MOTION HANDBOOK

DEVELOPING A TRANSFORMATIVE THEORY OF CHANGE

A step-by-step guide on how to develop a Transformative Theory of Change, for innovation projects, programmes and organisations working on systems transformation.

CREATED BY
Transformative Innovation Policy Consortium (TIPC)
Utrecht University Centre for Global Challenges

WITH SUPPORT FROM
EIT Climate-KIC / Ingenio-UPV / Austrian Institute of Technology
COLOFON

EDITORS
Carla Alvial Palavicino, Cristian Matti & Jenny Witte

CONTRIBUTORS
Christoph Brodnik, Susanne Keesman, Pablo F. Mendez,
Caetano Penna & Paulina Terrazas

DESIGN
Naz Costante & Elzemiek Zinkstok

PHOTOGRAPHY
Dim Gunger (Unsplash)
CONTENTS

Introduction to MOTION handbook 4
  Background 4
  Acknowledgements 5
  Introduction 6

Section 01 8
  What Is Transformative System Change? 9
  The Multi-Level Perspective (MLP) as a framework to understand systems change 10
  How to incorporate systems transformation into projects, programmes and other types of interventions? 12
  Keeping the quality of the evaluation process: co-creation for knowledge services as technical assistance in projects and programmes 17
  Introduction to the MOTION cases 20

Section 02 22
  What is a Theory of Change? 23
  Transformative Outcomes as a way to organise transformative portfolios 26
  Working with a Transformative Theory of Change and Transformative Outcomes 40
  Introduction to the Theory of Change canvas 46

Section 03 50
  Formative evaluation as an opportunity and method for learning in a Theory of Change process 51
  Introduction to the Self-Assessment Tool 53
  Tools for Monitoring, Evaluation and Learning: Surveys 55

Section 04 59
  Additional Resources 60
The MOTION project was initiated with one key question in mind: how can we help projects and organisations be more transformative, using the framework and concept provided by the multi-level perspective? And what kind of tools, methods and frameworks can we co-design that translate scientific concepts into practices relevant for policy practitioners? This led us into a co-creation journey during which researchers from the Transformative Innovation Policy Consortium (TIPC) and EIT Climate-KIC project partners experimented, reflected and learned from each other in building the approach that we share in this handbook.

Through this journey, we gained a deeper understanding of what the portfolio approach means in a transformative system change context and which skills and competences are needed to facilitate processes of co-creation in the science-policy-practice interface. We had the opportunity to configure the key building blocks of our theoretical approach, the Transformative Outcomes, into practical insights and actions that can easily be applied by innovation organisations at many levels.

This handbook is the culmination of the journey as it translates key learnings from the MOTION project into practical insights that are relevant to practitioners working on systems transformation.
Acknowledgements

This handbook is the result of close collaboration and teamwork of the MOTION project team throughout 2020 and 2021. The handbook reflects the creativity, adaptability and hard work of Christoph Brodnik, Pablo F. Mendez, Caetano Penna and Paulina Terrazas. We specially want to thank Susanne Keesman for her guidance and patience as a project manager of MOTION during this period. Furthermore, this work would not have been possible without the guidance and constant feedback of MOTION’s senior team, including Johan Schot, Alejandra Boni, Jordi Molas Gallart and Matthias Weber.

We would like to thank our project partners from ACT on NBS, SATURN and SuSmo for the engagement and dedication they have put in the collaboration with MOTION. Specifically, we would like to thank Beth Morley, Francesco Guaraldi, Theodora Skordili, Elitsa Petkova, Alessandro Grettier, Anastasija Nikologianni, Nick Grayson, Nieves Mestre, Luisa Fernanda Guerra, Manuel Almestar, Stephen Passmore, Juraj Jurik and Monserrat Budding.

Great gratitude goes to our designers, Elzemiek Zinkstok and Naz Costante, who, with patience, skills and creativity, turned our often complex ideas into accessible visuals for practitioners. Thanks to Irene Vivas Lalinde, who was our project manager for EIT Climate-KIC and helped us kickstart this process during its first stages. A special mention to Jose Manuel Martin Corvillo, who introduced us to the art of developing learning materials and helped us give shape to the tools mentioned in this handbook. To our colleagues in the Transformative Innovation Policy Consortium that have supported us in this process, especially Oscar Romero Goyeneche, Bipashyee Ghosh and Victoria Shaw.

Finally, we would like to thank the two organisations that made this work possible, EIT Climate-KIC and the Transformative Innovation Policy Consortium.

About the organisations

The Transformative Innovation Policy Consortium (TIPC) is a five-year programme (2017-2022), focused on policy experimentation, evaluation, capacity building and research agenda development. An overarching ambition is to see the widespread adoption of new transformative innovation policies and practices across the globe. Co-ordinated by the Science Policy Research Unit (SPRU) at the University of Sussex in the UK, the current members are innovation ministries and funding agencies from Colombia, Finland, Norway, South Africa and Sweden. There are additional associate programmes in China, Brazil, Senegal, Ghana, and Kenya.

EIT Climate-KIC is a Knowledge and Innovation Community (KIC), working to accelerate the transition to a zero-carbon, climate-resilient society. Supported by the European Institute of Innovation and Technology, the strategic mission is to identify and support innovation that helps society mitigate and adapt to climate change by bringing together partners in the worlds of business, academia, and the public and non-profit sectors to create networks of expertise, through which innovative products, services and systems can be developed, brought to market and scaled-up for impact.
Introduction

Public and private innovation organisations strive to contribute to tackling global challenges such as climate change and growing inequality. System change that drives a sustainability transformation has become a shared goal and innovation policy and actions play a key role in this process. However, transformations are long-term processes that require interventions at various levels and in multiple locations. Hence, organisations working towards these transformations are in the need of frameworks and tools that can help them understand and assess the contribution that each action, be it a project, programme or other types of initiatives, has in the transformation of a system. Some of the most commonly used innovation policy frameworks and methods lack the systemic perspective required to achieve this goal. Therefore, we need tools and frameworks that facilitate the exchange between policy practitioners and experts, facilitating co-creation, promoting reflection and learning and unlocking systems for transformation.

This handbook contributes to accelerating a transition towards sustainability by providing a guide for the development of a Transformative Theory of Change, a methodology that helps projects, programmes and organisations to design, implement and evaluate interventions that contribute to systems transformation. The method combines a traditional Theory of Change approach with a multi-level perspective, a systems theory that describes how innovation emerges and transforms the incumbent system. It introduces Transformative Outcomes as levering points for transformation. The approach is designed to maximise learning among participants of an initiative.

The methodology presented in this handbook is based on a two-year co-development process, working hand in hand with three EIT Climate-KIC projects constructed around a portfolio of knowledge services for sustainable systems transformation in land use, urban planning and mobility. Furthermore, elements of the approach have been implemented in two additional EIT Climate-KIC RIS projects, Circular Economy Beacons and Transformation for Climate, during the second half of 2021.

Working closely with project partners has provided us with three key lessons for ensuring a fruitful collaboration: Firstly, the need to develop adaptable and tailored processes that, in each stage of the project, generate concrete outputs (new information or data) which are carefully harvested, building a knowledge base for further engagements. Secondly, the importance of stimulating co-creation throughout the process, improving the shared understanding of the systems involved in a transformation and the actions needed to improve them. Lastly, the importance of ensuring a trusting relationship between researchers, facilitators and policy practitioners, transparency in the process structure and a shared ownership of the project outcomes.
Principles to keep in mind when working with this approach

1. **Evaluation is a continuous process** where stakeholders reflect about what is happening and actively participate to improve the definition and implementation of objectives and activities.

2. **Evaluation should start in the design phase of a project, and last throughout its implementation and assessment.** Evaluation is a constitutive part of the process and is coherent with directionality, societal goals and system impact. Evaluation starts with the initiative and is part of the entire implementation process.

3. **Strive to actively engage all relevant stakeholders.** Varied groups and communities are to participate and attention to differences in access to resources and interests are to be addressed.

4. **Apply mixed methods, approaches and techniques according to the requirements of your initiative.** The principle is to use those methods that grasp the characteristics of your initiative best. Combine quantitative, qualitative and participatory techniques into a bricolage that provides you with the relevant data required to understand how the system is changing.

5. **Pay attention to the portfolio in which an initiative is embedded and their interactions.** Initiatives can operate at multiple levels, be it geographical, organisational or governance. Pay attention to how your initiative interacts vertically and horizontally with other projects, programmes or policy actions. The outcomes achieved at each level will contribute to those at a higher level, so maybe new ways of observing and registering changes may emerge.

6. **Keep your transformative theory of change flexible.** A Theory of Change is a dynamic tool and will evolve as your project develops, reflecting on the learnings it gains through the process. Context, activities and outcomes are revisited and redefined as a result of the process.


### How to use this handbook

Section 1 provides an introduction to systems transformation and the particular understanding supplied by the multi-level perspective. Then, it moves to explain what system transformation looks like at the level of policy, programmes and organisations, introducing key notions such as the portfolio approach.

Section 2 introduces the transformative theory of change approach and the Transformative Outcomes. This section provides a step-by-step guide on when and how to use this methodology as well as canvasses for practical application that can be used and adapted for specific initiatives.

Section 3 explains how a formative evaluation approach can be incorporated in the process, providing two specific methodological tools for this purpose: self-assessment tool (SAT) and surveys.
What Is Transformative System Change?

The Multi-Level Perspective (MLP) as a framework to understand systems change

How to incorporate systems transformation into projects, programmes and other types of interventions?

Keeping the quality of the evaluation process: co-creation for knowledge services as technical assistance in projects and programmes

Introduction to the MOTION cases
What is transformative system change?

Our societies are built upon a number of core pillars that fulfil our daily needs and provide the comforts of modern life. These pillars are what we call systems, such as the energy, food, healthcare or mobility system. Today, many of these systems are based on unsustainable practices as they heavily rely on fossil fuels, mass consumption and excessive waste production.

Systemic change describes a fundamental shift in the way those systems operate, how our needs are met and related services provided to us. Systems tend to be stable and configured to fulfil certain functions. Think of the electricity system for a community or nation, a set of interconnected infrastructures, technologies, regulations, markets, and actors, that we only notice when it fails, however, it is fundamental to sustain our modern way of living.

We use a specific definition that refers to systems of provision as socio-technical systems. This definition emphasises that technologies enable and constrain social practices, and vice-versa, in a process of mutual shaping and co-evolution. Socio-technical refers to the interrelation of technical elements (e.g. technological innovations and infrastructures) and socio-institutional elements (e.g. networks, laws, regulations, values and behaviours). This means that the sheer deployment of technological innovations will not bring about transformation unless policies and peoples’ behaviours change as well. And conversely, once regulations and values are altered, technical infrastructures are needed to support the transformation. Hence, in order to achieve a lasting transformation towards sustainability, so-called socio-technical system change needs to occur, in which social and technical configurations are altered.

In this context, system innovation can be understood as the transition from one configuration of a socio-technical system to a new one, in which the system remains able to deliver its key functions but in a different way. Think of, for example, the shift from a carbon-based energy system to a renewable energy-based system. Both systems provide reliable energy to users but their technologies, norms, regulations and ways in which these are organised have important differences.

Cities, organisations, finance, ecosystems and human societies change dynamically in response to different interventions. Transformative system change is a process in which actors and institutions within a system are able to learn through this dynamic change process by collectively experimenting with technical and social innovations. Through this process of learning-by-doing, new pathways for change can be articulated, resulting in new business models, social innovations or institutional configurations that in the long run, unlock changes in the system.

Socio-technical systems combine social and technical configurations by complementing and shaping each other through interactions within social structures and technical infrastructures. The creation of new technologies contributes to shifts in social processes and vice-versa.
Processes of change in socio-technical systems are complex. They involve many aspects such as the emergence of new ideas, actors and technologies, the creation and destruction of linkages between these elements which, as an effect, change the system in often unpredictable and non-linear ways. How can we then make sense of these complex, nonlinear and unpredictable processes?

