

Brussels, 12 May 2023

COST 066/23

DECISION

Subject: Memorandum of Understanding for the implementation of the COST Action “Transformations international Experience and Research network for Sustainable futures” (TransformERS) CA22156

The COST Member Countries will find attached the Memorandum of Understanding for the COST Action Transformations international Experience and Research network for Sustainable futures approved by the Committee of Senior Officials through written procedure on 12 May 2023.

MEMORANDUM OF UNDERSTANDING

For the implementation of a COST Action designated as

COST Action CA22156
TRANSFORMATIONS INTERNATIONAL EXPERIENCE AND RESEARCH NETWORK FOR
SUSTAINABLE FUTURES (TransformERS)

The COST Members through the present Memorandum of Understanding (MoU) wish to undertake joint activities of mutual interest and declare their common intention to participate in the COST Action, referred to above and described in the Technical Annex of this MoU.

The Action will be carried out in accordance with the set of COST Implementation Rules approved by the Committee of Senior Officials (CSO), or any document amending or replacing them.

The main aim and objective of the Action is to bring together existing research that supports societal transformation. Focus is on positioning current knowledge emerging in different countries and institutions across Europe and globally to inform research, policy and practice for transformations that deliver justice in a changing world. This will be achieved through the specific objectives detailed in the Technical Annex.

The present MoU enters into force on the date of the approval of the COST Action by the CSO.

OVERVIEW

Summary

The overarching aim of TransformERS is to inform research, policy and practice for transformations that deliver justice in a changing global context by bringing together and positioning research relevant to societal transformation. Such societal transformations are cited as highly necessary to avoid catastrophic climate change and biodiversity loss, and are called for in the IPCC and IPBES frameworks, as well as the European Green Deal. However, current research into transformations is highly fragmented. Pieces of relevant knowledge are held by policy-makers, practitioners, and researchers, from within a range of contexts, disciplines, projects and perspectives, both within and outside of the sustainability research community. There is a need to put these separate pieces together to 1) identify what transformation-relevant knowledge is held and by whom 2) understand how the different pieces fit together; 3) understand what the big picture is – what we know about transformations collectively; and 4) identify the missing pieces – understand what we still need to create knowledge on. TransformERS creates a networking infrastructure to meet these 4 needs with objectives to 1) inform transformation policy; 2) shape transformations research and practice; 3) train transformations researchers from across broad disciplines and topics.

<p>Areas of Expertise Relevant for the Action</p> <ul style="list-style-type: none"> ● Other social sciences: Qualitative methods for the social sciences ● Philosophy, Ethics and Religion: Epistemology, logic, philosophy of science and technology ● Political Science: Environmental regulations and climate negotiations (policy and political aspects) ● Sociology: Social movements ● Social and economic geography: Socio-economic aspects of environmental sciences 	<p>Keywords</p> <ul style="list-style-type: none"> ● Sustainability ● Climate Change ● Biodiversity loss ● Equity ● Transitions
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Specific Objectives

To achieve the main objective described in this MoU, the following specific objectives shall be accomplished:

Research Coordination

- Compile existing knowledge from across diverse research disciplines and practical experiences about processes of transformation, how they are stimulated and supported, and their outcomes.
- Compile transformation-relevant knowledge from under-represented geographic areas.
- Develop frameworks for meaningful collaboration across different forms of knowledge and experience for transformation.
- Create recommendations for funders, institutes and researchers to address working practices, norms and knowledge cultures that prevent meaningful collaboration across relevant disciplines.
- Identify knowledge gaps where new work is needed to inform the policy and practice of just societal transformations.
- Compile and evaluate evidence on the tools, measures and techniques that stimulate and facilitate transformations; including consideration of justice, and transferability across social contexts.
- Develop an interactive online toolkit of methods that can stimulate and support transformative processes at a range of scales, including consideration of roles, power, and methods.
- Identify and map pathways to transformation across sectors and scales that explicitly address the need for justice and inclusivity.
- Describe governance (policy, regulatory, institutional) barriers and opportunities within EU systems for facilitating transformations within and across focal systems.

- Identify leverage points within EU governance systems for unlocking just societal transformations across sectors, topics and scales.

Capacity Building

- Establish an inclusive transdisciplinary network of collaborators on societal transformations for sustainability, bridging across all identified fragmentations and marginalisations.
- Develop training materials (including e.g. webinars, MOOCs, guided exercises) on the skills required for the deep collaboration necessary for understanding transformations.
- Foster the career development of an upcoming generation of transformations researchers and practitioners, by embedding them in experienced networks and demonstrating the value of their work.
- Foster the career development of marginalised people by creating an equitable and just network that is sensitive and responsive to the epistemic injustices inherent in academic research.
- Improve the practical uptake, and relevance, of transformations research in policy and practice.
- Ensure the broad availability and accessibility of transformation-relevant knowledge, including to other researchers, practitioners and policy-makers.
- Inform problem framings and responses in science-policy platforms and policy contexts.
- Build capacity amongst Action members to communicate their work to other audiences in research, practice and policy, and identify gaps where they can make a meaningful contribution.
- Strengthen open science practices across the research cycle as a means of improving, sharing, and making research more inclusive for disadvantaged research communities and young scientists.
- Build capacity amongst the public to debate, contribute to and advocate for transformations, through an on-line knowledge hub, a MOOC and a series of public engagement activities.

TECHNICAL ANNEX

1. S&T EXCELLENCE

1.1. SOUNDNESS OF THE CHALLENGE

1.1.1. DESCRIPTION OF THE STATE OF THE ART

Transformational change is needed to achieve the Sustainable Development Goals (SDGs). Societies, their institutions and individuals need to address underlying drivers of unsustainability. It is increasingly evident that continued economic growth is driving carbon emissions and biodiversity loss (Turnhout et al., 2021), without increasing human well-being, or meeting basic needs of the world's population (Steinberger et al., 2020). As the crisis deepens, societal responses and adaptations must also deepen, requiring large-scale change to current ways of life (Muller & Huppenbauer, 2016). Furthermore, this crisis exacerbates inequalities already present in societies. For example, already-marginalised communities (at both national and international scales) are more likely to experience the catastrophic impacts of climate change (OECD, 2012; Pörtner et al., 2021). Collectively, society therefore needs to address difficult questions of injustice, including questions of gender, race, health and disability, and their intersections (Rice et al., 2019). Fundamental changes to society are thus needed as a way to mitigate the worst impacts of global change, and to adapt to global change. In mitigating and adapting, transformation should seek justice so that no one is left behind.

