



REPORT ON LOCAL SCENARIOS WORKSHOPS

Deliverable number: D4.2

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List of abbreviations and acronyms used in this document

Acronym	Definition
3H	Three Horizons (framework)
AES	Agri-environmental Schemes
AI	Artificial Intelligence
BDD	Budapest Degrowth Doughnut
CAP	Common Agricultural Policy
CAWR	Centre for Agroecology, Water and Resilience
CC / CCs	Consumer Cooperative(s)
CNC	City Nature Challenge
CSA	Community Supported Agriculture
CU	Coventry University
CUB	Corvinus University of Budapest
CWS	Coventry, Warwickshire and Solihull
CWS-CNC	Coventry, Warwickshire and Solihull City Nature Challenge
DAISY	DigitAl, technological and Social innovation mixes enabling transformation for biodiversity and equity
eDNA	Environmental-DNA
DG (Agri)	Directorate-General (for Agriculture)
ESSRG	Consortium partner organisation
EU	European Union
GBDA	Green-Blue Veining
GF	GreenFormation
H1 / H2 / H3	Horizon 1 / Horizon 2 / Horizon 3
H2- / H2+	Horizon 2 interventions propping up H1 (H2-) or moving toward H3 (H2+)
LASREG	Remote-sensing-based landscape monitoring tool



LEU	Landschap Erfgoed Utrecht
MLU	Martin Luther University Halle-Wittenberg
NPLG	Nationaal Programma Landelijk Gebied (National Programme for Rural Areas)
RBP	Result-Based Payments (network)
REWARD	EU-funded project on novel contract design
T4.2 / T4.4	Task 4.2 / Task 4.4
TIMs	Transformative Intervention Mixes
TRD2	Transformative Diagnostic Tool
UFZ	Consortium partner organisation
WP3 / WP4	Work Package 3 / Work Package 4
WR	Wageningen Research
Zenodo	Open-access research data repository

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We would like to thank all workshop participants across the five seed innovation case studies for their time, openness, and willingness to think creatively about the future of their initiatives. Their contributions form the empirical core of this deliverable.

Background: About DAISY

DAISY - Digital, technological and Social innovation mixes enabling transformation for biodiversity and equity - will advance understanding of how specific mixes of interventions including social-technological innovations can be used to induce transformation for biodiversity and equity.

DAISY's main objectives

- To understand which socio-economic, political and behavioural processes, and their interrelationships shape and enable our personal, political and practical ability to respond to the biodiversity crisis and how they impact on transformative change.
- To collect existing tools, processes, interventions and innovations that are conducive to triggering transformative change with the understanding of what enables them to address biodiversity loss and social inequity.
- To create intervention mixes based on existing tools and innovations and apply them in practice to induce transformation in all three spheres (personal, political, practical) to support biodiversity and equity prioritisation in decision- and policymaking.

Our case studies to test innovations

Innovation mixes will be tested and assessed for effectiveness in five seed innovation intensive case studies, within the domains of agri-food, education, energy and urban and regional development.

Turning on transformation

DAISY will have a special emphasis on amplifying innovation through bridging activities, networking events, wide stakeholder engagement and collection, connection and distribution of innovation seeds to switch on transformation.

Executive summary

This deliverable presents the outcomes of foresight and scenario workshops conducted across DAISY's five seed innovation case studies, applying the Three Horizons framework to map transformative pathways for biodiversity and equity. The cases span citizen science for urban biodiversity, results-based agri-environmental payment, commons-based food systems, landscape connectivity monitoring, and degrowth-informed urban governance. Each workshop guided case representatives through a structured reflection on the current system (Horizon 1), desired futures (Horizon 3), and the interventions needed to bridge the two (Horizon 2), supported by DAISY's Transformative Diagnostic Tool (TRD2) and Transformative Intervention Mixes (TIMs) framework.

We found a striking convergence across otherwise very different contexts. Despite operating in distinct domains and institutional settings, all five seed innovations face structural lock-ins of a similar kind: centralised and risk-averse governance, misaligned subsidy and funding structures, fragmented institutional coordination, and insufficient legal recognition for innovative models recur across all five cases. This convergence suggests that what constrains these innovations is not primarily internal to the initiatives themselves but embedded in shared institutional architectures operating at national and EU levels. Transformation consistently depends on combinations of social and technological interventions and on trust as the connective tissue enabling cooperation between farmers, volunteers, institutions, and civil society. Where this trust breaks down, progress stalls, and where it is cultivated deliberately, initiatives gain traction. Equity and biodiversity emerge not as separate concerns, but as mutually constitutive dimensions of the futures participants envisioned, and the people sustaining these initiatives matter in their own right, with exhaustion and burnout among practitioners emerging as a recurring concern that is as central to durable transformation as any policy lever.

These findings provide the empirical and analytical foundations for the subsequent DAISY tasks: amplification strategies (T4.3), systematic cross-case comparison (T4.4), and EU-level policy recommendations (T4.5.). They point toward governance approaches that support contextualised experimentation and long-term,



relationship-based change, and toward amplification strategies focused on connecting initiatives rather than simply scaling them.

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1. Introduction

Richard Völker & Ilkhom Soliev

1.1. Purpose of the Deliverable

This report presents the outcomes of the foresight and scenario workshops conducted within Task (T) 4.2 of the DAISY project. Building directly on the experiential knowledge captured in Task 4.1 and documented in [Deliverable D4.1](#) (Franklin et al., 2025), T4.2 employed the Three Horizons (3H) framework (Sharpe et al., 2016) as a shared foresight methodology to facilitate structured, participatory scenario-building with actors from each of DAISY's five seed innovation case

studies.as a shared foresight methodology to facilitate structured, participatory scenario-building with actors from each of DAISY's five seed innovation case studies.as a shared foresight methodology to facilitate structured, participatory scenario-building with actors from each of DAISY's five seed innovation case studies.as a shared foresight methodology to facilitate structured, participatory scenario-building with actors from each of DAISY's five seed innovation case studies.

The central purpose of these workshops was to map transformation pathways and assess their plausible implications for biodiversity and equity. Participants were guided through a structured reflection on the current state of their innovation (Horizon 1), a collective articulation of desired futures (Horizon 3), and an identification of concrete interventions and enabling conditions capable of bridging the gap between the two (Horizon 2). Drawing on a list of intervention types provided as workshop material, this process produced case-specific Transformative Intervention Mixes (TIMs) (Franklin et al., 2026) and a first assessment of barriers, competing interests, and enabling policies relevant to upscaling each initiative.

The findings presented here feed directly into T4.3 (Amplification, led by ESSRG), T4.4 (Cross-case learning, led by WR), and T4.5 (EU policy recommendations, led by UFZ), as well as into WP3's ongoing work on TIM design and assessment. Deliverable D4.2 thus occupies a pivotal position in DAISY's research architecture connecting empirical case-level insights to the analytical, amplification, and policy-oriented synthesis work that follows.

1.2. Context and Relevance

This deliverable is part of Work Package (WP) 4 of the DAISY project, which focuses on identifying and amplifying transformative potential of social-technological innovations for biodiversity and equity through targeted intervention mixes WP4 applies a longitudinal and participatory approach across five seed innovation case studies spanning four countries (Germany, Hungary, the Netherlands, UK) and four domains (agri-food, education, energy, and urban and regional development). T4.1 reconstructed the historical development of each case through Learning History workshops and interviews (Franklin & Dehen-Schmutz, 2025); T4.2 turns the lens

toward the future, asking participants to articulate where they want to go and what conditions and interventions would be needed to get there.

The 3H methodology (Schaal et al., 2023; Sharpe et al., 2016) was selected at consortium level as the shared visioning tool for all T4.2 workshops, following methodological coordination led by MLU. Its particular strength lies in holding the productive tension between systemic critique of the present (Horizon 1, or H1) and creative articulation of possible futures (H3), while grounding both in practical reflection on available or potential pathways (H2) making it well-suited for working with innovations already engaged in prefigurative practice.

The five seed innovations covered in this report are: Seed Innovation 01—Coventry-Warwickshire-Solihull City Nature Challenge (UK, education/citizen science); Seed Innovation 02—Őrség National Park results-based payment scheme (Hungary, agri-food); Seed Innovation 03—Urban-rural transformations through commons governance in Germany (four sub-cases in the agri-food domain); Seed Innovation 04—Meet je Landschap (Netherlands, urban and regional development); and Seed Innovation 05— Budapest Degrowth Doughnut (Hungary, urban governance).

1.3. Scope and Objectives

The report covers all five seed innovation case studies, presenting the outcomes of T4.2 workshops conducted between autumn 2025 and spring 2026. For Seed Innovation 03, four separate workshops were held with distinct sub-case organisations in the Halle/Leipzig region; for all other seed innovations, a single workshop was conducted per case.

The report pursues three objectives:

- To document the substantive outcomes of each 3H workshop in narrative form, synthesising participant perspectives on H1, H3, and H2.
- To assess the plausible implications of potential transformation pathways identified in the workshops across biophysical, social, economic, policy-institutional, and behavioural dimensions drawing on qualitative workshop discussion structured and enriched with the support of TRD2 as a conversational tool.

- To derive key takeaways for T4.3–T4.5, identifying amplification opportunities, cross-case patterns, and policy-relevant insights for each case.

1.4. Structure of the Report

Following this introduction, Section 2 describes the common methodology applied across all T4.2 workshops. Sections 3 through 7 present results for each seed innovation, following the structure set out in the T4.2 reporting instructions: case introduction, workshop setup and methodology, 3H results (H1, H3, H2), plausible impacts, barriers and enabling policies, and key takeaways for T4.3–T4.5. Seed Innovation 03 (Germany) is structured as an overarching chapter with four sub-case sections. Section 8 offers a cross-case synthesis, drawing on patterns and insights that cut across the five cases. Section 9 summarises the key findings, discusses their implications, sets out this deliverable's contribution to the subsequent DIASY tasks, and outlines next steps. While Section 2 sets out the common methodological framework, each case study chapter includes its own methodology subsection documenting context-specific adaptations. These variations, shaped by sectoral context, stakeholder composition, and local facilitation conditions, are reported to ensure transparency and to enrich the comparative value of the findings.

1.5. Target Audience

This deliverable is for a broad set of audiences. Practitioners involved in initiatives similar to those studied here, such as other city nature challenge organisers, community-supported agriculture and food cooperative initiatives, landscape monitoring schemes, or urban degrowth and biodiversity governance projects, may find direct relevance in the case-specific findings, even where they are not part of the DAISY consortium. The deliverable is equally relevant to researchers working on sustainability transitions, participatory foresight, and agri-food or urban transformation, and to policymakers seeking evidence-informed perspectives on transformative interventions in DAISY's four domains. Within the consortium, it is intended primarily for DAISY consortium partners engaged in T4.3 (ESSRG), T4.4 (WR), T4.5 (UFZ), and WP3, providing an empirical and analytical basis for their subsequent work.

2. Methodology

Richard Völker & Ilkhom Soliev

2.1. The Three Horizons Framework

The Three Horizons (3H) framework is a participatory foresight methodology developed to support structured collective thinking about systemic change over time (Curry et al., 2008; Sharpe et al., 2016). Originally developed in the context of strategic foresight and innovation management, it has since been adopted across a wide range of sustainability contexts, including agricultural landscape transformation (Schaal et al., 2023), climate futures (Osei-Amponsah & Abdulai, 2025), and education for sustainable development (Taimur et al., 2024). Its core premise is that the present moment contains three coexisting patterns: a dominant system that is gradually losing its fit with emerging conditions (H1); an emergent, qualitatively different future that represents new ways of meeting those conditions (H3); and a transitional space of both conflicts and options through which change is negotiated (Curry et al., 2008, p. 3)(H2).

H1 represents the currently dominant system ('business as usual'), whose logic, infrastructures, and institutional arrangements still prevail, but are increasingly under pressure. As the prevalence curve of H1 declines over time, it does not disappear immediately but loses its fit with emerging conditions, persisting through inertia, vested interests, and institutional lock-in, even as its adequacy erodes (Sharpe et al., 2016). H3 represents a longer-term successor pattern: not a prediction, but a horizon of aspiration that gives direction to transformative action. Its prevalence curve begins low in the present, visible only in niche practices, emerging values, and prefigurative experiments, and rises as the conditions that sustain H1 weaken. H2 is the most complex horizon, and its curve reflects this complexity: it rises and falls in the transitional space between present and future, representing activities and innovations that respond to the changing field between H1 and H3 (Curry et al., 2008). H2 contains both the innovations and interventions that actively push toward H3 (H2+) and the adaptive responses that may stabilise or entrench H1 without fundamentally transforming it (H2-) (Sharpe et al., 2016). The intersection of the three curves forms the 'Triangle of Change' (see Figure 1), which marks the space within which transformation is most actively contested and

negotiated, where the declining dominance of H1, the transitional energy of H2, and the emerging pull of H3 converge most intensely.

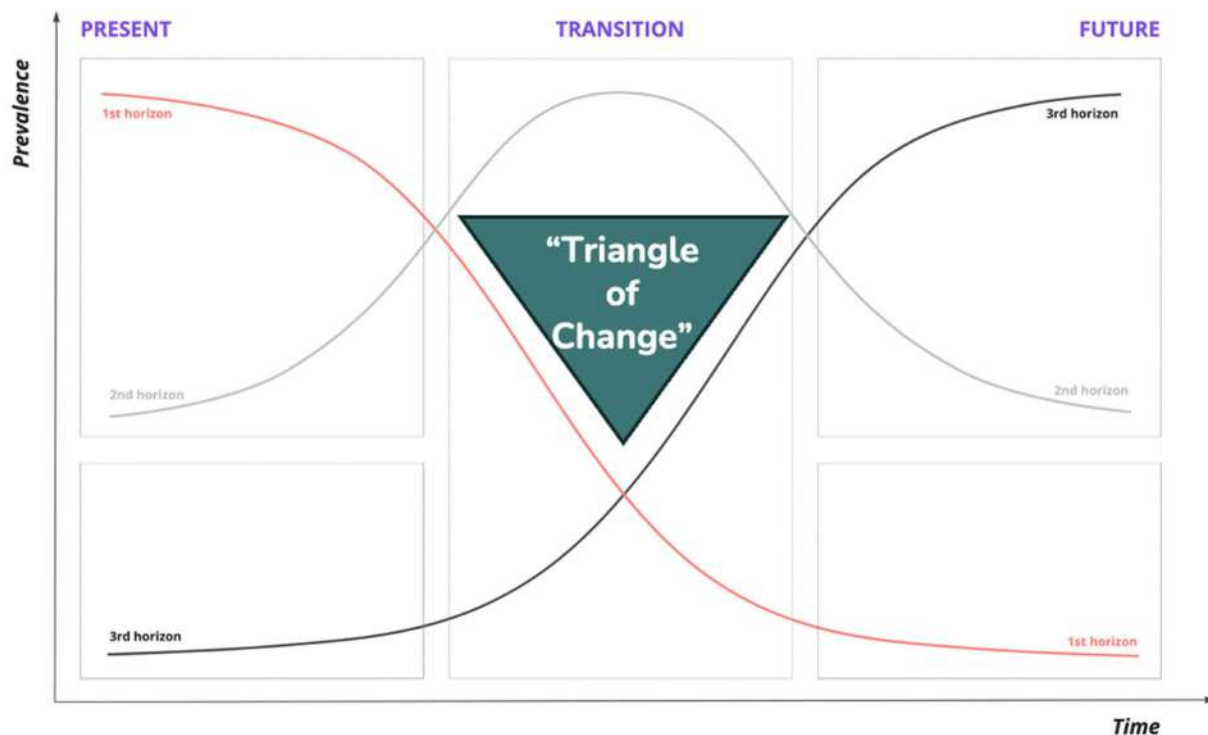


Figure 1: The 3H Three Horizons framework and the 'Triangle of Change'; adapted from Sharpe et al. (2016)

Unlike exploratory scenario approaches that extrapolate from current trends, 3H invites participants to reason from the future backward, asking what kind of present would be needed to make a desired future possible (Miller, 2011). This 'futures literacy' orientation makes it especially well-suited to working with innovations that are already prefiguring alternative practices in the present, as is the case across all five DAISY seed innovations.

For T4.2, the consortium adopted a standardised 3H session sequence across all case studies: participants first addressed H1 (current system and challenges), then H3 (desired future), and finally H2 (transformation pathways and interventions). Each horizon was explored through dimensions labelled A (general challenges/vision), B (biodiversity focus), C (equity focus), and D/E (enabling interventions or inspiring examples). This H1 to H3 to H2 ordering was designed to anchor future visions in concrete aspirations before returning to pathway analysis, reducing the risk of H2 thinking being constrained by H1 lock-ins. Post-it notes

were colour-coded by horizon (red for H1, yellow for H3, blue for H2). Participants were invited to cluster and discuss contributions iteratively within each session, with facilitators guiding synthesis at the close of each block. All completed 3H posters were photographed and digitised (see Figure 2) for documentation and are reproduced in the relevant case chapters of this report.

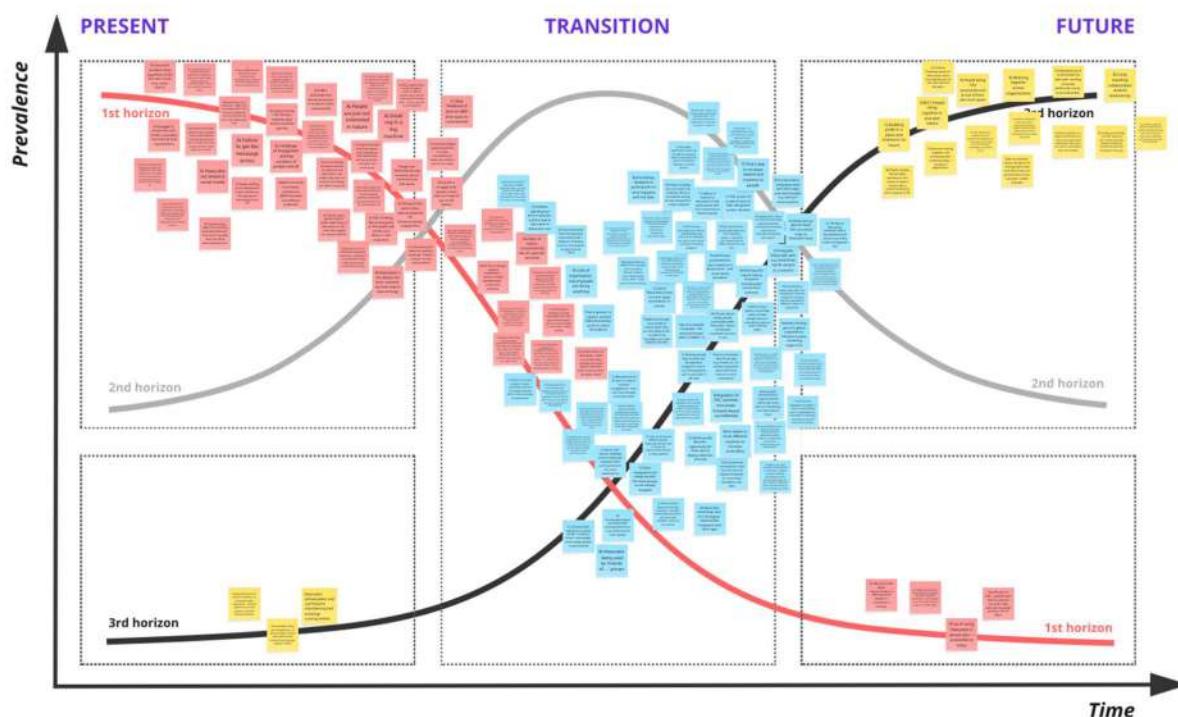


Figure 2: Example of a 3H workshop outcome (digitised in Miro)

2.2. Transformative Intervention Mixes (TIMs)

Transformative Intervention Mixes (TIMs) are structured combinations of policy, social, technological, and behavioural interventions that together have the potential to shift a system from one trajectory to another (Franklin et al. 2026). Workshop participants were provided with a list of intervention types developed within WP3, spanning regulatory, market-based, voluntary-advisory-educational, social-norms, emotional-appeal, choice-architecture, technological, knowledge-based, and biophysical-resource categories, plus an open 'other' category. Facilitators introduced this list as a structured prompt during the H2 session. Participants were asked to assess which of these interventions were most relevant to their context, what additional context-specific interventions were needed, and which

interventions actively push toward H3 (H2+) versus those that risk stabilising the current system (H2–).

2.3. Transformative Diagnostic Tool (TRD2)

The TRD2 (Soliev et al., 2025a, 2025b) is an online assessment tool (available at mydaisy.eu/upload-your-project) that enables participants to evaluate the transformative potential of their initiative across multiple dimensions: personal (individual motivations and capacities), practical (material, economic, technological), political (policy-institutional and societal), equitability (procedural, distributional, capabilities, recognitional), and biodiversity (genetic, species, habitat, ecosystems). In T4.2 workshops, the TRD2 was used as a conversation tool to structure and enrich reflection on plausible impacts (see Figure 3). Where TRD2 results are available, they are incorporated into the plausible impacts sections of the relevant case chapters; where results are pending, this is noted accordingly.



Figure 3: Use of TRD2 on a tablet during the 3H workshop of the Commons Governance Case Study (Germany)

2.4. Workshop Protocol

All T4.2 workshops followed a shared protocol established through consortium-level methodological coordination led by MLU, designed to ensure a consistent question scheme and documentation layout across all five seed innovation cases.

Each case study conducted one individual workshop, with the option to bring multiple case holders together into a single joint session where relevant. In the methodology, there was some flexibility in tailoring the prescribed agenda, but the order of sessions was kept consistent wherever possible, to ensure that the approaches remained compatible across cases. Flexibility was especially needed around duration of the workshops and whether they were live or online: e.g. workshops could be held as a one-day in-person event, split across two days, or conducted online, with condensed agenda versions made available for different formats.

The protocol structured each workshop around four sessions, each mapped onto a horizon and a corresponding colour-coded documentation scheme:

- Session 1 (Social innovations and current challenges) corresponds to Horizon 1: contributions were placed on red Post-its in the '1st horizon / Present' field.
- Session 2 (Social innovation in its mature form) corresponds to Horizon 3: contributions were placed on yellow Post-its in the '3rd horizon / Future' and '3rd horizon / Present' fields.
- Session 3 (Transformative interventions) corresponds to Horizon 2: contributions were placed on blue Post-its in the '2nd horizon / Transition' field, labelled by whether they moved toward H3 (H2+) or propping up H1 (H2-).
- Session 4 (Reflection and discussion) revisited the equity dimension on red Post-its placed in the '1st horizon / Future' field, while reflections on the other dimensions were captured as facilitator notes rather than on Post-its.

Facilitators were provided with a standardised set of workshop materials: a plain 3H template available for small- or large-scale printing (and as a laminated poster for in-person sessions), the TRD2 online beta tool accessible via mydaisy.eu, and a

curated list of intervention types to support identification of Transformative Intervention Mixes. Following the workshop, the physical or digital poster output was digitised using a shared Miro template frame, reproducing the layout of the original poster as closely as possible to preserve the spatial and visual structure of participant contributions. Documentation was further supported through photographs of the completed 3H poster and written transcripts or facilitation notes compiled following each workshop

2.5. Analytical Approach

Each Three Horizons workshop generated primarily synchronic, future-oriented outputs: completed horizon posters, facilitator notes, and written transcripts. The analytical task was therefore to distil and interpret the substantive content generated within each horizon, and to identify the intervention logics connecting them. Therefore, the analysis proceeded in two stages.

