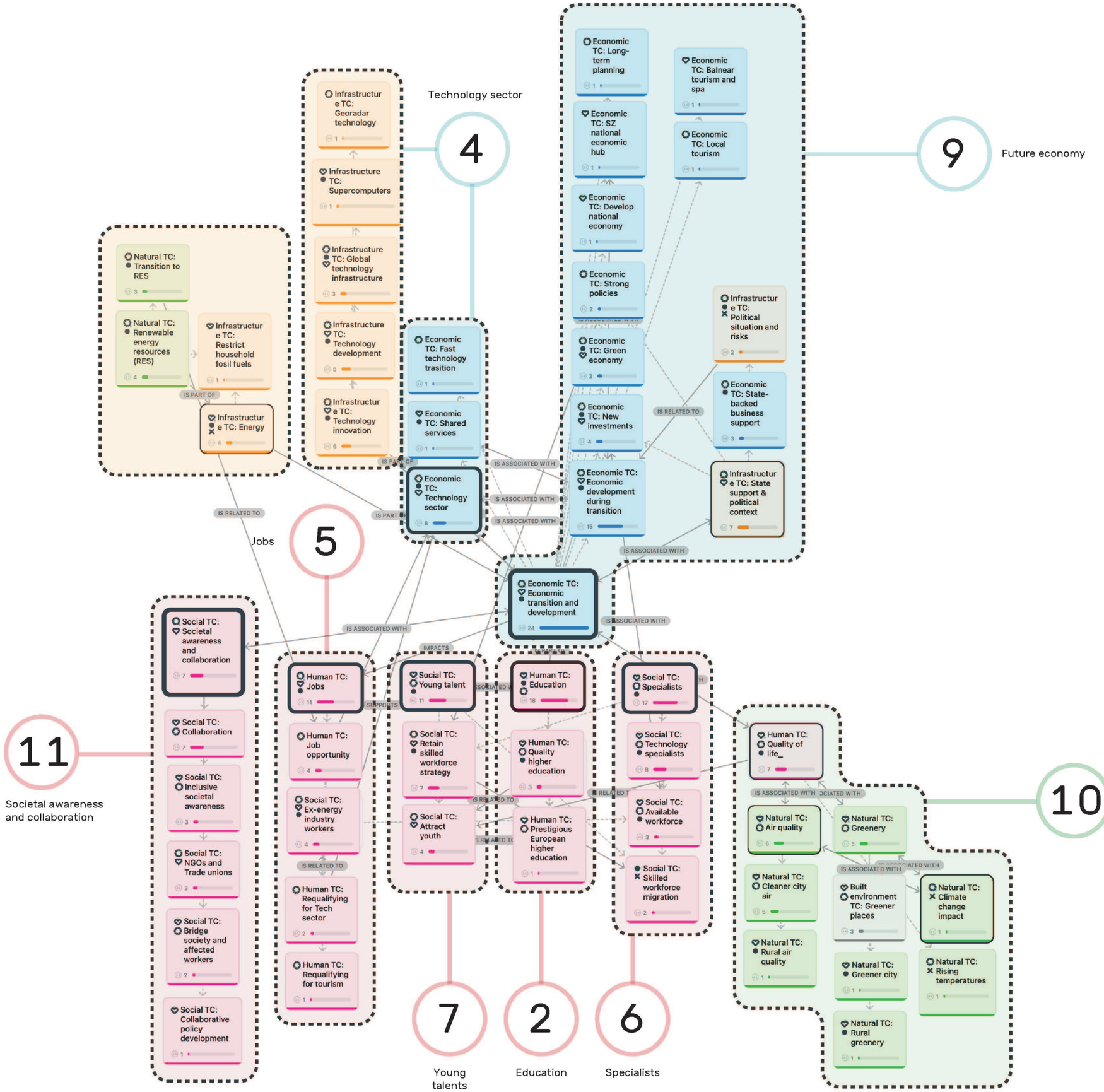

Economic Futures

A social and tech based transition

2 **Education**

4 **Technology sector** are perceived as key drivers for future economic development, along with Social TC. Green economy and transition to RES (Renewable Energy Sources) is perceived as a probable future, which can bring more jobs and improve quality of life. This green dimension as a key part, visible on edges of the TC cluster.

5 **Jobs** opportunities are associated with the tech industry, RES and tourism. Youth and specialists can be attracted to the region through good quality high education, jobs, and quality of life. Young talent should be cultivated through education, starting with school level (detailed in TC cluster The Future of Work and Education).

6 **Specialists and** **7** **Young talents** are perceived (together) as the most important present and future TC of the region. Technical knowledge and workforce can support a new tech based economy and attract investors. Specialists in the view of the participants include ex-energy industry workers, who can requalify for the tech and tourism sectors.

9 **Future economy** of the region will be driven by Social - Human TC and by technology, more specifically, a technology based economy and technology infrastructure. By embracing technology innovation, digital work and shared services, Stara Zagora can become a national, even global economic hub. The discussion around this complex narrative is highly positive, showing future outlook. New investments and state-backed businesses are key to economic development, and they depend on policies, state support and ('unfortunately') on political context. Tourism is briefly mentioned as a potential economic sector.

10 **Quality of life** in community's preffered futures refers to the living environment,. Communities fear climate change and hope for a better environmnet.

11 **Societal awareness and collaboration** are key in the economic transition and development. They can be supported by NGOs, trade unions, 'bridges between society and affected workers', collaborative policy development.

Legend

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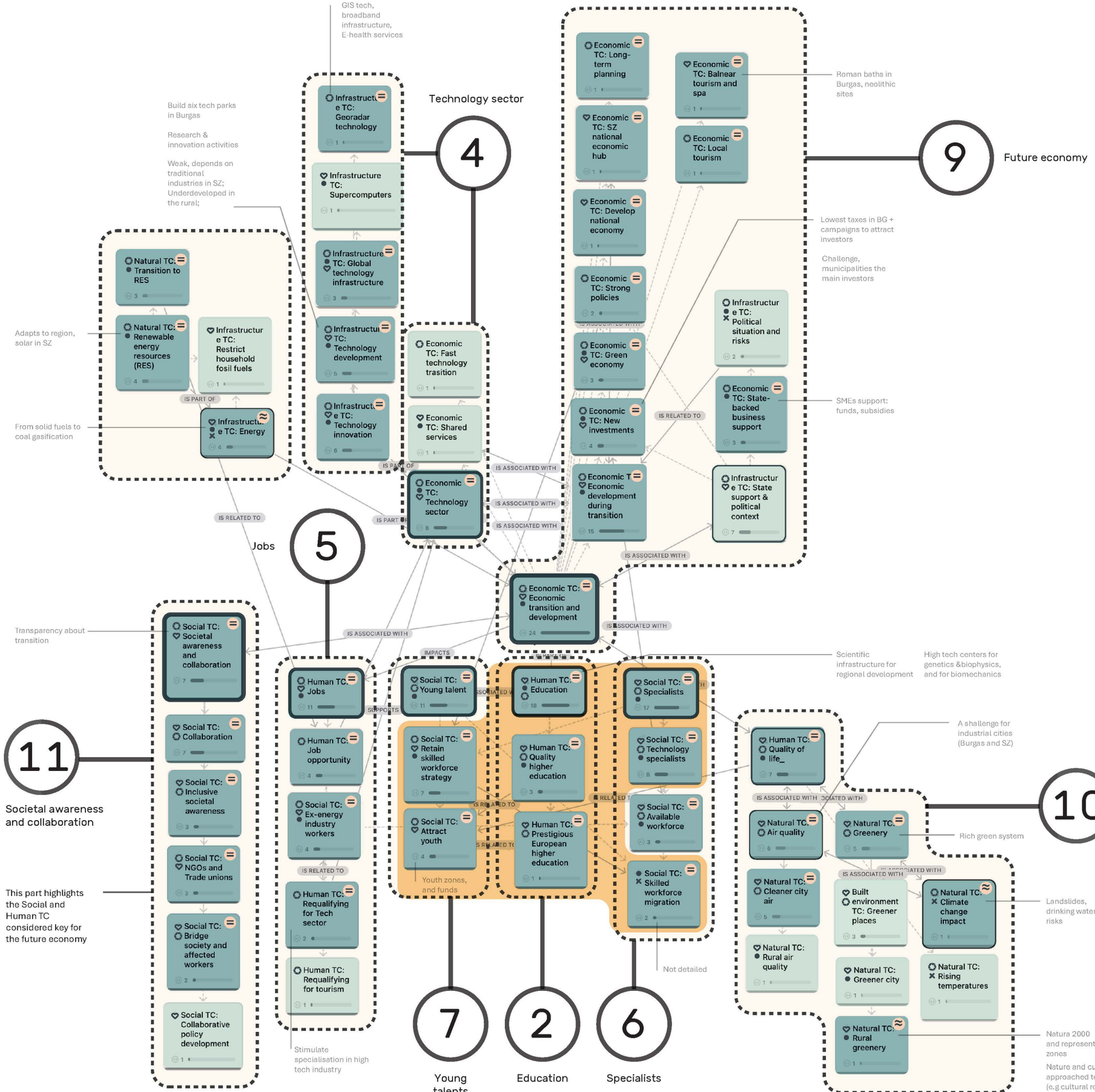
Economic Futures

A social and tech based transition



- 2 Education
- 4 Technology sector
- 5 Jobs
- 6 Specialists
- 7 Young talents
- 9 Future economy
- 10 Quality of life
- 11 Societal awareness and collaboration

Legend

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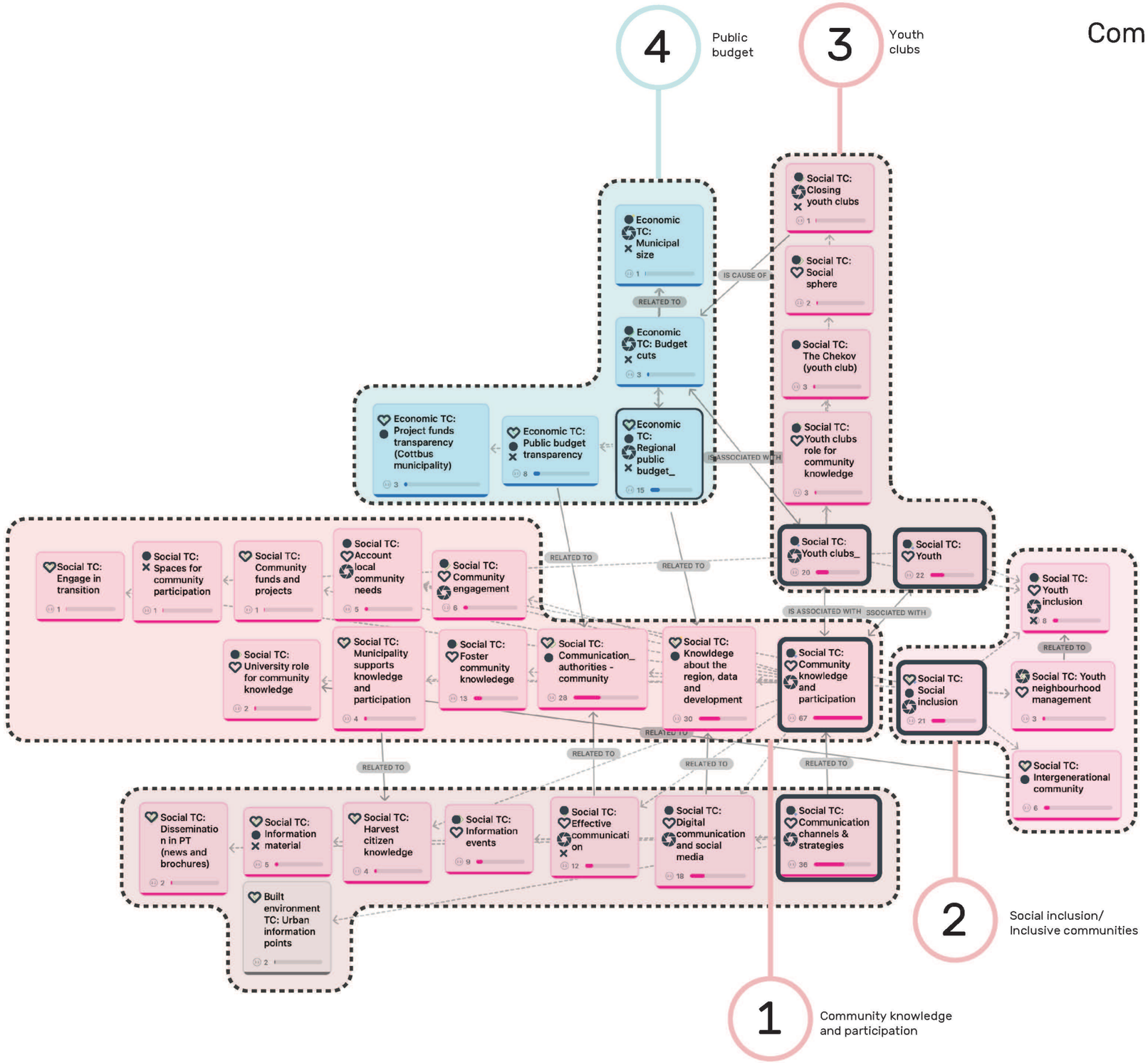
Lusatia

Community knowldege and participation



1 **Community knowledge and participation** is the most grounded TC aspect overall and most debated in preffered futures. The youth reflect on how knowledge about regional development, sustainability transition, data and **public budget** could be shared by municipalities to engage and foster communities' knowledge. Participants are relatively negative or neutral about digital communication, and wish for urban information points, and spaces for participation.

3 **Youth clubs**, BTU University and neighbourhood events play a key role in fostering community knowledege and inclusivity for youth and for bringing together the youth and elderly communities. Youth clubs represent a meaningful social capital; youth centres are attractive leisure points with a special social sphere, which consolidate youth communities in the regions' small towns, and peripheral areas. These centres represent attraction points at neighbourhood level in Cottbus or at regional level, acting as key attraction points for the youth in small towns. As public budget depends on municipal size, young people fear budget cuts and closure of youth clubs.

2 The youth hope for **socially inclusive communities**. Intergenerational communities can be supported by the involvement of youth in neighbourhood management, and neighbourhood events (local festivals or birthdays celebrations). The peripheral neighbourhoods of Cottbus and rural small towns in the region are mostly populated by aging population with less facilities for the youth. The young hope and envision that youth and elderly can be a supportive community together, while more (leisure) facilities and better connectivity to attractive Cottbus should be provided for the youth community. Inclusivity is also mentioned in the context of project development, which should take account of local community needs. To avoid gentrification, urban development should keep social mix, and be correlated with affordable commercial services (e.g. Lidl) and affordable housing.

4 There should be **transparency about the public budget and project funds** related to sustainability transition. Communities wish to have information about, and be involved in how local funds are operationalized. There is a wish for public budget transparency in Cottbus, and fear of budget cuts correlated in policy with municipal size. The comparison between policy and community shows that issue would be potential addressed in policy (e.g., to protect youth clubs).