This need for transformative change is increasingly recognised in global and international political and policy contexts. The European Union (EU) emphasises the urgent need for the 'green and digital transitions' – twin transitions: to which is often added social transition. Targets and strategies for transformative change in a range of sectors are set in the *European Green Deal (EGD)*, and associated strategies. These include forthcoming legislative *Framework for Sustainable Food Systems (FSFS)* and the new national *CAP Strategic Plans (CSPs)*, both mirroring targets from within both *Farm to Fork* and the *EU Biodiversity Strategy for 2030*. There are the energy efficient elements within the *Fitfor55 Package*, and the evolving *REPowerEU* instrument with its 'double urgency' re energy supply and climate change, and the '*EU Save Energy Communication*' of May 2022 with its emphasis on public awareness and behaviour. Similarly, the *EU Strategy for Sustainable and Circular Textiles* complements the broader *EU Circular Economy Action Plan (CEAP)* and *New Industrial Strategy* as well as the *New European Bauhaus*. The *new European Strategy for Sustainable and Smart Mobility* is still developing in its implementation phase including the *Urban Mobility Framework*, largely posited around transformative behaviour change in active mobility and more broadly with its accompanying Sustainable Urban Mobility Plans (SUMPs).

To ensure that knowledge about transformative change is reaching the relevant policy and practice audiences, a range of science-policy interfaces have highlighted the need to focus on fundamental societal transformations. Beyond the EU, the IPCC-IPBES (Intergovernmental Panel on Climate Change and Intergovernmental Panel for Biodiversity and Ecosystem Services) joint report (Pörtner et al., 2021) highlights a need to create societal transformation to address both the climate and biodiversity crises. IPCC WGII (particularly Chapter 18) highlights the need for societal transformations to achieve adaptation and climate resilient development. IPCC WGIII outlines the need to transform societies and economies to stay within 1.5 and 2 degrees warming. In the current evaluation period, IPBES include a specific report on Transformative Change. The same focus on sustainability transformations has been voiced by the OECD (2012), and the European Environment Agency includes it as a core focus topic.

Knowledge is growing about what a transformed society might look like; albeit visions that are contested and not without problems, but how transformative change is created is less clear. For example, the doughnut economics framework (Raworth, 2017) and degrowth visions (e.g. Buchs, 2021; Kallis, 2017) offer alternative visions of economies and societies. However, these are normative

frameworks that are not universally shared and that do not apply in the same ways in different contexts. Further, questions remain about how to create these changes in individual, collective, and organisational behaviours, and in the social and cultural norms and practices that underpin our lives (Newell et al., 2021); how to do this in ways that are democratic and account for variation in cultures and needs (see e.g. Willis, 2020) and changing biophysical conditions; and how to avoid co-option of transformative processes by vested interests such as the fossil fuel industry (e.g. Franta, 2021) or the radical right (Lubarda, 2020).

1.1.2. DESCRIPTION OF THE CHALLENGE (MAIN AIM)

The overarching aim of *TransformERS* is to bring together existing and ongoing research that can support societal transformation. Focus is on positioning current knowledge and insights emerging in different countries and institutions across Europe and globally to inform research, policy and practice for transformations that deliver justice in a changing global context.

Current research into transformations suffers, on the one hand, from a high degree of fragmentation across A) disciplinary communities and B) scales. On the other hand, transformations research suffers from marginalisation by C) ideas of transformation and justice coming from a few national and cultural contexts and by D) physical and natural sciences framings. The Action's central aim seeks to overcome these dimensions of fragmentation and marginalisation, as they are described here.

A). Fragmentation across disciplinary communities. An initial line of fragmentation in knowledge emerges as 'transformations researchers' and transitions research each become separate academic communities. Research that explicitly identifies itself as transformations research is primarily transdisciplinary work that seeks to be transformative, while also generating knowledge on processes of transformation (Caniglia et al., 2021). However, there are criticisms that this work is emerging without regard to theories and frameworks that are already well developed in disciplinary fields (see e.g. Leventon et al., 2021). Further, research into social-technical transitions (e.g. Geels et al., 2018; Wolfram et al., 2106) explores how sectors and places can transition towards sustainable futures (e.g. energy transitions). There is ongoing discussion on the difference between transformations and transitions (e.g. Hoelscher et al., 2018), but there is also a fragmentation between these two communities and other disciplinary research that has relevance to transformation, but does not self-identify as transformations or transitions research. As a result, research explicitly labelled as transformations research faces criticism for lacking empirical evidence of processes of change (Salomaa and Juhola, 2020). Furthermore, transformations research has a split between place-based, in-depth but isolated case study research, and global-conceptual level research (*ibid.*), which limits its generalisability (Feola et al., 2021).

B). Fragmentation across scales. Fragmentation across scales is exacerbated by different disciplinary approaches tending to favour different scales (e.g. individual to systems cf. Newell et al., 2021 or place-based to global cf. Feola et al., 2021) of change. For example, environmental economics and social psychology tend to look at processes of individual behaviour change, overlooking the power relationships and institutional framing (Whitmarsh et al., 2021). These issues can be introduced by a wide range of disciplinary perspectives, including political economy, political ecology, sociology, human geography and political science, that are rarely brought together. Furthermore, research focus on specific topics such as energy, food, textiles, or mobility, and/or from a climate or biodiversity perspective, makes it more difficult to think across sectors, and find common themes and interventions for broader societal transformations transcending specific sectors or topics (Hackmann et al., 2014).

C). Marginalisation by geographic location. There is a risk that topic framings emerging from certain cultures and countries become hegemonic in the research discourse and in policy decisions. Most of the transformations and transitions research is currently carried out on case studies in Germany, The Netherlands and the USA. These cases often focus on examples of undoing unsustainability or steering towards improved sustainability, with a focus on the process of change (Salomaa and Juhola, 2020). This dominance of Western-centric approaches overlooks knowledge and framings from outside these perspectives, including indigenous knowledge (Tom et al., 2019), and de-colonialist framings from the global south (Chilisa, 2017) or understandings of alternative systems framings (Jehlicka et al., 2020) and understandings of and processes of post-socialist to EU accession transformation from former socialist countries in Europe (e.g. Pavlinek and Pickles, 2004).

D). Marginalisation across STEM-SSH. Social Sciences and Humanities (SSH) knowledge is often placed

as subservient to physical science framings. For example, despite noting the key contribution of social sciences to climate change adaptation and mitigation, social science received only 0.12% of global research funding into climate change between 1990 and 2018 (Overland and Sovacool, 2020). Similarly, research into biodiversity decline has a significant gap in exploring links to human well-being (Pires et al., 2018). While the research funding landscape is changing, there is a persistent epistemic injustice that co-opts SSH research approaches or places them subservient to physical science problem framings (Martin, 2020; Lahsen and Turnhout, 2021).