In a first stage, each case study team organised raw contributions by horizon (H1, H3, H2) and thematic dimension (A: general; B: biodiversity; C: equity; D/E: interventions and examples), following the a priori category structure established by the workshop protocol. This involved interpretive decisions about clustering and labelling, since workshop participants expressed ideas in shorthand or in ways that required contextualisation. In a second stage, the categorised material was synthesised into the narrative sections presented in this report. The aim was to identify not only individual contributions but the underlying logics and patterns connecting them: the structural diagnoses implicit in H1, the normative commitments embedded in H3 visions, and the systemic thinking about leverage and pathway in H2. This interpretive layer was applied consistently but lightly, with the goal of rendering workshop outputs analytically coherent without projecting frameworks onto participant contributions. Given the participatory and co-productive character of the workshops, the boundary between facilitation and analysis was fluid by design, which is acknowledged as a feature characteristic of participatory action research settings (Reason & Bradbury, 2008), particularly when there are transformative aspirations.

The case-level analyses were not formally coded or cross-tabulated at this stage. Cross-case patterns are identified in Section 0 based on the case narratives and will be further developed analytically within T4.4.

2.6. Limitations

Several methodological limitations apply across the T4.2 workshops and should be considered when interpreting the findings presented in this report.

Sample composition was generally weighted toward already-engaged participants: active members, coordinators, or institutional representatives with an existing stake in the initiative, rather than a representative cross-section including sceptical or less engaged voices. This is a well-documented limitation of participatory and stakeholder-based research more broadly (Reed et al., 2009), and was explicit in several cases, including the German cluster, where wider member perspectives were not fully represented in the outputs. This pattern was reinforced by several cases drawing on the same core community of participants already engaged in the T4.1 Learning History workshops. While this narrows the range of perspectives represented, it also allowed participants to build on existing familiarity with the project and its methodology, enabling deeper engagement with the relative complexity of the T4.2 session.

Time constraints meant that the later, more synthetic stage of the process, articulating and sequencing concrete H2 pathways, was often less developed than the diagnostic (H1) and visionary (H3) stages. This asymmetry is consistent with broader critiques of scenario and foresight workshops, where the cognitive and creative demands of futures work tend to leave comparatively little capacity for translating visions into actionable steps (Bishop et al., 2007). While this could not be fully addressed within the scope of T4.2, the transition into T4.3 means that this more detailed sequencing work will be carried forward.

The standardised tools accompanying the 3H sequence, particularly TRD2, were not equally intuitive across cases; several workshop participants noted that some of its dimensions were experienced as subjective or difficult to apply consistently. This reflects a recognised tension in participatory assessment tools between standardisation, which enables comparison, and contextual sensitivity, which supports meaningful local interpretation (Pereira et al., 2018).

Workshops also varied in how systematically they distinguished H2+ from H2– interventions. Where this distinction was applied less explicitly by participants, the case chapters reconstruct it analytically from the available material, an interpretive step that goes beyond participants' own framing of their contributions. This distinction is also not always stable: as discussed in several case chapters, a given intervention can function as H2+ or H2– depending on how it is operationalised and on its differing impacts across affected groups, rather than being fixed by its stated intent alone.

Finally, as discussed in Section 2.5, the analytical synthesis of workshop outputs necessarily involved interpretive clustering by the facilitating teams. The narratives presented in this report are, therefore, not a verbatim record of workshop, discussions but a structured interpretation of them, consistent with standard practice in qualitative content analysis. Readers wishing to consult the underlying workshop material directly can find the original notes archived on [Zenodo](#).

3. Seed Innovation 01: Coventry-Warwickshire-Solihull City Nature Challenge

Sian Harrigreen, Alex Franklin, Katie Mills, Lindy Binder, Katharina Dehnen-Schmutz

3.1. Case introduction

The Coventry, Warwickshire and Solihull (CWS) City Nature Challenge (CNC) is a regional citizen science initiative based around participation in the global CNC and the use of the iNaturalist platform for biodiversity recording. The initiative combines biodiversity monitoring, public engagement, environmental education and community participation through organised species-recording events and independent biodiversity observations.

Since its inception in 2021 (in Coventry), the CWS-CNC has evolved from a relatively small-scale, exploratory initiative into a more established and coordinated regional event. It has achieved steady growth in the number of observations recorded, the number of participants and the range of events hosted across the weekend. The 2025 transition to a combined CWS regional format represents a further step in this development, reflecting increased organisational capacity and a

move towards more strategic collaboration across local authorities and partner organisations. Participation growth is also reflected in its positioning within the wider UK CNC context, where in 2026 the CWS-CNC ranked among the higher-performing initiatives (seventh for total observations and fifth for number of species recorded), indicating increasing reach and ecological coverage relative to other participating regions.

The workshop explored potential transformative futures of the CWS-CNC using the Three Horizons (3H) framework alongside discussion of Transformative Intervention Mixes (TIMs) and the Transformative Research and Diagnostic Tool (TRD2). The workshop focused on how the CWS-CNC currently functions, what more transformative future forms might look like, and which social, technological and organisational interventions/ intervention mixes could help to support biodiversity and equity outcomes.

The case primarily sits within the DAISY domains of urban and regional development and education. It is centred around biodiversity monitoring, citizen science, community engagement and digital innovation.

The 3H workshop included six participants from a mixture of sectoral backgrounds including local authority staff, wildlife trust staff and academics. Participants brought a range of perspectives relating to biodiversity conservation, citizen science, environmental engagement, public participation and technological innovation.

3.2. Methodology and Workshop Setup

The workshop took place on 12th May 2026 at the Centre for Agroecology, Water and Resilience (CAWR) offices at Ryton Gardens, Coventry. The session was conducted in person between approximately 09:30am and 14:00pm. A follow-up online interview was also conducted with an additional participant (from a local authority) who was unable to attend the main workshop itself. The timing of the workshop was arranged such that it took place only a few weeks after the 2026 CNC weekend, thereby providing opportune timing for collective reflection on the current stage and state of the CWS-CNC.

The workshop was facilitated by Sian Green, Alex Franklin and Lindy Binder. The 3H framework was used as the primary structure for discussion and reflection.

Participants were guided through Horizon 1 (current system analysis), Horizon 3 (future visions), and Horizon 2 (transformation pathways and interventions). The workshop also introduced discussion of the TRD2 and TIMs. Workshop activities included: group discussion and facilitated reflection; use of sticky notes and collaborative horizon mapping; prompted discussion around biodiversity, equity and transformation; reflection on barriers, enabling conditions and interventions; exploration of technological, social and governance innovations and; creative future visioning exercises using images and metaphors. Visioning exercises involved the use of 'Dixit cards' (see Figure 4), which depict dreamlike artwork. Participants selected a card with a visual that they felt connected to their ideal envisioned future for the CNC. Role-model cards depicting different types of potential CNC participants were used to help generate discussion around the different barriers and needs for various societal groups (see Figure 6).



Figure 4: Dixit cards used for creative future visioning exercise

The workshop drew heavily on participant discussion and collaborative reflection rather than formal scoring or prioritisation exercises. Outputs included sticky note posters, workshop transcripts, facilitator notes and follow-up reflections. The 3H approach was used as a conversational and reflective framework rather than a rigid planning tool. The workshop generated a mixture of concrete intervention ideas, broader visions of transformation, and critical reflections on current institutional and societal barriers.

3.3. Results of the Three Horizons Workshop

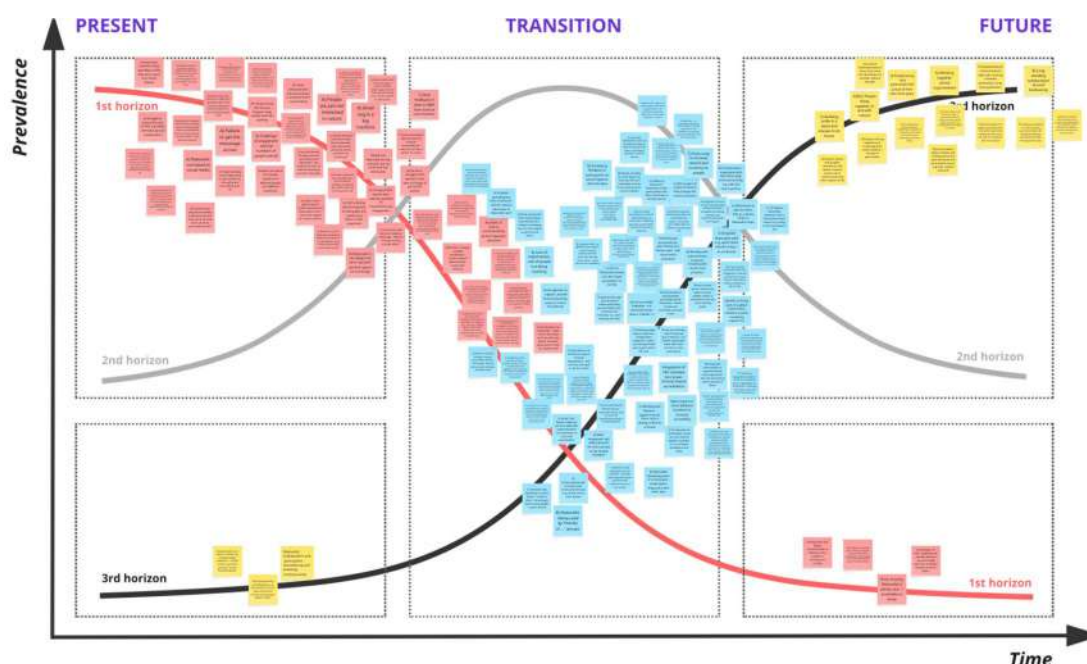


Figure 5: 3H workshop poster (City Nature Challenge). Transcription of all 'Post-it' are available on Zenodo.

Figure 5 shows the completed Three Horizons poster from the City Nature Challenge workshop. Post-it contributions are colour-coded by horizon: red for Horizon 1 (present), blue for Horizon 2 (transition), and yellow for Horizon 3 (future). As the image resolution does not allow every individual contribution to be read directly, a full transcription of all Post-it contents is provided in Zenodo. The following sections synthesise and discuss these contributions horizon by horizon.

3.3.1. Current system analysis (H1)

Participants described the CNC as a relatively successful but resource-intensive citizen science initiative that relies heavily on volunteer labour, institutional goodwill and recurring partnership collaboration. The initiative has become increasingly embedded within the CWS regional environmental calendar, with annual planning and coordination processes now relatively routinised and helping maintain continuity between years.

At the same time, participants identified several significant constraints and tensions within the current system. Public awareness of both the CNC and the iNaturalist platform remains relatively low, including among people already interested in

biodiversity recording, as highlighted in this comment: ‘for example, I bumped into a group of naturalists doing a tour of one of the nature reserves near Canalworth. So 15 of them come into a site to do a bioblitz of the site and not a single one of them had heard of iNaturalist’ (workshop participant). Marketing and outreach were seen as challenging within a wider context of information overload, limited free time and competing societal priorities. Participants also reflected on broader societal disengagement from biodiversity issues, suggesting many people do not perceive biodiversity loss as directly relevant to their own lives or responsibility.

A recurring tension concerned the dual role of iNaturalist and the CNC as both biodiversity monitoring tools and public-engagement mechanisms. Participants questioned whether the initiative primarily functions as a scientific data-collection tool, a public engagement activity, or both simultaneously. Specialist biodiversity recorders were sometimes described as resistant to iNaturalist due to perceived inefficiency, incompatibility with existing recording practices and concerns around data quality. For example, it was felt that iNaturalist was a slow and inefficient way of conducting a botany survey: ‘if you were going to do a professional survey, you wouldn't be using iNaturalist... our botanists say the same thing. I could have recorded 5 or 10 times as many species in this time’ (workshop participant).

Technological limitations and data quality concerns were also discussed. Participants highlighted difficulties identifying certain taxa from photographs alone, limitations of current AI-supported identification systems and concerns that gamification and leaderboard systems can incentivise low-quality or quantity-driven observations: ‘Ongoing frustration. I think people get caught up in wanting to come top of the leaderboard and just start taking photos of houseplants’ (workshop participant).

Organisational capacity emerged as another major challenge. Participants described increasing pressure on the small number of highly engaged organisers and volunteers responsible for coordination, alongside risks of exhaustion and burnout following the annual challenge period. Although participants discussed the possibility of expanding activity throughout the year, there was recognition that momentum often fades after the intensive effort required to deliver the annual event. The overarching global structure of the CNC was viewed ambivalently. Fixed international timing creates constraints around weather, school participation and

local flexibility, but also provides momentum, visibility and an external organising structure that helps sustain the initiative year-to-year.

Finally, participants discussed inequalities relating to access to nature, green space, technology and free time. Equity was viewed as an important component of the initiative alongside biodiversity outcomes, with participants recognising both uneven access to participation opportunities and the potential health, wellbeing and educational benefits associated with increased engagement.

3.3.2. Desired future visions (H3)

Many future visions centred around stronger relationships between communities and local nature. Participants envisioned a future in which biodiversity recording and engagement with nature become normalised, socially embedded and integrated into everyday life. Participants imagined people feeling proud of local biodiversity, sharing ecological knowledge and developing stronger emotional and practical connections to place. The future CWS-CNC was imagined not simply as a single annual event, but as part of a broader culture of ecological awareness, participation and stewardship. Biodiversity recording was envisioned as occurring throughout the year through volunteer-led activities, community-run initiatives and multiple local events, creating a more distributed and resilient model of engagement. The envisioned future was also associated with broader and more inclusive participation in biodiversity engagement, particularly among underrepresented groups. Increased ecological awareness, stronger emotional connection to nature and greater public recognition of the biodiversity crisis were seen as important drivers of more biodiversity-friendly behaviours and conservation action. Some participants additionally described more symbolic or utopian futures centred around coexistence, care and humans living more harmoniously with nature.

Participants also described futures involving stronger collaboration between organisations, including local authorities, schools, universities, wildlife organisations, museums, media organisations and community groups. Education and youth engagement featured strongly, alongside aspirations for biodiversity recording to become more embedded within schools, communities and wider cultural norms. Several future visions focused on empowerment through biodiversity knowledge and data. Participants imagined local communities using

biodiversity data to better understand, protect and advocate for places they care about, positioning biodiversity recording not only as a scientific activity but also as a mechanism for participation, stewardship and local ownership.

Participants also identified several inspiring existing examples of the future already present within the current system, including volunteer-led recording events, local iNaturalist ambassadors, collaborative partnerships and emerging technological innovations.

3.3.3. Transformation pathways and TIMs (H2)

Discussion of Horizon 2 (H2) focused on the transition space between the current system and the desired future. Participants identified a range of social, technological, organisational and cultural interventions that could support more transformative biodiversity and equity outcomes. An extended discussion occurred around the theme of moving beyond reliance on a single annual event toward more continuous and distributed engagement. Participants discussed seasonal recording weekends, integration with other biodiversity campaigns and increased year-round participation opportunities. Schools and educational settings were repeatedly identified as important leverage points, with suggestions including integrating biodiversity recording into school activities, homework and wider educational programmes.

Technological development and interoperability were also viewed as important enabling conditions. Participants discussed integration between iNaturalist and other biodiversity recording platforms, improved AI-supported identification systems, audio and video functionality, automation and improved app design to support learning, accessibility and confidence. The workshop also explored more experimental interventions, including QR-linked biodiversity maps, public biodiversity displays, augmented reality integration and alternative sponsorship or funding models.

Participants additionally identified interventions linked to social norms, emotional engagement and visibility. Visible public biodiversity activities, social media campaigns and positive media representation of nature were seen as important mechanisms for increasing awareness and participation. Gamification and incentives such as local leaderboards, school competitions and public biodiversity displays

were also discussed, although participants recognised tensions where competition-based systems encourage quantity over quality or reinforce exclusionary dynamics. Participants highlighted the importance of maintaining hyper-local engagement and attachment to local places, suggesting that encouraging people to care about their immediate environment may provide a stronger basis for long-term participation than global competition alone.

Several H2– interventions were identified as potentially reinforcing limitations of the current system, including over-reliance on iNaturalist as a single platform, market-driven commercialisation and technological developments that improve efficiency without transforming participation or relationships with nature. In contrast, H2+ interventions included stronger community-led participation, improved accessibility and interoperability of biodiversity technologies, embedding biodiversity engagement within schools and communities, greater emotional connection to nature, more equitable participation opportunities, year-round engagement structures, stronger cross-sector collaboration and improved feedback regarding how biodiversity data are used. Participants also reflected on which aspects of the current system should persist into the future, including the open and accessible nature of participation, collaborative partnerships, the recurring annual rhythm of the challenge and the combination of biodiversity monitoring with public engagement and education.

3.4. Discussion

The workshop highlighted both the strengths and limitations of the CWS-CNC as a socio-technological biodiversity initiative. Participants consistently framed the CNC as more than a biodiversity recording exercise, instead viewing it as a mechanism with the potential to reshape relationships between people, biodiversity, technology and place.

A key pathway identified involved moving from relatively niche biodiversity recording communities toward broader forms of mainstream public engagement and ecological participation. Current H1 conditions were characterised by low public awareness, organisational capacity constraints, fragmented participation and dependence on highly engaged volunteers and partner organisations. However, participants also identified important foundations for transformation, including

strong partnerships, recurring organisational structures and growing familiarity with biodiversity recording technologies.

Many proposed H2 interventions focused on increasing visibility, accessibility and social embedding of biodiversity engagement. Schools' engagement, visible public activities, social media campaigns and hyper-local place-based framing were all identified as important pathways for broadening participation. Technological developments such as app interoperability, AI-supported identification and automation were also viewed as potentially useful in reducing barriers. At the same time, participants repeatedly stressed that technology alone would not produce transformative change. Instead, the workshop highlighted the importance of combining technological innovation with social, emotional and relational approaches that encourage people to care about biodiversity and connect with local nature.

Several important tensions also emerged throughout the workshop, including scientific versus engagement functions of iNaturalist, competition versus inclusion, local versus global framing, technological versus social approaches to transformation, and realism versus optimism regarding future biodiversity outcomes. Alongside, organisational capacity and volunteer burnout were identified as major barriers to scaling-up activity, as well as wider societal barriers such as limited public awareness, competing time pressures and lack of societal prioritisation of biodiversity issues. Overall, the workshop suggested that the most promising pathways toward H3 involve combining technological accessibility with community participation, emotional connection to nature, educational integration, hyper-local place attachment and stronger cross-sector collaboration.

3.5. Reflection on the Three Horizons approach in DAISY

3.5.1. Three Horizons overall experience

Overall, the 3H framework worked well as a conversational and reflective tool within the context of the workshop. The approach was particularly useful for encouraging participants to move beyond immediate operational concerns and think more broadly about long-term transformation, societal change and the future role of biodiversity engagement within everyday life. Participants generally appeared able to engage with the 3H concept following a short explanation and introductory

video. The distinction between the current system (H1), future visions (H3) and transitional innovations and pathways (H2) was broadly understandable and generated productive discussion.

The H1-H3-H2 sequence appeared to work reasonably well for this workshop. Beginning with a discussion of the current system allowed participants to articulate frustrations, barriers and existing strengths before moving into more (H3) imaginative future visions. Returning then to H2 helped ground these visions within more concrete interventions and pathways. As a group, there was a stronger preference for discussion of practical actions rather than visioning. Use of the Dixit cards was helpful in aiding conversation around creative future visioning. Workshop participants consisted of a relatively small group from academic, conservation and local authority backgrounds, which may also have shaped the perspectives that emerged. In particular, biodiversity and organisational perspectives were strongly represented, while perspectives from less-engaged communities or broader publics were absent. Equity issues discussed were primarily in relation to unequal access to nature, barriers to participation, educational opportunities and differing levels of technological access.

Discussions confirmed and expanded on insights and tensions identified in the learning history. The timing of the 3H workshop was significant in that (as noted above) it occurred only a few weeks after the running of the 2026 CNC. This meant there was additional fresh reflection in follow-on from what had previously been covered during the preceding Learning History workshop (T4.1). In particular, the 3H framework resurfaced tensions relating to:

- scientific versus engagement functions of iNaturalist
- realism versus optimism in future visions
- technological versus social approaches to transformation
- local versus global framing
- and competition versus inclusion.

The 3H framework supported further in-depth discussion of these issues, leading to productive discussions over which actions were facilitating ongoing issues and therefore needed to be dropped (H2-) and which actions could help address the

tensions in a positive way, to reach the shared desired future outcome (H2+). The workshop generated relatively actionable outputs in the form of intervention ideas, enabling conditions and potential transformation pathways. However, some discussions remained exploratory and speculative, particularly around future technologies and large-scale societal transformation.

3.5.2. TRD2 and TIMs

The TRD2 framework was introduced within the workshop as a tool for considering relationships between transformation, equity and biodiversity. Prior to the workshop, the facilitation team completed an initial draft assessment, this provided a starting point for discussion. During the workshop, participants were invited to reflect on and challenge elements of the draft assessment as part of the H3 discussion. This generated useful discussion around the relative strengths and limitations of the initiative, including whether some dimensions may have been scored too highly and the extent to which the CNC currently contributes to biodiversity, equity and transformative change.

The workshop was designed to balance coverage of the required activities with respect for participants' time and availability within a half-day format. While the TRD2 framework was introduced and discussed (during the H3 segment), the majority of workshop time was intentionally dedicated to the overarching 3H exercise. This also helped avoid overwhelming participants with multiple scientific and conceptual frameworks. Participants engaged well with the 3H approach, but it was itself a substantive framework requiring explanation, reflection and discussion. Consequently, TRD2 was used primarily as a complementary reflective tool rather than explored in depth. The TRD2 nevertheless helped prompt further reflection on different dimensions of transformation, including personal, practical and political aspects, alongside biodiversity and equity outcomes. For example, participants discussed how the CNC can influence individual attitudes and relationships with nature, support practical biodiversity monitoring and engagement activities, and potentially contribute to broader institutional and societal change. Equity-related discussion, meanwhile, focused particularly on access to nature, participation, knowledge and biodiversity data; while biodiversity discussion centred primarily around species monitoring, ecological awareness and conservation potential. Following the workshop, the facilitation team revisited the TRD2 assessment in

light of participant feedback, workshop discussions and subsequent reflections. The final assessment therefore reflects a combination of pre-workshop analysis, workshop deliberation and post-workshop refinement. A draft version of the workshop findings has also been shared with participants to provide an opportunity for review and comment on the interpretation of workshop findings.

The secondly complimentary framework – TIMs – proved relatively straightforward to integrate within the 3H discussions, especially with regard to the H2 component. Much of the H3 discussion initially focused on technology, regulatory and market-based interventions; the TIMs framework supported participants in identifying alternative leverage points, such as social norms around biodiversity recording and knowledge-sharing to increase awareness of the importance and usefulness of the pictures taken on iNaturalist and how they can be used. The categorisation of interventions into different social, technological, educational, market-based and governance-oriented approaches also helped structure discussion and encouraged participants to think across multiple forms of intervention rather than focusing solely on technological solutions. Use of role-model cards also supported these discussions, as they highlighted different potential perspectives from different members of society (as illustrated in Figure 6) and thus the need for a varied mix of interventions in order to engage all peoples.



Figure 6: Example of one of the role-model cards used to encourage broader consideration of different perspectives

Overall, discussions repeatedly returned to the need for mixed approaches that combine technology, education, emotional engagement, social norms, organisational collaboration and visibility. In this sense, the TIMs worked well, in combination with the 3H schema, in helping move discussion beyond individual H2 intervention ideas toward more systemic consideration of how different forms of intervention may interact to support or hinder transformation.

3.5.3. Contribution to subsequent tasks

The workshop identified several potentially important amplification opportunities relevant to subsequent DAISY WP3 and WP4 tasks. A next step will be to discuss the H2 intervention ideas generated during the workshop with the Task 3.2 leads. This will help identify how the proposed interventions can inform the subsequent design of transformative pathways, intervention mixes and amplification opportunities.

