

PATHWAYS METHOD

a workshop facilitation guide



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About

The *ASM Pathways™* method¹ (“Pathways” or “Pathways method” hereafter) is a comprehensive, participatory future-planning framework designed by the **Centre for Systems Solutions** to help diverse groups of stakeholders navigate the complexity of contemporary societal challenges. It has been developed to bridge the gap between science, policy, and society by transforming an understanding of complex sustainability challenges into practical strategies.

This guidebook was developed in the Planning Land Use Strategies: Meeting biodiversity, climate and social objectives in a changing world (PLUS Change) project.

¹ Please see other projects which have applied the ASM approach in the Acknowledgments

Guidebook Overview

This guidebook is designed as a practical introduction and step-by-step instructive guide to applying and customising the Pathways method – a comprehensive, participatory future-planning framework designed to help diverse groups of stakeholders navigate the complexity of contemporary societal challenges. It has been developed to bridge the gap between science, policy, and society by transforming complex sustainability challenges into practical strategies. Throughout this guidebook, the Pathways method is primarily demonstrated through its application to land use and land-use change topics within the PLUS Change project.

While scientific research often provides the data regarding future risks, stakeholder engagement is frequently misunderstood as merely a way to secure feedback on research results. To make participatory processes useful for policy development, it is important to map the spheres of control and influence. In simple terms, this means identifying what participants can change themselves and where they can only have an indirect impact. Clarity about this helps stakeholders set realistic goals, choose appropriate actions, and build robust strategies together. The Pathways process allows participants to achieve these key aspects by building on the foundations of the Theory of Change (Anderson, 2004; Taplin & Clark, 2012) and backcasting logic. This guidebook provides the necessary basis to understand the process and offers practical information on how to adapt it to specific circumstances, and successfully execute it.

In particular, the guidebook explains how the process might be adapted to different needs and goals, and shares practical tips for effective stakeholder engagement and facilitation, and how to implement the Pathways method in in-person workshops. By following this guide, organisers can ensure their participatory processes are both structured and impactful.

The guide is targeting institutions directly or indirectly involved in the process of land-use planning, climate adaptation, and sustainable development, especially in the context of various crises such as the climate emergency and social-ecological instability.

The Pathways methodology strongly emphasises positive, active, and inclusive approaches to co-creating Pathways to desired futures, while ensuring that the knowledge produced is both perceived as legitimate by stakeholders and structured to allow uptake in practice.



The guidebook will:

Explain the assumptions underlying the co-creation of Pathways toward *desired futures*

Define the core elements of the method, including the use of *zones of control*, *influence*, and beyond

Provide instruction on how to run Pathways workshops from preparation phase to the processing of results

The method is useful for you if you:

Work on challenges that are complex and involve many interconnected issues

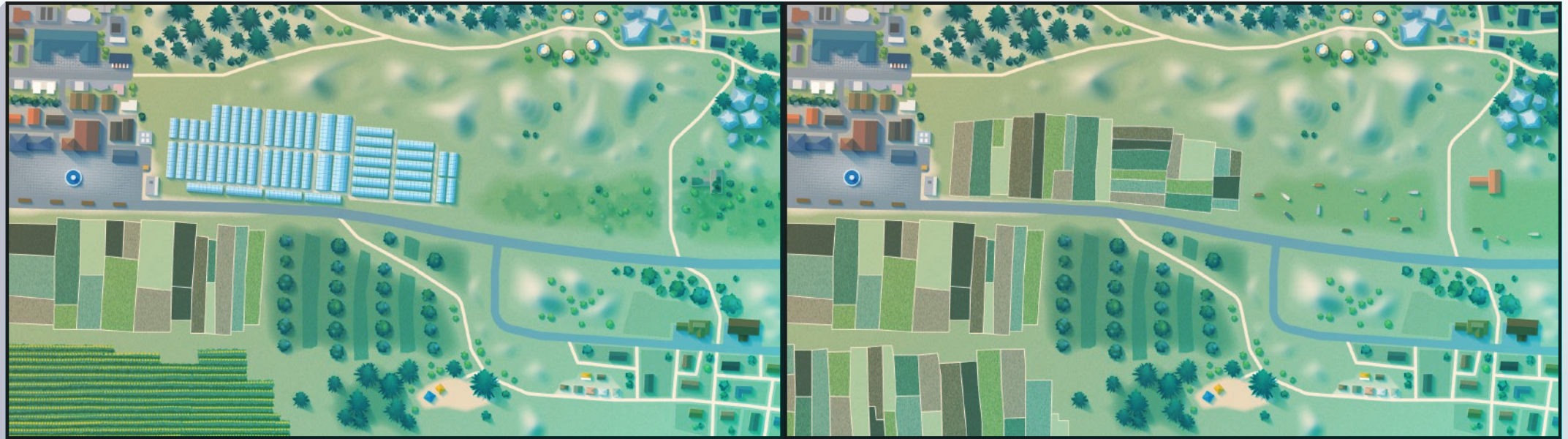
Need a structured process that makes complexity easier to navigate

Need to bring together people from different sectors, disciplines, or backgrounds

Want to build a shared understanding before making decisions

Are planning long term processes such as climate adaptation, spatial planning, or community transitions

Are looking for practical ways to turn diverse knowledge and experience into joint strategies



Background

Shared visions in a complex world

In a world of global challenges, our greatest collective strength is the ability to imagine a better future. Every one of us has a stake in what that future looks like, yet we often find it difficult to move beyond abstract aspirations toward tangible reality. We know that our societies could be more resilient, our cities more livable, and our relationship with nature more balanced. However, the path to these desirable futures is rarely clear. While we can envision where we want to go, the process of getting there is often obscured by the immediate pressures of the present.

This difficulty in reaching our goals is largely due to the volatile context in which we operate. For instance, the COVID-19 pandemic, exposed deep systemic vulnerabilities and tested societies' capacity to respond collectively. In its wake, other emergencies/crises have intensified or come sharply into focus: geopolitical instability marked by ongoing conflicts, persistent cost-of-living pressures, accelerating climate extremes, growing social and political polarisation, and the looming biodiversity collapse. These crises often force us into a reactive mode, where we focus on managing risks rather than building the world we want to inhabit.



Fig. 1.
Shared visions
in a complex world

At the core of this "polycrisis" lie three interlinked challenges to better cooperation:



01

The Complexity

of the multi-layered, interacting nature of modern problems,

02

the Uncertainty

manifested as gaps in knowledge about future trajectories and outcomes, and

03

the Ambiguity

that results from the conflicting interpretations and values regarding what the problems are and which solutions are desirable.

Together, these three factors make joint action exceptionally difficult. Even our best attempts to tackle complex issues often lead to unexpected side effects. This leaves us feeling unsure, especially when making decisions with a long-term perspective. To make matters worse, our judgement is often influenced by different interpretations of reality, personal values, and worldviews. This widespread ambiguity means we struggle to see both the big picture and the interconnections within it, making it hard to bridge the gaps in an increasingly polarised society.

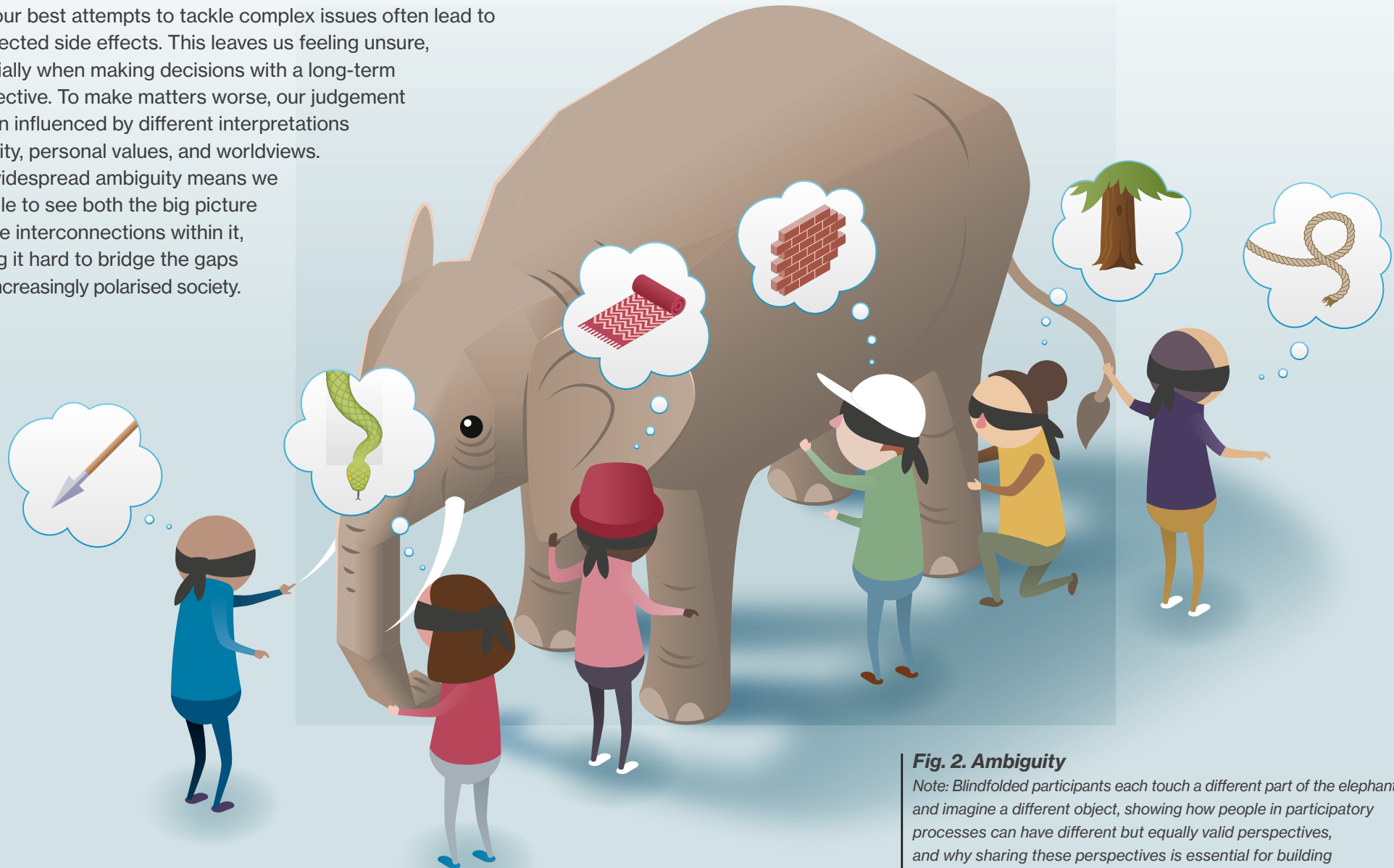


Fig. 2. Ambiguity

Note: Blindfolded participants each touch a different part of the elephant and imagine a different object, showing how people in participatory processes can have different but equally valid perspectives, and why sharing these perspectives is essential for building a complete understanding.

A need for a new approach

All of the above points to the need for a new approach to navigate complexity, keep uncertainty at bay, and communicate effectively in the face of ambiguity. We need to do more than just diagnose problems; we must identify clear Pathways toward desired futures.

An approach which brings together scientists, elected politicians, practitioners, and other societal actors to jointly explore what is possible, what is desirable, and what is politically and socially feasible. However, doing so effectively means overcoming several persistent barriers:

Scientists

use rational models to discover how the world works, often using specialised terminology that requires translation for a layperson. While their methods reduce uncertainty through evidence, they are often not geared to navigate ambiguity when priorities differ. Furthermore, the time needed for rigorous research often conflicts with the need for urgent policy solutions.

Elected politicians

face different imperatives. They cannot ignore the public, as they need its support to maintain a mandate. They must respond to the sorts of overlapping crises we have already described, and in doing so often resort to political compromises. Their communication is frequently heavy with rhetoric and political framing, which can increase ambiguity. Working under intense time pressure, they may sacrifice a solution's depth for immediate political feasibility.

Practitioners

such as spatial planners and officials at various levels of governance, are navigating the complexity of political decision-making and real-world implementation. They often operate within rigid administrative silos, facing the challenge of translating broad political visions into technical reality while managing limited resources and strict regulatory frameworks. The Pathways method can become their tool of choice for public consultation and even evidence-gathering.

Society

Although elected politicians formally represent communities, society (including NGOs, communities, and citizens) needs to be included more meaningfully in Pathway creation. In broad participatory processes, contradictory positions regarding the right course of action naturally emerge, a manifestation of ambiguity arising from differing perspectives, priorities, and practical constraints.

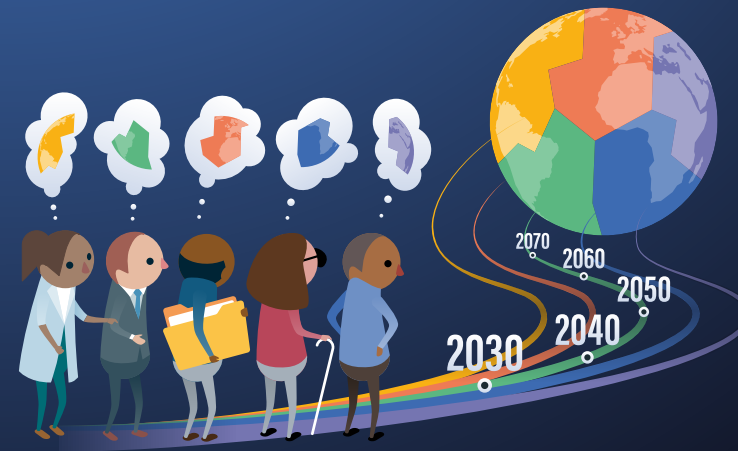


Fig. 3.

Individuals standing before different paths to a shared globe each carry a puzzle piece, symbolising that every perspective and action contributes a vital part to our common future.

If science, politics, practice and society representatives could assemble the jigsaw puzzle, the pieces of which are scattered among them, we would gain a more comprehensive view of the situation. With such clarity, a shared direction for action – and strategies to move from the present toward desired futures – might become possible.

To succeed, our methods must handle all three challenges simultaneously: addressing complexity (by mapping and simplifying interacting systems), reducing uncertainty (by surfacing plausible futures), and managing ambiguity (by creating deliberative spaces where different values and interpretations can be negotiated).

Existing approaches

Before introducing the Pathways method, it is useful to briefly reflect on two existing approaches that have previously been developed to navigate complexity, uncertainty, and ambiguity to long term strategic decision making. These approaches build a tradition of foresight and planning methods that seek to broaden perspectives, challenge assumptions, and strengthen the robustness of strategies in uncertain environments. The Pathways method builds on these existing approaches by addressing identified gaps and focusing on areas where current practice remains limited.

I can use Scenarios to challenge and improve my Pathways to a desired future. More on page 41.



Scenarios

High stakes decisions, intricate complexity, and deep uncertainties about the future make the case for expanding purely predictive and planning based approaches toward more exploratory and imaginative forms of foresight. Among foresight methods, scenarios have been widely used to explore divergent futures across sectors and scales (Van der Heijden, 2005; Bock et al., 2014). Rather than attempting to predict a single most likely outcome, scenarios help decision makers prepare for a range of plausible futures.

In general terms, a scenario can be understood as a plausible and internally consistent description of how the future may unfold, based on assumptions about key driving forces and their interactions (Metz et al., 2007). Scenarios are typically developed in sets, where each narrative represents a meaningfully distinct future shaped by different combinations of social, technological, economic, environmental, or political dynamics. Importantly, scenarios are not forecasts. They are structured stories that expand thinking and help organisations test the robustness of plans and policies.

Exploratory scenarios

focus on predicting and anticipating how different trends and uncertainties might evolve. For example, one scenario might assume accelerated expansion of renewable energy infrastructure (such as solar farms and wind parks) combined with weak spatial planning regulations, leading to increased competition for agricultural land and biodiversity loss. Another scenario might assume strong environmental protections and coordinated land-use planning, but slower renewable energy deployment due to public opposition and administrative constraints. These contrasting futures allow stakeholders to examine how current strategies would perform under different external conditions.

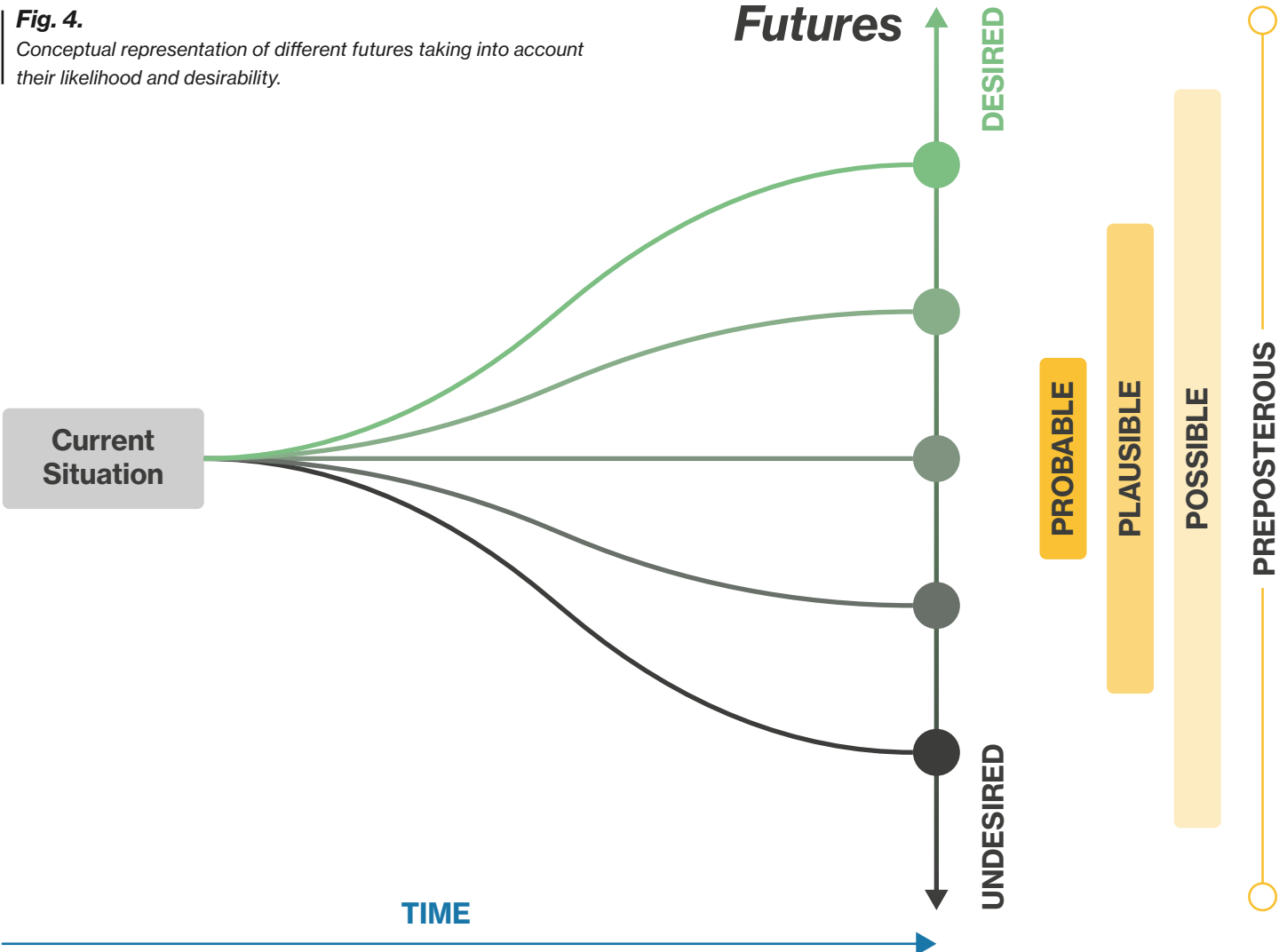
Normative scenarios,

by contrast, focus on planning and imagining the future. For example, a region might define a future in which water reuse is fully integrated into agricultural practice by 2040. A normative scenario would describe what institutional changes, investments, behavioural shifts, and policy measures would be required to reach that vision. However, normative scenarios do not provide a "how to get there" roadmap, which can be used in practice.