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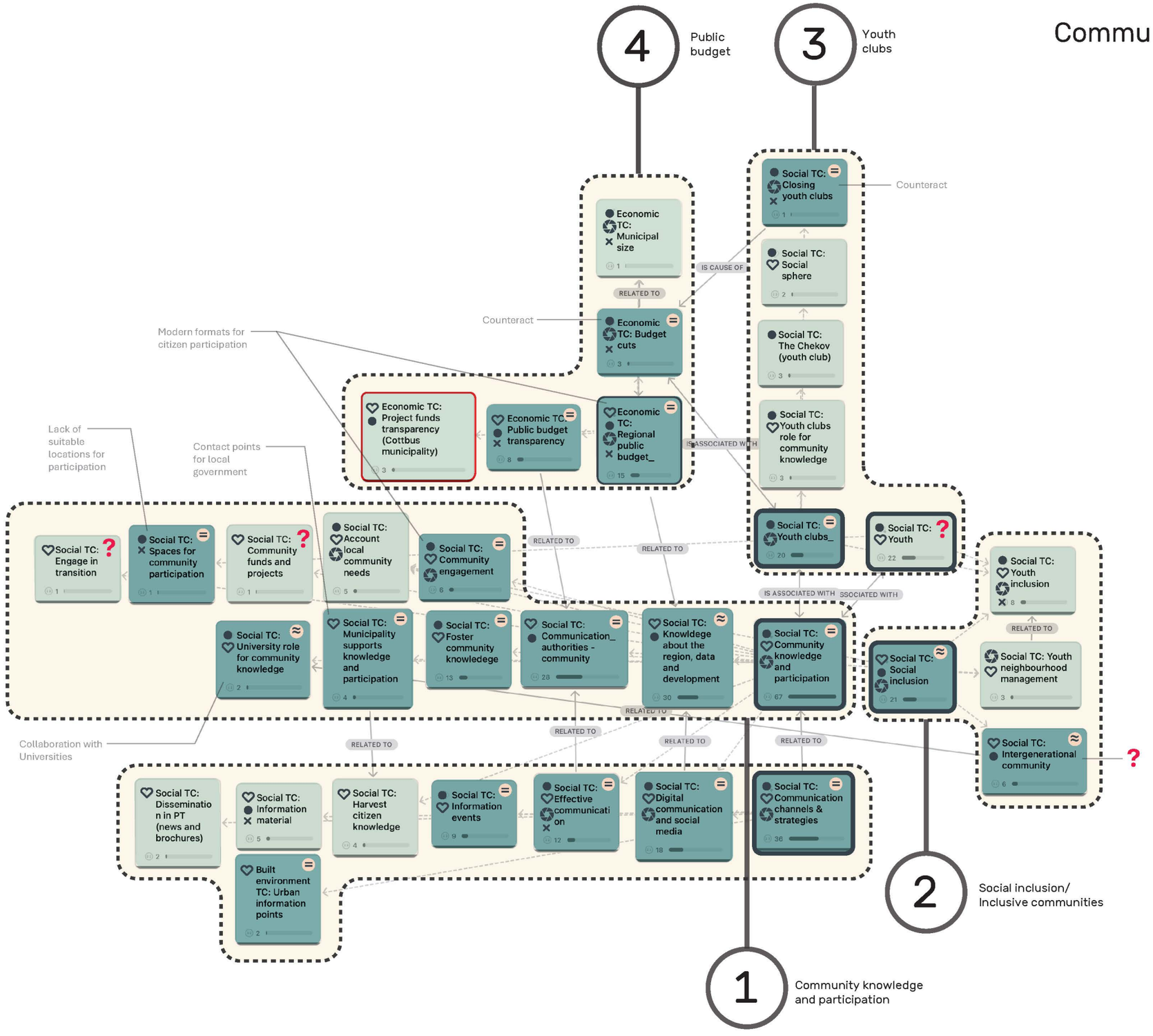
Collected and prepared by BTUCottbus-Senftenberg (Tihomir Viderman, Silke Weidner, Rafael Maximiliano Flores de Leon) and Humanistisches Jugendwerk Cottbus (Laura Tillack, Marian Lachmund)

Community knowldege and participation



1. Community knowledge and participation
3. Youth clubs
2. Social inclusion/ Inclusive communities
4. Public budget

TC sub-aspects possibly related to Cottbus polices

? TC sub-aspects/details not covered yet by comparison

Legend

Areas of focus (determined by CS partners) — not defined
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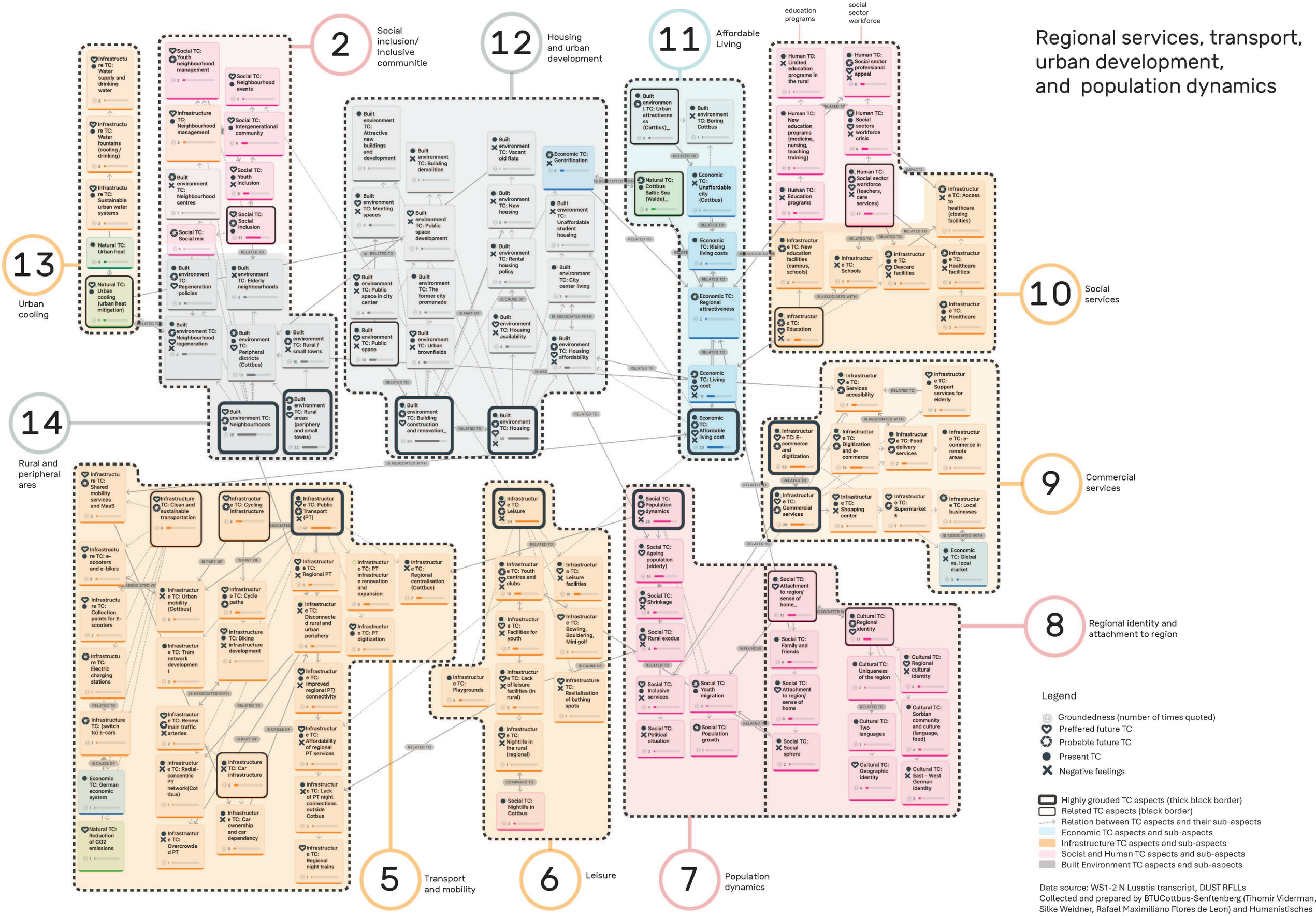
Regional services, transport, urban development, and population dynamics



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Regional services, transport, urban development, and population dynamics

5 Participants adress **transport and mobility** from 3 angles: public transport (PT) in Cottbus and in the region , cycling infrastructure and sustainable transportation aspects.
The youth wish for improved regional **PT** connectivity and PT expansion. Rural areas and the periphery of Cottbus are disconnected, and the PT network configuration reinforces the centralisation on Cottbus (it is easier to travel across Cottbus peripheral neighbouhoods by travelling to the city center — radial - concentric PT configuration?). PT network is crowded, has low frequency and services are expensive for youth and students, however, the PT digitization (display board of trips in real time), renovated PT stations and the renewing of the tram network are regarded as great improvements. PT quality impacts the quality of life for the youth living in the rural (and rural campuses), as leisure activities, nightclubs and social life is the best in Cottbus, but inaccesible to them. Participants indicate the lack of night connections outside Cottbus and their wish for night trains to rural areas. PT quality indirectly contributes to rural exodus, car ownership and car dependancy. In policy the need of rural- urban PT connectivity is adressed for work-home commute in the region.
Participants wish for **cycling infrastructure** development in Cottbus, indicating that bike trips enhance rural mobility as well. The costs and space for cycling paths is in their perspective challenging, so it should be taken into account when renewing the main traffic arteries in Cottbus, integrating cycling paths in the road width. Policy adresses cycling paths with long term abitious visions when the rural and urban are smoothly connected through regional cycling highways.
Participants are knowledgeable of **sustainable transportation** measures, considered as a natural consequence of the German economic system and CO2 reduction agenda. The youth wish for enhanced mobility with e-scooters and e-bikes, with a dense fixed network of collection points and charging stations. They are positive about Mobility as a service (MaaS — integration of modes and PT), shared mobility and switch to e-cars.

6 **Leisure** facilities are the best in Cottbus and lack in rural and peripheral areas. Youth clubs in rural areas are key for leisure, social sphere and integration of youth communities in acting and relating to their neighbourhoods. Participants wish for more leisure activities in rural areas, such as bowling, bouldering, mini golf or revitalization of bathing spots. Playgrounds are mentioned as a quality of public spaces in Cottbus, and in general. In addition, in elderly neighbourhoods in Cottbus, tehre should be more facilities for the youth. However, the youth wish for an intergenerational community, where the young and old come together at neighbourhood events, festivals and birthday celebrations. Policy mentions the importance and unavailability of such community spaces.

7 Participants are negative about **population dynamics**: population in peripheral neighbourhoods and in the rural is ageing and shrinking. This is not directly connected to the transition, but availability of education programs, and quality of services. They wish for more inclusive services in the rural, mostly for elderly (access to commercial services and transport — digital commerce can play a role).

8 **Attachment to the region**, family and friends keeps youth in the region, while the political situation, living costs and quality of services can determine youth to move. The ones that stay have a sense of home and are aware about the uniqueness of the region, such as the Sorbian culture. For some participants this represents the **regional identity**: the two languages, the food, the Sorbian community. Participants wish for a less cultural disivion between East and West Germany in society, recognizing that local regional identity is more that East - West political and social visions (including geographic qualities).

9 **Comercial services**, e-commerce and commerce digitization are highly grounded in the discussions. Service availability and support services to familiarize the elderly with e-commerce and digitization are important. E-commerce is regarded as equally an opportunity and an issue. It is helpful in remote areas and food delivery services are appreaciated, but less in central areas where everything is close by. Some participants mention the importance of interraction in shops, and the threat that e-commerce represents for local businesses (global vs. local market). Having supermarkets close by is an asset and the closure of some shopping center locations due to urban renewal brings a melancolic note in the discussion.

10 **Social sector workforce crisis** put **social services**, such as school education, daycare and healthcare at risk. Most workers are beyond retirement age, the sector is not appealing for the young and healthcare facilities (for instance), are closing, limiting healthcare access, mostly in the rural. Policy evisions solutions to this through healthcare digitization. Similarly, there are limited education programs inthe rural, however, new education programs medicine, teaching training, nursing) and new education facilities (new schools, campus areas) are seen as assets to solve this issue.

11 **Affordable living costs** is a highly important aspect for the youth and reffers to housing affordability, transport services, gentrification caused by new development, and proximity to 'Cottbus Baltic Sea', which can lead to higher living costs. Development and regional attractiveness may also lead to rising living costs. The youth are negative about the living costs in the region, for instance, Cottbus has two faces: attractive Cottbus with a great night life at higher expenses, or boring Cottbus with boring streets and lack of public and social spaces if you live on a budget.

12 **Housing**, partially part of new urban development should be affordable and available. Participants are negative about housing availability and affordability, mostly for students, and this partially caused by outdated rental policies. New development and new housing leads to gentrification; central areas are attractive, but unaffordable, while the peripheral areas have vacant flats. The policy sees housing vacancy in periphery and rural as an oportunity to solve the housing issues.
Building construction and rennovation is seen as an asset: attractive new buildings, development of browfields, rennovation of the former city promenade (city wall?). However, there are negative feelings about the lack of knowledge and involvement of citizens in these projects, as well as about the availability and quality of public space in the city center. Quality urban public space as a place for interraction ('meeting') is part of their preffered futures; public space projects shoudl be developed in peripheral neighbourhoods as well, considering urban cooling strategies. Participants are negative and melancolic about building demolition, instead of revitalising the existing (related to projects on browfields in Cottbus city center). Participants are surprised by the restrictive policy on public space projects and implementation of urban greening projects (e.g., approvals and restrictions apply for small scale projects developed by NGOs and communities).

13 **Urban cooling** is discussed in the context of urban heat in Cottbus, reinforced by discussions on policies in the workshop. participants wish for sustainable urban water systems (with cooling qualities, water fountains (for drinking) and quality drinking water in the region. They mention Vienna as a example for their vision and implemented drinking fountains in Cottbus campus area.

5 Participants adress **transport and mobility** from 3 angles: public transport (PT) in Cottbus and in the region , cycling infrastructure and sustainable transportation aspects.
The youth wish for improved regional **PT** connectivity and PT expansion. Rural areas and the periphery of Cottbus are disconnected, and the PT network configuration reinforces the centralisation on Cottbus (it is easier to travel across Cottbus peripheral neighbouhoods by travelling to the city center — radial - concentric PT configuration?). PT network is crowded, has low frequency and services are expensive for youth and students, however, the PT digitization (display board of trips in real time), renovated PT stations and the renewing of the tram network are regarded as great improvements. PT quality impacts the quality of life for the youth living in the rural (and rural campuses), as leisure activities, nightclubs and social life is the best in Cottbus, but inaccesible to them. Participants indicate the lack of night connections outside Cottbus and their wish for night trains to rural areas. PT quality indirectly contributes to rural exodus, car ownership and car dependancy. In policy the need of rural- urban PT connectivity is adressed for work-home commute in the region.
Participants wish for **cycling infrastructure** development in Cottbus, indicating that bike trips enhance rural mobility as well. The costs and space for cycling paths is in their perspective challenging, so it should be taken into account when renewing the main traffic arteries in Cottbus, integrating cycling paths in the road width. Policy adresses cycling paths with long term abitious visions when the rural and urban are smoothly connected through regional cycling highways.
Participants are knowledgeable of **sustainable transportation** measures, considered as a natural consequence of the German economic system and CO2 reduction agenda. The youth wish for enhanced mobility with e-scooters and e-bikes, with a dense fixed network of collection points and charging stations. They are positive about Mobility as a service (MaaS — integration of modes and PT), shared mobility and switch to e-cars.

6 **Leisure** facilities are the best in Cottbus and lack in rural and peripheral areas. Youth clubs in rural areas are key for leisure, social sphere and integration of youth communities in acting and relating to their neighbourhoods. Participants wish for more leisure activities in rural areas, such as bowling, bouldering, mini golf or revitalization of bathing spots. Playgrounds are mentioned as a quality of public spaces in Cottbus, and in general. In addition, in elderly neighbourhoods in Cottbus, tehre should be more facilities for the youth. However, the youth wish for an intergenerational community, where the young and old come together at neighbourhood events, festivals and birthday celebrations. Policy mentions the importance and unavailability of such community spaces.

7 Participants are negative about **population dynamics**: population in peripheral neighbourhoods and in the rural is ageing and shrinking. This is not directly connected to the transition, but availability of

- Economic TC aspects and sub-aspects
- Infrastructure TC aspects and sub-aspects
- Social and Human TC aspects and sub-aspects
- Built Environment TC aspects and sub-aspects

Data source: WS1-2 N Lusatia transcript, DUST RFLLs
Collected and prepared by BTUCottbus-Senftenberg (Tihomir Viderman, Silke Weidner, Rafael Maximiliano Flores de Leon) and Humanistisches Jugendwerk Cottbus (Laura Tillack, Marian Lachmund)

Regional services, transport, urban development, and population dynamics

TC sub-aspects possibly related to Cottbus polices

? TC sub-aspects/details not covered yet by comparison

2 Social inclusion/ Inclusive communitie

11 Housing and urban development

10 Affordable Living

9 Social services

13 Urban cooling

12 Rural and peripheral ares

8 Commercial services

5 Transport and mobility

6 Leisure

7 Population dynamics

Vacancy can attract; affordable housing

Value acknoledged by both; communities fear gentrification and rising living costs; policy focuses on aquaculture.

Counteract through collaboration with universities; jobs replaced by technology;

Counteract through digitization

Considered good

Counteract

Digital market places for local products

Countermovement to support local market

Communities judge jobs replaced by technology

Attractive villages and towns; housing affordability; Decentralisation;

Policentric regional system linked through cycle highways;

Solve the last mile

Focused on work commute

Revitalise unused property

Decentralisation; Housing available in the rural;

Counteract; policentric structure, regional centres.

Counteract through digitization

Counteract; policentric structure, regional centres.

Counteract

Legend

- Areas of focus (determined by CS partners) — not defined
- TC sub-aspects related to the key topics
- TC aspect or sub-aspect present in both policy and community
- TC aspect or sub-aspect only mentioned by the community
- = Policy and community perspectives align
- ≠ Perspectives do not align
- ≈ Perspectives partially align
- Notes from policy
- Highly grouded TC aspects (thick black border)
- Related TC aspects (black border)
- Relation between TC aspects and their sub-aspects
- Groundedness (number of times quoted)
- Preffered future TC
- Probable future TC
- Present TC
- Negative feelings

Data source: WS1-2 N Lusatia transcript, DUST RFLLs
Collected and prepared by BTUCottbus-Senftenberg (Tihomir Viderman, Silke Weidner, Rafael Maximiliano Flores de Leon) and Humanistisches Jugendwerk Cottbus (Laura Tillack, Marian Lachmund)

B. TC groundedness tables

Table 1 TC groundedness: WS2 Norrbotten.

