ITHACA Framework Strategy

Expert Task Force
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1 Introduction

During the learning journey of the ITHACA Interreg Europe project the Expert Task Force has co-designed a framework strategy for innovating and scaling up smart health and care solutions. This strategy will reflect the evidence identified and generated from the lessons learned, recommendations and good practices flowing from the nine self assessments, exchange of experiences and peer evaluation events and casestudy reports. These have been carried out in all nine regions involved. Besides that evidence has been derived from literature reviewing, collaborative working at ITHACA events and the peer review of the Framework Strategy Content.

The purpose of this strategy is to give an interregional overview of the key learning insights on the three key pillars of ITHACA, concerning policy and innovation, ecosystems and innovation and implementation along the innovation cycle to establish:

(i) core elements of regional strategy for generating innovations for active and healthy living and ageing and scaling them up;

(ii) a checklist of content and process actions to consider when developing specific regional strategies.

This interregional overview can be used as a guide by the key stakeholders of each region who are involved in policymaking and regional strategy development. And who are responsible for the development of the regional action plan for their policy improvement within ITHACA.

In this document the ITHACA agenda will be explained including a short introduction about the key pillars. Also the interregional learning and exchange approach of ITHACA will be described.
After that the learning insights and recommendations for action planning per key pillar are described in three separate chapters.

2 ITHACA's Agenda

2.1 ITHACA objectives and smart specialisation

ITHACA's overarching goal is to improve regional policies and implementation across the smart health and care innovation cycle (from invention through market testing/validation to scaling up) and enhance regional and interregional ecosystems. This will accelerate the scaling up smart solutions for *active and healthy living and ageing* and thereby secure the triple win of increased investment, economic growth, more sustainable health and care systems and improved wellbeing of Europe's citizens.

The project has a series of objectives and sub-objectives. The primary objective is to:

- Improve the quality of nine EU regional development and smart specialisation policy instruments and enhance the effectiveness of their implementation.

Key sub-objectives are to:

- Produce robust self, peer and expert assessments of each ITHACA region's policy, practice and ecosystem thereby improving learning cultures and knowledge for all stakeholders in the smart health/care ecosystem and value chain – bringing about real change to policy, practice and impact.
- Develop nine regional action plans to enhance regional policy instruments and to refine and verify their goals (using ITHACA's framework strategy for innovating and scaling up smart health and care solutions and toolkit to guide action plan creation).
- Disseminate ITHACA's learning directly to at least 30 other EU regions (with a particular focus on CEE regions), to relevant European networks and to targeted EU and national policy makers in the digital, health and innovation spheres.
- Strengthen ITHACA regions' regional and interregional quadruple helix (public authority, academic institution, private sector, civil society) clusters to build the European market in smart health and care solutions for active and healthy ageing.

Smart *specialisation* is an innovative approach that aims to boost growth and jobs in Europe, by enabling each region to identify and develop its own competitive advantages. Through its partnership and bottom-up approach, smart specialisation brings together local authorities, academia, business spheres and the civil society (the quadruple helix) working for the implementation of long-term growth strategies supported by EU funds.

2.2 Challenges and opportunities of ageing

Ageing is one of today's major societal challenges in the EU affecting labour markets and public spending – and hence the sustainability of health and care systems. Demographic developments are leading to a quickly growing number of elderly people, persons with multiple deceases and people with chronic diseases. Europe has the highest burden in the world of chronic diseases, which account for about 75% of health and long-term care spending and 85% of all deaths.

This development will drastically increase the number of hospitalizations. At the same time, the number of very treatment-intensive diseases is growing. The advances in treatment technology and new medicine makes it possible to treat more patients earlier, better, more efficiently and for a longer period. Citizens and patient groups demand more coherent and well-functioning clinical pathways that can be adapted to the individual. Overall, the

population expects better health service. Ageing will also have a strong impact on the labour market. The ratio of working people versus inactive people is projected to change dramatically in the coming decades.

EU countries' public spending on pensions, healthcare, long-term care, and education will increase substantially in the future. Smart innovation – with or without the involvement ICT – can help turn the ageing challenge into an opportunity, to achieve a triple win: better quality of life for older citizens and their carers, more efficient and sustainable care systems, and new market opportunities and economic growth. Ageing has a large potential for driving innovation, e.g. by exploiting the big and growing 'silver market'. Regions and member states have to address this challenge of ageing by coming up with solutions that really work and at the same foster regional growth.