Scenarios, in all their forms, are used to expand and explore the range of possible futures (Gall, Vallet and Yannou, 2022), not only preferred ones but also those that fall short of desired goals, some of which may involve adverse or even disastrous consequences.

Scenario approaches have proven valuable in supporting long term visioning, stress testing strategies, and broadening stakeholder perspectives. However, both research and practice indicate that challenges remain in translating scenario insights into concrete, coordinated action, particularly in contexts involving multiple actors with different mandates and resources (Parson, 2008). Scenarios often clarify what could happen or what should happen, but they may not always specify who needs to act, in what sequence, and under which enabling conditions.

This gap between envisioning futures and organising collective action opens the door to more action oriented approaches. The Theory of Change method is one such approach.



Theory of Change

Theory of Change (ToC) is a tool for explaining how and why a desired change is expected to happen (Anderson, 2004; Taplin & Clark, 2012). At its core, the ToC method maps how specific actions are expected to lead to long-term goals through a sequence of intermediate outcomes (see Fig. 5). It also makes explicit the assumptions underlying these causal links.

In practice, however, change rarely unfolds in a linear or predictable way. The assumption that “if certain actions are taken, then particular outcomes will follow, eventually leading to a broader goal” operates under conditions of complexity, uncertainty, and ambiguity. In such contexts, different actors hold different values, interests, and assumptions about what works, making outcomes less straightforward and often contested.

For example, a city authority introducing new mobility measures may see them welcomed by environmental groups, questioned, or even challenged, by local businesses, and received differently by residents, reflecting the uncertainty and diversity of their daily travel experiences.



For this reason, the Theory of Change method does not produce an objective or universal truth about how change happens. Rather, it explores a set of beliefs and assumptions held by the people involved in creating a ToC about how interventions are expected or hypothesized to contribute to change. A ToC can exist implicitly in people's minds, but it is often made explicit as a shared product, for example, a narrative or visual pathway, that shows how actions are expected to lead, through intermediate outcomes, to long-term goals. Making these assumptions visible helps people work together across sectors because the underlying thinking can be discussed, challenged, and adjusted (Senge, 1990).

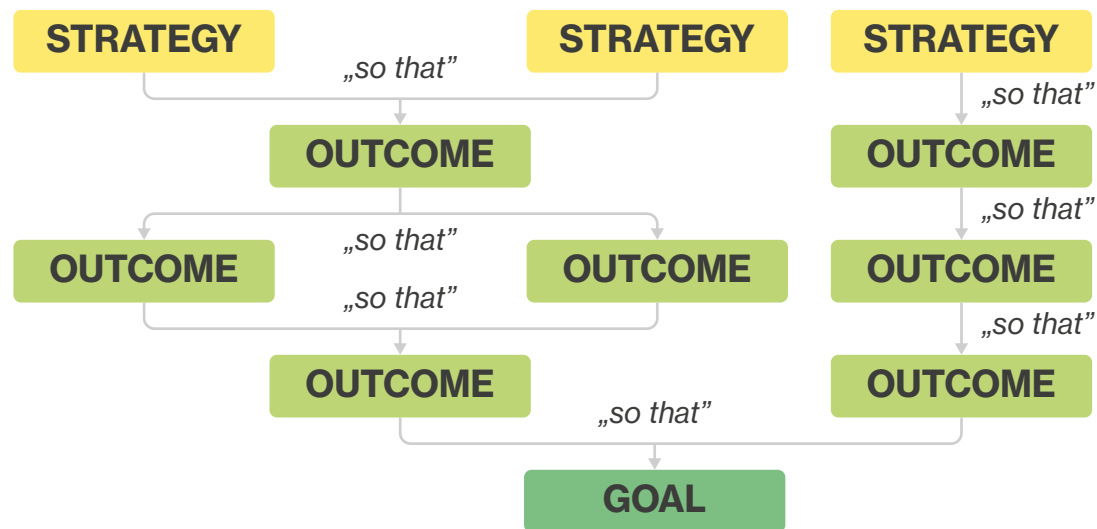


Fig. 5. Outcome map in the Theory of Change method

Image inspiration: Annie E. Casey Foundation, 2022.

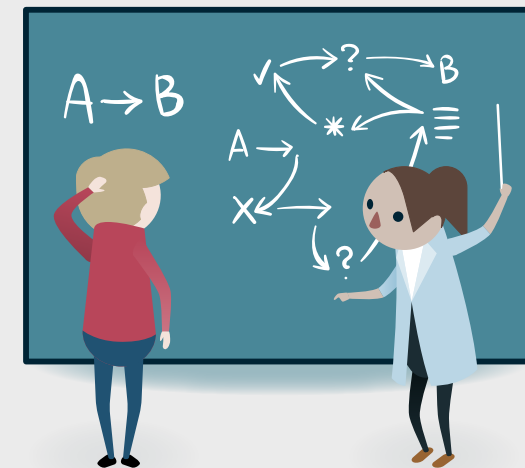
Developing a Theory of Change: Practical Guidance

Cause and effect

If (A) (strategies) → Then (B) (actions)



Complex causal chains in reality



**Ah, if only it were that simple...
but it's more like THIS.**

Evolution: From Theory of Change to the Pathways method

As the Theory of Change method emphasises making assumptions explicit and aligning stakeholders' understanding of how change is expected to happen, it can lead to strategies that are insufficiently grounded in the practical realities of planning for change, especially when applied in a linear or deterministic way. The approach links interventions (deliberate actions taken to address a problem) to long-term goals through chains of intermediate outcomes. This space between the start and the finish is often referred to as the “messy middle.” For example, policymakers might assume that financial incentives for ecosystem restoration will lead to increased forest cover, reduced agricultural pressure, and improved biodiversity. While this provides a useful structure for planning, it may not fully capture how change unfolds in practice, where outcomes depend on context, interactions between actors, and evolving conditions. As a result, expected pathways may not materialise as anticipated, reflecting the inherent complexity and uncertainty of change processes.



Fig. 6

The Theory of Change approach links long term impacts with the strategies and interventions expected to lead to them, typically in the form of a causal connection. Note: The Pathways method builds on this logic but looks more closely at what happens in between. It focuses on collaboratively exploring the “messy middle” of the transition: the concrete steps, their sequence, their interdependencies, and the alternative routes that can lead to the desired future. By making this process visible and tangible, it helps turn ambitions into realistic strategies, which can be used in practice.

This is where the Pathways method adds practical refinements, transforming the “messy middle” from a vague set of expectations into a structured, reality-aware roadmap. The method retains the idea of outcome chains but strengthens it in several important ways:

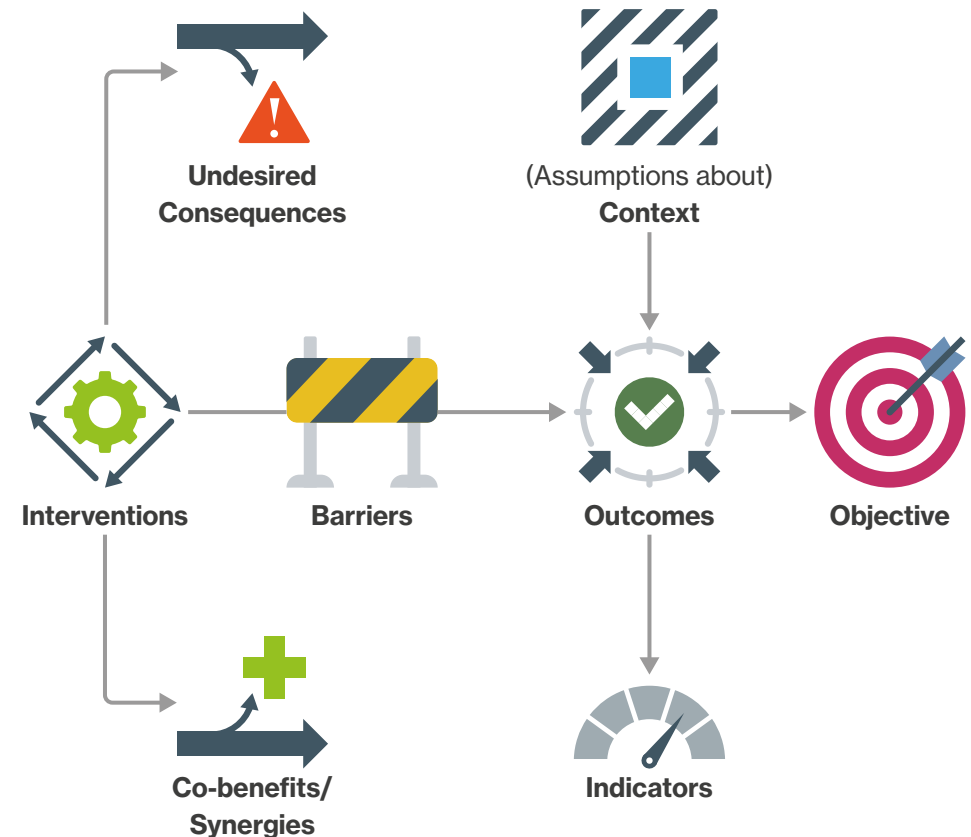


Fig. 7.

Elements of the Pathway to a desired future

When to use Pathways?

The Pathways method is well suited to making the complexity of planning for the future manageable and understandable. It is specifically designed to tackle challenges involving many interlinked parts and fields of expertise, as well as any situation where communities need to plan for the future collectively (for example, spatial planning or climate change adaptation).

The method is proven to be effective at bringing together people from diverse backgrounds and experiences to work towards a common desire for a better future. The primary strength of the method is its ability to combine the shared knowledge, experience, and expertise of diverse stakeholders. This helps develop a shared understanding of challenges and creates strategies for change toward a desirable future, which can then be immediately used in practice.

The Pathways method has been successfully applied as part of PLUS Change and MultiFutures, both being Horizon Europe projects, the first focusing on land use and land-use change and the second on alternative economic transition scenarios.

Pathways method being used in PLUS Change project



Fig. 9

Workshop participants building a Pathway, with a large-format map being used as supporting material. Workshop organised in November 2025 by JINAG, South Moravia, Czech Republic

In the PLUS Change project, the Pathways method was successfully implemented in stakeholder workshops across nine European countries between September 2025 and February 2026. The method was actively used by diverse groups of local stakeholders to structure discussions, clarify ambitions and design concrete routes toward desired futures.

Each workshop focused on a locally relevant land-use challenge, putting the flexibility of the method to the test. For instance, in the South Moravian region of Czechia, participants developed Pathways to use land improvements as a strategic opportunity to retain water in the landscape. In Nitra, Slovakia, stakeholders co-created Pathways toward a new city district centred on urban nature, biodiversity, and high-quality public spaces.

Across all nine contexts, the Pathways method proved to be a practical and empowering tool. Using the method, workshop participants developed Pathways that were subsequently taken up by researchers, with the aim of kickstarting processes of change through behavioural interventions in the next phase of the project. In addition to the activities planned within the project, several case studies committed to implementing specific interventions proposed by the participants in the Pathways. For instance, one region is planning to introduce briefing sessions on the regional sustainability plan for newly elected politicians. Another region pledged to support a municipality pilot study identified as a starting point in one of the co-developed Pathways.

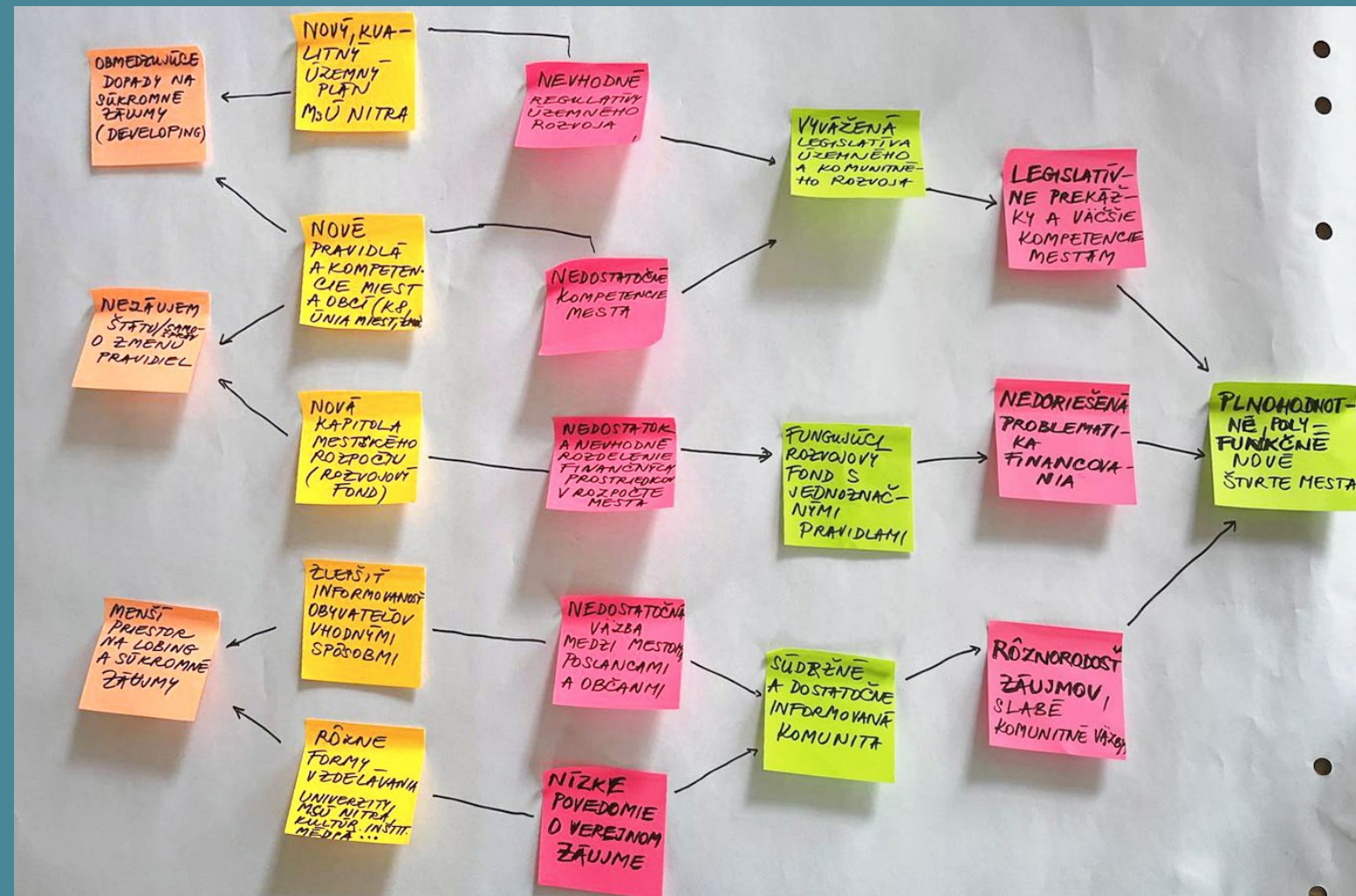


Fig. 10. A Pathway leading to a new polyfunctional city district

Created at a workshop organised in November 2025 by Constantine the Philosopher University in Nitra, Slovakia

**Fig. 11**

Dutch workshop participants co-creating Pathways towards attaining high levels of well-being while remaining within the planetary boundaries. The workshop was organised in September 2025 by the Netherlands Organisation for Applied Scientific Research in The Hague, the Netherlands.

Pathways method used in MultiFutures project

Within MultiFutures, the Pathways method was implemented through two complementary workshop streams conducted between June and November 2025. At the EU level, a dedicated workshop in Brussels engaged policy-relevant actors in defining strategic objectives and transition Pathways aligned with EU policy frameworks and the Sustainable Development Goals. In parallel, a series of national workshops were carried out across the Netherlands, Austria, Finland, and the United Kingdom. These workshops involved a broader mix of stakeholders and sectoral experts, using a more open-ended format. This allowed for the articulation of diverse sustainability visions and a significant expansion of the portfolio of policy options.

Applying the method across these different scales proved highly effective for surfacing underlying assumptions, identifying critical barriers and trade-offs, and assessing the feasibility of proposed interventions. Even when participants could not immediately match every barrier with a specific intervention, the process generated vital insights. For a facilitator, these "unmatched" barriers are not shortcomings of the workshop; rather, they highlight exactly where the design of a strategy needs to be strengthened to enhance its integrity and political feasibility.

The case for stakeholder engagement

In recent decades, stakeholder engagement has become a critical component of science-policy research and application, especially within social-ecological dimensions. The trend is both strong and clear: for example, adaptive management, where scientists and policy-makers work together using an experimental approach to decision-making, has evolved into adaptive co-management, which prioritises broad engagement and deliberation among stakeholders. Moreover, the main purpose of such processes has shifted from achieving specific policy outcomes to fostering a broader “social learning” effect. Social learning refers to the process in which people learn from one another by sharing perspectives, reflecting together, and gradually developing new, shared ways of understanding and acting (Reed et al., 2010). That effect occurs not only on an individual level but also propagates through organisations and wider social networks.

Any individual or group that affects, or is affected by, current decisions and potential future events is a stakeholder and should be involved in the decision-making process. Simply identifying these actors is not enough to prompt action. For engagement to be effective, stakeholders need to be actively involved, and their knowledge, experience, and ideas for solutions must be considered and reacted to as core input. What's more, with the right level of engagement, decision-making can evolve into more than just an attempt to solve a singular problem; it can foster long-term thinking and create insights that spread beyond the original domain.

***Tell me and I forget,
Show me and I may remember,
Engage me and I will understand.***

Xunzi



Fig. 12

Xunzi emphasised that understanding grows through active participation rather than passive listening, a principle at the heart of the Pathways method.

Guidebook audience

This guidebook is primarily intended for facilitators, moderators, and other practitioners involved in planning and implementing change who want to apply the Pathways method in their own context(s). It provides both the conceptual background and the practical guidance needed to design and run participatory events.