Fragmentation, and marginalisation matter because they are carried through into the way policies and set and governance happens to respond to global change and support transformations. The way problems are framed within the scientific arena influences the way we create evidence-informed policy around these problems (DePuy et al., 2021). There is therefore a need to draw on research that crosses multiple disciplines and ways of knowing for integrated understandings of the world (Buyalskaya et al. 2021). Understanding, and finding solutions to adapt to, or mitigate, global environmental change demands bridging of epistemic living spaces and knowledge cultures to find solutions-oriented, transdisciplinary knowledge constructions (Caniglia et al., 2021). The Action's central aim is thus addressed through four sub-aims that seek to address these dimensions of fragmentation and marginalisation in transformation-relevant research:

1. identify what transformation-relevant knowledge is held and by whom;
2. understand how the different pieces of knowledge fit together;
3. understand what the big picture is – what Action members know about transformations collectively; and
4. identify the missing pieces – understand what Action members still need to create knowledge on.

1.2. PROGRESS BEYOND THE STATE-OF-THE-ART

1.2.1. APPROACH TO THE CHALLENGE AND PROGRESS BEYOND THE STATE OF THE ART

In *TransformERS*, members take a systems-thinking approach as an organising framework for overcoming fragmentation and marginalisation. The Action defines systems as networks of entities and actors, connected via infrastructure and flows of material, resources, and information. The Action takes a systems perspective to understand, implement, and support interventions for behaviour change. The Action recognises that individuals are embedded within different scales of systems, ranging from small groups or local communities to broader systems, such as global production chains or multinational organisations. A systems perspective facilitates exploration of:

1. individual behaviour change for sustainability at multiple points within multi-scale systems (e.g. in consumers, producers, processors, decision-makers, finance providers);
2. how the broader system characteristics and design influence behaviour change and shape opportunities for change; and
3. how a diversity of research and practice perspectives contribute to understanding the system as a whole for multi-scale transformations.

Initially, the Action organises around tangible sector-based systems of high-policy relevance: mobility, textiles, energy and food. All four systems face major social and environmental sustainability challenges and are in high need for transformations (OECD, 2012; Pörtner et al., 2021). Within these systems, The Action members integrate across a broad range of disciplinary perspectives and blend research with practical experience from practice cases (see table 1). The Action's practice cases serve as sites of integration and collaboration with stakeholders and the public. The Action has specifically chosen these cases to cover a diversity of locations across Europe, with specific focus on inclusion of perspectives from marginalised locations. Cases given here will be sites of study visits (see section 4) and will be mainstreamed through network activities. Further cases can be brought into the network during its operation.

To ensure that the Action integrates across these focal systems, they are brought together in three time perspectives: historical, current and future (see figure 1, section 4). In these perspectives, the Action breaks down the focal-system boundaries (food, energy, mobility, textiles), and explores them jointly. Across all time perspectives, the Action brings together disciplines, paying particular attention to the four dimensions of fragmentation and marginalisation (see section 1.1.2).

In the **historical perspective**, the Action looks at previous examples of transformation in history,

particularly around transformations that have already been observed, and how they are relevant to the focal systems (food, energy, mobility, textiles). This enables a bringing together of diverse research communities, and exploration of how different social and political contexts, focal systems and problem framings have shaped processes of transformation to date. Historical transformations key question: Which disciplines and research communities have conducted research on, and have knowledge about, transformation, and what do they say about how transformation happens?

In the **current perspective**, the Action focuses on the disciplines and approaches that are studying transformations in real time. The Action can draw across both behavioural and place-based approaches, as well as broader political economics and sustainability science research, to explore how these disciplines approach the creation and understanding of transformations for sustainability. The Action explores how interventions in one focal system (energy, mobility, textiles, food) may work in another, and at a range of scales. Current transformations key question: What do the Action members know about what works to create transformation from different cultural contexts and research communities, and what are the knowledge gaps?

Regarding **future action** (including policy development and research planning), the Action explicitly considers the implications for practice, research and policy and engages with questions of roles and power as well as methods. When thinking about future actions, the skills, capacity and training needs across researchers, policy makers and practitioners to shape transformations are considered. Future transformations key question: What tools and techniques can the Action employ, how, and with whom, to facilitate transformative processes?

To fully address questions of a just societal transformation, the Action ensures that questions of **inclusivity and justice are critical cross cutting themes**, and are pulled through all focal systems and time perspectives. This is done by ensuring that knowledge on race, disability, gender, and epistemic justice are considered at all points of the network, and that these topics are explicitly considered. Each Working Group (WG) (section 4) has a specific task to engage with these cross-cutting themes of justice.

Table 1: Practice cases in TransformERS for co-production and integration.

Practice Case	Location	Focal System	Activities
Kalniciema Quarter	Riga, Latvia	Food	Seeks to create a local sustainable food system, by creating a farmers' market, and supporting it through awareness raising, infrastructure and creating quality standards.
Dublin's Energy Transition	Dublin, Ireland	Energy	Seeks to set out how to actively engage citizens and stakeholders in how moving Dublin away from fossil fuels and make the region a clean and healthy county to live, work, study and visit.
Textiles through Time	Leeds, United Kingdom	Textiles	Leeds was the seat of the industrial revolution, and the broader region was key in wool, cotton and silk manufacture and innovation. The case explores factors, processes and impacts of change over time.
Nudging Active Travel	Msida, Malta	Mobility	A campaign and a set of projects to encourage active travel as an alternative to car use in the islands and reduce high car dependence.

1.2.2. OBJECTIVES

1.2.2.1. Research Coordination Objectives

TransformERS has ten research coordination objectives (RCOs) that seek to *overcome fragmentation and marginalisation* (RCO1-4), *identify knowledge gaps* (RCO5-6), *innovate proven approaches* in policy, research and practice (RCO7-8), and *support implementation* of societal transformations in policy, research and practice (RCO9-10).

RCO1: Compile existing knowledge from across diverse research disciplines and practical experiences about processes of transformation, how they are stimulated and supported, and their outcomes.

RCO2: Compile transformation-relevant knowledge from under-represented geographic areas.

RCO3: Develop frameworks for meaningful collaboration across different forms of knowledge and experience for transformation.

RCO4: Create recommendations for funders, institutes and researchers to address working practices, norms and knowledge cultures that prevent meaningful collaboration across relevant disciplines.

RCO5: Identify knowledge gaps where new work is needed to inform the policy and practice of just societal transformations.

RCO6: Compile and evaluate evidence on the tools, measures and techniques that stimulate and facilitate transformations; including consideration of justice, and transferability across social contexts.

RCO7: Develop an interactive online toolkit of methods that can stimulate and support transformative processes at a range of scales, including consideration of roles, power, and methods.

RCO8: Identify and map pathways to transformation across sectors and scales that explicitly address the need for justice and inclusivity.

RCO9: Describe governance (policy, regulatory, institutional) barriers and opportunities within EU systems for facilitating transformations within and across focal systems.