The recognition of the above-mentioned challenges is evidenced by policy development and initiatives taken as demonstrated by the ITHACA partner regions to the visiting delegations as part of their respective EEPS.
Examples include the newly adopted Active Ageing Strategy (Jan. 2018) in Slovenia and the strong focus on the silver economy and healthy ageing at all governmental levels in Nouvelle-Aquitaine.
Further, the region of Noord-Brabant is a 3-star European Reference Site within the European Innovation Partnership for Active and Healthy Ageing (EIP AHA) as well as a leading player in the Smart Health and innovation field in the Netherlands and internationally. Just to mention a few.

The challenge to make active and healthy ageing a reality by keeping older people healthy, independent with a high quality of life needs to be addressed in a comprehensive way. This challenge is at very centre of the ITHACA project.

However, the challenge also creates enormous opportunities for the EU members to think creatively and innovate in terms of new technologies, improved services and new business models.

The challenge is to be tackled by linking different players in the innovation value chain. This should to the extent possible and relevant involve quadruple helix stakeholders encompassing government (providers of health and care services), industry (SME's and other companies), academia (research and education) and citizens.

They should include: (1) those in the health and care systems as well as citizens who face problems and challenges, (2) developers of innovative products, services and solutions, and (3) those that implement these innovative solutions or use them on a daily basis.

2.3 Key pillars

ITHACA's nine EU partner regions have a shared ambition to accelerate the scaling up of smart health and care innovation that can support active and healthy living and secure the triple win of economic growth, more sustainable health and care systems and improved wellbeing of Europe's citizens. Given this objective, ITHACA's primary goal is to:

- improve Structural Funds' policies and implementation across the smart health and care innovation cycle (invention, cocreation, market testing, validation and scaling up),
- *enhance regional and interregional ecosystems*.

To achieve its objective, the ITHACA activities are therefore focussing on three key pillars that are interrelated and of importance for accelarting the scaling up of innovations in health and care:

1. Regional policies and strategies;
2. Ecosystems
3. Implementation across the innovation cycle

2.4 Interregional exchange and learning approach

A cross cutting theme for all the three key pillars is interregional mutual learning. 'Policy learning' within the context of ITHACA can be defined as adjusting Structural Funds' policy instruments but also the understandings and beliefs related to it (Dunlop & Radaelli, 2013; Moyson, Scholten & Weible, 2017). This is why ITHACA's policy learning approach follows four structuring core questions:

1. Who learns (i.e. which individual actors and organizations)?
2. What is learned (i.e. good practices, failures)?
3. How and why do they learn (i.e. workshops, videos, manuals and learning objectives)?
4. What is the effect of this learning (i.e. policy enhancement, change of programmes, change of goals)?

2.4.1 Learning on different levels

Policy learning within the ITHACA project occurs on all levels. On the micro- (individuals), meso- (organizations) and macro-level (system), in a policy process that will last five years in total. It consists of a variety of policy actors, interacting to influence government decisions in the area of health and care innovations which typically encompass health- and social care policies as well as innovation policies influenced by ERDF. Policy actors of the nine ITHACA regions come from various organizational affiliations: they include politicians and public officials, health professionals and managers of public organizations and private enterprises, members of pressure groups, academics and researchers, but also active citizens and patients.

In policy learning literature this is addressed by Hall (1989, 1993).
Micro-level approaches assume that learning occurs within and among individuals within specific social settings (also called 'social learning' by Hall 1989; 1993). Meso-level analysis looks at the increase of knowledge and intelligence in organizations and changes in their effectiveness in resolving problems or in the policy positions that they advocate (Moyson, Scholten & Weible, 2017: 162). Following Argyris & Schön (1996), learning involves the detection and correction of errors, which allow organizations to implement their objectives and norms (single-loop learning) and to modify those norms and objectives (double-loop learning). Macro-level approaches study how learning occurs at the system level, often across departments and policy areas (i.e. 'lesson drawing' by Rose, 1991).