WS2 RFLLs Norrbotten, Groundedness of TC aspects
Rural communities perspective on TC in their region

Legend
Less quoted — More quoted
Groundedness (number of times quoted)
Data source: WS2 Norrboten, DUST RFLLs

		Memories 23	Negative 91	Positive 105	Preffered futu... 47	Present_TC 71	Probable futu... 55
Built environment TC	39	6	17	27	8	24	15
Built environment TC: _Villages/ Rural areas	15	3	5	14	3	11	6
Built Environment TC: Community spaces	7	2		6	→ 4	2	1
Built environment TC: Homes	17	2	10	10	2	12	6
Built environment TC: Sustainable energy buildings_	1			1	1		
Built environment TC: Urban expansion/ overgrowth	3		3				3
Cultural TC	21	5	15	32	11	7	11
Cultural TC: _Sami reindeer herding	1		2				2
Cultural TC: Dissapearance of macho culture	2			3	1		2
Cultural TC: Internationsalisation / Cultural diversity	11	1	5	22	→ 8	1	7
Cultural TC: National identity	5		3		2	3	
Cultural TC: Small scale farming	2	4	5	7		3	
Economic TC	47	8	44	46	14	23	25
Economic TC: Exploatation natural resources	9		11	3	2	2	6
Economic TC: Farming	21	6	21	20	→ 3	16	8
Economic TC: Forests	6	1	9			2	6
Economic TC: Housing projects	5		3	4	1	1	3
Economic TC: Minerals	3		5	1	1		4
Economic TC: Reindeer herding	2		4				4
Economic TC: Rural businesses	1			1	2	1	
Economic TC: Sustainable tax system	5	1	4	6	2	2	3
Economic TC: Tourism	7		8	13	2	1	6
Economic TC: Water	3			2	2		2
Human TC	32	1	14	23	13	9	15
Human TC: Education	3		1	3		1	3
Human TC: Jobs and workforce	17	1	13	7	2	6	8
Human TC: Skills	5		1	8	→ 4	2	3
Human TC: Wellbeing	11			11	→ 9	1	4
Infrastructure TC	72	4	36	65	32	23	20
Infrastructure TC: _Tech_Automation_AI	19	1	4	24	→ 10	5	5
Infrastructure TC: Connectivity and mobility	3			7	5	1	1
Infrastructure TC: Cultural and recreation services	4			7	5	3	
Infrastructure TC: Education services	3		1	2	2	1	
Infrastructure TC: Farming	5	1		8	3	3	
Infrastructure TC: Green technologies (energy)	9		1	12	→ 7	2	2
Infrastructure TC: Healthcare services	9		11	7	3	1	4
Infrastructure TC: Public services	16		11	13	→ 9	5	5
Infrastructure TC: Relational_Political cooperation	8	1	4	7	1	4	3
Infrastructure TC: Relational_Regional Governance	23	2	18	12	6	8	6
Infrastructure TC: Relational_Structure of regional urb...	3						3
Infrastructure TC: Tourism	1			2	1		1
Natural TC	41	10	35	14	10	18	12
Natural TC: Clean environment_	1			1	1		
Natural TC: Climate	16	5	7	5	6	2	3
Natural TC: Minerals_	4	2	7			3	2
Natural TC: Open Space	18	4	23	7	2	13	7
Natural TC: Water and waterfronts	4			2	2		2
Natural TC:_ Forests	4	1	5			4	
Social TC	71	9	41	44	30	22	24
Social TC : Social safety	2			3	2		
Social TC: Community and social relations	37	6	19	19	→ 19	17	5
Social TC: Healthcare	2		3	1	1	1	1
Social TC: Population dynamics	27	3	14	21	→ 8	2	18
Social TC: Protectors of rural open space	10	2	15			7	3

Table 2 TC groundedness: WS2 Katowice.

WS2 RFLLs Katowice, Groundedness of TC aspects

Overall perspective: young miners, working miners and retirees

Legend

Less quoted — More quoted

Groundedness (number of times quoted)

Data source: WS2 Norrboten, DUST RFLLs

	Memories 65	Negative 193	Positive 301	Preffered futur... 182	Present_TC 150	Probable futures 221	Vision 59
Built environment TC 153	23	43	102	48	56	54	31
Built environment TC: Education and cultural centers 29	4	2	21	6	10	9	2
Built environment TC: Energy efficient buildings_ 4	1	3	2	2	2		2
Built environment TC: Housing 35	5	15	19	15	12	9	5
Built environment TC: Industrial heritage 60	13	17	43	→ 21	21	20	11
Built environment TC: Metropolitanization 48	8	10	36	9	22	20	15
Built environment TC: New construction and area development 69	14	30	43	→ 24	→ 30	22	10
Built environment TC: Parks, sport and recreation 7	2		7	4	1	2	4
Built environment TC: Quality of the living environment 16	5	8	9	6	8	3	2
Built environment TC: Small municipalities 19	5	8	12	2	11	9	2
Cultural TC 43	8	22	19	5	16	20	1
Cultural TC: Industrial identity 23	4	10	10	2	7	14	1
Cultural TC: Regional identity 34	6	18	15	4	13	14	1
Cultural TC: Silesian identity 7	1	5	3	1	1	5	
Economic TC 324	41	103	182	109	85	138	35
Economic TC: Conventional energy 57	13	36	19	9	14	38	2
Economic TC: Economic diversification 11	1	2	9	7	1	6	1
Economic TC: Economic vision beyond mining_ 74	11	26	47	→ 29	19	27	10
Economic TC: Energy transition funds 22	4	7	16	12	11	3	3
Economic TC: Equitable regional transition 21	4	7	12	5	7	8	3
Economic TC: Future green energy 25	1	11	11	7	8	9	3
Economic TC: Investors and new investments 54	5	9	45	→ 24	15	22	8
Economic TC: Regional attractiveness_ 81	8	13	52	→ 32	13	29	9
Economic TC: Strategic economic zones 12	2		10	2	3	9	5
Economic TC: The EU 26	6	17	8	6	13	7	2
Economic TC: Transition timeline 30	9	12	21	6	8	18	2
Human TC 191	21	71	102	71	35	82	14
Human TC: Career prospects 50	7	31	16	11	12	33	1
Human TC: Education programs 84	8	23	43	→ 27	18	32	2
Human TC: Education programs for miners 46	2	14	29	→ 26	2	17	6
Human TC: Education programs for small children 4			4	2	1	1	
Human TC: Jobs 58	8	27	30	→ 22	8	30	4
Human TC: Professional fields_ 21	3	6	12	8	7	9	1
Human TC: Quality of life 37	4	17	21	→ 16	6	14	5
Human TC: Reskilling 84	5	26	45	→ 40	9	30	7
Human TC: Retirement 17	1	13	5	4	2	13	2
Infrastructure TC 169	24	50	112	56	56	60	30
Infrastructure TC: Conventional energy 36	11	17	23	→16	9	12	5
Infrastructure TC: Education 36	3	7	23	6	13	13	4
Infrastructure TC: Green energy 43	6	15	27	→ 18	13	13	8
Infrastructure TC: Logistic 6		1	5	2	4	2	
Infrastructure TC: Public services__ 6	1	1	4	4	2	1	2
Infrastructure TC: Regional mobility_ 24	3	4	17	7	11	5	3
Infrastructure TC: Relational_Regional governance decentralis... 36	3	5	29	→12	10	18	14
Infrastructure TC: Slow mobility 5	1	2	2	2	1	1	
Infrastructure TC: Sports and recreation 18	4	4	15	9	5	4	3
Natural TC 39	10	22	15	10	10	13	8
Natural TC: Climate_ 12	4	10	1	1	3	3	1
Natural TC: Conventional energy resources 15	4	8	6	3	3	7	
Natural TC: Green areas and forests 7	1	3	4	3	3	3	3
Natural TC: Green economy resources 5	1	1	4	3	1		4
Social TC 149	14	63	75	45	35	71	11
Social TC: Community empowerment 13	1	4	12	→ 10	4	5	4
Social TC: Demographic stability 34	5	18	13	5	6	23	
Social TC: Regional awareness 29	3	10	17	8	6	10	
Social TC: Regional social identity 42	4	21	17	3	14	23	4
Social TC: Solid communities 16	3	5	10	4	9	3	2
Social TC: Transition facilitators_ 73	10	23	46	29 ?	19	29	7
Social TC: Youth 31	2	14	15	8	5	17	

WS2 RFLLs Katowice, Groundedness of TC aspects

Young miners' perspective

Legend

Less quoted — More quoted

Groundedness (number of times quoted)

Data source: WS2 Norrboten, DUST RFLLs

	Memories 65	Negative 193	Positive 301	Preffered futur... 182	Present_TC 150	Probable futures 221	Vision 59
Built environment TC 153		9	15	10	8	5	1
Built environment TC: Education and cultural centers 29		1	2	2	1		
Built environment TC: Energy efficient buildings_ 4							
Built environment TC: Housing 35		2	5	3		1	1
Built environment TC: Industrial heritage 60		1	12	7		2	1
Built environment TC: Metropolitanization 48							
Built environment TC: New construction and area development 69		8	13	8	7	5	1
Built environment TC: Parks, sport and recreation 7							
Built environment TC: Quality of the living environment 16							
Built environment TC: Small municipalities 19							
Cultural TC 43	3	9	13	2	7	11	
Cultural TC: Industrial identity 23	3	8	6	1	4	9	
Cultural TC: Regional identity 34	3	7	10	1	5	7	
Cultural TC: Silesian identity 7	1	5	3	1	1	5	
Economic TC 324	2	21	40	24	12	24	4
Economic TC: Conventional energy 57		7	2	2	1	8	1
Economic TC: Economic diversification 11			2	2			
Economic TC: Economic vision beyond mining_ 74		7	15	8	5	5	3
Economic TC: Energy transition funds 22			2	2			
Economic TC: Equitable regional transition 21			2	2			
Economic TC: Future green energy 25		1	4	4		2	1
Economic TC: Investors and new investments 54			5	2		2	
Economic TC: Regional attractiveness_ 81	2	4	21	→ 9	5	7	1
Economic TC: Strategic economic zones 12							
Economic TC: The EU 26		2			1	1	
Economic TC: Transition timeline 30		1				1	
Human TC 191	2	28	28	18	7	32	2
Human TC: Career prospects 50	1	11	2	1	2	→ 15	
Human TC: Education programs 84	2	15	17	→ 9	5	→ 17	
Human TC: Education programs for miners 46		4	10	→ 9		6	1
Human TC: Education programs for small children 4			2	1		1	
Human TC: Jobs 58		9	5	3	1	11	1
Human TC: Professional fields_ 21	1	1	2	1	1	3	
Human TC: Quality of life 37		5	3	2	1	3	1
Human TC: Reskilling 84		11	13	→ 11	1	13	1
Human TC: Retirement 17		4				4	
Infrastructure TC 169		10	13	7	8	9	3
Infrastructure TC: Conventional energy 36		2	3	2	2	2	1
Infrastructure TC: Education 36		4	5	1	1	6	
Infrastructure TC: Green energy 43		4	5	3	5	2	3
Infrastructure TC: Logistic 6		1		1	1		
Infrastructure TC: Public services__ 6							
Infrastructure TC: Regional mobility_ 24							
Infrastructure TC: Relational_Regional governance decentralis... 36			2	2			
Infrastructure TC: Slow mobility 5							
Infrastructure TC: Sports and recreation 18							
Natural TC 39		1				1	
Natural TC: Climate_ 12							
Natural TC: Conventional energy resources 15		1				1	
Natural TC: Green areas and forests 7							
Natural TC: Green economy resources 5							
Social TC 149	4	27	28	11	8	35	2
Social TC: Community empowerment 13		1				1	
Social TC: Demographic stability 34	1	10	5	1	2	→ 14	
Social TC: Regional awareness 29	1	6	10	3	2	7	
Social TC: Regional social identity 42	1	13	9	1	6	→ 14	1
Social TC: Solid communities 16	1	1	3		2	1	
Social TC: Transition facilitators_ 73	2	7	7	1	2	9	
Social TC: Youth 31		5	2		1	8	

WS2 RFLLs Katowice, Groundedness of TC aspects

Working miners' perspective

Legend

Less quoted — More quoted

Groundedness (number of times quoted)

Data source: WS2 Norrboten, DUST RFLLs

	Memories	Negative	Positive	Preffered futur...	Present_TC	Probable futures	Vision
	65	193	301	182	150	221	59
Built environment TC 153	1	10	25	16	10	18	6
Built environment TC: Education and cultural centers 29			7	1	2	6	1
Built environment TC: Energy efficient buildings_ 4							
Built environment TC: Housing 35	1	9	9	→ 9	7	6	3
Built environment TC: Industrial heritage 60		4	10	6	6	7	4
Built environment TC: Metropolitanization 48			1			1	
Built environment TC: New construction and area development 69		10	9	7	7	8	3
Built environment TC: Parks, sport and recreation 7			5	4	1	1	2
Built environment TC: Quality of the living environment 16		4	5	→ 5	3	2	1
Built environment TC: Small municipalities 19							
Cultural TC 43	4	5	1	1	3	2	
Cultural TC: Industrial identity 23	1	1			1	1	
Cultural TC: Regional identity 34	2	3	1	1	2	1	
Cultural TC: Silesian identity 7							
Economic TC 324	15	51	69	41	25	66	13
Economic TC: Conventional energy 57	8	23	9	6	7	→ 19	
Economic TC: Economic diversification 11	1	2	4	2	1	5	1
Economic TC: Economic vision beyond mining_ 74	3	12	15	→ 9	6	→ 15	3
Economic TC: Energy transition funds 22	2	2	3	2	3	1	
Economic TC: Equitable regional transition 21						1	
Economic TC: Future green energy 25		4			1	3	
Economic TC: Investors and new investments 54	3	5	23	→ 12	2	15	5
Economic TC: Regional attractiveness_ 81	2	3	20	→ 11	2	11	5
Economic TC: Strategic economic zones 12			1			1	1
Economic TC: The EU 26	4	13	4	5	8	5	1
Economic TC: Transition timeline 30	3	8	11	5	2	12	2
Human TC 191	8	27	46	29	6	35	9
Human TC: Career prospects 50	4	13	6	4	2	12	
Human TC: Education programs 84	1	1	12	3	2	9	1
Human TC: Education programs for miners 46	1	6	17	→ 15		8	5
Human TC: Education programs for small children 4			1		1		
Human TC: Jobs 58	6	14	21	→ 17	2	13	2
Human TC: Professional fields_ 21		1	2	1	1	2	
Human TC: Quality of life 37	1	9	10	→ 9	1	9	3
Human TC: Reskilling 84	2	6	23	→ 17	1	11	5
Human TC: Retirement 17		5	5	4		6	2
Infrastructure TC 169	4	16	34	24	12	20	6
Infrastructure TC: Conventional energy 36	3	4	6	5	3	4	2
Infrastructure TC: Education 36			8	2	2	5	2
Infrastructure TC: Green energy 43	1	6	4	3		5	1
Infrastructure TC: Logistic 6			2	1		2	
Infrastructure TC: Public services__ 6		1		1	1		
Infrastructure TC: Regional mobility_ 24			3	1	1	2	
Infrastructure TC: Relational_Regional governance decentralis... 36		3	6	6	3	3	1
Infrastructure TC: Slow mobility 5	1	2	2	2	1	1	
Infrastructure TC: Sports and recreation 18	2	4	11	→ 9	3	3	1
Natural TC 39	2	11	4	5	4	7	2
Natural TC: Climate_ 12	1	5	1	1	1	3	1
Natural TC: Conventional energy resources 15	1	3	1	1	1	2	
Natural TC: Green areas and forests 7		3	1	2	2	2	
Natural TC: Green economy resources 5			1	1			1
Social TC 149		17	22	21	5	16	5
Social TC: Community empowerment 13		3	10	→ 9	3	3	3
Social TC: Demographic stability 34		3	3	3		3	
Social TC: Regional awareness 29		1	2	3	1		
Social TC: Regional social identity 42		3	1	1	1	3	1
Social TC: Solid communities 16		2	3	4	2		
Social TC: Transition facilitators_ 73	2	9	21	15	7	12	4
Social TC: Youth 31		7	6	5	1	7	

WS2 RFLLs Katowice, Groundedness of TC aspects

Retirees perspective

Legend

Less quoted — More quoted

Groundedness (number of times quoted)