The Pathways method is designed for a broad range of participants. It brings together diverse stakeholders, including public authorities, experts, civil society representatives, businesses, local community members, and other citizens, to work collaboratively on land use planning, climate adaptation, and what we might broadly understand as the field of sustainable development. By creating a structured space for exchange, it enables discussion about critical societal challenges, and creates an environment for co-developing potential solutions.

In addition, the guidebook is designed to be of value for readers interested more generally in the theory and practice of knowledge co-production and in the facilitation of collaborative workshops.

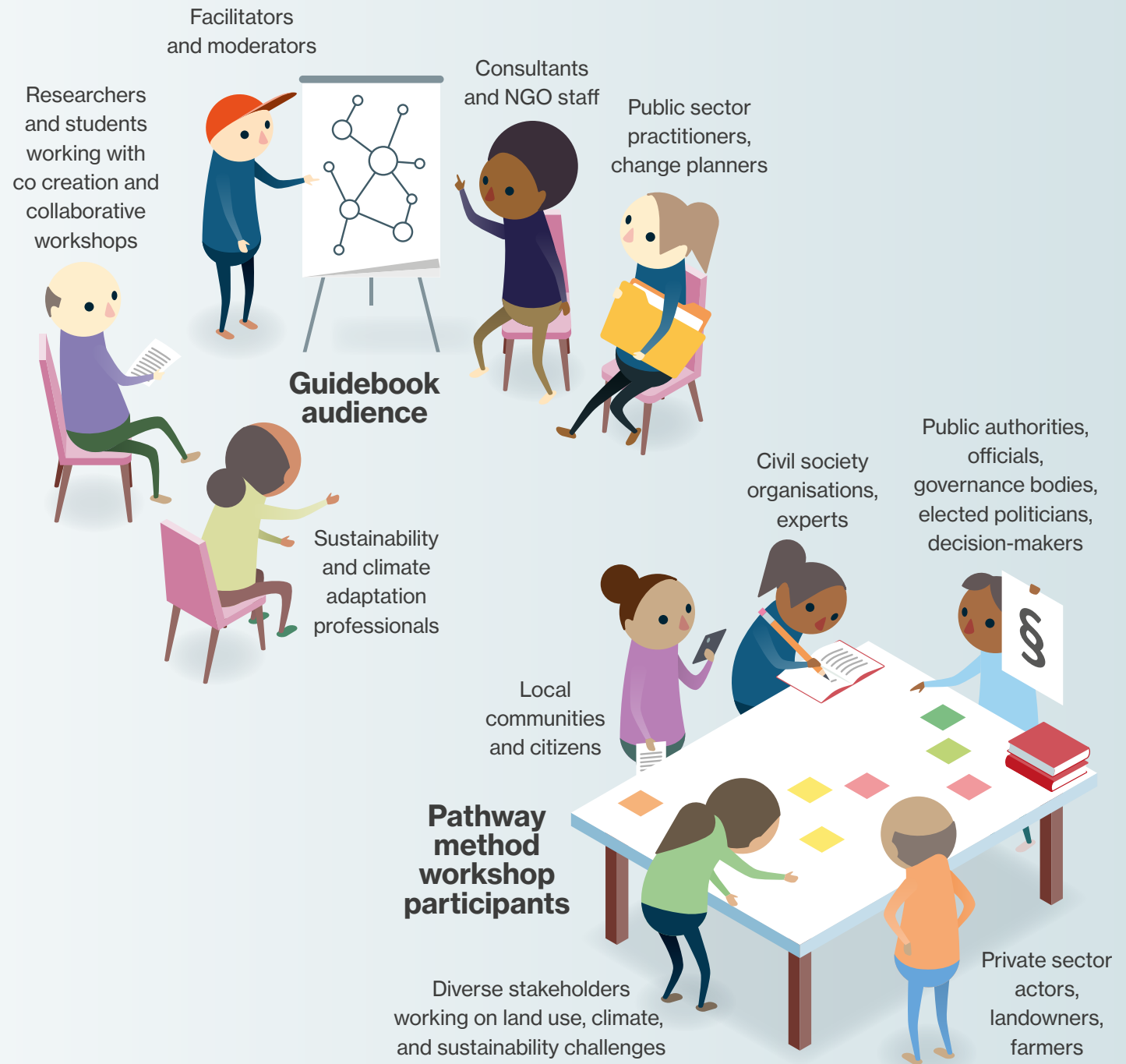
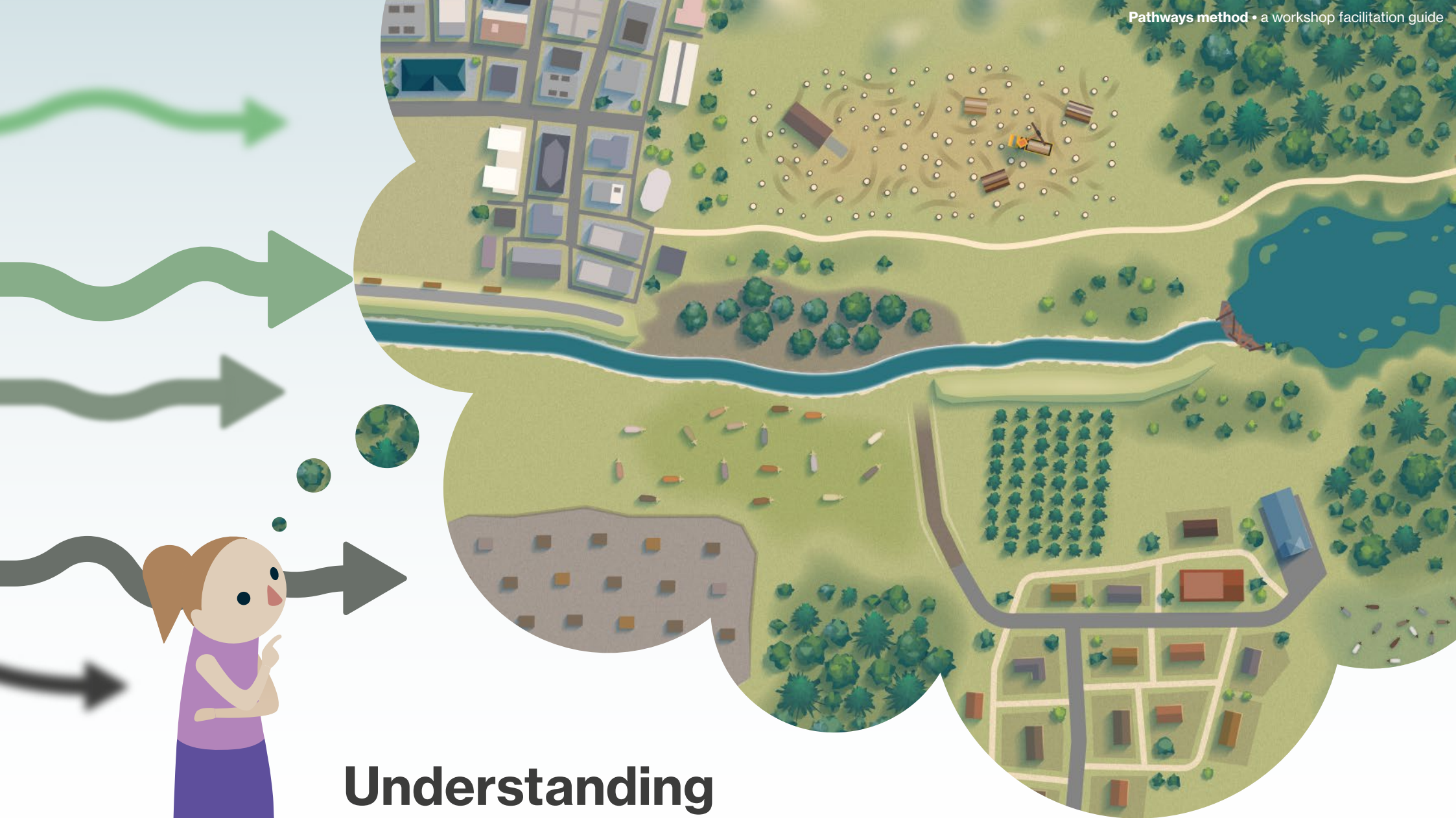




Fig. 13. Workshop participants building a Pathway

Workshop organised in December 2025 by the Île-de-France region, France.

Image: Marion Benoist



Understanding the Pathways method and process

The Pathways method is a structured process of identifying strategies – referred to as Pathways – to reach desired futures. It is a participatory, collaborative and interactive approach designed to accommodate diverse groups of stakeholders connected by a common issue. In this approach, the participants first define their visions of desired futures (see Futures section) and agree on a shared vision.

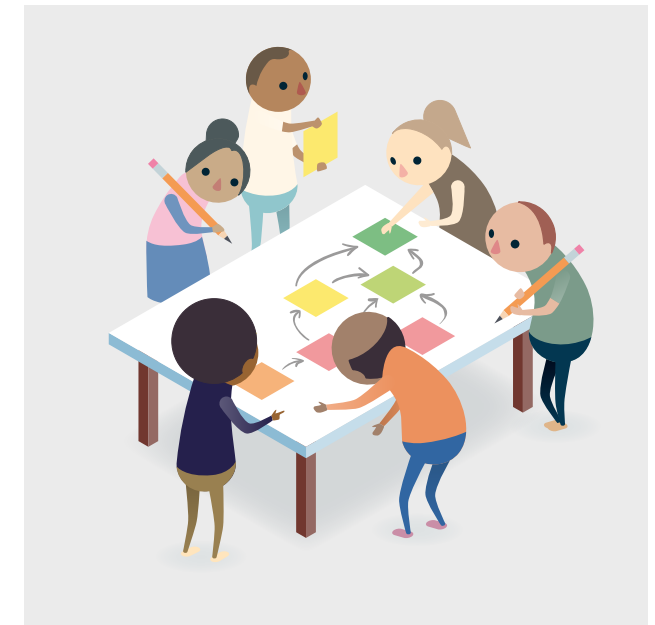
Then, they systematically identify obstacles that prevent them from reaching that vision and devise potential solutions to overcome them, ultimately creating a Pathway that links the desired future with the present day. By focusing on identifying barriers, and interventions, this process allows the participants to deepen their understanding of the underlying system and the specific issues they seek to address.



**Identification of the desired futures
and selecting one Objective to focus on**



**Identifying barriers
and their potential solutions**



**Linking the Objective (future) with
the present day using barrier-solution-barrier-
solution Pathways = creating the Pathway**

Stakeholders' control, influence and beyond

To help participants navigate the complexity of future planning, the Pathways process is framed by three interrelated domains often referred to as zones of control, influence and context. This distinction is made to differentiate between areas where actors can act directly, where they can shape developments indirectly, and where they must adapt to external conditions. Pathways workshop participants should have a basic understanding of these areas.

THE ZONE OF CONTROL

refers to areas where participants can make direct decisions and take concrete action. These are activities, resources, and processes that fall within their formal mandates, organisational responsibilities, or immediate project scope. In this zone, participants can decide what to do and implement it themselves. For example, a municipality may decide to restrict development on agricultural land.

THE ARENA OF INFLUENCE

is broader than the zone of control. It includes matters where participants cannot decide or act alone but can shape outcomes indirectly. This may involve engaging policymakers, collaborating with partners, or mobilising communities. While participants do not have full authority in this area, they can still contribute to change by building alliances, providing evidence, or encouraging others to act. For example, an individual may petition the town hall to increase urban greenery. The zone of control therefore sits within the wider arena of influence, as what actors directly control is also something they influence.

CONTEXTUAL ENVIRONMENT

In contrast, the contextual environment encompasses external developments that lie beyond both control and influence. These include factors such as geopolitical shifts, macroeconomic crises, technological development, or extreme weather events. In this domain, participants cannot determine outcomes and cannot meaningfully steer them. Instead of attempting to control these factors, the task is to anticipate their potential effects and design strategies that remain robust under different possible conditions.

The Pathways method is primarily designed to operate within the zone of control and the arena of influence, that is, within the domains where participants can act directly or shape change indirectly. However, for the strategies to be effective, Pathways must explicitly acknowledge the contextual environment and ensure that proposed interventions remain resilient in the face of external developments that cannot be controlled.

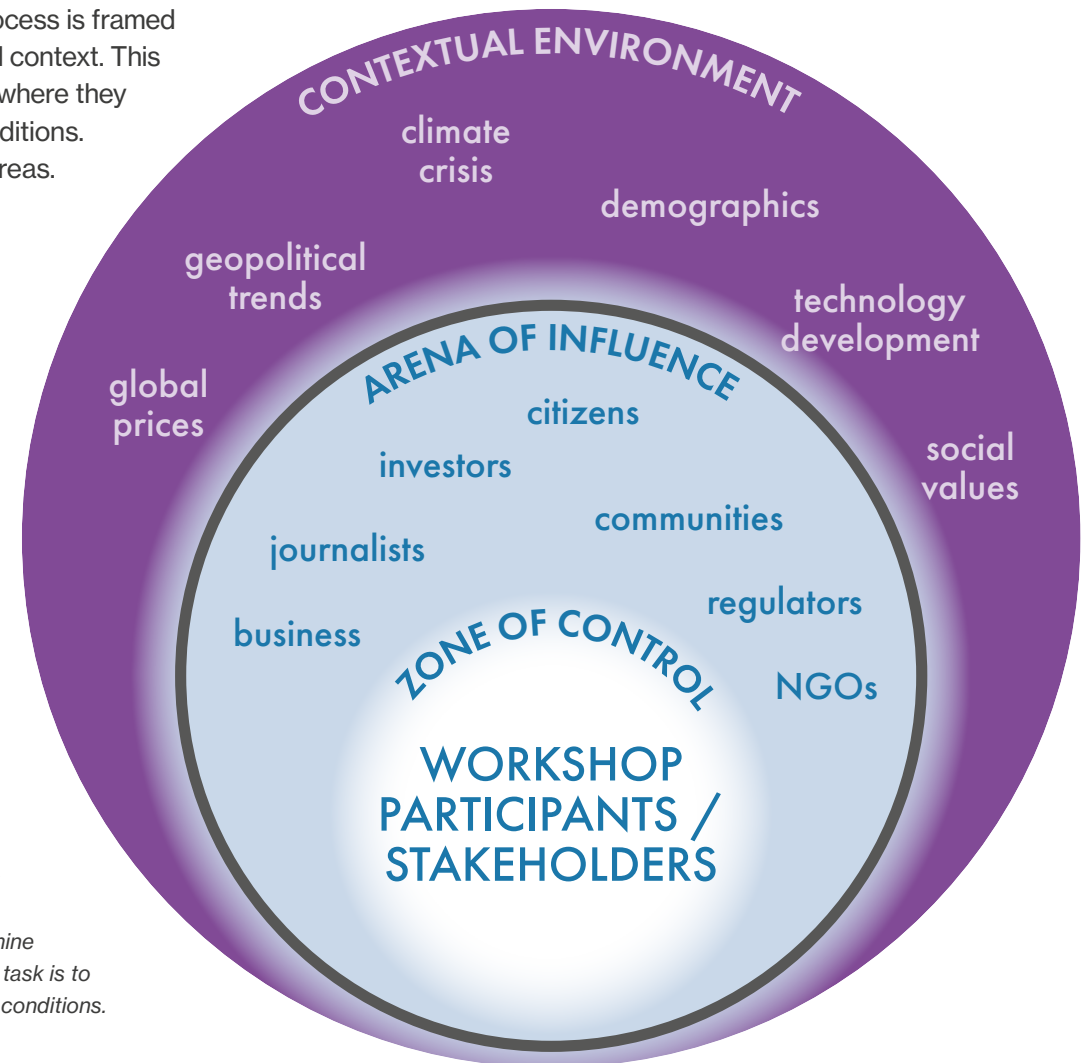


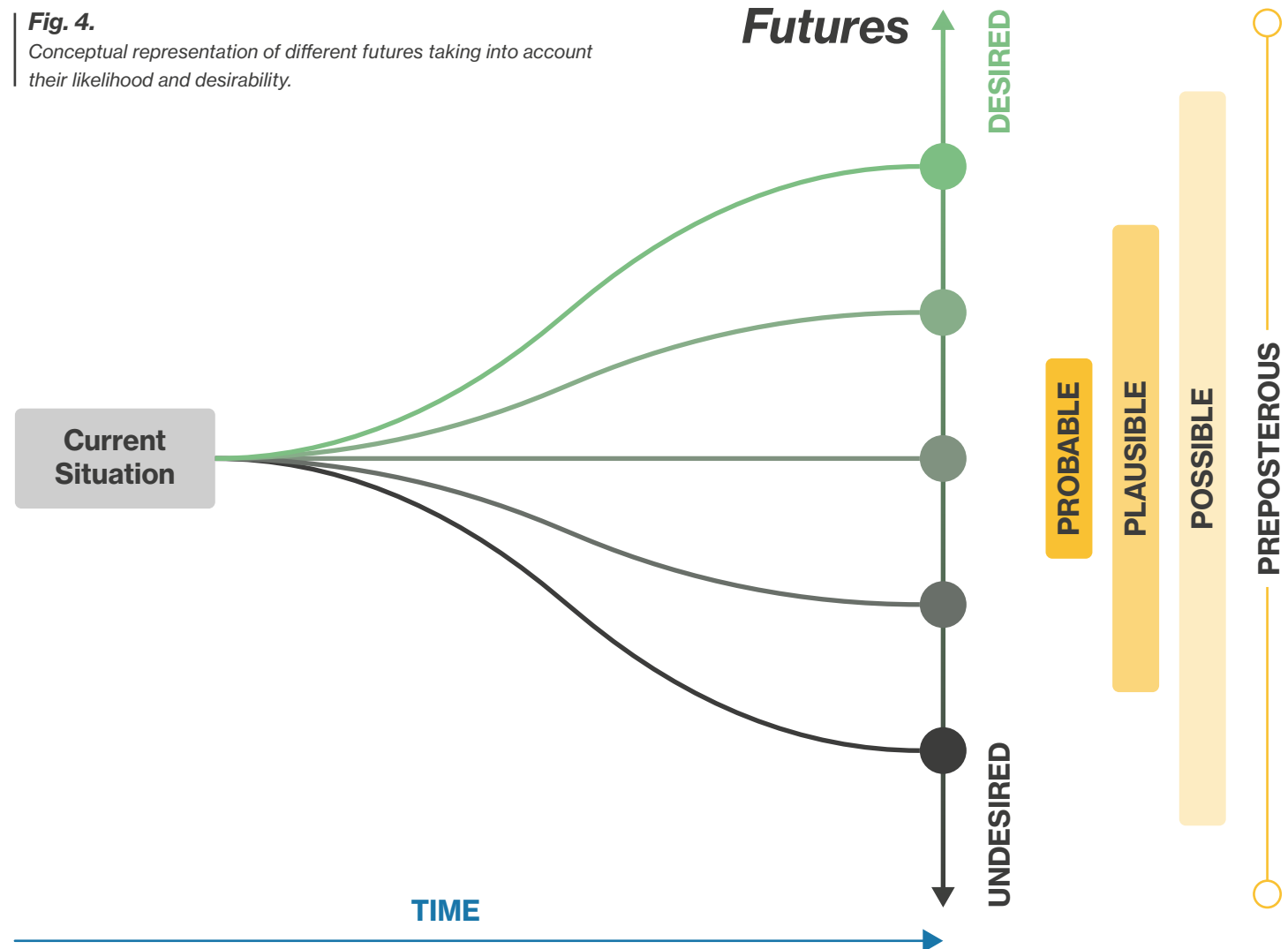
Fig. 14.
The overlapping areas of control, influence and context

