TRANSFORMING HEALTH AND CARE SYSTEMS

Deliverable 9.4

STRENGTHENING ECOSYSTEMS

REPORT ON HELD EVENTS AND ORGANISED ACTIVITIES 1

Version 1.0

WP9

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CONTRIBUTORS

Tampere University (TAU) (specifically providing Chapter 5 Transformative ecosystem cases and analytical insights)
ZonMw - The Dutch Organisation for knowledge and innovation in health, healthcare and well-being
All WP9 Partner organisations

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FOREWORD

The general objective of the European Partnership on Transforming Health and Care Systems (THCS) is to support the transition towards more sustainable, efficient, resilient, inclusive, and innovative health and care systems (HCS) of high quality which are people-centred and universally accessible. The aim is to catalyse this transformation by building an open and supporting partnership in which all stakeholders can work together to stimulate and nurture R&I activities.

The partnership will seek, in particular, to foster the transition towards people-centred HCS, enabled by integrated services both across and beyond traditional health and care boundaries, and by focusing on all the dimensions relevant for the delivery of universal HCS.

The activities of THCS Work Package 9/Strengthening Ecosystems (WP9) are based on the notion that the actual transformation of HCS needs ecosystems to be in place and operative. Ecosystems exist at different levels of scale or maturity. They are driven by people committed to achieving a certain goal.

In order to strengthen ecosystems, WP9 1) endeavours to better understand how ecosystems work and their success elements; 2) supports funded THCS projects in embracing an ecosystem-wide approach; and 3) supports WP9 partner organisations in reaching out to relevant stakeholders at national, regional and local level to facilitate mutual learning and sharing of information, and to support ecosystems. To do so, WP9 establishes communication and collaboration activities to discern the needs and wishes of the stakeholders and reflect them in the various activities. WP9 also adopts methods to share successes and other experiences at European level, and to inspire and encourage processes at national, regional, and local levels. Funded THCS RDI projects play a crucial role in accelerating the transformation of HCS.

Compared to other ecosystem-related activities at the European level, THCS WP9 combines European-level collaboration among ecosystems – specifically transformative ecosystems – with continuous efforts to promote relevant ecosystem-wide approaches at national, regional, and local level. Where funding agencies are involved, there are continuous efforts to foster an ecosystem-wide approach among funded project consortia as a means of supporting implementation and scaling up innovation.

The current report gives an overview of the activities performed over the past 30 months and describes the major insights and learnings. The first three chapters are strongly influenced by the WP9 strategy document that was developed during the partnership's first 6 months. The strategy also considered learnings generated by ecosystem support actions performed by the AAL programme. The chapters describe the context and define the problem, define ecosystems in varying scales and at different levels, and outline the overall WP9 strategy. The fourth chapter describes the WP9 target groups and the specific activities performed to date. Chapter five explores the classification of the identified ecosystem cases in more depth and specifies the beacon elements that constitute transformative ecosystems. Chapters six and seven focus on the ecosystem-wide approach in funded projects and the benefits of value-based business modelling. Chapter eight traces the partner organisations' approaches in setting up national mirror groups that are a pivotal element in the partnership's strategy for effectively reaching out and linking THCS activities to the national, regional and local levels in partner countries. Chapter nine describes activities undertaken by the partner organisations to reach out to different kinds of stakeholders, including identifying ecosystems of various scales and at different levels.

The report in its various dimensions reflects the strong reliance placed by the WP9 strategy on the engagement and active participation of partner organisations who are essential for identifying ecosystems and stakeholders, connecting and supporting them, and encouraging projects to embrace an ecosystem-wide approach.

I would like to thank everyone who has contributed to making these past 30 months exciting and insightful ones. I look forward to continuing this learning journey together.

Gerda Geyer, FFG, WP9 Lead

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1 CONTEXT AND PROBLEM DEFINITION

The THCS SRIA, as so many strategy documents before it, identifies trends that create huge challenges to health and care systems (HCS). Demographic changes are increasing demand and decreasing (human) resources at the disposal of HCS. The tectonic plates of the global economy are moving, shaking the fundamentals of funding for the systems. Environmental and climate change in the long term, and policies to combat them in the short term, are increasing the burden on economically vulnerable groups. In view of these trends, it is foreseeable that the volumes of global migration may surge. The existing mismatch between increasing human need and the shrinking economic space in which governments can manoeuvre is reaching new proportions.

The need for HCS transformation is therefore inevitable. However, the change agents themselves also face formidable challenges. The combined volume of EU HCS runs to an order of magnitude of EUR 10^{12} per annum. Depending on the size of the member state, the national figure can reach anything up to EUR 10^{11} per annum. These figures indicate that HCS systems are extraordinarily complex, driven by actors including national, regional and local governments; funding bodies; public and private service providers; supervisors and regulators; professions; research & innovation actors; higher education institutions; civic society organisations; and ordinary citizens, all interacting in numerous interlinked processes. To add yet another layer to the challenge, the complex systems are governed, regulated, resourced, and operated differently in each member state.

The transformation necessitates an ability to align the goals and actions of many actors. The concept of (organisational) ecosystems has been mainly used in the realm of business strategy, where the success of companies in an ecosystem is dependent on their ability to capitalise on shared resources and investments that are not re-deployable (Jacobides et al. 2018). These binding forces are typically arranged around a core company, innovation or (technology) platform. Ecosystem members only survive if they can ensure that the shared sphere of life thrives.

In the sphere of health and wellbeing, the concept of an ecosystem does not have a single established definition. The term may be used to refer to a combination of service providers (NHS 2022), or health (technology) innovation networks consisting of start-up activity, capital, as well as enabling institutions and government policies (Judah 2020).

In the case of the THCS Partnership, the term ecosystem is used as a broad concept of health and care stakeholders and other related entities, from regulators to end-users, from funders to service providers, from governing bodies to health and care professions, and from NGOs to enterprises and innovators. In the complex world of HCS, the binding forces are usually weaker: there are no structures creating compelling forces that make non-aligned decisions futile. In other words, the nature of health and care ecosystems is that there is greater autonomy and less interdependency than in many business ecosystems.

2 ECOSYSTEMS IN VARYING SCALES AND AT DIFFERENT LEVELS

Many forerunner ecosystems have achieved the laudable transformation to new, jointly agreed modes at the HCS macro, meso or micro level. What is common to those processes is the **successful alignment of strategies, decisions,** and **actions of independent actors**. In THCS, these goal-oriented entities are referred to as **transformative ecosystems.**

The transformative ecosystems are a heterogeneous entity, with no clear theory or typology to help in their analysis. Considering the limited understanding of the dynamics of transformation, and the uniqueness of the internal dynamics and external context of a given health and care ecosystem, there are no ready-made recipes for transformation. In the end, the commitment of the ecosystem members and their ability to execute is the *sine qua non* of a transformative (health and care) ecosystem. In practice, individuals embracing change, with motivation and the skills to promote transformation are always the necessary component. To capitalise on the impact of the work carried out by these "change agents", transformative ecosystems cultivate a cultural shift towards a "transformative mindset".

The Work Package has developed a working definition of a transformative ecosystem as a broad constellation of interacting organisations and people who are committed and, through aligned actions, able to reach joint, explicitly defined goals.

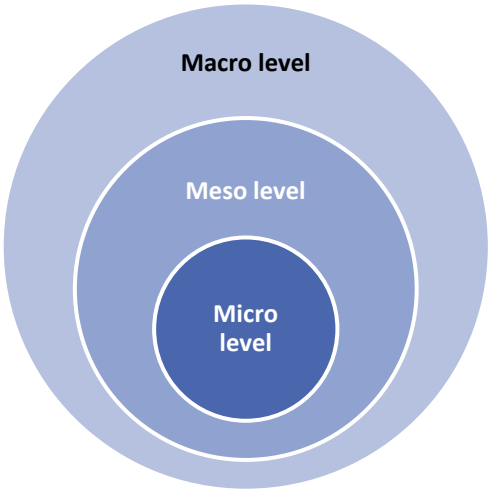
Moreover, the transformative elements of the ecosystems refer to the organisational methods that can inherently drive transformation by breaking down organisational silos. These elements also encompass the identified outcomes and impacts, meaning the ways in which the ecosystem's actions transform health and care systems.

Often, ecosystems are thought of in terms of ***supply side*** actors. In HCS, various public and private organisations have defined roles in relation to service production. In addition to service producers, stakeholders such as professional bodies and technology providers are also part of health and care provision. However, in a wider perspective, the clients of any industry are a major stakeholder group representing the ***demand side*** of the ecosystem. In HCS, citizens, including patients/clients and their organisations, should always have a strong say in defining the directions for transformation. In addition, other civil society actors, employers (of various industries) as well as funders of the services have an essential role in ensuring the meaningfulness of the target transformation. An ecosystem cannot become sustainably transformative without citizens and other demand side actors.

2.1 Scale of an ecosystem

Ecosystems exist in varying scales and at various levels of health and care systems. At the ***micro level,*** ecosystem actors work together around a given technology, service process, or other type of specifically defined initiative. The processes are often local. Micro-level ecosystems operate similarly to projects but differ in not having predefined time limits. ***In meso-level*** ecosystems, the actors involved typically work around several health and care issues. They often cover a certain region or other (geographically) defined area. The actors may be regional, or national actors active in regional processes. Many meso-level ecosystems resemble wide-ranging programmes, but they evolve across a non-limited time frame. ***Macro-level*** ecosystems are active in creating the (seemingly permanent) "rules of the game", that is legislation, funding-related decisions, and similar. In addition to legislatures and funding bodies, numerous organisations promoting the interests of various interest groups are active on the macro level.

Figure 1: Micro, meso and macro level of ecosystems.



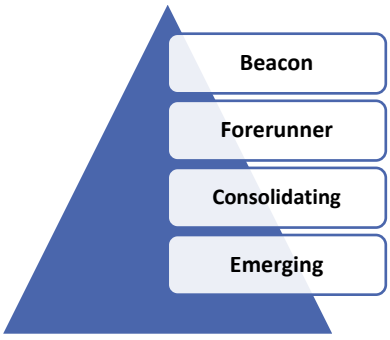
When discussing HCS ecosystems in Europe, it may be useful to identify yet another layer, namely the ***international level***. HCS with a national mandate and binding commitments to specific goals and actions are not created at EU level. However, ideas on policies, delivery models and the use of technologies spread across borders and influence the transformation within the member states.

When relating to the various levels as described above, it is vital to understand that there is continuous interaction between the levels and that, in the real world, they are interlinked. This is obvious as many actors are active on more than one level. Even if many transformations become visible on the meso level, they are often enabled or implemented through changes at the micro level. Similarly, the changes at macro level make meso-level transformations possible.