Researchers in the sustainability transitions field have developed a framework to help us understand socio-technical systems, grasp key aspects of change processes and design interventions that lead to the desired outcomes. We call this framework the multi-level perspective (MLP), as originally developed by Rip and Kemp (1998). The MLP is an analytical framework which illustrates that socio-technical change occurs across three levels: the landscape, the regime, and the niche (Figure 1).

Figure 1: The multi-level perspective (MLP) on socio-technical transitions. Innovations at the niche level (green arrows) develop and grow to interact with the regime (purple circle) which evolves into a new socio-technical regime (green circle) by adopting some or many of the features of the niche. The landscape (blue arrows) adds pressure to the way in which the niche and regime interact that help to give shape to the new emergent regime. Source: Based on Geels (2002); Geels and Schot (2007).
1. The landscape (in blue) describes overarching processes, trends and externalities that actors cannot substantively or directly influence, which is why it changes slowly. For example, climate change or the Covid-19 pandemic, but also cultural transformations, macroeconomic cycles or geopolitical developments are landscape processes. They may exert pressure on or create opportunities for local changes to emerge. For instance, climate change creates opportunities for experiments with new clean technologies (niche level) while exerting pressure on carbon-intensive practises (regime level).

2. The regime (in purple) describes incumbent actors (people and organisations), rules (or preferences) used by these actors to guide their behaviour as well as the systems these actors build. The regime reflects the way in which established firms, consumers or regulators act, how they think about the future and why they choose certain solutions over others. Dominant practises are facilitated by the regime so that innovations may occur but tend to comply with framework conditions already in place. For example, we can see the rise of electric cars as an incremental innovation taking place in the mobility regime. However, that does not fundamentally change how the system operates. In contrast, a socio-technical transition would be to alter peoples’ desire to own a car in the first place and thus transforming the mobility regime at its roots.

3. Niches (in green) are protected spaces where new technologies, organisations and behaviours can emerge. They are alternative ways of organising society and addressing societal needs which, if nurtured and grown, can challenge the regime and ultimately become the new norm. Whether a niche turns into an emerging regime also depends on landscape events which can either accelerate (e.g. through shocks such as the Covid-19 pandemic that make people commute and travel less) or hinder (e.g. through the outbreak of an economic recession when people tend to worry more about jobs than about the environment) its development. An example of a niche is mobility as a service (Maas) which promotes the use of different modes of transportation such as shared bicycles, public transit and ride-sharing services that are integrated through digital technologies and thus represent a shift away from the use of individually owned cars.

Considering these three analytical levels, how does the MLP explain socio-technical change? As a systems theory, MLP regards changes as happening simultaneously in multiple dimensions (cultural, economic, political, technological, social, scientific, ecological etc.), across various levels (landscape, regime, niche) and with different timings, creating feedback mechanisms and cumulative processes. Within these complex mechanisms, there are different potential transition “pathways”. One of these transition pathways is caused by landscape developments (such as climate change) that exert considerable pressure on the regime level (e.g. through creating discontent and concern about carbon based technologies). Hence, mainstream actors attempt to incrementally innovate (e.g. by improving their technology) while opening up an opportunity for niche actors to radically innovate. If niches are properly protected from regime actors, who might resist radical changes, and able to scale up they may end up transforming the regime, so that a new configuration between technologies and actors becomes dominant and a new and more sustainable regime establishes. Other pathways of socio-technical transformation are described by Geels and Schot (2007).

If we want to contribute to socio-technical system change, understanding the dynamics of the system we want to transform is crucial. Therefore, the MLP offers a framework for recognising and understanding change processes and its underlying mechanisms, drivers and influences. This increased awareness for transitions is helpful in making sense of the environment we are in, and thus facilitates the development of feasible and impactful innovation initiatives.
How to incorporate systems transformation into projects, programmes and other types of interventions?

During the last decades, policymakers have become more aware of the need to better align social and environmental challenges with innovation objectives (i.e., increasing the uptake of new sustainable products, services and practices to replace unsustainable ones). By moving sustainable development approaches forward, they strive to meet the needs of current generations without compromising the ability of future generations to meet theirs. Therefore, current innovation policies should be complemented by policies aimed at transformation, turning objectives such as addressing climate change, reduction of equality, poverty and pollution into challenges and opportunities for science, technology and innovation policy.

This process requires multi-level and interrelated actions, which is what we call a policy mix. A policy mix refers to a set of geography-specific and governance actions that interact across time and at multiple levels such as agenda setting and the design, implementation and evaluation of policies, to achieve an overarching goal. However, there is no single recipe for developing a policy mix as the pathways to sustainable development are complex and evolving innovation processes, raising issues of coordination in the policy-making process such as the mix of actors, levels, policy domains and time required for accelerating systems change. This complex policy process can be visualized as a sequence of context setting and problem-solving processes that interact across domains and over time, with emphasis on the variety of simultaneous interactions between different systems. A relevant example is the way in which the Sustainable Development Goals are being articulated in European policy, from the EU-level to the regional and local level. It encompasses agenda setting such as the European Green Deal, finance in the EU Recovery Plan, research and innovation strategy in H2020 and Horizon Europe, and cooperation frameworks. These are implemented at the national and regional level through frameworks such as the Smart Specialization strategies and the local action plans related to the Covenant of Mayors. Figure 2 highlights how a portfolio of actions including projects, programmes and plans can contribute to making linkages between the different policies operating at various levels, from the regional to the global level.

A policy mix conforms the combination of instruments and shared goals in different policy fields, geographies and governance levels.
As stressed earlier, system transformations are the result of multiple interventions over time that complement each other. To ensure that these transformations lead to outcomes that are just, equitable and improve the wellbeing of the people and the planet, these dynamic processes need to be coupled with processes of co-creation and co-design of transformative activities aimed at fostering system change. Co-creation involves the collective definition of a shared vision or goal, and the co-design and implementation of activities through which actors can effectively deliver interventions that are potentially transformative. Through the orchestration of new strategic relations among stakeholders, actors can collectively experiment with new actions, using the broad diversity of available, present and future, system resources.

**Transformative activities** can be single projects and programmes that promote interactions in multi-actor arenas within a defined geographical space and knowledge community, such as a region or industrial sector. These activities are designed to activate transformative processes starting from the needs of stakeholders (demand-led logic) that promote the reshaping of current relations and structures. Transformation activities are part of a portfolio of deliberate, connected innovation experiments oriented towards a certain direction of change. Enabling experimentation and navigating uncertainty is part of a learning process, where new shared expectations and visions are articulated and the building of innovation portfolios takes place.

**Innovation portfolios** are then more complex structures where projects, programmes and actions enable links with interconnected subgroups by creating new strategic relations among multiple sectors, locations and levels of government. As seen in Figure 3, projects, programmes and other actions are interconnected via actors that are involved in each of them, forming a portfolio embedded in more than one thematic area. These interconnections multiply in other portfolios, creating a network of nested portfolios that can lead to system transformation.

A portfolio perspective can facilitate interactions between multiple actors to identify and create synergies between projects and programmes. Applying a portfolio perspective can contribute to fostering connectivity and exchange as part of a continuous process of enabling interactions among actors, resource flows and opportunities with multiple needs across levels. Seen this way, innovation portfolios can evolve by implementing feedback loops to build reflection into a process of transformative change for which the outcome is inherently difficult to predict.
How to apply a portfolio approach to incorporate a systems innovation perspective for projects and programmes?

A portfolio approach is a way to introduce a system innovation perspective into projects and programmes. Underlying this approach, there is a continuous process of reflection and learning regarding resource flows (financial, material or knowledge resources) across the different thematic and geographical areas that comprise projects, programmes and actions. Through this continuous learning process, the relations between resources and actors and the institutions that connect them are reshaped to drive systemic change. This process is executed through participatory sense-making, which facilitates a collective understanding of the connection between activities, projects, programmes and actions – and the purpose behind those activities, as well as the vision or strategy leading the transformation in a city, region or targeted system.

Sense-making is a facilitated space used to contextualise the role of actors and resources in a certain initiative, creating a shared conceptualisation of the system in which they are embedded, and its ongoing actions.

A good understanding of the composition of a portfolio and the organisational structures embedded in the system will enable the design and implementation of targeted interventions that will maximise aspects such as the diversity and complementarity of activities of an innovation portfolio, which increases its effectiveness in contributing to sustainable development over time. The exploration and cross-thematic analysis of strategic priorities and objectives of all the elements of the portfolio, including project-level innovation activities and enabling elements such as finance, stakeholder engagement, and international cooperation, is a fundamental process to translate these common elements into innovation opportunities that reinforce the potential of the portfolio.

Portfolio composition

A portfolio can be defined as a group of projects that share common resources such as partners, funding schemes and knowledge assets. In this way, a subgroup of projects under a programme can contribute to common outputs and outcomes. Projects and programmes are implemented through activities that produce tangible outputs such as technologies, products or digital items, as well as outcomes such as new user communities and business opportunities that are key components of the innovation process. The delivery of this portfolio can include a variety of services commonly applied in the innovation process, ranging from the facilitated design process and community management, to system mapping, capacity building and targeted communication.

The portfolio can be visualised as a collection of interconnected layers and elements, starting from strategic elements to the implementation level, as shown in Figure 4.
## How to incorporate systems transformation into projects, programmes and other types of interventions?

The guiding questions below can be used to explore the different layers of the portfolio composition:

<table>
<thead>
<tr>
<th>Question</th>
<th>Hint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there a <strong>vision</strong> or <strong>strategy</strong> stating the transformative change desired for the system?</td>
<td>A collective vision, formal strategy or specific policy can be the starting point</td>
</tr>
<tr>
<td>What are the key <strong>target areas</strong> for transformative change? What is the impact the vision is expecting to generate?</td>
<td>Goals and targets related to climate, innovation and economic development</td>
</tr>
<tr>
<td>What kinds of actions are envisioned to address transformative change? Are there different thematic or geographical areas that cover specific <strong>objectives</strong> within the initiative?</td>
<td>Priorities and strategic areas included in the vision or strategy of the initiative</td>
</tr>
<tr>
<td>Does the portfolio have a geographical or thematic <strong>distribution</strong>?</td>
<td>Action distribution across locations and value chains or sectors (energy, food, mobility)</td>
</tr>
<tr>
<td>How are the <strong>resources</strong> allocated? Are there multiple donors and <strong>funding schemes</strong> supporting the portfolio?</td>
<td>Multiple funding schemes: 1) Public vs private, 2) EU, National and local and 3) Blended finance models</td>
</tr>
<tr>
<td>What do the activities look like? Are there different <strong>types of activities</strong>? How are they grouped? What are the set of <strong>enabling services</strong>?</td>
<td>Projects within a programme contribute to common outputs. Activities and services can be used for business and innovation-based actions</td>
</tr>
<tr>
<td>Is it possible to identify a <strong>pattern</strong> among programmes, projects, activities, and funding resources?</td>
<td>Explicit or implicit complementarities, synergies or transversal elements among different areas</td>
</tr>
</tbody>
</table>

---

**Figure 4:** EIT-Climate-KIC (2021) and Penna et al (2021) submitted to Science and Public Policy.
Portfolio mapping through sense-making processes

Sense-making processes provide a space to contextualise the role of actors and resources within active innovation processes, which can be guided by concepts like Smart Specialization and Transformative Innovation. Practitioners’ own experience as well as external elements, such as a broad policy framework, are key inputs for facilitated dialogues where methods are employed to make better sense of the relations and diversity of programmes, projects and activities.

Portfolio mapping can be conducted combining desk research and facilitated sense-making sessions in a process of gathering and systematising the information regarding portfolios collectively. Interactive workshops and co-creation tools can be used to facilitate these steps and shape the portfolio in a process that reveals the different layers and relations with the targeted system.