Data source: WS2 Norrboten, DUST RFLLs

	Memories	Negative	Positive	Preffered futur...	Present_TC	Probable futures	Vision
	65	193	301	182	150	221	59
Built environment TC 153	15	19	50	17	30	18	21
Built environment TC: Education and cultural centers 29	2	1	7	2	4	2	
Built environment TC: Energy efficient buildings_ 4	1	3	2	2	2		2
Built environment TC: Housing 35	2	3	3	1	4	1	1
Built environment TC: Industrial heritage 60	8	8	14	5	11	2	5
Built environment TC: Metropolitanization 48	6	10	31	→ 8	18	15	14
Built environment TC: New construction and area development 69	8	8	14	6	11	2	5
Built environment TC: Parks, sport and recreation 7	1		1				1
Built environment TC: Quality of the living environment 16	4	4	3		5	1	1
Built environment TC: Small municipalities 19	3	8	9	2	8	7	1
Cultural TC 43	1	2	5	1	3	1	1
Cultural TC: Industrial identity 23			4	1	2	1	1
Cultural TC: Regional identity 34	1	2	4	1	3		1
Cultural TC: Silesian identity 7							
Economic TC 324	16	22	51	26	31	16	12
Economic TC: Conventional energy 57	4	4	6	1	4	4	1
Economic TC: Economic diversification 11			2	2			
Economic TC: Economic vision beyond mining_ 74	7	6	14	7	7	3	2
Economic TC: Energy transition funds 22	2	5	11	→ 8	7	2	3
Economic TC: Equitable regional transition 21	2	6	8	3	4	6	3
Economic TC: Future green energy 25	1	4	6	2	5	2	2
Economic TC: Investors and new investments 54	2	4	16	→ 10	11	2	3
Economic TC: Regional attractiveness_ 81	2	3	5	2	2	3	2
Economic TC: Strategic economic zones 12	1		3	1	2		1
Economic TC: The EU 26	2	2	4	1	3	1	1
Economic TC: Transition timeline 30	5	3	8	1	5	4	
Human TC 191	9	10	20	13	12	4	1
Human TC: Career prospects 50	1	3	5	4	2	3	
Human TC: Education programs 84	4	4	10	→ 7	6		
Human TC: Education programs for miners 46	1	4			2	3	
Human TC: Education programs for small children 4							
Human TC: Jobs 58	2		4	2	2		
Human TC: Professional fields_ 21	1	3	5	4	2	3	
Human TC: Quality of life 37	2	2	7	5	2	1	1
Human TC: Reskilling 84	3	5	6	4	3	3	
Human TC: Retirement 17	1	4			2	3	
Infrastructure TC 169	17	20	53	17	30	22	19
Infrastructure TC: Conventional energy 36	7	8	11	7	3	3	2
Infrastructure TC: Education 36	2	2	6	1	7	1	1
Infrastructure TC: Green energy 43	4	4	15	→ 9	8	4	4
Infrastructure TC: Logistic 6			2		2		
Infrastructure TC: Public services__ 6			3	2		1	2
Infrastructure TC: Regional mobility_ 24	3	4	12	4	8	3	3
Infrastructure TC: Relational_Regional governance decentralis... 36	2	2	18	3	6	11	12
Infrastructure TC: Slow mobility 5							
Infrastructure TC: Sports and recreation 18	2		4		2	1	2
Natural TC 39	8	8	10	5	4	4	6
Natural TC: Climate_ 12	3	4			1		
Natural TC: Conventional energy resources 15	3	3	4	2	1	3	
Natural TC: Green areas and forests 7	1		3	1	1	1	3
Natural TC: Green economy resources 5	1	1	3	2	1		3
Social TC 149	6	10	13	2	13	8	2
Social TC: Community empowerment 13							
Social TC: Demographic stability 34	2	1	3	1	1	1	
Social TC: Regional awareness 29	1	2	1		1		
Social TC: Regional social identity 42	2	2	5		5	3	2
Social TC: Solid communities 16	2	2	4		5	2	2
Social TC: Transition facilitators_ 73	3	5	11	7	7	2	2
Social TC: Youth 31		1	3	1	1	2	

Table 3 TC groundedness: WS2 Stara Zagora.

WS2 RFLLs Stara Zagora, Groundedness of TC aspects

Legend
Less quoted — More quoted
Groundedness (number of times quoted)
Notes (marking most grounded TCs)
Data source: WS2 Stara Zagora, DUST RFLLs

	Memories 2	Negative 15	Positive 68	Preffered futures 45	Present_TC 28	Probable futures 28
Built environment TC 9	1	1	11	6	4	2
Built environment TC: Peripheral campus 3		1	5	1	3	1
Built environment TC: Heritage 1			1	1		
Built environment TC: Villages 3	1		3	1		1
Cultural TC 2			1	1		
Cultural TC: Regional history and identity 2			1	1		
Economic TC 27		3	25	12	9	19
Economic TC: Economic transition and development 24		2	19	→ 8	6	→ 18
Economic TC: Private capital for education 3		1	6	4	3	1
Economic TC: Tourism 2			2	1		1
Human TC 37	2	4	36	21	14	12
Human TC: Early education 8		2	8	5	6	1
Human TC: Education 18		2	20	→ 14	→ 10	4
Human TC: Future work culture 19	2	3	13	→ 10	5	3
Human TC: Interdisciplinarity and specialization 4			2	3	2	
Human TC: Jobs 11	1	1	10	2	2	7
Human TC: Quality higher education_ 3			3	1	1	3
Human TC: Quality of life_ 7	1		6	3	1	4
Infrastructure TC 45		12	36	30	20	9
Infrastructure TC: Education facilities 14		3	17	→ 13	8	2
Infrastructure TC: Emission-free travel 2			2	1		1
Infrastructure TC: Highways and roads 4		1	3	2	2	
Infrastructure TC: Mobility 13		5	8	→ 8	6	1
Infrastructure TC: Public transport 11		5	6	6	7	1
Infrastructure TC: Sports and cultural facilities 11		1	14	→ 11	4	1
Infrastructure TC: State support & political context 7		2	5	1	2	7
Infrastructure TC: Technology innovation 6			4	2	2	4
Natural TC 13	1	1	12	6	3	6
Natural TC: Air quality 6	1		6	3		2
Natural TC: Climate change impact 1		1				1
Natural TC: Greenery 5	1		5	3	2	1
Natural TC: Renewable energy resources (RES) 4			4	1	1	3
Social TC 38	1	3	32	17	13	17
Social TC: Family and children 12	1	1	15	→ 10	6	1
Social TC: Societal awareness and collaboration 7			6	2		4
Social TC: Specialists 16	1	2	11	→ 8	7	8
Social TC: Young talent 11		2	10	6	6	6

Table 4 TC groundedness: WS2 Lusatia.

WS2 RFLLs Lusatia, Groundedness of TC aspects

Youth perspective

Legend

Less quoted — More quoted

Groundedness (number of times quoted)

Data source: WS2 Lusatia, DUST RFLLs

	Memories	Negative	Positive	Preffered futu...	Present_TC	Probable futures
	11	113	123	62	140	51
Built environment TC 63	4	31	19	10	37	12
Built environment TC: Building construction and renovation_ 26	5	11	11	3	16	7
Built environment TC: City center area 7		4	1	2	3	
Built environment TC: Green urban space 6		1	1		4	
Built environment TC: Housing 29	4	17	9	4	21	5
Built environment TC: Neighbourhoods 17	1	5	8	6	6	6
Built environment TC: Public space 10	2	5	2	2	6	
Built environment TC: Urban attractiveness (Cottbus)_ 3		1	1		2	1
Cultural TC 11		2	7	1	9	3
Cultural TC: Regional identity 11		2	7	1	9	3
Economic TC 39	1	25	13	7	14	18
Economic TC: Affordable living cost 23		15	6	3	12	9
Economic TC: Energy transition 4		2	3		2	3
Economic TC: Regional attractiveness_ 2			2			2
Economic TC: Regional public budget_ 15		10	4	6	4	4
Economic TC: Tourism_ 1			1		1	2
Economic TC: Urban attractiveness (Cottbus) 3		1	1		2	1
Human TC 27	1	20	10	2	11	14
Human TC: Education programs_ 5		3	2		3	
Human TC: Jobs 8		4	6		3	7
Human TC: Skilled labour 15	1	14	3	2	5	8
Human TC: Social sector (workforce) 10		10		1	5	4
Infrastructure TC 114	9	54	57	30	69	23
Infrastructure TC: Car infrastructure 5		4	1	2		2
Infrastructure TC: Clean transportation 5			4	3	2	1
Infrastructure TC: Commercial services 20	3	6	14	7	9	3
Infrastructure TC: Cycling infrastructure 9	1	3	5	4	4	2
Infrastructure TC: Daycare and kindegarden facilities 5	1	4	1		1	2
Infrastructure TC: E-commerce and digitization 22	1	10	13	5	15	4
Infrastructure TC: Education 9		5	4	1	5	2
Infrastructure TC: Healthcare 5	1	4	1		1	2
Infrastructure TC: Leisure 29	3	14	15	6	23	3
Infrastructure TC: Public Transport – PT 31	2	17	12	5	22	2
Infrastructure TC: Renewable energy_ 2		2			1	2
Infrastructure TC: Sustainable mobility services 2		1	2	2	1	1
Infrastructure TC: Urban water systems 3			2	2	2	
Infrastructure TC: Youth facilities and events 13		8	5	3	11	2
Natural TC 11		4	5	6	6	6
Natural TC: Cottbus Baltic Sea (Walde)_ 6		1	4		4	6
Natural TC: Regional and urban green structure 1					1	
Natural TC: Renaturalisation_ 1					1	
Natural TC: Urban cooling (urban heat mitigation) 4		3		5	1	
Natural TC: Water 12		4	6	6	7	6
Social TC 116	5	52	67	37	64	14
Social TC: Attachment to region/ sense of home_ 6		1	5	1	6	
Social TC: Communication channels & strategies 36	1	16	26	14	21	4
Social TC: Community knowledge and participation 67	3	26	45	26	40	6
Social TC: Dispossession_ 1		1				1
Social TC: Family and friends_ 7		7	1	1	4	
Social TC: Population dynamics 28	1	15	13	7	14	6
Social TC: Residents associations_ 1			1	1		
Social TC: Social inclusion 13	2	4	11	6	7	2
Social TC: Supportive community_ 5			4	4	1	1
Social TC: Youth 22	2	9	11	8	12	1
Social TC: Youth clubs_ 19	2	10	9	5	15	2

C. Detailed research results – Chapter 5

Table 5 Indicators for futures literacy aspects addressed in the RFLLs.

What indicators and data can help assess futures literacy aspects in the RFLLs?		
Future literacy aspects in RFLLs	**Indicators**	**Method**
Anticipation and imagination		
LECs' understanding of time	Medium and long-term visions vs. actionable short- term goals and present concerns	Qualitative text analysis WS2
LECs' capacity to imagine futures	Number of Preferred futures/Probable futures/ Present TC	Qualitative text analysis WS2
	Identification of 'own futures' by comparing TC aspects in community futures to TC aspects in the media and policy	Comparison to media discourses (T3.3) Comparison to policy themes (T4.4/ WS1 themes)
LECs' change of perspective	Highly grounded TC categories and TC aspects in Preferred futures/Probable futures/Present Comparison between futures and initial themes introduced in WS1	Qualitative text analysis WS2 WS1 report
	LECs' sentiments in Preferred futures/ Probable futures/Present (negative/positive)	Qualitative text analysis WS2
	LECs' attitudes in Preferred futures/ Probable futures/ Present (perceived possibility to act/ agency as opposed to a feeling of being in limbo, act rather than react)	Qualitative text analysis WS2 WS2 reports Interviews with communities
	Hope versus fear in Preferred futures/Probable futures/Present (LEC's perceived ability to control one's own life as opposed to fear of one's own future)	Qualitative text analysis WS2 Observation forms WS2 reports
Social capital **Regional design**		
Spatial imaginaries and collective spatial practices	Social TC aspects in Preferred futures/Probable futures/ Present TC	Qualitative text analysis WS2
	Number of Tangible TCs / Intangible TC in Preferred futures/Probable futures/ Present TC (spatial visions)	Qualitative text analysis WS2
	Number of places	Qualitative text analysis WS2
	Types of locations	Qualitative text analysis WS2
	Co-occurrences between Social TC aspects and Tangible TCs	Qualitative text analysis WS2
Affective communication		
Aspects of affective communication around Preferred and Probable futures	Memories and communication styles (personal stories, jokes, debate skills) around Preferred futures/Preferred futures/Present TC	Qualitative text analysis WS2
	LECs' perception of the regional designs representing their dreams	Questionnaires WS2 — in D5.3 Storytelling with communities WS3

Table 6 Indicators and baselines for assessing LECs' change of perspectives and FL.

What indicators and data can help assess futures literacy aspects in the RFLLs?		
Indicator group	**Indicator**	**Source**
Community perspective in focus groups		
TC aspects	TC aspects	DUST_Community perspective T3.2 & T3.3
TC aspects	Number of TC aspects	DUST_Community perspective T3.2 & T3.3
TC aspects	Highly grounded TC aspects	DUST_Community perspective T3.2 & T3.3
TC aspects	Positive and negative sentiments about TC aspects	DUST_TC analysis _T3.2 & T3.3 perspectives.xlsx
TC categories	Highly grounded TC categories	DUST_Community perspective T3.2 & T3.3
Media perspective		
TC aspects	TC aspects	DUST_Community perspective T3.2 & T3.3
TC aspects	Number of TC aspects	DUST_Community perspective T3.2 & T3.3
TC aspects	Highly grounded TC aspects	DUST_Community perspective T3.2 & T3.3
TC aspects	Positive and negative sentiments about TC aspects	DUST_TC analysis _T3.2 & T3.3 perspectives.xlsx
TC categories	Highly grounded TC categories	DUST_Community perspective T3.2 & T3.3
Key sustainability theme	Textual description of community perspective in theme (proposed by TUD)	DUST_Community perspective T3.2 & T3.3
WS1 input — Key sustainability transition themes		

What indicators and data can help assess futures literacy aspects in the RFLLs?		
Indicator group	**Indicator**	**Source**
Key sustainability transition themes	Key sustainability transition themes proposed as input for WS1	WS1 report: case study folders in DUST_WP_5
TC aspects	TC aspects in Key sustainability transition themes / sub-themes	-
TC categories	TC categories in Key sustainability transition themes / sub-themes	-
WS2 output — Key sustainability transition themes		
TC aspects	TC aspects in Preferred futures, Probable futures, Present and Memories	Qualitative text analysis WS2 transcripts
TC categories	Groundedness of TC categories and number TC aspects (per category) in Preferred future, Present	Qualitative text analysis WS2 transcripts
Preferred futures	Number of Preferred futures (and related sentiments)	Qualitative text analysis WS2 transcripts
Preferred futures	Most grounded TC aspects in Preferred futures (and related sentiments)	Qualitative text analysis WS2 transcripts
Probable futures	Number of Probable futures (and related sentiments)	Qualitative text analysis WS2 transcripts
Probable futures	Most grounded TC aspects in Probable futures (and related sentiments)	Qualitative text analysis WS2 transcripts
Present TC	Number of Present TC (and related sentiments)	Qualitative text analysis WS2 transcripts
Present TC	Most grounded TC aspects in the Present (and related sentiments)	Qualitative text analysis WS2 transcripts
Memories	Number of Memories (and related sentiments, relation to futures and Present)	Qualitative text analysis WS2 transcripts
Memories	Most grounded TC aspects in Memories (and related sentiments, relation to futures and Present)	Qualitative text analysis WS2 transcripts

Table 7 WS2 participants and implementation adaptation.

RFLL Workshop 2 (WS2)	Norrbotten	Katowice	Stara Zagora	Lusatia
Number of participants	14	11	14	15
LEC (meta and sub-communities)	Rural inhabitants (mainly small business owners/forest landowners) from Boden, Kalix and Luleå municipalities	Mining communities (retirees, youth from mining families, workers in conventional energy sectors)	Students, civic activists, ex-mining community	Young people aged 18–30 based in Lusatia, active in youth organisations, students, and/or politically engaged
WS2 Implementation (WS2 framework was adapted to consider CS context)	Workshops 1 & 2 back-to-back. No reflection session. Break-out rooms format The session guided imagination of Probable and Preferred futures, differentiating between, and explaining the two types of futures. Exercises conducted to imagine the futures were close to the original FL format, follow-up open discussion between participant about the futures	Workshop 1 & 2 close to each other The three groups were separated in breakout rooms and shared their reflection in a plenary session The sessions on the two types of futures were clearly separated, self-reflection was encouraged by taking notes Moderators guided and structured the discussion more than in the other CSs	Workshop 1 & 2 merged There was clear distinction between the two future types. There were no moments of reflection planned in the setup, workshop took the form of an open discussion	Workshop 1 & 2 merged No beak-out rooms were organised, no plenary reflection session Less distinction and explanation about the two types of futures More attention to explain key terms

Table 8 Characterisation of and TC in LECs' Preferred and Probable futures and the Present.