For Task 4.3 (Amplification), one major opportunity concerns strengthening links between biodiversity recording, local institutions and community engagement. Schools, libraries, local authorities, community organisations, wildlife organisations and media actors were identified as important partners for amplifying participation and visibility. Educational integration, hyper-local engagement and more visible public biodiversity activities may provide particularly promising entry points for scaling participation. The workshop also highlighted opportunities for increased dialogue between local government ecologists and civil servants from a range of local government departments. Participants discussed the value of biodiversity data for planning, conservation and local environmental decision-making, suggesting potential opportunities for stronger institutional integration and policy relevance. They also discussed the potential for connecting with health and wellbeing agendas and with school education initiatives. As a next step, these findings will be discussed further both within the CU team and with lead individuals from the CWS-CNC to identify priorities and opportunities for amplification, gather feedback and inform subsequent development of the initiative.

For Task 4.4 (Cross-case learning), the workshop surfaced several themes likely to be relevant across other DAISY cases. These include tensions between technological and social innovation, volunteer dependence and burnout,

competition versus inclusion, local versus global framing, and the role of emotional engagement within transformation processes. The case also highlighted how digital citizen science innovations can simultaneously function as biodiversity monitoring systems, educational tools and mechanisms for social engagement and identity formation. A next step will be to discuss these findings with colleagues involved in the other two DAISY seed innovation cases that utilise app-based platforms. This will provide an opportunity to identify shared challenges and opportunities across cases, particularly in relation to digital engagement, participation, social learning, behaviour change and transformative potential.

For Task 4.5 (EU policy relevance), participants identified several barriers and intervention areas with broader relevance beyond the local case. These included:

- interoperability between biodiversity recording platforms
- accessibility and usability of citizen science technologies
- funding and institutional support for community biodiversity initiatives
- integration of biodiversity engagement within education systems
- and the importance of combining technological innovation with social and cultural transformation.

The workshop (and associated findings arising from the preceding T4.1 CWS-CNC Learning History exercise) indicates that transformative biodiversity engagement requires policy approaches that support not only technological innovation, but also community capacity, educational integration, organisational sustainability and long-term social norm change.

4. Seed Innovation 02: Órség National Park - Results-Based Agri-Environmental Payment Scheme

Gergő Berta, Kármén Czett, Eszter Kelemen, Boldizsár Megyesi

4.1. Case introduction

The seed innovation analysed in the case study is the co-creation of a results-based agri-environmental payment scheme in the Órség region of Western Hungary, developed within the Contracts2.0 project. It belongs to the agri-food domain and combines social and technological elements to support the better integration of biodiversity considerations into farmers' land-use decisions. The scheme was designed through collaboration among local, regional and national actors, including farmers, conservationists, policymakers and researchers. Although the initiative was welcomed by higher level policymakers, it has not yet been implemented or upscaled, not even in pilot form.

Órség is a distinctive region of Hungary, characterised by high biodiversity, traditional farming practices, sustainable tourism and nature conservation, the latter represented institutionally by the Órség National Park Directorate. The case illustrates both the transformative potential and the fragility of collaborative, place-based policy experimentation. The co-design process helped create a shared space for actors with different motivations to work towards more adaptive and biodiversity-positive agri-environmental approaches. It strengthened local relationships, supported farmers' sense of agency, and enabled national-level actors to gain direct experience with results-based payment concepts. At the same time, the case also highlights the limits of bottom-up innovation when higher-level political priorities are not fully aligned. Despite operational-level support, several factors hindered implementation, including political risk aversion, scepticism about results-based payments, limited commitment from high-level decision-makers, and the difficulty of scaling a scheme developed in a small and highly specific socio-ecological context.

The workshop brought together seven participants with relevant institutional and policy expertise. Three participants represented the Órség National Park Directorate, one participant represented the Ministry of Agriculture, one was an agricultural economist and retired expert of agri-environmental payment schemes, and two were experts who had previously held high-level positions at the Hungarian State Treasury and the Ministry of Agriculture before being dismissed under the previous government. This composition allowed the discussion to combine local conservation knowledge, national policy experience, European Union's Common Agricultural Policy (CAP) expertise and institutional memory.

4.2. Methodology and Workshop Setup

The event was organised as a facilitated in-person session on 6-7 May 2026, consisting of a half-day workshop in Magyarszombatfa, Hungary, and an additional field visit nearby in the Órség region. It focused on exploring the present state, future potential and possible transformation pathways of results-based agri-environmental payments. The workshop was facilitated by the DAISY ESSRG case study team with two dedicated facilitators, a note taker, and a timekeeper to ensure that the agenda was followed. It involved seven expert participants.

The workshop applied the Three Horizons (3H) framework as a structuring approach for discussing systemic change. The agenda began with an introduction round, a short presentation of the DAISY project, and the future [REWARD project](#) (Retaining and attracting knowledge, workers and skills for regional development). The first substantive step focused on describing the current situation (Horizon 1): participants used Post-its to reflect on how they imagine the institutionalisation of results-based farming and to identify current challenges related to the Hungarian agri-environmental scheme. The second step explored future aspirations (Horizon 3): participants discussed the characteristics of a well-functioning results-based agri-environmental system in the future, and inspiring examples or practices that already exist today. This was followed by filling out the TRD2 by the whole group in an interactive spatial format: participants physically positioned themselves in the room to express their views regarding both the present and future states. This created

an engaging and dynamic atmosphere and stimulated discussion, particularly in cases where opinions differed significantly.

After a short comfort break, the workshop moved to the second part, which explored Horizon 2. The third step focused on inspiring practices and responses to emerging conditions and opportunities. Participants reflected on the obstacles preventing the desired future from being achieved, the factors that could enable such a future, and the elements of the current system that should be gradually phased out. The fourth step aimed to discover innovations already in operation. To inspire the discussion, a list of TIMs was prepared in advance, based on the AI-assisted analysis of already existing results-based schemes. These TIMs were discussed as responses both to the shortcomings of the current system and to the opportunities associated with the desired future. Participants considered possible intervention points, or leverage points, that could reduce or overcome barriers. They also reflected on conflicts, including who benefits and who bears the costs, as well as on valuable elements of the current system that should be retained.

The workshop concluded with a short reflection and discussion using Mentimeter. Documentation was based on the materials generated during the session, including Post-its, the spatial TRD2 exercise, and the final digital reflection. A colour scheme was used to distinguish between the different horizons and types of contributions, helping to organise observations on the current system, emerging alternatives, and disruptive transition dynamics.

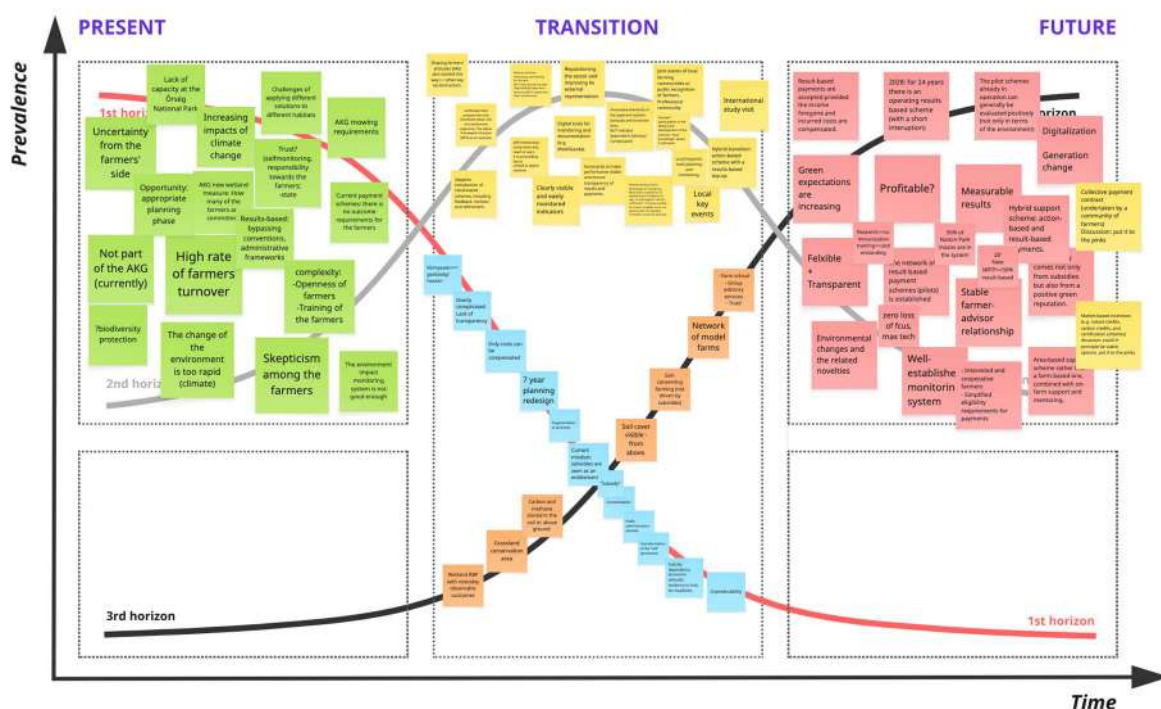


Figure 7: 3H workshop results from the Őrség workshop. Unlike the colour scheme used in other cases, contributions here are colour-coded as follows: green for Horizon 1 (present), cream and orange for Horizon 2 (transition), and pink for Horizon 3 (future)

4.3. Results of the Three Horizons Workshop

4.3.1. Current system analysis (H1)

The current business-as-usual regarding the Hungarian agri-environmental schemes (AES) is largely influenced by the CAP national strategic plan, which puts more emphasis on Pillar 1 direct payments than Pillar 2 rural development support and agri-environmental payments. Hungarian AES in general, which are the most familiar to farmers, follow action-based, relatively rigid measures. Although in the current CAP cycle there are greening measures implemented in Pillar 1 too (i.e. the eco-schemes), these are less well-known among farmers. In the Őrség region, only a minority of farmers take part in AES, with a gradual dropping out during the last 20 years. Farmers have been refraining from participating in AES because of the rigidity and complexity of these systems, including not just the predefined prescriptions but also the administrative burden involved. Another major factor of dropping out is the ageing of farmers and cessation of farming. Monitoring expectations exist at national level, but the system is not perfectly suited either to

robust national reporting or to farm-level adaptive management. Some newer elements, such as water-related premiums or grassland reserve-type measures, suggest a gradual movement away from purely action-based practice, but results-based approaches are not yet integrated into the mainstream AES.

As already highlighted above, several aspects of the AES are not working well. The current AES is very complex, both for farmers and for those trying to assess its outcomes. Its ecological results are often uncertain, and some rules are increasingly difficult to apply under present climatic conditions. For example, fixed mowing dates are hard to maintain during droughts, creating tension between biodiversity objectives and the practical needs of the livestock. The monitoring system is also a major lock-in: it is expected to support national-level accountability, but it does not provide sufficiently useful evidence at either national or farm scale, especially in rapidly changing environmental conditions. Another lock-in is institutional: there has not been enough capacity or coordinated support from the policy sector to move forward with more innovative, results-based approaches because of the lack of experience and the risks involved.

Changing the current practice is difficult for several reasons. Trust is a central barrier: farmers may doubt that they will receive payment if ecological results are not achieved despite their efforts, while institutions may also lack confidence in farmers' delivery. Many farmers are sceptical of support schemes in general, and familiar rules feel safer than an unfamiliar results-based model. Farm diversity adds another challenge: holdings differ greatly by size, technology, livestock or crop orientation, and ecological context, so a single model is hard to apply. High turnover among farmers also makes it difficult to build local knowledge of land, species, and management over time. There are also knowledge gaps, especially around grassland use, biodiversity, and what creates good outcomes for livestock as well as nature.

Climate change makes all of these challenges more striking and requires quick adaptations from the agri-environmental payment system. Conditions are changing faster than the existing schemes were designed for, and impacts that were barely considered five years ago are now central. This strengthens the case for more adaptive, results-based approaches, which could respond better to annual and day-to-day variation. However, introducing such a shift means moving beyond deeply

embedded conventions and requires trust building and learning from all involved actors. A pilot could have helped reduce perceived risks and build trust. There may now be a window of opportunity, linked to a new political and CAP planning cycle, to reconsider how results-based approaches could be incorporated into future policy design.

4.3.2. Desired future visions (H3)

The participants imagined the mature version of the Hungarian results-based approach as a future where roughly 50% of all agri-environmental payments from the CAP is distributed to farmers as payments by results. On the one hand, this indicates that not every parcel or farming type is suitable for results-based payments (it is not realistic that more than 50% of the total AES is distributed as payments by results), while on the other hand, it also suggests that reaching 50% requires several regionally decentralised results-based schemes to exist and collaborate as a network within the country. Besides the results-based approach getting well-accepted in the CAP, it was believed to be used more frequently also in the carbon credit and nature credit markets or in value chain approaches, therefore making market-based instruments much more impactful (from a biodiversity perspective) in the desired future.

There was agreement in the group that results-based payments should be used in combination with action-based schemes (i.e., as results-based top-ups which supplement an action-based basic payment level). Key components of the mature version of this innovation were suggested as 1) the confident use of technology which can combine local knowledge with digitalisation and AI; 2) the generational shift within the farming community which brings responsible, environmentally sensitive farmers, who do not only tolerate the system but gain motivations from it, to the forefront; and 3) finally the changing logic of how the payment is calculated, using the achieved positive impact as the basis for the payment instead of the costs or the lost income associated with the measures taken. As the payment calculation approach is currently formalised at the EU level, achieving this mature form also requires institutional innovation at the broader scale (i.e. in EU-level policymaking).

There was a detailed discussion about what a realistic timeline is to achieve this mature state, some highlighting the current window of opportunity, while others mentioning the relatively slow pace of changing institutions and social norms. The

group finally agreed that by the end of the next CAP planning cycle (in the mid-2030s), this shift may be possible.

Regarding biodiversity and equity impacts, the participants were unanimous about a much stronger and more visible impact on biodiversity than on equity. Several of them highlighted that the results-based approach should offer measurable biodiversity outcomes in Őrség but also at the national scale, and that this positive biodiversity impact should be able to counteract the detrimental effects of climate change. Such positive impacts should be visible at the level of genetic, species and habitat diversity, as well as in the ecosystem in more general terms. Regarding equity, the mature form of the results-based scheme was considered a transparent and trust-based option, which helps farmers become more adaptive and flexible, and therefore more resilient to changing economic and environmental conditions. On the other hand, participants felt the results-based scheme would not considerably reduce social inequalities or injustices in relation to biodiversity. Reduced administrative burdens and rigidity might favour small-scale family farms, but the overall socio-economic drivers behind farm concentration go much beyond the subsidy system.

Among the inspiring examples in the present, two were mentioned from Hungary. The first one is the water retention premium, which is a new payment scheme incentivising farmers to retain water on their fields and therefore combat against aridification. This scheme was launched in late 2025, and there is no available information yet on the number of farmers applying for this payment. The other example was the grassland reserve scheme, which is a more mainstream tool (an agri-environmental payment for high nature value grasslands) but without exact time restrictions for mowing or grazing. The common aspect of both of these schemes is that they move away from strict restrictions or obligatory measures towards a more results-oriented approach (although they are not fully results-based yet). Besides these two Hungarian examples, participants talked a lot about existing foreign examples, among others the Austrian results-based scheme which some of them explored during a field visit organised by the Contracts2.0 project.

If we consider certain smaller aspects of the transition, several other inspiring examples that already exist could be identified. For instance, the State Treasury already uses a mobile application called Mobilgazda, which can be used by farmers

to submit payment documentations, upload pictures, or access the results of their evaluation. Currently ongoing projects of the National Park Directorate were also mentioned, which focus more on local sustainable production and value chains, but contribute significantly to trust building and creating a collaborative environment.

4.3.3. Transformation pathways and TIMs (H2)

When discussing Horizon 2, we first talked about aspects of the current system that must be phased out, then we discussed opportunities that can help move from H1 to H3, and finally, we assessed an empirically-based list of potential interventions from the point of view of whether they are relevant to support transformation in the Hungarian case.

Everyone agreed that certain action-based elements of the current AES should be kept for the longer term as a major solution to manage risks. There were, however, several other elements that must be phased out to achieve transformation. Things to eliminate at the system level included excessive institutional centralisation and bureaucracy, as well as the fragmented nature of the regulatory and subsidy system. Furthermore, managing institutional uncertainty (i.e. avoiding to re-plan the payment system from scratch every seven years) would be crucial for building trust, transparency and accountability for the longer term. At the level of social norms and practices, two things need to change: the currently dominant mentality among farmers of treating payment systems as a "necessary evil" while regarding payments themselves as "naturally given", and the use, or misuse, of power by public authorities against farmers, which should be avoided.

Interventions that were considered crucial and to some extent already in use (even if only in a seed form), focused around two key challenges: shifting mental models and social norms, and making the monitoring of achieved results more robust and easy to implement. Regarding the first challenge, participants mentioned farm schools and different forms of peer learning (e.g. farm visits) as the most effective ways of sharing knowledge and changing practices. They highlighted that engaging a few forerunners or 'local heroes' who already have experience with regenerative agriculture, conservation or restoration-focused land use, and high-tech monitoring systems, has helped with reaching out to a wider range of farmers and setting best practice examples to follow in other areas already (i.e. in the case of regenerative

farming or precision agriculture). This model could also be applied for popularising results-based schemes. Regarding the second challenge, participants agreed that results-based monitoring should make use of advanced technologies, and some of them also reported ongoing developments of the Mobilgazda app, which try to broaden user functions and integrate more diverse indicators. Besides using a mobile app (either the Mobilgazda, or one of the well-known citizen science apps like iNaturalist or Pl@ntnet), participants considered it important to make use of available remote sensing data to increase the robustness and (where possible) reduce the transaction costs of monitoring. Currently, available remote sensing technology could contribute to monitoring water coverage, green coverage (i.e., in the case of regenerative agriculture), or CO₂ sequestration.

To identify TIMs, a list of potential transformative interventions (see case-specific workshop notes on [Zenodo](#)) was prepared by the researchers based on an AI-assisted review of existing empirical evidence of how results-based payments schemes have been introduced in other European countries. These interventions are listed below with a brief assessment of the participants (the list follows the order of discussion, not an order of priority, and some of them are merged due to being discussed as very similar or closely connected interventions):

1. Plan results-based schemes in a **participatory** manner: this allows bringing in multiple forms of knowledge (although local, traditional knowledge has been mostly eroded in the Őrség region), and it is also key to increasing the social acceptance of the scheme.
2. Develop results-based schemes which operate at the **landscape level** and bridge across different sectors (e.g. water, forests, agriculture, and conservation): this approach has been pursued by the Water Framework Directive water catchments plans, but is not operational anymore. However, such a landscape approach would be the best suited to achieve synergistic outcomes.
3. **Adaptive** planning: for the most efficient use of the results-based approach, and to be able to tailor the schemes to the regional realities, it is crucial that the schemes are designed in an adaptive manner, with regular overviews and modifications if needed. Quickly changing climatic conditions also make

this inevitable.

4. Easy-to-understand indicators and **transparent** scoring cards: this helps farmers to continuously learn and adapt their farming practices to achieve the conservation goals, and at the same time, if scoring cards are publicly available, that can create a normative pressure within the given community to perform better.
5. Use a payment/ **choice architecture** which incentivises farmers to achieve a bigger biodiversity impact: setting a minimum score to achieve or bonuses for extra outcomes is a good way to push farmers towards simply conserving what is already valuable on their fields, although it is also important to avoid that too much risk is involved (choice architecture might operate as a double-edged sword).
6. Design a **self-monitoring** system which can be filled together by the farmer and the farm advisor to support knowledge sharing. Self-monitoring might be more risky from an administrative point of view, than (mainstream) external monitoring, but it is necessary to rebuild trust and strengthen the capacity building element of the results-based scheme. The currently available Mobilgazda app could be used for this purpose.
7. Apply **digital tools, remote sensing, drone technology** in the monitoring phase: novel technologies could be used to make monitoring results more robust (also to check the reliability of some of the self-monitoring results). Such tools can be very useful to assess field margins or large patterns of disturbance, but not suitable to assess tiny details (e.g. the presence of some rare species on the pasture). Additionally, some of these new technologies might have high implementation costs, and might also have unexpected adverse effects (e.g. some bird species are disturbed by drones).
8. **Training** offered both for farmers, advisors and the public administration staff: to make the results-based system effectively functioning, it is crucial that all actors gain sufficient knowledge about how it works, and also about the conservation objectives and associated indicators. Training for farmers

could be integrated into the current adult education system.

9. **Advisory and mentoring** opportunities offered for farmers, including peer-learning opportunities and establishing communities of practice: while training is part of formal education, informal learning opportunities are equally important, especially to change values and the driving forces behind farmers' behaviour. Peer-to-peer learning and mentoring could contribute to awareness raising and could ensure the wider acceptance of the results-based approach. It is crucial, though, that such advisory and mentoring activities should empower the participating farmers, and not take away the responsibility from them (i.e. the advisors could help in setting the conservation objectives and doing the self-monitoring, but should not do it entirely by themselves).

4.4. Discussion

The workshop results suggest that the transformation of agri-environmental payments in Hungary should not be understood as a simple replacement of action-based schemes by results-based schemes. Rather, the pathway from the current system towards the desired future is likely to involve a gradual hybridisation of the existing agri-environmental payment system. In the Horizon 3 vision, participants considered a future in which around half of agri-environmental payments are results-based as ambitious but realistic. This implies that action-based schemes would continue to provide a basic level of support and risk management, while results-based components would reward achieved biodiversity outcomes and create stronger incentives for adaptive management.

The overall pathway from Horizon 1 to Horizon 3 therefore requires the transformation of several interconnected dimensions of the current system. Horizon 1 revealed a system that is centralised, administratively complex, rigid in its prescriptions, and insufficiently adaptive to changing ecological and climatic conditions. It also showed that the current system is locked into forms of monitoring that do not fully support either national accountability or farm-level learning. Horizon 3, in contrast, described a more adaptive, transparent, technologically supported and trust-based system, where payments are linked

more directly to biodiversity outcomes and where farmers are motivated not only by compliance but also by the visible ecological value of their management decisions. Horizon 2 is the space in which this transition has to be actively constructed.

The three transformative innovation mixes identified in the workshop can be interpreted as three complementary pathways leading from Horizon 1, through Horizon 2, towards Horizon 3: the first pathway concerns farmers' values and behaviour; the second concerns monitoring and evidence; and the third concerns institutional embedding and system-level policy change. These pathways are not independent from each other. On the contrary, the transformation of the payment system depends on their combination. A results-based scheme cannot be upscaled if farmers do not trust it, if monitoring is not credible and usable, or if the public administration system does not have the capacity and political support to implement it.

Pathway 1: From compliance-based participation to ecological agency

The first TIM groups together interventions that address farmers' values, behaviour and motivation: participatory planning, self-monitoring, transparent scoring cards, payment and choice architecture, and formal and informal capacity building. This pathway responds to one of the central lock-ins of Horizon 1: farmers often experience agri-environmental schemes as rigid, bureaucratic and compliance-oriented rather than as meaningful tools for improving biodiversity.

The pathway towards Horizon 3 therefore requires a shift from passive rule-following to ecological agency. Participatory planning can help build ownership and social acceptance, while self-monitoring and transparent scoring cards can make the link between management decisions and ecological outcomes clearer. Choice architecture can further motivate farmers to improve biodiversity performance, but only if risk is not transferred to them excessively. Otherwise, results-based payments may be perceived as another uncertain and burdensome scheme.

Capacity building is essential to this pathway. Formal training can provide technical knowledge, but informal learning through farm visits, mentoring, farm schools and peer exchange may be more important for changing social norms and farming

practices. Forerunners or ‘local heroes’ can demonstrate that biodiversity-positive farming is possible in practice, helping to reduce scepticism and make the future system more tangible.

Pathway 2: From control-oriented monitoring to learning-oriented evidence

The second TIM focuses on monitoring as this is a crucial aspect of results-based schemes where current mainstream approaches must be significantly adapted. It combines self-monitoring with digital tools, remote sensing and other technological innovations, supported by transparent scoring cards and advisory or mentoring activities. This pathway addresses a key contradiction in Horizon 1: monitoring is necessary for accountability, but the current system does not generate sufficiently useful evidence either for national reporting or for adaptive farm-level management.