Sense-making processes can be facilitated through a variety of methods such as:

- Challenge-led system mapping is a participatory approach driven by project or policy goals and focused on applying knowledge management for creating a collective understanding on system innovation.

- Value Network Mapping is a mixed method for unrevealing and rethinking structures, resource flows and relations at system level.

- X-Curve is a sense-making device to foster collective narratives on system change by focusing on transition dynamics.
Keeping the quality of the evaluation process: co-creation for knowledge services as technical assistance in projects and programmes

A key principle of the approach presented in this handbook is co-creation. Co-creation (short for “collaborative creation”) refers to the active involvement of users in the development of a methodology or solution. It is about drawing from their own knowledge and experience to collaboratively frame an issue, gain new insights and design actions to address it. Co-creation stresses the joint production of knowledge and learning from problem definitions to enhance the evaluation of the selected solutions. It aims to strengthen the relevance and effectiveness of the solutions identified for a problem, promoting ownership and embedding knowledge within a group of people that share a common vision.

Implementing co-creation requires commitment and trust from users and experts, and paying attention to the process as well as the outcomes. This is particularly important when we think of sharing, translating and turning scientific and evidence-based knowledge produced by experts into knowledge that can be used in a practical context. For example, supporting practitioners, such as project partners, in the process of developing a Monitoring, Evaluation and Learning (MEL) framework and strategy is one case of “knowledge service”. Here, the facilitator helps a group of practitioners to elicit their knowledge on an issue, using visual tools and other methodologies that lead to a collective sense-making process in which the group creates a shared understanding of the issue at stake, goals and possibilities for action.

Knowledge service is a non-conventional co-creative collaboration between researchers, practitioners and policymakers driven by the challenge that must be resolved and implemented through the adaptation, application and combination of non-expert and science-based knowledge. Knowledge services are implemented as technical assistance by supporting capacity development efforts through co-creation processes embedded in on-going activities.
What does co-creation look like in practice? To this end, it is useful to think of co-creation as fulfilling six functions: co-learning, brokering, addressing power differentials, co-design, facilitation and tailored support, as proposed by Yazejian 2019. These functions help to design the overall process and interactions for co-creating knowledge services and technical assistance. The table below lists these key functions and how they can be used as guidelines.

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-learn</td>
<td>Work collaboratively with local stakeholders to learn how applied knowledge can be effectively used in the local context.</td>
</tr>
<tr>
<td>Brokering</td>
<td>Enable knowledge exchange and sharing of ideas among stakeholders to increase the understanding of diverse perspectives.</td>
</tr>
<tr>
<td>Addressing power differentials</td>
<td>Address the power imbalances between different groups and stakeholders in the system, including experts, researchers, policy makers, users, local authorities, etc. by supporting communication, mutual consultation and identifying roles, responsibilities and accountabilities.</td>
</tr>
<tr>
<td>Co-design</td>
<td>Design tools, resources and models through an iterative process based on consensus building.</td>
</tr>
<tr>
<td>Facilitate</td>
<td>Enable processes of participatory problem-solving that lead to improved and supportive social relationships, facilitating a process of “mutual consultation” among stakeholders to ensure that different forms of knowledge are included, encouraging stakeholders to share their perspectives and accept the legitimacy of each other’s goals while creating a sense of shared responsibility of the project.</td>
</tr>
<tr>
<td>Tailor Support</td>
<td>The decision on frequency, duration and intensity of the co-creation process will depend on the context, needs and goals of each group and stakeholder. This should be based on mutual decision-making rather than assumptions.</td>
</tr>
</tbody>
</table>

Let’s take a look at how MOTION researchers developed the process of technical assistance for knowledge services within the SuSMo project.

The MOTION methodology was initially constructed to be used in face to face workshops. Just before starting the collaboration with the SuSMo partners, the Covid pandemic arose and all interactions had to be moved online. While researchers usually rely on in-person interactions with project partners to commonly explore the purpose and value proposition of the collaboration, the new situation forced the team to anticipate stakeholders’ perspectives and design the approach independently.

At the same time, the team started gaining a deep understanding of the current state of the SuSMo project, its goals and ambitions. For this, document analysis and individual online interviews were conducted, based on which the team mapped the conceptions, positions and desired outcomes of each partner. The interviews were key to build trust and check the expectations project partners had of the collaboration. This was an instance of [Co-learning].

Through the interviews, it became clear that not all project partners had the same understanding of the SuSMo project’s framework and that there was a lot of knowledge and expertise present in the project team that yet had to be integrated. By using the Theory of Change approach, the facilitators sought to enable an exchange between the leaders of different work packages of SuSMo. This is an instance of [Brokering and Facilitation].

Finally, in the process of implementing the MOTION methodology, different tools were adapted, designed and tailored to the needs of the SuSMo project. Where possible, these were tested with project partners which is an instance of [Co-designing].
The following checklist provides an overview of elements to take into account when co-creating knowledge services for technical assistance:

**When designing the process**
- Take the time to understand the organisation, stakeholders and systems you are working with and its context and culture.
- Understand the social relationships between different stakeholders in the group and system and identify power dynamics.
- Support the collaborative planning of implementation.
- Assess and agree on the type of support available to each group/stakeholders.
- Schedule interactions based on partners’ needs and availability and adapt to changing contexts.

**When framing the problem and co-creating solutions**
- Collectively identify potential tools, models, frameworks to be co-designed.
- Facilitate design processes using collective sense-making and negotiation.
- Cyclically prototype and test the tools, products, business models, processes, etc that support your solution. Create reflections that include different types of expertise.
- Position the users of the solution at the centre of the decision making process and implementation activities.
- Recognize the loss of status and authority that can impede buy-in of the solution and engagement of stakeholders.
- Facilitate an informal analysis of the context in which the solution is going to be implemented.

**When running interactions and the process**
- Create welcoming spaces for all participants during in person and virtual meetings.
- Select a facilitation method suitable to the type of challenge and problem ahead of group discussions.
- Support a communication protocol and process that facilitates interactions among stakeholders.
- Negotiate, communicate and listen. Do not impose your view based on your expertise.
- Develop a shared understanding and narrative of the goals and process rather than pushing for a top-down, artificial consensus.
- Synthesise ideas and different perspectives, representing all of them and checking for mutual understanding.
- Connect disconnected individuals or groups by providing advice or acting as an intermediary between them.
- Support a balance of divergent and convergent thinking among team members.
- Tailor support based on emergent and incidental needs of stakeholders.
- Assess the effectiveness of interactions with respect to meeting goals and context of implementation.
- Provide a timely follow-up to each interaction.
Introduction to the MOTION cases

The three cases used in the MOTION project are an example of a portfolio. The methodology presented in this handbook has been applied to these three case projects which will be mentioned throughout the handbook to illustrate the approach. The projects are a concrete example of a portfolio approach, covering multiple thematic, geographical and functional areas through a variety of activities and services. These projects are part of the EIT Climate-KIC Innovation Ecosystem programme which brings together initiatives across Europe that use a similar portfolio approach, with the goal of creating a dynamic ecosystem of innovation projects working towards system transformation.

The Innovation Ecosystem programme aims to develop a portfolio of initiatives that contribute to system change for climate action, and establish and empower networks of actors for developing and implementing an innovation policy and strategy, as well as learning amongst themselves. The programme is rooted in a portfolio of system innovation interventions, where the driving forces are policy, regulation, market structures, skills and behaviours which can foster system innovation in multiple sectors, locations and levels of government.

The Innovation Ecosystem programme and the projects under its umbrella put emphasis on place-based innovation portfolios which flourish the properties of a particular place (city, region, territory) by reconnecting it with other places and the surrounding landscape. In this context, the three selected MOTION projects present unique features that highlight how transformative change can be facilitated through a portfolio of activities and services, co-created with the community. An illustration of this portfolio approach can be found in Figure 5, representing the structure of the SATURN project.
SATURN (System and sustainable Approach to virTuous interaction of Urban and Rural LaNdscapes) aims at improving rural-urban interactions and sustainable land use management practices across Europe. As cities are currently governed independently from their natural surroundings, SATURN works on strategies and actions that integrate urban and rural landscapes. Thereby, the project facilitates a balanced relationship in which both areas benefit from one another, for instance in terms of carbon sequestration, food and biomass production and risk mitigation potential. For this, landscapes need to be seen and managed holistically rather than in isolation, which is what SATURN wants to foster.

SATURN consists of three different Hubs located in southern, western and northern Europe. The Hubs represent three cities of different sizes and their surrounding rural landscapes. The three cities are Trento in northern Italy, Birmingham in central United Kingdom and Gothenburg in western Sweden. While each Hub pursues different interventions, they all commonly strive to improve the relationship between cities and their surrounding landscapes. SATURNs activities range from initiating farming incubators for agricultural entrepreneurs (Gothenburg) and GIS (geographic information system) mapping for evidence-based policy making (Trento) to the creation of a shared narrative and vision for urban farming (Birmingham). SATURN connects these activities and innovative practises and draws on them to develop a toolbox of interventions for cities that want to transform the relationship with their surrounding natural landscapes. The project started in November 2018 for a duration of three years.

ACT on NBS (Adaptive Cities Through Integrated Nature-Based Solutions) aims at upscaling the application and quality of Nature-Based Solutions (NBS) to increase the capacity of European cities for adaptation against the effects of climate change. NBS brings natural features and processes into cities, addressing environmental challenges, while simultaneously providing socioeconomic benefits. Examples of urban NBS are nature on buildings (e.g. green roofs, facades or balconies), parks and urban forests (e.g. green corridors, botanical gardens, community gardens), blue infrastructure (e.g. lakes, ponds, streams), or grey infrastructure with natural features (e.g. green riverbanks, parking lots, house gardens).

One of the key aims of ACT on NBS is the creation of a self-sustainable innovation ecosystem, bringing together city representatives and stakeholders including researchers and experts from different cities. The goal is to build on existing initiatives to rapidly upscale current applications of NBS within cities. The project’s partnerships aim at creating strong synergies among several functions that are key in increasing NBS uptake through the integration of project activities, common goals and expected outcomes. Activities include research and development of NBS tools, capacity building and solution-oriented workshops, climathons, collabs (collaborative laboratories) for the promotion of collective intelligence, NBS job fairs as well as place-based bootcamps and webinars promoting city demands and visions across city-council departments. The project started in 2019 for a duration of three years.

Partners:
• Fondazione Edmund Mach (Italy)
• Birmingham Municipality (UK)
• Gothenburg Municipality (Sweden)
• Hub Innovazione Trentino (Italy)
• University of Trento (Italy)
• EIT Climate-KIC (Europe)

The three MOTION cases, SATURN, Act on NBS and SuSMo, illustrate the portfolio approach as developed within the Innovation Ecosystem programme, working across different cities and regions through carefully crafted partnerships and connecting them through a shared process of co-creating knowledge services that address system transformation of one or multiple interconnected systems.

SuSMo (Sustainable Shared Mobility) seeks to assist city authorities in their ambitions to integrate new shared mobility solutions such as shared bicycles, scooters, e-mopeds, cars and related infrastructures with existing public transport modes, payment, route planning and booking systems, so that they contribute to more sustainable cities without disrupting the urban environment. SuSMo aims to build a model framework for a shared sustainable mobility ecosystem. The project works closely with city partners (Stockholm, Bologna and Sofia) and zero-emission mobility experts to develop the tools to change the way shared mobility systems are implemented across Europe.

The project establishes a community of key people from cities, private sector providers, user groups, European partnership organisations as well as transport and climate change experts. This community will share their perspectives and identify key needs and interests in order to reach the goals of cleaner, greener and shared transport. The activities of SuSMo include the establishment of a network of shared mobility stakeholders, developing guidance and tools in areas such as policy regulation and procurement, evaluation of the social and environmental impact of shared mobility, developing new business for shared mobility and tools for promoting behavioural change to increase the adoption of shared mobility solutions. All these tools are developed, tested and prototyped in a process of co-creation with partners within the SuSMo network. The project started in 2019 for a duration of three years.