If learning occurs among individuals (micro-level) than upscaling this knowledge across a collective in an organization (meso-level) or system (macro-level) is not necessarily following a linear path. It depends on range of factors including the network structure among individuals and the various rules governing the exchange of information and decision-making (Moyson, Scholten & Weible, 2017: 165; Witting & Moyson, 2015). Therefore, ITHACA's modular and comprehensive policy learning approach addresses all three types of learning:

- Single-loop-learning which is focussing primarily on efficiency of policy making.
- Double-loop-learning which is targeting the effectiveness of certain policies.
- Triple-/reflexive-learning, analysing an organization's capacity to learn (learn how to learn).

2.4.2 Transfer-oriented instrumental learning approach

ITHACA uses proven policy enhancement methodologies of single loop learning and interregional co-design to improve programmes and policies combined with reflexive learning to improve mutual learning performance and impact on regional action plan development for policy improvement.

The ITHACA approach builds upon *lessons drawing* (Rose, 1991) and *apprenticeship methods* (Pratt, 1998) that emphasise the specific needs and context for applying learning and transferring of good practices. From each region an expert in the policy field of Active and Healthy Ageing participates in an Expert Taskforce (ETF). In 2017 and 2018 the following learning activities have been carried out with support of the experts of the Expert Task Force of ITHACA:

- Exchange of good practices
- Mutual learning
- Peer assessment
- Targeted coaching and feedback. In 2018 the focus has been on the regional self-assessments and seven Exchange of Experience and Peer Evaluation events (EEPE's) and casestudies. An external impact expert offered a communication and impact tool to support a first step of collective co-designed policy development/ improvement of the regional stakeholder networks.

From the EEPE's in 2017 and 2018 several lessons can be drawn already that need to be translated to the improvement of the regional existing policy instrument and/or programmes for dealing with the societal challenge of active and healthy ageing (AHA).

Besides that we identified a mutual challenge of scaling up innovations. Existing policy instruments have not succeeded in solving this challenge and no good practices with regard to this matter were identified.

The value of the existing policy instruments towards the implementation and scaling up of innovations in a changing landscape: a society that evolves from hospitalized cure-thinking and ill-oriented thinking to more emphasis on community-care and prevention and active and healthy ageing oriented thinking, needs rethinking.
How can existing policy instruments be improved to correspond better to the changing environment? How can the regional stakeholder networks develop collectively regional action plans for policy improvement that is based on a more impact driven approach?

2.4.3 Improvement of the ITHACA learning performance and impact

Two learning themes are of concern for the improvement of the ITHACA partners' learning performance and impact during phase 1 of the project.

Learning about impact
During several ETF-meetings all partners have worked out a Theory of Change with their key stakeholders in the region to make the expected impact of their policy instrument improvement explicit. This approach is based upon the procedure of Backcasting (Robinson, 1988): what do you wish in the future and which actions and stakeholders are needed to reach that future. An expert has been involved who supported the use of this tool.
We decided that for the development of the regional action plans it-is important to integrate actions that will help to monitor the expected and achieved impact during the implementation of the action plan in phase 2.

Learning about transformative learning
Views have been shared that scaling up of innovations will take place in a relatively unknown future of a transforming society with fundamental system changes. To align the existing policy instrument better to this changing environment, the object of learning about the policy instrument improvement needs to be expanded to the learning about the paradigm shift. Therefore, an adjustment of the current learning-process has to take place in order to achieve a blended learning approach: besides the existing *single loop learning* and *reflexive learning* related to learning types like *lessons drawing (1)* and *the apprenticeship (2)* "learning by doing approach" within a professional community of novices and experts, a strong collaboration and *collective transformative learning* (3) of a variety of stakeholders from different perspectives in each region is required. In table 1 an overview is given of the mix of learning theories, expanded with reflexive learning related to transformative learning.

Table 1: Blended learning approach to achieve transformation.