A results-based scheme requires monitoring that is both credible and easy to use. It must provide robust evidence for public administration, while also helping farmers understand and improve their ecological performance. Digital tools such as Mobilgazda, remote sensing and other applications can support documentation, feedback and verification, especially for broader landscape-level indicators such as water or green coverage. However, technological tools cannot replace local ecological knowledge or field-based observation, especially where biodiversity outcomes depend on small-scale species or habitat characteristics.

The transformative potential of this pathway therefore lies not in digitalisation alone, but in combining technology, farmers’ knowledge, advisory support and transparent indicators. Monitoring can then become more than a control mechanism: it can support learning, trust-building and the policy legitimacy of results-based payments.

Pathway 3: From local experimentation to institutional embedding

The third transformative innovation mix focuses on embedding results-based schemes into the public administration system. It includes participatory and adaptive planning, cross-sectoral and landscape-level approaches, and formal training for public administrators and advisors. This pathway addresses the main upscaling lesson of the Őrség case: local co-creation and government interest are not sufficient if the innovation is not integrated into policy implementation.

Horizon 1 showed that the current system is shaped by centralised decision-making, fragmented regulation, compliance routines and political risk avoidance. These operational and structural characteristics limit the capacity of the system to support adaptive, regionally differentiated and outcome-oriented schemes. Moving towards Horizon 3 therefore requires institutional innovation, not only technical or local experimentation.

Participatory and adaptive planning would allow schemes to be better fitted to regional realities and adjusted as climatic and ecological conditions change. A cross-sectoral, landscape-level approach is also necessary because biodiversity outcomes in Őrség are connected to agriculture, water management, forests, conservation and local value chains. Training for public administrators and advisors is equally important, as results-based payments require new administrative capacities, not only new farmer practices.

4.4.1. Cross-cutting obstacles, tensions and policy conditions

Several obstacles identified in Horizon 1 cut across all three pathways. At the operational level, the current system is still dominated by top-down decision-making, action-based prescriptions, administrative control and risk avoidance. These routines make it difficult to introduce a model based on ecological outcomes, flexibility, shared responsibility and adaptive learning. Trust is another major barrier: farmers may fear losing payments if results are not achieved despite their efforts, while institutions may question the reliability of farmer-led monitoring or the controllability of results-based schemes.

There are also structural obstacles to upscaling. High-level political commitment remains uncertain, CAP implementation still gives greater weight to Pillar 1 direct payments than to Pillar 2 agri-environmental support, and fragmented regulation makes integrated landscape-level design difficult. The small and specific character of Őrség also raises questions about transferability, while ageing farmers, declining animal husbandry and the cessation of farming weaken the local foundations needed for a results-based approach.

The workshop did not reveal a simple conflict between stakeholder groups, but it did point to tensions that future policy design would need to manage. Farmers need predictable income, flexibility and manageable administration; conservation actors

seek measurable biodiversity improvements; and public authorities need accountability, legal clarity and reliable monitoring. A successful results-based scheme would need to balance these interests. If it is too rigid, it will not support adaptation; if it is too flexible, it may not deliver credible biodiversity outcomes.

Policies can therefore either support or hinder the three pathways. Centralised, rigid and short-term policy design keeps the system locked into Horizon 1. By contrast, pilots, regional differentiation, participatory planning, adaptive review and landscape-level coordination could help move the system towards Horizon 3. The water retention premium and grassland reserve scheme already indicate partial movement away from strict action-based restrictions, even if they are not yet fully results-based.

Overall, the three transformative innovation mixes point towards an integrated transition strategy. The first pathway builds farmer motivation and ecological agency; the second creates credible and usable evidence; and the third embeds the innovation into public administration and policy design. None of these pathways is sufficient alone, but together they indicate how Hungary could move towards a more adaptive, transparent and biodiversity-positive agri-environmental payment system.

An additional point worth reflecting on is that the broad agreement observed during the workshop should not necessarily be interpreted as evidence of a similar consensus within the wider policy system. The participants represented a group of actors who were already familiar with the results-based approach and, in several cases, had been directly involved in its development or previous policy discussions. Consequently, the workshop may have captured a consensus among informed and sympathetic stakeholders rather than the full range of interests, power relations and institutional dynamics shaping agri-environmental policy in Hungary.

4.4.2. Reform or transformation

A final point for reflection concerns the nature of the change envisioned in Horizon 3. While participants described a future in which results-based payments become a significant component of the agri-environmental support system, it remains open whether this represents a reform of the existing system or a genuinely transformative shift. On one hand, the envisioned future still operates within the

broader framework of the CAP and retains a role for action-based payments. On the other hand, many of the conditions identified as necessary for success imply much deeper changes in governance logics, institutional cultures and relationships between actors. The workshop repeatedly highlighted the importance of trust, adaptive management, farmer agency, participatory design, learning-oriented monitoring and decentralised decision-making. These principles differ substantially from the dominant characteristics of the current system, which is perceived as centralised, compliance-oriented and risk-averse. From this perspective, a successful results-based scheme may not simply be an additional policy instrument layered onto existing structures. Rather, its effective implementation may depend on transforming some of the very institutional arrangements, administrative routines and power relations that have constrained its adoption so far. This raises the possibility that the long-term success of results-based approaches cannot be achieved through incremental policy adjustment alone, but requires a more profound transition in the governance of agri-environmental policy.

4.5. Reflection on the 3H approach in DAISY

4.5.1. 3H overall experience

Overall, it can be stated that the 3H framework worked well during the workshop and fitted the current stage of the case study appropriately. The framework proved to be intuitive for participants and did not require significant additional explanation. We moved from the present situation towards a future in which the results-based scheme functions in a stable and established way, and the discussion focused in detail on the different pathways leading towards this future.

The overall atmosphere of the workshop was optimistic, expectant and motivated throughout the entire process. Participants could be involved in the different tasks and in the collective thinking process without major difficulties. One important reason behind this atmosphere was the current stage of the policy cycle, as there is once again an opportunity to formulate proposals for the next CAP cycle. In addition, the recent parliamentary elections' results and the resulting political changes also created new windows of opportunity.

Several changes are currently happening within ministries and administrative structures which are connected to the introduction of results-based schemes, both

in terms of personnel and institutional attitudes. As a result, even if previous initiatives were not successfully translated into formal policy, participants felt that it is worth trying again under the current circumstances, as the outcome may now be different.

One aspect that clearly did not work well was defining the concrete target date of H3, the future horizon. First, we attempted to use the 2050 target date familiar from the TRD2. Participants expressed dissatisfaction with this timeframe, arguing that it felt too distant. One participant said that the effects of climate change are emerging so rapidly that, from a professional perspective, even imagining the landscape ten years from now is difficult because of the high level of uncertainty involved.

At the other extreme, one participant located the future horizon of a well-functioning results-based scheme in 2028. This, however, seemed too close, as the exercise aimed to imagine a well-established and mature innovation. As a compromise, the group eventually agreed on a timeframe earlier than 2050 but later than 2028, placing the future horizon roughly in the mid-2030s. We also gained valuable information from this discussion itself, not least because it demonstrated that participants were willing to engage critically with the framework when they found certain aspects unconvincing from a professional point of view, and that they openly expressed their disagreement. The H1→H3→H2 sequence felt logical and easy to follow for the group, and it supported a structured transition from present conditions to future visions, followed by a structured discussion about the possible pathways between the two.

The quality of the discussion was reflected in the fact that participants openly and honestly debated the emerging questions regarding biodiversity and equity. In several cases, participants argued from different perspectives while still listening respectfully to each other's viewpoints. This was especially visible during the TRD2 questions, where lively professional discussions developed around several topics.

4.5.2. TRD2 and TIMs



Figure 8: Participants expressing their views on TRD2 statements in a spatial format

The TRD2 tool was applied in a spatial format; rather than completing the exercise only as a written or seated task, participants physically positioned themselves in the room to express their views (see Figure 8). The spatial format worked particularly well: movement in the room energised participants and created a productive basis for debate and conversation. Where participants' positions were widely dispersed, this opened space for discussion; where they clustered together, this indicated stronger agreement. The spatial interaction allowed not just to record individual scores, but also to discuss and accept differences within the group, yielding a more in-depth understanding than just using the online tool. Therefore, this approach might be considered useful for future applications, especially if it is run in an in-

person workshop setting with participants having diverse perceptions of the given innovation.

The TRD2 values were calculated by recording the positions occupied by the seven participants in the room and then averaging these values to one decimal place. We treated the present state as the baseline value, assigning a score of 50 to all dimensions, and focused on how participants perceived the impacts of a mature innovation in the future. Overall, participants understood the task well and engaged with it willingly.

Regarding the transformative potential, the overall future-oriented score reached 80. This result was composed of particularly high scores at the personal level (Transformative potential at personal level: 84), slightly lower but still highly positive scores at the practical and technical level (Transformative potential at practical level: 81), while the political and societal level also received positive, although somewhat lower, scores (Transformative potential at political level: 75).

The equity dimension received the lowest overall score among the three categories (73.25). It can be observed that the lowest scores were given to the questions referring to historically marginalised groups (Distributional fairness: 60) and (Promote historically excluded communities: 73). The category of historically marginalised groups was not considered fully applicable to this seed innovation, therefore these questions were interpreted and discussed on a broader societal level. The other two equity-related questions also received relatively lower scores (Trust in governance: 77) and (Improve capability to respond to challenges: 83), as participants considered that this innovation would primarily be capable of producing results in relation to biodiversity, while its contribution to equity would mostly remain indirect.

Among the three thematic categories, the biodiversity-related questions received the highest overall scores by a considerable margin (86.75). Looking at the individual questions, three dimensions received consistently high scores with some degree of variation among participants (Biodiversity – genetic level: 84), (Biodiversity – species level: 86), and (Biodiversity – habitat level: 83). In contrast, the ecosystem diversity question received an even more outstanding score (Biodiversity – ecosystem level: 94), with all participants positioning themselves at

either the highest or second-highest point on the scale. This suggests that participants see the greatest potential for progress through results-based schemes particularly in relation to ecosystem diversity and biodiversity improvements.

5.3 Feedback and closing questions to reflect



Figure 9: Results of the closing Mentimeter as a reflection on the 3H workshop

At the end of the half-day workshop, participants filled out a Menti to evaluate the process (see Figure 9). The overall opinion was rather positive: the strongest result was that the workshop provided space for imagination and creativity, which received the maximum average score of 5.0. Participants also strongly agreed that the workshop process was effective in dealing with the complexity of the topic, with an average score of 4.8. The workshop was also seen as effective in accommodating the diversity of goals and perspectives, scoring 4.3 on average. The scores were somewhat lower, though still positive, for the more individual learning-oriented statements: participants gave an average score of 4.0 for better understanding how future thinking can be used in the present, and 3.7 for feeling more empowered to bring about a positive future. Overall, the results suggest that participants particularly valued the workshop as a creative and complexity-sensitive collective process, while its individual empowerment effects were more moderate.

4.5.3. Contribution to subsequent task

T4.3 Amplification

The workshop also revealed that participants see clear potential for scaling up results-based schemes beyond the Órség region. This would mean cooperation

with other National Parks and stronger engagement at the policy level could support the wider institutional embedding of the innovation. In this sense, the workshop connected closely to the objectives of T4.3 by not only discussing local implementation challenges, but also exploring broader possibilities for policy uptake, cross-regional learning and future amplification processes.

At the same time, the discussions around the equity-related questions suggested that meaningful changes in this dimension would likely require processes of scaling deep and longer-term value change. Nevertheless, participants were primarily asked to imagine a stable and well-functioning results-based payment system specifically within the context of Órség. Consequently, the main focus remained on biodiversity impacts and institutional feasibility within the region.

T4.4 Cross-case learning

The Órség case offers several opportunities for Task 4.4 on cross-case learning, especially with the UK and Dutch case studies, as these cases also focus on monitoring arrangements and may therefore provide useful insights into how biodiversity outcomes can be documented, verified and translated to feed into policies. The Órség case raises questions that are likely to resonate across cases: how to combine self-monitoring with external verification; how to balance trust-building with administrative accountability; and how to ensure that monitoring tools are both scientifically robust and practically usable for practitioners. These questions also point to broader tensions between social and technological innovation. Digital tools, mobile applications and remote sensing can support more reliable and efficient monitoring, but their success depends on social conditions such as technological skills, trust, familiarity, motivation, advisory support and their perceived legitimacy.

A concrete opportunity for cross-case learning has already emerged around the use of the iNaturalist mobile application. During the second-day field visit in Órség, participants tested iNaturalist using input from the UK case, where the application is already used. Technically, iNaturalist worked well, suggesting potential for its use in biodiversity-related monitoring. However, participant engagement was limited, possibly because the app was unfamiliar to them and had not been sufficiently introduced before the field test. This experience highlights an important cross-case

lesson: technological tools cannot be simply transferred between contexts without preparation, facilitation and user learning. Further exchange with the UK and Dutch cases could help clarify under what conditions such tools can support participation, ecological monitoring and trust-building.

T4.5 EU policy

Regarding T4.5 at the EU policy level, there is an expectation to have a clearer understanding after the completion of T4.3 and T4.4 activities. While we already have some initial ideas for EU-level amplification (e.g. collaboration with the Results-based payment scheme network, and ongoing EU-funded projects which focus on novel contract design, such as REWARD), there is a hope that future continuation and learning opportunities could emerge from other case studies and existing results-based schemes, such as [those in Ireland](#) or potentially in neighbouring countries. Critical questions that could be tackled by EU-level policy making to enable the wider spread of results-based schemes as transformative innovations include, among others:

- The Common Agricultural Policy (CAP) has already adopted a more results-oriented approach, but so far this is mostly applied to the national CAP strategic plans, while payments (regardless of being action- or results-based) are still calculated based on the costs implied by nature-friendly farming. A further step to amplify results-based schemes could therefore be a change in how the payments are actually calculated, i.e., quantifying the value of public goods provided by farmers, and set the payment levels according to this, instead of associated costs.
- Learning from and harmonising different results-based schemes which are currently operating or being piloted in different European countries. This is already pursued by the Result-based Payments Network (<https://www.rbpnetwork.eu/>) but could be extended and linked to DG Agri lighthouse or living lab activities.
- There are many bottom-up business or civil initiatives which try to combine technological innovation and citizen science to enable (self-)monitoring by using a wide range of novel indicators (e.g. AI-recognition of bird songs,

plant of insect species). Supporting these initiatives can contribute to the EU's green growth agenda, while harmonising standards is crucial to ensure robust and reliable monitoring across different countries.

5. Seed Innovation 03: Urban-Rural Transformations through Commons Governance in Germany

Richard Völker & Ilkhom Soliev

5.1. Case Introduction

The German DAISY seed innovation explores urban-rural transformation through commons-based governance of food systems. The case brings together four self-organised, community-led initiatives located in and around Halle (Saale) and Leipzig in central Germany, falling into two organisational types: Community Supported Agriculture (CSA) farms and Consumer Cooperatives (CCs). CSA is built around a tight connection between farmers and consumers, addressing concerns about food quality and the survival of small-scale farmers within an industrialised food system (Cone & Myhre, 2000; Schmidt et al., 2025): shareholders fund production in advance of the harvest and receive a share of the yield in return, creating a robust relationship in which farmers gain financial stability and members gain reliable access to fresh, local food (Volz et al., 2016; Zech et al., 2025). CCs are democratically governed food retailers, owned and operated by consumers as an alternative to conventional retail (Ekberg, 2012), creating spaces for food provision outside established markets through bulk purchasing and volunteer-run distribution (Little et al., 2010; Renting, 2012). While CSA and CCs are directly linked along the supply chain, CSA can be understood as a supply-side actor and CCs as representing the demand side, focused on self-organised and self-determined consumption practices (Mbow et al., 2022).

Two case holders were selected for each organisational type, varying in size, history, organisational structure, and level of digitalisation, to illustrate the range of social innovation within the food system (Little et al., 2010; Renting, 2012). KoLa

and Gemüsehof Naderkau were selected as CSAs, and Rübchen and Koope as urban CCs, all located within an approximate 60 km radius of Leipzig and Halle (Saale) in the federal states of Saxony and Saxony-Anhalt. KoLa lies north-east of Leipzig; Koope is situated within the Leipzig urban area; Rübchen is based in nearby Halle (Saale); and Gemüsehof Naderkau is located in rural Saxony-Anhalt to the north of Leipzig.

Together, the four initiatives represent a diverse spectrum of collaborative food provisioning models in Germany. KoLa is a recently founded CSA that has rapidly expanded its membership base (2,000 members in 2025) and invested significantly in infrastructure. Gemüsehof Naderkau (50 members in 2025) reflects a more incremental, ecologically grounded CSA emerging from personal lifestyle motivations. Rübchen (260 members in 2025), with a history of more than 25 years, embodies a mature CC shaped by long-term volunteer commitment and the deliberate maintenance of non-commercial principles. Koope, founded in 2021 (47 members in 2025), is characterised by dynamic early-stage organising, neighbourhood engagement, and diverse member motivations.

All four initiatives operate within the domain of alternative agri-food networks and short food supply chains. They share an orientation towards solidarity-based, commons-governed economic models that explicitly position themselves against the anonymising logic of industrial food retail. Their work connects to biodiversity through ecological farming practices, diversified landscape structures, and support for small-scale ecological producers; and to equity through solidarity pricing, cooperative governance, and efforts to broaden access to healthy, sustainably produced food.

5.2. Methodology, Workshop Setup, and Documentation

The workshop took place on 17 January 2026, in person at Martin-Luther-Universität Halle-Wittenberg (Halle (Saale), Germany). The session was conducted in German and lasted a full day. Bringing all four sub-case groups together in a single joint workshop enabled cross-initiative dialogue alongside the structured horizon work. Seven participants attended, representing active members, core organisers, and the farmers themselves (Naderkau and KoLa) from across the four sub-cases. Most participants did not know one another beforehand, so the

workshop itself already created a networking value independent of its analytical purpose, bringing together actors from the food chain who had not previously been in direct contact. Participants brought diverse backgrounds, including farming, food activism, cooperative organisation, education, and social work. The workshop was facilitated by the MLU project team. Each sub-case worked on its own 3H workshop poster (see Figure 10) during structured sessions, and plenary exchanges enabled cross-initiative comparison. The session outputs were documented on 3H poster paper with sticky notes. The joint format allowed participants from the two CSA farms and the two food cooperatives to hear and respond to each other's horizon analyses.

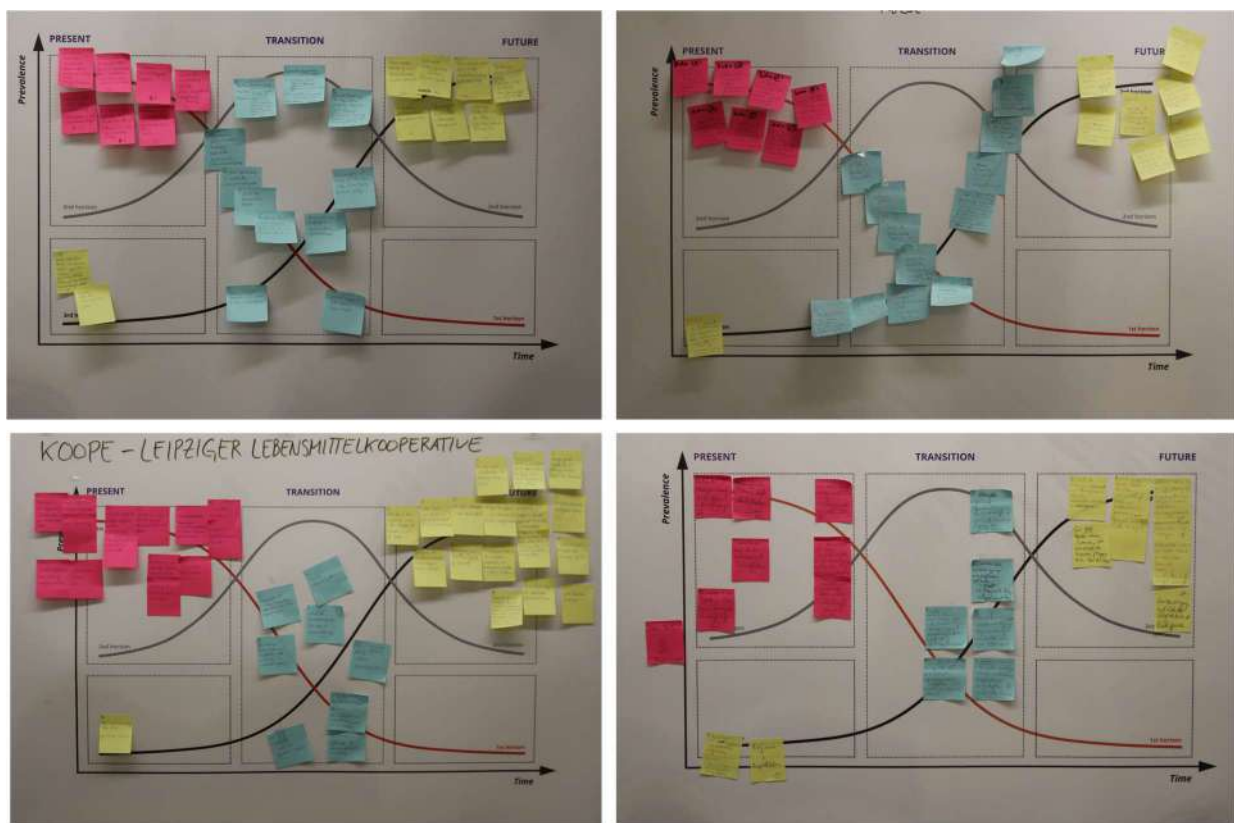


Figure 10: Three Horizons workshop posters for the four sub-cases of Seed Innovation 03. Clockwise from top to left: Gemüsehof Naderkau, KoLa, Koope, and Rübchen.

The workshop followed the standard DAISY T4.2 Three Horizons (3H) methodology, with sessions conducted in the deliberate H1, H3, and then H2 sequence. Within each session, discussion followed the structured A–E question labelling of the T4.2 protocol:

- Session 1 (H1): current challenges addressed by the initiative, with explicit sub-foci on biodiversity (B) and equity (C).
- Session 2 (H3): desired futures for the initiative, contributions to biodiversity and equity, and inspiring existing examples already present today.
- Session 3 (H2): barriers that must be phased out, enabling factors, and concrete transformative interventions.

Following the T4.2 workshop instructions, sticky notes were colour-coded by horizon: red for Session 1 (Horizon 1, present), yellow for Session 2 (Horizon 3, future), and blue for Session 3 (Horizon 2, transition). Session 4 responses to the equity question were likewise placed on red Post-its in the Horizon 1 future field, and H2 notes were additionally marked H2+ (moves toward H3) or H2- (props up H1). Posters were photographed in full and in detail at the end of the workshop; outputs were subsequently digitised in Miro using the project's shared template frame. The TRD2 was used during Session 2 to support participants in articulating the mature form of their initiative. TRD2 results for all four sub-cases were exported from the platform and are submitted alongside this report. A list of intervention types was introduced at the start of Session 3 to provide a shared reference frame for identifying concrete leverage points.

The following sections present results paired by organisational type: the two CSA farms (Section 5.3.1) and the two food cooperatives (Section 5.3.2). This structure reflects both the analytical dichotomy that organised the workshop itself and a substantive finding from the workshop outputs: within each pair, participants arrived at closely aligned diagnoses and visions, making a paired synthesis more accurate and informative than four separate case narratives. Divergences within each pair are noted where they occurred.

5.3. Results of the Three Horizons Workshop

5.3.1. CSA Farms: Naderkau and KoLa

5.3.1.1. Current System Analysis (H1)

Both Naderkau and KoLa framed their work as a direct response to structural failures in the current agricultural and food system. The challenges they identified are simultaneously ecological, economic, and social.