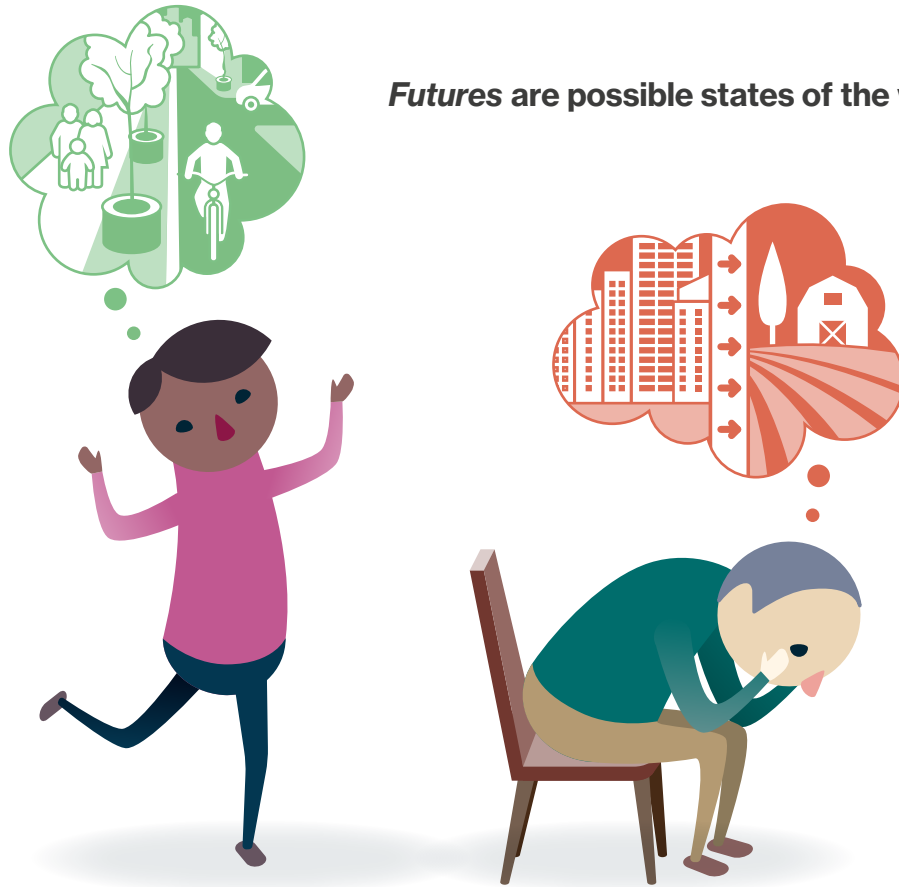
Futures and Visions

Before participants engage in the Pathways exercise, they should have a basic understanding of some key concepts that underpin the process. These concepts provide the theoretical foundation for exploring the future and developing strategies, which can be used in practice.

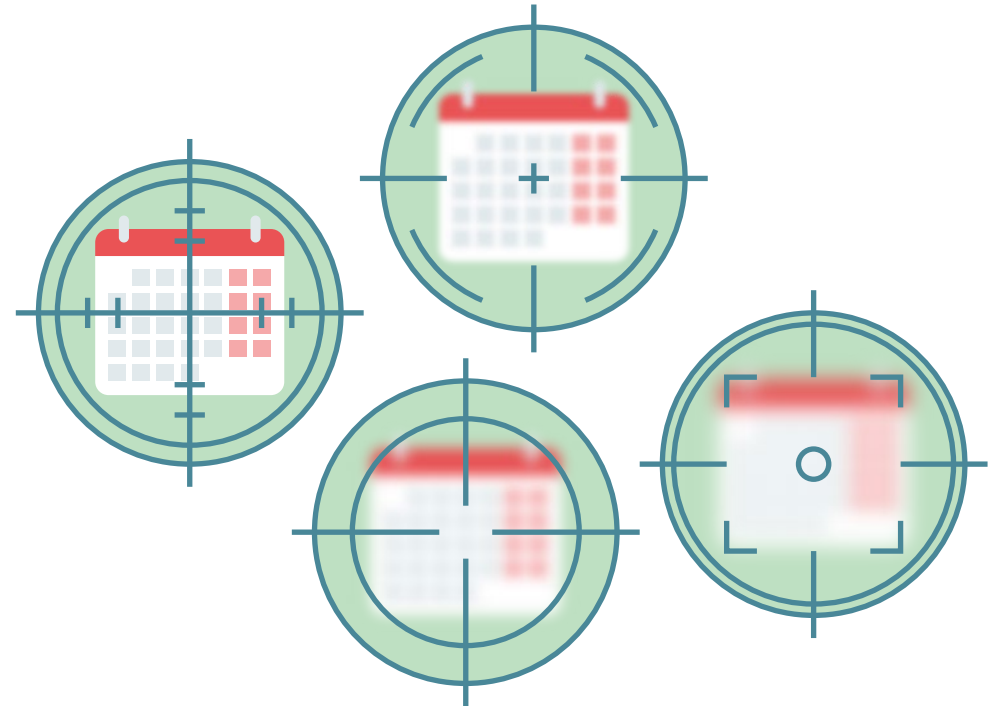
Fig. 4.

Conceptual representation of different futures taking into account their likelihood and desirability.





Futures are possible states of the world at a later point in time. They can be categorised in several ways:



Desired vs undesired futures

Desired futures represent how stakeholders would like the system to evolve, reflecting shared aspirations and values, such as a city where spatial expansion is limited in favour of densification and reusing built land. Undesired futures, in contrast, depict outcomes that stakeholders want to avoid, such as unrestricted city expansion into rural areas.

Probable, plausible, possible, and preposterous futures

These classifications describe the likelihood and credibility of different futures. For instance, a future where most city rooftops host solar panels might be plausible, while one where every field in the region is suddenly rewilded overnight would be preposterous. Recognising this spectrum allows Pathways workshop organisers to consciously select a 'target zone' for the workshop that balances ambition with practical realism.

As established above in the section on stakeholder zones of control and beyond, futures exist in different areas. Over some, participants or their organisations can exert direct control or influence (e.g., introducing local cycling infrastructure). Others fall in the contextual environment, where outcomes are also shaped by factors beyond stakeholder influence, such as national transport policy or global fuel prices. Keeping the three areas (see Fig. 14) in mind helps participants focus their efforts where action is possible while accounting for external constraints.



To achieve this, when a participant proposes a new solution idea, the facilitator may ask questions such as "Which area would this belong to?" If participants suggest an idea that they cannot realistically control or influence, e.g. banning combustion engine cars, it is recommended to guide them to instead consider what they can do within their zone of control or arena of influence, e.g. reducing car travel for personal needs.

Additionally, when participants feel stuck because they do not see a possible solution within their zone of control, the facilitator may ask "Who do you know that has control, and how could we reach them?" These guiding questions shift the conversation towards the arena of influence, potentially turning what seemed like a dead-end into a strategic networking task.

The facilitator may also periodically pause the group's work and ask "is the Pathway robust enough to survive a shift in the contextual environment?" For instance, whether a Pathway to increase urban green spaces would withstand an increased demand for development of new housing. Asking such questions encourages participants to treat external factors not as excuses for inaction, but as "stress tests" for their Pathway.

CONTEXTUAL ENVIRONMENT

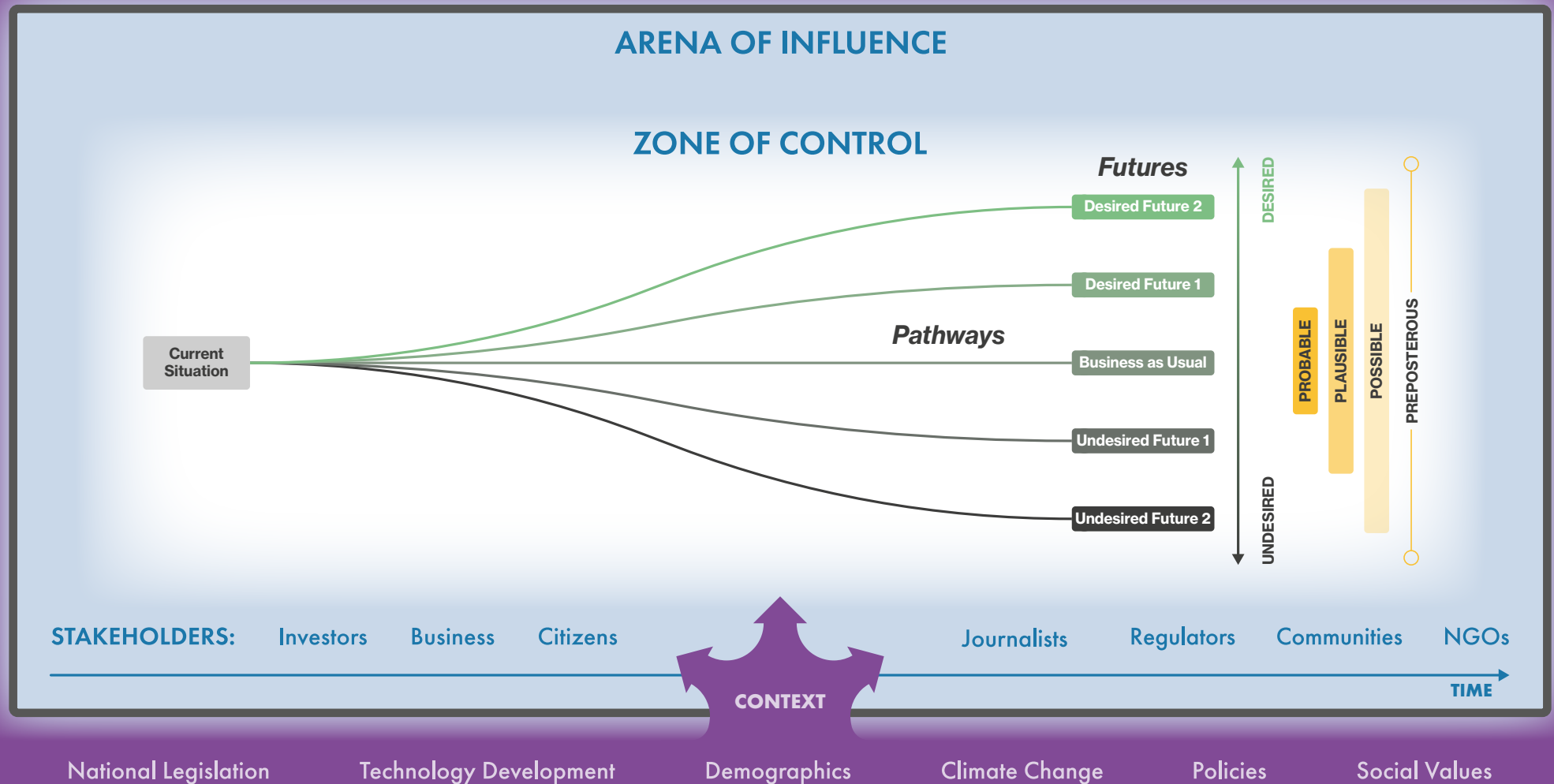


Fig. 15

Pathways leading to a multitude of possible futures in the context of the three areas of control, influence and contextual environment.

When planning a Pathways workshop, it is important to decide which types of futures participants will explore and develop Pathways for (the target zone). In principle, the Pathways method can be applied to any of the four types (probable/plausible/possible/preposterous). However, if the goal is to plan for and bring into reality a positive change, it is generally recommended to focus on probable and, at most, possible futures. These are close enough to reality that participants can identify concrete steps, interventions, and strategies that can be put into practice within their areas of control and influence. Preposterous futures, by contrast, tend to appear far-fetched and detached from current trends and constraints, making it difficult to create a robust, reality-based Pathway that can guide practical action. Selecting the appropriate range of futures ensures that the exercise is ambitious yet grounded, and that the resulting Pathways can realistically support desired visions.

Visions are the narrative expressions of (desired) futures. They translate (sometimes abstract) aspirations into concrete, inspiring descriptions that can guide decision-making and collective action. In the Pathways exercise, visions serve as the starting point for identifying objectives and building strategies, ensuring that the process remains grounded in participants' shared understanding of what "a better future" looks like.



Identifying desired futures and visions for Pathways

The Pathways process starts with identifying a desired future within the chosen topic. A desired future is a plausible version of the future and how it may develop, which can serve as a basis for action. What makes this future "desired" is its depiction of the world "as it should be"; as the participants wish it to be.

A variety of desired futures can be created to reflect the diverse values of different stakeholder groups. These versions can also vary in how much they differ from current situations, thereby implying different degrees of change being sought, ranging from preservation and adaptation to full transformation. (Bai et al., 2016; Wyborn et al., 2020)

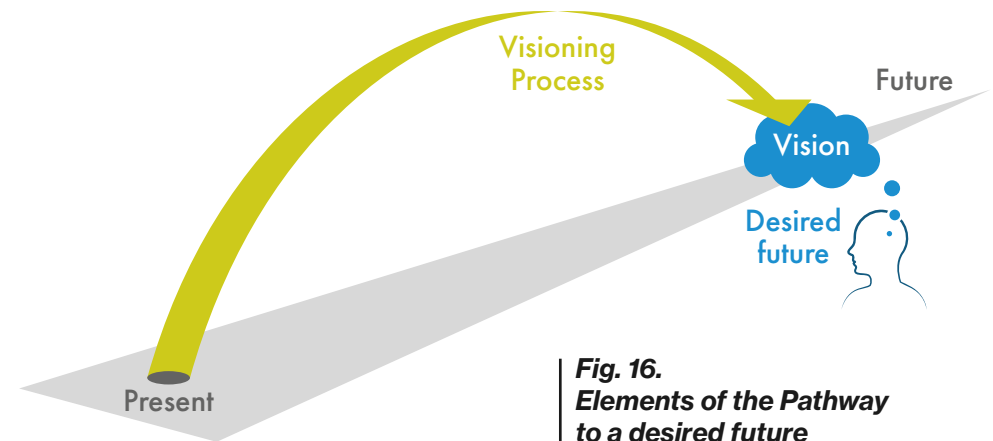


Fig. 16.
Elements of the Pathway
to a desired future

In preparation for a Pathways workshop, it is recommended that organisers propose a few options for desired futures as early as the initial invitation phase. For more detail on this see the Planning a Pathways workshop as a process section. Participating stakeholders will thus have the chance to reflect on the proposed visions and arrive at the workshop with developed ideas. Up to five visions can be presented at this stage.

For example

a municipality seeking to re-define its use of land might invite participants to consider futures such as a city where abandoned lots are turned into community gardens, parks are extended into the suburbs, farmlands are preserved and remain productive, new solar farms appear on rooftops, or streets are redesigned for walking and cycling.

Alternatively, the desired futures can be identified at the start of the workshop itself. Doing this has the benefit of giving a direct feeling of ownership of the vision to the participants who co-create it face-to-face. In this format, participants first share their personal or professional perspectives on what a desirable future for the chosen topic could look like, working in small groups or in a plenary that then divides into working groups. They briefly discuss these ideas and combine or select one shared vision per group, usually expressed in a few words or a short sentence, which they will then explore further in the Pathways exercise. **The role of the facilitator at this stage is mainly to support the process and to ensure that each group arrives at a single clear vision.**

This approach, however, requires more time and will likely result in a longer workshop, potentially, affecting the availability of participants.



Defining objective criteria for identifying desired futures can be challenging. Some visions may be relatively narrow and precise (e.g. **regenerative farming practices are widely adopted by agricultural producers in a given region**) while others are broad (e.g. **global peace is achieved**). To develop a Pathway which can be immediately used in practice, it is crucial to identify and define a clear objective. The objective is derived from the vision: it translates the

broader and more aspirational description of the future into a focused and tangible goal that is clear enough to guide action and the development of the Pathway. The objective is the destination; the entire Pathway built during the workshop will lead directly to this goal. In some circumstances, the desired future and the objective may be synonymous. For highly specific visions, almost no refining may be needed to produce an objective.

On the other hand, for broad visions, a number of individual objectives could be determined. For example, a desired future such as “Europe eliminates the use of fossil fuels for energy generation” could be dissected into several objectives, from the high level (“Poland phases-out coal power plants”) to the ground level (“property owners place solar panels on rooftops”).

This is not to say that a Pathway cannot be successfully created for a broad, high-level vision. Assuming the goal is to translate the Pathway into an action plan that its creators can realistically implement, the Pathways method is most effective when used with participants who can develop a Pathway within their areas of control and influence. The suitability of a proposed or selected vision - and objective - is therefore dependent on the participants involved. For instance, it may be nearly impossible for most individuals to take steps to make a sovereign country change its energy policy; conversely, it may be relatively easy to convince neighbours to install solar panels on their rooftops. However, even in cases where participants explore issues beyond their direct control, the exercise remains valuable: it can help reach a shared and deeper understanding of where challenges lie, what changes would be needed, and who holds the power to act. **For instance, while most individuals cannot unilaterally change a sovereign country’s energy policy, a group can examine the national framework in detail, identify what might be possible, and develop a well-informed assessment of the changes needed to inform future action.**

Ultimately, desired futures should be proposed with close consideration for the target participant groups invited to the workshop, or co-created with them beforehand.

Pathways to desired futures

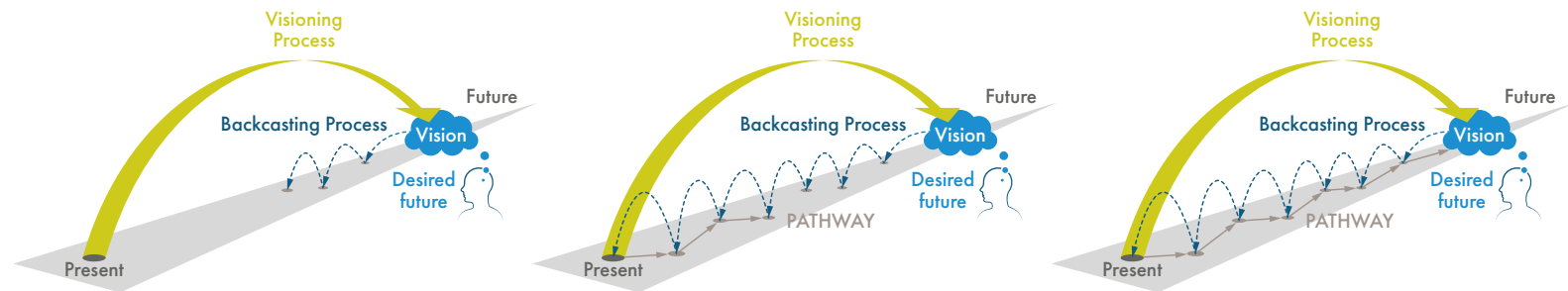
Backcasting

At the foundation of the Pathways method lies the backcasting approach. Backcasting is a planning method that starts with defining a desired future and then working backwards from that future to the present to strategise how it could be achieved (Vergragt and Quist 2011). In practical terms, once a vision of a desired future is developed, backcasting becomes a collaborative effort to identify the specific steps required to reach that vision.