Probable futures	**Norrbotten**	**Katowice**	**Stara Zagora**	**Lusatia**
Groundedness	**55** Probable Futures	**221** Probable Futures Youth — miners' families: 92 Working miners: 57 Retired miners: 36	**28** Probable Futures	**51** Probable Futures
Sentiments	**Balanced** (22 positive – 20 negative)	**Negative** (102 negative – 86 positive) Youth: negative (38 - 9) Miners: balanced (44 - 41) Retirees: positive (25 – 10)	**Positive** (23 positive – 4 negative)	**Balanced** (31 negative –25 positive)
TC categories (groundedness, number of TC aspects)	Economic TC (25, 7) Social TC (24, 4) Infrastructure TC (20, 9) Human TC (15, 4) Built Environment TC (15, 4) Natural TC (12, 4) Cultural TC (11, 3)	Economic TC (134, 13) Human TC (80, 9) Social TC (69, 8) Infrastructure TC (58, 10) Built Environment (54, 8) Cultural TC (20, 4) Natural TC (12, 3)	Economic TC (19, 3) Social TC (17, 5) Human TC (12, 6) Infrastructure TC (9, 7) Natural TC (6, 4) Built Environment (2, 2) Cultural (0)	Infrastructure TC (25, 14) Economic TC (20, 5) Human TC (15, 3) Social TC (15, 12) Built Environment (12, 5) Natural TC (6, 2) Cultural (3, 1)
TC aspects and related sentiments ((ordered based on groundedness)	Population dynamics — balanced Jobs & workforce — balanced Open space — negative Farming — negative Internationalisation & diversity — positive Regional governance — balanced Tourism — positive Forests — negative Natural resources — negative Homes — positive Rural areas/villages — positive	Conventional energy — negative Career prospects — negative Education programs — negative Jobs — negative Reskilling — negative Economic vision beyond mining — balanced Regional attractiveness — positive Transition facilitators — positive New construction and area development — positive Industrial heritage — positive Metropolitanization — positive Regional governance decentralisation — positive Transition timeline — positive Regional social identity — negative Demographic stability — negative Industrial identity — negative Regional identity — negative Investors and investments — positive	Economic transition and development — positive Specialists — positive State support and political context — positive Jobs — positive Young talent — positive	Affordable living costs— negative Skilled labour — positive Jobs — positive Building construction and renovation — positive Community knowledge and participation — positive Neighbourhoods — positive Population Dynamics — Cottbus Baltic Sea & water — positive
Preferred futures	**Norrbotten**	**Katowice**	**Stara Zagora**	**Lusatia**
Groundedness	**47** Preferred futures	**182** Preferred futures Youth — miners' families: **40** Working miners: **75** Retired miners: **47**	**52** Preferred futures	**62** Preferred futures
Sentiments	**Positive** (52 positive)	**Positive** (143 positive – 22 negative) Youth: positive (34 - 2) Miners: positive (63 - 14) Retirees: positive (40 – 6)	**Positive** (54 positive – 3 negative)	**Positive** (40 positive – 18 negative)
TC categories (groundedness, number of TC aspects)	Infrastructure TC (32, 11) Social TC (30, 5) Economic TC (14, 8) Human TC (13, 3) Cultural TC (11, 3) Natural TC (10, 4) Built Environment TC (8,4)	Economic TC (105, 13) Human TC (68, 9) Infrastructure TC (56, 10) Built Environment (49, 9) Social TC (43, 8) Natural TC (10, 4) Cultural TC (4, 3)	Infrastructure TC (32, 9) Human TC (23, 7) Social TC (22, 5) Economic TC (13, 3) Built Environment TC (8, 3) Natural TC (7, 3) Cultural TC (2, 2)	Social TC (37, 10) Infrastructure TC (31, 12) Built Environment (10, 6) Economic TC (7, 2) Natural TC (6, 2) Human TC (2, 2) Cultural TC (1, 1)
TC aspects (ordered based on groundedness)	Community & social relations Tech, automation, AI Internationalisation & diversity Wellbeing Public services (in rural) Green technologies (energy) Population dynamics Regional governance Climate	Reskilling Regional attractiveness Economic vision beyond mining Education programs Education for miners Investors and investment New construction and area development Transition facilitators Jobs Industrial heritage Quality of life Housing Green energy Conventional energy Regional decentralisation Community empowerment	Education Education facilities Sports and cultural facilities Future work culture Families and children Specialists Mobility infrastructure Economic transition and development Young talent Public transport	Community knowledge and participation Communication to communities (channels and strategies) Commercial services Youth Population dynamics Leisure — balanced Social inclusion Regional public budget — balanced

Probable futures	Norrbotten	Katowice	Stara Zagora	Lusatia
Present TC	**Norrbotten**	**Katowice**	**Stara Zagora**	**Lusatia**
Groundedness	**71** Present TCs	**150** Present TCs Youth — miners' families: **26** Working miners: **41** Retired miners: **65**	**28** Present TCs	**141** Present TCs
Sentiments	**Negative** (49 negative – 26 positive)	**Balanced** (69 positive – 68 negative)	**Positive** (19 positive – 15 negative)	**Balanced** (67 negative – 66 positive)
TC categories (groundedness, number of TC aspects)	Bulit Environment TC (24, 3) Economic TC (23) Infrastructure (23, 10) Social TC (22, 4) Natural TC (17, 4) Human TC (9, 4) Cultural TC (7, 3)	Bulit Environment TC (57, 9) Economic TC (80, 13) Infrastructure (53, 10) Human TC (35, 9) Social TC (33, 8) Cultural TC (14, 4) Natural TC (10, 4)	Infrastructure TC (16, 8) Social TC (12, 4) Human TC (11, 7) Economic TC (8, 2) Natural TC (3, 2) Built Environment TC (1, 1) Cultural TC (0)	Infrastructure TC (71, 13) Social TC (65, 8) Built Environment TC (38, 8) Economic TC (15, 5) Human TC (12, 4) Natural TC (7, 3) Cultural TC (1)
TC aspects and related sentiments ((ordered based on groundedness)	Community & social relations — negative Farming — positive Open space — negative Homes — negative Villages/ Rural areas — balanced Regional governance — negative Protectors of rural open space (farmers, Sami) — negative Jobs and workforce — negative	New construction and area development — positive Industrial heritage — positive Metropolitanization — positive Economic vision beyond mining — positive Transition facilitators — balanced Education programs — negative	Education — positive Education facilities — balanced Specialists — balanced Public transport — negative	Community knowledge and participation — balanced Leisure — balanced Public transport — negative Communication to communities (channels and strategies) — negative Building construction and renovation — balanced Youth clubs — positive E-commerce and digitization — negative Affordable living cost — negative Population dynamics — negative

Table 9 LECs' attitudes towards futures.

Attitudes towards futures	Norrbotten	Katowice	Stara Zagora	Lusatia
Perceived possibility to act and hope (agency vs. feeling of being in limbo and fear of future)	The community situates themselves outside their Preferred futures, mentioning that future actors will be the young, who need to "continue"/take part in the discussion. This 'personal distance from futures" reflect in less feelings of hope or fear. This balance/ positivity toward both Preferred and Probable futures, including creative actionable ideas about the future (inclination to imagine tangible futures) is equally observed in the case of retirees in Katowice	All three groups search for a "future vision", open to participate and act Both miners and retirees have balanced sentiments towards Probable futures, youth are predominantly negative. The highest number of Preferred futures expressed by miners is also correlated to a more complex discussion across TCs, youth have the lowest number of hopes expressed referring mainly to Social and Human TC. Similarly, retirees mainly focus their dreams around Infrastructure TC Retirees state in focus groups that they feel excluded from the transition, despite their technical knowledge. Their conversation in WS2 RFLL demonstrates their wish to act in the transition and their creative and technical abilities regarding the transformation of industrial heritage and future energy systems Youth express their concern about intangible TCs in the futures, fearing that industrial culture will not be reframed in the future. Youth express fear and discontent over the 'offices vs. Mines' culture. Concern do not address the tangible aspects (e.g., Economy or Infrastructure TCs), but community values (Cultural TC) and agency (Social TC), and the mines as a community hub and place of stories. Their concerns and hope is also driven by intangible aspects, such as Education programs (Human TCs). Youth feel	Participants are overly positive and hopeful regarding the future and the transition	Youth in Lusatia feel powerless and unknowledgeable of the transition. They are aware about and hopeful to change their weak role in their changing region. Agency, knowledge, inclusion and capacity to act are key aspects that constitute their long-term guiding vision

Attitudes towards futures	Norrbotten	Katowice	Stara Zagora	Lusatia
		hopeless regarding jobs and reskilling of parents and family Miners resist change, fear and question reskilling. They use jokes and stories to explain/suggest their position, instead of stating it. Miners Preferred futures are diverse and well grounded, they are determined to explore futures, however, they are not transition facilities in these futures, but the national or local government, associations or investors		
Perceived ability to control one's own life vs. fear of one own's future.		Sentiments of fear vs. action and hope alternate and balance as all three groups fear and care about each other's futures, feeling responsible to act. For instance, youth fear about their parents, retirees express concern about the future of youth in the region and difficulty to reskill miners. Miners express concern about their children's future and wish to be better prepared and anticipate requalification Miners and retirees associate the feeling of being in control with tangible TCs and practical actions, such as new economic visions, investors and investment, infrastructure or built environment visions. Fear and hopelessness is associated with Human TC aspects In all futures and across communities, Social TC plays a key role in their hopes and dreams about the futures in medium and long-term visions	Community does not fear future, but at the same time they do not have the ability to appreciate to what extend they can control the future	Lack of control
LEC's perceived change in the fear about one's own future, change of attitudes	Acknowledgement that they are not actors in the far futures, sentiments of powerlessness at the end of the discussion	In the plenary reflection session, miners embrace future uncertainty "things will settle one way or another". They show openness, but do not state their change of position regarding towards the transition Miners construct future vision which detach from their current fears, however can be considered a step towards change of attitudes as they do not project themselves as community in these futures	The discussion is predominantly positive	Better understanding about their role in the transition, changing position from lack of control towards perceived possibility to be involved in transition

Table 10 Spatial imaginaries and agency in LECs' futures.

Spatial imaginaries and agency (aspects mentioned in WS2)	Norrbotten	Katowice	Stara Zagora	Lusatia
Tangible / Intangible TCs in futures and at Present (physical TC aspects vs. not measurable abstract)	**Intangible Preferred futures** (20 intangible - 18 tangible) **Tangible Probable futures** (25 tangible – 19 intangible)	**Intangible Preferred futures** (108 intangible – 64 tangible) **Intangible Probable futures** (110 intangible – 88 tangible)	**Tangible Preferred futures** (26 tangible – 24 intangible) **Intangible Probable futures** (19 intangible- 9 tangible)	**Intangible Preferred futures** (33 intangible – 24 tangible) **Intangible Probable futures** (33 intangible– 29 tangible)
Number and types of places	**31 places** Main municipalities in NBN Small municipalities in NBN Locations of energy infrastructure (energy hubs, energy infrastructure) Farms Forests River areas International locations (positive examples or relating to NBN) Stockholm	**127 places** Mines and mining towns Old workers neighbourhoods Universities Larger competing cities (Krakow, Warsaw) Katowice Upper Silesia Heritage revitalisation projects Stadion Recreation spots in the region International references (Silicon Valley, Norway, Netherlands)	**15 places** Industrial areas Stara Zagora International references	**124 places** Cottbus Neighbourhoods in Cottbus Cottbus peripheral areas Rural/ small towns Peripheral rural towns Campus locations/education Youth clubs Example places, outside Lusatia Sports, leisure, cultural Lusatia region Cottbus Baltic Sea

Spatial imaginaries and agency (aspects mentioned in WS2)	Norrbotten	Katowice	Stara Zagora	Lusatia
Social TC in Probable futures (highly grounded)	Population dynamics Protectors of rural open space	Regional awareness Regional social identity Transition facilitators Demographic stability Youth	Specialists Young talent Ex-energy industry workers Societal awareness and collaboration	none Community knowledge and participation — moderate Population dynamics — moderate
Social TC in Preferred futures (highly grounded)	Community & social relations Population dynamics	Transition facilitators Community empowerment Regional awareness Resilient mining community	Family and children Specialists Young talent Societal awareness and collaboration	Community knowledge and participation Communication (to communities) Youth Youth clubs Population dynamics Social inclusion
Social TC Present (highly grounded)	Community & social relations Protectors of rural open space	Transition facilitators Community empowerment Regional awareness Youth Demographic stability Solid communities	Specialists Young talent Families with children	Community knowledge and participation Communication (to communities) Youth clubs Population dynamics Social inclusion
Key relations between **Social TC and tangible TCs** (spatial, measurable TCs)	**∩ Infrastructure TC:** Regional governance Public services (predominantly Healthcare) Tech_automation_IT (enables decentralisation and rural development) **∩ Economic TC:** Farming (co-farming, small scale farming) Sustainable tax system Tourism **∩ Built Environment TC:** Community spaces Homes (housing projects, meeting places, intergenerational living) **∩ Natural TC:** Open space (related to 'Protectors of open space')	**∩ Infrastructure TC:** Education infrastructure (new education programs) Governance decentralisation (empowering smaller municipalities and communities) **∩ Economic TC:** Investors and investments (as transition facilitators, attracts youth/stops migration) Closing of mines (job loss, loss of pride, cultural identity, Regional attractiveness (pride, education, regional awareness) Regional attractiveness (transition education, regional awareness) Metropolitanization (regional experience as perceived by people through biking in 'the Silesian park', sports identities of small municipalities, municipalities learning from each other in transition) Funding opportunities (responds to societal needs, empowering communities) **∩ Built Environment TC:** Office development (loss of regional and cultural identity, sense of community) Mines (the mine as a social cultural hub) Renovation of workers neighbourhood, renovation (attracting youth, quality of services, wellbeing)	**∩ Infrastructure TC:** Schools and Universities (future educational, coupling school, sport, culture, education of the future for critical thinkers) Technology development—global technology, supercomputers, (specialists, future work culture, jobs, a Silicon Valley) **∩ Economic TC:** Private capital for schools (multi-functional educational centres, support families) Future education Technology sector (specialists, young talent) Economic transition (new work culture, interdisciplinarity and collaboration, critical education — not industry and tech oriented alone) **∩ Built Environment TC:** Multifunctional education centres (counteract scattered education, sport, leisure facilities and resulting traffic, exclusion, affecting wellbeing, early education) A campus (attract youth, internationalization) Greener rural places (future work culture, wellbeing) **∩ Natural TC**: Transition to RES (jobs preserved/increase jobs)	**∩ Infrastructure TC:** Neighbourhood management Youth clubs (role for communication and youth support and involvement) **∩ Economic TC:** Public budget and project funds (understanding and transparency) **∩ Built Environment TC**: Youth clubs (knowledge, communication, capacity building, leisure) Neighbourhood centres (intergenerational interaction, dealing with aging neighbourhoods, role of youth in neighbourhood management, social inclusion) Knowledge about regional development (data, budget, projects) **∩ Natural TC:** Cottbus Baltic Sea (attractor of tourism, leisure, education investment)

Table 11 LECs' understanding of time.

LECs' understanding of time	Norrbotten	Katowice	Stara Zagora	Lusatia
Short-term and actionable goals vs. guiding long-term visions and ambitions	Mostly medium /long-term guiding visions Correspondent short-term actions (e.g.. policy ideas) relating to the long-term visions	Predominantly long-term visions Difficulty to identify short-term actionable goals for the long-term visions. There is awareness, concern and debate on this matter	Long-term term visions dominate the discussions but remain abstract and unrelated to short term actions or pathways to guide them In comparison to other cases, there are less short-term actionable goals imagined by community, most shorter-term actions align with policy and media discourses. In the TC clusters the policy perspective	Short-term actionable goals dominate the discussion. One long-term guiding vision emergences around social, human and cultural TCs, such as knowledge, communication, inclusivity, role of youth General build-up of a long-term vision around Social TC, agency of youth, community capacity and inclusion

			is prominent, by comparing to results from focus group and media, we see a good alignment of those with aspects from the community perspectives on futures	Actionable goals less correlated to long- term visions
LEC's understanding of what will happen now and, in the futures	Good understanding about Present and futures. When imagining futures, participants draw relevant connections to present and past, changing between time scales Preferred and Probable futures include non-linear visions and imaginaries detached from Present	Good understanding of time across the three groups, which have witnessed different phases of the on-going transition A balanced and well planned "Transition timeline" is a key TC for a sustainable regional transition, relates to identifying actionable goals for the guiding visions	Discussion is oriented on the future with little references to present and past Articulation of Preferred futures to Present to what can happen now is weak	The conversation is predominantly anchored in the Present Less clear distinction between Probable and Preferred futures Less clear understanding between Present and futures

Table 12 Affective communication aspects in LECs' futures.