RCO10: Identify leverage points within EU governance systems for unlocking just societal transformations across sectors, topics and scales.

1.2.2.2. Capacity-building Objectives

TransformERS has ten objectives that build capacity for transformations research. They focus on improving skills amongst all researchers for the complex interdisciplinary research that transformations require (CBO1-2); they equip the next generation of researchers with these skills to support career development (CBO3-4); and they improve the visibility of transformations-relevant research in the broader research, practice and policy arenas (CBO5-7). CBO8 – CB10 are cross-cutting.

CBO1: Establish an inclusive transdisciplinary network of collaborators on societal transformations for sustainability, bridging across all identified fragmentations and marginalisations.

CBO2: Develop training materials (including e.g. webinars, Massive Open Online Courses (MOOCs), guided exercises) on the skills required for the deep collaboration necessary for understanding transformations.

CBO3: Foster the career development of an upcoming generation of transformations researchers and practitioners, by embedding them in experienced networks and demonstrating the value of their work.

CBO4: Foster the career development of marginalised people by creating an equitable and just network that is sensitive and responsive to the epistemic injustices inherent in academic research.

CBO5: Improve the practical uptake, and relevance, of transformations research in policy and practice.

CBO6: Ensure the broad availability and accessibility of transformation-relevant knowledge, including to other researchers, practitioners and policy-makers.

CBO7: Inform problem framings and responses in science-policy platforms and policy contexts.

CBO8: Build capacity amongst Action members to communicate their work to other audiences in research, practice and policy, and identify gaps where they can make a meaningful contribution.

CBO9: Strengthen Open Science practices (OS practices) across the research cycle as a means of improving, sharing, and making research more inclusive for disadvantaged research communities and young scientists.

CBO10: Build capacity amongst the public to debate, contribute to and advocate for transformations, through an on-line knowledge hub, a MOOC and a series of public engagement activities.

2. NETWORKING EXCELLENCE

2.1. ADDED VALUE OF NETWORKING IN S&T EXCELLENCE

2.1.1. ADDED VALUE IN RELATION TO EXISTING EFFORTS AT EUROPEAN AND/OR INTERNATIONAL LEVEL

TransformERS adds value to existing networks at European and international levels through the holistic approach to overcoming fragmentation and marginalisation in transformations-relevant research in the following ways:

Bringing together project knowledge: *TransformERS* provides a forum for bringing together experiences from a wide range of EU-, national- and other- funded research. The Action participants have been involved in more than 15 H2020 and FP7 projects (and more emerging under Horizon Europe, particularly clusters 2, 5 and 6), across a range of topics and disciplines related to transformation. The Action recognises that multiple projects already funded under Horizon Europe, such as PLANET4B, BIONEXT, TRANSPATH, SSH Centre, FoSTA Health, BIOTraGes, all address aspects of transformative change. These highly relevant project consortia and networks will be drawn into the *TransformERS* Action to exchange knowledge, extend and compare findings, and to disseminate developments within *TransformERS*.

Linking networks: *TransformERS* will proactively foster links to existing international networks that work on topics of relevance to transformations work, and specifically seek to act as a hub that demonstrates how these networks relate to each other and can strengthen each other. Such networks include the Transformations community; the Sustainability Transitions Research Network; POLLEN, the political ecology network; the Central and Eastern European Feminist Research Network; the Environmental Psychology division of the International Association for Applied Psychology; Royal Geographical Society; Programme on Ecosystem Change and Society; the Earth Systems Governance Network; the Emancipatory Rural Politics Initiative; and the International Society of Ecological Economics. In linking ideas and experiences from these diverse networks, The Action will focus on overcoming fragmentation and marginalisation across the four dimensions explained in section 1.1.2.

Supporting science-policy interfaces: *TransformERS* will complement emerging science-policy interfaces looking at transformations by bringing the emerging work and findings of the project to EU-level policy makers and others at the earliest sensible points so as to establish solid ongoing connections between the Action and, e.g., DGs (Directorate General) MOVE (Mobility and Transport), AGRI (Agriculture), ENER (Energy), CLIMA (Climate) and the JRC (Joint Research Centre), the EEA (European Environment Agency), and relevant EP (European Parliament) and CoR (Committee of the Regions) Committee members. Further, the Action participants have links to IPCC working groups and IPBES nexus and transformative change assessments. *TransformERS* will add value by ensuring that the diversity of available knowledge, overcoming fragmentation and marginalisation, is visible and understandable. The Action thus supports in ensuring that the policy messages created by IPBES, IPCC IPES-Food (International Panel of Experts on Sustainable Food Systems) and HLPE (High Level Panel of Experts on Food Security and Nutrition) are representative of a plurality of worldviews, interests and priorities.

2.2. ADDED VALUE OF NETWORKING IN IMPACT

2.2.1. SECURING THE CRITICAL MASS, EXPERTISE AND GEOGRAPHICAL BALANCE WITHIN THE COST MEMBERS AND BEYOND

The Action covers a broad range of research and practice expertise including the transformations and transitions communities, and beyond. The Action includes researchers working on social movements, co-option of environmental movements, social psychology, environmental and ecological economics, sociology, political science, geography, planning, engineering, history and philosophy. These researchers sit across the focal topics (mobility, energy, textiles and food), with links into associated topics such as forestry, land use planning, agriculture, water. The partners from non-research organisations are companies, non-governmental organisations (NGOs) and government organisations that are actively involved in creating transformative change on the ground. They cover all focal systems and their intersections.

The Action is well positioned to build upon existing links with the policy arena at international, EU, national and sub-national levels. Some participants of this Action are active in assessments in IPBES, IPCC, IPES-Food and HLPE. The Action's participants have roles in policy advocacy and have connections in place to input to multiple policy levels and communities (see section 3). These Members link to a much broader range of Member organisations, ensuring two-way communication, and creating strong links to national and sub-national policy levels.

The Action has one partner from an International Organisation. The partner is highly experienced in engaging with marginalised voices (including working with topics of gender and indigenous and local knowledge) to create justice-centred sustainable development. *TransformERS* will benefit from working

with this experience and insight, extending beyond European-centric perspectives. Further, the partner has active links in university and NGO networks throughout the region they are active in, and internationally. The Action will work with these networks to extend the audience and impact of the Action. It is aimed to work in the Action to inform their own understandings of what transformative change is, and how to create it with the communities they work with. They will ensure the knowledge created is beneficial to securing resilience and sustainability in communities facing dramatic impacts of climate change and in a rapidly changing social context

To ensure that the Action can leverage this connectivity to reach the critical mass and expertise, we will perform a collective 'stock-take' at the Action launch, and repeat this activity yearly (see task 1.1, section 4). This will identify which members are connected where, and highlight under-represented communities. The Action will assign *TransformERS* representatives for key communities, and for a range of different scientific disciplines. Representatives are responsible for fostering links to that community, through outreach to networks, communication and participation. They will be the contact person, and thus the visible 'face' of *TransformERS* to that community, to engage and connect people to *TransformERS*. By repeating this activity yearly, the Action responds to the evolving understandings of how different knowledge communities contribute to transformations, and ensure that they are brought into the Action.