When participants are asked to look forward from the present to the future and imagine how far change might go, many find the exercise overwhelming, and the resulting visions often remain close to current conditions. By contrast, starting from a desired future, even one that initially seems ambitious or unrealistic, and working backwards to the present (“What needs to happen for this vision to become a reality?”; “Which outcomes must occur to move us closer to the desired future?”) tends to help participants develop strategies that more closely align with that vision. Experience shows that backcasting generally brings participants closer to achieving their desired future than a purely forward-looking approach (Ackoff, 1993). While the Pathways method can be fully applied in a forward-looking manner without modifications, the backcasting approach is recommended.

Backcasting also reveals a hierarchy of change in terms of sequencing and conditionality: some outcomes must occur before others can follow. Certain enabling conditions or intermediate outcomes must be in place for later changes to become possible. Making this sequence explicit helps clarify dependencies, timing, and priorities, and provides a clearer understanding of how short- and medium-term outcomes contribute to long-term transformation.

Once the necessary steps have been identified, they are linked together to create a Pathway. In practical terms this is done by having participants write each step on a sticky note (using different colours) and place them on a large-format sheet of paper. Together, they move the notes, discuss their relationships, and draw connecting lines to show dependencies and sequences, gradually building a shared visual map of the Pathway. More on that as we explore the steps of building a Pathway.





Step 1: Objective

The process of determining “how to get there” starts with identifying the destination. In the Pathways method, we refer to this as the objective. The objective represents the specific future we aim to achieve. This element is also described in the Desired future section above.

To bridge the gap between a broad desired future and a practical objective, facilitators must help participants distil their ideas into a singular, functional objective. While a desired future describes the ideal state of the world, the objective defines the specific “GPS coordinates” the group commits to reaching through their actions. If a group finds itself with a vision that feels too large to tackle, facilitators should encourage them to ask: “Which specific part of this future do we have the greatest mandate or capacity to address?” By narrowing the focus in this way, the group transforms an abstract aspiration into one or more concrete goals, ensuring the resulting Pathway is a useful roadmap, which can then be immediately put into practice, rather than a list of unattainable wishes.

Once the objective is identified and agreed upon by the participants, it is written on a dark green sticky note and placed at the right-hand end of the prepared flip chart paper, oriented horizontally. (You can learn more about the necessary materials for building a Pathway in the “Preparation of materials” section). If the group cannot reach agreement easily, the facilitator helps the group identify common ground, and refine the wording of the objective, using guiding questions such as: “Are the differences substantial, or mainly a matter of wording?”, “Can we combine these ideas into one objective?” All subsequent elements of the Pathway will be placed to the left of the objective.

A thriving
small and
medium-sized
farming
sector

Fig. 17

A Pathway development process,
showing the Objective as the starting point.



Step 2: Barriers

The next step involves asking the participants to identify the reasons why reaching the desired future is difficult. What is it that prevents them (and/or society more generally) from achieving the objective? The answers to these questions are written on the red sticky notes. These represent the barriers that stand in the way of our vision. At this point, the barrier sticky notes are placed to the left side of the objective, creating a visual series of obstacles that need to be overcome.

To make the final Pathway reality-based and usable in practice, it is recommended to capture as many barriers as the participants can think of. Participants should be encouraged to draw on their knowledge and experience, as every sticky note can be repositioned while the Pathway takes shape. In the completed Pathway, linking lines will be drawn between the sticky notes to show which barriers affect the objective (directly) and, where relevant, which outcome (this is described in the next step). At this stage, however, it is sufficient to place the barrier notes loosely to the left of the objective without drawing connections, because their position may change as new elements emerge. For example, a barrier initially understood as directly blocking the objective may later be more accurately linked to a specific outcome identified during the process. The number of barriers generated will ultimately depend on the time available in the workshop.

Once the first series of barriers has been placed on the paper and participants have had a chance to share all their ideas about obstacles preventing the achievement of the objective, the process moves forward to identifying plausible solutions.



Fig. 18

A Pathway development process featuring barriers blocking progress toward the Objective.



The questions to ask the group are “What can be done about these barriers?” and “What needs to change or happen to overcome them?”. The Pathways method employs two concepts at this point: interventions and outcomes.

An intervention means a deliberate action, strategy, or set of activities implemented to bring about desired changes within a system, as part of a Pathway toward outcomes or objectives. We use yellow sticky notes to represent interventions. They will frequently fit into either the zone of control of the workshop participants or their arena of influence. (See Fig. 14). In other words, an intervention is a focused Pathway element that feels attainable to the participants, to the extent that they can turn it into reality if they pursue it determinedly. If an intervention triggers a change, we use the outcome element of the process to describe it.

An outcome is a specific, observable, change that results from one or more interventions, reflecting progress toward achieving the objective. We use light green sticky notes to represent outcomes. Unlike interventions, outcomes most likely will not feel like they belong to the zone of control. An outcome will typically fit somewhere between the arena of influence and the contextual environment. In practical terms, as the Pathways method is carried out via backcasting, the outcome element describes the change the Pathway authors deem necessary to reach the objective. For every outcome, there should be at least one intervention which, if implemented, will give the overall system the initial push to eventually realise the change.

Once potential outcomes and interventions are proposed, they can be linked to the objective, or to an intermediate element (either interventions or outcome). The linking line should go below the barrier sticky note(s) which these elements are expected to solve or mitigate. In cases where a barrier does not exist, the link can be direct.

Basic Pathway elements



Objective

The ultimate, long-term change or transformation that a Pathway to a desired future intends to achieve.



Barrier

A specific obstacle, constraint, or limiting factor that prevents or hinders the achievement of a desired *outcome* or *objective*.



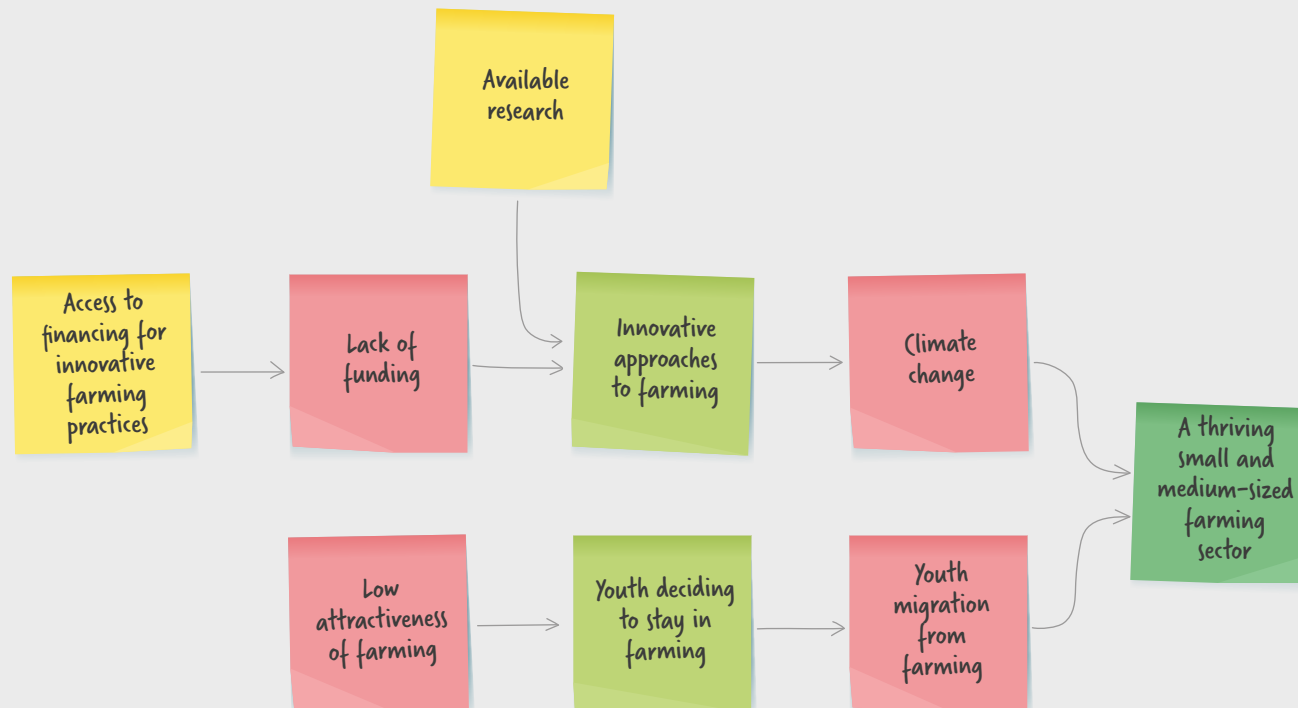
Outcome

A specific, observable change that results from one or more *interventions*, reflecting progress toward achieving the long-term *objective*.



Intervention

A deliberate action, strategy, or set of activities implemented to bring about desired changes within a system, as part of a Pathway toward *outcomes* or *objectives*.

**Fig. 19**

A Pathway development process featuring outcomes introduced to overcome the barrier and achieve the Objective.

Useful tips

Experience of running Pathways workshops suggests that participants may struggle to propose creative solutions to the barriers. To stimulate creative thinking, supplementary materials outlining categories of outcomes and interventions may be used (see page 37, 38) as prompts. Although the Pathway itself does not distinguish between these categories of interventions and outcomes, the categorisation we use provides a useful source of inspiration for the facilitator. This means that if and when a group finds it difficult to answer the question “What needs to change?”, the facilitator can offer these categories by way of a nudge to prompt new ways of thinking by, for example, asking “Perhaps the answer could be ...?” - hinting at, for example, an experiment, a change in rules or regulations, new forms of collaboration, or even a shift in values or behaviours which could help to overcome the barrier.

Categories of Interventions



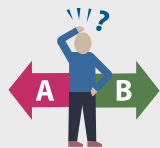
Action

An intentional step carried out by an individual or organisation directly within their zone of control, aimed at addressing a barrier to enable progress towards a desired *outcome* or *objective*.



Activity

A recurring act initiated and maintained within an actor's zone of control, aimed at addressing a barrier through repeated effort over time.



Decision

A decision made by authorities, executives, a collective body, or an individual.



Experiment / Pilot Study

A controlled, time-bound intervention designed to test a new idea, approach, or solution on a small scale to learn what works/what doesn't, and why.



Policy / Rule

Involves (initiating or influencing) the creation, modification, or removal of formal laws, regulations, or policies to enable progress toward a desired *outcome* or *objective*.



Institutional Change

Sets of interconnected high-level rules regulating societal and/or organisational behaviour in specific areas.

Categories of Outcomes



Change in Built or Natural Environment

A tangible, observable, structural alteration in how human or natural environments are organised, used, or maintained - including new constructions, restorations, spatial redesigns, or ecosystem changes.



Change in Human-made or Environmental Process

A measurable shift in how a system flows and functions over time – faster, slower, more efficiently, or more sustainably.



Change in Human Wellbeing

Refers to enhanced conditions that affect how individuals and communities live, work, and experience their surroundings.



Value Shift

Internal change in distinguishing good from morally wrong behaviour. Values are internalised, individuals follow them even if information about their behaviour is not revealed.



Social Norms Change

A transformation in how individuals perceive the meaning, importance, or role of something, allowing them to reinterpret what is acceptable or desirable in relation to a specific issue.



Behaviour Change (People)

A measurable shift in how individuals or groups act, make decisions, or interact with their environment in response to shifting conditions, norms, or motivations.



Behaviour Change (Organisations)

Occurs when the formal or informal practices, routines, or policies of an organisation are modified, leading to new behaviours and institutional practices that impact upon how it engages with the outside world.



New Knowledge / Better Understanding

Refers to the acquisition of new information, skills, or insights by individuals or groups, enabling them to develop a better grasp of issues, options, or opportunities relevant to their context.

In identifying the outcomes and interventions, the questions asked guide the Pathway authors to address the barriers by finding a way to overcome them. By doing this, the participants create a series of barriers, and solutions to those barriers. This is only the first step in creating a robust Pathway. Next, repeat this process as many times as needed to create a link between the present day (on the far left side of the flip chart paper) and the objective (on the far right). Once we connect the present with the objective, a Pathway takes shape. Such a Pathway clearly shows the steps that need to occur in order to achieve the desired future.

Fig. 20

A Pathway development process featuring barriers which prevent the achievement of the outcomes introduced to overcome the barrier and achieve the objective.

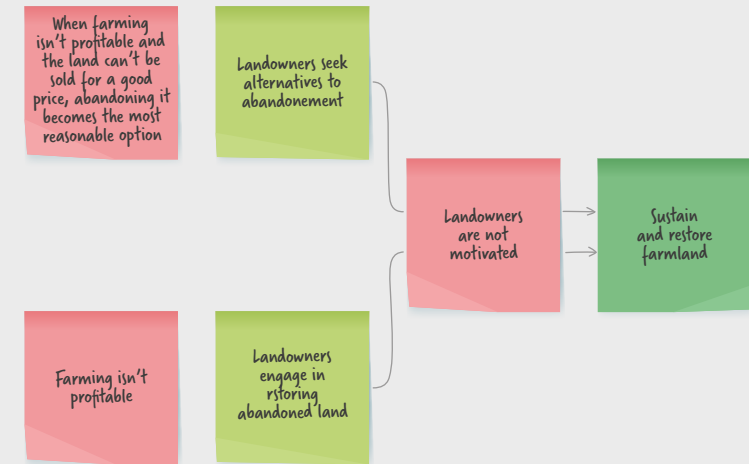
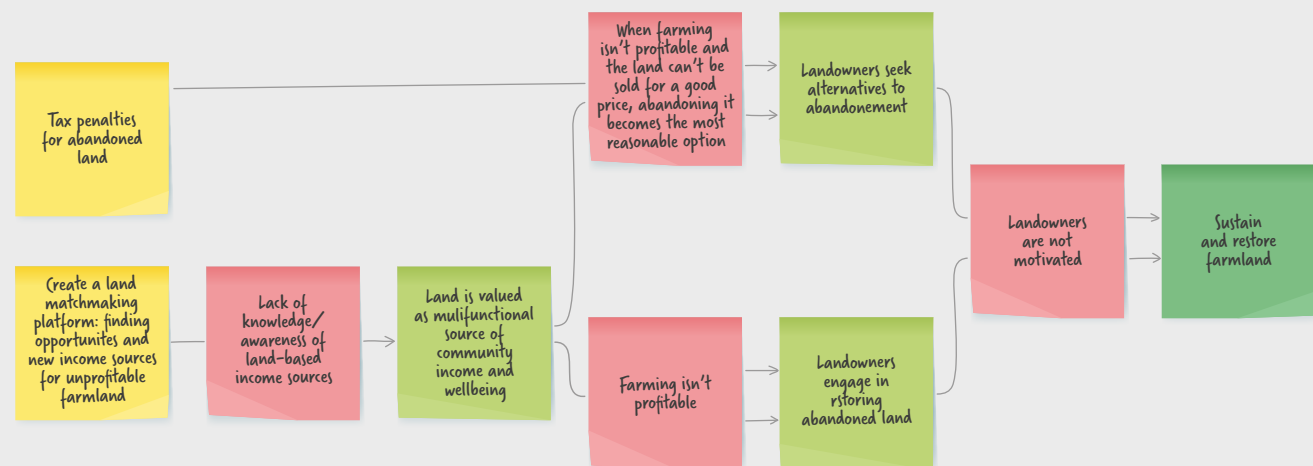


Fig. 21

A Pathway development process featuring interventions designed to overcome the barriers and initiate the progress towards the objective.



Optional Pathway Elements

Connecting a desired future with the present is the primary goal of creating Pathways, as it provides a clear strategy for moving forward. While the exercise may conclude once the Pathway is formed - followed by a discussion on implementation - the Pathways method can also incorporate five further, optional elements.

These elements are not strictly necessary to connect the future with the present, but they provide an added value, resulting in more robust Pathways, better able to be immediately used in practice. Workshop organisers can choose to introduce these alongside the basic elements during the creation process or add them once the Pathway has taken shape. In practice, some participants may identify these elements as they build, while others may prefer to focus solely on the core structure first.



First, participants can identify positive or negative side effects resulting from an *intervention* or *outcome*. The positive side effects are referred to as *co-benefits* or *synergies*. These are represented by pink sticky notes and indicate that an element brings an additional value beyond its intended consequence.

By contrast, negative side effects are referred to as *undesired consequences*. We use violet sticky notes to represent these. They indicate that despite the intended change, an *intervention* or *outcome* may cause complications that hinder progress toward the *objective*.

Both should be placed immediately adjacent to the intervention or outcome they connect to.