Memories	**Norrbotten**	**Katowice**	**Stara Zagora**	**Lusatia**
Groundedness memories	**23**	**65** Youth — miners' families: 5 Working miners: 22 Retired miners: 32	**2**	**11**
Co-occurrence of memories with Preferred, Probable futures and Present	**∩ Present:** 13 **∩ Probable:** 2 **∩ Preferred:** 2	**∩ Present:** 23 **∩ Probable:** 10 **∩ Preferred:** 8	**∩ Preferred:** 2	**∩ Present:** 5 **∩ Probable:** 2 **∩ Preferred:** 0
Sentiments related to memories	**Positive** (20 positive – 17 negative)	**Positive** (38 positive – 32 negative)	**Positive** (2 positive)	**Negative** (7 negative – 4 positive)
TC categories grounded in memories	Natural TC Social TC Economic TC	Youth — miners' families: Social TC Cultural TC Working miners: Economic TC Infrastructure TC Retired miners: Economic TC Infrastructure TC	Human TC Natural TC Built Environment TC	Infrastructure TC Social TC Built environment TC
Grounded TC aspects in memories	**Climate** (climate change experiences) **Open space** **Protectors of rural open space** (farmers, Sami) **Community and social relations** (volunteer power, intergenerational living, territory conflicts) **Farming** (small scale farming/ local food production) **Forests** (conflicting with exploitation of minerals)	Youth: **Regional identity** (awareness) **Industrial culture** (with reference to **Mines** as community space, **mining community** and **family, solid communities**) Working miners: **Conventional energy** (both as infrastructure and economic TC, success and identity of region, tangible TC, long term phasing out, reference to other cases) **Investors and investments** (reference to negative experience with EU programs "destroying industries/superimposing, lack of attraction for investors, previous economic zones from 1990) Retired miners: **Conventional energy** **Economic vision beyond mining** **Transition timeline** **Equitable energy transition** **Green energy**	**Greener places** **Remote work** **Quality of life** **Jobs** (graduate job opportunities)	**Building construction and renovation** — negative **Leisure facilities** (for youth and children) **Public transport** **Commercial services** **Community knowledge and participation** **Social inclusion** (also with reference to elderly-youth relations, youth, youth clubs as inclusive hubs)
Communication styles	**Norrbotten**	**Katowice**	**Stara Zagora**	**Lusatia**
Share of **Memories**/ Personal **stories/** Collective narratives	**Memories are shared during Present TC discussions**, not related to futures **Personal stories** overlap with areas of consensus and positive feelings, they **support interaction, attention/listening and imagination in the group**	**Memories relate mostly to the industrial culture and identity.** They represent for **youth and retirees an incentive to search for future alternative visions**, for working miners they **reveal the fear and arguments for which they stay attached to present and past**	Overall very **few references to the past**. Memories inspire futures: (1) remote work in attractive countryside during pandemic can inspire future work culture, (2) graduate students immediately found jobs **Personal stories** are used to justify **negative** attitudes	**Recall of recent memories**, experiences referring to bad connectivity experiences with commuting or isolation of remote urban and rural areas, positive experiences related to youth centres (knowledge, leisure), positive memories about intergenerational interaction and support, changes in the urban

Memories	Norrbotten	Katowice	Stara Zagora	Lusatia
	Discussion takes the form of **a debate**, leading to **quick change of perspective**s and **consensus**, participants **co-design narratives**	**Miners rarely share personal stories, youth and retirees share stories that reveal the challenges faced by working miners during the transition.** Each of the three **groups** perceives that they are and can **act as a collective**. Overall they perceive **'collective action' powerful** in the transition. Working miners propose futures	related to Present and Probable futures References of **collective narratives**/ one's **experiences from other places** that can inspire futures in their region Stara Zagora	environment (urban renewal) combining melancholy and frustration about lack of information with desire for change and new ideas **There is an obvious relation between memories and long-term futures envisioned by the youth**. Even though, memories and Preferred futures are not juxtaposed in text. However, the key aspects from memories relate. To fundamental TC aspects in youth long-term vision, such as inclusion, knowledge, intergenerational relations

D. Detailed research results – Chapter 6

Table 13 TC sub-categories per TC main categories

Colour code	Territorial Capital	Sub-category
	Built Environment Capital (settlement capital)	Attractive and affordable housing & living environments Cultural facilities and services Decarbonizing the building stock Industrial heritage & brownfield development Public buildings, spaces & services Settlement structure
	Economic Capital (entrepreneurial capital)	(New) industries & services Green growth & the transition towards a low-carbon economy Location factor
	Comprehensive (C) Human Capital (human + social + cultural capital)	A comprehensive category, combining the below listed human, social, and cultural capitals
	Human Capital (knowledge and skills capital)	(Future) jobs, skills & competences Cooperation & (social) governance Cultural events & services Demographic change Education Health & wellbeing
	Social Capital (social dynamics and cohesion capital)	Community & family life Participation & the quality of public institutions
	Cultural Capital (material and immaterial cultural capital)	Cultural practices (way of life) & traditions Cultural practices (way of life) & ethnicity
	Infrastructure Capital (relational capital)	(Renewable) energy infrastructure Digital infrastructure & automation Education & research infrastructure Green growth industrial infrastructure Social infrastructure Transportation systems & connectivity
	Natural Capital (environmental capital, ecological capital)	Biodiversity Climate change adaptation and mitigation & natural resources Cultural & natural landscapes Environmental externalities & pollution
	Capital X	Often some capital might fit in more than one category or in none at all. In such cases the X category can be used to classify those capitals that do not have a clear delimitation

Table 14 Indicators and baselines for assessing the labs though lens of democracy.

Indicator group	Indicator	Source
Community perspective in focus groups		
TC aspects	TC aspects	DUST_Community perspective T3.2 & T3.3
TC aspects	Number of TC aspects	DUST_Community perspective T3.2 & T3.3
TC aspects	Highly grounded TC aspects	DUST_Community perspective T3.2 & T3.3
TC categories	Highly grounded TC categories	DUST_Community perspective T3.2 & T3.3
Key sustainability transition theme	Textual description of community perspective in theme	DUST_Community perspective T3.2 & T3.3
Community perspective in WS1		
TC aspects	(Highly grounded) TC aspects prioritized by communities	WS1 report: case study folders in DUST_WP_5
TC aspects	Argument for prioritizing TC aspects	WS1 report: case study folders in DUST_WP_5
Key sustainability transition themes	Key sustainability transition themes and sub-themes proposed in WS1 (WS1 output)	
Community perspective in WS2 (plausible and Preferred futures)		
TC aspects	Number of TC aspects	Atlas.ti text analysis_TC community perspective Groundedness tables
TC aspects	Highly grounded TC aspects	Atlas.ti text analysis_TC community perspective
TC aspects	TC aspects with highly grounded positive connotation	Groundedness tables
TC aspects	TC aspects with highly grounded negative connotation	Atlas.ti text analysis_TC community perspective
TC categories	Number of TC aspects per category	Atlas.ti text analysis_TC community perspective
TC categories	Highly grounded TC categories	Groundedness tables
TC categories	TC categories with highly grounded positive connotation	Atlas.ti text analysis_TC community perspective
TC categories	TC categories with highly grounded negative connotation	Groundedness tables
TC clusters	Number of clusters and sub-clusters per lab	Atlas.ti text analysis_TC community perspective TC clusters

Indicator group	Indicator	Source
TC clusters	Orientation of clusters / highly grounded TC aspects constituting clusters and sub-clusters	Atlas.ti text analysis_TC community perspective
TC clusters	Orientation of clusters / textual descriptions of the debates	TC clusters
TC clusters	Comprehensiveness of clusters: amount of TC categories in clusters	Atlas.ti text analysis_TC community perspective
TC clusters	Depth of clusters: Amount of TC aspects per cluster and sub-cluster	TC clusters
TC clusters	Relations in clusters and sub-clusters: composition based on predominantly association or direct relation	Atlas.ti text analysis_TC community perspective
TC clusters	Future orientation of clusters and sub-clusters: predominately composed of TC aspects grounded in the Present, plausible futures and Preferred futures	TC clusters
TC clusters	Emotions in clusters and sub-clusters: predominately composed of TC aspects with negative feelings	Atlas.ti text analysis_TC community perspective
TC clusters	Other	TC clusters
Media perspective		
TC aspects	TC aspects	DUST_Community perspective T3.2 & T3.3
TC aspects	Number of TC aspects	DUST_Community perspective T3.2 & T3.3
TC aspects	Highly grounded TC aspects	DUST_Community perspective T3.2 & T3.3
TC categories	Highly grounded TC categories	DUST_Community perspective T3.2 & T3.3
Key sustainability theme	Textual description of community perspective in theme (proposed by TUD)	DUST_Community perspective T3.2 & T3.3
Policy perspective before WS1		
TC aspects	TC aspects	4.2_TCC_Policy analysis_01.08.2024.xlsx
TC aspects	Number of TC aspects	4.2_TCC_Policy analysis_01.08.2024.xlsx
TC aspects	Highly grounded TC aspects	4.2_TCC_Policy analysis_01.08.2024.xlsx
TC aspects	Textual explanation of relevance of aspects for communities	4.2_TCC_Policy analysis_01.08.2024.xlsx
TC categories	Highly grounded TC categories	4.2_TCC_Policy analysis_01.08.2024.xlsx
Key sustainability theme	Thematic cloud / Textual and visual descriptions of themes at the intersection of TC categories and aspects (proposed by TUD)	240822_DUST_D4.1_Territorial Capital policy and mapping assesment_V1.0-Final.docx
Comparison of perspectives in WS3 input		
Seed statements	Seed statements / text	D4.3_M27_Pol.is output_TUD
Comparison of perspectives in WS3 output		
Seed statements	Seed statements – text	D4.3_M27_Pol.is output_TUD
Statements	Statements - text	WS4 report: case study folders in DUST_WP_5

Table 15 Groundedness of TC categories in focus groups.

Norrbotten

Katowice

Stara Zagora

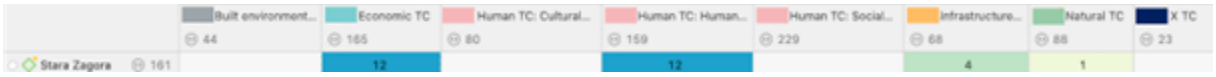
Lusatia

Table 16 Groundedness of TC categories in media narratives.

Norrbotten

Katowice

Stara Zagora



Lusatia

Table 17 TC aspects in focus groups, media, and policy.

	Stara Zagora			Lusatia			Katowice			Norrbotten		
Row Labels	**FG**	**M**	**P**	**FG**	**M**	**P**	**FG**	**M**	**P**	**FG**	**M**	**P**
Built environment	**2**		**4**	**2**	**1**	**6**		**3**	**15**	**1**	**2**	**3**
Attractive and affordable housing & living environments				**1**		**3**			**2**		**1**	**2**
Attractiveness						1						1
Countryside						1						1
Housing development											1	
Improvements in living environments				1								
Prosperity						1						
Real estate market									2			
Cultural facilities & services			**2**			**2**			**5**			

	Stara Zagora			Lusatia			Katowice			Norrbotten		
Row Labels	**FG**	**M**	**P**	**FG**	**M**	**P**	**FG**	**M**	**P**	**FG**	**M**	**P**
Cultural			1						3			
Cultural facilities									2			
Cultural heritage			1			2						
Decarbonizing the building stock	**1**		**1**		**1**							
Decarbonizing the building stock					1							
Energy			1									
Energy renovation of residential buildings	1											
Industrial heritage & brownfield development				**1**		**1**		**2**				
Free land in Silesian cities								1				
Land of former mining areas				1								
Land-reclamation of mining terrains								1				
Post-mining areas						1						
Public buildings, spaces & services	**1**							**1**	**1**	**1**	**1**	**1**
Green transition “hot spots”												1
Health									1			
Increased provision of services in the rural										1		
Investment in services and quality of life								1				
Population growth in small municipalities and rural areas											1	
Public buildings, local schools and community centres	1											
Settlement structure			**1**						**7**			
Functional change									1			
Metropolitanization			1									
Settlement structure									6			
Economic	**3**	**2**	**8**		**2**	**7**	**1**	**4**	**12**		**2**	**18**
(New) industries & services		**1**	**3**		**1**	**5**	**1**	**1**	**2**		**1**	**11**
Cultural heritage									1			
Fishing						1						
Future industry: battery industry		1										
Growth of businesses in the North											1	
Health						1			1			
Industries			2									7
Large public sector												1
New jobs (in weapon industry)					1							
Tourism			1			1						3
A diversified regional economy							1					
Diversity of activities						1						
Economic diversification and conversion								1				
Sectoral diversity						1						
Green growth & the transition towards a low-carbon economy	**3**	**1**	**3**		**1**			**3**	**10**		**1**	**4**
Countryside								1				
Energy									2			
Energy supply, affordability, energy poverty		1										
From mining to low-carbon economy								1				
Giant' industrial developments and ports expansion											1	
Globalisation vs. National and local economy					1							
Green economy	1											
Green growth									6			2
High level of innovation												1
Labour market			2									
Local brown coal (lignite)	1											

	Stara Zagora			Lusatia			Katowice			Norrbotten		
Row Labels	**FG**	**M**	**P**	**FG**	**M**	**P**	**FG**	**M**	**P**	**FG**	**M**	**P**
Mining and steel production												1
Phase-out of coal mining	1											
Resources									1			
Slow pace of the transition								1				
Waste and resource management			1									
Wealth									1			
Location factor			**2**			**2**						**3**
Businesses												1
Connectivity						1						
Location factor			1									1
Metropolitan form			1									
Regional economy												1
Rural development						1						
Human (C)	**13**	**3**	**5**	**11**	**2**	**8**	**11**	**17**	**20**	**11**	**9**	**14**
(Future) jobs, skills & competences (human capital)	**3**	**1**		**1**	**1**	**1**	**3**	**3**		**3**	**3**	**1**
(adult) education and skills for the transition											1	
(greener economy brings) new jobs										1		
(loss of) jobs	1	1										
Coal mining jobs and re-skilling								1				
Competence												1
Future jobs							1					
Future jobs				1								
Future skills and jobs										1		
Green growth						1						
Green jobs								1				
Human capital, population growth											1	
Job re-skilling	1											
Jobs at risk					1							
Lack of workforce, education and skills											1	
New jobs	1											
Research, innovation, transfer to advanced technologies								1				
Substantial engineering knowledge							1					
Technical knowledge							1					
Traditional work skills, reindeer herding										1		
Community & family life (social capital)	**3**			**2**			**1**	**3**			**1**	
Sami community existence and livelihood											1	
Employees of mines and their families								1				
Family	1											
Family and close social circles				1			1					
Healthcare facilities	1											
Local communities								1				
Local government								1				
Negative impact on community life				1								
Recreational facilities	1											
Cooperation & (social) governance (human capital)	**1**					**2**			**2**			**7**
Community digital knowledge	1											
Cross border development												1
Engaged civil society												1
Engagement									2			
Horizontal cooperation												1

	Stara Zagora			Lusatia			Katowice			Norrbotten		
Row Labels	**FG**	**M**	**P**	**FG**	**M**	**P**	**FG**	**M**	**P**	**FG**	**M**	**P**
Small business owners												1
Social												1
Social cohesion						2						
Social trust and strong institutions												1
Strong triple helix cooperation												1
Cultural events and services (human capital)						**3**						**1**
Cultural heritage						3						1
Cultural practices (way of life) & ethnicity (cultural capital)	**1**		**1**			**2**			**2**	**1**		**3**
Cultural			1			2			2			
Culture – majority Swedes												1
Future regional depopulation and relocation	1											
Indigenous Sami traditions												1
Labour union movement												1
Sami livelihood										1		
Cultural practices (way of life) & traditions (cultural capital)	**1**	**1**					**1**	**2**		**1**		
Changing ways of life								1				
Coal status quo								1				
Industrial culture and traditions							1					
Quality of food	1											
Risk of losing Sami culture										1		
Transition to social control		1										
Demographic change (human capital)		**1**	**2**	**1**					**12**	**1**		**1**
Community vision and knowledge for spatial transformation				1								
Population			2						12			1
Population, economic, and job growth for youth in the rural										1		
Regional depopulation		1										
Education (human capital)			**2**					**1**	**1**			**1**
Education			2					1	1			1
Health & wellbeing (human capital)	**1**							**1**	**3**	**1**	**1**	
Future quality of life								1				
Health	1								1			
Health care services in rural areas										1		
Quality of life in the rural											1	
Safety									2			
Participation & the quality of public institutions (social capital)	**3**			**7**	**1**		**6**	**7**		**4**	**4**	
(collaborate with) communities								1				
A growing culture of proactive participation	1											
Accountability and inclusivity of public institutions				1								
Communication and transparency of public institutions				1								
Community knowledge about the transition				1								
Community's digital knowledge				1								
Competence Development Centre								1				
Dialogue between government and communities											1	
Educational and cultural networks of mining community							1					
Growth as strategy											1	
Inclusive economic policies				1								
Lack of (safe) dialogue arenas to engage in the transition							1					
Lack of government support for the small municipalities											1	
Local (trusted) networks				1								
Local community (activities)	1											

	Stara Zagora			Lusatia			Katowice			Norrbotten		
Row Labels	**FG**	**M**	**P**	**FG**	**M**	**P**	**FG**	**M**	**P**	**FG**	**M**	**P**
Local expert networks							1					
Local participatory institutions, youth councils										1		
Multi-level cooperation								1				
Platform for Mining Regions								1				
Political characters								1				
Power plants, trade unions, governmental institutions							1					
Sami community leaders										1		
Sami livelihood										1		
Schools and teachers										1		
Social Agreement' policy							1					
Stakeholders of transition								1				
Trade unions	1							1				
Transdisciplinary cooperation											1	
Trust in government and public institutions				1								
Trust in government and public institutions for the transition					1							
Youth organisations							1					
Infrastructural	**2**	**2**	**9**	**4**	**6**	**7**	**1**	**5**	**14**	**3**	**2**	**14**
(Renewable) energy infrastructure	**2**	**2**	**2**	**1**	**6**		**1**	**2**		**2**	**1**	**1**
(un)reliable renewable energy					1							
Closure of coal-fired and thermal power plants		1										
Electricity infrastructure, renewable energy production											1	
Energy			2									
Energy infrastructure in the landscape										1		
Former energy infrastructure								1				
Future energy infrastructure		1						1				
New cross-border electricity line										1		
New environmental technologies	1											
Nuclear energy					1							
Persistence of coal based energy					1							
Phase-out of nuclear and coal energy					1							
PV panels installations and maintenance							1					
Reliable energy sources for the future					1							
Renewable energy												1
Renewable energy infrastructure	1											
Renewable energy installations				1								
Wind energy					1							
Digital infrastructure & automation				**2**		**1**			**2**			**2**
Digital infrastructure				1		1			2			
Smart city												1
Access to fast broadband												1
Community's digital knowledge				1								
Education & research infrastructure			**3**			**3**						**4**
Education			3			3						2
Excellent research environment												1
Research												1
Green growth industrial infrastructure			**2**			**1**			**1**			**6**
Green growth												4
Industries			1			1						2
Resource management			1									
Water treatment									1			