2.2 Maturity levels of transformative ecosystems

Even if a well-established typology is lacking, it is clear that transformative ecosystems exist within a wide spectrum of maturity. In the context of THCS, WP9 conceptualises four levels of health and care ecosystems: ***(a)*** Even if ecosystems exist in abundance, not all of them have a shared internal understanding of their nature as an ecosystem of interdependent actors. The ***emerging*** ecosystems have not made decisions on how to jointly develop the ecosystem, or what their shared goals are; ***(b)*** In ***consolidating*** ecosystems, several key actors have explicitly committed themselves to a joint development process. However, the structures and processes to reach the shared goals have not been defined, or they have been defined only partially. Some of the key stakeholders may have stayed outside the collaboration; ***(c)*** The ***forerunner*** ecosystems have been able to implement actions that are meant to align the decisions of various actors to reach shared, explicitly stated goals. In most

Figure 2: Maturity levels of transformative ecosystems



cases, this is evidenced by formal agreements, the allocation of resources, and shared governance structures or other concrete arrangements to ensure that the shared goals are reached. In forerunner ecosystems, all the actors needed to reach the defined goals have committed themselves; and ***(d)*** Among the forerunners, there are ***beacon*** ecosystems that have produced empirical evidence of their joint capability of reaching significant pre-agreed goals.

3 THE STRATEGY OF THCS WP9 ACTIVITIES TO STRENGTHEN ECOSYSTEMS

The THCS Partnership has been created to help HCS become more sustainable, efficient, resilient, innovative, high-quality, people-centred health and care systems which are inclusive and universally accessible. The transformations are needed to secure better health and care provision even when systems are faced with formidable challenges. The mission of WP9/Strengthening Ecosystems is based on the understanding that the actual transformation is dependent on the ability of numerous actors to align their goals and actions so that they are complementary.

The WP9 will support transformation by making visible the achievements of successful ecosystems at European, national, regional, local, and THCS project levels, and by bringing active ecosystem developers together.

A) Making achievements visible raises awareness at national, regional, and local levels of the advantages which the ecosystem approach can create. Similarly, forerunner examples are made available to THCS projects to inspire their own approaches for capitalizing on the ecosystem approach.
B) The active ecosystems are supported through mutual peer learning on how to:

Create TRUST:

Functional transformative ecosystems have been able to accumulate a capital of trust, allowing their members to pursue activities towards shared goals. The trust is generated step-by-step, through working together in a sustained manner. A shared process not only creates a common language but also helps ecosystem members to ensure their shared goals are understood in a uniform way. As a constructive consequence, a culture of “give and take” is developed: the created trust capital allows members to adjust their own goals and actions to secure better alignment with the overall goals of the ecosystem.

Secure SUSTAINABILITY:

Successful ecosystems are characterised by continuity – they do not have the perspective of a project or a time-limited programme. Instead, ecosystem members regard their collaboration as a semi-permanent, long-term endeavour. This takes the form of an ongoing process in which defining shared goals and actions is iterated from time to time. Repeating the goals set and lessons learned secures the organisational memory that endures even when individuals leave and others enter the process. Ecosystems ensure their long-term sustainability by making their existence and activities visible both internally and externally, through active communication including brand building and related actions. Commitment to the common cause is also demonstrated by individual members dedicating resources to the various support functions that the ecosystem needs to secure its functional capacity.

Build STRUCTURES:

Sustainable ecosystems have managed to find solutions to a dilemma: to secure their long-term existence, a structure including a governance arrangement must be in place. At the same time, in a constellation of autonomous actors, hierarchies and bureaucracy are best avoided. The key to solving the tension between autonomy and alignment is finding and empowering skilled ecosystem implementors who understand the nature of an ecosystem as a single entity composed of several autonomous actors.

Our primary focus and starting point is the meso-level ecosystems, while at the same time understanding that the work done at meso level has direct implications on micro-level ecosystem processes, and that findings at meso level may create expectations for macro-level processes (which can be mediated and discussed in national mirror processes).

The challenges to be addressed by WP9

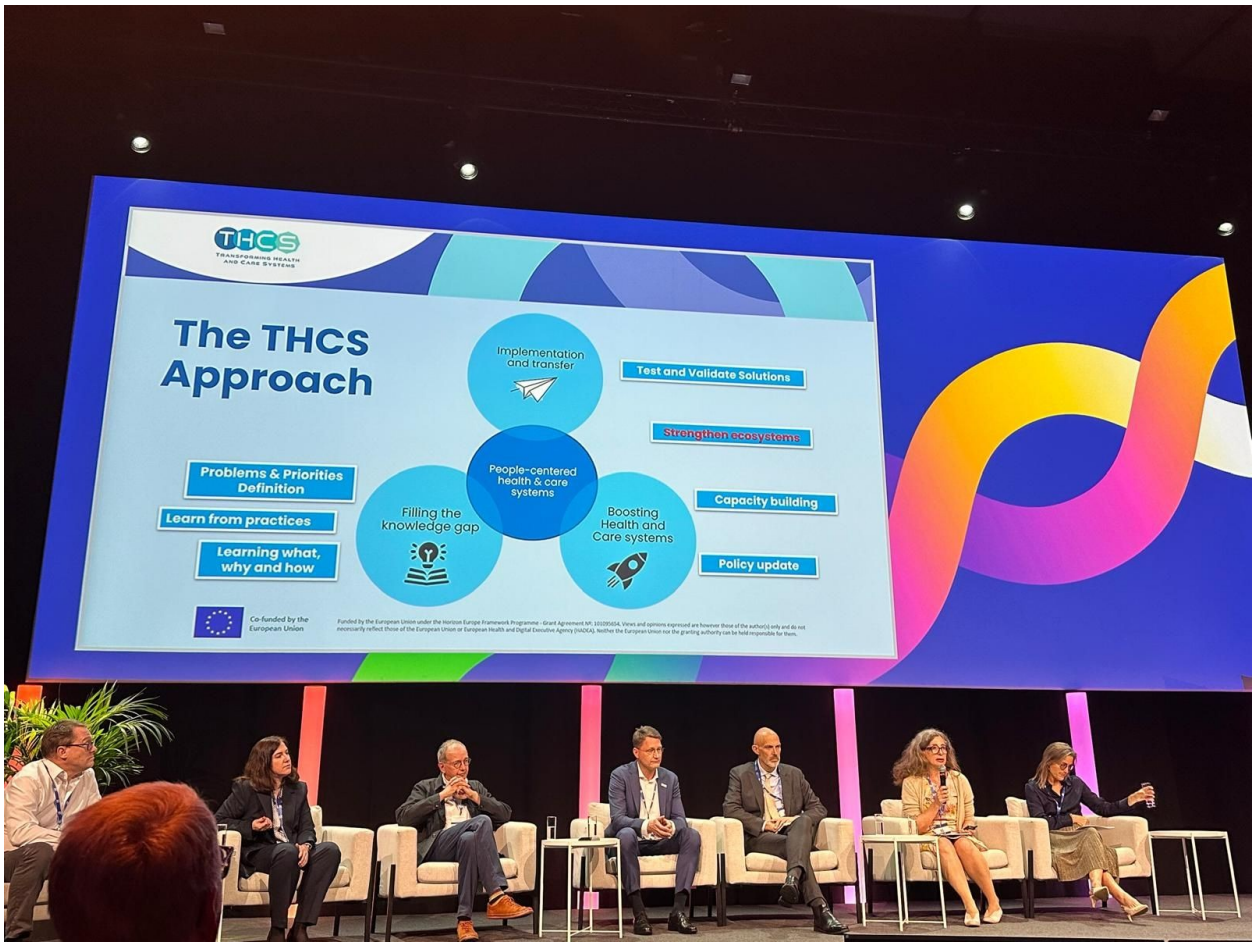
In line with the Strategic Research and Innovation Agenda of the THCS Partnership, it is anticipated that the most pressing challenges to be addressed by WP9/Strengthening Ecosystems, are:

1) Lack of understanding of systemic transformation
2) Lack of implementation of innovations
3) Insufficient resilience of HCS
4) Insufficient breadth/variety of stakeholders and ecosystems involved in the transformation of HCS

To overcome these challenges, WP9/Strengthening Ecosystems, will focus on:

1) Improving understanding of systemic transformation: The transformation of HCS is put into action at national, regional and local levels. Implementing innovation — whether organisational or technological — in HCS also requires functional ecosystems to be in place. There are good practice examples of successful ecosystem approaches available throughout Europe and beyond. Yet there is a need to link them and to identify those that can be considered good examples to follow. It will be a specific challenge for WP9 to set up peer learning between ecosystems and to organise disseminating events for funded projects, health and care authorities, policy makers and other stakeholders in a way that supports maximum learning from good practice examples at the European level. This includes assembling the right players. Shared experiences and knowledge may include (1) examples of incentives that can support sustainable transformation; (2) how to integrate different ways of working into the health and care sector; (3) how to improve structures that support collaboration; (4) examples of how to align the goals and actions of ecosystem partners; and (5) examples of how to come to a common vision.
2) Contribute to improving the implementation of innovation: Through the promotion of good practices by ecosystems and the promotion of relevant activities by funded projects and resulting matchmaking at the European and the national, regional, and local levels. Activities will be geared towards creating awareness and urgency among ecosystem layers and components.
3) Contribute to improving the resilience of HCS: To increase resilience of HCS to upcoming needs and crises, WP9 will endeavour to identify and connect transformative ecosystems that can be a source of inspiration to projects and stakeholders, as well as to provide context-specific knowledge and know-how.
4) The involvement of sufficient numbers of stakeholders and ecosystems in the transformation of health and care systems: WP9 will contribute to increasing the number of innovators and to strengthening national, regional and local ecosystems of stakeholders to support the uptake of successful innovations for health and care.

4 WORK PACKAGE 9 ACTIVITIES



Belgian Presidency Conference 2024

WP9 aims to develop a common strategy for all relevant stakeholders with which to support implementation and scaling-up actions in an ecosystem approach. To do so, WP9 sets up communication and collaboration activities to explore and reflect the needs and wishes of the stakeholders and beneficiaries in RDI projects and to accelerate the transformation of HCS. These activities are supported by methods for sharing successes and other experiences at European level, thereby inspiring and encouraging processes at national, regional and local level.

In line with the WP9 focus on connecting and supporting the broad community and other stakeholders in developing ecosystem-wide approaches and creating awareness and urgency among ecosystem layers and components, WP9 provides a space for exchange and knowledge sharing and serves as a platform for transformation.

The platform provided by WP9 is also designed to support:

THCS partner organisations in finding a space for exchange, learning and inspiration. They are also being helped to promote the ecosystem approach at national, regional and local level. And finally, partner organisations support the work of WP9 by reaching out to national actors and ecosystems of different levels of maturity and contributing to mapping exercises. The level of engagement of the THCS partner organisations varies according to the (self-attributed) resources brought in by the partner organisations or nominated organisations and experts.