Challenges addressed: Both CSA farms identified the growing disconnect between food production and consumer awareness as a foundational problem, i.e., a lack of knowledge about where food comes from, how it is grown, and by whom. Additional challenges included: rising living costs reducing people's capacity to afford sustainably produced food; food waste driven by overproduction logic; and a risky economic system that decouples production from actual demand. CSA 'Naderkau' highlighted the social isolation of rural communities ('Vereinsamung der Landbevölkerung') and the loss of vitality in structurally weak rural areas as challenges their model actively addresses alongside food production itself.

Biodiversity focus in H1: Both farms articulated biodiversity not as an abstract goal, but as a concrete practice embedded in how they farm. KoLa participants traced a chain of causation: seasonal farming adapted to the climate, soil building, flowering strips, and reduced transport distances, each contributes to reducing biodiversity pressure. They noted that the current distribution of land dominated by large conventional farms relegates biodiversity measures to a peripheral role. Naderkau drew a similar structural picture: the current industrial landscape lacks the physical structures, e.g., hedgerows, varied field sizes, ecological corridors that support species diversity, and articulated their work as actively restoring those structures. Both farms identified the challenge of climate change as inseparable from biodiversity protection, connecting soil health, species conservation and landscape resilience.

Equity focus in H1: A key equity concern shared by both cases is land. Farmland as a speculative financial asset was identified as a critical barrier: it drives up prices, prevents intergenerational farm transfer to young farmers, and actively undermines the ecological farming model. Both farms also named the unfairness of a food

pricing system in which sustainably produced food is effectively a luxury. Both initiatives address this through a shared solidarity-based pricing model. In practice, this model works through an annual bidding round in which all members state how much they are willing or able to pay for their share, repeated until the total sum covers the farm's actual costs. Contributions vary: some members bid above the average cost per share, which in turn enables others to bid below it. This redistributive mechanism allows financial capacity rather than a fixed price to determine what each member pays, while collectively securing the income the farm needs to operate. Beyond price, however, both initiatives acknowledged that access remains uneven for other reasons: language and mobility were named as additional access barriers, particularly relevant in the peri-urban and rural settings of both farms.

5.3.1.2. Desired Future Visions (H3)

The H3 visions articulated by Naderkau and KoLa are ambitious and largely shared, centring on a transformed agricultural landscape characterised by dense networks of small, ecological farms in close relationship with their communities.

Future vision for the initiative: Both farms envisioned a future of living, mutual farm networks where CSA operates non-competitively as a constellation of farms in active exchange, sharing knowledge, labour, and infrastructure. KoLa was specific on that point: a high density of CSAs, market gardens, and horticultural enterprises across the region, with regional and seasonal food as the default norm in both private households and institutional food provisioning. Naderkau emphasised the revitalisation of rural areas through this model and envisioned farms as community places, not just food producers.

Biodiversity in H3: Both farms imagine a landscape that is structurally versatile again, with small farms embedded in diversified landscapes providing corridors, habitats, and the kind of ecological complexity that industrial monoculture has removed. KoLa additionally articulated a vision in which sustainable food and land stewardship are part of the education system where biodiversity literacy becomes a normal component of schooling. The slogan 'Natur als Lernort' (nature as a site of learning) appeared in both cases.

Equity in H3: Fair access to land and to farm livelihoods was the central equity vision for both CSAs: a future in which land is in farmers' hands, small farms can be founded and maintained, and the solidarity pricing model makes good food genuinely accessible. Participants also pointed to the importance of fair access to institutional food procurement in, e.g., schools, hospitals, or canteens as a key H3 lever for equity and ecological farming alike.

Inspiring existing examples: Both farms could already name inspiring practices in the present: 'Solawi Kahlenberg' (CSA in the same region) or 'Stolze Kuh' were mentioned as regional examples demonstrating holistic regenerative practices. The features that made initiatives inspiring were described as: stable producer-consumer relationships, resilient circular-economy practices, and community-strengthening functions alongside food production.

5.3.1.3. Transformation Pathways and TIMs (H2)

Barriers (H2-): The shared list of barriers blocking the path from H1 to H3 is consistent across both farms: discount price pressure making ecological produce economically uncompetitive; subsidy policy (CAP) that rewards scale and conventional practice over ecological stewardship; land speculation preventing access for ecological farmers; inadequate appreciation of sustainably produced food among the general public; and increasingly unpredictable climate conditions (drought, wet winters, late frosts) requiring capital-intensive adaptation measures. Language and mobility barriers limiting community participation were also named, particularly relevant given the rural and peri-urban settings.

Enabling factors (H2+): Both farms noted that the availability of knowledge and technology has increased significantly in recent years. Member support and voluntary engagement were identified as crucial social resources. Networking and exchanging with other farms and initiatives was named as a key source of motivation, practical knowledge, and solidarity.

TIMs identified: The transformative interventions proposed by both CSA cases cluster into five groups:

- Education and public engagement: Opening farms to the public as learning spaces; integrating food systems and nature literacy into

school curricula; outreach and communication tools accessible across language barriers.

- Regulatory and subsidy reform: Redistributing agricultural subsidies toward ecological and small-scale farming; restricting farmland ownership to active farmers; reversing food labelling policy to make ecological production visible; relaxing vegetable quality norms that disadvantage diverse and imperfect produce; strengthening regional and seasonal products in institutional procurement.
- Climate adaptation technology: Technical measures for water management, frost protection, and soil resilience; development of digital communication and coordination tools for CSA networks.
- Seed and biophysical commons: Access to open-source and diverse seed varieties as a commons resource rather than a commercially controlled input.
- Political advocacy for regenerative farming: Explicit political steering favouring regenerative and sustainable operations, including in rural community infrastructure.

As a closing remark, it is worth noting that none of the enabling factors or TIMs listed above are inherently or permanently H2+; whether they push toward H3 or risk reinforcing H1 depends on how they are implemented. The growing availability of knowledge and technology only functions as H2+ if it remains accessible to resource-constrained farms; where it requires significant upfront capital, it risks widening the gap between farms that can afford it and those that cannot. The same applies to the TIMs above: subsidy reform toward ecological outcomes is a strong H2+ candidate only if eligibility is scaled to favour smaller operations, otherwise it could reward production volume and disproportionately benefit larger, already competitive farms. Restricting farmland ownership to active farmers is similarly vulnerable to capture by applicants with stronger financial standing, potentially excluding the small-scale and new entrants it aims to support. Climate adaptation technology carries the same risk if funding favours farms able to co-finance capital investment. By contrast, the education, seed commons, and political advocacy TIMs appear more robustly H2+, since they build capacity and relationships rather than allocate scarce resources in ways that can be captured by better-positioned actors.

What determines whether an intervention moves toward H3 or entrenches H1 is therefore its design and targeting, not its stated direction alone.

5.3.2. Food Cooperatives: Rübchen and Koope

5.3.2.1. Current System Analysis (H1)

Rübchen and Koope approach the current food system from the consumption and distribution side, rather than the production side. Their H1 diagnoses share a structural critique of market concentration and commercial consumption logic, while also reflecting on the internal limitations of their own model.

Challenges addressed: Both cooperatives identified the anonymisation of food, meaning consumers have no relationship with how, where, or by whom their food is produced, as a foundational problem they work against. Rübchen framed this most explicitly: their positive vision is one of de-anonymisation, deceleration, self-organisation, and self-empowerment (Entanonymisierung, Entschleunigung, Selbstermächtigung), which represents a direct inversion of commercial consumption logic. Both cooperatives named the dominance of monopolistic food retail structures as the systemic condition they are responding to: corporations using market power to dictate working conditions, producer prices, supply chain structures, and consumer choices through advertising. Koope additionally highlighted dependencies on global supply chains, packaging-intensive production norms, social isolation, and rising living costs reducing food security for lower-income households.

Biodiversity focus in H1: For both cooperatives, biodiversity is addressed indirectly, primarily through purchasing power, directed towards ecological producers rather than through direct land management. Koope articulated the connection most clearly: reducing social inequality can reduce overconsumption, which in turn reduces biodiversity pressure; and supporting regional ecological producers economically strengthens the farming practices that maintain biodiversity. Rübchen acknowledged a notable gap: while biodiversity is central to the cooperative's founding idea (90% of the concept), it is less present in the day-to-day awareness of most members. This honest self-assessment is itself analytically valuable, as it points to an education and engagement challenge within the cooperative model.

Equity focus in H1: Equity was more prominent than biodiversity in both cooperatives' H1 discussions. Both acknowledged that equity in external production is a clear priority, which ensures fair pay and working conditions for producers in the supply chain. They also noted that internal equity within the cooperative itself is still a work in progress. Membership currently skews toward educated, younger, urban adults; genuine accessibility across class, income, age, and cultural background requires active effort. Koope explicitly named equity dimensions across generations, classes, and neighbourhood communities (Kiez), and highlighted the exploitation of production-country workers and environments as a global equity concern embedded in the current food system.

5.3.2.2. *Desired Future Visions (H3)*

The H3 visions articulated by Rübchen and Koope are the most ambitious and politically explicit among the four sub-cases. Both envision not just a scaling-up of cooperative food provisioning, but a fundamental cultural and political shift in how food, work, and collective life are organised.

Future vision for the initiative: Rübchen's core H3 vision is a dense, decentralised provisioning infrastructure: consumer cooperatives in every city district, linked to producer cooperatives in the surrounding region, with cooperation between consumers and producers as the default model of food provisioning. This vision also entails a cultural and political shift so profound that this form of supply becomes self-evident for everyone ('selbstverständlich für alle'). Koope's vision is similarly ambitious: a fully resilient local supply system in which everything available in the region is sourced from the region; a cooperative model accessible to all socioeconomic milieus; commons-based spaces (Allmenden) where cooperative food access is combined with CSA/Solawi partnerships; a strong national network of food cooperatives; and a legal and fiscal framework that recognises and supports cooperative labour as socially valuable. Both cooperatives emphasised that the model must be sustainable in terms of people and finances, not dependent on the exploitation of a small number of highly committed members.

Biodiversity in H3: Both cooperatives saw their H3 biodiversity contribution primarily as indirect but significant: by directing purchasing towards ecological regional producers, they strengthen the economic viability of biodiversity-friendly farming. Koope added a direct dimension: using cooperative income and donations

to actively support biodiversity projects in the Leipzig region. Rübchen articulated an intriguing collective-agency argument: a future in which local communities govern their own landscapes with reduced economic pressure will produce biodiversity co-benefits as a natural consequence of restored community-land relationships.

Equity in H3: Solidarity-based pricing and genuine accessibility across socioeconomic backgrounds were central equity aspirations for both cooperatives. This accessibility gap is shaped both by affordability and by location: both cooperatives currently skew toward educated, younger, urban members, partly reflecting the specific neighbourhoods in which their physical premises are based, which are less reached by milieus based in other parts of the city. Genuine accessibility across class, income, age, and cultural background was named as requiring active effort Koope was explicit about the vision of a cooperative that has 'arrived in all socioeconomic milieus', not just the engaged, educated urban left. Internal governance structures enabling horizontal decision-making and recognising different capacities were named as essential. Both cooperatives pointed to fair pay and working conditions throughout the food supply chain as a non-negotiable equity dimension. Rübchen's reference to Rojava and the Zapatistas as H3 inspirations signals a radical democratic framing: the cooperative as a site of political self-determination, not just food provisioning.

Inspiring existing examples: Both cooperatives drew on large-scale international examples as proof-of-concept: Park Slope Food Coop (New York) and La Louve (Paris) for Koope; a CSA network in South Korea with 800,000 members and a South American equivalent with 40,000 members for Rübchen. These references serve both a rhetorical function in the workshop, demonstrating that radical scale is possible, and a practical one, pointing to models worth learning from.

5.3.2.3. Transformation Pathways and TIMs (H2)

Barriers (H2–): Both cooperatives identified the absence of economic democracy as the primary structural barrier: monopolistic concentration in food retail, the lack of democratic participation in production decisions, and a profit-oriented economic framework that treats food as a commodity rather than a commons. Rübchen named this most directly: the absence of democratisation of the economy and democratisation of production as the core H1 features that must be phased out.

Koope added the inadequacy of current political and regulatory frameworks for supporting cooperative initiatives; existing legal forms, fiscal rules, and public recognition mechanisms were not designed for organisations like theirs.

Enabling factors (H2+): Rübchen identified a cluster of enabling conditions: structural support (economic and political), including VAT reform and monopoly regulation; consciousness-raising and self-empowerment; collective organising; and people regaining control over their own time. Koope pointed to rethinking work itself, proposing ideas such as a bidding-round model for voluntary working hours, analogous to the solidarity-based pricing model described above, and a universal basic income as ways of easing the tension between unpaid voluntary commitment and the need for paid employment, particularly relevant for volunteer-run organisations more broadly, monetary incentives for regional food production and provisioning, and network exchange for pooling energy and capacity. Both cooperatives framed the cooperative network itself as an enabling resource, representing collective strength where individual initiatives are fragile.

TIMs identified: The transformative interventions proposed by the two food cooperatives cluster into four groups:

- Regulatory reform and economic democratisation: Breaking up monopolies in food retail; restoring competitive markets; co-determination rights for workers; legal frameworks recognising and supporting cooperative enterprises; VAT reform favouring ecological regional provisioning; restrictions on corporate market dominance (Koope: limiting social media and advertising power as part of shifting consumption norms).
- Education and norm change: Early-embedded food systems literacy; knowledge about collective decision-making processes; city-countryside exchange programmes as a mechanism for reducing the cultural distance between urban consumers and rural producers.
- Cooperative infrastructure: State recognition of cooperative labour as socially valuable; appropriate and simple legal forms for initiatives like Koope and Rübchen; public support for commons-based food distribution spaces (Allmenden). Koope specifically raised the idea of a bidding-round

system for voluntary working hours and a universal basic income as mechanisms to relieve the structural tension between unpaid voluntary labour and paid employment, an issue affecting volunteer-run organisations generally, not only food cooperatives.

- Cultural and political transformation: A fundamental shift in social norms around provisioning, work, and collective life — both cooperatives acknowledged that the H3 vision requires not just policy change but a cultural transition that normalises commons-based self-organisation.

Notably, neither cooperative framed its work primarily in terms of individual conscious consumption: both located the problem in the structural design of the food system itself, monopolistic concentration, profit-oriented pricing, and a regulatory environment that locks in particular forms of provisioning, rather than in individual consumer behaviour or choice. This systemic framing implicitly challenges the assumption that individuals currently have meaningful freedom of choice within the dominant food system, and positions collective, structural intervention, not individual behaviour change, as the actual lever for transformation.

5.3.3. Discussion

5.3.3.1. Shared Transformation Logic Across the CSAs and CCs

Despite the organisational difference between production-side commons (CSA farms) and consumption-side commons (food cooperatives), the four sub-cases converge on a shared underlying logic: food as a common, governed collectively for mutual benefit rather than traded as a commodity for private profit. This shared framing is not incidental; it is the explicit self-understanding of all four initiatives and shaped the texture of the workshop discussions throughout.

A further convergence is structural: all four initiatives are simultaneously trying to demonstrate an alternative while operating within a system structured against them. They are subject to the same price pressure from industrial food retail, the same subsidy regime that rewards scale over ecology, and the same legal and fiscal environment that was not designed with commons-based provisioning in mind. This means that the four cases illuminate the same structural obstacles from different vantage points, producing a complementary rather than redundant diagnosis.

A shared transformation pathway can be sketched across all four cases: from the current food system dominated by market concentration, anonymisation, and ecological externalities (H1), through a transitional phase of regulatory reform, cooperative infrastructure development, and education (H2+), toward a future of dense, locally embedded, solidarity-based food networks spanning production and consumption (H3). The four sub-cases understand themselves as already enacting fragments of that future.

5.3.3.2. Differences and Complementarities

Different biodiversity entry points: The CSA farms engage biodiversity directly through land management, including soil building, flowering strips, diversified cropping, and ecological landscape structure. Their H1 and H3 discussions were rich with ecological specificity. The food cooperatives engage biodiversity primarily through market mechanisms, directing purchasing power towards ecological producers, and through an indirect equity-biodiversity link (less inequality → less overconsumption → less biodiversity pressure). This asymmetry is analytically meaningful: the two model types operate at different points in the food system and require different biodiversity policy levers.

Different equity tensions: The CSA farms' primary equity concern is the land question: who has access to farmland, on what terms, and under what governance model. The food cooperatives' primary equity concern is access and participation: who can afford to join, whose time and cultural background are assumed by the cooperative format, and how genuine inclusivity across class and background is achieved. Both sets of tensions are real and unresolved in the current initiatives, and both point to H2 interventions that go beyond the initiatives' own capacity.

Complementarity: The two model types are structurally complementary in a way that participants themselves recognised during the joint workshop. CSA farms need stable, committed consumer communities; food cooperatives need reliable regional ecological supply. A dense network of CSAs and food cooperatives in mutual relationship (several participants gestured toward this explicitly) is precisely the H3 infrastructure that both model types are working toward from different ends. The Koope vision of coupling food cooperatives with CSA partnerships, and KoLa's vision of inter-farm networks supplying cooperative distribution points, describe the same future from opposite sides.

Political framing: The food cooperatives, particularly Rübchen, were more explicit in their political framing than the CSA farms, naming economic democratisation, monopoly regulation, and, at points, radical democratic reference points (Rojava, Zapatistas) as part of their H3 vision. The CSA farms' politics were more embedded in practice, including land access, subsidy reform, and ecological stewardship, than in explicit ideological articulation. This difference in register is worth noting for subsequent communication and amplification work.

5.3.3.3. Pathways Toward a Commons-Based Food System

The most significant obstacles identified across all four cases are not technical but political-structural: the absence of an economic and legal framework that supports commons-based provisioning, and the active structural advantages enjoyed by the industrial food system through subsidy policy, market concentration, and land commodification. Individual initiatives, however well-designed, remain fragile and marginal within this structure.

The transition pathway requires action at multiple levels simultaneously. At the initiative level, strengthening network infrastructure, cooperative legal forms, and member diversity can improve resilience. At the regional level, targeted support for alternative food networks through public procurement, land policy, and education can lower structural barriers. At the national and EU level, CAP reform, monopoly regulation, and cooperative enterprise law are the highest-leverage interventions, as well as the ones most resistant to change given existing political economies.

A tension running through the workshop discussions is worth flagging explicitly: the H2 interventions that would have the greatest structural impact (land reform, monopoly regulation, CAP reform) are also the ones furthest from the initiatives' own sphere of influence. The initiatives are most effective at demonstrating the alternative, building community, and generating political will, and less effective at enacting structural change directly. This points to the importance of connecting local initiative energy to broader political advocacy, which emerged organically in the workshop as a shared aspiration and where T4.3 (Amplification) comes in.

5.3.4. Reflection on the 3H Approach in DAISY

5.3.4.1. Overall 3H Experience

Fit with the case context: The 3H framework fitted the German case context well. All four initiatives have a conscious transformative orientation; they understand themselves as part of a broader movement working towards a different food system and were therefore comfortable with the framework's normative structure. The idea that H1 is problematic and H3 is desirable did not require justification; participants inhabited this framing naturally.

Value of the joint format: The joint format was particularly generative because the four initiatives, while operating at different ends of the food chain, are directly connected in practice: the CSA farms produce what the food cooperatives distribute and consume. This proximity meant that cross-supply-chain learning could happen in real time rather than through abstraction. At the same time, the two CSA farms and the two cooperatives could each learn from their counterparts within their own organisational type: through sharing a common model, Naderkau and KoLa operate at very different scales and stages of development, as do Rübchen and Koope, and each pair has developed distinct responses to similar structural problems – responses that the joint workshop made visible and comparable for the first time. Beyond learning, the workshop also facilitated the initiation of concrete collaborative arrangements between individual CSA farms and food cooperatives, pointing to the practical amplification potential of bringing these initiatives into direct dialogue.

Sequence of horizons: The deliberate sequencing of diagnosis before vision and vision before pathways worked well across all four groups. Beginning with H1 grounded the conversation in concrete experience. The H3 session gave participants permission to think beyond incremental adjustment; several noted that they rarely allow themselves to articulate visions at this scale in their day-to-day work. The H2 session benefited from having a clearly articulated desired future as its reference point, so that interventions were oriented toward H3 rather than merely alleviating H1 pressures.

Participation and voice: Within each sub-case group, facilitated discussion allowed most voices to be heard. The farmers in the CSA groups brought an operational and

ecological perspective that sometimes contrasted with the more politically-framed contributions from consumer/member participants, which was a productive tension rather than a problem. In the cooperative groups, participants were predominantly from the active core membership; wider member perspectives are not fully represented in the outputs. This limitation is worth noting for subsequent analytical work.

Biodiversity and equity: Both themes were addressed substantively, though with different weights across the two model types, as noted above. The structured B/C question labelling in the T4.2 protocol was helpful in ensuring that biodiversity and equity were not crowded out by the more immediately salient economic and organisational concerns. The CSA farms engaged biodiversity with greater ecological depth; the cooperatives engaged equity with greater structural critique. Neither theme was left superficial across the workshop as a whole.

What did not work well: Some sticky-note contributions were brief or ambiguous, reflecting the inherent tension between rapid collaborative documentation and nuanced discussion. Additional notes from the facilitator provide important additional context. The workshop format made it difficult to specify temporal sequencing within H2, since different levels of maturity led to various time frames and priorities when it came to the selection of measures. Furthermore, participants could identify interventions but found it harder to articulate in what order or on what timeline they should be enacted. The H2–/ H2+ distinction (what must phase out versus what enables the transition) was sometimes blurred in discussion, requiring active facilitation to disentangle.

5.3.4.2. TRD2 and TIMs

TRD2 was used during Session 2 of the workshop. All four sub-cases completed the diagnostic on mydaisy.eu. The tool asked participants to assess both the current and future (2050) potential of their initiative across three dimensions: equity (procedural, distributional, recognitional, capabilities), biodiversity (genetic, species, habitat, ecosystem), and transformation (personal, practical, political). The results reveal a striking pattern of differentiation between the two model types, and between current and future self-assessments, that both complements and adds nuance to the horizon narratives.

Both CSA farms scored exceptionally high on biodiversity in the current assessment (Naderkau: avg. 95; KoLa: avg. 95) and see essentially no room for further improvement by 2050 (Naderkau: 100; KoLa: 100). This confirms that participants regard biodiversity-friendly practice as already central to what they do, a self-assessment consistent with the ecological specificity of their H1 and H3 narratives. Equity scores are lower and show a slight decline from current to 2050 (Naderkau: 69→61; KoLa: 63→58). This counterintuitive result may reflect a realistic assessment that CSA farms are structurally oriented toward production rather than redistributive equity, and that equity improvements depend on system-level changes beyond the farms' own control. Transformation scores are similarly stable or slightly declining (Naderkau: current avg. 80, 2050: 78; KoLa: current avg. 81, 2050: 69), with political transformation scoring lower than personal and practical transformation in both cases, consistent with participants' acknowledgement in H2 that structural political change is the most distant and difficult lever.

The two food cooperatives show a sharply different pattern from each other, and both differ markedly from the CSA farms. Rübchen scored consistently high across all dimensions in the current assessment (equity avg. 80; biodiversity avg. 83; transformation avg. 62) and projects further substantial growth by 2050 (equity: 95; biodiversity: 95; transformation: 96). The near-ceiling 2050 transformation score, including political transformation at 96, reflects the explicitly transformative self-understanding that characterised Rübchen's H3 discussion. Koope, by contrast, scored strikingly low in the current assessment across all dimensions, especially equity (avg. 29) and transformation (avg. 26), with biodiversity at 59. Yet Koope projects a substantial leap by 2050 (equity: 67; biodiversity: 74; transformation: 86), including both personal and practical transformation reaching 100. This pattern of low current assessment combined with high future aspiration is analytically significant: it suggests that Koope participants are acutely aware of the gap between what their initiative currently achieves and what they believe it could become, and aligns closely with the ambitious tone of Koope's H3 vision. The low current equity score, in particular, may reflect an honest acknowledgement that Koope has yet to achieve genuine accessibility across socioeconomic milieus, an internal tension that surfaced repeatedly in the cooperative's H1 discussion.