	Stara Zagora			Lusatia			Katowice			Norrbotten		
Row Labels	**FG**	**M**	**P**	**FG**	**M**	**P**	**FG**	**M**	**P**	**FG**	**M**	**P**
other						**1**						**1**
Defence												1
Geographical position						1						
Social infrastructure						**1**		**1**				
Investment in services and quality of life								1				
Temporary working facilities						1						
Transportation systems & connectivity			**2**	**1**				**2**	**11**	**1**	**1**	
(irregular) public transport in the rural										1		
Better public transport outside central areas				1								
Connectivity			1						1			
International connectivity									3			
Local connectivity									3			
Metropolitan form									1			
Multimodal Hub in Zduńska Wola - Karsznice								1				
New National Infrastructure Plan											1	
Road infrastructure to attract investments								1				
Transportation system			1						3			
Natural	**1**	**1**	**4**	**1**	**1**	**4**	**3**	**3**	**10**	**2**	**3**	**8**
Biodiversity						**3**			**6**			**1**
Biodiversity						3			6			1
Climate change adaptation and mitigation & natural resources	**1**	**1**	**2**		**1**		**2**	**3**	**4**	**1**	**2**	**5**
Brownfield management, redevelopment of coal mine							1					
Clean environment, clean water, air and green areas								1				
Climate												1
Climate change, natural conditions										1		
Climate, and moving away from fossil fuels								1				
Drinking water affected by coal phase-out					1							
Environmental aspects, waste reduction and recycling							1					
Fertile land		1										
Forest												1
Green growth												1
Improve waterway quality and nature restorations	1											
Metals and minerals												1
Mining sites regeneration								1				
Rare minerals and metals as key for green growth											1	
Untouched nature											1	
Urban green infrastructure			1									
Water									4			
Water courses (rivers, lakes, sea)												1
Water resources			1									
Cultural and natural landscapes			**1**	**1**		**1**				**1**	**1**	**2**
Attractive nature to attract and retain 'lifestyle migrants'.											1	
Cultural heritage			1									
Landscape						1						2
Natural landscapes, regional identity				1								
Physical landscape, natural land, natural scenery										1		
Environmental externalities & pollution			**1**				**1**					
Environmental aspects, better air quality							1					
Health			1									
X Capital	**1**									**1**	**1**	**3**

	Stara Zagora			Lusatia			Katowice			Norrbotten		
Row Labels	**FG**	**M**	**P**	**FG**	**M**	**P**	**FG**	**M**	**P**	**FG**	**M**	**P**
other	**1**									**1**	**1**	**3**
Open land pressure											1	
Regional challenges												3
Rural areas										1		
Rural areas (and arable land)	1											

Table 18 TC sub-categories in WS2 results.

Row Labels	Stara Zagora	Lusatia	Katowice	Norrbotten	Grand Total
Community WS2	**32**	**47**	**57**	**47**	**183**
Built environment	**3**	**8**	**9**	**5**	**25**
Attractive and affordable housing & living environments	1	5	3	3	12
Decarbonizing the building stock			1	1	2
Industrial heritage & brownfield development	1		1		2
Public buildings, spaces & services	1	2	2		5
Settlement structure		1	2	1	4
Economic	**3**	**5**	**13**	**10**	**31**
(New) industries & services	1	1		5	7
Economic diversification and conversion			1		1
Education	1		1		2
Green growth & transition towards a low-carbon economy	1	2	9	1	13
Location factor		2	2	4	8
Human	**14**	**15**	**22**	**16**	**67**
(Future) jobs, skills, and competences	4	3	6	2	15
Community & family life	3	4	5	5	17
Cooperation & (social) governance	1		1	2	4
Cultural practices (way of life) and traditions	1	1	4	5	11
Education	3	1	3	1	8
Health & wellbeing				1	1
Participation & the quality of public institutions	2	6	3		11
Infrastructural	**8**	**14**	**9**	**10**	**41**
(Renewable) energy infrastructure	1	1	2	2	6
Digital & automation infrastructure	1	1		2	4
Education & research infrastructure	1	1	1	1	4
Green growth industrial infrastructure		1			1
Social infrastructure	1	5	3	4	13
Transportation systems & connectivity	4	5	3	1	13
Natural	**4**	**5**	**4**	**6**	**19**
Climate change adaptation and mitigation & natural resources	2	1	4	4	11
Cultural and natural landscapes	1	3		1	5
Environmental externalities & pollution	1	1		1	3

E. Detailed research results – Chapter 7

A (High agreement) is about the overall approval level (e.g., 'high overall agreement' across all participants)
CS (Consensus across opinion groups) is about alignment between groups (the groups don't diverge)
PS (Polarising) is the opposite of CS: groups diverge in their votes

Table 19 Pol.is output: Policy relevance in Norrbotten.

ID	Acceptance	Output Statement	Related TC Aspects
65	A	There is a major problem with deserted farms in the countryside in Norrbotten	Farming
47	A+CS	Equal and high-quality access to healthcare should be guaranteed for all, regardless of place of residence	Healthcare
62	A+CS	Food should be locally produced	Farming Local food
68	A+CS	Local food producers should receive public incentives and support	Farming Local food
60	A+CS	Public authorities should prioritise procurement from local food producers	Farming
1	A+PS	Public transport should be expanded to better connect rural areas in Norrbotten together	Public transport
61	None/mirror statement	Public authorities should prioritise procurement from industrial food production	Farming
64	PS	Government should continue to favour large-scale food production	Farming
48	PS	Health care should be concentrated in urban areas	Healthcare

Table 20 Pol.is output: Groundedness and Acceptance of Preferred futures in Norrbotten.

All PR ID	Acceptance	Output Statement	Related TC Aspects
12	A	Public rail transport does not work well in Malmfälten & to/from Malmfälten/coast for work & healthcare	Public transport, Healthcare
13	A	The Kiruna bus model should be able to be extended to rail transport	Public transport
14	A	Housing policy should encourage the development of detached houses and villas in rural areas throughout Norrbotten	Housing
19	A	There should be requirements for banks to lend a certain percentage to rural areas where it is currently difficult to get loans to buy or build	Housing
21	A	The government should act as a guarantor and take on some of the risk of loans to increase housing construction in the area where it is difficult to get loans to build	Housing
26	A	Opportunities for innovative ownership should be explored as solutions for housing in rural areas	Housing Communities
31	A	Holiday homes are important for rural areas	Housing Holiday homes
33	A	Holiday homes are important for rural areas	Housing Holiday homes
39	A	Man should enable smaller schools with fewer students of different ages on rural areas	Schools
44	A	The status of teachers must increase to improve the skills of teachers in rural areas	Schools Teachers Skills
46	A	The state should be responsible for our schools so that all municipalities can offer the same level of training also in rural and remote areas	Schools
49	A	Telemedicine and digital patient care should be prioritised and continue to receive funding and evolve	Healthcare Digitization
50	A	There should be access to both physical and digital healthcare on rural areas	Healthcare Accessibility Digitization
52	A	Retirement homes should be a point where people in rural areas can take simple samples	Healthcare
54	A	There should be more places in rural areas where you can take simpler samples	Healthcare
57	A	Congestion tax for those living in big cities - a surcharge on tax used in the North for sustainable development	Tax system
65	A	There is a major problem with deserted farms in the countryside in Norrbotten	Farming
70	A	It would be easier to run a small-scale Farm, sell milk, meat, eggs from the farm to individuals who want to consume locally	Farming Local food
79	A	Apartment block owners must install charging points to enable more can buy an electric car	Green technology

86	A	More early intervention for equal life chances for children is needed The needs to be done in co-operation between municipalities, regions and civil society	Young people Healthcare system Regional governance
88	A	Rural entrepreneurship needs more support, children need schooling, the elderly need to meet each other We need each other	Rural entrepreneurship Community Schools
89	A	Biggest chance for Norrbotten to is to promote our beautiful countryside in a project together with neighbouring municipalities	Open space Regional governance
90	A	We need a better model for coexistence and other national minorities' perspective	Community Regional governance
91	A	There must be a physical bank in each municipality that you can visit for small and large cases	Public services
41	A+CS	Schools are needed in smaller communities	Schools
47	A+CS	Equal and high-quality access to healthcare should be guaranteed for all, regardless of place of residence	Healthcare
51	A+CS	The region should offer health centres in smaller communities in Norrbotten	Healthcare Communities
60	A+CS	Public authorities should prioritise procurement from local food producers	Farming
62	A+CS	Food should be locally produced	Farming Local food
68	A+CS	Local food producers should receive public incentives and support	Farming Local food
77	A+CS	Planned large-scale wind turbines should be set up in Norrbotten	Green technologies Energy
82	A+CS	The urban norm needs challenged - young people need to be able to choose to live and work throughout Norrbotten	Young people Housing
85	A+CS	Civil society needs to be let into the strategic regional cooperation Become a as natural a partner as the business community	Community Regional governance
1	A+PS	Public transport should be expanded to better connect rural areas in Norrbotten together	Public transport
15	None	Housing policy should promote large-scale housing projects in Norrbotten' s urban areas/capital cities and towns	Housing
23	None	Attractive areas should be protected from construction	Housing Water
37	None	Can't you build standards apartments for people to afford to live, it must always be luxury	Housing
38	None	In the Ore Fields we need diversified accommodation	Housing
53	None	Travelling is not a problem to major cities for sampling where there are more resources	Healthcare
76	None	All mineral extraction should severely be restricted in Norrbotten to protect local ecosystems and communities	Mineral extraction Green technologies Energy Communities
4	PS	Public transport should stop at more places in rural areas so that more should be able to use it	Public transport
16	PS	The municipality should buy up plots and build neighbourhoods that are planned for community and social living	Housing
17	PS	Increased housing construction is a of the most important components to ensure a just green transition in Norrbotten	Housing
32	PS	There should be a distinction between residential and holiday homes in terms of taxation	Housing Holiday homes Tax system
55	PS	Tax revenues from mining and energy companies in Norrbotten should be collected and distributed by regional authorities (region and municipality)	Tax system Large companies
72	PS	Solar energy should be developed and be supported in Norrbotten	Green technologies Energy

Table 21 Pol.is output: Policy relevance in Katowice.

ID	Acceptance	Output Statement	Related TC Aspects
3	A	Industrial heritage drives the development of Silesia	Industrial heritage
6	A	It is better to fund the renovation and maintenance of old post-industrial buildings that bear witness to Silesia's industrial past	Industrial heritage
11	A	Job prospects in Silesia will improve due to the region's growing potential - young people will be attracted to stay or return	Education
15	A	Changing careers at 40+ will be a new necessity in life	Jobs and reskilling
21	A	Investments in people are the best generator of development and transformation of cities	Jobs and reskilling
25	A	Funding and support for the transition is not readily available and does not apply to everyone in Silesia who is experiencing the costs of extinguishing mining and other traditional industries	Energy transition
27	A	Energy from renewable sources will not ensure energy security	Energy transition
35	A	There are currently no conditions for completely abandoning hard coal-based energy	Energy transition

41	A	There is no overall vision for the development and transformation of Silesia after the phasing out of mining	Metropolitanization
14	A+CS	Universities should create programs adapted to the labour market	Education
33	A+CS	The energy transition should primarily consist in ensuring the energy security of the country	Energy transition
9	A+PS	Silesia has the potential to become recognised through its renowned universities, just as Silicon Valley is known for technology	Education
26	A+PS	Renewable energy together with the use of industrial (post-mining) infrastructure will ensure energy security	Energy transition
36	A+PS	Together, the GZM cities can be stronger in their transformation as a mega-city without losing their identity	Energy transition
38	None	Only new public investments (kindergartens, schools, playgrounds, public transport, etc.) are necessary for the development and transformation of the cities forming the GZM	Metropolitanization
39	None	Only business investment is a generator of development and transformation of the cities that make up the GZM	Metropolitanization
7	PS	Universities must create educational programmes that respond solely to the future needs and transition of Silesia	Education

Table 22 Pol.is output: Groundedness and Acceptance of Preferred futures in Katowice.

ID	Acceptance	Output Statement	Related TC Aspects
3	A	Industrial heritage drives the development of Silesia	Industrial heritage
6	A	It is better to fund the renovation and maintenance of old post-industrial buildings that bear witness to Silesia's industrial past	Industrial heritage
11	A	Job prospects in Silesia will improve due to the region's growing potential - young people will be attracted to stay or return	Education
21	A	Investments in people are the best generator of development and transformation of cities	Jobs and reskilling
28	A	The corporate approach to energy transition is harmful	Energy transition
44	A	An important element of the Transformation is sustainable social construction	Social capital
2	A+CS	Revitalisation of brownfield sites in Silesia must involve the local community	Industrial heritage
14	A+CS	Universities should create programs adapted to the labour market	Education
20	A+CS	Assistance from the city, region, state is essential when the community is involved in adapting to change	Jobs and reskilling
23	A+CS	The energy transition in Silesia must be long-term, as traditional industries must be phased out in a balanced way	Energy transition
33	A+CS	The energy transition should primarily consist in ensuring the energy security of the country	Energy transition
9	A+PS	Silesia has the potential to become recognised through its renowned universities, just as Silicon Valley is known for technology	Education
16	A+PS	Jobs for people aged 40+ should be especially protected	Jobs and reskilling
26	A+PS	Renewable energy together with the use of industrial (post-mining) infrastructure will ensure energy security	Energy transition
36	A+PS	Together, the GZM cities can be stronger in their transformation as a mega-city without losing their identity	Energy transition
24	None	Funding and support for the energy transition is available and distributed in an equitable manner ensuring that everyone in Silesia affected by the changes in mining and traditional industries receives appropriate assistance	Energy transition
38	None	Only new public investments (kindergartens, schools, playgrounds, public transport, etc) are necessary for the development and transformation of the cities forming the GZM	Metropolitanization
39	None	Only business investment is a generator of development and transformation of the cities that make up the GZM	Metropolitanization
40	None	Silesia has a clear vision of development and sustainable transformation after the phasing out of heavy industry	Metropolitanization
7	PS	Universities must create educational programmes that respond solely to the future needs and transition of Silesia	Education

Table 23 Pol.is output: Policy relevance in Stara Zagora.

ID	Acceptance	Output Statement	Related TC Aspects
2	A	Education should not be subject only to the needs of the market, but to develop critical thinking, flexibility and life skills	Education Career Development Jobs
9	A	Cultural programme to be expanded with new events and festivals To have more sports events, culinary events, events for children, etc	Cultural programs
11	A	Stop the logging trees at the expense of housing cooperatives	Green space
12	A	Create recreational spaces in nature	Sports and recreation facilities Green space
14	A	Improving road infrastructure is urgent for the region	Car infrastructure

1	A+CS	Education needs to be more closely linked to labour market needs	Education Career Development Jobs
10	A+CS	Focus on clean food, clean water, clean air for every citizen and location in the region	Climate & Environment
17	A+CS	The region should establish itself as a digital hub for innovative companies	Business innovation Technology & Digital Transformation
23	A+CS	Work with businesses to ensure Decent wages, more benefits	Jobs
28	A+CS	Improve the quality of the repairs carried out. Maintenance and protection of municipal property	Municipal property
16	A+PS	The purchase of low emission private vehicles should be encouraged through grants and improved infrastructure	Car infrastructure, Green technology
22	CS	High-speed internet is key to digitisation and the future of young people	Technology & Digital Transformation

Table 24 Pol.is output: Groundedness and Acceptance of Preferred futures in Stara Zagora.

ID	Acceptance	Output Statement	Related TC Aspects
2	A	Education should not be subject only to the needs of the market, but to develop critical thinking, flexibility and life skills	Education Career Development Jobs
6	A	Introduction to education activities to strengthen the bond of children and young people with nature	Education
9	A	Cultural programme to be expanded with new events and festivals. To have more sports events, culinary events, events for children, etc.	Cultural programs
11	A	Stop the logging trees at the expense of housing cooperatives	Green space
12	A	Create recreational spaces in nature	Sports and recreation facilities Green space
13	A	Public transport in region should be more efficient, environmentally friendly and modern	Public transport
15	A	Transport infrastructure development should encourage active movement of citizens (cycling, walking) instead of using private cars	Active mobility infrastructure
18	A	The development of traditional industries should not be neglected	Traditional industries
1	A+CS	Education needs to be more closely linked to labour market needs	Education Career Development Jobs
5	A+CS	Both employers and local government should invest jointly in vocational education	Education Private capital Institutional capital
10	A+CS	Focus on clean food, clean water, clean air for every citizen and location in the region	Climate & Environment
17	A+CS	The region should establish itself as a digital hub for innovative companies	Business innovation Technology & Digital Transformation
23	A+CS	Work with businesses to ensure decent wages, more benefits	Jobs
28	A+CS	Improve the quality of the repairs carried out. Maintenance and protection of municipal property	Municipal property
16	A+PS	The purchase of low emission private vehicles should be encouraged through grants and improved infrastructure	Car infrastructure, Green technology
22	CS	High-speed internet is key to digitisation and the future of young people	Technology & Digital Transformation

F. Criteria, indicators, and baselines

Table 25 Key criteria and indicators for assessing the RFLLs.