One example of how sustainable relations with national stakeholders are established is the Dutch national mirror group which will also support the implementation of funded project results: "*The NMG will provide feedback on workplans, call topics and ongoing funded projects. This will signal barriers that could block implementation of newly devised transformative solutions in health and care systems. The NMG meets twice a year, once in person, once online. To keep the NMG members engaged, we also involve them in regular email consultations. We ensured that our NMG adopts an ecosystem-wide approach by engaging a variety of organisations, including universities (of applied sciences), hospitals, and (public/welfare) organisations. This helps mobilise national and regional stakeholders to implement funded projects.*"

Since the start of the Transforming Health and Care Systems partnership, WP9 has organised and contributed to various events (see Table 1). The core events were the three rounds of 2-day workshops. The first workshop in Vienna was held in May 2023, and supported the development of the first version of the "Strategy Document on Strengthening Ecosystems" (D9.1) that constitutes the basis for all WP9 activities. The second workshop was held in Tampere in May 2024, and gathered ecosystem representatives and WP9 partner organisations in order to dive deeper into the understanding of the mechanisms of ecosystems. The workshop also contributed to agreement on the elements of the ecosystem-wide approach in funded projects that was later included in the guide for applicants. The third workshop was again held in Vienna, in November 2024. It consolidated the understanding of how to identify ecosystems and presented a first categorization of identified ecosystems. An inspiring keynote on value-based business modelling was given to participants on site, and to representatives of funded projects who attended the session online.

Other events addressed relevant subgroups of interest to WP9 or a broad audience in large European events. All events contributed to learning and deepening the understanding of ecosystems and to the strengthening of national/regional/local ecosystems in different scales and at different levels.

Hybrid setup of Workshop

Table 1: Types of events organised by WP9 or to which WP9 contributed

Meetings including ecosystem representatives, representatives of funded projects, external experts
2-day workshops organised by WP9
Transformative ecosystem working group meetings
Contribution to external conferences
Belgian Presidency Conference
Lisbon Public Health Conference
Contribution to event organised by WP9 partner organisation
Contribution to NMG
Events for WP9 partner organisations
Additional sessions before/after GA meetings
Update meetings on NMG
Online update meetings
Analytical working group meetings
Contribution to THCS meetings
Contribution to GA meetings
Contribution to Strategy Board meetings

THCS partners and ecosystem representatives at the Vienna workshop 2024

4.1 The target groups for WP9 activities

The external target groups are:

- **Existing ecosystems of different levels of maturity**
- **Funded THCS projects, to raise awareness of the benefits of the ecosystem approach**
- **National mirror groups that will inform WP9 and act as multipliers at national, regional and local level**
- **National, regional and local actors reached via THCS partner organisations or WP9 activities**

The following paragraphs and tables show the specific activities that were performed to target the different groups. More information on the specific contents of the activities will be provided in Chapters 5 to 9.

With respect to the "Ecosystems" target group, the most important first step was to identify a number of ecosystems in order to kickstart the collaboration, peer learning, and enhancing understanding of the nature and mechanisms of ecosystems. For details of the activities see Table 2 and Chapters 5 and 9.

Table 2: Target Group: Ecosystems

Activities
Inventory of existing (successful) ecosystems
Peer learning by linking ecosystems
Exchange between ecosystem partners in different countries
Better understand the demands and needs of ecosystems
Analyse beacon ecosystems
Thematic, target group-specific, informative character of events

With respect to the "THCS funded projects" target group the effort started with agreeing on the important elements of an ecosystem-wide approach that funded projects should consider. This approach allows them to reach out to and collaborate with the ecosystems relevant to the focus of their projects and increase the impact of their work. For details of the activities see Table 3 and Chapters 6 and 7.

Table 3: Target Group: THCS funded projects

Activities
Support consortia in embracing an ecosystem approach
Support consortia in developing a transformative mindset
Understand the benefits of the ecosystem approach
Group a portfolio of THCS projects and showcase to national stakeholders
Feed demand/needs of ecosystems in calls for proposals
Thematic, target group-specific, informative character of events

With respect to the "National mirror groups" target group the activities concentrated on designing the groups and understanding the national and/or regional specificities that need to be considered to create added value for the respective WP9 partner organisation. For details of the activities see Table 4 and Chapter 8.

Table 4: Target Group: National mirror groups

Activities
Learn more about specific needs and enlarge the network
Better understanding of barriers and difficulties hindering implementation
Address ecosystem-related items
Connect funded projects to relevant stakeholders
Act as multipliers at national/regional/local levels

With respect to the "National/regional/local stakeholders" target group, WP9 partner organisations showed a great variety of approaches and forms of engagement. For details of the activities see Table 5 and Chapter 9.

Table 5: Target Group: National/regional/local stakeholders

Activities
Raise awareness of the importance of ecosystems by linking stakeholders from the micro, meso, and macro levels
Organise workshops with international experts on specific topics
Identify evolving and consolidating ecosystems
National/regional/local ecosystems benefit from the examples of forerunner ecosystems
Thematic, target group-specific, informative character of events
Liaise with existing networks
Liaise with existing ecosystems

Legend

European level
European and national/regional/local levels
National/regional/local levels

Workshop Vienna 2024

5 TRANSFORMATIVE ECOSYSTEM CASES AND ANALYTICAL INSIGHTS

Introduction

WP9.2 focuses on transformative ecosystems. Together with WP9 partners and the WG for Ecosystem Analysis, composed primarily of research performing organisations, the team at Tampere University began by drafting a template for collecting ecosystem cases. The template for reporting real-life examples of transformative ecosystems is designed to provide a structured and coherent description of ecosystems in health and care across partner countries (see Annex 11.1).

The template guides reporting actors through the process of describing the purpose and strategic goals of the ecosystem, identifying the main actors involved, and explaining how collaboration and interaction are organised within the ecosystem. Additionally, the template seeks information on how the outcomes of the ecosystem are followed up and measured, detailing the processes and methodologies used for outcome measurement.

There are currently 30 ecosystem case templates from the following countries: Austria; Finland; Italy; Lithuania; Norway; Spain (several regional ones from Andalucia, Aragon, and the Basque Country); United Kingdom (England, Scotland); and the Netherlands. These ecosystem descriptions serve as key tools for collective learning, offering an overview of various health and care ecosystem activities across Europe. The analytical work and different types of events organised around the ecosystem will also continue in future years.

The ecosystem templates are key to building up the work related to transformative ecosystems, in each case providing diverse descriptions of varying levels and depth of explanation. The descriptions are embedded in different healthcare and politico-administrative systems, reflecting the unique contexts and challenges faced by each country and region. The team at Tampere University have defined health and care typologies to help in understanding the various ecosystem types.

Events organised around the topic of transformative ecosystems have resulted in collective key observations, paving the way for ongoing work on transformative ecosystems. Thus far, The Forerunner Transformative Ecosystem Working Group has actively engaged with THCS partners and ecosystem representatives in a series of meetings, both online and on-site. These gatherings have provided valuable insights from ecosystem analysis, inspiration through ecosystem case presentations, opportunities to evolve topics, and for co-learning. The WG for Ecosystem Analysis has also been a critical contributor in outlining and formulating the analytical work in its different phases.

Key notions from the shared learning workshops highlight the importance of understanding the details and success factors of each ecosystem as they exist within specific political, administrative, and cultural contexts. While the key actors and processes may be relatively easy to explain in texts or presentations, it is also important to understand how the ecosystem functions and its underlying logic. Ecosystems can be challenge-driven or network-driven. They vary in structure, with some following national (top-down) models and others regional (bottom-up) models. Observations from our workshops and events indicate that ecosystems receiving strong public support seem more stable than those without political and/or administrative support. Naturally, funding structures also impact the stability and autonomy of these ecosystems. Overall, there has been considerable discussion of the success factors and challenges associated with transformative ecosystems. For instance, agreeing on a common aim has been identified as a success factor, while lack of political support and excessive regulation have been recognised as

hindrances to transformative efforts. According to initial work plans related to this task, the analysis of success factors, outlined here as the beacon element analysis, serves as another analytical stream alongside the work related to ecosystem typologies. The following sections present the two analytical workstreams related to transformative ecosystems. An introduction to the health and care ecosystem typologies is followed by an overview of the current phase of the transformative ecosystem beacon element analysis.

5.1 Typologies

Inductive typologies based on case descriptions

Ecosystems can be categorised in various ways, for example, by focusing on innovation versus delivery, the structure of activities in terms of coordination and leadership, key actors (public, private, or third sector), alliances, or platforms, and the overarching service architecture. Typologies may also consider the activity level (micro, meso, or macro) or organisation and governance model, which could be either top-down or bottom-up. Finally, the role of citizens, patients, service users, or civil society organisations in the overall constellation can also be considered. Below is the current state of work on ecosystem typology.

These typologies categorise ecosystems according to specific criteria, allowing for easier comparisons and better understanding of their typical characteristics according to the defining themes. However, they are simplified representations of networks of actors and so tend to overlap. Consequently, one ecosystem can belong to several types. Some of the ecosystem descriptions are used as examples in the text below, but not all are listed despite being equally relevant.

Innovation platforms and networks as a framework for ecosystems

When viewed as innovation platforms and networks, health and care ecosystems are collaborative environments in which diverse stakeholders – including healthcare providers, policymakers, companies, researchers, technology developers, patients, and other organisations – come together to co-create, share, and implement innovations that improve health outcomes and care delivery. The diversity of the participants is crucial in achieving a holistic approach to problem-solving and innovation. Within these types of ecosystems, platforms are often used as foundational structures to foster innovation. These may be physical (e.g. shared research centres), digital (e.g. data-sharing platforms or telemedicine services), or organisational (e.g. consortia or alliances). They provide the infrastructure necessary for collaboration and innovation, such as data analytics, digital tools, or shared guidelines.

One example of such an ecosystem is the Innovation Platform AAL Austria, a central hub connecting stakeholders (mainly Austrian, with members from the German-speaking DACH region) in the field of digital health and care and AAL technologies. Another is the ITEMAS Platform for Innovation in Medical and Health Technologies (Spain), a support structure for health innovation promoted by the Carlos III Health Institute (ISCIII). Its objective is to help health professionals generate value for the system by promoting technology transfer and the culture of innovation and communication with society.

Workshop Vienna 2024

Health and care programmes as a framework for ecosystems

In this broad array of ecosystems, activities are structured around specific health and care programmes. These may be national, such as the Lithuanian personalised medicine strategy. Its aim is to implement principles of personalised medicine, for instance by creating transparent and ethical models of implementation and management, combining public and private sectors, and fostering development and research in personalised medicine. Another sub-type is broad national policy programmes that operate as an umbrella framework for regional health and care ecosystems. In England, for example, we have received several examples of regional Integrated Care System (ICS) models in which the national framework is applied in specific regional settings.

There are also European-level initiatives that help strengthen regional health and care ecosystems such as the European Innovation Partnership on Active and Healthy Ageing (EIP on AHA). The ecosystem catalogue includes several examples of regional health and care ecosystems receiving Reference Site status. They include the Andalucia Reference Site, the Campania Reference Site, and The Trentino Salute model.

There are also more specific programmes, both national and regional, that bring together health and care ecosystem actors. These are organised around a specific health issue or area of health and care, such as oncology or palliative care. The ecosystems are tailored to address specific health needs by integrating various healthcare providers, resources, and services to optimise patient outcomes and ensure consistent, high-quality care across the region. Generally, integrated models are pivotal, with various healthcare providers (hospitals, clinics, specialised centres, patient organisations, companies) working together to deliver and develop seamless care.