Learning type	**Who?**	**Object of learning**	**Effect of learning**
1.Lessons drawing (Rose, 1991)	Policy makers in cities, regional governments and nations learn from positive (good practices) and negative experiences (failures) of their counterparts elsewhere, confronted with common problems in how to deal better with their own problems (reduce dissatisfaction with their existing policy). Key is the seeking for lessons from current experiences in other places.	Policy instrument, programmes	Change in instrument or programmes 1. existing programme will be copied by another region 2. a model of a good practice is tailored to the other region 3. hybridization: elements of two good practices are combined into a new project. 4. elements of a variety are combined in one new programme or project 5. inspiration by good practices, programmes of others to stimulate development of a domestic one
2.Apprenticeship (Pratt, 1998)	Learning by doing in practice/ real settings: development of skilled competences, building of cognitive structures and adoption of language, values and practices of a specific social group.	Competences and social identity within a specific community of novices and experts	Complex reasoning becomes routine: "the longer doing complex tasks the more routine they come". Learners have learned just to do it, with less need to articulate what they do.
3.Transformative social learning (Mezirow, 1991, O'Sullivan, 1999, Taylor and Laros, 2014)) In policy learning literature this is	Broad diversity of stakeholders, individual and collective transdisciplinary learning, reflecting on the content of the problem, the process of problem-solving and premise of the problem.	Societal challenges and Paradigm Shift Puzzles of policy making within policy communities (as a process	Fundamental change in policy paradigm and change in goals, values of the policy, emerging from learning (Hall, 1989): • First order learning: lessons regarding the setting of

addressed by Hall (1989, 1993)	According to Hall: normally politics or policy making is associated with learning about instruments while learning about policy goals occurs only in special circumstances associated with shifts in 'policy paradigms' or changes in the dominant set of policy ideas which shape discourse in the policy making process.	of problem solving instead of a struggle for power)	existing instruments are derived from past experiences (single loop learning, Schön, 1983) • Second order learning: the use of various instruments is considered (double loop learning affects the governance, Schön, 1983) • Third order learning: changes involve the hierarchy of goals behind the policy itself. Learning affects fundamental beliefs and values that underlie public policies. (triple loop/ reflexive learning, Schön, 1983)
Reflexive learning is one of the three central constructs of transformative learning theory, the other two are: experiences and dialogue (Mezirow, 1991). Reflexive learning distinguishes three different forms of reflection (Dewey, 1933, Schön, 1983, Eraut, 1995): 1. Reflection 'in action'– kind of reflection that occurs whilst a problem is being addressed (Schön, 1983) 2. Reflection 'on action' – that takes place after the event, it's consciously undertaken and documented (Schön, 1983) 3. Reflection 'for action' – adds a prospective value to reflection (Eraut, 1995). Eraut proposes to redefine the prepositions so that 'in' refers to context, 'on' refers to focus and 'for' refers to purpose. **Goal for ITHACA:** Improving the learning performance of regional stakeholder networks and interregional network of ITHACA by getting a better insight in the regional and interregional learning systems (triple loop learning about learning, covering all three learning orders) and increase the learning impact of the regional stakeholder networks by the means of supportive learning tools for critical reflection, dialogue and experiences.			

In the learning literature on policy learning and change the traditions of learning applied to the network setting often seemed to follow the tradition of small improvements (incremental), even without common object or activity (Knight, 2002, Bennet and Howlett, 1992). The last few years, due to the paradigm shift in society and need for systemic change, there is a growing tendency towards more transformative social learning based on dialogue between diverse actors in open systems (Macintyre Latta et all, 2018; Moyson, Scholten & Weible, 2017).

It requires involvement of stakeholders at both personal and collective level to bridge the gap between a designed future and the implementation of the reality of innovations in the design of new and shared meanings (Engeström, 2004, 2007). Although the recent growth of attention for the importance of learning in networks has been highlighted in earlier studies the actual processes and outcomes have remained less studied (Kallio & Lappalainen, 2015, Taylor & Laros, 2014).

The ITHACA project offers the opportunity to the consortium and regional stakeholder networkers to experiment with reflexive learning and dialogue about different perspectives related to transformative learning during the development process of the regional action planning. This will improve the learning impact on the final regional action plans for policy improvement. It will also offer a better insight in how this learning can be integrated as an action in their regional action plans for the improvement of their existing policy instruments on the topic of increasing the learning performance of the regional stakeholder network.