The TRD2 exercise was most productive in Session 2, where it encouraged participants to articulate what a ‘mature form’ of their initiative would look like in concrete dimensional terms, a framing that proved useful for moving beyond incremental improvement towards genuinely H3-level visions. The dimensional structure (equity types, biodiversity levels, transformation levels) gave participants a vocabulary for aspects of their initiative they had not previously made explicit, particularly around distributional and recognitional equity. The divergence between current and future scores for Koope, and the flat equity trajectory for the CSA farms, generated productive discussion and pointed to structural dependencies that the initiatives alone cannot resolve. Some participants found the slider-based scoring format somewhat abstract, and the biodiversity questions in particular required facilitated explanation in the context of food cooperative work, where the connection to land management is less directly visible.

TIMs: The TIM list introduced at the start of Session 3 served as a productive reference frame, helping participants move from abstract H2 discussion toward named, concrete leverage points. The TIM categories resonated well with the intervention types participants had already identified organically in the horizon work, particularly around education, regulatory reform, and cooperative infrastructure. The TIMs identified by each sub-case are documented in Sections 3.1.3 and 3.2.3 above.

5.3.4.3. Contribution to Subsequent Tasks

The German case generates a distinctive contribution to the subsequent DAISY tasks. The four sub-cases, while individually small, collectively form a dense cluster of commons-based food governance innovations that map the production-to-consumption chain of a solidarity food system and illuminate both its transformative potential and its structural limits in a central European urban-rural context.

T4.3 (Amplification): The workshop identifies several concrete amplification entry points. At the initiative level, a shared platform connecting the four sub-cases for collective procurement, knowledge exchange, political advocacy, and joint public communication, which could strengthen all four simultaneously and model the CSA/ cooperative complementarity that participants envisioned. At the regional level, connecting the initiatives to Halle and Leipzig municipal food policy processes, agricultural chamber discussions on land policy, and regional educational

institutions (schools, Volkshochschule) appears both feasible and promising. Key actors to involve include food policy councils, municipal authorities (Halle and Leipzig), land reform advocates, and solidarity economy networks. At the policy level, the initiatives' experiences provide concrete evidence for CAP reform advocacy, cooperative law reform, and institutional procurement policy.

T4.4 (Cross-case learning): The German case is particularly productive for cross-case comparison on several dimensions: the tension between ecological ambition and financial precarity in commons-based food enterprises; the relationship between internal equity challenges and transformative ambition; the role of commons governance as an alternative to both market and state provisioning; and the structural complementarity between production-side and consumption-side alternatives. The CSA/food-cooperative pairing within a single case study is itself a comparative design feature that may have analogues in other DAISY cases and deserves explicit attention in the cross-case synthesis. The contrast between the farms' ecological specificity and the cooperatives' political-economic framing also raises interesting questions about how biodiversity and equity are framed across different actor positions in the food system.

T4.5 (EU policy): The German case surfaces several policy-relevant insights with EU-level applicability. The inadequacy of existing legal and fiscal frameworks for commons-based cooperative provisioning is a pan-European issue: many EU member states lack appropriate cooperative enterprise forms for initiatives like Rübchen and Koope. CAP reform, that is redirecting area-based subsidies, toward ecological and small-scale farming, is the most frequently cited EU-level intervention across the workshop outputs. The role of institutional food procurement (public canteens, schools, hospitals) as a demand-side driver for regional ecological food is an underexplored EU policy lever that the German case highlights clearly. Finally, the case illustrates that transitions toward commons-based food governance require not just enabling conditions for the alternative, but also constraining conditions for the incumbent industrial system. This is a political framing that EU policy discourse tends to sidestep, but one that the workshop participants across all four sub-cases articulated with consistency and clarity.

6. Seed Innovation 04: Meet je Landschap— Monitoring Green-Blue Veining in Utrecht Province

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6.1. Case introduction

The Wageningen Research (WR) case focuses on Meet je Landschap [Measure your landscape], an innovative citizen-science-based monitoring approach for green-blue veining (GBDA) in the province of Utrecht. Green-blue veining refers to networks of small landscape elements – such as hedgerows, tree lines, ditches, and ponds – that support biodiversity, ecological connectivity, and landscape quality. Since 2013, the project has been coordinated by Landschap Erfgoed Utrecht (LEU).

The Netherlands introduced a national strategy for green-blue veining in 2022 through the Nationaal Programma Landelijk Gebied [National Programme for Rural Areas – NPLG]. In this context, a target of 10% natural landscape elements in rural areas was set, herewith aligning with major EU biodiversity and climate frameworks. Although the NPLG was later discontinued, the province of Utrecht continues pursuing its goals. For monitoring, the national government currently favours LASREG, a remote-sensing-based tool that offers rapid, quantitative mapping but does not capture all landscape elements or qualitative aspects. With the alternative approach of Meet je Landschap, a network of trained volunteers plays a central role. Equipped with tablets, they collect field data on the presence and condition of landscape elements. This would allow the LASREG data to be properly validated and improved.

The project Meet je Landschap stands out for its combination of citizen participation, digital technology, and multi-stakeholder collaboration. Key innovations combine comprehensive quantitative and qualitative data collection, dashboard-based visualisation of action perspectives and volunteers acting as intermediaries with landowners. A notable feature is that the entire landscape elements have been mapped across the entire Province of Utrecht. Furthermore, Meet je Landschap is embedded in the green-blue veining platform (GBDA-platform) that the province of

Utrecht has established to strengthen cooperation among stakeholders for the realisation of green-blue veining.

In this case study, we zoom in on an existing pilot in the area Oudewater-Noord of Hoogheemraadschap Stichtse Rijnlanden [Water authority Hoogheemraadschap De Stichtse Rijnlanden – referred to as the water board], in which three farmers are exploring ways to create and manage nature-friendly foreshores. Here, LEU collaborates with the province of Utrecht, the water board, two volunteers, and one farmer to co-develop a monitoring approach based on Meet je Landschap specific for the blue veining, which is still missing and much more complicated than for the green veining.

6.2. Methodology and Workshop Setup

The workshop was conducted as a facilitated in-person session on 26 May 2026 at one of the participating farmers' premises in Hekendorp, the Netherlands. The session consisted of a half-day programme combining a structured Three Horizons workshop with an on-site field tour. After the workshop, the hosting farmer guided participants along the newly created nature-friendly foreshores and demonstrated his ongoing experiments to curb invasive crayfish, providing a direct link between strategic discussion and practical landscape management. Participants included the LEU project coordinator, a representative from the Stichtse Rijnlanden water board, and two volunteers involved in the monitoring initiative. The provincial representative had to cancel due to illness. WR organised and facilitated the session with a three-person team responsible for facilitation, recording, and minute-taking.

In preparation, WR adapted the Three Horizons (3H) framework to the specific context. The customised design centred on exploring long-term ambitions (Horizon 3), identifying transition pathways and barriers (Horizon 2), and reflecting on elements of the current system to retain or phase out (Horizon 1). The workshop lasted three hours and opened with a collective update exercise in which participants added developments to a timeline, building on insights from the Learning History workshop held in October 2025. This activity refreshed shared understanding and created a starting point for forward-looking reflection.

The session was structured around seven guiding questions. Participants first envisioned the future mature and ideal system of monitoring and realising green-blue veining in Utrecht and identified existing practices that already point toward this future—so-called inspiring examples of change. Next, they explored transition dynamics: obstacles that hinder progress, conditions that could accelerate change, and the actions or interventions required to move from the present toward the envisioned future. Finally, participants reflected on the current system, discussing which practices, structures, or routines should be phased out, and which should be retained because they remain valuable in the desired future.

The workshop was facilitated by a team with clearly defined roles. The main facilitator guided the discussion and posed the core questions, while co-facilitators supported by probing for clarification, clustering ideas, and documenting insights. Participants worked with colour-coded Post-its to place their ideas on the horizon map, first individually and then collectively through a round of discussion. After the initial brainstorming, the facilitation team enriched the dialogue with examples, earlier analyses, and relevant theoretical concepts to deepen and broaden the conversation.

As the workshop was time constrained, we asked the participants to fill out the TRD2 in advance. After having difficulty, a WR researcher had a bilateral meeting with one of the participants and they discussed and filled out the TRD2 together. The TIMs were part of our presentation introducing the seven questions related to the three horizons. Also, we provided some examples of possible TIMs for this case.

6.3. Results of the Three Horizons Workshop

A visualisation of the 3H poster developed during the discussions is shown in Figure 11. Below we elaborate on the discussion in each Horizon.

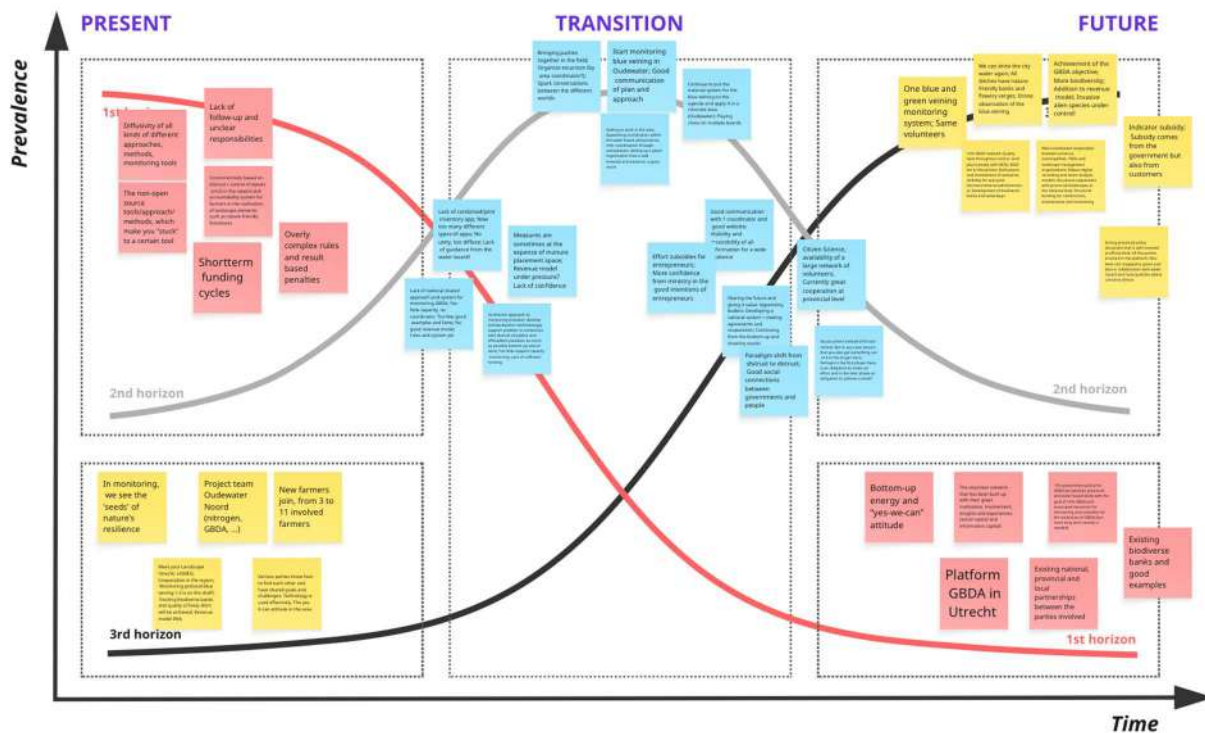


Figure 11: Digital capture of the 3H poster in discussions. The labels of present, transition and future refer to the H1, H2 and H3 respectively

6.3.1. Current system analysis (H1)

The current practice around the monitoring of blue veining in Oudewater-Noord reflects a fragmented yet gradually evolving system in which multiple actors take initiative, but without a fully coherent structure. Since July 2024, collaboration between LEU and the water board has initiated efforts to develop a monitoring approach. In 2025, two volunteers of LEU began mapping biodiversity in local ditches using a combination of existing tools, including the Naturalis riparian plant tool and the ‘Measure Your Water Quality’ tool. At the same time, exploratory steps were taken to include innovative methods such as environmental-DNA (eDNA) sampling. Parallel to these grassroots efforts, the water board commissioned a consultancy study to clarify definitions and propose a monitoring approach, which resulted in a report delivered in April 2026. These developments illustrate that experimentation and technical exploration are actively taking place and form a strong basis for future progress.

Additionally, at the national level, developments such as the introduction of LASREG satellite-based data, funded by the Ministry, indicate an increasing push

towards standardisation and scalability of the monitoring. This push could risk losing information of local finer scale data, but efforts to combine the quantitative data with qualitative datasets collected by volunteers show that integration of knowledge systems is already explored.

On the implementation side, concrete achievements are visible, particularly through farmer engagement. Farmers have successfully applied for and implemented subsidies for nature-friendly foreshores, resulting in nearly 10 kilometres being realised in Oudewater-Noord. This demonstrates that financial instruments and farmer willingness can function effectively when aligned.

What is working and what is locked-in?

Despite these positive developments, the system remains partially locked into institutional fragmentation and procedural inertia. While multiple tools and datasets exist, such as LASREG data, field observations with all kinds of tools, and emerging eDNA techniques, these are not yet integrated into a single, operational monitoring framework. Moreover, the three-track approach identified by the water board, combining satellite data, field validation, and future eDNA applications, remains conceptual rather than fully implemented. Certain tools, such as the Floron's riparian plant index suggested by the water board, are perceived by volunteers as ineffective in practice (because the present species are not included in this index), which further limits coherence in data collection.

Another structural lock-in is the reliance on formal procedures and institutional timelines. For example, farmers experienced long waiting periods for permits, and follow-up actions on reports and earlier initiatives have been slow. While there is clear ambition at national level, including plans to refine LASREG data with fieldwork and improve methodologies, these processes take time and create a gap between vision and local practice.

Business as usual mode is losing its fit with emerging conditions

The current way of working is increasingly losing its fit with emerging conditions that require speed, integration, and collaboration. While technological possibilities are expanding, through satellite monitoring, drones, and eDNA, the institutional system struggles to keep pace. Volunteers, who play a crucial role in data collection, face uncertainty due to a lack of feedback and continuity. Since October 2025,

monitoring activities in Oudewater have effectively stalled, with no clear communication or follow-up from responsible organisations. This undermines motivation and weakens the potential of citizen science as a driving force.

At the same time, expectations for national coordination and standardisation are rising. Stakeholders increasingly recognise the need to combine datasets and approaches, yet the absence of a unified system means that local initiatives remain isolated. This misalignment between growing technical possibilities and limited organisational capacity highlights a critical tension in the current system.

Constraints on transition

Participants identified several key constraints that hinder progress beyond the current state. Most notably, there is a lack of a clear coordinator or 'owner' responsible for driving the monitoring pilot forward. This absence of leadership has resulted in stagnation, despite the availability of tools, data, and motivated actors. In addition, communication gaps between organisations and volunteers limit transparency and trust, further constraining collaboration.

Technical uncertainty also forms a barrier. While new methods such as eDNA offer potential, they are not yet fully validated, and existing tools do not always meet user needs. Institutional constraints, including limited capacity within the water board and slow decision-making processes, further restrict momentum. Finally, although national-level initiatives are ongoing, there is a temporal mismatch between long-term development trajectories and the immediate needs of local pilots like Oudewater.

Overall, business as usual is characterised by a mix of promising initiatives and persistent structural barriers. While progress is visible in both practice and innovation, the lack of coordination, integration, and timely action is preventing the system from fully adapting to new opportunities and emerging demands.

Phasing out ineffective practices

Although H1 was not explicitly discussed during the workshop, participants' reflections implicitly revealed which aspects of the current system are no longer fit for purpose. A key issue is the persistent lack of follow-up and unclear distribution

of responsibilities, which leads to stagnation and missed opportunities. This is reinforced by the fragmented landscape of monitoring approaches, where a wide variety of methods, tools, and frameworks coexist without alignment. Such diffuseness creates inefficiency and confusion, particularly when combined with the use of closed, non-open-source tools that lock users into specific systems and limit flexibility.

Another practice that participants see as unsustainable is the strong reliance on control mechanisms based on distrust, especially within reward and accountability systems for farmers. Control at an overly detailed level and linking rewards strictly to measurable outcomes can undermine trust and discourage participation. This is further exacerbated by short-term funding cycles, which prevent continuity and long-term commitment. Complex regulations and result-based penalties also add to the burden, reducing motivation and making the system less adaptive to real-world conditions.

Maintaining valuable foundations

At the same time, participants emphasised that important elements of the current system should be preserved and strengthened. One of the most valuable assets is the established network of volunteers, whose motivation, knowledge, and experience represent both social and informational capital. This bottom-up engagement is complemented by existing government policies at national, provincial, and water board levels, particularly the shared ambition to achieve 10% GBDA, supported by funding for monitoring and implementation. While additional financial resources are needed, the policy framework itself provides a solid foundation.

Further strengths include the GBDA platform in Utrecht and the existing collaboration structures on the national level, such as Deltaplan Biodiversity Recovery, which facilitate coordination and knowledge exchange. The prevailing 'can-do' attitude and bottom-up energy among the stakeholders in Oudewater are also seen as essential drivers of change. In addition, existing examples of biodiverse practices and successful initiatives demonstrate that progress is possible and provide inspiration for scaling up.

Overall, H1 highlights a system that contains strong social infrastructure and institutional commitment, but is constrained by structural inefficiencies that limit its ability to respond effectively to current challenges.

6.3.2. Desired future visions (H3)

In its desired, mature form, the monitoring and realisation of GBDA in Utrecht has evolved into a highly coordinated, transparent, and effective system that integrates ecological, technological, social, and economic dimensions. At its core, this future is characterised by a single, unified monitoring system for both green and blue veining. This system is accessible and widely used by a stable and engaged network of volunteers, whose long-term involvement provides continuity, local knowledge, and a strong foundation for citizen science. Monitoring has become both efficient and meaningful, based on advanced technologies such as satellite images and drone-based observation and complemented by fieldwork, and enable a comprehensive understanding of landscape dynamics.

Technological innovation plays a critical role in this mature system. Advanced digital infrastructure allows for reliable data collection, real-time visualisation, and smart analysis of ecological trends. Satellite data, field observations, and other monitoring methods are seamlessly integrated, providing a comprehensive and accessible overview of the state of the landscape. More than 6,000 kilometres of blue infrastructure have been mapped and are continuously monitored, making results visible to farmers, citizens, and policymakers alike. This transparency fosters trust, engagement, and collective responsibility.

Ecologically, the landscape has undergone a visible transformation. All ditches are equipped with nature-friendly banks and surrounded by flower-rich verges, contributing to a significant increase in biodiversity. Water quality has improved to such an extent that urban water bodies are once again clean and resilient. Invasive species are effectively managed, allowing native ecosystems to flourish. These developments contribute directly to achieving broader environmental goals, including compliance with water quality standards and the realisation of at least 10% GBDA across the region. The ecological quality of water bodies has reached a consistently 'lively' or even 'highly lively' standard, reflecting a healthy and biodiverse system.

From an **economic** perspective, GBDA has become an integral part of a viable agricultural model. Farmers are not only contributors to biodiversity but also beneficiaries of a diversified income stream. Compensation systems are based on indicators and supported by both public subsidies and private contributions from supply chain actors. This shared responsibility ensures a stable and fair financial foundation for the implementation and maintenance of green-blue landscape elements. The success of these arrangements has encouraged more farmers to participate, creating a positive scaling effect and reinforcing the integration of agriculture and biodiversity.

Institutionally, the system is underpinned by strong governance and collaboration. Nationally, there is clear coordination between provinces, municipalities, water boards, and land management organisations. In the province of Utrecht, there is a well-established platform that connects and supports all relevant stakeholders. This platform facilitates knowledge exchange, aligns objectives, and strengthens partnerships at both regional and local level. A robust provincial policy framework, firmly embedded within administrative structures, provides strategic direction and ensures continuity. At the same time, long-term funding mechanisms support the ongoing implementation, maintenance, and monitoring of GBDA, enabling sustained progress.

Importantly, this future is not detached from the present but builds on inspiring practices of change already pointing toward this future. Current initiatives, such as the 'Measure Your Landscape' project, the availability of LASREG data, and regional collaboration efforts, already demonstrate the potential for integrated monitoring and cooperation. Pilot projects like Oudewater-Noord show how stakeholders can come together around shared challenges, while existing biodiverse banks and successful examples prove that ecological improvements are achievable. The growing number of participating farmers and the prevailing 'can-do' attitude in the region further illustrate the potential for change.

In this mature H3, GBDA in Utrecht represents a well-functioning socio-ecological system in which technology, policy, and community engagement are fully aligned. Biodiversity is enhanced, water quality is restored, and monitoring is both robust and participatory. Above all, the system is characterised by shared ownership, long-

term vision, and the confidence that a sustainable and biodiverse landscape is not only desirable but also achievable.

6.3.3. Transformation pathways and TIMs (H2)

What barriers are holding back the realisation of this future?

H2 revealed a range of systemic barriers that currently prevent meaningful progress, while also highlighting the conditions and actions that could help unlock the transition. One of the most prominent challenges is the fragmented monitoring landscape. At present, there are numerous applications, tools, and methodologies in use, but no unified system that brings them together. This lack of national standardisation creates confusion and inefficiency, particularly for volunteers who are faced with navigating multiple approaches instead of working within a clear and consistent framework.

Technical limitations also play a role in constraining progress. Existing tools, such as Floron's riparian plant index, do not perform effectively in Oudewater, while promising innovations like eDNA have not yet been fully validated. Additionally, systems like LASREG lack the species-level detail needed for accurate monitoring, limiting their usefulness for decision-making and policy development. Validation of these data through fieldwork could be a solution.

In addition to fragmentation and technical limitations, there is a clear lack of coordination and capacity. No single actor has yet been designated as the central coordinator for blue veining monitoring in the pilot of Oudewater, which results in unclear responsibilities and slow decision making. At the same time, the water board and province face shortages of capacity, limiting their ability to follow up on earlier initiatives. This combination of unclear leadership and insufficient capacity significantly slows progress.

Insufficient long-term funding leaves farmers without a sustainable economic model to support their efforts. Without structural investment, it is difficult to build continuity or scale up successful practices. Another important barrier for the realisation of GBDA is the trust gap combined with regulatory burden. Farmers often feel over-controlled and under-trusted, which undermines their willingness to participate. Current systems that rely on result-based obligations can

unintentionally 'penalise' farmers for factors beyond their control, such as weather conditions. Furthermore, complex regulations reduce motivation and encourage farmers to outsource responsibilities rather than engage directly, weakening their sense of ownership.

What conditions could stimulate the realisation of this future?

Despite these challenges, several enabling conditions emerged that could accelerate progress. Clear communication, supported by a single coordinating body and a well-structured central platform and website, would improve collaboration. Increasing the visibility of results can motivate both volunteers and farmers by making their contributions tangible. Effort-based compensation schemes could provide fairer incentives, while strong bottom-up energy and local collaboration offer a solid foundation for change. Citizen science is widely seen as a strength that can be further leveraged. Importantly, a broader paradigm shift from distrust to trust is needed to rebuild relationships between stakeholders. Social control and informal accountability may also support this shift, although opinions on this differ. Finally, longer funding cycles—extending to twenty years rather than the current five to six years—would provide the stability required for sustained progress.

What approaches and actions are needed to realise this desired future?