The Paediatric Palliative Care Unit (PPCU) in Aragon, for example, adopts a holistic perspective of the care of the child. Another two examples are the two distinct regional networks in Apulia, the Oncology Networks and the Rare Diseases Network. It is worth noting that the regional programmes are steered, at least in part, by national programmes, strategies or guidelines. For instance, in the case of Apulia, the National Oncology Plan outlined the programmatic actions and reiterated the need to integrate the Oncology Networks within the regional health system. Finally, there are regional ecosystems that have

been developed through regional initiatives or with a loose broader framework or philosophy, such as the Mooi Maasvallei regional ecosystem based on the philosophy of positive health.

Health and care ecosystems framed as a business model

Ecosystems as business models can be defined as value-driven networks of interconnected organisations, stakeholders, and technologies that collaborate to deliver integrated health and care services. Traditional public-private partnership models typically emphasise volume (e.g., fee-for-service), where providers are compensated based on the number of services rendered. The ecosystem model, in contrast, can be a way to shift the focus to value-based care, where payments are tied to the quality of care and patient outcomes, incentivising improved performance and efficiency. Participants in the ecosystem often share risks and rewards through contracts that align incentives with the achievement of health and care outcomes. Traditional healthcare business models often operate in silos, with each provider, hospital, or clinic functioning independently. In contrast, the ecosystem model fosters collaboration and interdependence among a network of stakeholders, leading to more coordinated and integrated care. The Health and Care Alliance Models, such as the Tesoma Alliance, can be characterised as a business model type of ecosystem emphasising collaboration, integration, and shared governance among stakeholders. While general health and care ecosystems also involve collaboration and integration, business model ecosystems such as the Tesoma Alliance take this a step further by embedding collaboration into the governance and operational model. The integration of services, governance, and resources across stakeholders is the hallmark of an alliance model.

Digital health and care ecosystems

A key feature of the digital ecosystem is the seamless integration and interoperability of different digital tools and platforms. While general health and care ecosystems may incorporate technology as one of many components, digital health ecosystems centre their operation around digital technology. The entire system is structured around the functionalities offered by digital tools, creating a more interconnected and efficient environment. The Linked Care ecosystem in Austria is an example of a digital health and care ecosystem based on collaboration between research institutions, business and user organisations. Norway's CoTecH capacity-building research and innovation partnership is a similar ecosystem with "national significance for needs mapping, development, testing and implementation of digital health services and technologies." It involves the health industry, health services, users and researchers.

Competence and capacity building, initially considered a separate element, is now seen as essential across various digitally framed health and care ecosystems, based on feedback from WP9 workshops.

The provincial government of Trentino, Italy, established TrentinoSalute4.0 (TS4.0), a competence centre for the development of digital health. The path from research to innovation is also supported by a technology infrastructure facilitating health and telehealth services and acting as a single point of access for citizens and health professionals. TrentinoSalute4.0 supports the development of digital competences among operators, citizens and health professionals through integrated and structured actions.

5.2 Beacon Transformative Ecosystems: searching and analysing examples of transformative ecosystems for showcasing

A transformative ecosystem is a collaborative, value-driven network designed to facilitate systemic, inclusive, and lasting change in human well-being[1]. In a quest to understand how such ecosystems are formed and can be managed, it is important to understand the key dynamics shaping these ecosystems which are called "beacon elements". These elements can be conceptualized as key actors, initiatives, or practices that signal, catalyse, or sustain systemic transformation within communities and institutional environments.[2] In transformative ecosystems, beacon elements can be understood as influential nodes, whether people, institutions, technologies, or practices, that illustrate pathways of change, foster systemic coherence, and inspire replication or scaling of new models. The preliminary analysis of 24 transformative ecosystem case descriptions was conducted inductively (January-February 2025), revealing an array of potential beacon elements. These elements are based on the former formulations of transformative ecosystems, as defined in the ecosystem template and the WP9 strategy (see Table 6). The WG for Ecosystem Analysis was also consulted during the preparation of the analytical framework.

Table 6: Beacon elements that manifest the successful dynamics in transformative ecosystems

Beacon element	Description
Sustainability of the model	A long-term arrangement, not a project
Added value	E.g. bottom-up, cross-sectorial, interdisciplinary approach
Level of activity	Micro, meso, and macro levels
Strategy	Shared strategic goals among actors
Alignment of implementation and resources	Orchestrated and permanent change directed by all actors
Outcomes evaluated by performance indicators (PIs)	PIs guide the shared goals
Recognition beyond PIs	E.g. reference site status, national awards etc.
Service user integration	Users, patients and patient organisations as stakeholders + collaborative methods
Legitimacy	Acceptance among users and policymakers

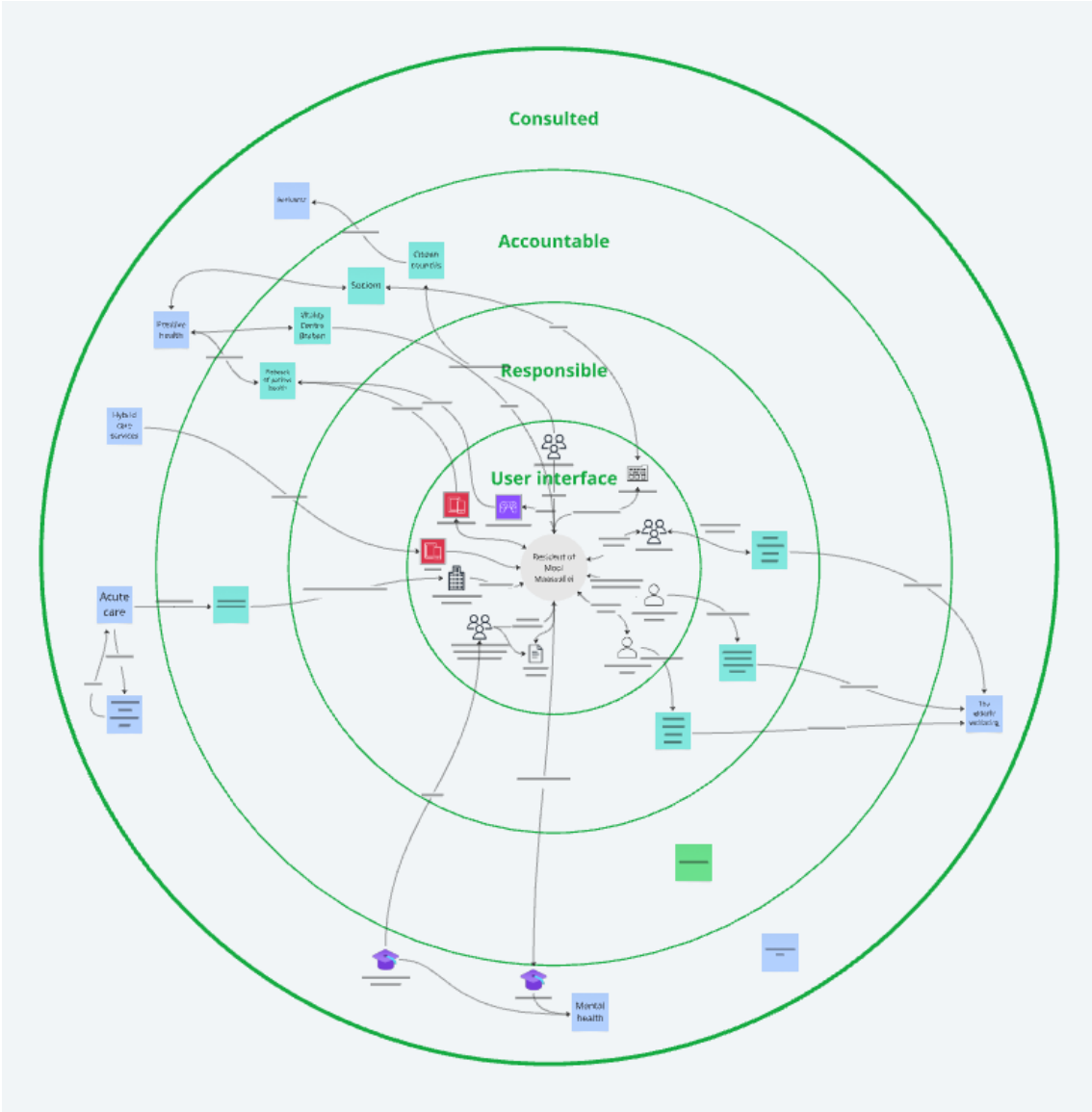
Based on the preliminary beacon element analysis, we selected two Beacon Transformative Ecosystems (BTE) for further study. The ecosystems studied in spring 2025 are TS4.0/TreC in Italy and Mooi Maasvallei in the Netherlands. The selection criteria followed a beacon element analysis as depicted in Table 1, with all beacon elements present. The studies/work conducted with the first BTEs will serve as a blueprint for searching and analysing transformative ecosystems together with the WP9 partners. The BTE analysis used tools including ecosystem mapping (see Figure 3) and thematic interviews to build

[1] Geyer, G., & Teperi, J. (2024). Strengthening ecosystems. The European Journal of Public Health, 34.

[2] See Rashman, L., & Hartley, J. (2002). Leading and learning? Knowledge transfer in the Beacon Council Scheme. Public Administration, 80, 523-542; McKethan, A.N., Brammer, C., Fatemi, P., Kim, M., Kirtane, J., Kunzman, J., Rao, S., & Jain, S.H. (2011). An early status report on the Beacon Communities' plans for transformation via health information technology. Health affairs, 30 4, 782-8.

vignettes (story-like scenarios that help translate findings into forms that engage, inform, and mobilise action[3]) of commendable ecosystems. The aim is to understand how the ecosystems are constructed and how they function, the roles of the different actors, and which beacon elements are the most important. Each ecosystem can contain different transformative elements, depending on its characteristics, aims, and context.

Figure 3. BTE Mooi Maasvallei ecosystem map, a first iteration.



[3] See Spalding, N.J., & Phillips, T.D. (2007). Exploring the Use of Vignettes: From Validity to Trustworthiness. Qualitative Health Research, 17, 954 - 962.

6 WHAT DOES AN ECOSYSTEM-WIDE APPROACH IN FUNDED PROJECTS ENTAIL?

The transformation of health and care systems is dependent on the ability of numerous actors to align their goals and actions to ensure they are complementary. In short, it requires ecosystems to be active. In the THCS Partnership, we define the term ecosystem broadly, encompassing health and care stakeholders and other related entities, regulators and end users, funders and service providers, governing bodies and health and care professions, as well as NGOs, companies, and innovators.

Each and every project funded under the cofunded Transforming Health and Care Systems partnership should clearly contribute to the transformation process. An ecosystem-wide approach in funded projects has several dimensions, ranging from the project idea, consortium composition, and additional actors, to the workplan and exploitation of the project outcomes.