2.2.2. INVOLVEMENT OF STAKEHOLDERS

Stakeholder collaboration is essential for transformations understanding, and therefore for the *TransformERS* Action. Transformations research must engage with practical, lived experiences of transformational change if knowledge is to be meaningful. Research that is useable for creating transformations must also be quickly available to policy makers and practitioners. The Action therefore defines its stakeholders as being the public (citizens), civil society, the private sector, planners and policy makers, all of whom are affected by, and can affect transformative change. As the Action members work across food, energy, mobility and textiles, they recognise that this definition creates a broad set of stakeholders, including: at the European policy-level DGs MOVE, AGRI, ENER, CLIMA and the JRC, the EEA, and relevant EP and CoR Committee members; science-policy interfaces IPBES, IPCC, IPES-Food and HLPE; and a plethora of NGOs, businesses and civil society organisations working to create sustainable futures. The Action's stakeholder engagement strategy is based on engagement around specific practice cases, and with multiplier stakeholders who link *TransformERS* into broader networks of relevant actors.

Around the focal systems and practice cases, the Action has ensured that relevant stakeholders, NGOs and small and medium-sized enterprises (SMEs), are involved by including them in the Action, and these members will be extended during the Action. Study visits to these cases (see task 1.2, section 4) which will include specific activities (e.g. round tables, mini-conferences and site visits) specifically designed to engage with a broad range of stakeholders to integrate knowledge across the network. The multiplier stakeholders include participants, platforms or networks of decision-makers and civil society at the pan-European scale, and the International Organisation links into diverse stakeholders beyond Europe. These participants will represent the interests of their participation within the network, and will also provide a pathway for these broader stakeholders to participate in Action activities. They will also link into their own broader networks of transnational groups.

To ensure the stakeholder involvement, the Action draws on the transdisciplinary experience of its network. Many Action participants have served as advisors to private sector sustainability initiatives and sustainability NGOs and/or have long-standing collaborations and agreements with such actors. Further, many have undertaken transdisciplinary and co-production projects in collaboration with a broad range of stakeholders and policy makers at levels from local/municipal to national and EU. To facilitate engagement, as part of the collective 'stock-take' at the Action launch, the Action will conduct a stakeholder needs analysis. This will provide a baseline of current understanding of transformations, the extent of fragmentation and marginalisation in the evidence base currently used by key stakeholders as well as insight into stakeholder needs in terms of the evidence required and the form in which that evidence might be most useful. This will allow the Action to target subsequent activities to maximise their impact.

3. IMPACT

3.1. IMPACT TO SCIENCE, SOCIETY AND COMPETITIVENESS, AND POTENTIAL FOR INNOVATION/BREAK-THROUGHS

3.1.1. SCIENTIFIC, TECHNOLOGICAL, AND/OR SOCIOECONOMIC IMPACTS (INCLUDING POTENTIAL INNOVATIONS AND/OR BREAKTHROUGHS)

TransformERS will have impact at four primary levels: public, policy, practice, and science, and all in both short and longer term. The scientific impacts for each level are described here, with the innovations and breakthroughs summarised, and their Key Performance Indicators (KPIs).

Public level	KPIs: 10,000 downloads of online materials; 20 case studies of transformations knowledge in action available online.
<p><i>TransformERS</i> builds capacity in members of the public to engage in transformations by providing knowledge syntheses to allow the public to understand the likely scale and impact of transformations and the potential role for individuals and communities therein. The Action's organising frameworks will allow the public to access and debate policy and practice proposals to engage in democratic processes. This will help individuals and communities to identify where they have agency to drive transformation and where they need to lobby for action by others, making public engagement with transformations more effective. Key innovations and breakthroughs: • Identifying public capacities to support engagement in transformation; • developing accessible materials for capacity building.</p>	
Policy level	KPIs: 3+ recommendations of key research and skills gaps are reflected in calls in post-Horizon Europe funding period. 100+ policy makers active users of online hub. 10+ papers by Action researchers cited in IPCC and IPBES reports, within 4 years of Action end.
<p><i>TransformERS</i> will contribute to shaping climate, biodiversity and agri-food strategies in Europe and internationally, by providing policy-makers with access to transformations knowledge about how systems and individuals change, and the multi-faceted impacts of changes. The Action compiles existing research findings on transformations, accounting for the challenges and opportunities that emerge in different cultural and local contexts, and make these available in one place for the first time The Action's outputs support policy-makers in creating transformational strategies to meet United Nations Framework Convention on Climate Change (UNFCCC) and United Nations Convention on Biological Diversity (UNCBD) goals, in line with the urgency identified by e.g. the current Kunming Declaration (UNCBD). <i>TransformERS</i> will contribute to the specific EU policy areas of sustainable mobility, sustainable energy, sustainable and circular production and sustainable food systems, as well as those that indirectly affect these sectors (e.g. the New EU Forest Strategy for 2030, and the Marine Strategy Framework Directive, which is due for review in 2023). In the shorter term the Action will address the objectives/goals/targets within those particular policy areas and provide useable knowledge in achieving them. In the longer term the Action will identify knowledge gaps, and the kinds of approaches needed to fill them. Such outcomes will support research programming (e.g. Horizon Europe) and the future design of science-policy interfaces, as well as the necessary knowledge, research infrastructure and skills training. Key innovations and breakthroughs: • Creating an up to date, evolving and user-friendly contextualised evidence data base for policy-makers; • Identifying the key knowledge and skills gaps, pathways to fill them, including training materials, and research agendas.</p>	
Practice level	KPIs: All practice partners (Civil society, SMEs, etc.) engaged in the Action using the evidence data base to inform their own practice. All practice partners and 100+ further organisations active users of training materials.