To move forward, participants proposed several concrete actions. A practical first step would be to just begin monitoring blue veining in Oudewater using and improving the tools and knowledge that are already available, rather than waiting for a perfect system. Strengthening the organisational structure, with a clear vision and mandate, is essential, alongside the appointment of dedicated coordinators within both the water board and province. Building trust and mutual understanding between stakeholders can be supported through excursions and field visits. At the same time, efforts should continue to develop a national system, which can be tested in pilot areas like Oudewater to refine its effectiveness. Improving communication and transparency at all levels is crucial, as is combining satellite data with on-the-ground validation, while continuing to explore eDNA as a potential future addition.

Overall, Ho2 makes clear that the transition depends not only on technical solutions, but also on institutional clarity, trust-building, and a willingness to experiment in practice.

Which Transformative Intervention Mixes (TIMs) were identified?

The discussion identified a set of TIMs spanning multiple domains that together can drive progress. From a regulatory perspective, there is a strong need for coherent policy that provides a clear vision, a defined mandate, and sufficient resources to support implementation. Financially, provincial subsidies for landscape elements were highlighted as an important lever, next to effort-based compensation for farmers realising landscape elements.

In terms of communication and information, building trust and shared understanding between stakeholders is essential. This can be achieved by organising excursions and field visits, while also improving communication and transparency across all governance levels. Broader societal awareness of GBDA should be enhanced through communication campaigns that use media, storytelling, and public engagement activities to highlight the importance and opportunities of GBDA. Institutional and organisational infrastructure also plays a key role. Strengthening governance structures with clear mandates, appointing coordinators within the water board and province, and continuing to work towards a national system – —tested in pilot areas – are all crucial steps. Additionally, continuing the results of the existing working group to integrate quantitative (LASREG) and qualitative monitoring systems (fieldwork by volunteers), and activating the existing GBDA platform in Utrecht with formal capacity and mandate, would facilitate collaboration and knowledge exchange.

Technological interventions focus on improving monitoring and feedback systems. Combining satellite data with field validation and exploring eDNA as a future tool can enhance data quality, while rapid feedback mechanisms that visualise monitoring results in near real-time can help maintain engagement among stakeholders. Knowledge sharing is equally important, as the exchange of information and data can reshape perceptions of the landscape and support better decision-making. At the level of choice architecture, there is potential to influence consumer behaviour by making the impact of agricultural production visible,

allowing consumers to choose products linked to more landscape-friendly farming practices. Social norms also can play a critical role, as farmers can inspire each other through leading by example, creating a snowball effect. Finally, emotional engagement should not be overlooked: by using well-designed tools, such as apps that directly show volunteers and farmers the impact of their actions, a sense of pride and motivation can be fostered, reinforcing participation and long-term commitment.

6.4. Discussion

The 3H workshop revealed five transition pathways that connect the fragmented present to the shared long-term vision for an integrated, effective, and socially supported system for monitoring and realising GBDA in Utrecht. These pathways reflect the interplay between governance, technology, ecology, and social dynamics.

Pathway 1: Building One Integrated Monitoring System

Participants consistently emphasised the need to move from today's fragmented landscape of tools and methods toward a single, unified monitoring system for both green and blue veining. The transition involves developing a standardised method, combining LASREG satellite data with field validation by volunteers, and exploring future additions such as eDNA. This pathway leads to a future where monitoring is accessible, reliable, and transparent for farmers, volunteers, and policymakers alike.

Pathway 2: Scaling Citizen Science as an Important Monitoring Pillar

The region's strong volunteer network is a powerful asset. This pathway focuses on strengthening and expanding citizen science by improving tools, providing training, improving and delegating coordination, and ensuring long-term support. The future system positions citizen science as an important component of monitoring, through the validation of automatically generated quantitative data, enabling high-quality data collection and fostering broad societal engagement.

Pathway 3: From Regional Practice to a National Framework

Utrecht is well-positioned to serve as a 'living lab' for national system development. This pathway focuses on using regional pilots like Oudewater to inform a national standard for blue-veining monitoring, aligning with national initiatives such as the

Deltaplan Biodiversity Recovery. The transition requires continued advocacy, knowledge sharing, and collaboration across water boards, municipalities, provinces and national bodies. The future system is coherent, scalable, and grounded in practical experience.

Pathway 4: Achieving Ecological Quality at Landscape Scale

Participants expressed a clear ecological ambition: nature-friendly banks everywhere, clean water, thriving biodiversity, and invasive species under control. The transition involves piloting and validating models for ditch bank management, securing long-term financing, and integrating biodiversity goals with water management. This pathway leads to a future where ecological quality is visible, measurable, and widely supported.

Pathway 5: Strengthening Trust and Social Infrastructure

A major barrier identified was the trust gap between farmers and institutions, reinforced by complex rules and result-based controls. The transition requires a shift toward trust-based governance, supported by field visits, direct communication, and long-term effort-based incentives. In the envisioned future, collaboration is grounded in mutual understanding and respect, shared responsibility and a culture of learning rather than control.

Together, these pathways show that the transition toward a mature GBDA monitoring system requires integration, coordination, trust-building, and long-term commitment. The inspiring examples of this future already exist in Utrecht's collaborative culture, volunteer network, and the pilot in Oudewater. The challenge now is to connect these elements into a coherent, strategic transition that bridges the gap between today's fragmentation and tomorrow's integrated system.

6.5. Reflection on the 3H approach of the workshop

6.5.1. 3H overall experience

The 3H framework proved to be a good fit for the specific context of this case study, as it brought together participants who are already collaborating in an ongoing pilot while still being in a developmental phase. By working through the horizons, participants were able to articulate a shared ambition, identify barriers and enabling

conditions, and outline actions for transformative change. Importantly, the framework helped them to collectively envision a future that they had not explicitly formulated together before. Participants reflected positively on this process, noting that it was both surprising and reassuring to discover how closely aligned their visions were. Capturing these shared ambitions on paper created a stronger sense of direction and collective ownership.

Intuitiveness and accessibility of the framework: For most participants, the 3H framework was not immediately intuitive, as they are not accustomed to working with academic or conceptual tools of this kind. Considerable effort was therefore made to translate the framework into a practical and accessible format tailored to their context. While discussing a desired future vision (H3) came naturally to participants, systematically reflecting on the other horizons proved more challenging. Overall, the framework was experienced as quite extensive, especially for a group that prefers action over reflection. This highlighted the importance of balancing data collection needs with the capacities and preferences of participants, ensuring that the process remains meaningful and beneficial for them rather than purely extractive.

Sequence and process design: The workshop did not follow the standard H1–H3–H2 sequence. Instead, it began with an update of the current situation to create a shared understanding of recent developments. This was followed by envisioning the desired future (H3), identifying the changes needed to reach that future (H2), and finally reflecting on which elements of the current system should be retained or phased out (H1). This adjusted sequence proved effective, as it placed a positive and inspiring future at the centre rather than starting with current challenges. However, due to time constraints and declining concentration levels, H1 received less attention. Some overlap also emerged between elements of H2 and H1, particularly regarding barriers and phase-out elements, and also stimulating aspects and required actions showed overlap, which occasionally made discussions repetitive.

Participation and inclusivity of perspectives: The workshop brought together representatives from the water board, the provincial nature management organization that developed the ‘Measure Your Landscape’ project, a farmer, and two volunteers from the ‘Measure Your Landscape’ project. The use of individual

input methods, such as sticky notes prior to plenary discussion, helped ensure that all voices were heard. Contributions during discussions were balanced, with no single participant dominating the conversation. Although volunteers were slightly overrepresented numerically, they consciously aimed to present a unified perspective. Overall, participants complemented each other's expertise, leading to a holistic future vision that integrated technical, ecological, social, and economic dimensions.

Dialogue and knowledge generation: The workshop created a constructive and open space for dialogue, allowing participants to share and compare their visions. However, these discussions largely confirmed existing views rather than generating entirely new insights. The strong alignment of participant perspectives contributed to a positive atmosphere but also meant the workshop served more as validation and consolidation of shared ideas than as a source of fundamentally new knowledge.

Attention to biodiversity and equity: Biodiversity was a central theme throughout the workshop and was clearly defined as the primary objective of the shared future vision. Considerations of equity were addressed more indirectly, mainly in relation to fair compensation for farmers contributing to biodiversity enhancement. In this sense, equity was framed as a means to support biodiversity goals rather than as a standalone objective.

Challenges and actionability of outcomes: Time constraints represented the main limitation of the workshop. While extending the session might have allowed for deeper exploration, this was not feasible due to participants' high workloads and declining concentration levels. As a result, not all elements of the Three Horizons framework could be explored in depth, particularly with regard to concrete pathways and interventions. Participants found it difficult to translate their ambitious future vision into specific, actionable steps. This difficulty can be explained by limited available capacity within the water board and province, as well as the complexity of imagining linear pathways within an uncertain and evolving governance context. Although participants recognised that incremental steps are valuable, defining a structured transition pathway proved challenging.

Limitations of the framework: The 3H framework struggled to fully capture the operational realities of the case, particularly the complexity of translating long-term visions into short-term actions within a constrained institutional setting. While it was effective in structuring reflection and alignment, it was less suited to detailing concrete, feasible steps under conditions of limited capacity and ongoing uncertainty.

6.5.2 TRD2 and TIMs

As mentioned in 6.2, only one participant responded to our request to fill out the TRD2 tool. er. According to the participant, the TRD2 helped to develop more concrete thoughts and a broader perspective on the desired and mature future; it did not cause confusion. Especially, the conversation following the questions helped with the development of ideas. As was also noted though, the diagram does not actually reflect the richness of that conversation.

The TIMs were part of our presentation and they helped to structure the actions that were mentioned and also to complement them, especially in the less obvious categories of interventions such as choice architecture, social norms and emotions.

6.6. Contribution to subsequent tasks

Promising Amplification Opportunities (T4.3)

This case highlights several promising amplification opportunities that can inform T4.3. A key opportunity lies in scaling up the integration of monitoring approaches by combining satellite data, field observations from volunteers, and emerging technologies such as eDNA. This integrated approach not only improves data quality but also strengthens engagement by linking high-tech systems with citizen science. Another important opportunity is the establishment of a clear governance structure with designated coordinators at regional and provincial levels, which could significantly improve follow-up, accountability, and continuity. Additionally, the strong 'bottom-up' energy observed in the pilot – particularly among volunteers and farmers – offers potential for broader societal mobilisation if supported through clear communication, visible results, and fair compensation mechanisms. These elements together suggest that amplification should focus on aligning technical innovation with social organisation and institutional support.

From the perspective of T4.3, the workshop identified concrete entry points for dialogue between regional actors and national policymakers. The ongoing development of a national monitoring system provides a natural interface where lessons from pilots such as Oudewater can inform policy design. Key actors to involve in such a dialogue include water boards, provincial authorities, volunteer networks, farmers, research institutions, and private data providers such as NEO which is Dutch Geo-ICT and Earth observation company that processes environmental data. Existing platforms, such as the GBDA platform in Utrecht and connections to the Deltaplan Biodiversity Recovery, could serve as bridging structures to facilitate this exchange and ensure that local experiences are translated into national strategies.

Contribution to Cross-Case Learning (T4.4)

This case offers valuable insights for cross-case comparison, particularly regarding the interplay between social and technological innovations. A central pattern is the tension between advanced monitoring technologies and the institutional capacity required to implement them effectively. While tools such as satellite data and eDNA hold great promise, their impact is limited without coordination, validation, and user-friendly integration into practice. Another relevant mechanism is the critical role of trust and social dynamics, especially in relation to farmers and volunteers. The case shows how distrust, regulatory pressure, and lack of feedback can undermine participation, whereas transparency, recognition, and shared ownership can strengthen engagement.

In terms of power dynamics, the absence of a clear coordinating actor reveals how fragmentation can stall progress even when technical and financial resources are available. Equity considerations also emerge, particularly around fair compensation for farmers and the distribution of responsibilities between institutional actors and citizen scientists. These dynamics are highly relevant for comparison with other cases, such as those in the UK and Hungary, where similar challenges around monitoring, governance, and stakeholder engagement are likely to arise.

Contribution to EU Policy (T4.5)

Several findings from this case have clear relevance beyond the local context and can inform EU-level policy discussions. The need for a harmonised yet flexible monitoring framework is particularly important, as fragmentation and lack of standardisation are recurring barriers. At the same time, the case highlights that technological solutions alone are insufficient; effective policy must also address governance structures, long-term funding, and stakeholder trust. TIMs such as integrated monitoring systems, strong coordination mechanisms and effort-based compensation could serve as building blocks for a broader EU action agenda.

Moreover, the case underscores the importance of long-term funding cycles and stable institutional support to enable sustained ecological transformation. The combination of public subsidies and private contributions to support farmers points to innovative financing models that could be explored at EU level. Finally, the emphasis on citizen science and stakeholder collaboration offers valuable lessons on how to align top-down policy objectives with bottom-up engagement, which is essential for achieving large-scale biodiversity and water quality goals across Europe.

7. Seed Innovation 05: Budapest Degrowth Doughnut

Veronika Kiss & Máté Fischer

7.1. Case introduction

The Budapest Degrowth Doughnut (BDD) case is an urban seed innovation within the DAISY project that explores how local sustainability transformations in Budapest, Hungary, can be reoriented toward biodiversity, equity and wider transformative change. The initiative builds on the Doughnut Economics perspective but is specifically framed in this workshop as a practical governance tool for developing a biodiversity- and equity-oriented future pathway for the city, rather than only as a conceptual critique of growth-led development. The workshop focused on the urban domain and treated the BDD as a case that already has strategic relevance in Budapest but still requires further operationalisation through clearer visions, intervention pathways and institutional anchoring.

The workshop brought together core actors around the BDD case to reflect collectively on present challenges, future possibilities and transition pathways. According to the workshop reflections, a small participatory group of three participants engaged directly with at least some parts of the TRD process, while the broader workshop involved different types of actors connected to the case, including municipal and civil-society perspectives reflected in the notes and examples discussed. The agenda indicates that the event was designed as a structured in-person future perspectives workshop with dedicated sessions on the current system, future visions, transformative interventions and reflection.

7.2. Methodology and Workshop Setup

The BDD Future Perspectives Workshop took place on 16 April 2026 as an in-person event at Impact Hub, Wesselényi street 17, Budapest, between 09:00 and 14:00. Core group of the BDD seed innovation participated in the event: representatives from Corvinus University of Budapest, Municipality of Budapest, Public Transport Company of Budapest. The workshop agenda was organised around the 3H framework and combined plenary orientation with four substantive sessions: H1 on current challenges, H3 on the mature future vision, H2 on barriers and transformative interventions, and a final reflection session. The workshop also included short presentations of the TRD2 and the TIMs, linking broader future visioning to DAISY's analytical tools for assessing transformation in relation to biodiversity and equity.

The background note of the event makes clear that the purpose of the workshop was not only to imagine a desirable future but also to translate the BDD seed into a more operational pathway for local sustainability transformations. In this sense, the 3H sequence was used to move from present-day constraints and lock-ins to a mature and desirable future, and then to the enabling conditions and intervention bundles needed to bridge the two. Documentation followed a colour-coded Post-it system: red notes were used for H1 and for the retained characteristics in Session 4C, yellow notes for H3 and the inspiring examples in the present, and blue notes for H2, including barriers, enabling conditions and TIMs labelled as H2+ or H2-.

7.3. Results of the Three Horizons Workshop

Figure 12 shows the completed 3H poster from the Budapest workshop, documenting participants' contributions across all three horizons. Post-it contributions are colour-coded by horizon: red for H1 (current challenges), yellow for H3 (future vision and inspiring examples of change in the present), and blue for H2 (barriers and transformative interventions). The following sections synthesise and discuss these contributions horizon by horizon.

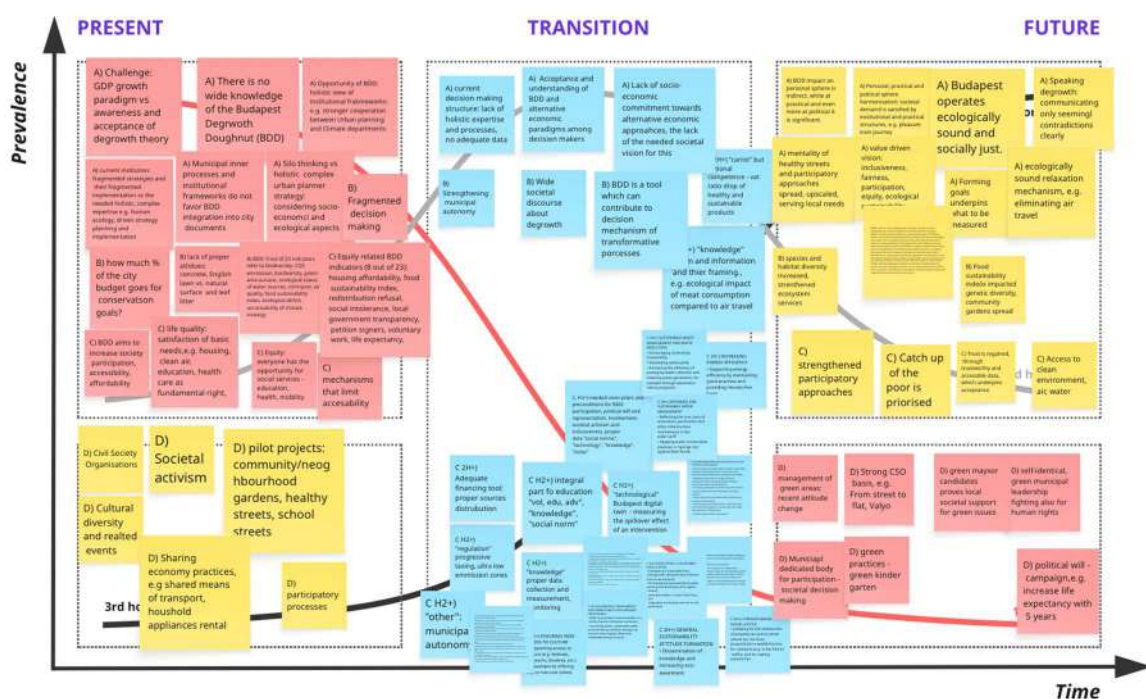


Figure 12: Three Horizons workshop poster (Budapest Degrowth). Due to image resolution, individual Post-it contents are not fully legible here; the full transcription of all contributions is provided in Zenodo.

7.3.1. Current system analysis (H1)

The H1 discussion revealed a strong sense that 'business as usual' in Budapest remains dominated by the GDP growth paradigm and by institutional arrangements that do not support holistic, biodiversity- and equity-oriented urban transformation. Participants described the current system as fragmented, siloed and poorly equipped to integrate the BDD into city strategies or decision-making routines. Municipal processes were seen as inhospitable to complex sustainability thinking, and a lack of adequate data as well as integrated and holistic expertise was repeatedly identified as a barrier to systemic planning.

At the same time, the discussion suggested that the BDD addresses real and increasingly visible mismatches between existing governance practices and emerging ecological and social conditions. Participants linked the current system to overuse of resources, social and ecological exploitation, weak solidarity with both vulnerable residents and nature, and an erosion of civic activism and sense of belonging. The poor state of rivers, ecological deficit and uneven provision of green spaces were seen as practical signs that the current urban model is losing its fit with long-term liveability and resilience goals.

What is working in the current system appears limited but important. Participants still saw value in the principle of local self-government, in existing civil-society initiatives and in early shifts in attitudes toward greener urban management. However, these elements remain partly locked in by structural conditions: national-municipal tensions, fragmented governance, low public familiarity with the BDD, insufficient social legitimacy for alternative economic models and limited institutional capacity to move from theory to implementation.

Biodiversity and equity were not treated as side themes but as constitutive dimensions of the current-system diagnosis. Biodiversity already features strongly in BDD-related indicators, including biodiversity status, ecological water quality, green surface area and food sustainability, yet participants questioned whether current budgeting and attitudes to urban nature actually support biodiversity goals. Equality was framed around housing, clean air, health, education, mobility, affordability and participation, with the workshop notes stressing that rebuilding trust, ensuring accessible data and prioritising the 'catching up' of poorer groups through mechanisms of redistribution are necessary to prevent transformation from reinforcing existing inequalities.

7.3.2. Desired future visions (H3)

The H3 discussion grounded a mature future in concrete inspiring examples of the future already visible in Budapest, articulated a mature future in which Budapest operates as an ecologically sound and socially just city, guided by the BDD as a practical framework. In this future, cultural, ecological and built-environment diversity is understood as a practical strength: healthy streets and school streets are no longer isolated pilots but citywide standards, community and neighbourhood

gardens form a continuous green network, and initiatives such as From Street to Flat or Valyo help weave social support and riverfront revitalisation into everyday urban life. Policy is explicitly value-driven – inclusiveness, fairness, participation, equity and ecological sustainability are used as decision principles – and this is visible in how transport, housing, food and public spaces are organised: pleasant, affordable train journeys replace short-haul flights for leisure, safe walking- and cycling-first corridors connect districts, and school playgrounds prioritise shade, biodiversity and child-friendly, low-impact design over asphalted surfaces. Participants thus imagined a city in which personal, practical and political spheres are better aligned because residents' everyday needs – mobility, housing, recreation and culture – are increasingly met through these lower-impact infrastructures and public services, reducing dependence on environmentally destructive or socially exclusionary forms of provision. In biodiversity terms, the mature BDD future implies stronger ecological resilience, better condition of urban waters, more diverse and better managed green spaces, and increased species and habitat diversity. Nature-based solutions and biodiversity restoration were not seen as isolated environmental measures but as integrated parts of a liveable city and of a healthier urban metabolism. In equity terms, the vision includes universal access to basic needs such as affordable housing, clean air, education, health care, mobility and culture, along with stronger participation and a fairer sharing of costs and benefits across social groups.

The workshop also identified several inspiring examples already present in Budapest. These included a strong civil-society base, examples such as From Street to Flat or Valyo, neighbourhood and community gardens, healthy streets and school streets, a growing openness to new approaches in green-area management, and political signals of support for green issues from local candidates and leadership. A dedicated municipal participation body and culturally diverse community initiatives were also described as existing examples that could support a more mature BDD-inspired urban future.

7.3.3. Transformation pathways and TIMs (H2)

The H2 discussion focused on what would need to be phased out, what enabling conditions would be needed and which intervention mixes could move Budapest

from H1 toward H3. Barriers included the persistence of the GDP-growth paradigm, silo thinking, fragmented institutional strategies, weak transparency, insufficiently robust data, lack of integrated and holistic sustainability knowledge and a broader gap between theory and implementation. Participants also highlighted that long-term societal interests are often displaced by short-term political priorities, making transformational planning difficult.

Against this backdrop, the workshop identified several enabling conditions. These included stronger municipal autonomy, more assertive relations between the capital and the state, improved access to municipal and EU resources, selective private-sector involvement (working only with actors aligned with BDD goals under clear public-interest conditions), more courageous political leadership, stronger participation and social dialogue, and better data and framing capacities. A digital twin of Budapest, already known from other cities, was explicitly mentioned as a potentially useful technological tool for monitoring intervention spillovers and supporting more informed decision-making.

The TIM discussion yielded a broad mix of interventions that were mainly understood as H2+, because they could support structural transition toward the desired future. Proposed interventions included sustainable waste management and zero-waste initiatives, energy efficiency, water-sensitive ‘sponge city’ approaches, biodiversity restoration, sustainable urban mobility, fair housing regulation, sustainable food systems, transparency and green public procurement, stronger community and civil-society support, social-justice oriented taxation and income-proportional fines, broader access to culture and long-term sustainability awareness building. Taken together with sustained investment in participatory governance and the redesign of consumer and mobility environments toward walking, cycling and affordable public transport, these measures were viewed as key levers for shifting everyday life away from high-impact, growth-oriented patterns. At the same time, participants recognised that some tools could also reinforce H1 logics if used narrowly; for example, technological optimisation such as a digital twin could become H2- if it serves efficiency without challenging overconsumption or structural inequality, and partial green improvements could stabilise rather than transform the existing system. Regarding the old system that should persist, the notes point especially to preserving local self-government,

strong civil society, participatory structures and useful existing green-management shifts as foundations for a just transition.