In detail it entails (see figure 4):

6.1 Project idea

The project idea should support the THCS goal of a meaningful and sustainable transformation of health and care systems. To that end, it is necessary to ensure that the project idea or approach is relevant to the key actors, including at the policy level. In complex health and care systems involving many stakeholders, all aspects relevant to the project idea should be addressed with an ecosystem-wide approach. Interacting with actors outside the consortium, but having the same aims and seeking to align activities and strategies, will contribute to achieving the common transformative aims. At the same time, it is important to anticipate future needs, together with the relevant policy and regulatory contexts, to guarantee the project relevance. This can be achieved through engagement across the boundaries of traditional health and care domains, and in cooperation with stakeholders. Transformation processes usually require the development and use of new and/or different organisational and business models. In parallel, changes in the mindset and behaviour of actors and users will support the uptake of new approaches. Consequently, both of these aspects should be addressed in the project idea. It might be useful to also consider other relevant activities or change processes that are planned, in progress, or already implemented. This includes national as well as the regional and local levels.

Finally, the objectives of the transformative project idea should be well embedded within the organisational strategies of the consortium partners, including end users. Normally, it should be the consortium partners who exploit the project results in terms of contributing to the transformation of health and care systems (HCS).

6.2 Consortium

Ideally, the consortium will take the form of a quadruple helix, which includes end users (health/social care providers; citizens), industry/enterprises, academia and the government/policy level. In selecting project partners, it is vital to choose partners with transformative potential, as well as a vital interest in the project idea and in seeing the results implemented. Ideally, the transformative outcome of the project fits in with the single partner's organisational strategies, so that they will continue after the project has ended. Embedding the endeavour into organisational strategies will raise the transformational power of the consortium.

At the same time, partners within the consortium should have complementary expertise from the ecosystem perspective in order to best understand and act on the challenges addressed within the health and care systems.

To ensure the economic and societal impact of the specific project solution, the consortium should incorporate all the partners essential to the specific solution value chain.

6.3 Additional actors

To ensure the project results succeed in contributing to the transformation of health and care systems, it is vital to not only focus on the work done by the project consortium, but to also actively endeavour to enter long-term collaborations with partners outside the consortium. By aligning the activities with partners who share the same aims, the chances of reaching them are increased. Also, policymakers and other stakeholders play a crucial role and can contribute to implementing the project outcomes by supporting them and making the necessary decisions.

6.4 Workplan

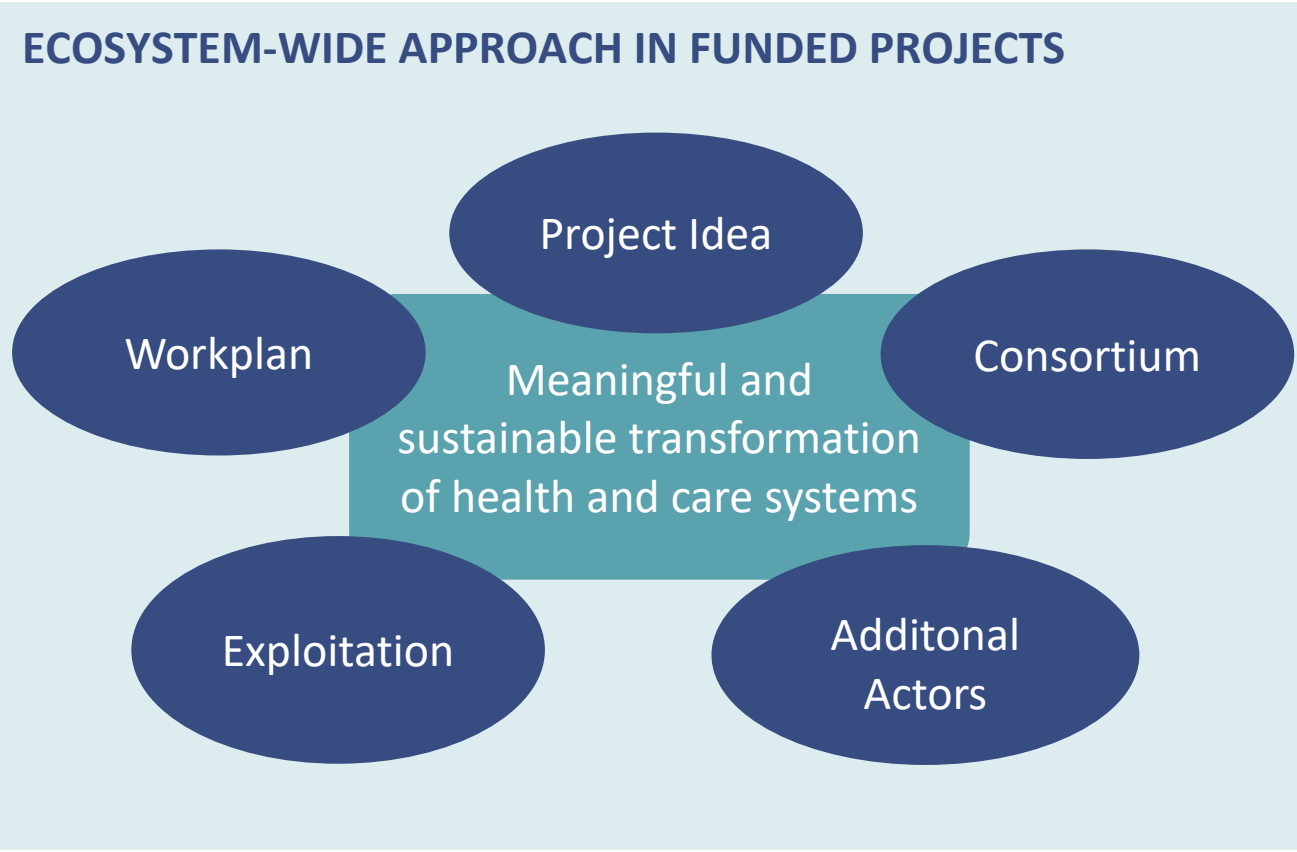
Past experience has shown that in allocating resources, there tend to be too few parties dedicated to the involvement of end users, health and care professionals, and/or other stakeholders, e.g. health and care system owners, while in fact these parties are essential to guarantee the creation of sustainable, user-centred solutions. Establishing meaningful collaboration with the ecosystem-wide actors, including iterative loops in co-design, efforts to increase understanding, and agreeing on synergetic activities, also requires the allocation of resources. The same holds true for the wider ecosystems, including at the policy level, to maximise the project's reach and impact. To prepare the future implementation of the project outcomes, the development of new/different organisational and/or business models should also be reflected in the workplan.

The installation of a strong strategic advisory board including decision makers, policy developers, early adopters, etc. helps facilitate solution uptake.

6.5 Exploitation

For the successful exploitation of the project results, it is vital the endeavours are embedded into the consortium partners' organisational strategies. To guarantee that the new solution or approach is sustainable, a business plan or business plans for the project outcome as well as an organisational model are needed.

Figure 4: Ecosystem-wide approach in funded projects



In order for the research that we fund to be impactful, it needs to involve users from the outset, be they policy makers, patients, healthcare workers or others in the ecosystem who will ultimately use the research outputs to transform health and care. In this way the research is more relevant and the findings more useful. We find that even when a research idea does not work out as anticipated, a wonderful by product is the development of relationships, longstanding collaborations and ultimately the ability to co-create alternative solutions that can work.

Catherin Gill, Health Research Board, Ireland

Flexible and open innovation ecosystems provide a nurturing environment for the transformation of health and care systems. Although the exploitation of projects results needs to go beyond their restricted timeframe, often it weakens over time. Their development in the framework of a quintuple helix innovation ecosystem provides the opportunity to implement a virtuous cycle of needs and priority assessment, co-creation, validation, implementation, adaptation, transfer and scale-up that fills the gaps and strengthens exploitation and valorization of such results on the ground of service provision.

The broader framework where the project is developed facilitates the identification of the service processes where the projects outputs have the ambition to be integrated, and may ignite the organizational changes underpinning structural change.

As part of this, ecosystems need to amplify knowledge and enable continuous learning. Reliable ongoing involvement among stakeholders can transform implementation pipelines into a dynamic learning process, generating refinements and feedback loops. Each iteration builds upon accumulated insights and lessons, resulting in the more efficient and effective integration of solutions into healthcare workflows.

Attention is also needed to ecosystem governance as this is an emerging factor in determining if current projects are able to replicate and scale. Medium-term success depends on four sustainability levers: enhancing resource mobilisation at regional and local levels to mainstream proven solutions and interventions, though a willingness to disinvest from established services and processes to reinvest in improved service components; adaptive multi-level governance for integrated and intersectoral place-based interventions especially in low resource settings; tying public tenders to deployment readiness and EHDS compliant data services; mainstreaming Living-Lab networks as permanent "reference zones" with shared ethics clearances, ensuring that quintuple helix innovation stakeholders (including SMEs) can iterate with real users within months rather than years.

Maddalena Illario, Chair of the THCS Advisory Board
Joanna Lane, Vice-Chair of the THCS Advisory Board

WHAT DOES AN ECOSYSTEM-WIDE APPROACH IN FUNDED PROJECTS ENTAIL?

The transformation of health and care systems is dependent on the ability of numerous actors to align their goals and actions to ensure they are complementary. In short, it requires ecosystems to be active. In the THCS Partnership, we define the term ecosystem broadly, encompassing health and care stakeholders and other related entities, regulators and end users, funders and service providers, governing bodies and health and care professions, as well as NGOs, companies, and innovators.

An ecosystem-wide approach in funded projects has several dimensions, ranging from the project idea, consortium composition, and additional actors, to the workplan and exploitation of the project outcomes. In detail it entails:

Project idea

- Ensure the project idea or approach is relevant to the key actors, including at the policy level.
- In complex health and care systems involving many stakeholders, address all aspects with an ecosystem-wide approach.

- Transformation processes usually require the development and use of new and/or different organisational and business models. In parallel, changes in the mindset and behaviour of actors and users will support the uptake of new approaches.
- Embed the objectives of your transformative project idea within the organisational strategies of the consortium partners, including end users.
- When designing a project idea, focus on supporting the THCS goal of a meaningful and sustainable transformation of health and care systems.
- To guarantee project relevance, it is important to anticipate future needs, together with the relevant policy and regulatory contexts. This is achieved through engagement across the boundaries of traditional health and care domains, and in cooperation with stakeholders.
- Consider other relevant activities or change processes that are planned, in progress, or already implemented. In doing so, pay attention to local or regional levels.

Consortium

- Create a consortium composed of, at minimum, end users (health/social care providers; citizens), industry/enterprises, and academia. Ideally, it will take the form of a quadruple helix, which additionally includes the government/policy level.
- Collaborate with partners who have transformative potential. Ideally, the transformative outcome of your project fits in with their organisational strategies, so that they will continue after the project has ended.
- Embedding the endeavour into organisational strategies will raise the transformational power of the consortium.
- Assemble your consortium with partners who have a vital interest in the project idea and in seeing the results implemented.
- Seek complementarity in terms of expertise from an ecosystem perspective.
- Ensure your consortium incorporates all the partners essential to your solution value chain, to ensure its economic and societal impact.