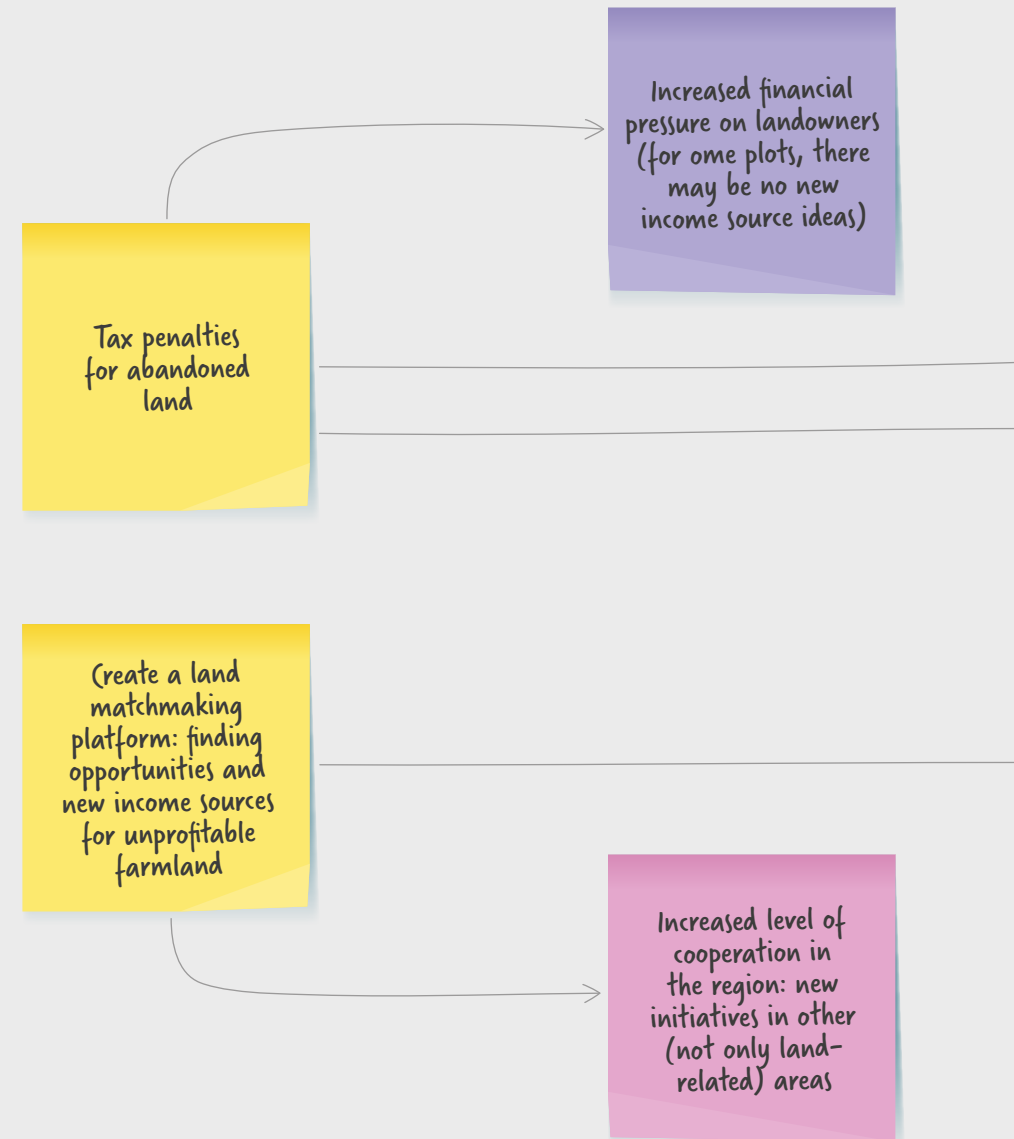


Fig. 22

Snapshot of a Pathway with a Co-benefit and an Undesired Consequence.



Contextual Assumptions

Next, it may be desirable to explicitly state certain *assumptions about the context* in which certain *interventions* or *outcomes* will be implemented. Every decision occurs within a broader reality - the contextual environment - which cannot be directly controlled. To describe this context, use light blue sticky notes and place them close to the relevant intervention or outcome.



Indicators

Furthermore, to make a Pathway more practice-ready, it may be useful to determine *indicators* of progress. These are often technical or data-based measuring tools. For instance, "the percentage of agricultural producers foregoing pesticides" could be an *indicator* for the outcome of "organic farming becoming the predominant practice." Identifying these early ensures progress can be tracked accurately once the Pathway is put into action.



Responsibility

Finally, to avoid producing a Pathway that remains merely "wishful thinking", it is highly recommended to assign responsibility. This element is written on white sticky notes and placed next to, or partially overlapping, specific interventions and outcomes. By naming specific entities, organisations, or even individuals, you increase the likelihood of the Pathway being realised.

The Contextual Assumptions element provides a simplified way to represent the environment in which the Pathway will be implemented. If a more complex approach is desired, Scenarios can be used instead. When time and other resources allow, you can test Pathway's robustness against diverse scenarios to ensure your desired future can be achieved even in an unfavourable contextual environment. For an example that uses scenarios extensively, see [Food Alert](#) and [Nordic Food Alert](#).

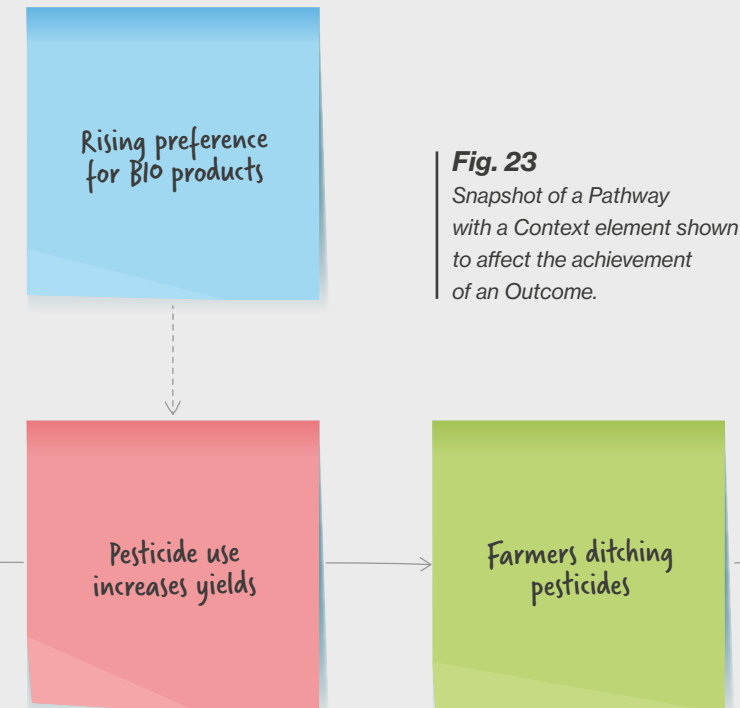


Fig. 23

Snapshot of a Pathway with a Context element shown to affect the achievement of an Outcome.

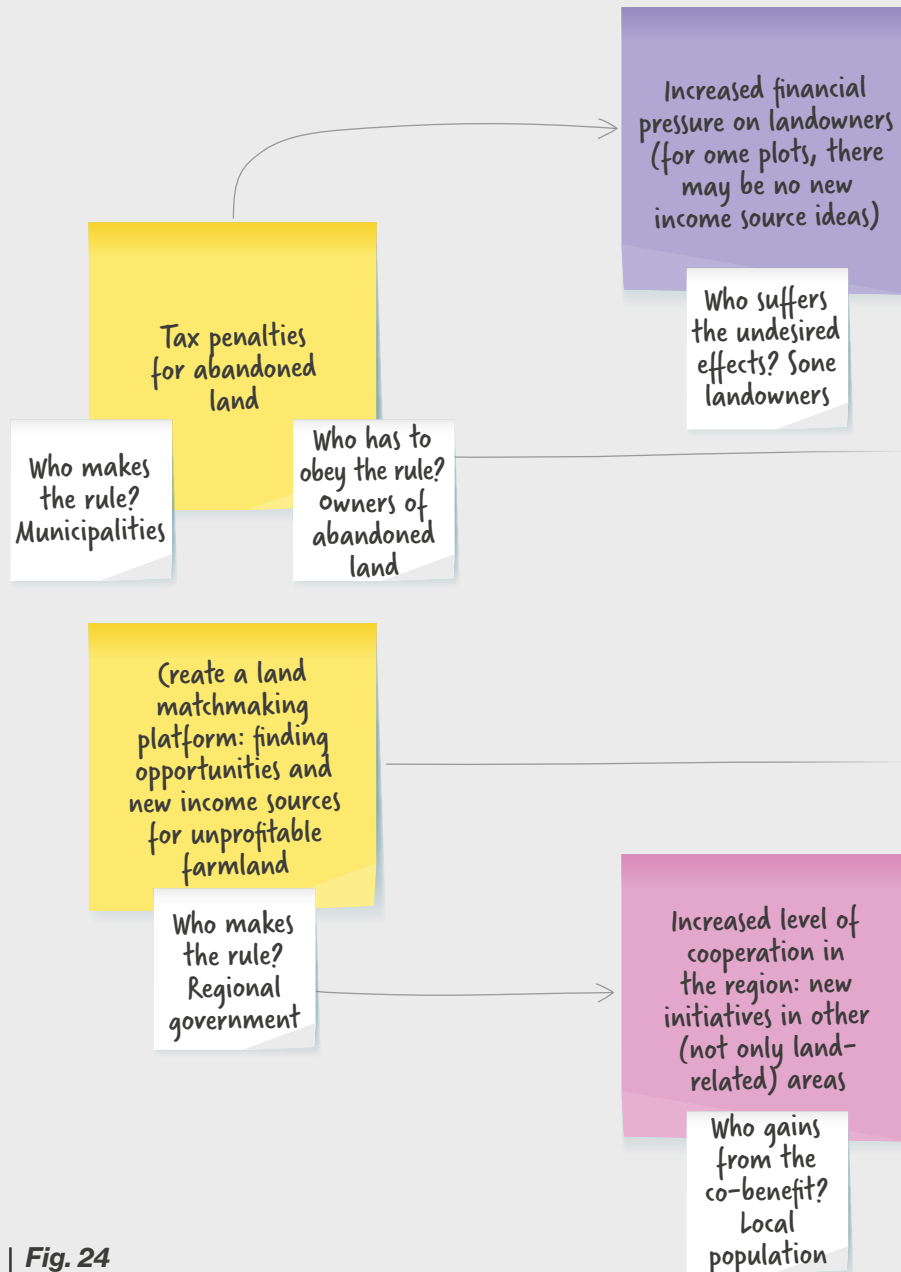


Fig. 24

Snapshot of a Pathway with responsibility notes attached to intervention elements.

Optional Pathway elements



Co-benefits / Synergies

Secondary positive effects that arise from an *intervention* or *outcome*, offering added value beyond its primary purpose.



Undesired Consequences

Refer to unintended negative results triggered by an *intervention* or *outcome* that can complicate or slow down progress toward the objective.



(Assumption about) Context

An (informed) expectation about the future conditions that will exist when a specific *intervention* or *outcome* takes place and are expected to shape the feasibility, timing, or impact of said *intervention* or *outcome*.



Indicator

A measurable variable or observable sign used to track progress toward an *outcome*, helping to assess whether and to what extent the intended change is occurring.



Responsibility

Specific entities, organisations, or even individuals, who the Pathway authors indicate as crucial or necessary to carry out an *intervention* or *outcome*.

Integrating Pathways with other methods in the PLUS Change project

While the Pathways method is designed to fill a whole workshop, or even a series of workshops, it is flexible enough to be supported by a broader suite of other strategic planning and foresight tools. In the PLUS Change project, the method was combined with other approaches in a series of workshops across 9 countries. The examples below serve as a preview of complementary techniques that can be adapted and applied in local contexts.

Mapping historical context

Before looking forward, it may often be beneficial to understand the past. A structured overview of historical land-use developments was used to ground the Pathway development process in some case studies. The chronologically ordered diagrams of socioeconomic, geopolitical and environmental drivers allowed organizers to identify which stakeholders held the institutional memory of a region. Inviting these specific individuals to the workshop helped ensure that the Pathway was built on a realistic understanding of long-term dynamics, preventing participants from proposing solutions that had failed in the past for reasons that were still relevant today.

Visualizing the destination

A common challenge in future-planning is moving beyond abstract goals. To address this, participatory visioning sessions led by artists or creative practitioners can be held prior to a Pathways workshop. In PLUS Change, stakeholders worked with artists to co-produce "Possible Landscapes", tangible, spatial visualizations of their desired futures. When these illustrations were displayed during the Pathways workshop, they acted as a constant visual anchor. This narrowed the gap between different interpretations of a "desired future" and allowed participants to derive their Pathway objective directly from a shared, concrete image.



Fig. 25. Possible Landscape: The green belt of Warsaw

Image: Bartosz Naprawa

Causal Loop Diagrams are visual maps that show how different factors within a system influence one another through cause-and-effect relationships, sometimes including (feedback) loops that can reinforce or balance changes over time (see Fig. 26). The arrows between factors are marked with plus (+) or minus (-) signs to indicate whether factors move in the same direction (+) or in opposite directions (-). For instance, as the habitat quality increases, the biodiversity is expected to (+) increase as well. Conversely, as extreme heat becomes more frequent, well-being is expected to (-) go down.

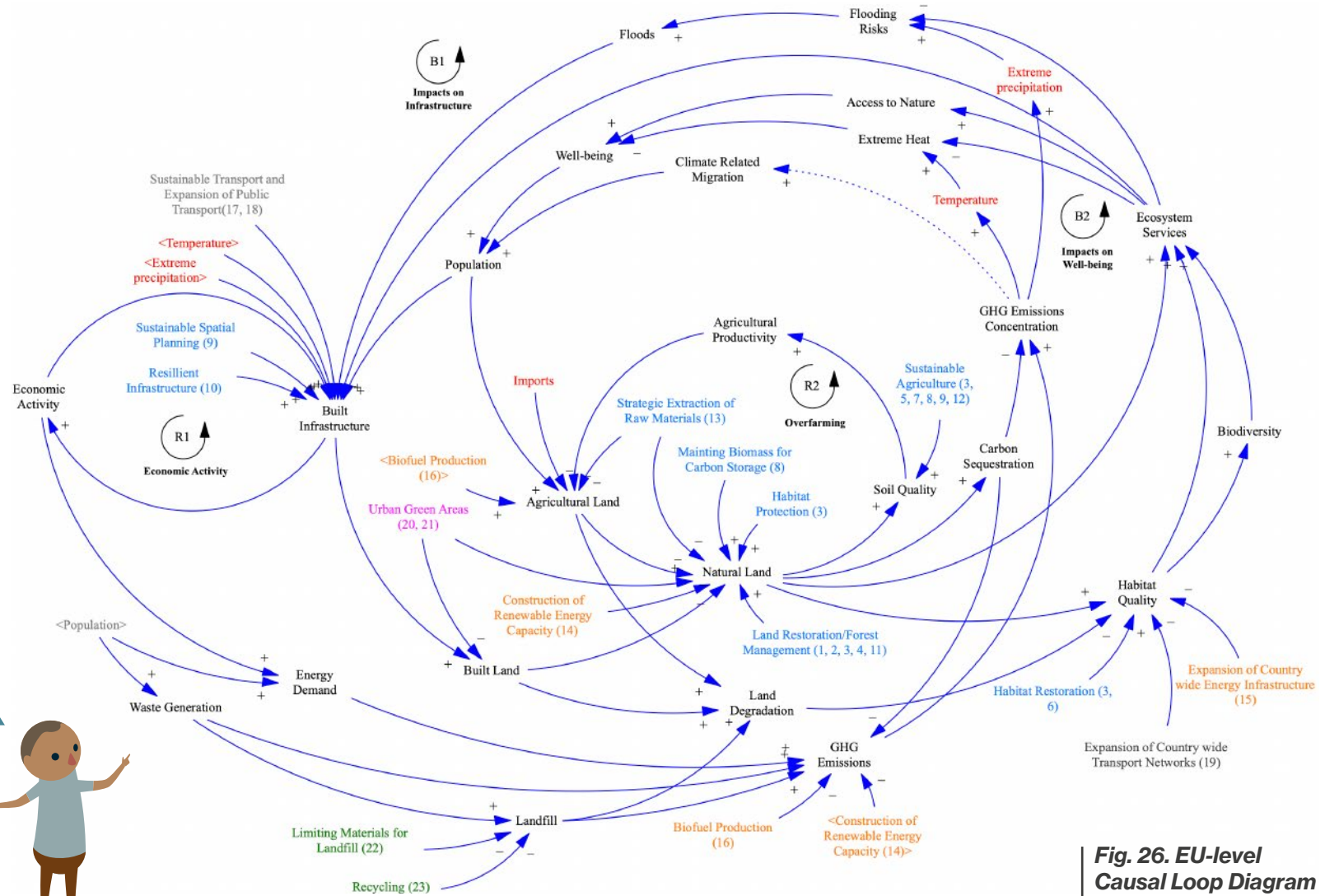
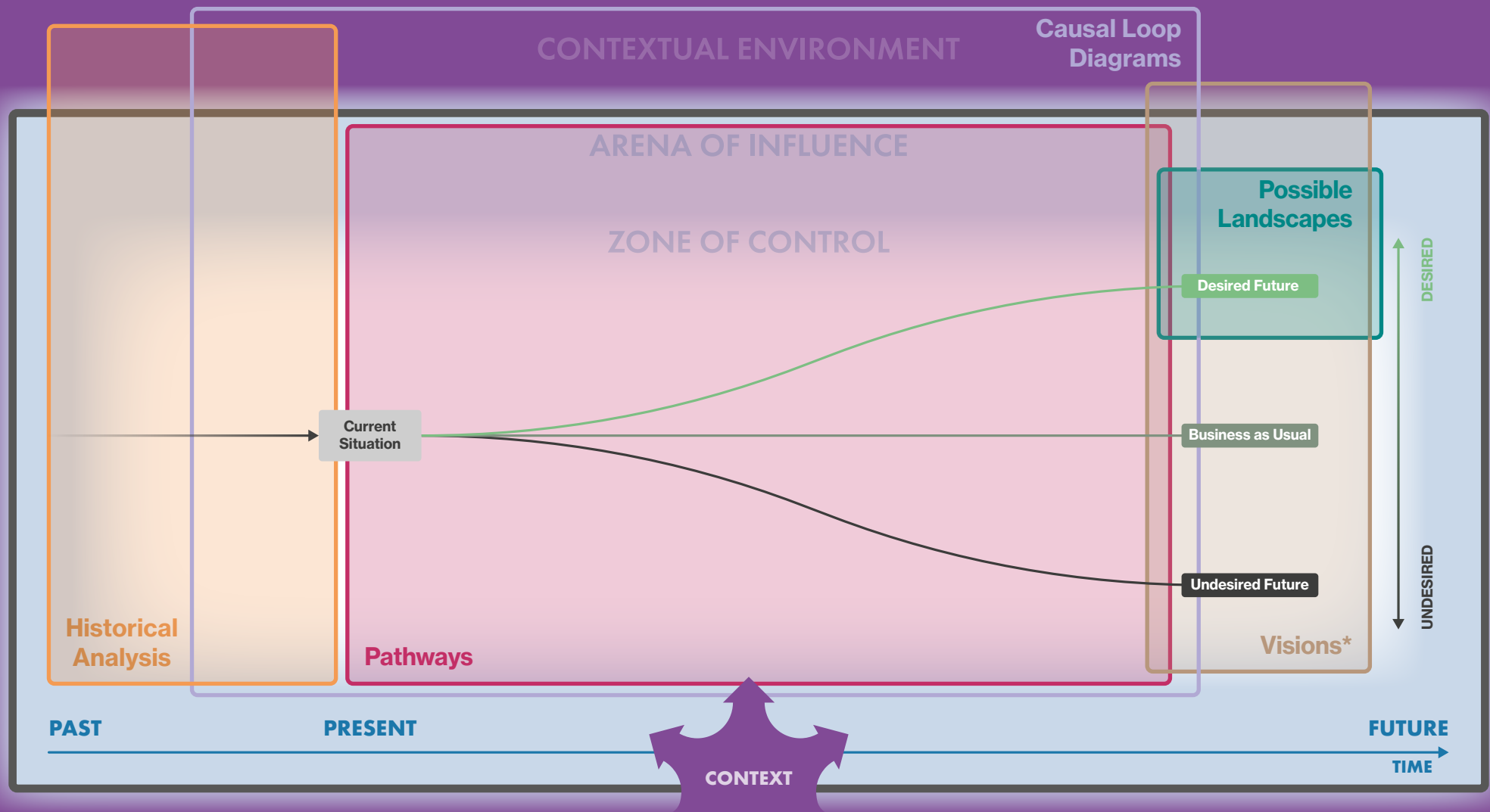


Fig. 26. EU-level Causal Loop Diagram
Image: KnowEdge Srl

Using Causal Loop Diagrams for system depth

To help participants navigate complex cause-and-effect relationships, facilitators can provide pre-made Causal Loop Diagrams as support materials.