Partners:
• EIT Climate-KIC (Europe)
• Global Sequestration Trust
• Global Infrastructure Basel Foundation (Switzerland)
• Delft University of Technology (The Netherlands)
• Wageningen Environmental Research (The Netherlands)
• Technical University of Madrid (Spain)
• Deltares (The Netherlands)
• EIT Climate-KIC (Europe)
• CleanTech (Bulgaria)
• Agenzia per l’Energia e lo Sviluppo Sostenibile di Modena (AESS-Modena) (Italy)
• Cenex (The Netherlands)
• Trivector (Sweden)
• Delft University of Technology (The Netherlands)
SECTION 02

What is a Theory of Change?

Transformative Outcomes as a way to organise transformative portfolios

Working with a Transformative Theory of Change and Transformative Outcomes

Introduction to the Theory of Change canvas
What is a Theory of Change?

A core element of our approach is the Theory of Change. A Theory of Change (ToC) is a method commonly used to understand the strategy and approach of an intervention, be it a project, programme or any other type. As the name indicates, it is a “theory”, based on certain assumptions about how the world works which can be theoretically-based or based on particular experiences or worldviews. This is equivalent to the idea of a “framework” or “model” which is used as a basis for the ToC. The “theory” of a ToC describes how and why change happens in a specific context and as a result of certain actions. A Theory of Change can be generic (about a general issue, e.g. how innovations are adopted) or specific (e.g. how a new transport solution can be adopted in a given local and temporal context).

For example, a ToC can be used to evaluate whether trees in a park are properly taken care of. In this case, activities include watering, fertilising the soil and trimming the trees which happens with certain periodicity to help the trees grow healthily. This ToC assumes that trees have certain needs, like watering, sun, nutrients, etc. and that a certain periodicity of activities is appropriate in an area given the climate, soil and other conditions. The ToC maps the tree’s system of provision. It can be based on scientific knowledge but also on experiential knowledge from gardeners and locals. We can test the “assumptions” of this ToC when we use it to evaluate a specific case, for example, to test whether the periodicity of watering is correct, or whether we are accounting for all relevant external factors.

A ToC approach focuses on the process of change and thus, the many small, intermediate results that are monitored and contribute to change rather than change as the one final outcome. It is about creating a framework to document an initiative, gathering evidence of the process of change and learning about how this process happens. A ToC accompanies an initiative throughout its development and will change with it accordingly, reflecting on the learnings that the project has achieved over a certain time.

Let’s dive into the specifics of the ToC as a method. In building an understanding of how change happens, a ToC aims to make connections between the different elements that
compose change. A ToC can have various forms, but in general it consists of five basic elements: (i) inputs, (ii) activities, (iii) outputs, (iv) outcomes, (v) impact and (vi) assumptions.

1. **Inputs** are the different elements that support and can be mobilised during an intervention, including financial and human resources, capabilities, knowledge, networks, etc.

2. **Activities** are the different actions taken within an intervention that contribute to achieving its desired outcomes. Activities can be very specific, such as organising a workshop or launching a call, or they can be broad such as “building stakeholder networks within a region”.

3. **Outputs** are the immediate, concrete and tangible results of an activity. For example, when organising a workshop, the number of participants of the workshop is an output just as workshop reports, videos and other deliverables related to the action. These often relate to project KPIs.

4. **Outcomes** include changes in behaviour, relationships, activities, or actions of people, groups and organisations with whom the programme works directly. These outcomes can be logically linked to a program’s activities, although they are not necessarily caused by them. In the previous example, outcomes of a workshop can be the network created with the participants and learning generated among them. These results are not so easy to measure but are key in the process of learning and transformation as understood in MOTION.

5. **Impact** is the long-term goal of an intervention. It often resembles tangible outcomes such as reducing CO2 emissions. But when aiming at systems change, we focus on transforming the system as a whole, and the rebound effects and trade-offs this might bring, rather than specific targets. It is obvious that one intervention by itself will most likely not be able to achieve large scale and long-term impacts. However, impact(s) are part of a ToC as a reminder of the bigger picture/system in which an intervention is situated.

6. **Assumptions** are the beliefs, ideas, frameworks and values that underlie the interpretations of certain phenomena and connections as illustrated in a ToC. For example, the assumption that building better bicycle roads will lead to the increase of bicycle use in a city. As we will discuss later, it is important to make the assumptions related to a ToC explicit, as these might influence activities and are subject to change in the face of new evidence, reflections and learnings as the project evolves.

While it is often assumed that a ToC is something to be developed merely at the beginning of a project, this approach can be useful at many stages of the project lifecycle. It can be used in the design phase of an intervention to help define the different elements and stakeholders that need to be involved and how. It is also useful in the middle of an existing initiative as a way to understand and review progress and assess or re-design actions if required, and/or identify knowledge gaps within the current approach. And it can be applied to evaluate the results of an intervention that is finalising, constructing a holistic evaluation approach that supports accountability and learning. We will learn more about the various use cases in section I.

Figure 6: The different elements of a Theory of Change, visualised as a series of interconnected components that represents how the process of change is understood in a specific intervention. The dotted lines represent all the possible connections between these different elements.
In the case of the MOTION project, the ToC is mainly used to gain a deeper understanding of how initiatives contribute to systems transformation through a process of continuous monitoring that leads to group reflection and learning among peers, increasing the potential impact of the initiative and its contribution to system change. In MOTION, the generic Theory of Change is informed by the multi-level perspective (MLP), which explains how change emerges in systems from “niches” (areas of novelty) to changing the dominant way of doing things (the “regime”). The multi-level perspective is useful to understand how sustainable change can happen, given actions that introduce novel technologies, social practises, markets, etc. It has been broadly used to design policies for transformation in energy and mobility sectors, among others, as described by OECD (2015). You can learn more about this theory in section I.

Specifically, the MLP is integrated in an additional element of the MOTION ToC called Transformative Outcomes (TOs). These TOs are leverage points in the change process identified from sustainability transitions theory. In the next section, we will look at the Transformative Outcomes in more detail.

Key learnings

- A Theory of Change (ToC) is a method that allows us to understand how change can happen as a result of an intervention, and it can be used to create a strategy, monitor a project or programme and learn and evaluate the results.

- The basic elements of a Theory of Change are inputs (what I have), activity (what I will do), outputs (what will be the concrete results), outcomes (the substantial results) and the mid- and long-term impact.

- MOTION’s Theory of Change uses the multi-level perspective (MLP) as a framework to understand change which is reflected in the use of Transformative Outcomes.
Transformative Outcomes as a way to organise transformative portfolios

Transformative Outcomes are a key ingredient of the Theory of Change (ToC) approach used in the MOTION project. They reflect and make tangible the underlying “theory”, the multi-level perspective, guiding the user to think through the process of system transformation as being enabled by their intervention. The Transformative Outcomes help to answer the question: how can my project, programme or intervention contribute to transformative change in a given system?

In the case of SATURN, the main goal is to contribute to transforming the relationship between urban and rural landscapes by applying sustainable land use management practices in areas where the urban and the rural interface. This results in the provision of clearer air, waterways, food and landscapes needed for health, wellbeing and environmental sustainability. SATURN’s initiative is one of many efforts required to achieve this transformation, but for a project with such a vision, it is important to continuously question and reflect about specific contributions made to transforming a city or region and which synergies can be created with other initiatives. For this, we use the Transformative Outcomes.
**Transformative Outcomes: how do they fit in?**

The Transformative Outcomes can be understood as “leverage points” in a process of transformation. They are triggers that need to be unlocked or enabled to elicit a larger process that, in the long run, transforms a system.

Usually, one project or project portfolio is not enough to accelerate system transformation, especially if the portfolio is not scaled beyond a single location. System transformations are processes that can take decades. Nevertheless, a project portfolio can plant a crucial seed in moving towards a transformation, especially when aligned with other interventions, such as programmes or other portfolios. The Transformative Outcomes help to generate an understanding of a project, programme or portfolio as acting in synergy with other interventions to promote transformative system change.

But what are the Transformative Outcomes based on, and how do we detect and use these leverage points that contribute to transformations in socio-technical systems? To answer these questions we need to go back to the key theory underlying the MOTION approach, the multi-level perspective (MLP). In the MLP, change emerges in niches which challenge the dominant practice, called the regime. As the niche develops and grows, the regime eventually opens up for the alternative practice that the niche provides and starts to transform. How the transformation process unfolds also depends on the “landscape”, the broader context (e.g. cultural, political or socio-economic background) in which the niche and the regime co-exist.

Hence, in the MLP, there are three “forces” at play: the niche which develops and grows new alternatives to dominant practices; the regime which is largely stable, resistant to change and needs to be opened up and unlocked for new alternatives; and the landscape which shapes the conditions of the niche and the regime and creates opportunities as well as challenges. These forces eventually need to align as they are all necessary conditions for change. Throughout this chapter, we will use the notions of niche, regime and landscape to understand the Transformative Outcomes.
Niches and the SATURN project

The SATURN project works with many “niches”. Let’s look at one of them in more detail to illustrate the concept: Urban farming (i.e. the practice of growing produce in cities) is currently practised by some groups but it is not widespread, it is a niche. The dominant way of farming in most of Europe is industrial farming. While extremely efficient, this dominant practice is also highly carbon intensive and leads to a number of negative environmental and social side-effects. This dominant way of doing things, the regime, is composed of producers, food retailers and distribution networks that favour industrialised agriculture. The landscape is the broader context in which the niche and the regime co-exist. It facilitates certain actions and complicates others, for example, strong urbanisation without considering green spaces makes the development of farming areas within the city more difficult, or the globalisation of food value chains that undermine local production and hence, urban farming. In a transformation process, the regime is transformed by adopting new features proposed by the niche, gradually leading to a new set of dominant practises which eventually become the new norm.
3 macro processes that lead to transformation

The Transformative Outcomes framework refers to a number of key processes that lead to changes in the guiding principles we use to think about and solve certain societal problems. These include changes in what we know (through learning), societal actors (through networking), the institutions, norms and social practises involved as well as the vision, values and culture around a certain societal challenge. The Transformative Outcomes framework describes three macro processes that lead to transformation.

- The first macro process is called **building and nurturing niches**. It includes proceedings that contribute to the construction and growth of a new initiative, (social) practice or technology. A niche starts as an idea that suggests a new way of doing or organising things. To evolve into a niche this idea needs to become concrete, contextualised and connected to a vision or expectation about what needs to happen in the future. It needs to develop a market, certain norms and guiding principles, connect with institutions and specific users, and get picked up by one or more groups of people who learn about how to best implement this idea in a given context.

- The second macro process is called **expanding and mainstreaming niches**. The simple construction of a niche does not trigger a transformation. It needs to grow and be shared by diverse groups of actors in order to change the regime and become part of the “mainstream”.

- The third macro process is called **opening up and unlocking regimes**. In order to truly transform the regime, it needs to change itself. Regimes are in fact able to change, even though they tend to be rather stable. But in the same way as niches evolve, actors within the regime can learn about new ideas and adopt new values or visions, unlearn old habits and create new understandings of the world around them. This can smoothen the transformation to new sustainable practises.
Macro-processes in urban farming

To gain a better understanding of the three macro processes, let’s take another look at SATURN’s urban farming example: Building and nurturing the niche of urban farming includes actions that enable the development of this alternative social practice in contexts where it would normally not flourish. For example, creating a regulatory framework that allows neighbours to use public space for urban farming in a collaborative way, providing funding, training and infrastructures for these initiatives, or connecting them to markets where people can sell their produce. If the niche is successful, more urban farming initiatives will establish.