Additional actors

- Throughout the duration of the project, endeavour to enter long-term collaborations with partners outside the consortium who share your aims, so that by aligning your activities you can jointly work towards reaching them.
- Throughout the duration of the project, establish contacts with policymakers and other stakeholders who play a crucial role in supporting and making the decisions needed to implement your project outcomes.

Workplan

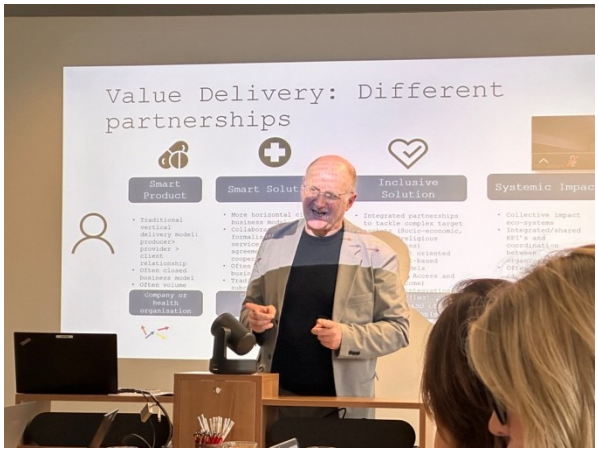
- Dedicate sufficient resources to the development of new/different organisational and/or business models.
- Plan for sufficient resources to establish meaningful collaboration with the ecosystem-wide actors, including iterative loops in co-design, efforts to increase understanding, and agreeing on synergetic activities.
- Take into consideration the need for behavioural changes to successfully complete the testing phase and facilitate adoption of new approaches, including technological approaches.
- Establish links to wider ecosystems, including at the policy level, to maximise the project's reach and impact.

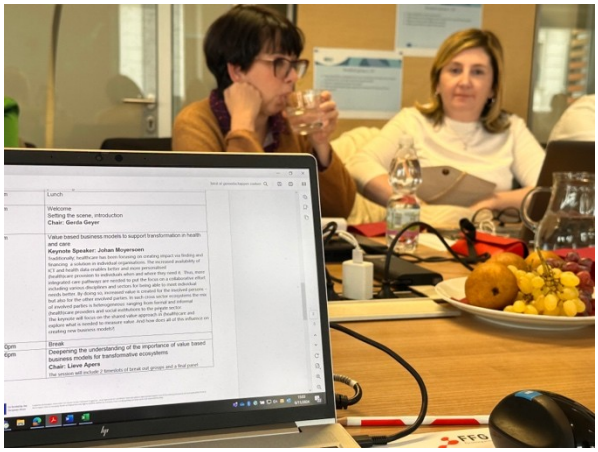
- Install a strong strategic advisory board including decision makers, policy developers, early adopters, etc. to facilitate the uptake of your solution.
- Involve end users, health and care professionals, and/or other stakeholders, e.g. health and care system owners, to guarantee the creation of sustainable, user-centred solutions.

Exploitation

- Embed the endeavours into the consortium partners' organisational strategies.
- Develop a business plan for the project outcome/solution. This might involve developing several business plans depending on the specific contribution of the consortium partners, and on the new solution or approach.
- Develop the organisational models needed to guarantee that the new solution or approach is sustainable.

7 VALUE-BASED BUSINESS MODELS TO SUPPORT TRANSFORMATION IN HEALTH AND CARE





Keynote by Johan Moyersoen

The Vienna Workshop on Strengthening Ecosystems, held on 6-7 November 2024, featured a keynote presentation by Johan Moyersoen on "Value-Based Business Models to Support Transformation in Health and Care." His key messages are summarised below.

Health and care systems are under a lot of pressure. While high quality care for the entire population is the shared aim all over Europe, many patients are not receiving the care they need although healthcare spending can amount to around 10% of GDP. The many problems include spiralling costs and spending waste.

Are value-based business models the solution? Value-based business models are not specific to the HCS, they exist in many sectors. They started with smart products and services, developed into combined products and services, and evolved into value-based services for customers and patients. Many HCS leaders worldwide recognise their disruptive potential.

Moyersoen presented elements that contribute to the value-based business model approach. He started with shared value. In contrast to normal value, in which an economic activity creates profit that is then invested in a social cause, in the shared value approach every euro earned has a societal impact, and every societal impact creates an economic return. While in the normal value model the economic activity and the social cause are not linked, the shared value approach solves societal challenges by combining smart services and economic models.

A second element is the evolution of isolated impact models into collective impact models. These have a lot in common with ecosystem thinking as they are based on the notion that many problems cannot be solved in isolation, but only through a collective effort. In these collective impact models, very different actors work together irrespective of often conflicting interests. They develop a common vision, a common strategy, shared KPIs to monitor the effects, and joint actions. A collective impact model relies on continuous communication and coordination to orchestrate a common approach. There are multiple examples of collective impact models. On the regional level, these include social organisations, companies and public organisations joining forces to tackle a challenge.

Another element is the idea of personalisation or longtail economy thinking. A one-size-fits-all approach often means securing one specific market at the expense of others. Consequently, business experts

develop segmentation strategies to identify the solutions which are best for various groups of clients. The market differentiation includes a broad product portfolio, client knowledge and small transactions.

The healthcare sector traditionally works with a volume-based business model, including product and service improvements. The proposition of a value-based model is different: the primary consideration is no longer quality and cost, but instead health outcome per unit of cost. This is a continuous innovation model, and compatible with organisational innovation because there is a need for new ways of working together across divisions and in interdisciplinary teams, and more efficient healthcare service provision. In population-based health models the aim is to create impact at the population level, as well as cost efficiency, better health outcomes, a better patient experience and greater job satisfaction. All this leads to a systemic change at ecosystem level.

Data play an increasingly important role in value-based healthcare models. Accountable care organisations develop more efficient networks of services for the health region, reducing costs, improving health quality, and so forth. At the same time, bundled payments lead to more efficient health pathways, simultaneously creating a better patient experience. The third element here is the increasing number of patient-centred medical homes (primary healthcare organisations) working together to generate more efficiency, quality, and better health outcomes. These approaches are often based on primary healthcare which involves social organisations and informal care.

Identifying value is crucial when developing any business model. There are four main categories of unmet needs: 1) functional unmet needs, where a new solution has to be developed because no solution currently exists; 2) patient unmet needs, where bundles of solutions are created to achieve a specific outcome; 3) access unmet needs, where more than purely the health perspective is needed to make the solution accessible (e.g. involving schools, social or religious organisations; linguistic or cultural adaptations, etc)., and 4) policy unmet needs, where the whole population should be addressed (e.g. regarding nutrition).

The selected value proposition has an impact on the business model (vertical, horizontal, inclusive or results-based) and on the revenue model.

Shared value also means shared risk and shared accountability. In an ecosystem, everyone has a role and a responsibility. The value and the risk should be balanced across the different actors.

Here, the primary challenge is that for-profit and non-profit healthcare actors and civil society actors have different views on shared risk and shared accountability. When managing an ecosystem and also for investment readiness, a balance of power is important.

Data are still a strongly underused resource because many actors in companies and public organisations do not know how to collate data to share or use for analysis purposes. There is also a connection between value-based and evidence-based product innovation because solutions or products delivered by companies and healthcare organisations need data to demonstrate their impact.

An ecosystem does not have a single business model, but rather different layers of business models. These are a combination of transactional models, of smart solutions, and of smart impacts. They must work together effectively to form a successful ecosystem.

Speaker:

Johan Moyersoen is founding partner of the Impact Licensing Initiative and senior expert in integrated business models and collective impact in the healthcare economy. He is an expert on the intersection of (growth) strategy, innovation and societal impact for companies, non-profit and social profit operators and government, in the EU and abroad. He is also a serial social entrepreneur.

8 NATIONAL MIRROR GROUPS

National mirror groups (NMG) are an important tool within the THCS partnership. Although not mandatory, they will be used across all participating countries. NMGs are expected to provide strategic guidance and support the partnership's activities, while at the same time ensuring that activities, strategies, and the needs of the national health and care systems are considered. NMGs should also support the dissemination of the partnership activities and results, thus contributing to maximising their impact.

THCS partner organisation(s) at the national and/or regional levels are responsible for establishing an NMG. Guiding principles are available but the design and operation of the mirror group lies in the hands of the specific THCS partner organisation. **Thus the format and operation of the NMG can reflect the interests or aims of the specific THCS partner or partner country.**

National mirror groups play a very important role for THCS Work Package 9 (WP9) activities.

According to the WP9 strategy: **"Ideally, the national, regional and local mirror groups link THCS WP9 with national, regional and local stakeholders. The relevant stakeholders reflect the full spectrum of health and care ecosystem-related institutions, including policy makers, health and care organisations, research institutions and business partners. Specific ecosystem-related agenda items can be addressed in the mirror group meetings, allowing the partnership to develop an increased understanding of the demands and needs as well as the potential barriers to implementation and upscaling of innovative approaches. The mirror group actors will be invited to mentor THCS-funded projects by linking them to potentially relevant stakeholders."**

8.1 How do THCS partner organisations establish a national mirror group?

Between September 2024 and May 2025, WP9 held four online update meetings on establishing NMGs. To date, 12 countries have shared their approaches, using a template provided by WP9. (see Annexes 11.2 and 11.3). In addition, partner organisations that had already organised a mirror group meeting were invited to present the outcomes in their preferred format.

8.2 Foci of the NMGs

THCS

Input received from partner organisations confirms that a key element for all THCS mirror group activities is the sharing of knowledge about the partnership, its aims and activities. Usually, sharing information goes hand in hand with seeking feedback and input on THCS-related items, such as the Annual Workplan, the development of Call topics, or specific input requested by specific Work Packages.

In addition, some countries/regions focus on specific aspects (see figure 5).

Focus on ecosystems

Some national mirror groups focus on better understanding their own national/regional/local ecosystems. This can reflect on the selection of NMG members from a relevant ecosystem. Alternatively, the focus on ecosystems can be operationalised in different forms of interaction. This can be achieved by facilitating networking and dialogue among ecosystems. It can also be implemented through intensive study of ecosystem functions. Insights gained may then be applied at a national level. Additionally, it can be operationalised by supporting the development and maturation of ecosystems.

Focus on supporting funded projects

Some national mirror groups put a strong focus on supporting funded projects and facilitating connections to stakeholders, such as potential implementers in health and care systems. This helps national, regional, and local stakeholders become aware of the funded projects and their subject matter. As external stakeholders learn about the projects, they can simultaneously inform the project partners about relevant aspects and provide feedback, input and information that can be incorporated in the project work. This supports subsequent scaling up and implementation.