<p><i>TransformERS</i> will support initiatives, projects and activities that seek to create transformational change. This will include the use and uptake of the results of project's work by those responsible at EU, national and sub-national levels for the roll out of measures/instruments/pilots designed to support CAP, Farm to Fork, the Fit for 55 Package, EU Climate Law and the Sustainable and Smart Mobility Strategy, and EU action plans about Circular and Social Economies. The Action's work will include bottom-up and grassroots initiatives seeking to drive transformational change in their communities. Such impact is achieved by working closely with four practice cases to embed emerging understandings within real-world contexts (further cases may be added during the Action). Direct impact is intended within these cases, through the stakeholders engaged therein. Experiences generated will be the basis of synthesising practical insights at focus-system and over-arching levels. Further, the skills and competences that support transformations in practice will be identified. Key innovations and breakthroughs: • Synthesising practical insights into the processes of transformation, at case, focus system and over-arching scales, bridging fragmentations and marginalisations; • Identifying the key skills and competences that support transformation and creating training materials.</p>	
Scientific level	<p>KPIs: Key frameworks published in 10+ papers* from COST network participants, each with 10+ citations (within 4 years of end). 20+ future research proposals with pairs/groups of Action researchers, based on collaboration developed during project.</p>
<p><i>TransformERS</i> enhances research and innovation capacity on transformations to sustainability by providing knowledge syntheses and organising frameworks to allow the scientific community to understand how different fragments of knowledge fit, relative to each other, allowing them to more easily draw on findings outside their home discipline or focus topic. Further, it will increase the visibility of perspectives from outside dominant disciplines and geographic locations, ensuring that the broader scientific community is better able in the longer term to create understandings, theories and practical applications that reflect nuances and overcome marginalisations. In the short term, this will facilitate meaningful interdisciplinary collaboration. In the longer term, such increased visibility of frameworks and approaches will impact upon the approaches taken by science-policy interfaces, such as IPBES, IPCC, IPES-Food and HLPE, by ensuring that they are able to draw on relevant evidence from outside of focus topics and dominant approaches. Key innovations and breakthroughs: • Creation of organising frameworks and approaches for transformations research, transdisciplinary collaboration and co-learning that overcome current fragmentation and marginalisation of research and knowledge.</p>	

*Papers to be published in high impact journals including *Global Environmental Change, Environmental Science and Policy, Energy Policy, Sustainability Science.*

3.2. MEASURES TO MAXIMISE IMPACT

3.2.1. KNOWLEDGE CREATION, TRANSFER OF KNOWLEDGE AND CAREER DEVELOPMENT

Knowledge Exchange Events: There are a number of **events hosted by *TransformERS*** designed for external transfer of knowledge, and to invite broader perspectives into the Action. These include summer schools and a final conference (as well as the integration with practice cases and study visits therein). Summer schools and study visits will include activities specifically designed to communicate knowledge syntheses and organising frameworks to the four levels of impact beneficiaries. Action members will be further supported to attend external events to introduce *TransformERS'* understandings into other communities. **KPIs:** • 2 round tables with policy and practice stakeholders to debate emerging findings and relate knowledge and frameworks to contemporary issues, including via consultation events and calls for evidence; • 4 mini publics (one for each focal system) to elicit public recommendations on sector-specific transformations and build capacity in public engagement; • 4 training events for Young Researchers and Innovators (YRIs) and stakeholders to disseminate knowledge and build skills; • 2 mini-conferences to share knowledge syntheses; • 4 special sessions and workshops at key conferences (e.g. Transformations, Earth Systems Governance), as well as presentation of 20+ individual papers.

Continuous Knowledge Exchange: The Action will create ***TransformERS* representatives** that act as focal points across different research communities and topics. They serve therefore to exchange with these communities, transferring knowledge and researchers both into, and out of, the Action. Further, the **online hub** hosts an interactive toolkit of organising frameworks, transformations approaches, and training

materials accessible for researchers, practitioners and policy makers to develop their skills according to their own needs and timeframes. Stakeholders will be regularly updated with new content and the online hub will be discussed at each Knowledge Exchange Event to ensure this is an active, not a passive process of exchange. The Action will also ensure ongoing exchanges with policy makers at EU and national levels, at specially convened networking activities, at public hearings, at consultation events, as part of calls for evidence exercises and similar. **KPIs:** • 10,000+ unique users of toolkit materials on the online hub. • 4+ policy consultation meetings attended by Action representatives.

Career Development Events: The summer schools (WG1), as well as training materials and strands (WG5) ensure that researchers and stakeholders within the Action, and outside, have opportunities to develop the skills necessary for a career in transformations research and practice. **KPIs:** • 200+ researchers attend at least 1 summer school.

Continuous Career Development: Career development is built into the structures of *TransformERS*, such that all Action activities are intended to create opportunities for early career researchers. Thus, YRIs who are active in the network will have direct career development opportunities through the creation of contacts, and collaboration on (and therefore intellectual ownership of) cutting-edge ideas. The focus on overcoming fragmentation and marginalisation in transformations research, and the mainstreaming of justice, will highlight the diversity of voice, contributions and roles. The Action will create spaces for researchers from under-represented locations, and disciplines, as well as on the basis of gender, race, disability and intersections therein. The creation of spaces and opportunities will be maximised by establishing a YRI representative, and a diversity and inclusion representative on the Management Committee. They will ensure that the Action remains responsive to the career development needs of YRIs both within, and external to, the Action. The Action will create additional opportunities and structures to support YRIs, including specific skills and jobs training sessions within WG meetings; mentoring and partnering schemes; and writing workshops. **KPIs:** • At least 4 YRIs on the Management Committee of *TransformERS*; • 10+ Action papers authored by YRIs with the support of Action researchers; • attendance of *TransformERS* researchers at 20+ external career development and training events.

High Visibility of the Action across Disciplines and Topics: In order to support career development and knowledge exchange, and expand the scope and membership of the network, *TransformERS* will maintain a proactive outreach programme within the academic community. Each discipline represented within the Action will have a designated spokesperson within the Action who acts as an ambassador into their own community. Using *TransformERS* branded materials, representatives will be visible at events in their disciplines (conferences, workshops, etc.), will contribute *TransformERS* updates to blogs and newsletters, will answer enquiries from researchers, and will reach out to researchers to join the Action. **KPIs:** • 10+ *TransformERS* representatives assigned; • 30+ external events attended to by representatives; • 50+ articles, blogs or updates contributed to platforms in other research communities.

3.2.2. PLAN FOR DISSEMINATION AND/OR EXPLOITATION AND DIALOGUE WITH THE GENERAL PUBLIC OR POLICY

To reflect the importance of constructive communication across the lifespan of the Action, a Dissemination and Exploitation Strategy will be created at beginning of the Action (T5.1). The plan supports impact, knowledge exchange and development activities, by ensuring that deliverables are accessible and useable by actors across the four impact levels. There is particular emphasis placed on the dissemination and exploitation of the handbook and training strands (deliverables 5.1 and 5.2) as being core pathways to impact that incorporate the key breakthroughs and innovations.

***TransformERS* branding:** The Action will create a logo and a common Action style for all outputs. This branding will be prominent at events (internal and external) and across all communication activities.