The next step in expanding and mainstreaming the niche, is to create connections between the new urban farming initiatives and to allow them to grow (gain more community members, more users and grow more food) and replicate in different neighbourhoods and towns. For this it is important to create and strengthen networks across different geographical spaces, codify learnings and key knowledge related to sustainable practises in books, guides, manuals, videos or other and share this knowledge via workshops, media, etc. It is also key to be able to adapt urban farming practises to different contexts such as different climates, types of soil or event settings. For example, imagine how different an urban farm in a park is from one developed in an old warehouse that uses hydroponics. Both might yield learnings and insights that can be useful to one another and other communities working on urban farming. Facilitating this knowledge exchange is essential.

Lastly, we want urban farming to become the preferred way for producing certain foods in the city, or at least, as common as other ways of producing food such as industrial agriculture. For this, it is necessary to showcase urban farming as an equally viable way of farming among the relevant audiences, such as policy makers, food retailers or other food producers. Ideally, their understanding of how societal needs (in this case, food supply) can be delivered is transformed, potentially leading to the changes in curricula of agricultural universities or how and where school canteens source their food. Scientific advice can be used to provide decision makers with new ways of thinking about the problem, and creating space for new solutions. Furthermore, urban farming associations can be formalised and start negotiating with incumbent actors to become part of the mainstream narrative about sustainable food supply.
The Transformative Outcomes specify what happens in each of the three macro processes that enable transformative change. What is required to build or mainstream niches and to destabilise regimes? Each macro process is composed of four Transformative Outcomes that we will cover one by one.

**Transformative Outcomes for building and nurturing niches**

Let’s start with the four Transformative Outcomes related to the first macro process, building and nurturing niches. What are the key outcomes that need to take place to transform a new idea, technology or practice into a niche? First of all, it is necessary to create a safe space for a novel niche to grow ("shielding"). In this space, actors such as innovators, users, entrepreneurs and others can meet and create lasting bonds ("networking"), learn from each other and learn by doing ("learning"). Thereby, shared narratives as well as visions and goals are created that define the niche’s potential path of development ("navigating expectations").

Next, we will look at some examples of the Transformative Outcomes of shielding, learning, networking and navigating expectations.
**Shielding:** Activities that create support for a new idea or innovation to emerge, such as providing resources, infrastructures, knowledge and capacities, and/or creating a space for ideas to be explored, such as a living lab.

Examples of shielding are:
- Creating **institutional support** for alternative practices led by youth groups, grassroot organisations, farming entrepreneurs, etc,
- Create **visibility for these alternative practices**
- Enable **alternative finance and business models** to fund new practices
- Provide easy access to **basic infrastructures and tools** that can support entrepreneurs and innovators

**Learning:** Activities that provide regular opportunities for discussing experiences, obstacles and needs related to a new practice as well as challenging related values and assumptions that people might have.

Examples of learning can be:
- **Gathering new data and evidence** about a certain technology/practice and its impact
- Build **demonstrators** that show that these new ideas are feasible
- **Synthesize and disseminate** information and key learnings through various channels and to different group
- Develop **capacity building programs** targeted at the needs of particular groups
- **Enhance reflexivity** of actors involved in a niche, by discussing views, values, assumptions and impacts in society
Networking: Protecting and progressing new practises by gaining the interest of more people and creating connections between them.

Examples of networking are:
- Support the creation of new networks around the niche
- Provide opportunities for these networks to establish and to organise themselves.
- Help these networks grow and deepen their ties
- Create new models for collaboration between private and public sector actors
- Create connections between academics and actors from the public services sectors for knowledge sharing and exchange

Navigating expectations: Activities that inspire others to create shared narratives, visions and goals through the active involvement of a variety of stakeholders.

Examples of navigation expectations:
- Development of shared visions which serve as a basis for articulating the needs and wishes among different stakeholder groups
- Combine visions with shared narratives connecting different localities and actor groups
- Connect the future vision with past and present histories of a place and/or group
- Use methods such as visioning, foresight, scenario development to explore and elaborate on shared future visions
Transformative Outcomes for expanding and mainstreaming niches

Let’s now move to the second macro process which focuses on **expanding and mainstreaming niches**. An innovative practice, even if well developed and with a small market, is not enough to change a system. The accompanying Transformative Outcomes relate to the diffusion and scaling up of our idea or innovation, which moves it from the small scale (niche) into the mainstream (regime). This process includes activities aimed at **upscaling**, or increasing the number of users, networks and market share of an innovation; **replicating**, which are activities that seek to replicate an innovation in a different context, be it a different city or organisation; **circulation**, which describes activities that strengthen the exchange of learnings between different areas of implementation of an innovation and **institutionalisation**, which contains activities that formalise regulations, norms, programmes and other interventions that facilitate the niche to grow and flourish, such as building finance and infrastructures.

Next, we will illustrate the four Transformative Outcomes of upscaling, replication, circulation and institutionalisation with examples.
**Upscaling:** This refers to the process of conducting deliberate action to get more users involved into new and more sustainable practices.

Examples of upscaling:
- Create **tools that can facilitate the access** to certain services, technologies or other innovations (such as digital platforms).
- Development of **new business models** that reach new users in different markets, and/or shorten supply chains, making the innovation accessible to a broader audience.

**Replicating:** Relates to transferring the entire new and more sustainable practice to another location.

Examples of replication:
- Identifying **best practices and creating guidelines** so that the innovation can be implemented in a different context, such as a different location.
- Developing transferable **tools and models** that can guide the implementation of sustainable new practices.
- **Translate and adapt** tools and methods to new geographical contexts where the innovation can develop.
Section One

Contents Section Two

Section Three

Section Four

Circulation: Refers to the exchange of knowledge, ideas and resources between multiple related alternative practises.

Examples of circulating:
- Enabling **regular formats of exchange** between different locations where a sustainable innovation is being implemented
- **Active knowledge dissemination** of learnings and outcomes of a sustainable innovation, via media channels, workshops, academic outlets, etc.

Institutionalisation: Relates to transferring the entire new and more sustainable practice to another location.

Examples of institutionalisation:
- Promote the formalisation of ideas and new practices by incumbent actors (local policy bodies, industry associations, etc.)
- Provide evidence and guidance in the development of new regulations and norms that support an innovation
- Create long-term linkages between different locations where the innovation is being developed, building a global community of practice that can advocate for it
The third macro process does not address the niche itself, but instead, aims to **destabilise and transform the regime**. Destabilising does not mean creating instability or chaos, but to “open up” the incumbent way of doing things and organise society to solve a given problem so it becomes possible to explore and incorporate alternative and sustainable innovations. It includes **de-stabilising and de-aligning** dominant practises, which refers to “breaking” the linkages between different parts of the system that keep it together. This is supported through a process of **unlearning and deep learning** by incumbent actors, that is, creating the opportunity and willingness to question the way they “normally” do things, learning about new ways of seeing a problem and thinking about solutions. Fostering **interactions between niche and regime** actors creates these opportunities for learning and new linkages between practises, technologies and knowledge that can support the spread of a sustainable solution. Last, it is key to **change the perceptions** of the opportunities and constraints that emerge from ongoing, external and longer-term developments such as climate change and cultural, social and geopolitical trends that shape the world.

Next, we provide examples of the four Transformative Outcomes destabilisation, deep learning, niche-regime interactions and changing perceptions.
**Dealigning and Destabilising:** Relates to the process of disrupting and weakening dominant practices. This can be done by changing one of the dominant dimensions through for instance introducing new policies.

Examples of destabilising:
- Creation of **new and informal (de-facto) governance arrangements** between different people with shared goals in a particular region.
- Strengthening **collaborations that cross established jurisdictional boundaries**
- Introducing a new policy that discontinues a existing technology or practice (ex. Banning fossil fuel cars)

**Unlearning and Deep Learning:** The process in which dominant actors question their assumptions and the ability of dominant practices to sufficiently respond to threats and opportunities, such as climate change and digitalisation, ultimately changing their views on the potential of new and more sustainable practices.

Examples of deep learning
- High level visioning activities that promote new narratives among a wide range of stakeholders
- Collaborations and demonstrators that include incumbent actors, so they can see and experience how alternative innovations work
- Creating political and public awareness about alternative solutions to current problems
**Niche-regime interactions:** Is the process of strengthening the relationship between niche innovations and the incumbent regime, either by making the innovation more suitable to co-exist with the dominant practice - fit and conform - or by changing the dominant way of doing things so it allows for new innovations to emerge - stretch and transform. This last approach is more likely to lead to systems transformation in the long run.

Examples of niche-regime interaction
- Promoting open fora where actors involved in various niches can present their ideas to incumbent actors, in a open and constructive dialogue
- Supporting intermediary actors that connect between different niches and position them within the dominant regime, such as incubators, venture capitalists and other forms of finance, etc.

**Changing perceptions of landscape pressures:** Relates to the need for dominant actors to reach the point of view that immediate action is warranted and emerging more sustainable narratives need to be promoted.

Examples of changing perceptions
- Creating new narratives about the opportunities and challenges that crisis event create, and opening it through the broader public via stakeholder workshops and public engagement events
- Support cities and regions to develop strategies that generate resilient in the face of pressing global challenges, such as water scarcity or climate change
- Connect alternative ideas and understanding of a problem of activist groups, scientist, and other members of society, with policy makers and industry associations
Working with a Transformative Theory of Change and Transformative Outcomes

Previously, we introduced and explored the Transformative Outcomes as a way to turn the MLP theory into a Theory of Change approach. This section illustrates the contexts in which this approach would be useful.

In the early stages of an intervention to design a transformative innovation project or programme

When designing a project or programme, the Theory of Change with Transformative Outcomes approach can be used to devise the overall strategy or roadmap in order to improve a project or programmes contribution to system transformation. Starting from the desired impact or end goal, the Transformative Outcomes can be used to specify how this impact can be achieved and translate it into specific inputs, activities and outputs.
For example, let’s imagine you are working on improving the way in which local governments incorporate shared mobility solutions, with the ultimate purpose of generating a sustainable, holistic transport system for cities and regions. This is your desired impact and it reflects a specific diagnosis of the system: shared mobility solutions can potentially generate a sustainable and just transport system if they are implemented in the right way by local authorities.

It is important to make explicit what the assumptions behind your envisioned impact are. In our example some basic assumptions would be that local authorities want to implement sustainable transport solutions and that they currently lack the right tools and capacities for doing so. Given this assessment, we can start considering which Transformative Outcomes can contribute to achieving the desired impact. We certainly need capacity building and learning; we need to be able to convey these learnings by circulating and upscaling, and we need to change the way in which the niche (shared mobility solutions) relates to local authorities by empowering niche-regime interactions.

For the purpose of this example let’s stick to these four outcomes, although you might want to explore all Transformative Outcomes and prioritise based on your resources, the strengths of your project/programme or potentially ‘low hanging fruits’.
For ongoing interventions to re-assess the transformative potential of a project or programme

The Transformative Theory of Change approach can also be used within projects or programmes that are already ongoing. In this case, the approach can be used to reflect and revise the strategy of a project in line with systemic transformation goals. Here, it is important to take the project’s existing Theory of Change (ToC) as a starting point. If a ToC is not in place yet, it can be articulated by mapping the current activities of your project and corresponding outputs as well as the outcomes these lead to with the ToC canvas. Consider the impact or goal of the project and how well it matches these outcomes. Bring in the Transformative Outcomes and map them against the existing outcomes, answering the question, what else can you do to achieve your desired impact? From there, revise the rest of the ToC once again, starting from the inputs - activities - outcomes: Are these sufficient? Are there any additional resources that can be mobilised by your project to achieve your desired outcomes? Can the activities be improved or complemented? Answering these questions strives to maximise the transformative potential, the impact of your initiative to contribute to systemic change.
Example case

Let's turn to the example of urban farming once again and assume that your project is already well on its way.