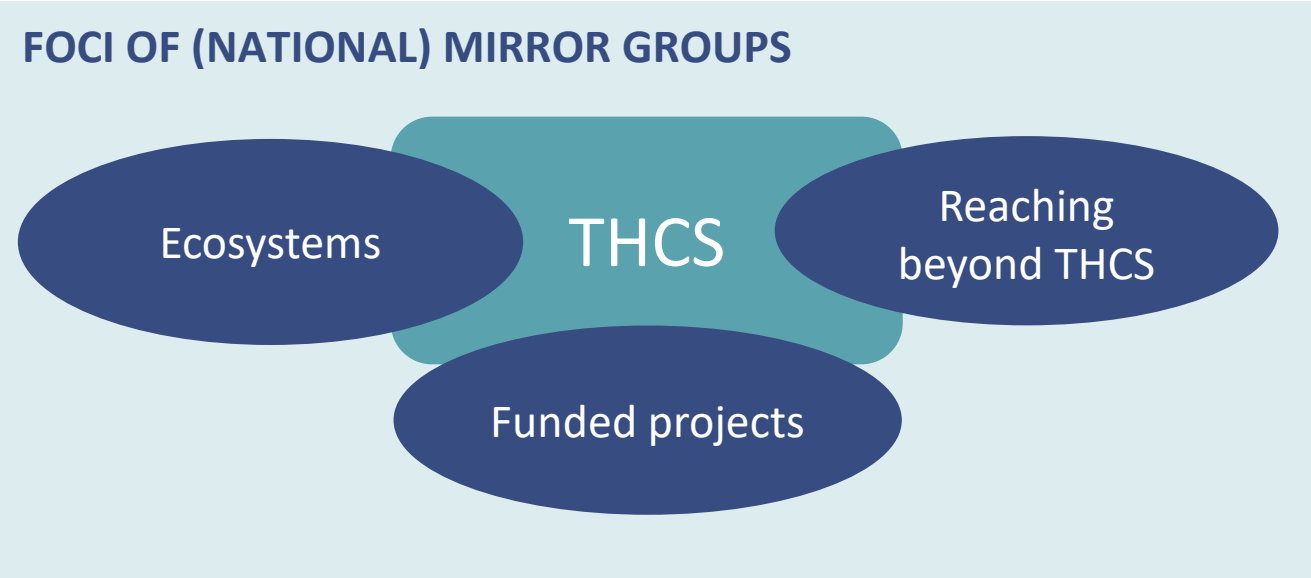
Some NMGs also plan to discuss research results.

Reaching beyond THCS

For some national mirror groups, the THCS cofunded partnership is the starting point for bringing together relevant actors in the health and care domain. However, the aim is to go beyond THCS expectations and create a group whose time horizon is not limited to the duration of the THCS partnership, or its scope restricted to THCS agenda items. Instead, it should also align other national, regional, or local activities and strategies.

Some NMGs are linked to pre-existing groups or initiatives, automatically giving them a broader focus.

Figure 5: Foci of national mirror groups



8.3 Preliminary learnings about the establishment of national mirror groups

Onsite/online/hybrid meeting: Since NMG tasks require a certain degree of interaction, discussion and engagement, onsite planning is helpful, at least for the first meeting. Online meetings are less time consuming and allow participants to join from all over the world. However, it can be challenging to ensure sufficient interaction and intervention, especially with larger groups meeting for the first time. Hybrid meetings combine the advantages and disadvantages of onsite and online meetings, with the additional challenge of providing opportunities for exchange and interaction.

Terms of reference ensure aims, expectations as well as NMG practicalities are all clearly understood. They help avoid misunderstanding and thus contribute to the NMG's long-term success.

Ministry support can help by lending an NMG official status.

Time for exchange and interaction: It is important to schedule efficient meetings that respect participants' time. However, it is equally important to allocate sufficient time for exchange and discussion. This ensures clarity in defining tasks, inputs, and expectations regarding participation in the NMG.

How is an NMG established?

WP9 facilitated sessions to help partner organisations set up their national mirror groups, addressing open questions and uncertainties.

The topics discussed included (See also Table 7):

1) **Size of the national mirror group**: Discussions among partner organisations showed that an NMG could vary greatly in size. It depended on the size of the THCS partner country and also the range of planned activities. Some aimed for large groups (20+ participants) with flexible composition, while others preferred smaller groups (fewer than 10 participants).
2) **Modus operandi:** Three options were developed. The first is to establish a national mirror group with **a composition that varied** according to the specific agenda items. The second is to establish a **fixed group** that remains stable over a certain period of time, guaranteeing that NMG members enjoy stronger networking benefits and support the THCS over a longer term perspective, in turn enhancing commitment. The third option is to use a **pre-existing group** and cooperate, either by adding THCS-related agenda items to general meetings, or receiving logistic support in organising specific mirror group meetings. This option might be most appropriate where few resources are available, whether time to be invested by the members of the NMG or the resources of the organising THCS partner countries. Many THCS partner countries have few resources available for a dedicated THCS operating at national level.
3) **Who is responsible?** Whether a funding body, research organisation or another type of organisation, the national THCS partner organisation is responsible for organising the mirror group.
4) **What if there are several THCS partners in one country?** Where several organisations in one country are THCS partners, although all are involved, one must take the lead in organising the mirror group. Ideally, one mirror group is established per country. In large countries with strong regions, this may be difficult within a short timeframe, so that regional mirror groups are more appropriate for creating the effects WP9 is aiming for.

5) **Who should be a member of the national mirror group?** WP9 partner organisations extensively discussed this issue. There's no one-size-fits-all answer, as the NMG's composition should reflect national aims and factors such as size and operation mode. It was agreed that the NMG should include various relevant stakeholders from national or regional health and care systems, similar to an ecosystem. Ultimately, it is the responsibility of the organising THCS partner to define the composition necessary to achieve the specific aims of the national mirror group.
6) **Agenda:** The organising THCS partner organisation must set the agenda to achieve the specific aims of the mirror group and consider the relevant conditions. Input can be provided by the THCS Work Packages.
7) **How to make mirror groups sustainable over time:** In setting up a national mirror group, THCS partner organisations felt it is necessary to address sustainability aspects right from the beginning. There were several discussions on aspects that could contribute to the sustained success of the NMG. Combined with the outcomes of recent mirror group meetings, the current thinking includes three major lines of action: (1) define terms of reference in advance so that parties considering membership understand the group's aims, their expected contributions, and the practicalities; (2) organise the meetings to facilitate exchange and bidirectional communication to benefit all group members; and (3) embed the group in a pre-existing format, or one with a focus beyond THCS-related agenda items to ensure its viability over the long term.
8) **Fee**: Paying per diem fees would allow experts to dedicate time to their national mirror group. This approach has not yet been adopted although discussed on several occasions.

Table 7: National mirror groups from WP9 perspective

Based upon	Consortium Agreement; ToR D1.1; NMG Documents sent by coordinator; Work Package 9 Strategy Document		
Size	Large group	OR	Small group
Modus operandi	Varying composition	Fixed composition	Pre-existing group
Who is in charge?	Funding agency	Research performing organisation	Other organisation
What if there are several partners from 1 country?	~ Decide who takes the leading role ~ All THCS partners from 1 country should be involved		
Members of NMG	Upon invitation by national THCS partner organisation(s)		
Agenda	To be set by the respective partner organisations, supported by the partnership and the WP		
How to make mirror groups sustainable over time?	Terms of reference	Bidirectional communication	If applicable, inclusion into a pre-existing group or group with a broader focus
Fee	Yes	OR	No

8.4 National mirror groups – very different approaches

What matters to the chairs of NMGs?

The Austrian national mirror group facilitates exchanges at national level about the activities of the THCS partnership, as well as ongoing research, development and innovation in the health & care sector. It is an interministerial group and includes additional representatives from the regional level to integrate as many ecosystems as possible. The first meeting indicated a high level of willingness to participate and cooperate, and a clear focus on the needs and challenges of implementation.

Kerstin Zimmermann, Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology

Established in November 2024, the Italian NMG brings together key health and care stakeholders to align national and European priorities. Our aim is to help identify Italian needs, opportunities, and perspectives, to ensure alignment at national and European level and support the implementation of results. Our commitment is to maintain an ongoing dialogue among NMG members, recognising the value of continuous engagement to ensure the effectiveness of the actions undertaken.

Lisa Leonardini, PROMIS

The inaugural meeting of the National Mirror Group in Slovenia marked a key step towards building a strong and effective healthcare ecosystem. It served both as an introduction to the group's purpose and as a catalyst for long-term collaboration among stakeholders, particularly between the Ministry of Health and research institutions. The meeting highlighted how robust, interconnected ecosystems are more effective than isolated partnerships in driving healthcare transformation. Participants agreed that systemic change is best achieved through coordinated, multi-stakeholder efforts. National and international experts from the THCS partnership contributed valuable insights, adding both context and a global perspective. The meeting was presented as the beginning of a long-term collaboration, focused on defining shared goals and aligning stakeholders towards a common vision for healthcare innovation in Slovenia.

Mircha Poldrugovac, National Institute of Public Health

9 REACHING OUT TO NATIONAL/REGIONAL/LOCAL STAKEHOLDERS

One aim of Work Package 9 (WP9) is to promote the ecosystem-wide approach at the THCS partner organisation's national, regional and local levels. WP9 partner organisations should actively interact with their stakeholders.

Specifically, these promotional activities include:

- Organising events to raise awareness of the importance of ecosystems by connecting people and organisations at the national, regional and local levels who are interested in the ecosystem approach and who have experience in collaborative networks.
- Collaborating with national mirror groups to increase understanding of the specific national, regional and local needs and opportunities.
- Identifying evolving and/or consolidating ecosystems.

9.1 Activities performed in 2024

In 2024, WP9 partner organisations reported having organised or been involved in several types of events and other activities, such as conducting interviews with potential ecosystem representatives. For details about the nature of the event/activity, see Table 8 below:

Table 8: Events and activities

Organise a (national) mirror group meeting
Organise a conference session at national/European level
Invitation to intervene in an event organised by others
Organise a national/regional/local event
Organise a meeting to support the identification of ecosystems
Organise an event targeting funded projects or potential beneficiaries
Conduct an interview with a (potential) ecosystem representative

In 2024, eleven WP9 partner organisations reported having organised or been involved in 28 events and having conducted 2 interview sessions.

9.2 Identification of ecosystems

So far, partner organisations have identified 30 ecosystem cases at their national/regional/local levels. On the occasion of the 2024 Vienna WP9 Workshop, seven partner organisations reported on their approach to identifying ecosystems. They accounted for 20 identified ecosystems.

All of the identified ecosystems were already known as they were part of the network, a member of a similar organisation, a funded project, or an established reference site. If WP9 partner organisations were unaware of the ecosystem, then it was suggested or recommended by colleagues or their own network. In some cases, additional desk research was performed.

WP9 partner organisations are in regular contact with most of the identified ecosystems.

More than half of the identified ecosystems have a connection with funding activities, e.g. through advice that is being sought, or by facilitating knowledge sharing activities within the ecosystem, including funded projects.

Fewer than half of the identified ecosystems are funded projects, a cluster or a platform, or were formerly a funded project.

The main approach to filling out the ecosystem template was to contact the ecosystem in writing. This step was often followed by an informal chat or an interview/formal talk.