7.4. Discussion

Taken together, the workshop results suggest a transition pathway in which Budapest moves from a fragmented, growth-led and socially uneven local sustainability transformations model toward a more integrated, participatory and justice-oriented system using the BDD as a strategic anchor. The pathway implied by the workshop begins with recognising the shortcomings of the current model-fragmentation, weak data, low awareness, limited solidarity and institutional lock-ins – and then building combinations of interventions that can gradually change both material infrastructures and the underlying logics of decision-making. In this sense, the most plausible pathways are not single-policy reforms, but coordinated mixes that link ecological restoration, affordable housing, mobility reform, participatory governance, transparent procurement, community support and fiscal fairness. Ecological restoration meant breaking up paved surfaces, incentivising more ecological green-space management and rewilding surface waters, while affordable housing and fiscal fairness translated into expanding and ecologically renovating the municipal rental stock, regulating rents, steering development away from greenfields and introducing fairer local taxes and income-proportional fines so higher-consuming groups bear more of the transition costs. Mobility reform built on healthy-street and school-street pilots, with realistic parking prices, limits on second-car parking, fair congestion or low-emission zones funding green and blue infrastructure, and improved walking, cycling and affordable public transport, especially for those in need. Participatory governance, transparent procurement and community support were seen as immediately actionable through strengthening municipal participation structures, expanding community budgets, opening and supporting neighbourhood spaces and using green public procurement and stricter contract disclosure to favour short supply chains and socially and ecologically aligned providers.

Several obstacles to upscaling remain significant, and participants stressed that experimenting with doughnut-inspired governance in a context still shaped by growth-driven economic norms is inherently demanding. At the level of operational

logics, they pointed to the persistence of siloed planning, insufficiently democratic and transparent decision-making, and the dominance of short-term political calculation over long-term social and ecological interests. At the structural level, constraints include limited municipal autonomy, difficult state–capital relations, weak institutional integration, incomplete data systems, uncertain access to resources, and low public familiarity with degrowth and BDD concepts. At the same time, participants observed that interest in doughnut-type approaches is gradually expanding in both policy and civil-society arenas, and that Budapest’s decision to develop the BDD and connect with emerging international doughnut communities signals a meaningful commitment rather than a symbolic gesture. While fully transforming city governance around these principles will be a long and challenging process, they nevertheless considered it realistic to take incremental but concrete steps by scaling successful pilots (such as healthy and school streets and community gardens), deepening participatory and transparent governance practices, and progressively aligning fiscal, housing, mobility and procurement decisions with BDD-aligned criteria.

Competing interests are also central to the case. Participants noted that BDD-aligned transformation is intended to benefit society as a whole, yet it may be resisted by higher-consuming groups whose lifestyles depend more strongly on carbon-intensive mobility, luxury consumption or speculative housing practices. This creates a political tension between urgency and acceptability: gradual change may improve legitimacy, but delay may also weaken the transformative potential of the pathway. Policies that help the pathway include those enhancing municipal autonomy¹, fair taxation, public procurement reform², transparency, social housing³,

¹ (Act CLXXXIX of 2011 on Local Self-Governments) defines local competences and provides the legal basis for strengthening municipal roles and resources.

² adopted Government Decision 1646/2022. (XII. 22.) sets a national framework and tools for environmentally conscious public procurement that Budapest can use and deepen.

³ National and EU-funded schemes for building and renovating social housing and improving housing conditions provide a framework Budapest can connect to when expanding and ecologically renovating its municipal rental stock

sustainable transport⁴ and biodiversity restorations⁵, whereas policies or governance routines that reproduce fragmentation, austerity, speculation or car dependency are likely to hinder it.

7.5. Reflection on the 3H approach in DAISY

7.5.1. 3H overall experience

The 3H framework appears to have fit the Budapest case reasonably well because the BDD is at a stage where a shared future vision exists in outline but still needs clearer operational pathways and stronger institutional grounding. The workshop design was therefore well matched to a seed innovation that is strategically relevant but not yet fully embedded in policy or practice. The structure also seems appropriate for a case where biodiversity and equity are intended to be central rather than secondary concerns, since the agenda explicitly integrated these dimensions into both the current-system and future-vision discussions.

The sequence from H1 to H3 to H2 appears to have supported a useful progression from diagnosis to aspiration to action. At the same time, the notes indicate that some concepts, especially within the TRD2 process, were experienced as subjective and not always immediately intuitive. This suggests that while the broader 3H framing likely worked as a discussion scaffold, some of the DAISY-specific tools required additional explanation or adaptation to participants' interpretive differences.

The workshop seems to have generated meaningful dialogue rather than purely reproducing established positions, but it also confirmed several pre-existing concerns about governance fragmentation, weak social legitimacy for degrowth and institutional barriers to implementation. Its outputs were relatively concrete in the area of TIMs and leverage points, where participants articulated practical intervention bundles and enabling conditions, but less concrete regarding

⁴ national sustainable transport and mobility policies and programmes (e.g. climate and transport strategies, Green Bus and EU-funded sustainable transport projects) provide funding and regulatory backing for low-emission, public-transport- and active-mobility-oriented developments that Budapest can align with BDD pathways

⁵ Budapest's green infrastructure and biodiversity-oriented plans explicitly aim to increase urban biodiversity, use nature-based solutions and make the city an ecological refuge, which aligns directly with BDD ecological restoration pathways.

sequencing, actor responsibilities and prioritisation. Biodiversity and equity were addressed substantively throughout the workshop rather than remaining background themes.

7.5.2. TRD2 and TIMs

The documentation from the workshop does not contain the TRD2 export itself, but it does summarise participants' qualitative reflections on how the tool worked in practice during the session. Participants found the TRD questions subjective and difficult to interpret consistently, even within a small group, which points to a challenge in generating comparable assessments across personal, practical and political dimensions, as well as across equity and biodiversity categories. A concrete suggestion emerging from the workshop was to allow short textual explanations next to percentage scores,, so that the scores are treated as prompts for dialogue rather than definitive answers and the accompanying notes can capture how participants understand procedural, distributional and ecological implications and where differing views need to be explored.

Despite these limitations, the TRD2 framing appears to have reinforced attention to multiple dimensions of transformation. The workshop notes point to implications across personal, practical and political spheres, for example in the discussion of personal–practical–political harmonisation, infrastructural and institutional reform, and the need for stronger municipal autonomy and social legitimacy. The notes also substantively engaged multiple equity dimensions, including participation, affordability, access to services, fair cost-sharing and the prioritisation of poorer groups, alongside biodiversity dimensions such as water systems, green-space management, species and habitat diversity, food-system impacts and ecological deficits.

TIMs seem to have been especially useful in helping participants move from abstract aspirations to practical leverage points. The TIM categories encouraged consideration of regulatory, economic, educational, technological, social-normative and resource-based interventions as mutually reinforcing rather than isolated tools. This helped participants identify concrete leverage points such as social housing, congestion charging, green procurement, composting, sustainable food strategies, community support and data-based tools, while also recognising the risk that

interventions can become H2- if they optimise the current system without altering its underlying growth-oriented and inequitable dynamics.

7.6. Contribution to subsequent tasks

For T4.3 on amplification, the most promising opportunities lie in building a case-specific dialogue process around the intervention bundles that already showed broad relevance in the workshop. In particular, pathways related to sustainable mobility (a planned workshop with the Public Transport Company is already in the pipeline), social housing, biodiversity restoration, participatory governance, sustainable food systems and green procurement appear mature enough to support further dialogue with municipal actors, civil-society organisations and potentially selected private-sector and funding partners. Amplification would likely benefit from involving networks that already function as inspiring examples in the present, including community initiatives, participation bodies, housing and public-space actors and organisations working on urban ecological restoration.

For T4.4 on cross-case learning, the Budapest case offers useful insights into the interaction between social innovation and institutional constraints in an urban setting. Particularly relevant for comparison are the tensions between local ambition and constrained autonomy, between technological tools and deeper social transformation, and between biodiversity goals and equity-sensitive implementation. The case also illustrates how transformative pathways depend not only on new interventions but on changes in public narratives, social legitimacy and the relationship between civil-society experimentation and municipal governance.

For T4.5 on EU policy, the workshop points to several lessons that travel beyond the local context. These include the importance of multi-level governance conditions for urban transformation, the need for intervention mixes that combine ecological and social objectives, and the value of EU funding frameworks that support participatory, biodiversity-positive and equity-sensitive urban experimentation. More broadly, the Budapest case suggests that EU-level transformative action agendas should pay close attention to municipal autonomy, data and knowledge capacities, integrated planning and the distributional politics of transition, rather than treating biodiversity and social justice as separable policy domains.

8. Cross-Case Synthesis

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This section draws together cross-cutting patterns, shared themes and overarching insights from the five T4.2 workshops. While each seed innovation case is embedded in its own institutional, ecological and socio-cultural context, the workshop results reveal a set of recurring dynamics that cut across domains and geographies. These are presented here as a first synthesis, intended to inform further analysis within T4.4.

8.1. Shared Structural Patterns

All five cases operate within dominant systems whose institutional logic, incentive structures and governance arrangements impede rather than support transformation. Whether the domain is agri-food, biodiversity monitoring, urban governance or citizen science, participants consistently identified similar structural lock-ins: centralised and risk-averse governance; inadequate or misaligned funding and subsidy structures; fragmented institutional coordination; insufficient legal or regulatory recognition for innovative models; a limited capacity to coordinate, respond, and adapt to changing conditions; and a mismatch between technocratic monitoring requirements and the social dynamics of participation and trust. Notably, this capacity constraint is fundamentally a human resourcing question: maintaining momentum and responsiveness requires enough people who share the ambition and can carry responsibility over time, not just institutional structures or funding lines. Exhaustion and burnout among practitioners point to the cost of relying on too few people to sustain that ambition.

Across cases, participants articulated a shared direction of travel: from rigid, control-oriented governance systems toward adaptive ones capable of responding to rapidly changing circumstances; from fragmented and siloed systems toward integrated and collaborative governance; from short-term and anonymous transactions toward long-term and relationship-based exchange; and from technological efficiency toward combinations of technological and social innovation. This directional convergence—across cases as different as a Hungarian agri-environmental scheme and a German food cooperative—is analytically significant. It

suggests that transformation in DAISY's domains requires not just sector-specific policy adjustments, but shifts in underlying governance logics and institutional cultures.

8.2. Recurring Tensions

Several tensions recur across cases, each requiring careful navigation in transformation pathway design. The tension between technological innovation and social transformation is most explicit in the UK, Dutch and Hungarian monitoring cases, and was named explicitly in Budapest's own H2- reflection, where a digital twin was identified as a risk of optimising efficiency without challenging overconsumption or structural inequality. It is also visible in the German cases, where technology can enable or constrain, depending on whether it is embedded in appropriate social and governance conditions. The tension between local experimentation and institutional embedding is central in Örség and Meet je Landschap, but resonates in all cases: bottom-up innovation without policy uptake remains fragile. The tension between urgency and acceptability arises most explicitly in the Budapest case, but is implicit wherever transformation implies redistribution of costs and benefits. Meanwhile, the tension between equity commitments at the systemic level and equity challenges within alternative innovations themselves is most visible in the German cases, but was also noted explicitly in the CWS-CNC and the Hungarian agri-scheme case; it is relevant wherever innovations attract a socially narrow participant base.

8.3. Implications for T4.3 (Amplification)

Across cases, the most promising amplification entry points combine three elements: existing networks or platforms that can serve as bridging structures (the GBDA platform in Utrecht, the food cooperative network in Germany, the civil-society base in Budapest, the RBP Network in Hungary, the biodiversity partnership infrastructure in the UK); a near-term dialogue opportunity with an identified policymaker or institutional actor (the CAP planning cycle in Hungary, municipal sustainability policy in Leipzig and Budapest, national monitoring system development in the Netherlands, educational integration in the UK); and a concrete, demonstrable 'seed' whose results can be made visible and shared. Several of these bridging structures and dialogue opportunities also extend to the European level,

where existing networks and science-policy interfaces could connect local practice to EU policy processes. The German and Hungarian agri-food cases, for instance, could draw on the European Agroecology Partnership's network of Living Labs and Research Infrastructures and its associated science-policy interface, while the Dutch case connects naturally to the European Commission's work on mapping ecological connectivity and high-diversity landscape features under the Nature Restoration Regulation. Amplification design should pay particular attention to the internal equity dimension, ensuring that scaling efforts do not reproduce or reinforce social exclusions present in current innovations.

8.4. Implications for T4.4 (Cross-Case Learning)

The five cases offer rich material for systematic comparison along several analytical dimensions: governance arrangements and the conditions for institutional embedding; the role of trust in transformation (farmer-institution trust in Órség, volunteer-organisation trust in the Netherlands, community-institution trust in the urban cases); the producer-consumer relationship as a transformation axis (most visible in the German cluster); the interplay between digital tools and social participation; the relationship between equity commitments and actual inclusivity; and the role of normative/ cultural change alongside regulatory and economic interventions. Cross-case comparison with non-DAISY cases will be essential for identifying what is context-specific and what is structural.

8.5. Implications for T4.5 (EU Policy)

Several EU-level policy domains emerge consistently as both barriers and leverage points across the five cases. CAP subsidy structures (Órség, German cluster) shape the feasibility of ecological farming and results-based payments at ground level; their reform is necessary for transformation in the agri-food domain. EU biodiversity monitoring and reporting frameworks (UK, Netherlands) create both standardisation pressures and opportunities for citizen science integration. The EU Social Economy Action Plan (German cooperative cases) and urban biodiversity frameworks (Budapest) offer policy vehicles for recognition and support of commons-based and degrowth-inspired models. EU funding frameworks more broadly (Horizon Europe, LIFE, cohesion funds) shape the temporal horizons and governance conditions within which all five cases operate. The cross-case synthesis suggests that EU-

level transformative action should address governance logics and institutional capacity — not only add new instruments — and should treat biodiversity and equity as inseparable dimensions of a just transition.

9. Conclusion

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9.1. Summary of Key Insights

The five T4.2 workshops show that the five seed innovation cases studied within DAISY are not simply operational alternatives to dominant systems, but also sites of active, future-oriented sense-making. Across all five cases, participants demonstrated a sophisticated capacity to diagnose what is losing fit in the present, articulate normative visions of what a transformed future should look like, and identify the concrete interventions and enabling conditions needed to move between the two.

Four cross-cutting insights stand out from the workshop results taken together:

- First, structural barriers are more consistent across cases than the diversity of contexts might initially suggest. Whether working in citizen science, results-based agri-environmental payments, food cooperatives, landscape monitoring, or urban governance, participants identified a remarkably similar set of system-level obstacles: misaligned subsidy and funding structures, fragmented institutional coordination, insufficient legal or policy recognition for innovative models, insufficient human capacity to coordinate and respond, and a persistent mismatch between technocratic governance logics and the social dynamics of trust and participation. In 3H terms, these are the features of H1 that are most actively maintaining the current system even as its fit with emerging ecological and social conditions deteriorates. The convergence of H1 diagnoses across cases with such different contexts suggests that what constrains seed innovations is not primarily internal to the initiatives themselves, but embedded in shared institutional architectures operating at national and EU level.

- Second, transformation requires combinations of social and technological change, not one or the other. This was depicted as relevant in every case since participants identified technological tools as necessary but insufficient. For example: iNaturalist needs community embedding (CWS CNC); satellite monitoring needs volunteer engagement and institutional trust (Meet je Landschap); results-based payment tools require farmer agency and adaptive governance (Őrség). This mirrors the H2 logic developed in Section 2.1: Transformative Intervention Mixes work precisely because they combine regulatory, social, normative, and technological interventions that reinforce one another. Single-instrument approaches risk becoming H2- while optimising the current system without challenging its underlying logic.
- Third, trust is the connective tissue of transformation. Across the Őrség payment scheme, the Dutch monitoring pilot, the German food cooperatives, and the Budapest Doughnut, progress stalls when trust breaks down, e.g., between farmers and institutions, between volunteers and coordinating bodies, between civil society and local government. This lack of trust does not only appear between individuals: it becomes embedded in system structures over time, such as the rigid, distrust-based control mechanisms in farmer reward and accountability systems identified in the Dutch monitoring case, or the scepticism expressed by specialist recorders toward iNaturalist as a data-collection method in the CWS-CNC case. In both examples, a system designed around the assumption that participants cannot be trusted ends up reproducing that distrust, regardless of the intentions of the people working within it. Conversely, where trust has been deliberately cultivated through participatory processes, transparency, and fair recognition of contributions, innovations have gained traction and legitimacy. In 3H terms, trust is a precondition for the relational work that H2 requires: navigating the space of conflicts and options between an incumbent system and a desired future is not a technical exercise (or not least alone), but a social and political one. The

major challenge is how to move from the state of prevailing distrust to trust-building, particularly in the presence of structurally supported competing incentives.

- Fourth, equity cannot be treated as a separate track alongside biodiversity goals. Across the workshops, participants consistently identified equity dimensions not as add-ons to their biodiversity-oriented innovations, but as constitutive of them: who has access to cooperative food, who benefits from landscape payments, whose knowledge counts in biodiversity monitoring, whose neighbourhoods receive green investment. This corresponds to the H3 logic: a genuinely transformed future, as participants articulated it across all five cases, is one in which biodiversity and equity are addressed simultaneously and structurally instead of traded off against one another or sequenced (see also Franklin et al., 2025)).
- Fifth, the people who carry transformative initiatives forward need to be looked after, not only supported instrumentally. Across cases, exhaustion and burnout among the practitioners navigating the dominant system were a recurring concern, and this matters beyond individual wellbeing: the longer-term durability of any scheme depends on whether the people sustaining it can continue to do so. This points toward amplification strategies that go beyond strengthening any single initiative in isolation, toward approaches that expand capacity collectively, for example through networked or commons-based forms of organising in which the burden of coordination and responsiveness is shared across initiatives rather than carried by a small group of individuals within each one.

The Three Horizons framework proved well-suited to surfacing this capacity: it created structured space for reflection that was both analytically productive and meaningful to participants. As a high-level framework for building shared understanding and ambition between H1 and H3, 3H worked well across all cases. The more detailed sequencing of pathways within H2, the 'Triangle of Change' itself, proved more challenging. This suggests that 3H functions well as an entry tool, but that fully operationalising a transformation pathway requires a further step

of detailing and sequencing within H2, which can only be undertaken once the H1 and H3 work has itself been completed.

9.2. Interpretation and Implications

The workshop findings point to a consistent tension between the local embeddedness that makes these innovations effective and the institutional and policy conditions required to sustain and scale them. This tension is not a design flaw but an inherent feature of prefigurative practice: these innovations work precisely because they are rooted in specific communities, and these relationships become a structural liability once dominant systems require them to be standardised, audited, or priced. The Órség case illustrates this well: the results-based payment scheme depends on a trust-based relationship between farmers and the National Park Directorate, built up through years of co-design, but this relationship is difficult to formalise into the standardised, auditable criteria that national-level subsidy administration requires without undermining the trust that makes the scheme work in the first place.

For policy, the implication is that amplification of seed innovations cannot rely solely on replication or scaling up. What works at Naderkau, for instance, cannot simply be transplanted to another rural district without adaptation; the relational trust that underpins the Órség pilot took time to build, and similar initiatives elsewhere should expect to need comparable time and support to establish their own version of it, rather than assuming it can be replicated instantly. Policy frameworks that create space for contextualised experimentation, provide stable and long-term funding, and reduce the administrative burden on small initiatives, are more likely to enable systemic change than those that demand immediate scalability and standardised reporting.

For practice, the workshops underscore the importance of cross-initiative learning and network building as amplification strategies in their own right. Several of the most promising amplification opportunities identified across cases involve not scaling up individual innovations in the traditional sense, but rather what the literature on social innovation diffusion terms ‘scaling out’ (Moore et al., 2015): replicating and spreading impact by connecting and diffusing practices across multiple initiatives, rather than expanding any one of them, connecting them. This is

visible, e.g., linking food cooperatives with CSA farms, connecting citizen science networks with formal biodiversity monitoring systems, bridging local urban experiments with municipal policy processes. These connective moves require facilitation, resourcing, and institutional recognition as legitimate forms of transformative work.

9.3. Contribution to the Project

This deliverable provides the empirical and analytical foundation for the next phases of DAISY's WP4. The case-level insights and cross-case synthesis presented here give T4.3 (Amplification) a structured evidence base from which to identify entry points, actors, and intervention strategies for each seed innovation, including practical mechanisms proposed by participants themselves for sustaining practitioner capacity over time. The patterns identified (structural convergence of barriers, the social-technological combination requirement, the role of trust, and the inseparability of biodiversity and equity) give T4.4 (Cross-case learning) concrete analytical dimensions for systematic comparison. And the EU-level policy hooks identified across cases, i.e., CAP reform, social economy recognition, biodiversity monitoring frameworks, urban biodiversity policy, citizen-science integration, give T4.5 (EU policy) an empirically grounded starting point for further analysis and articulation of recommendations.

Beyond the project, the T4.2 workshops have generated something of value in themselves: a moment of structured future-oriented reflection for each initiative, facilitated by an external research team with a cross-case perspective. Several participants noted that the workshop gave them a language and a frame for aspirations they had not previously articulated collectively. This generative function, such as knowledge production alongside capability building, reflects the broader ambition of transdisciplinary research practice that DAISY embodies. Furthermore, the spatial format piloted for TRD2 administration in the Hungarian workshop, where participants physically positioned themselves in the room to express where their initiative currently stands and where a mature, future version of it would stand relative to an explicit present-day baseline, generated engagement and made visible both the degree of consensus and the specific points of disagreement among participants. This approach is worth considering for future participatory foresight workshops more generally, where group size and venue allow.

9.4. Recommendations and Next Steps

For T4.3 (Amplification): The case chapters identify concrete amplification opportunities for each seed innovation, intended as a starting point for further discussions with case holders. For Seed Innovation 01 (CWS CNC), participants pointed towards embedding biodiversity recording within schools and educational settings, developing more continuous and distributed engagement structures beyond the annual event, and improving technological accessibility and interoperability between recording platforms as potentially promising directions. Regarding Seed Innovation 02 (Örség), participants discussed scaling through cooperation with other National Park Directorates and stronger engagement at the national policy level, with the current CAP planning cycle as a possible window. For Seed Innovation 03 (German cluster), the four initiatives raised amplification ideas ranging from open-farm and educational outreach events and CSA network connections (Naderkau, KoLa) to regional cooperative networking events linking food cooperatives with legal experts and social economy policy actors (Rübchen, Koope). For Seed Innovation 04 (Meet je Landschap), building one integrated monitoring system combining satellite data, volunteer field observations and emerging eDNA techniques, and scaling citizen science as a monitoring pillar with Utrecht as a national living lab, were raised as potential directions. For Seed Innovation 05 (Budapest Degrowth Doughnut), participants emphasised potential in building case-specific dialogue processes around intervention bundles with broad stakeholder relevance, particularly sustainable mobility, social housing, biodiversity restoration, and participatory governance. Notably, the monitoring challenges identified in the Hungarian agri-environmental scheme and the Dutch blue-green veining case point to shared structural barriers that may be worth addressing not within a single case but through dialogue across cases, including at EU level. Across all cases, internal equity should be considered a design criterion for amplification strategies, not a secondary consideration. These directions will need to be revisited with each case team before being taken forward into T4.3.

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Statement on data availability

The workshop notes and 3H poster outputs underlying this report are openly available on Zenodo (<https://doi.org/10.5281/zenodo.21073131>) processed in compliance with participant informed consent, GDPR, and the requirements of the DAISY Data Management Plan.

Statement on ethics

This report is supported by information gathered through primary data collection involving volunteer human research participants across five workshop settings. All research was undertaken in accordance with the Research Ethics standards of the consortium partner institutions and the DAISY Data Management Plan.