The vision and desired impact of the project is clear. It wants to fundamentally improve urban farming practices in Europe and a suite of activities are already happening. Mapping these activities shows that they range from the development of digital solutions that allow customers to buy local organic produce directly from urban farmers to the development of an incubator for urban farming entrepreneurs. The inputs are based on what your project partners bring to the table (e.g. skills and expertise, established relationships and knowledge about the local context) and when you assess the current project progress, you find that some outputs are already starting to shape (e.g. platform prototypes, first training sessions with urban farming entrepreneurs).

Now that you have taken stock of your project’s inputs, existing activities and outputs being generated, you can start assessing and defining which Transformative Outcomes the project aims to achieve, based on the current status and as an intermediary step towards its longer term impact vision. In our example, the activity of developing digital solutions relates to the growth and increased use of urban grown and local food (upscaling). The urban farming incubator’s activities relate to aspects of skill development and capacity building (learning) as well as offering support structures to people who are new to urban farming (shielding). You can now ask yourself whether these outcomes are sufficient to achieve the impact vision of the project or if there are others that should also be addressed, such as those important ones that relate to the disruption of unsustainable farming practices (for instance, destabilisation or changing perceptions of landscape pressures). It is important to keep in mind that a project will make a contribution to this final vision, but fully achieving system transformation involves multiple efforts and a longer timeframe.

In summary, this pathway helps you to develop and make explicit the steps your project takes towards generating impact, even when the project is already on its way. It will help you assess the priorities of your project and identify important gaps that you can address for improving a project’s transformative potential.
For programmes or organisations to revise their strategy and develop portfolios for transformational change

A Theory of Change (ToC) is not only useful for specific projects or interventions. It can also be used to develop strategies for programmes or entire organisations. Organisations and programmes often involve multiple interventions with longer timeframes than those of projects. The ToC with Transformative Outcomes approach can help to construct and align the strategy of an organisation with transformative and systemic change related impact goals.

In contrast to the previous urban farming example, this ToC would be more high-level and focus on the key elements that build the foundation of the programme or organisation, rather than diving into the details of specific interventions. In this case, we can start by envisioning the impact or long-term goal that an organisation wants to achieve. From there we review the existing inputs (capacities, knowledge, infrastructures etc.), activities (which in this case include the different types of projects and programmes, plus outreach and networking activities) and develop an overview of the key outputs resulting from these activities and outcomes. Having listed the outcomes, we can ask ourselves whether these are sufficient to achieve the desired transformational impact through consulting the 12 Transformative Outcomes. For example, does the organisation focus only on networking or capacity building, without much efforts oriented towards upscaling or circulating innovations? Are certain Transformative Outcomes more relatable to the vision of the organisation or programme, while others are less suitable? What kind of alliances would be needed to expand the ability of the organisation to promote other Transformative Outcomes?
Example case

For example, let’s imagine an innovation agency with the mission of promoting technology-based innovations in a specific region.

This organisation wants to have a more positive impact on food sustainability in the region, since agriculture is an important economic activity and current pressures of climate change and ecological degradation are putting it at risk. The organisation wants to revise its project portfolio as well as the different programmes and activities that it conducts in order to reformulate the strategy to achieve this goal. In doing so, the agency realises that its focus is considerably on supporting early stage innovations related to Transformative Outcomes such as shielding, learning and networking. However, these innovations are not able to penetrate the agricultural sector in the region, which is conservative and lacks the capacities and resources to adopt new practises. The agency decides that it needs to put more effort into achieving the Transformative Outcomes of circulation and replication by creating new programmes that support the diffusion of innovations. Additionally, it explores partnerships with other relevant regional and national public organisations, such as the ministry of agriculture and the water commission, with the purpose of creating shared expectations at the regime level (“changing perceptions”) so these organisations can eventually create programmes, standards and norms that are more likely to adopt agricultural innovations (“niche-regime interactions”).
Examples of Activities that contribute to each Transformative Outcome

This table provides some examples of activities that can be conducted by projects, programmes or organisations working on systems innovation to achieve specific transformative outcomes.

### 1. Building and nurturing niches

**Shielding**
- Provide RTI (research, technology and innovation) funding (direct support for radical niche innovations through R&D), public or collective purchasing
  - Co-develop an understanding of systemic challenges, together with societal stakeholders, that can be used as a guide for calls.
  - Align RTI calls to concrete problems and challenges in practice.
  - Develop R&I calls that address all innovations necessary for system innovation (e.g. technology, organisational, business models, etc.)
  - Sensibly combine the use of (funding) instruments for a specific topic (e.g. combination of instruments along the innovation value chain)
- Provide institutional support to increase visibility of actors and alternative practices
- Enhance existing or develop new instruments to build up niches
- Providing basic infrastructure to niche actors that supports experimentation (e.g. land, materials)

**Learning**
- Gathering new data and evidence about a certain technology/practice and its impact
- Combine knowledge from various scientific disciplines as well as knowledge from research and practice.
- Development of strategic knowledge/intelligence based on synthesizing results from a project portfolio
- Foster connection between RTI communities and user/practitioners communities
- Build demonstrators that show that these new ideas are feasible and learn from real world application of practice.
- Synthesize and disseminate information and key learnings through various channels and to different groups
- Develop (formalised) capacity building programs targeted at the needs of particular groups (e.g. Trainings, internships, etc.)
- Enhance reflexivity of actors involved in a niche, by discussing views, values, assumptions and impacts in society

**Networking**
- Support the creation of new networks and platform between academia, industry, public sector and policy
- Provide opportunities for these networks to establish and to organise themselves.
- Help these network grow and deepen their ties
- Collaborate across organisational boundaries for certain focus areas/topics.
- Create new models for collaboration between private and public sector actors
- Identify and involve “intermediaries” who help to translate between knowledge and application or between different communities

**Navigating expectations**
- Use methods such as visioning, foresight, scenario development to explore and elaborate on shared future visions as basis for articulating the needs and wishes among different stakeholder groups & connecting these groups together.
- Developing a strategic research and innovation agenda (SRIA) in a participatory process.
- Embedding the strategic research agenda (SRIA) in sectoral policy strategies/market strategies (e.g. RTI circular economy in circular economy strategy).
- Develop joint declarations of intent that generate commitment, e.g. Memorandum of Understanding
2. Expanding and mainstreaming niches

Upscaling
- Combine R&I policy instruments with instruments that attract funding/investments for upscaling
- Create tools that can facilitate the access to certain services, technologies or other innovations (e.g. digital platforms)
- Development of new business models that reach new users in different market, and/or shorten supply chains, making the innovation accessible to a broader audience.
- Combine with demand side policy interventions (e.g. (functional) public procurement) or supply chain policy interventions
- Develop guidelines for implementation or application of innovations
- Develop and run communication & marketing campaigns

Replicating
- Foster transnational or transregional cooperation’s for innovative practices
- Identifying best practices and creating guidelines so that the innovative practice can be implemented in a different context, such as a different location.
- Developing transferable tools and models that can guide the implementation of sustainable new practices elsewhere.
- Translate and adapt tools and methods to new geographical contexts.

Circulating
Refers to the exchange of knowledge, ideas and resources between multiple related alternative practices.
- Enabling regular formats of exchange between different locations where a sustainable innovation is being implemented.
- Active communication and dissemination of learnings and outcomes of innovative practices via media channels, workshops, academic outlets, etc.

Institutionalising
- Providing evidence for high level decision making
- Promote the formalisation of ideas and new practices by incumbent actors (local policy bodies, industry associations, etc.)
- Provide guidance in the development of new regulations and norms that support an innovation
- Anchoring of standards / norms in other regulation (e.g. changes to urban planning requirements / building codes)
- Link up to certification procedures
- Combine with supportive financial instruments (e.g. tax incentives, subsidies)
- Create long-term linkages between different locations where the innovation is being developed, building a global community of practice that can advocate for it.

3. Opening up and unlocking regimes

Dealining and Destabilising
- Set-up cross unit (horizontal) and/or cross level (vertical) collaboration in public administration (e.g. ministry)
- Regulatory experimentation combined with active policy learning (e.g. Reallabore, Regulatory Sandbox)
- Destabilising regulation (i.e. phase out policies, bans, removal of subsidies for entrenched practices)
- Creation of new and informal (de-facto) governance arrangements between different people with shared goals in a particular region.
- High level visioning activities that promote new narratives among decision makers and executives
- Collaborations and demonstrators that include incumbent actors, so they can see and experience how alternative innovations work
- Creating political and public awareness about alternative solutions to current problems
- Changes to university / professional education curricula
- Establishment of partnerships and collaborations between regime and niches;
- Structured & strategic interactions in experimental setting (e.g. Living Lab, Policy Lab)
- Use of intermediary function (e.g. brokering, translating to connect between niche/ regime actors)
- Creating new narratives about the opportunities and challenges that crisis event create, and opening it through the broader public via stakeholder workshops and public engagement events
- Support collective sensemaking processes (e.g. Foresight activities; media campaigns)
- Strategic reframing of context developments (e.g. Corona as an opportunity for “green recovery”)
Introduction to the Theory of Change canvas

The Transformative Theory of Change (ToC) is at the heart of the approach introduced in this handbook. The Transformative ToC canvas is designed to help you contextualise and develop a strategy for transformative system change. This strategy can be applied within your initiative (project, programme, organisation or other) and accompany it throughout its lifecycle, serving as a tool to reflect on its evolution and key learnings. We invite you to explore the Transformative ToC, to try it out and modify it so it suits the needs of your initiative and team best.

When to use this tool?

- To develop and/or revise a transformative system change strategy for a project, programme or organisation.

What are the key features of this tool?

- This is a co-creation tool that can be used by teams and groups of stakeholders to collectively develop, revise and reflect upon how an initiative can contribute to systems transformation.
- It is a formative tool that enables learning by providing a framework to systematically understand how the project’s goals and desired outcomes are achieved over time.
- It is a reflexive tool as it prompts the users to think about the underlying assumptions that guide their strategy, inviting them to look at different alternatives and perspectives.

What is needed to use this tool?

**How many:** This is a collaborative tool for groups of 2 to 15 people.

**Difficulty:** Medium-high. It is a time consuming tool that requires iterative exploration in various workshops.

**How long:** 90 minutes to start exploring the tool and as many additional workshops as needed.

**What you need:** A team or group of stakeholders working on a shared initiative, with a shared goal or vision within a well defined context (a project call, organisation, timeframe, etc.). You can use this tool in an online workshop with the Miro canvas provided or in an in-person workshop. In both cases, we recommend that one or two of the team members act as facilitator, familiarising themselves with the material and setting up the workshop.

**What is next:** You can use this tool several times to reflect on the changes of your project. Additionally, you can combine it with the self-assessment tool for evaluation.
Applying the Theory of Change canvas in practice

This section presents two examples where the Transformative ToC tool has been applied for processes of co-design and implementation at the programme and organisational level, in a process of co-creation with project partners of EIT Climate-KIC’s Regional Innovation Scheme (RIS) programme. These processes have been co-designed based on the needs of these partners, showcasing the adaptability and flexibility of the Transformative Theory of Change approach to respond to the challenges of problem owners (challenge-led approach). The Transformative ToC canvas has been used in the context of knowledge services, addressing two use cases of the ToC: Joint programming, as the process of connecting different projects, programmes and other actions at various geographical levels (Circular Economy Beacons) and organisational change to transform a strategy and orientation (Transformation for Climate). These have been implemented through tailor-made capacity building activities aimed at building skills on concrete methods and approaches and applied to introduce new concepts such as systems innovation, the policy process and circular economy. The target audience was stakeholders from the EIT Climate-KIC RIS programme involved in two multi-location projects: Circular Economy Beacons and Transformation for Climate. Details of the projects are summarised in the Table on the right.