All partner organisations reported that they planned to engage with some or even all of the identified ecosystems at their national/regional/local levels, also in the future. This is a very promising result in terms of long-term support for the WP9 aim of strengthening ecosystems at the national/regional/local levels.

The suggested activities include:

- Providing support and guidance
- Exchanging best practices
- Training
- Networking
- Thematic workshops, invitations to event sessions
- Invitation to ecosystem activities in THCS, engagement

Story telling - Identifying ecosystems in the Netherlands

Wally Keijzer presenting the Dutch approach in identifying ecosystems

ZonMw subcontracted Wally Keijzer to identify existing ecosystems in the Netherlands. She is an ecosystems expert and thoroughly versed in the working of the Dutch healthcare and support system. She used the Transformative Ecosystems template provided by THCS. We also deemed it important for the Netherlands that the identified ecosystems place the client first (contributing to more vitality and health).

Wally performed desk research and feedback rounds, finally identifying 12 transformative ecosystems that had successfully aligned strategies, decisions, and the actions of independent actors. They focused on the cross-domain HCS, reforming health and wellbeing at a meso level (regional), and managing several health and care issues. Of the 12 ecosystems identified, Wally selected 4 with whom she conducted in-depth interviews. Transcriptions of these interviews are available in Dutch.

Identified ecosystems

- Mooi Maasvallei
  - Residents: ≈ 120,000
  - Structure: 21 partners
  - Aim: Four jointly identified spearheads: focus on the role of the resident, prevention, improving (collaboration in) care, and the use of data.
- Alliantie Positieve Gezondheid
  - Residents: ≈ 90,000
  - Structure: 24 partners
  - Aim: Becoming the healthiest region by 2030
- Vitaal Vechtdal
  - Residents: ≈ 150,000
  - Structure: Foundation and commitment from > 10 partners
  - Aim: More emphasis on preventative medicine: a shift from illness and care to health and behaviour.
- Vitaal & Gezond Amsterdam
  - Residents: ≈ 935,000
  - Structure: 5 drivers and > 150 partners (coalitions)
  - Aim: Ensuring that by 2040 residents have equal opportunities for good health and that vulnerable people gain ten more healthy years of life.

Findings from the identified ecosystems:

- The key factor is not money, but commitment;
- Loosely coupled (gentleman's agreements rather than contracts);
- Desire for a dedicated team (e.g. 'the passionate idiots');
- Minimal overheads (rotating system of organising workshops, etc.);
- Putting the citizens first;
- Municipalities, insurers, health and wellbeing domain, citizens, research/education are all part of the ecosystem (quadruple helix);
- Positive Health as a method;
- Aging population with health care issues;
- Organic growth;
- There is an interdependency but also a natural balance;
- Like a rhizome: a way of looking at reality, it is about connections, meaning and movement;
- Common goal;
- Dynamic - constant growth (fluctuation in people and organisations);
- What moves them is value, affection, passion, and tradition;
- Energy-based;
- Diversity.

Successes in the identified ecosystems:

- In-kind commitment;
- Closed wallets;
- Lots of successful projects in the field of health and wellbeing;
- Dedicated teams;
- Citizen participation;
- Learning communities;
- Moving from Consolidating to Forerunner, and even Forerunner to Beacon;
- Using theoretical and/or practical education as a driver;
- Monitoring (quantitative and qualitative).

Barriers in the identified ecosystems:

- No structural funding (if subsidies stop it is unclear if the ecosystem will survive);
- Existing funding, but overly rigid protocols (no, or less, funding to spend freely);
- Governance issues;
- Keeping the drivers on board;
- Discussions about money.

9.3 Support for ecosystems

Some partner organisations are seeking to actively support ecosystems in their evolutionary process in order to ensure a greater impact and more efficiency, as shown in the following example provided by IACS.

Aragon approach to regional health system transformation

Involving the Institute for Health Sciences in Aragon (IACS) in THCS resulted in the decision to utilise the transformative ecosystem concept, as outlined in WP9, as a catalyst for the anticipated changes in Aragon's health system.

The Department of Health, in conjunction with IACS, conducted a comprehensive analysis of the regional health system to identify areas for enhancement. The following were identified as areas for improvement: rare diseases, cardiovascular disease (CVD) secondary prevention, HIV, palliative care, chronic kidney disease, primary care and fertility. These areas were then prioritised for addressing systematically.

The initial areas to be addressed are integrated care for rare diseases (in conjunction with the Directorate General for Humanisation) and HIV (in collaboration with the Directorate General for Public Health).

A methodology has been defined that enables us to address each of the identified needs in a structured and systematic way. IACS is responsible for dynamising and coordinating this methodology.

1) Planning

   The planning phase is designed to define the challenge, identify stakeholders, form a team and understand the user perspective. For each of the thematic areas, specific working groups will be established, consisting of healthcare professionals, decision-makers, managers, patients, researchers and the IACS Training Unit for health professionals.

2) Gathering and diagnosis

This phase focuses on gathering internal and external information from different domains: care process, research, socio-health, and training. The following three steps are followed in sequence: initial diagnosis, external benchmarking and the development of a strategy and action plan.

3) Co-design, development and implementation

It is during this phase that attention is given to co-creation for the design of solutions, in addition to the piloting and testing of said solutions in controlled environments. This phase focuses on gathering internal and external information from different areas: care process, research, socio-health, and training.

4) Use and evaluation

In this phase, the results are evaluated and subsequently disseminated to the relevant stakeholders and decision-makers. The emphasis is on the responsible application of knowledge, the optimisation of resources, and the assurance that the transformative benefits of the ecosystem are fully realised.

The cross-cutting elements of the methodology, which are common to all four phases, are Governance, Continuous Iteration, Knowledge Management and Strategic Communication.

This methodology will facilitate the structured development of transformative ecosystems, paving the way for their subsequent piloting.

Following the piloting phase, the transformative ecosystems will be evaluated. In the event of a favourable outcome, the transformative ecosystems will be implemented in the health system.

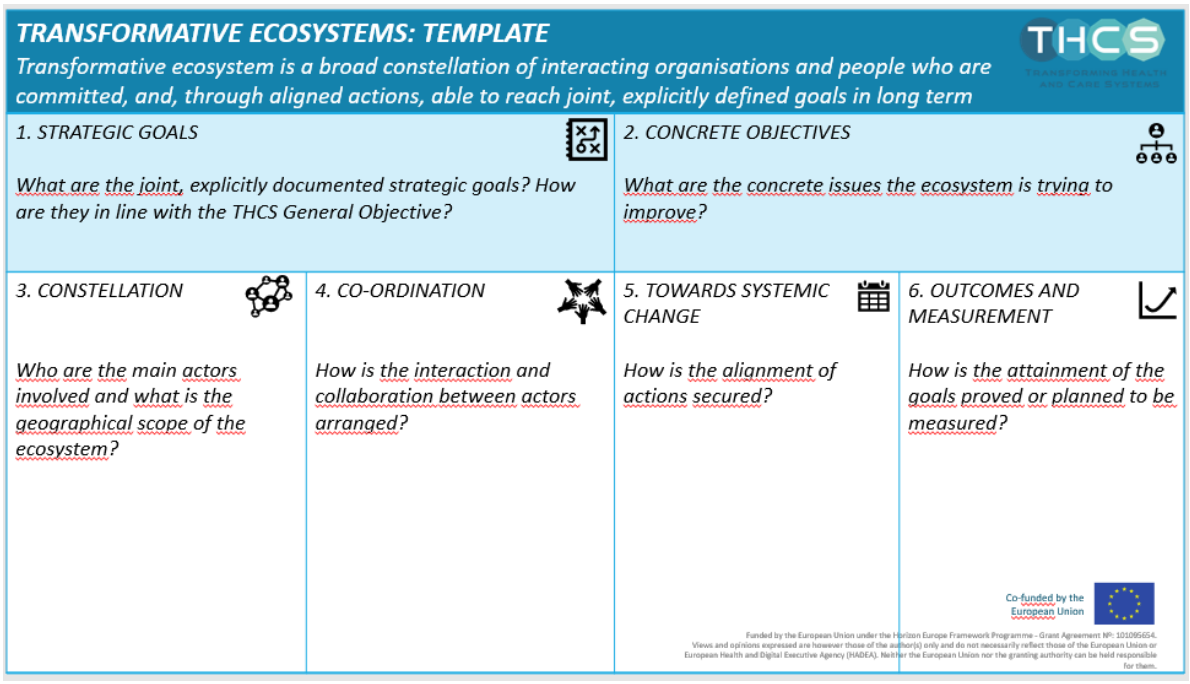
The successful evaluation of these ecosystems will be reported to the regional mirror group, which will assess their suitability based on the checklist developed by THCS/WP9. When their suitability is confirmed, notification will be provided to WP9, thus allowing validated ecosystems to be included in the catalogue.

10 GENERAL REFERENCES

- AAL Programme (2022). (last accessed 23 June 2023)
- Jacobides MG, Cennamo C, Gawer A. (2018). Towards a Theory of Ecosystems. Strat Mgmt J. 2018;39:2255–2276.
- Judah et al. (2020). New roads to the health innovation ecosystems of tomorrow. Innovation Ecosystems For The Healthcare Industry | Deloitte US
- NHS (2022). The healthcare ecosystem (Part of Introduction to healthcare technology). (last accessed 29 April 2023)

11 ANNEXES

11.1 Transformative Ecosystems in Health and Care: Template to Report Real Life Examples



TRANSFORMATIVE ECOSYSTEMS: TEMPLATE

Transformative ecosystem is a broad constellation of interacting organisations and people who are committed, and, through aligned actions, able to reach joint, explicitly defined goals in long term

1. STRATEGIC GOALS	2. CONCRETE OBJECTIVES		
What are the joint, explicitly documented strategic goals? How are they in line with the THCS General Objective?	What are the concrete issues the ecosystem is trying to improve?		
3. CONSTELLATION	4. CO-ORDINATION	5. TOWARDS SYSTEMIC CHANGE	6. OUTCOMES AND MEASUREMENT
Who are the main actors involved and what is the geographical scope of the ecosystem?	How is the interaction and collaboration between actors arranged?	How is the alignment of actions secured?	How is the attainment of the goals proved or planned to be measured?

11.2 NMG Questions

Table 9: NMG Questions

In your country, which organisation is responsible for organising a national mirror group (NMG) meeting?
Planned size of the NMG (large, small); roughly how many participants?
Modus operandi (varying or fixed composition, pre-existing group)?
If applicable, what role will be played by other THCS partner organisations in your country?
NMG members (organisation type)?
Which agenda items do you plan to include?
How do you plan to make mirror groups sustainable over time?
Specific terms of reference?
Planned date of mirror group meeting?
Fee for participants?

11.3 WP9 Mirror group questions

Table 10: WP9 Mirror group questions

NMG members (organisation type)
Which agenda items do you plan to include?
How do you plan to make mirror groups sustainable over time?
Specific terms of reference?
Planned date of national mirror group meeting?
Fee for participants?