3 Pillar 1: Strategies and Policies

3.1 Broad scope of strategies & policies, rationale and pre-requisites

In the ITHACA project policies and strategies aim to accelerate the scaling up of smart health and care innovation that can support active and healthy living and secure the triple win of economic growth, more sustainable health and care systems and improved wellbeing of citizens. If they are to be effective, regional strategies and policies should build in:

- a clear vision of regional ambition;
- an assessment of existing regional strengths and assets – along with identification of areas for improvement;
- clearly specified specific, measurable, achievable, realistic, time-bound and verifiable aims and objectives that reflect challenges to be met and opportunities to be exploited;
- a strategic delivery programme - focusing on design delivery and scaling of smart and other solutions to achieve aims and objectives;
- a strategy and policy development process that involves, in a meaningful way, and empowers stakeholders from across the quadruple-helix eco-system - including citizens, end-users, industry, academia/research and the public sector;
- active involvement of target populations in the design of strategies and policies, their planning and implementation stages;
- learning and good practices from elsewhere in formulating strategy and policies;
- evidence-based approach which will help to identify needs, strengths, gaps and opportunities, contribute to effective strategy and policy design and ensure continuous improvement;
- learning focus, which emphasizes the need to share learned lessons with stakeholders from across the quadruple-helix eco-system and to collect their feedback to continuously adapt and improve strategies and policies;
- commitment to transparency and accountability in order to foster their success;
- focus on opportunities and possibilities for quality living for all generations, and for dignified ageing.

Important pre-requisites include:

- leadership from political decision makers and other stakeholders;
- awareness of the leading policy makers and officials and their support;
- mutual recognition of the economic and health benefits that can flow from scaling up innovation in health, care and well-being;
- potential to secure financial and human resources capacity to match defined ambitions and agendas
- a willingness for all stakeholders to shape a consensual approach to developing strategy and policies;

- awareness of demographic changes that require existing systems and arrangements to be adapted to leverage the capabilities of the altered age structure.
- awareness of the importance of learning on different levels: personal level, organisational level, regional level and interregional level, for improvement and change of the policy and underlying values and goals to achieve systemic change that is needed to solve the wicked challenges of active and healthy ageing.

3.2 Strategic and Policy Content

3.2.1 Core content/essential requirements

Evidence from the Liverpool City Region EEPE-and Case Study report suggests that the following aspects could be considered as "core content" and essential for effective regional strategies and policies that address ITHACA's scaling up focus and ambitions:

- shifting from an "illness centred" to a "health and well-being centred" approach;
- integrating health and care;
- reducing health inequalities;
- the health and care sector being a driver for economic development – including to address social determinants of health;
- strengthening eco-systems to boost collaboration – including, critically, between businesses and health and care practitioners;
- reinforcing the involvement of citizens in innovation for the health and care sector;
- supporting SMEs to commercialise and export new and adapted services and product solutions for the health and care sector;
- continuous progress assessment that builds in learning from within – including when activities do not achieve desired goals.

In addition to the aspects presented above, following aspects resulting from Slovenian self-assessment, EEPE-and case study could be considered:

- clearly defined standards related to technology-enables services in smart health and care;
- development of health sector policy and strategy, and future planning on financial aspects of healthcare;
- integration of the policy makers operating in the field of long-term care;
- shift in policymakers' mind-set on long-term care – from short-term to long-term focus;
- stronger involvement of policy makers and care providers in the ecosystems;
- stronger involvement of the civil society representatives in the (future) partnerships;
- building a bridge between stakeholders and those who implement strategies and policies;
- long-term care pilot projects as a starting point to gather evidence to inform the Slovenian Long-term Care Law;
- support for bringing pilots – within which new solutions are being tested with the purpose of integrating them into the system – to the next step is needed;
- national body coordinating and stimulating formation of new (collaborative) ecosystems is needed;
- implementation of good practices into the national healthcare system;
- simpler procedures with less bureaucracy.

In addition to the aspects presented above, following aspects resulting from the Noord-Brabant self-assessment, EEPE-and casestudy could be considered as “core content” and essential for effective regional strategies and policies that address the wicked challenge of Active and Healthy Ageing (AHA) and ITHACA’s scaling up focus and ambitions:

- a new economic vision that is based on inclusive growth to solve cross-sectoral challlenges such as unhealthy living environments, special needs of people who are less resilient and/or unemployment of people with a lower education level, that are of great concern for active and healthy ageing despite of the existing economic growth and existing smart health solutions;
- translation of the policy and strategies into an integrated regional policy to create crossovers to other sectors such as the social sector, food sector, financial sector to integrate smart health solutions to cover the whole spectrum and achieve impact in terms of a better balance between social, ecological and economic benefits;
- stimulation and facilitation of local transformative learning initiatives in general of regional innovation networks to solve step by step the silos between sectors and in specfic of social entrepeneurs who generate innovations from crossovers between different sectors of Food, Health, Social Care and Mobility.
- strengtening the collaboration of regional innovation partnerships of the health an care sector with social innovators such as social enterprises to achieve societal impact for AHA;
- besides learning from good pactices of social enterprises, a stronger coordination on the political level is important in order to support the learning between different ecoystems in the region, but also between regions and to make sure that lessons learned are translated into policy for inclusive growth;
- improvement of the quadruple helix stakeholder involvement – inclucing citizens – by engaging all stakeholders from the start of policy improvement processes;
- reacting pro-actively in solving the barrier of friction costs in innovation partnerships by developing new financial models and adapting these to the regional context.