Website (online hub) and social media: The *TransformERS* website will include an Action blog for regular updates, a participants area for collaboration, output repository and online exhibition of the practice cases. To reach all target audiences, material will be presented and described in simple, jargon-free language. This website will also maintain an online interactive toolkit of transformations methods, as collated during the Action. Social media presence (Twitter, etc.) of the Action, and its members will pull viewers towards the website and keep online engagement. The online hub will be discussed at each Knowledge Exchange Event to ensure this is an active process of dissemination. **KPIs:** • At least monthly

blog posts, each viewed by 100+ unique viewers; 3000 Twitter followers.

Topic representatives: As detailed in section 2.2.2, each of the focal sectors will have a *TransformERS* representative. They will act as a contact point for connecting to practice, policy and public networks, answering questions about *TransformERS* activities, and driving engagement around these communities.

KPIs: • Presence of topic representatives at 8+ sector-relevant policy-practice events.

Policy and Practice Briefs: Key insights gained by synthesising knowledge for policy, practice and science communities will be compiled into easily accessible briefs. These will be available on the website and will be mailed directly to core audiences and presented at summer school and study visit-aligned events involving stakeholders and the general public, and presented at non-*TransformERS* events. **KPIs** include: 15+ briefs published online, each accessed by 500+ unique viewers.

Publications: For scientific break-throughs, peer reviewed papers will be published in high-impact journals across relevant disciplines (e.g. Journal of Environmental Psychology, Global Environmental Change, Sustainability Science, Energy Policy, Land Use Policy). These will be published Open Access, and linked to from the *TransformERS* website. Short summaries, tweet threads and/or video presentations will be provided. **KPIs:** • 20+ papers on *TransformERS* findings published within 4 years of the Action end.

Study visit videos: At each of the four study visits, a short documentary video will be created to introduce the challenges, actions and key themes being explored in the practice cases. These will be added to the online exhibition of the practice cases on the website. **KPIs:** • Videos viewed by 500+ viewers each.

Output Launches: As the Textbook and training materials are launched (M48 and M45), the Action will host launch events for the four impact levels (public, policy, practice, science). These will combine with other events where appropriate (e.g. the science launch can be held at the conference and the policy brief could be done as part of a European Parliament hearing or a European Week of Regions and Cities (EWRC) event, etc.). **KPIs** include: 200+ attendees at each of two events.

Responsive dissemination: In addition to dissemination, *TransformERS* will identify and respond to calls for evidence and consultations from European and national government organisations.

4. IMPLEMENTATION

4.1. COHERENCE AND EFFECTIVENESS OF THE WORK PLAN

4.1.1. DESCRIPTION OF WORKING GROUPS, TASKS AND ACTIVITIES

The 5 *TransformERS* WGs (figure 1) are structured around the three time perspectives: historical, current and future (WGs 2, 3 and 4). All time perspectives engage with all four practice cases so that all perspectives within and across cases are explored. WG1 (Integration) facilitates this embedding of the practice cases throughout the Action. It further facilitates bridging across fragmentation and marginalisation between different disciplinary perspectives and geographic contexts, and embeds justice throughout the work plan. These strands of justice and overcoming fragmentation and marginalisation inform the dissemination and exploitation activities of WG5, which ensures stakeholder engagement, knowledge exchange and supports achieving impacts.

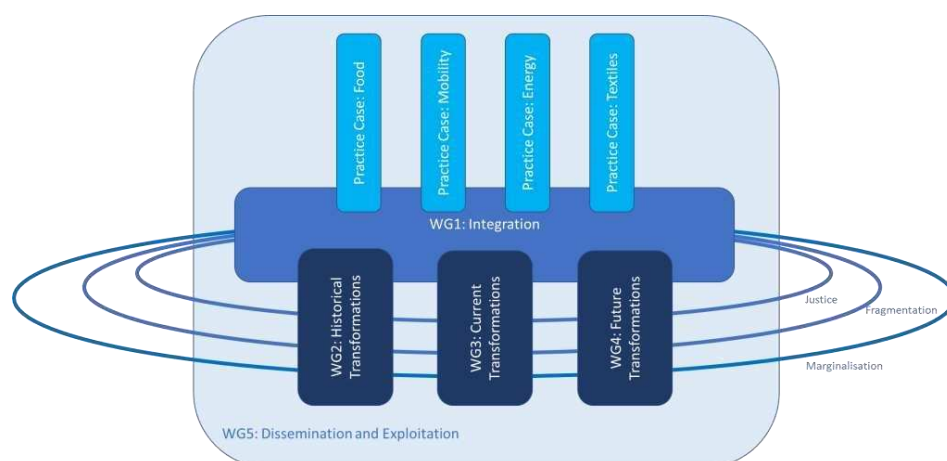


Figure 1: Working Groups in TransformERS, showing that the four practice cases are embedded (through the Integration WG1), in all of the three time perspective WGs (2, 3 and 4). WG1 ensures the themes of Justice, fragmentation and marginalisation cut through all the work of the Action, including informing dissemination and exploitation activities.

WG1: Integration.

Objectives: To pull together perspectives across all WGs to create an overall understanding of transformations. Ensure all foci (energy, food, textiles, mobility) and justice are pulled through all WGs. Specific Action objectives are RCO1-4, 9-10 and CBO1-5 and CBO8-9.

T1.1 Integration across time perspectives – In this task, WG members will look across evidence being generated in WG2, 3 and 4 to identify the common drivers and enablers of transformative change, and identify core approaches for fostering just transformations. The task will include identifying gaps in knowledge, and will explore how marginalisations and fragmentations can be overcome to fill these gaps. The WG will iterate with the other WGs to ensure that integration is ongoing, and formative in the other WGs.

T1.2 Integration through the foci (energy, food, textiles, mobility) – This task ensures that the Action work is embedded within real world understandings of transformative change by integrating with the practice cases. This will be one by working with existing practice cases, and extending the collection of engaged cases, to document experiences of transformative change, barriers, enablers and solutions. These findings will be iterated with understandings emerging from WGs2, 3 and 4. Work will include study visits to practice cases. **Study visits will include events specifically designed to engage stakeholders relevant to the practice case and the public.**

WG2: Historical transformations

Objectives: To understand which disciplines and research communities have conducted research on, and have knowledge about, transformation, and what they say about how transformation. Specific Action objectives are RCO1, 2, 3, 5, 6, and CBOs.

T2.1 Compilation of evidence base of transformations through history – in this task, WG members will review academic and grey literature, and visual and textual archive data, to identify examples of transformation through time. This task will include the creation of a typology of forms of transformation to make sense of different examples in time, space and topic. This typology and identified examples will create a database of transformation examples that will inform further discussions of what transformation is, both within the *TransformERS* consortium and the broader research community.

T2.2 Collection of disciplines and research communities, and their roles in understanding transformation – using the examples identified in T2.1 as a starting point, WG members will identify the disciplines, methodological approaches and research communities that have, to date, been involved in researching transformations. This task specifically extends into research communities that do not label their work as transformations research.