During the workshop, having these diagrams available can help participants to peer beneath the surface of the identified barriers. It allows them to trace the cascading impacts of their proposed outcomes and interventions, ensuring that a solution in one part of the system does not create an unintended negative consequence elsewhere.



Benchmarking against external scenarios

Pathways can also be "stress-tested" against broader trends. By using a set of harmonized normative scenarios (for more detail on scenarios, see the Existing approaches section), facilitators can provide a benchmark for coherence. In PLUS Change, premade EU-level visions* on the trends in land-use change provided a reference frame for the case study Pathways. In practice, benchmarking allows organizers to compare the content of a locally generated Pathway with wider

socio-technical trajectories. This comparison helps stakeholders see whether their local propositions are aligned with larger shifts or if they require additional interventions to remain plausible in the face of the shifts observable on a macro-scale.

*In PLUS Change, visions of preferred futures and assumptions based on continuation of implementation of current or emerging land use policies were used to benchmark some of the Pathways instead of normative scenarios.

(previous page)

Fig. 27. Visual representation of Pathway development with complementary methods in the PLUS Change project.

Strategic integration of other methods

Developing a Pathway in combination with additional methods can enhance the quality of the output. It may be a good choice when the workshop participants are already familiar with some of the other methods. From PLUS Change experience, when stakeholders have had time to develop their visions over several months, the actual Pathways workshop can skip the introductory desired future phase and focus entirely on “how to get there?”. The high level of detail, stimulated by combination with other methods, is what increases the odds of the Pathway being comprehensive and usable in practice. It may also constitute a robust justification for sharing it with legislators and decision-makers.

However, additional methods should be applied with caution and are not recommended for first-time facilitators. Each added layer increases the cognitive demand on the group. The key to success is careful sequencing: ensure that each complementary tool serves a specific purpose. Whether that is grounding the past, visualizing the future, or testing the logic, it should never overwhelm the participants.





Applying the Pathways method in practice

Having read the sections above, you are now familiar with the founding principles of the Pathways method and the process of using it in a workshop setting. This section will guide you through the practical aspects of designing stakeholder workshops and share good practices regarding materials, facilitation, and organisation.

Practicalities

As a minimum, the development of a Pathway requires around 2.5 hours, followed by at least 30 minutes for debriefing and reflection. When the introduction to the method and other essential agenda elements are included, a realistic duration for a full workshop is approximately 4 to 4.5 hours. The Pathway is developed in working groups of about five to six participants, each supported by a facilitator. A workshop may involve one or several working groups; however, the overall number should remain manageable so that working groups can meaningfully share and discuss their results during the joint reflection. In practice, an effective format is around four working groups, which corresponds to approximately 20 to 25 participants.

While it is possible to work with smaller working groups, five participants per Pathway can be considered a practical minimum to ensure a sufficient diversity of perspectives and to produce a robust plan, which can be used in practice. When selecting stakeholders, it is therefore recommended to compose groups that bring together different sectors, roles, and types of knowledge. Each group needs a table with a large format sheet of paper and sticky notes of various colours; detailed guidance on materials is provided below. In addition to the group facilitators, one lead facilitator is needed to guide the overall process and the plenary moments.

Recommended Pathways workshop length and scale

Full workshop duration	4–4.5 hours
Core Pathway work	min. 2.5 hours + 30 min debrief
Group size	5–6 participants per Pathway
Typical workshop size	~20–25 participants (4 working groups)
Facilitation	1 facilitator per group + 1 lead facilitator
Group composition	mix of sectors and perspectives

Planning a Pathways workshop as a process

Reaching a desired future is a long-term process, not a one-off event. It involves numerous stakeholders, requires time, an understanding of the vision's complexity, and the implementation of systems innovations. Before planning a meeting with stakeholders (the workshop), it is valuable to adopt a broader perspective and define their roles within this wider process.

Planning a workshop focuses on organising a single event with a defined agenda, concentrating on effective time management and the topics to be discussed. Planning a process, on the other hand, means thinking beyond the event itself and starting preparation well in advance. In practice, this preparation typically begins at least one month before the workshop and includes defining the scope of the topic, identifying and inviting a diverse group of stakeholders, preparing input materials, and assembling the facilitation team.

The process extends well beyond the initial co-creation of the Pathway. After the workshop, the Pathway is usually reviewed and enriched with additional stakeholders engaged through other means (such as consultations), and the organisations involved begin to implement the first interventions. The duration of this phase depends on the ambition of the objective and the specific context. Generally speaking, the work continues until the Pathway is turned into reality and its objective is achieved.

This means that when using the Pathways method, it is important to allocate time not only for the workshop, but also for preparation beforehand and to think about the follow up activities afterwards, as this is where the long term impact of the method is created.

The idea behind participatory processes is to move away from typical conflict situations, where parties oppose each other, shift responsibility to a single entity, and demand action. Instead, the key assumption in using the Pathways method is to empower stakeholders to co-develop solutions, while emphasizing shared responsibility for the final outcome of the process.



Fig. 28. PLUS Change consortium members testing the Pathways method

PLUS Change general assembly in May 2025, Riga, Latvia.

The Pathways method is designed for a multi-sectoral setting, where participants represent the key groups that influence, are affected by, or can act on the selected objective. In practice, this means inviting a balanced mix of stakeholders relevant to the topic (more on this in the following section).

When forming working groups, it is recommended to combine different perspectives at each table, ideally including both public and private sector actors and, where relevant, a financing perspective.

Transparency requires that the purpose of the workshop and the intended use of its results are clearly communicated from the outset. After the workshop, the documented Pathways should be shared with all participants, and, where possible, be used to inform the relevant planning or decision making processes.

Choosing participants and identifying stakeholders

When you decide to run a Pathways workshop, the first crucial step is selecting participants. This step is essential for building a broad coalition of internal and external stakeholders working toward the desired future.

Workshop participants should have a stake/interest in the chosen topic while representing a diverse range of perspectives (see the Guidebook audience section). This diversity is important for fostering comprehensive discussions and stimulating well-rounded interventions and outcomes.

Participants at a Pathways workshop should ideally cover the most prominent stakeholder groups involved in your topic. To create a comprehensive stakeholder list, you should start by brainstorming: list the people, businesses, or organisations; social partners; representatives of professions and crafts; and those who may be affected by the decisions and/or potential future events concerning your topic, as well as those who influence or have an interest in any part of the relevant system. Generally, the key is to ensure a balance between decision-makers, implementers, and those with local knowledge or lived experience.

If possible, identify specific individuals, such as experts, specialists, or decision-makers, who are particularly engaged in the topic or have significant influence within their organisations. These individuals should be prioritised when sending invitations to the workshop. When working with stakeholders, it is also essential to ensure that any personal data collected for the purpose of the workshop is handled in a secure and transparent manner, used only to the extent necessary, and stored and shared in line with applicable data protection regulations (such as GDPR) and general ethical principles. Participants should be informed about how their data will be used and have the possibility to give and withdraw their consent.

Next page provides an overview of potential stakeholders but is not intended to imply the need to include stakeholders from every single category. Instead, it should be used as a quality check to confirm that key stakeholders relevant to the chosen topic have been included.

It is essential to initiate the dialogue with stakeholders at an early stage, before the visions of desired futures are finalised. Early engagement gives stakeholders the greatest potential impact on the visions, legitimising them and significantly facilitating the process of identifying the objective without the need to reverse or cancel already advanced work. More detail can be found in the *Desired Future* section.



Stakeholder categories and types



Citizens

General public: individual non-expert citizens, individual expert citizens on their own behalf



Non-governmental organizations

Non-governmental organisations, platforms, networks, interest groups, community groups, women's groups, and youth groups



Businesses

Large enterprises, SMEs, microenterprises, self-employed



Social partners

Chambers of Commerce, employers' organisations, business organisations, trades unions, representatives of professions and crafts: doctors, judges, lawyers, engineers



Consultancy

Professional consultancies, law firms, self-employed consultants



Research and academia

Research institutions, academic institutions, think tanks



Media

Traditional media, e.g., press, TV, radio, social media, podcasts, hosts, influencers, and celebrities, e.g., musicians, film and sports stars



Regional, local, and municipal authorities, public sector agencies

Regional, local, or municipal structures, other sub-national public authorities, public sector agencies, other public or mixed entities, created by law whose purpose is to act in the public interest, networks of public subnational authorities, public education organisations, faith leaders



National public authorities and agencies (also decentralised)

National and regional/local governments, national and regional/local Parliaments or elected politicians, national and regional/local public authorities or agencies



International actors

Intergovernmental organisations, international NGOs, international corporations, donors & development partners, transnational associations and networks

Preparation of a Pathways workshop

While conducting Pathways workshops is possible in both online and face-to-face settings, this guidebook strongly recommends the latter. The online format is less ideal as it requires the use of digital tools that allow for a seamless interaction and co-creation by multiple users simultaneously (for example Miro), which may pose accessibility issues for some participants. The remaining part of this section is written for a face-to-face format, but the principles also apply to an online format.

A Pathways workshop requires multiple types of sticky notes, as well as large-format paper and supporting equipment. The Pathways process does not strictly require using any printed materials. However, the setting of each workshop varies and it may be the case that, for your specific event, it is desirable to provide some printed materials for participants to consult, such as maps or diagrams. In such cases, it is recommended to use single-sided printing to allow for easier handling.

Below you can find a list of all required materials. Table 8 provides specific information about what you need to run the workshop in a face-to-face setting. In Table 9, you can also find instructions to help you arrange the required space to run a Pathways workshop effectively.

Recommended list of materials for running a Pathways workshop

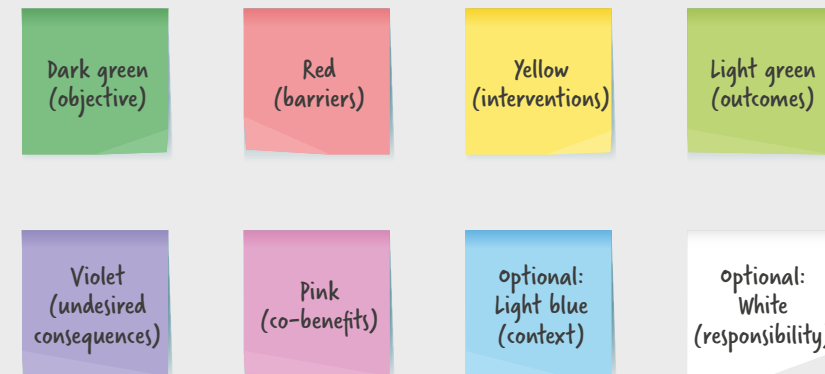
Elements for building the Pathway

Sticky notes (of different colours)

Note: The colours indicated are recommended. Other colours may be used depending on availability. It is not necessary to have all of the colours, but to use them consistently when building a Pathway.

Sticky notes are used in building the Pathway, and are used to make sure that participants' ideas (barriers, interventions, etc.) can be moved around as the Pathway is being shaped.

To ensure clear and intuitive visual communication, it is strongly recommended to use the following colours of sticky notes:



Flipchart paper



Flipchart paper is used as a background for the sticky notes. Once the Pathway takes shape, connecting arrows are drawn on the flipchart paper with markers, creating links between sticky notes.

Markers



Markers are used to write on the sticky notes in large, easy to read letters. Black colour is recommended, although more colours may be useful for differentiating between text or ideas.

Recommended list of materials for running a Pathways workshop, cont'd.

Other materials

Mounting or adhesive putty



You also need to collect other materials to conduct the workshop. Mounting or adhesive putty, such as Blu Tack, allows you to stick the Pathways (flipchart papers) on a wall for presentation and discussion, but also remove them easily without damaging the wall or the paper.

Papers and pens



Papers and pens will be used mainly for note taking by the participants.

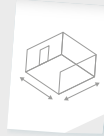
Facilitator materials

Workshop protocol



Finally, you can print out facilitator materials, including the workshop protocol and the debriefing outline. These will be specific to your workshop. Workshop protocol is a step by step agenda for facilitators that outlines the timing, sequence of activities, instructions, and expected outputs for each phase of the workshop.

Room setup



A plan for arranging the physical space so that each working group has a suitable table, materials, and space for building the Pathway, while allowing smooth movement between group work and plenary. Ensure sufficient distance between working group tables to prevent groups from disturbing one another during discussions.

Debriefing outline



A structured guide for the reflection at the end of a workshop when participants present their Pathways and discuss possible next steps.

Other optional materials

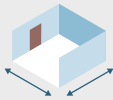


This includes elements to print, e.g. maps, diagrams or other visual aids which are relevant to the selected topic (for example maps for a topic about land use in a region - see Pathways method used in PLUS Change project section) .

Maps should be printed in a large format (it depends on the number of participants and the level of detail that you want to reflect on the map). We recommend printing a map in a printing house. If using a home A4 printer, divide the map into sections and print one section per sheet. Laminating the map can be useful if you want to write directly on it. You can also prepare additional sheets around the map, e.g. showing particular regions or other areas.

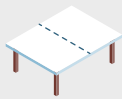
Recommended room setup

Room Requirements



Keep the number of participants in mind when selecting a room. You will need only basic furniture, as you will see in a moment, but everyone will need space to move.

Workshop area



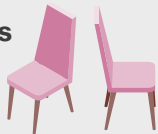
One large table or two smaller tables used together as one - minimum dimensions of 1,5m × 2m - is needed for the group work on the Pathway.

Facilitator table



An additional table is needed for facilitator materials.

Chairs



You should have chairs available for participants, even though they may be mostly standing to watch the Pathway from one direction.

Projector screen Speakers Laptop/Notebook



A projector screen is optional but may be used if you would like to display a presentation or video to support the Pathways building exercise.

Facilitating a Pathways workshop

The success of any Pathways workshop depends largely on thorough preparation. Once you have completed the initial design and preparation phases, facilitation becomes the focal point. Below are essential tips for the preparation and facilitation of the event.



Building a team

Organising a participatory workshop is inherently a team effort given the complexity of the process. To ensure smooth and effective execution, it is essential to assign clear roles and responsibilities within your team.

To help the team prepare adequately, a coordination meeting should be held either in person or online - bringing together all individuals involved in organizing and delivering the Pathways workshop. This meeting serves to clarify roles and responsibilities, review the agenda, and address any logistical or organisational questions. Building strong team cohesion is equally important; when team members understand one another's tasks, they can collaborate more effectively, offer support when needed, and work seamlessly during the workshop itself.

It is recommended that the following roles are assigned for a Pathways workshop:



Lead moderator/ facilitator

This individual serves as the face of the workshop. They explain the workshop objectives and the Pathways method, keep track of time and the agenda, coordinate the work of the different working groups, and moderate the final plenary discussion and reflection. The role can be taken on by a first time facilitator who prepares carefully using this guidebook, although prior facilitation experience is advantageous. General process competence is more important than subject matter expertise. Key skills of the lead facilitator should include explaining the method in a clear and accessible way, moderating plenary discussions, and maintaining the overall flow of the workshop. To ensure understanding of the process, the lead facilitator should read the guidebook in full prior to the workshop.



Table/group facilitators

These individuals play a vital role in the Pathway development process. They are responsible for guiding working group interactions, fostering effective communication, and ensuring discussions remain productive by posing guiding questions such as those presented in the sections describing the Pathway elements. Their primary task is to moderate conversations so that all voices are heard while maintaining neutrality. They must ensure the discussion stays focused on the objective without imposing their own opinions. Their task is to help the participants put together the metaphoric jigsaw puzzle pieces of practice, science and policy in creating the Pathway. They also help participants select the correct sticky notes for specific Pathway elements. If necessary, a facilitator may write on the sticky notes on behalf of the group to allow the discussion to flow, provided they faithfully capture the participants' points. Facilitators also need to ensure that the text on the sticky notes is legible. As this is a demanding role, it is essential to brief facilitators thoroughly on the specific outcomes they are expected to help the group achieve.



Documentation Team

These members sit at each working group table to take detailed notes on the discussions. They do not interact with the Pathway development process; their sole focus is capturing information for later evaluation.



Organisation and Logistics Member

This member is responsible for all workshop materials (such as sticky notes, markers, and flip chart papers), room layout, and refreshments.



Technical support

This member ensures that all technical elements, including presentations, speakers, projectors, microphones, and lighting, function as expected.

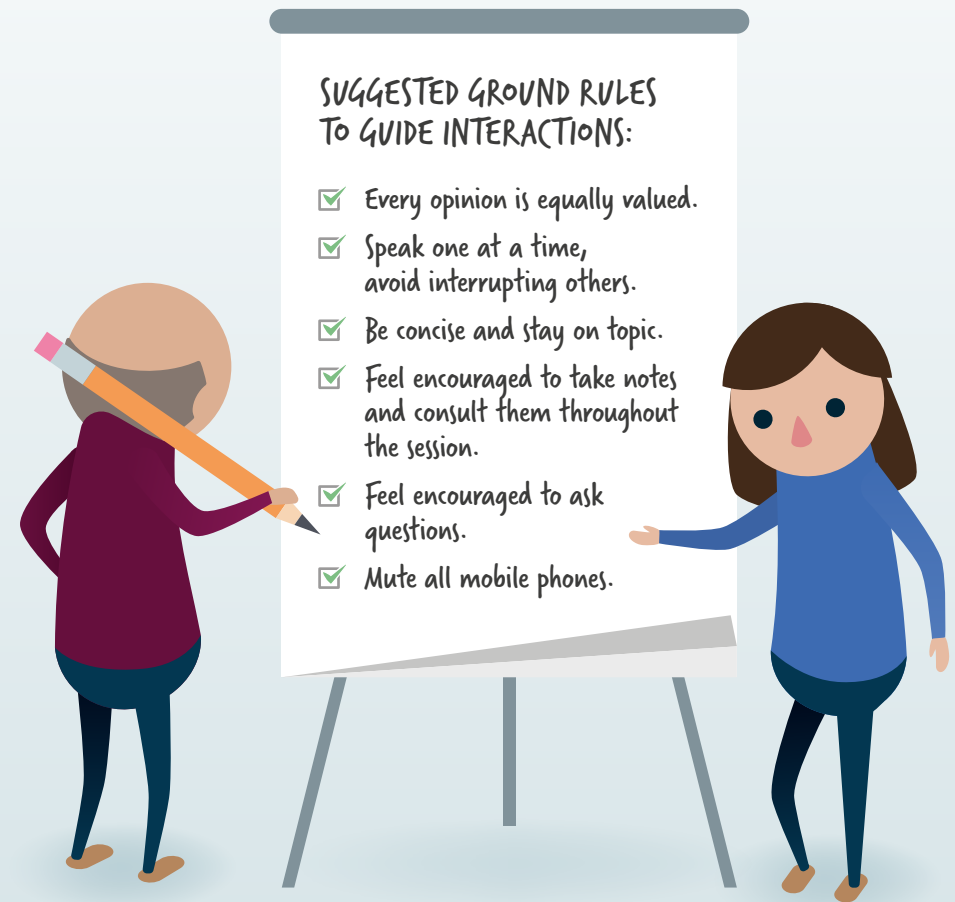
The number of team members required will depend on the size of the workshop (the number of participants). In general, the more participants involved, the greater the level of support needed to ensure smooth organisation and facilitation. For larger workshops (>50 participants), it may be necessary to have additional team members to manage logistics, technical support, and participant coordination.