### Project

<table>
<thead>
<tr>
<th>Participating countries</th>
<th>Circular Economy Beacons</th>
<th>Transformation for Climate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Romania, Serbia, Greece, Bulgaria and Bosnia and Herzegovina</td>
<td>Introduce Joint Programming as a structured process enabling multiple levels of governments and cross-regional networks to participate in joint research and Innovation programming activities</td>
<td>Fostering the transformation of energy agencies into energy and climate agencies to support the problem owners in the joint area of energy and climate</td>
</tr>
<tr>
<td>Italy, Croatia and Cyprus</td>
<td>New elements introduced to draw pathways through innovation fields and objectives related to thematic areas and impact goals</td>
<td>Pathways developed by matching existing and new activities in the agency’s portfolio by defining pathways to more ambitious impact goals introduced by the new strategies</td>
</tr>
</tbody>
</table>

### Challenge

<table>
<thead>
<tr>
<th>Project</th>
<th>Circular Economy Beacons</th>
<th>Transformation for Climate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participating countries</td>
<td>Introduce Joint Programming as a structured process enabling multiple levels of governments and cross-regional networks to participate in joint research and Innovation programming activities</td>
<td>Fostering the transformation of energy agencies into energy and climate agencies to support the problem owners in the joint area of energy and climate</td>
</tr>
<tr>
<td>Italy, Croatia and Cyprus</td>
<td>New elements introduced to draw pathways through innovation fields and objectives related to thematic areas and impact goals</td>
<td>Pathways developed by matching existing and new activities in the agency’s portfolio by defining pathways to more ambitious impact goals introduced by the new strategies</td>
</tr>
</tbody>
</table>

### Adaptation of the ToC tool

<table>
<thead>
<tr>
<th>Inputs and additional tools and resources used in the process</th>
<th>Co-created Value Network Maps</th>
<th>Strategic Research and Innovation Agenda from H2020 CICERONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Circular Economy Beacons</td>
<td>- Co-created Value Network Maps</td>
<td>- Agencies strategies</td>
</tr>
<tr>
<td>Transformation for Climate</td>
<td>- Strategic Research and Innovation Agenda from H2020 CICERONE</td>
<td>- Co-created Value Network Maps</td>
</tr>
</tbody>
</table>

These capacity building activities were delivered a) at the programme (i.e RIS) and project level through mentoring and co-designing and b) in a flexible set of online activities. The learning profile of participants was intermediate in terms of their knowledge and expertise in innovation, circular economy and policy process. Figure 29 shows a sample of intermediate outputs of the ToC by project and country.
Adaptation for the ToC tool for joint programming Circular Economy Beacons

Example: Industrial systems
Use of the ToC tool for organisational transformation for Climate

Which insights have we gained from the implementation and adaptation of the Transformative ToC tool?

• **The importance of knowledge management.** The executive programmes have been implemented through a staged process, where each stage contributed to the overall goal of the process. At each moment, the results, lessons learned and specific priorities drawn from the tailored elements of each stage of the process were carefully harvested, building a shared knowledge base for the participants.

• **Stimulating co-creation all over the process.** Each stage has been designed to generate stand-alone outputs and outcomes such as Value Network Maps, Theory of Change and Financial resources maps, as well as collective understandings of the systems relations with the aim of activating processes supporting ongoing actions.

• **Key mechanisms of the challenge-led collaboration.** The key mechanisms of the collaboration are the roles and relations of researchers and policy practitioners, the structure of the process, its interactions and the process outcomes and their reception. These mechanisms highlight that the development of the challenge-led approach is, in its essence, based on the management of co-learning processes between practitioners and researchers. It does however not provide final recipes since the replication of an earlier collaboration does not warrant any success during the following collaboration.
Formative evaluation as an opportunity and method for learning in a Theory of Change process

Introduction to the Self-Assessment Tool

Tools for Monitoring, Evaluation and Learning: Surveys
Formative evaluation as an opportunity and method for learning in a Theory of Change process

Systemic transformations are complex and long-term processes in which many elements and actors interact. Any initiative that works towards system change becomes part of the system it strives to transform as it naturally connects with many other intended actions and non-intended changes that, in the long run, can lead to radical changes. How can we gain a better understanding of these processes, and take advantage of them to maximise the impact of our intervention?

Formative evaluation is a tool that can be used to understand the system and its evolution. Many of us will connect the word evaluation with “results”, something that is done at the end of a project to check whether the desired objectives and goals were achieved. This is the established way in which evaluation works in many organisations, and plays an important role in accountability. However, evaluation is ultimately a way of capturing and sharing knowledge and learnings that can transcend a project or a programme. Evaluation as a means to improve implementation towards transformation, allowing us to maximise learning within our organisation or initiative, promoting reflection within projects and with project partners and stakeholders.

Through evaluation, we learn to acknowledge how our intervention changes the interconnection within the system and by doing so, promotes changes at the system level, which always enforces certain pathways of change and discourages others (what we call directionality). Actors within the system, even if not directly involved in our initiative, have the opportunity to learn and change their beliefs, behaviours and habits, and further create changes. In order to achieve better outcomes that can address the complex nature of transformation, initiatives should strive to be inclusive and participatory. This combination of elements, that is participatory, inclusive, systemic, promotes learning and reflects on directionality, is what we call Formative Evaluation.

Formative Evaluation aims to improve the definition and implementation of interventions. This requires a real-time process which is both reflexive and transformative towards long-term systemic goals. This type of evaluation requires more time and resources than a traditional summative evaluation. And yet, the results are very different as stakeholders monitor and reassess results as they happen to improve interventions.
Formative Evaluation has been incorporated in MOTION through the ToC approach, which has been used as a focal point to incentivise learning and reflection among project partners. For example, in the case of SATURN, a set of two selected Transformative Outcomes, drawn from the ToC, were used in a self-evaluation session to discuss among project partners how the project was being implemented and what could be improved. Using the self-assessment tool, the participants discussed to what extent the Transformative Outcomes of circulation and upscaling were being achieved in the different hubs and at the project level, and how the activities of the project could be modified in order to improve the outcomes of the project. In doing so, the participants reflected on their own assumptions and learned about the views and assumptions of project partners, being able to develop a deeper understanding of the ToC and their own project.

When using Formative Evaluation as part of a Theory of Change process, we want to incentivise two types of learning that can help improve the project or programme outcomes. The first type of learning responds to the question: how can we do this better? It relates to problem-solving, and the improvement of a process to make it more efficient. The second type of learning is deeper and seeks to answer the question: why are we doing this? It triggers a deeper reflection on the beliefs, assumptions, points and view and behaviour that shape individual, project and programme choices. This type of learning helps us unveil biases and lock-in points within our organisations and systems that are required to be changed in the process of transformation. This type of learning makes a difference for transitions as it allows the possibility of reconsidering the entire system where actors and initiatives interact. It is important because it goes beyond problem-solving and into reframing and reconsidering how systems work.
Introduction to the Self-Assessment Tool

The self-assessment tool (SAT) is an evaluation tool that can be used to assess the quality of [Transformative] Outcomes in a specific initiative. “Quality” in this context is a qualitative measure that refers to the extent to which a certain outcome is being achieved at a point in time in a project, programme or other initiative. That is, are the activities connected to these outcomes delivering sufficient results and/or impacting stakeholders as envisioned, or can more be done?

“Self-assessment” means that the evaluation is based on each team member’s perception of the initiatives’ activities and outcomes. It is a qualitative evaluation that allows you to reflect on what you are doing now and which additional actions can be conducted in order to improve on the desired outcomes (formative evaluation). SAT is not meant to be used as a tool to compare an initiative with others (summative evaluation), but to check progress within the project itself based on the team members perception.

When to use this tool?

- SAT can be used multiple times during the lifespan of a project as a way to keep track of and discuss the project’s evolution over time. We recommend starting with a self-assessment exercise that serves as a “baseline” for the rest of the project (“where are we now?”). The following iterations will refer to this baseline, and so on. In this way, you can continuously track your project’s progression.

- To use this tool, you need to first have developed a Theory of Change, identifying key Transformative Outcomes. You can develop a self-assessment for each [Transformative] Outcome of your Theory of Change, or focus on a few key ones that you think are most important. Whichever approach you choose, make sure to allocate sufficient time to use the tool in your project planning.

What are the key features of this tool?

- It is a collaborative tool that allows teams of people working on a project, programme or other initiative to reflect together on their progress.

- It is a formative evaluation tool in that it provides a template for a structured reflection on an initiative’s outcomes, benchmarking it against the expectations and goals of the team.

- It is evidence-based in that it facilitates the development and use of indicators that allow the team to keep track of their progress towards their desired goals and outcomes.

- It is a tool that complements the Transformative Theory of Change, accompanying the initiative throughout its lifetime and allowing for several evaluation instances that feed back into the Theory of Change, reflecting the evolution of the initiative.

What is needed to use this tool?

How many: This is a collaborative tool for groups of 2 to 12 people.
Difficulty: Medium-high. It is a time consuming tool that requires iterative exploration in various workshops.
How long: 75 to 120 minutes workshops, considering about 35-45 mins of discussion per outcome selected.
What you need: A team or group of stakeholders working on a shared initiative, with a shared goal or vision within a well defined context (a project call, organisation, timeframe, etc.). You can use this tool in an online workshop with the Miro canvas provided or in an in-person workshop. In both cases, we recommend that one or two of the team members act as facilitator, familiarising themselves with the material and setting up the workshop.
What is next: You can use this tool several times to reflect on the changes of your project. Make sure to first develop a “baseline” for evaluation, which you can refer back to in the following workshops.
How can this tool be used to improve learning?

These are some practical suggestions for your workshop to improve the learning and reflection process:

• Make sure to allocate sufficient time for the use of the SAT tool, in order to allow for an open discussion about how your initiative is working.
• Include the most relevant challenges your project faces into the discussion. People should feel comfortable to express themselves regardless of their position in the organisation.
• Keep track of the most relevant quotes from the group discussion, either by using a digital board or on post-its when conducting it in person, and discuss them as a group.
• Discuss how individuals deal with those challenges in practice, and why they think their solutions will or will not work. The objective is to uncover implicit assumptions and beliefs that people have and that drive their behaviour.
• Make participants’ expectations for using this tool explicit at the start of the workshop. Ask them to write their expectations down on paper and review them at the end of the workshop. Have the expectations been met? Did you learn something you did not envision in the beginning?
A survey (or questionnaire) is an effective tool for gathering both quantitative and qualitative information. A survey is a list of questions, presented in a logical order and coherent form, aimed at obtaining specific information or data about a specific topic (or set of topics) from a group of relevant people. A survey is thus a method for gathering factual information and/or reflections from a sample of participants that does not require in-person interaction (as in the case of interviews) and can be used a-synchronically and with participants in diverse locations. Surveys are based on a series of questions that can be answered by participants individually or with the help of a survey taker, which is a preferred method for the reasons outlined below. When designed properly, surveys can contribute to the formative monitoring, evaluation and learning approach that transformative change projects or programmes require. Surveys facilitate reflecting on activities or results as a basis for learning about progress and possibilities to strategise adaptations or targeted improvements. In this section, we will discuss why, how, what for and when to use surveys during a Monitoring, Evaluation and Learning (MEL) process.

In the context of the approach presented in this handbook, the survey methodology can be adapted to the specific Theory of Change (ToC) developed for the projects or programmes under scrutiny, to collect evidence or data for indicators relevant to it. In contrast to traditional surveys that often seek to characterise the status of a system at a given point in time (e.g. socio-economic surveys used to characterise a neighbourhood or city and which often aim to deliver quantitative indicators), surveys used in the context of a formative process seek to trigger reflection and learning among respondents. This type of survey is bidirectional. It creates a dialogue between the respondent/participant and the survey taker. This has implications for the sample selection of the survey (i.e. who will participate). Instead of random sampling as needed for statistical evaluation, formative evaluation samples are purposive and should include as many different and relevant perspectives as possible. Participation can also be encouraged during the analytical phase of the survey process, whereby the surveyed stakeholders are invited to discuss the survey results as a way to trigger learning and reflexivity.