T2.3 Identification of concepts, ideas and factors that are shown to shape transformation – pulling on historical examples of transformation (T2.1), and looking across disciplinary understandings (T2.2), this task will identify the key factors that have shaped historical examples of different types of transformation. It will identify known key drivers and barriers to types of transformation.

T2.4 Justice in historical transformations – this is a reflexive task where WG members will specifically consider the ways in which race, disability, gender, their intersections, and epistemic justice is present in the work brought together in this WG. The group will consider the extent to which existing work accounts for these issues, and any implications of historical transformations on marginalised groups.

WG3: Current transformations

Objectives: To evaluate what the Action members know about what works to create transformation across contexts and research communities, and to identify the knowledge gaps. Specific Action Objectives are RCO1,2,3,5,6, and CBOs.

T3.1 Compilation of evidence on interventions for transformation across a range of disciplines – this task focusses on identifying research that tests or trials interventions to create tangible transformations. WG

members will work closely with T2.1 to identify research that tests interventions across a range of types of transformation. Types of intervention will be categorised according to types of transformation.

T3.2 Intervention potential across scales and topics – drawing on T3.1, this task will identify the potential of promising interventions to target different scales or sectors for transformation (e.g. moving to different types of transformation). This task further identifies the tools, methods and approaches to apply such interventions to stimulate different types of transformation.

T3.3 Evaluation of the transformation potential of interventions and identification of knowledge gaps – this task evaluates the current state of knowledge about the transformation potential of interventions. It highlights gaps where further research is needed.

T3.4 Justice in current transformations – this is a reflexive task where WG members will specifically consider the ways in which race, disability, gender, their intersections, and epistemic justice is present in the work brought together in this WG. The group will consider the extent to which identified promising interventions account for these issues, and any implications on marginalised groups. Recommendations to ensure justice will be included in the deliverable report.

WG4: Future sustainability transformations

Objectives: To identify which tools and techniques the Action can employ, how, and with whom, to facilitate transformative processes, especially looking at contexts often marginalised in the current transformation research and policy-making, drawing on findings from WG2 and 3 (iteratively). Specific Action objectives are RCO1,2,3,5,6, all CBOs.

T4.1: Compile toolkit of transformation interventions and facilitation across a range of scales and sectors – drawing on the results of WG3, this task pulls together methods and methodologies from across disciplines to create a tangible toolkit of transformational research. It outlines interventions and research approaches, their relevance to different types of transformation (T2.1), and guidance for application.

T4.2: Identify training needs across policy, practice and research for working with transformation tools and techniques – this task compares the skills necessary to apply the tools and approaches in T4.1, and considers skills gaps across policy, practice and research. It further compiles training resources from across disciplines and knowledge communities to address these skills gaps.

T4.3: Justice in future transformations – this is a reflexive task where WG members will specifically consider the ways in which race, disability, gender, their intersections, and epistemic justice is present in the work brought together in this WG. The group will ensure that these issues are accounted for in the toolkit, including guidance for toolkit users on how to work with these issues while creating transformative research and practice.

WG5: Dissemination and Exploitation

Objectives: This WG ensures that findings are picked up across research, policy and practice. It ensures that the impacts of the Action are achieved. Specific Action objectives are RCO1,7, All CBOs.

T5.1: Action Dissemination and Exploitation Strategy – this task will ensure that *TransformERS* activities are visible to researchers, policy makers and practitioners, throughout the Action, as outlined in brief in section 3.2.2. It will serve to ensure that interested parties are able to participate, and learn more. It will also take key findings and communicate them directly into relevant audiences. The strategy will be created at the beginning of the Action, and will be updated yearly thereafter.

T5.2: Online dissemination and exploitation – this task will establish and run the online hub (website), acting as a repository for deliverables and outputs (including the living transformations wiki – D2.1) and serves as an interaction space for the Action and broader engagement. The task also handles social media.

T5.3: International conference – in month 48 the Action will end with a final conference. It will showcase the research of the Action and its members alongside work from the broader academic and practice communities. The conference will be a final pulling together of the WGs, and will integrate work from outside the Action. It will thus be a final iteration of the Action's findings.

4.1.2. DESCRIPTION OF DELIVERABLES AND TIMEFRAME

Deliverables are numbered to correspond with the WG that is responsible for their delivery.

D1.1: Training materials for the four core impact levels (policy, practice, science and public) available online including a MOOC specifically designed to build public capacity in transformations (M45). Building on skills gaps identified in T4.2, and materials collected across the project, this task creates four sets of training materials targeted at audiences from the impact levels: policy, practice, science and public. The training materials will ensure that participants can access and use knowledge on transformations. The modules will be accessible online, and supported with a project handbook (T5.2, Deliverable 5.2).

D1.2: Handbook of transformations research, pulling together outputs from across WGs. (M48). The Action will create a handbook on the topic of transformations for sustainability. The book will give readers an introduction to types of transformation, approaches to studying and understanding transformation, factors that shape transformation, interventions for creating transformation, and tools and techniques in transformative research. The book will place particular emphasis on questions of justice in transformations. The book will include concise summaries for policy makers, practitioners, and public, to help tailor the content for these audiences. This deliverable will be accompanied with a book launch event.

D2.1: Living online compendium (online and evolving through the project) on learning from past transformations (WG2), including findings, workshop reports and discussion of relevance to practice cases. (Launched in M3, updated quarterly, finalised in M21)

D3.1: Living online compendium on evidence for interventions for transformation (WG3) including findings, workshop reports and discussion of relevance to practice cases. (Launched in M16, updated at least yearly, finalised in M33)

D4.1: Living online compendium on creating transformations (WG4) including findings, workshop reports and discussion of relevance to practice cases. (Launched in M28, updated quarterly, finalised in M45)

D5.1: Communication strategy, outlining social media, press and academic publishing strategy (M6, updated in M18, 30, 42)

4.1.3. RISK ANALYSIS AND CONTINGENCY PLANS

Risk	Impact	Likelihood	Contingency
Continued Covid restrictions inhibit activities	med	med	The network minimises its carbon emissions by making use of online meetings and minimising travel wherever possible. Key face-to-face opportunities are around the summer schools, conference and study visits. These will also have online interaction opportunities to broaden participation while minimising travel and carbon emissions. In the event that travel is impossible for all, the use of video tours and online conferencing will be maximised.
The very broad scope of interest within the team, and their different ways of creating and working with knowledge, creates barriers to collaboration and interdisciplinary thought	High	Low	The Action supports the aims of the network and it is therefore motivated to work with goodwill. Further, the participants of the Action have particular expertise in transdisciplinary research, working across epistemic communities, and bringing together science, policy and practice. Their expertise is used to shape the design of the network and processes therein

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