At the same time, it is important to note that these role descriptions represent an ideal configuration rather than a strict requirement. Smaller workshops (<20 participants) can be successfully run with a scaled-down team. For example, one person can serve as both the lead facilitator and a table facilitator, or table facilitators can take notes themselves rather than relying on a dedicated documentation team. In most cases, a single individual can manage logistics and technical support.

Welcoming participants

Allocate approximately 15 minutes to welcome the participants and establish the ground rules that will structure the workshop discussions. It is crucial to clearly articulate the goal of the workshop right from the beginning, as well as the agenda for the day, to ensure everyone has the same understanding of what is happening and about to happen.

To create an atmosphere of trust and openness, special attention should be given to the introduction phase. The lead facilitator should introduce the organising team and the table facilitators, while also acknowledging the supporting staff. If appropriate for your workshop setup (<30 participants), participants should also be invited to introduce themselves briefly, by stating their name and organisation. If not in the plenary, such brief introductions should be done at the beginning of group work.



Method explanation



After the introduction, explain what it is that participants will be asked to undertake. Allocate 15–25 minutes to detail the basic principles and elements of the Pathways method. This includes explaining the objective, barrier, outcome, and intervention elements, the use of sticky notes, the time allocated for each step, and responding to any participants' questions. You can also use the video created for this purpose as part of the PLUS Change project. Following this explanation, participants should be asked to split into working groups to begin developing their Pathway.

Fig. 29. Workshop participants building a Pathway

Workshop organised in October 2025 by the Mazovian Office of Regional Planning, Poland

Image: Mazowieckie Biuro Planowania Regionalnego w Warszawie

Work in mixed working groups

It is recommended to deploy the Pathways method within small working groups of five to six people. Allocating individuals to working groups can be made randomly, for instance, by drawing lots, though it is sometimes advisable to ensure that participants from the same organization are placed in different working groups to encourage diverse perspectives. Working in mixed stakeholder groups is recommended in most cases, as it leads to a more complete understanding of the system and more realistic Pathways, which can then be immediately used in practice. Homogeneous working groups can be used, but they typically reflect only one perspective and may overlook key dependencies and opportunities that lie outside that group's direct experience.

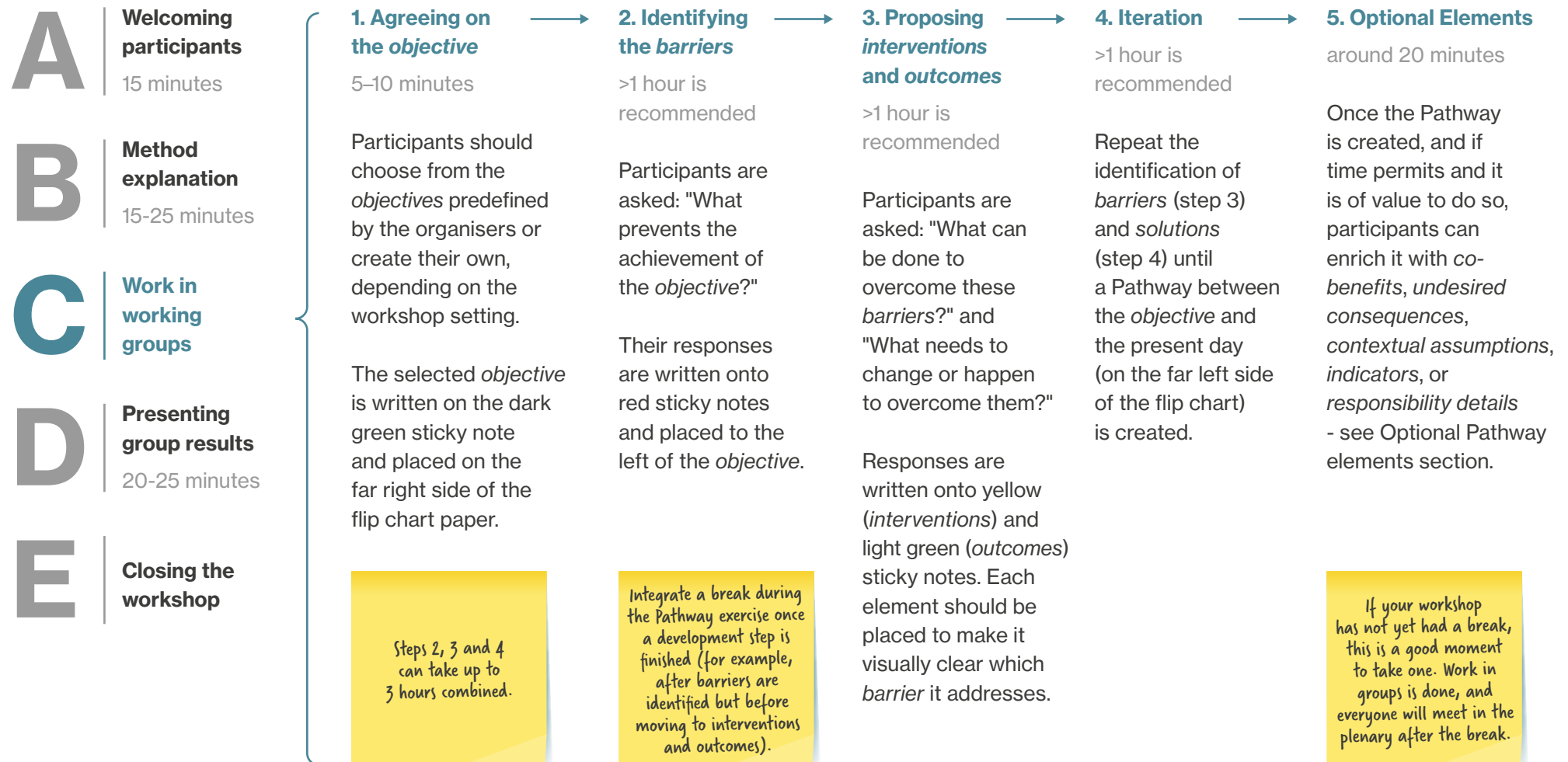
Each working group should be assigned a table large enough to accommodate the A1 flip chart paper necessary for building a Pathway. Ideally, each group should have a dedicated Table Facilitator to ensure the discussion stays on track. If this is not feasible, each group should appoint a chairperson from among its members. The chairperson's role is to keep the discussion focused on the workshop topic, ensure balanced participation, and summarise key points at the end of the exercise. Working groups without dedicated facilitators require frequent monitoring by the lead facilitator to ensure that the steps of Pathway development are clear and progressing well.



Depending on your chosen topic, all working groups can develop a Pathway toward the same *objective*, or each can pursue a different one. The only requirement is that these *objectives* should not be contradictory, unless this is a specific goal of your workshop. The working groups do not necessarily have

to be in different rooms; however, maintaining reasonable space between each table is essential so that participants can hear each other above the noise of other working groups and are not distracted.

The sequence of tasks in the workshop is as follows:



Presenting group results

Once the working groups have finished developing their Pathway (by connecting the desired future with the present), or when the allocated time expires, the working groups reunite again in a plenary session. What follows is a segment where the lead facilitator asks each working group to present their Pathway. It is important to note that the presentation does not need to be detailed. In fact, it should not exceed two minutes and should provide a succinct overview of the Pathway's branches and most prominent barriers, interventions, and outcomes.

This stage is dedicated to sharing insights between working groups. The time allocated for presenting each group's results should be adjusted based on the total time available for this segment (typically 20-25 minutes).

After each brief summary, participants from other working groups may ask questions. Encourage enquiries that foster deeper understanding, clarify key points, highlight overlaps, and identify potential collaborations. The lead facilitator should ensure that discussions remain constructive, avoiding political debates, complaints, or unproductive exchanges. The goal is to provide a space for reaction from the rest of the working groups and to facilitate a meaningful exchange of ideas.



Closing the workshop

It is essential to ensure that the workshop ends in a structured and purposeful manner, rather than in a rush or after the scheduled end time when participants may already be leaving. Before concluding, take a moment to outline the next steps, specifically addressing: “What will happen with the insights and results from the workshop?” and “When and how will any potential follow-up meetings take place?”

If you plan to collect participants' feedback on the workshop, it is best to do so while participants are still present and engaged. Instead of printing surveys, you can share them digitally via platforms such as Google Forms, Mentimeter, or Typeform. The key is to capture feedback before participants shift their focus to other responsibilities.

Finally, be sure to thank all participants for their time, engagement, and contributions. A formal close reinforces the value of their participation.

Before tidying the room, ensure you photograph each Pathway - the flip chart paper with all attached sticky notes - as these serve as the primary outcomes of the workshop. When doing so, ensure no text is obscured (for instance, due to overlapping sticky notes). Also, remember to capture from a clear and legible angle, making sure all handwritten text is readable for future digital processing.

Fig. 30. Working group representative presenting a Pathway to the remaining participants

Workshop organised in November 2025 by JINAG, South Moravia, Czech republic

Image: JINAG

Useful tips for preparing and running a Pathways workshop

ONE DAY BEFORE THE WORKSHOP

- 1** | Set the meeting agenda, share it with your team and send it to the participants.
- 2** | We recommend confirming the list of the participants, room reservation and event's schedule.
- 3** | Resend participants relevant practical information (address, contact details, times, etc.).
- 4** | Prepare the materials you will need for the workshop (printouts of the agenda, script, list of the participants and contact details, sticky notes, flipchart papers, markers, etc.).

TIPS FOR WORKSHOP FACILITATION

- 1** | Prepare for your facilitated session (room setup, materials, script and others).
- 2** | Set up the tasks for each facilitator.
- 3** | Prepare yourself for being flexible in time and workshop flow. Be prepared for unexpected events such as time shifts, e.g. if your workshop is part of a larger event.
- 4** | Remember to take a break, even if very short, so that participants can drink water and stretch their legs.
- 5** | After the workshop remember to meet with your co-facilitators to evaluate the workshop (action review).

Processing the results

Beyond thanking the participants for their attendance and contributions, it is essential to share the results of the exercise. Providing a report that summarises visions, challenges, and proposed interventions and outcomes, or even sharing the entire Pathways, gives participants a sense of progress while also providing a written record that can serve as a reference, support reflection after the event, be shared with others, and can be a call to action.

Consistent communication should continue after the workshop, for example, by sharing supplementary materials used at the workshop (if applicable, for example, maps), photos from the workshop, and the documented results (Pathways). The documentation may include a short summary of the objectives, key barriers, outcomes and interventions identified, main insights from the plenary discussion, and an outline of possible next steps.

The immediate results of a Pathways workshop are flip chart paper sheets covered with specifically placed sticky notes and connecting marker lines. If you did not do so at the end of the workshop, it is recommended to take photos of the Pathways as soon as possible thereafter to avoid the risk of sticky notes falling off and creating gaps in the data.

It is recommended to allocate time to convert the physical Pathways into a digital format. As part of the PLUS Change project, some workshop organisers used collaborative software such as Miro to recreate the Pathways digitally. Digital copies are significantly easier to share with the participants as a workshop output.

Communicating the outcomes ensures that participants can apply the insights gained to their future actions. Additionally, since this is a participatory process, it must be fully transparent. Therefore, it is essential not only to report what has been achieved but also to explain how conclusions were reached, who participated, and the materials used.

In local contexts, the language used should align with the primary language spoken by stakeholders. The length of the workshop output report should be appropriate to its content - short enough to be easily digested, yet detailed enough to offer valuable insights and new information.

The workshop report should be sent to the participants and may also be made available online to help promote the collaborative network and its future initiatives. As a minimum, it is recommended that the report includes the workshop objective and agenda, the list of participating organisations, a short description of the workshop process, digitised versions or clear photos of the Pathways developed by each group, a synthesis of the key barriers, outcomes and interventions identified, the main insights from the plenary discussion, and an outline of proposed next steps.

Comparing the Pathways to identify shared themes and points of tension can help in pinpointing opportunities for joint action and potential conflicts that should be resolved before moving to implementation. This transparent and accessible method of delivering feedback increases stakeholder engagement in future actions. Finally, the report should include all relevant information about the broader transformation process in question and opportunities for further engagement in upcoming stages and activities.

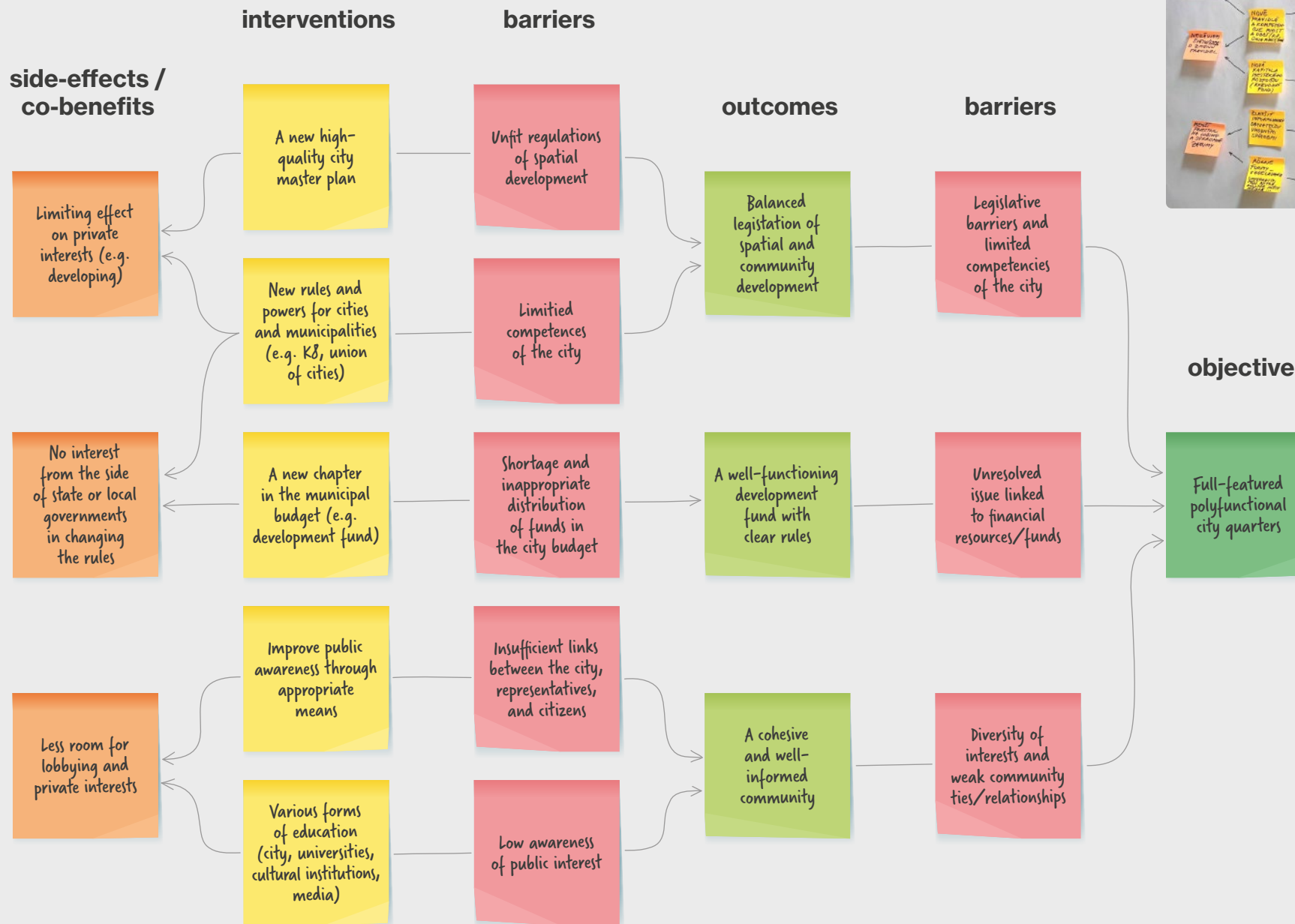


Fig. 31. Pathway created at a workshop

Workshop organised in November 2025 by Constantine the Philosopher University in Nitra, Slovakia. Top right - The physical Pathways created at the workshop.

Below, a digital version of the same Pathway made after the workshop.

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PLUS Change is an EU-funded Horizon project that aims to create strategies and decision-making processes for land use, addressing issues related to climate change, biodiversity, and human well-being. The project's goal is to generate knowledge and drive transformative change towards a sustainable world. This is done through intensive collaboration with 12 case study areas, while producing a range of tools to shape how land use decisions are made by citizens, planners and policy makers.



MultiFutures is an EU-funded Horizon project committed to redefining Pathways towards a sustainable, climate-neutral future by exploring alternative economic paradigms and broadening policy options. The project's goals are to broaden the range of policy options available to address climate change and foster an inclusive and forward-thinking approach to environmental sustainability through the use of state-of-the-art AI tools, innovative indicators and extensive stakeholder engagement.



ISWEL was a Global Environment Facility (GEF) funded project which sought to develop tools and capacities to support the sustainable management of water, energy and land, through the development of a truly integrated nexus approach.



Climate-KIC

Forging Resilient Regions was a Climate-KIC/European Commission funded project which supported European regions in transitioning toward a net-zero and climate-resilient future. It functioned as a testbed for systems innovation by helping regional authorities identify systemic relationships and embed systems thinking into their development processes.



SUSFISH+ was a project funded by the Austrian Development Cooperation, OEAD, and APPEAR which aimed to improve policies, management, and education in the fisheries sector of Burkina Faso. It focused on the Nakambe basin to produce reliable knowledge for the sustainable management of water and fish resources.



SDG Pathfinding was a Belmont Forum and EIT Climate-KIC funded project which sought to co-create sustainability pathways in Africa through a bottom-up participatory approach. It established "Living Labs" in Senegal and South Africa to identify governance barriers and localise the SDG agenda.



IW:Learn 5 is a GEF funded project which seeks to support transboundary cooperation in shared marine and freshwater ecosystems through knowledge sharing and partnership building. It assists the international waters portfolio in achieving long-term benefits through programmatic guidance and gender mainstreaming.



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