Surveys are...
- flexible (i.e. adaptable to project/programme specifics)
- inclusive (i.e. carried out with all project/programme partners)
- participatory (i.e. people are at the heart of the survey rather than information items or outputs)
- reflexive (i.e. the survey can be used as a tool for reflection and learning rather than measuring)

In a formative MEL process, surveys are a tool for information or knowledge gathering with reflection as the basis for learning and adapting. To this end, the most important questions are open ended and trigger reflections on the concepts being surveyed (i.e. so called “why”, “how” and “what” questions). But the survey instrument (protocol) may include other types of questions, such as multiple choice, degree of agreement/disagreement with a statement or other rating questions.

Agreement/disagreement and rating questions usually rely on a likert or likert type scale: a subjective evaluation system ranging from disagreeing (-1) through neither agreeing or disagreeing (0) to agreeing (1) or variations ranging e.g. from -2 (strongly disagree) to +2 (strongly agree), including some scales that omit a neutral answer. The rating can be based on other ratings, for example, to qualify a network as diverse or not-diverse or the interest of citizens as high or low.

For example
The survey is usually used after a Transformative Theory of Change has been established, possible indicators for the Transformative Outcomes have been identified and specific indicators have been selected.

Using surveys as a tool for formative MEL entails the following steps: a) Design b) Execution and c) Result Interpretation. In the following, each step is described individually and examples are given:

### A) Design

1. **Define the Theory of Change element** (e.g. activities or Transformative Outcomes) that will be the focus of the survey: this process is led by the survey applicant, taking into account the expectations and learning objectives of those that will respond to the survey (often those engaged in the project/programme).

2. **Identification and selection of respondents:** respondents are usually participants in the initiative and should include at least those that are implementing the initiative (and have therefore contributed to the development of the Theory of Change), but may include other stakeholders, such as citizens, business leaders, NGO representatives or other policy-makers. While there is no minimum or maximum for the number of respondents, it is important to consider that in the third step, the results shall be presented to respondents in a workshop. Hence, if there are too few or too many respondents, the reflection process in the workshop may be impaired.

3. **Definition of the survey protocol:** this entails a list of questions that follow a logical order, preceded by a short explanation of the content of the survey and its goals. Questions should be clear (avoiding use of jargon), concise (as short as possible) and avoiding biases that can induce a certain answer. When using multiple choice or ranking/rating questions, the categories should also be clear and as comprehensive as possible. These questions should include or be followed by an open question that allows participants to elaborate/justify their rating/ranking. You can find an example form of a survey design and questions from the SuSMo project on page 58.

### B) Execution

1. **Pilot application:** this step is key in ensuring clarity of the questions, a sufficient length of the protocol and that the answers triggered by it are relevant and clear. Because online surveys are currently the dominant form of application, a pilot helps to anticipate and address any possible errors that could emerge. Please note that it is important to consider the requirements for data handling specified in general data protection regulations (GDPR) and whether the chosen online survey platform complies with them. The pilot survey should be tested with at least one or two respondents amongst the initially selected list.

2. **Correction, improvement and adaptation of the survey protocol:** depending on the results of the pilot application. This step may be followed by a second pilot application.

3. **Application of the survey to the selected respondents:** as the application is usually carried out online, the survey is often distributed through an email that invites respondents to participate until a selected date (ensure enough time is given). Do not expect respondents to answer the survey immediately. A four-week window for answering is appropriate and you may send a follow up email in case of a low response rate after two weeks.

### C) Interpretation of Results

1. **Compilation and initial analysis of answers:** surveys applied through online tools usually result in a tabulated spreadsheet that facilitates analysis and representation of answers. The initial analysis is not meant to lead to definitive conclusions but to raise initial insights and prepare visual representations of the answers (whenever possible), which will be offered back to respondents for reflection. On page 58 you will find how certain answers to SuSMo’s survey were represented in chart and table formats.

2. **Sharing the results with relevant participants:** This is the culmination of the survey process with the goal of promoting learning and reflexivity amongst participants. To this end, a face-to-face or online workshop may be organised during which the results are offered to participants in a guided presentation and discussion. The goal is to gain an even deeper understanding of their views, seeking to unveil new perspectives and insights, confronting opposing perspectives, unveiling lessons and proposing new or next steps. Examples of guiding and probing questions to trigger reflection about SuSMo are also presented on page 57. The guided reflection may also reveal drawbacks or bottlenecks in the project or programme, leading to a review of the flexible Theory of Change or one of its elements. Ultimately, the survey results and subsequent reflection engagements may be translated into text and/or visual outputs (for instance, a report or infographics) that provide the basis for further learning and reflection.
Example survey

This example stems from the SuSMo project. The survey was distributed to specialists representing those partners that were responsible for developing and implementing SuSMo’s transformative pathways (WPs). It was implemented through the survey application form Qualtrics and distributed to respondents electronically. The survey questions were preceded by the following text:

MEL Survey on Transformative Outcomes in SuSMo

Introduction SuSMo - Sustainable Shared Mobility is addressing a range of Transformative Outcomes through the activities that form its four pathways and the stakeholder engagement core (the fifth “pathway”). The figure on the right depicts SuSMo’s Theory of Change (zoom in to inspect), co-constructed with MOTION.

Throughout the MOTION-SuSMo interactions, we decided to focus on two of these pathways – Data for Impact Evaluation and Policy, Regulation and Procurement – and the Stakeholder Engagement core for the purposes of Monitoring, Evaluation and Learning (MEL). We will carry out the MEL by focusing on selected Transformative Outcomes. During our last interaction (Workshop 3), we discussed the relevant dimensions for the MEL enquiry of the selected pathways. This survey mobilizes these dimensions as means to formative evaluate the pathway, by identifying outcomes and areas for improvement (during SuSMo’s “diffusion” phase”). The results of the survey will be used internally by MOTION for further MEL activities, which will initially include a MOTION-SuSMo workshop to discuss these results, provide opportunities for learning and propose action points to facilitate consolidation and dissemination of SuSMo’s outcomes.

[1] This is a paid tool, but a free account can be created at: https://www.qualtrics.com/free-account/.
This introduction was followed by a recall of the Transformative Outcomes relevant to SuSMo’s Theory of Change and a brief description of the selected pathways.

For the survey protocol, a recurrent format of “rating question followed by open question” was selected. For example, focusing on the Transformative Outcome circulation in the Data for Impact Evaluation Pathway, it was asked:

In this second part of the survey, we want you to focus specifically on the Data for Impact Evaluation Pathway, its activities and tools.

Question A1. On a scale from 1 (strongly disagree) to 6 (strongly agree), please rate the following statements about circulation in the Data for Impact Evaluation Pathway: “New knowledge and experiences are systematically collected and synthesised into tools by the responsible partners.”

Question A2. Why did you choose those ratings for circulation in the Data for Impact Evaluation pathway? Please justify each choice, providing, whenever possible, concrete examples that would underscore it.

For compiling answers and analysis and representation, the following spider chart and figure was created to represent the answers on Circulation in the Data for Impact Evaluation Pathway (note that the representation includes answer to other questions besides A1 above):

A workshop with respondents was organised to discuss the survey results. The reflection process was guided by the following questions:

After each quantitative and qualitative a slide:
- Do you agree with the average result? Why?
- Are the qualitative considerations coherent with the average result? Why not?
- Based on your experience with this pathway’s activities, what can be done to solidify SuSMo’s network after the project is over?

On discrepant results regarding two pathways:
- Two pathways aimed at similar Transformative Outcomes, but your perception of what was achieved through each of them is different. Has pathway A really advanced further than pathway B? Why?
- What lessons can be drawn from pathway A to further advance pathway B?

General reflection on SuSMo:
- If you could restart SuSMo, what would you like to do (or that others have done) differently?
- What worked and what did not work in developing each pathway?
- What were the key catalysts or barriers for SuSMo?
SECTION 04

Additional Resources
Additional Resources

Abson, D.J., Fischer, J., Leventon, J. et al. Leverage points for sustainability transformation 2017, Ambio

Article that proposes leverage points for planetary sustainability transformations, based on the systems theory proposed by Donella Meadows.


Concise guide with the key elements of a Theory of Change. Note that the categories used are slightly different than the ones used in the handbook.

Brown, M. Unpacking the Theory of Change 2020, Standford SOCIAL INNOVATION Review

An introduction to what a Theory of Change, with a focus on development and investment projects. Clear explanations, this is not an academic article.


EIT Climate-KIC. Transformation in time. Technical report 2019


EIT Climate-KIC. Challenge-led System Mapping 2020, EIT Climate-KIC

EIT Climate-KIC. Visual Toolbox for Systems Innovation 2016, EIT Climate-KIC

This handbook provides a series of co-creation tools for systems transformation, to be used in online and in person workshops settings. These include tools for systems mapping, stakeholder engagement, sense making, etc. These tools can complement the approach presented in this handbook

European Environment Agency Perspectives on transitions to sustainability 2018, Publications Office, LU

Galle, W.; Matti, C. Building knowledge services for and with policy makers – not a cookbook. Eu-SPRI conference 2021, Norway


Geels, F. W. and Schot, J. Typology of sociotechnical transition pathways 2007, Research Policy

Geels, F.W. Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study 2002, Research Policy


This article presents and explains the conceptual framework behind the transformative outcomes. It provides an in-detail and academic perspective on each of the outcomes, and it is recommended for those who wish to explore them in depth.


Leach, M., Scoones, I., Stirling, A. Dynamic sustainabilities: technology, environment, social justice 2010, Pathways to Sustainability: Earthscan, London ; Washington, DC


Molas-Gallart, J. ; Boni, S.; Schot, J. & Giachi, S. A formative approach to the evaluation of Transformative Innovation Policies 2021, Research Evaluation

This handbook provides a series of co-creation tools for systems transformation, to be used in online and in person workshops settings. These include tools for systems mapping, stakeholder engagement, sense making, etc. These tools can complement the approach presented in this handbook

European Environment Agency Perspectives on transitions to sustainability 2018, Publications Office, LU

Galle, W.; Matti, C. Building knowledge services for and with policy makers – not a cookbook. Eu-SPRI conference 2021, Norway


Geels, F. W. and Schot, J. Typology of sociotechnical transition pathways 2007, Research Policy

Geels, F.W. Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study 2002, Research Policy


This article presents and explains the conceptual framework behind the transformative outcomes. It provides an in-detail and academic perspective on each of the outcomes, and it is recommended for those who wish to explore them in depth.


Leach, M., Scoones, I., Stirling, A. Dynamic sustainabilities: technology, environment, social justice 2010, Pathways to Sustainability: Earthscan, London ; Washington, DC


Molas-Gallart, J. ; Boni, S.; Schot, J. & Giachi, S. A formative approach to the evaluation of Transformative Innovation Policies 2021, Research Evaluation

This handbook provides a series of co-creation tools for systems transformation, to be used in online and in person workshops settings. These include tools for systems mapping, stakeholder engagement, sense making, etc. These tools can complement the approach presented in this handbook

European Environment Agency Perspectives on transitions to sustainability 2018, Publications Office, LU

Galle, W.; Matti, C. Building knowledge services for and with policy makers – not a cookbook. Eu-SPRI conference 2021, Norway

This article introduces for the first the Multi-level perspective (MLP).

United Nations. Sustainable Development Goals, United Nations

van Es, Marjan; Guijt, Irene; Vogel, Isabel. HIVOS Theory of Change Thinking in Practice: A stepwise approach. 2015

A detailed, step-by-step guide on how to develop a Theory of Change for Learning and Evaluation in an organization. It includes multiple resources and tools that can help build the ToC.


This article introduces how a co-creation approach can be used in technical assistance projects and initiatives, and provides a list of functions that such an approach needs to fulfil in order to achieve the desired outcomes.