3.2.2 Items for Consideration

Evidence from the EEPE’s and Case Study reports so far, also suggests that, depending on current regional circumstances, context and priorities, the following specific aspects could also enhance the effectiveness of regional strategies and policies that address ITHACA’s scaling up focus and ambitions:

- **aligning with and influencing the content of other strategies and policies** that impact on health, care and innovation – whether higher tier (eg national), regional (eg smart specialisation and structural fund strategies or healthcare strategies) or lower tier (eg municipality);
- **health and life science priorities**: such as precision medicine, children’s health, independent living, self-care, community care and ehealth;
- **digital and creative priorities**: such as big data and predictive analytics, cognitive computing, sensor technology and gaming;
- addressing attracting research **funding and investment** for commercialising innovations;

- developing resources and settings for **early stage innovation** and, particularly, testing and **validation in real world settings** (supporting a living lab type process) – including on a trans-national footprint.

Additional check list considerations based on Liverpool City Region experience (1)

Healthy Liverpool content linked to *health and life science priorities* included a focus on:

- *Living Well:* supporting people to become healthier by increasing physical activity levels for people who are inactive or moderately active;
- *Community care:* creating a person-centred care model with integrated planning, commissioning and delivery and a strong focus on "self-care" (i.e. managing their own health and well-being), pro-active care (targeting people at most risk) and independent living)

Additional check list considerations based on Liverpool City Region experience (2)

Healthy Liverpool content linked to *digital* priorities included a digital focus on:

- Integrated health and social care records – ensuring that health and care professionals are able to access and exchange digitally all clinical records;
- Person held records
- Assistive technology (enabling people to utilise digital technologies to manage their own care - including assistive technologies and apps;
- Predictive analytics to provide "intelligence-led healthcare"
- Embedding genomic medicine into health and care service.

Additional check list considerations based on Slovenia experience (1)

Active ageing strategy content linked to *population's well-being and quality of life* priorities included four pillars of necessary adjustments and changes:

- Employment (adjustments on the labour market, including education and training, and provision of sufficient labour through net immigration);
- Independent, healthy and safe living for all generations (systems of social protection, accessibility of healthcare and long-term care services, concern for health, reducing inequalities in healthcare);
- Participation in society (intergenerational cooperation, volunteering, use of ICT in communication, prevention of discrimination and violence in society, political activity);
- Environment enabling an active life throughout the life course (adjustments to the economy, dwelling conditions and transport systems with the support of ICT and technological solutions).

Additional check list considerations based on Noord-Brabant experience (1)

Smart Health validation and scaling strategy content aiming at a longer and healthier living of citizens by the means of building regional capacity of multi-stakholders partnerships in local transformative learning practices to anticipate on a soci-economic paradigm shift through the following actions:

- awareness raising and understanding of the transformation from an industrial society (1) to an experience society (2) (where either mass consumption or experiences of groups of people are supported from top down) to a knowledge society (3) (in which knowledge platforms support people in their self actualisation) to a transformation society or purpose economy (4) (where local and regional multi-stakeholder networks create impact on the UN Sustainable Development Goals (SDG's), aiming at a meaningful life in a sustainable and inclusive society);
- facilitating cooperation with social innovators and social entrepeneurs in a variety of local network intiatives creating multiple value (examples are Lokaal Plus, Brainport Smart District);
- developing new training and education programmes for the adaptation of smart health innovations in daily practice and realisation of an inclusive workforce – including people with lower education levels;
- developing an impact monitoring instrument to demonstrate the multiple value of innovations from different perspectives (social, ecological, economic), including the value perspective of the end benificaries;
- connecting the transformative leaning insights of the local practices to European learning networks such as CORAL and EIP AHA and outside Europe by taking the UN SDG's as a shared agenda.