Assessment methods
Colours of text indicate main methods used. For more information see Chapter 3.
Participant observation during RFLL workshops (O)
Participant observation during and after RFLL workshops (O+)
Questionnaires after RFLL workshops (Q)
Text analysis of consecutive RFLL workshop results (T)
Semi-structured interviews / community perspective (I)
Semi-structured interviews / policy perspective (I)
Analysis of pol.is results (P)
Media analysis (M)

RFLL key assessment criteria	Assessment criteria	Indicators	Q	O	O	T	I	I	M	P
Instrumental dimension										
Social capital **RFLLs build social capital and trust in democratic governance.**	LECs' willingness to participate / LEC's trust in policymakers and policymaking	• (Perceived) quality of decisions of public actors • (Perceived) engagement of public actors for the public / common good • (Perceived) public actors' ability to handle a crisis • (Perceived) public actors' responsiveness to citizens' evident needs • (Perceived) public actors' account of local conditions and life circumstances • (Perceived) public actors' ability to defend (the community's) interests • (Perceived) accuracy of the public actors' assessment of the impact of public policies • (Perceived) public actors' ability to anticipate on (the significance of) transitional change and plan ahead • (Perceived) public actors' ability to link action and direction					I			
	LECs' willingness to participate / LEC's trust in participatory processes / the immediate term	• (Perceived) depth of the interaction • (Perceived) honesty in the interaction • (Perceived) openness in the conversation • (Perceived) familiarity among interacting partners • (Perceived) peer pressure • Perception that one's voice is heard during the interaction • Perception of the diversity of voices heard during the interaction • Perception that one can step over his/her/their own shadow / can have an outgoing attitude during the interaction • (Perceived) willingness of interacting partners to enter into an argument • (Perceived) willingness of interacting partners to find consent • (Perceived) matches and mismatches between the values of interacting partners	1 2 3 4	1 2 3 4	1 2 3 4					
	LECs' willingness to participate / LEC's trust in participatory processes / the long term	• (Perceived) reciprocity of actions by interacting partners • (Perceived) reliability of partners (will they stick to an agreement / contract?) • Feeling of being protected • (Perceived) interest of partners in profit and personal gain					I			
	LECs' willingness to participate / LEC's perceived inclusivity of participatory processes and policymaking	• (Perceived) fairness of political representation in participatory processes and policymaking • (Perceived) broadness of policy rationales / the scope of policymaking (policymaking addresses not just a few specific themes but broader societal issues, such as health, and culture) • (Perceived) recognition of communities' specific traits / (perceived) public actors' ability to distinguish communities • (Perceived) fairness in the consideration of the interests of different communities • (Perceived) public actors' consideration of bottom-up input of communities in policymaking • (Perceived) fairness in the distribution of the costs and benefits of sustainability transition policies					I			
	LECs' willingness to participate / LEC's perceived relevance of policymaking	• (Perceived) public actors' correct account of communities' local conditions and life circumstances • (Perceived) public actors' anticipation on the impact of policymaking on the life and places of communities • (Perceived) public actors' consideration of communities' basic needs (such as job security) in policymaking • (Perceived) public actors' active consideration of the (desired) future of communities in policymaking	1 4		1 4		I			

RFLL key assessment criteria	Assessment criteria	Indicators	Q	O	O	T	I	I	M	P
	LECs' willingness to participate / LEC's empowerment = see section Citizen empowerment		X				X			
	LECs' willingness to participate / LEC's perceived social influences (trust in a relational perspective: social networks)	• Change in LEC member's (perceived) influence of dominant discourses • Change in LEC member's scepticism about evident development (for example climate change) • Change in LEC member's (perceived) importance of an issue (perceived importance grows beyond the local level / one's own social circle / community) • Change in LEC member's (perceived) influence of community leaders • Change in LEC member's (perceived) influence of the direct social circle: peers (peer pressure) and family • Change in LEC member's (perceived) possibility to disagree within one's immediate social circle • Change in LEC member's (perceived) exposure to critical thinking					I			
Resilience and adaptive capacity **RFLLs increase futures literacy, resilience and adaptive capacity of communities**	LECs' perceived futures literacy	• Indicators of FL (to be adopted from literature) • LEC's understanding of what will happen now and in the future • LEC's understanding of time (and relations between actionable goals and guiding long-term visions / ambitions) • LEC's perceived possibility to act immediately (LEC's agency as opposed to a feeling of being in limbo) • LEC's perceived ability to control one's own life / LEC's perceived change in the fear about one's own future	2			T	I			
	LECs' awareness of and attitude towards sustainability transitions and climate change (policies)	• LEC's interpretations of sustainability transition (baseline in focus groups) • LEC's attitudes towards sustainability transition (policies) (baseline in focus groups) • LEC's account of mis- and disinformation about climate change, and sustainability transitions (baseline in media analysis) • LEC's climate attitudes (baseline in survey) • LEC's political attitudes (baseline in survey)				T	I			
Citizen empowerment **RFLLs empower citizens to voice their concerns in the multi-level deliberative governance of just sustainability transitions effectively and efficiently.**	Representation of LECs' concerns in MLG / LEC's perception of results of the participatory process (policy efficacy) and shifts in power	• LEC's (perceived) immediate tangible output of the participatory process (policy efficacy) • LEC's (perceived) long-term outcome of the participatory process (policy efficacy) • LEC's (perceived) relevance of output / outcomes of the participatory process for the community • LEC's (perceived) relevance of output / outcomes of the participatory process for levels of government (the higher the level, the more empowered communities feel) • LEC's perception of being well represented (by an organisation / at higher levels of government) • Change in LEC's perceived locus of power at government levels and society sectors (public, private, civil) • Change in LEC's perceived distance to this level and sector • Change in LEC's perceived locus of power at private actors and perceptions of these actors • LEC's perceived (shifts in) power balances / fairness in the sharing of power					I			
	Effective and efficient representation of LECs' concerns in MLG / LEC's perception of the participatory process	• LEC's perceived own preparedness for participation and policy co-design (e.g. via the perceived availability of information) • LEC's perceived ability to form an own opinion about sustainability transition(s) policies / to actively participate in dialogues about these on the base of available information • LEC's perceived respectfulness of the participatory process: how well are communities referred to?, how much esteem for the community is demonstrated? how well is the knowledge of participants valued?, how much space is there for opposing (extreme) opinions?, how well can the language spoken be understood by the community?, how open are expert and knowledge systems towards other observations?, how willing are participants to listen to communities?, how much feedback do participants receive?, how well do participatory formats fit communities? • LEC's perceived empowerment through the participatory experience itself					I			
Citizen learning **RFLLs enhance citizens' learning about sustainability transitions and place-based policymaking as well as their participatory skills.**	LECs' knowledge and skills / LECs' knowledge about sustainability transitions and climate change	• LEC's knowledge and understanding of sustainability transitions • LEC's knowledge and understanding of (the consequences of) climate change • LEC's perceived ability to form an own opinion about sustainability transitions / to actively participate in dialogues about the transitions • LEC's perception of the complexity of sustainability transitions	1 2 3 4			T	T			
	LECs' knowledge and skills / LECs' knowledge about sustainability transition and climate change policies	• LEC's knowledge and understanding of sustainability transition policies and policymaking • LEC's perceived ability to form an own opinion about sustainability transition policies / to actively participate in deliberation about these • LEC's perception of the complexity of sustainability transition policymaking	1 4			T	T			

RFLL key assessment criteria	Assessment criteria	Indicators	Q	O	O	T	I	I	M	P
	LECs' knowledge and skills / LECs' knowledge about / skills for participation in policymaking and policy co-design	• (Perceived) possession of knowledge about participatory policymaking • (Perceived) possession of knowledge about deliberation and (direct / representative) democracy / civic literacy • (Perceived) possession of participatory skills • (Perceived) possession of communicative skills • (Perceived) possession of the skill to interact with experts and policymakers • (Perceived) (lack of) participatory experience (learning-by-doing)	1 2 3 4				I			
	LECs' knowledge and skills / other lessons learnt	• (this can be an open question in interviews)					I			
Democratic life **RFLLs are inclusive, transparent, and accessible.**	Diversity and representativeness of RFLL participants	• Number of participants • Number of participants from meta- and sub-communities • Basic demographic characteristics: age and gender • Relation with sustainability transitions • Number of participating policymakers (at sectors, levels of government, and in sustainability transition measures) • Involvement of local organisations and businesses • (Perceived) participation of the usual-suspects	1	1 2 3 4	3 4					
	LECs' ability to participate: Inclusive use of language = see section 'Affective communication / inclusive use of language' below		X				X			
	LECs' ability to participate: Accessibility of information	• (Perceived) accessibility of (practical) information • (Perceived) clarity of information • (Perceived) relevance of information • (Perceived) timeliness of the information provision • (Perceived) permanence of information provision • (Perceived) trustworthiness of the source of information • (Perceived) familiarity with the source of information (for example peers) • (Perceived) representativeness / status / formality of the source of information • Acquaintance with the (social and traditional) media channels used for spreading information • (Perceived) multiplicity and diversity of sources and channels spreading information	?				I			
	LECs' ability to participate: Physical accessibility	• Centrality of meeting place • Publicness of meeting place / building • Familiarity / popularity of the meeting place / building • Public transport accessibility of the meeting place / building • Privacy of the meeting place / building • Convenience of location (can access be combined with other activities / daily routines?)	1							
	LECs' ability to participate: Prior knowledge and skills = see section 'Citizen learning / prior knowledge and skills' above		X				X			
	LECs' ability to participate: Digital access and skills	• LEC's availability of digital access (internet) • Intensity of LEC's members' peers' use of digital tools and electronic (specifically social) media • LEC's availability of digital skills / acquaintance with digital tools and electronic (social and traditional) media	3 4	3 4	3 4		I			
	LECs' ability to participate: Resources and time	• LEC members' commitment to other activities (such as work and study) • LEC members' time for participation: complementarity of the moment of the participatory activity with the moments of other activities • LEC's perceived timely planning of the participatory activities • Provision of (financial) compensation for LEC members' participation • Provision of food and beverage for LEC members • LEC's general motivation / willingness to participate	1 2 3 4							

RFLL key assessment criteria	Assessment criteria	Indicators	Q	O	O	T	I	I	M	P
	LECs' ability to participate: Community mobilisation	• Improved local leadership (that is forward-looking, anticipates on desirable development, understands (the different concerns within / the history of) a community, recognizes local assets, encourages a community to express an opinion, inspires confidence within a community, is trusted, and increases the visibility of a community) • Presence of civic / grassroots initiatives (that support the identification of leaders, take local (sustainability) action, provide a sense of identity and belonging, create community spirit, train participatory / political skills, and mobilize /facilitate the meeting and cooperation of likeminded but otherwise isolated people) • Presence of (institutionalized) participatory mechanisms and structures for representation and participation • Presence of (institutionalized) structures for that link informal and formal representation and participation • Presence of platforms that mobilize and join voices • Presence of conflicts opposition within a community					I			
Democratic life at scale **RFLLs enable democratic life at scale.**	Democratic life at scale / use and impact of the e-democracy tool pol.is and the RFLLs	• Scale of participation / number of RFLL and pol.is users • Inclusiveness / representativeness of participation in the RFLL workshops and pol.is application • Media attention given to the pol.is application (number of articles / mentions of the pol.is application in social and traditional media) • Media attention given to the RFLLs (number of articles / mentions of the RFLLs in social and traditional media) • Number of visitors of the RFLL exhibitions	P						M	
Deliberative participatory processes **RFLLs consider different arguments, weigh the implications of alternative solutions, and facilitate consensus on the base of this.**	Quality of deliberative participatory processes / considered diversity of voices and arguments, and consent formation	• Considered diversity of arguments / opinions • Considered alternative solutions • Considered diversity of pathways towards solutions • Considered (diversity of) knowledge / evidence • Reached agreement / consent			1 2 3 4	T				
	Quality of digital deliberative participatory processes / considered diversity of voices and arguments, and consent formation	• Considered diversity of arguments / opinions (in pol.is: opinion groups) • Areas of uncertainty (percentage of participants who saw certain statements 'passed'. Areas of uncertainty can provide avenues to educate and open dialogue with a community). • Reached agreement / consent (in pol.is: clusters of consent)	P							
Place-based policymaking **RFLLs support policymaking that builds upon a region's territorial assets and responds to communities' needs.**	Quality of place-based policymaking / Inclusive policy rationales in place-based policymaking	• Flexibility / openness / room for interpretation of the framing of the sustainability transition challenge to create more space for local / community input in policy deliberation (TC categories) • Diversity of (considered) policy fields (social, economic, environmental, TC categories)				T		I		
	Quality of place-based policymaking / Decentralised and collaborative social governance	• PO's (perceived) shifts in the 'closeness to people' of place-based policymaking • PO's (considered) delegation / decentralisation of tasks to regional or local levels and to territorial stakeholders and communities • PO's (perceived) shifts in 'bottom-up' vs 'top down' governance dynamics (for instance via shifts in the perceived importance of 'top-down' policy rationales) • PO's (perception of) new skills to implement citizen participation in a MLG setting • PO's (perceived) capacity to reach out to citizens at the local level (particularly to less- and least-engaged communities) • PO's (perceived) capacity to mobilize citizens at the local level (particularly less engaged communities) • PO's (perceived) increases in sector collaboration (governmental, private (market), and community / third-sector) • PO's (perceived) decrease of rivalry between local actors involved in sustainability transition measures • PO's (perceived) fairness of the participatory mechanism				T		I		
	Quality of place-based policymaking / Targeting specific territories and communities	• PO's increased knowledge and understanding of the implications (benefits and drawbacks) of policy design for local places and communities • PO's increased consideration of local places and communities in policy rationales and strategic objectives • PO's increased consideration of vulnerabilities of communities and places that are due to sustainability transitions • PO's increased consideration of less- and least-engaged communities' interests in policymaking • PO's increased targeting and mobilization of less- and least-engaged communities in policymaking			1 4	T		I		
Local knowledge **RFLLs inject new local knowledge and ideas into policymaking.**	Quality of place-based policymaking / New knowledge about places and communities, new links between bodies of knowledge and knowledge	• PO's (perceived) new local knowledge • PO's (perceived) new knowledge about the particularity / uniqueness of a place / region • PO's (perceived) new knowledge about the specificities of sustainability transitions in a place / region • PO's (perceived) new knowledge exchange between local and supra-local actors • PO's (perceived) new links between theoretical and practical knowledge / experiences			1 4	T		I		

RFLL key assessment criteria	Assessment criteria	Indicators	Q	O	O	T	I	I	M	P
	networks, and new ways to constitute knowledge									
Policy co-creation **RFLLs increase the depth of citizen participation in policy co-creation.**	Depth of participation in policymaking from a policy perspective	• (criteria and indicators as in STEP index)	X				X			
Communicative dimension										
Affective communication **Communication in the RFLLs is affective and inclusive.**	Inclusive use of spoken language	• Simplicity and clarity of the information • Avoidance of technical / expert language and jargon • Avoidance of overly abstract concepts (such as the concept of 'sustainability transitions') and hollow rhetoric • Use of respectful language and tone • Consideration of participants' native language skills	1 2 3 4	1 2 3 4	2 3 4		I			
	Affective communication / Spoken languages tailored to communities	• Language tailored to communities: references to values, emotions, identities, unwritten rules/norms, shared memories, etc. • Language tailored to context: language that triggers a sense of familiarity, a sense of belonging • Language that generates collective understanding and collaboration: language that, for instance, bridges generational gaps between communities • Language that responds to power imbalances in interaction • Language that acknowledges positionality		1 2 3 4	2 3 4		I			
Visual language **Visual communication about the RFLLs is clear, informative, and persuasive.**	Affective visual communication / visual languages tailored to communities and places	• Visual representation and language are **meaningful for communities** / corresponds to values, emotions, identities, unwritten rules/norms, memories, etc. • Visual representation and language are **'place-based'** / trigger a sense of familiarity, a sense of belonging. • Visual representation and language **generates collective understanding and collaboration**: provides room for interpretation to, for instance, bridge generational gaps and gaps between ethnic groups.	3 4	3 4	3 4		I			
	Cognitive visual communication / visual languages supporting rational decisions	• Visual representation and language are **clear and informative** / increase knowledge and understanding of the issues at hand (cognitive learning).	3 4	4	3 4		I			
Narrative construction **RFLLs support the emergence of new narratives about sustainability transitions**	The emergence and sharing of new storylines	• Changes in the conception, perception, and representation of sustainability transitions and sustainability transition policies, • Shared new conceptions, perceptions, and representations of sustainability transitions and sustainability transition policies, • Relation between the new conceptions / perceptions / representations and action in sustainability transition (policies).			2 3 4	T	I		M	