3.3 Strategic and Policy Development Process

Key elements of the ITHACA informed strategy and policy development process include:

- involving, in a meaningful way, stakeholders from across the eco-system - citizens, end-users, industry, academia/research and the public sector;
- adopting a consensual approach to secure a widespread sense of ownership of the developed strategy and policies;
- building on existing regional strengths and assets whilst recognising areas for improvement;
- utilising learning and good practices from elsewhere.

4 Pillar 2: Ecosystems

4.1 The quadruple helix, rationale and pre-requisites

A key sub-objective of the project is to produce robust self, peer and expert assessments of each ITHACA region's policy, practice and *ecosystem* thereby improving learning cultures and knowledge for all stakeholders in the smart health/care ecosystem and value chain – bringing about real change to policy, practice and impact.

We have experienced through ITHACA EEPEs a large and diverse range of quadruple helix collaborations to innovative smart health/care solutions. The challenges of SCALE, TRANSFER and MAINSTREAM remain exclusive, however. All regions are still primarily operating in the space of invention and project deployment. What is now needed is to take the development a step further.

This section gives guiding recommendations on how to improve regional ecosystems as a policy improvement action.

4.1.1 Definitions and characteristics

First, it is important to define what we mean by ecosystems in an ITHACA context.

An ecosystem, in the natural world, is defined by British botanist Arthur Tansley, as a "localized community of living organisms interacting with each other and their particular environment of air, water, mineral soil, and other elements".

To take this into the context of ITHACA, we also need to consider the "business rationale" of James Moore, who first brought the ecosystem concept to economics. According to Moore a "business ecosystem is a smart and new way of creating innovation to ensure marked advantages. Ecosystems are business connections that go beyond traditional industry silos, which can create new opportunities, especially for boosting innovation, alongside constant new challenges in an ever changing highly competitive marked."

The ecosystem business model i*s thus seen as "an opportunity for creating powerful new competitive advantage"*.

A more elaborate broader description is provided in the table below:

Table 5.1 Defining business ecosystems

Ecosystems are **dynamic and co-evolving communities of diverse actors**	Ecosystems typically bring together multiple players of different types and sizes in order to create, scale, and serve markets in ways that are beyond the capacity of any single organisation – or even any traditional industry. Their diversity – and their collective ability to learn, adapt – and crucially – innovate together – are key determinants of their longer-term success.
who create and capture **new value**	Enabled by greatly enhanced connectivity across specialised capabilities and resources, ecosystems develop new, co-created solutions that address fundamental human needs and desires and growing societal challenges. While forging superior ways to create new value, ecosystems also increase the importance of discovering new business models to

	capture that value in a world of commoditisation and “de-monetisation.”
through both **collaboration and competition**	Competition, while still essential, is certainly not the sole driver of sustained success. Participants are additionally incentivised by shared interests, goals, and values, as well as by the growing need to collaborate in order to meet increasing customer demands, to invest in the long-term health of their shared ecosystem, from which all can derive mutual benefit.

Source: Eamonn Kelly, Deloitte in: Business ecosystems come of age, Deloitte University Press, 2015

Identified elements derived from the learning and exchange within the ITHACA project can be considered as core elements of Smart Health and Care Ecosystems in ITHACA. This leads to the conclusion that Smart Health and Care Ecosystems:

- consist of stakeholders interacting within the parameters of a smart health/care environment, it can both be a structured and conscious process or something that exist without anybody paying any awareness to the importance of the practice;
- may also use the concept of sub-ecosystems, defined as subsets of the overall health/care-related ecosystem: if the overall ecosystem is assumed to address the multitude of challenges and opportunities within health and care, a sub-ecosystem may be one that focuses on the subsection of datamining, data analysis, and use of analytical results for personalised medicine as an example;
- actively engage stakeholders from four different groups of interested parties – referred to as quadruple helix participants: businesses, government, research and education and citizens and civil society;
- break down the traditional silos between government, industry, academia, and civil participants;
- bring multidisciplinary viewpoints together in an environment that promotes team working, collaboration and the sharing of ideas can create new shared value that benefits all participants in what becomes an all-inclusive innovation ecosystem;
- are undoubtedly complex entities, requiring a larger and great diversity of actors, new skills, different approaches and relationships;.
- are a way to optimise the organisational capacity to try doing new things and differently, scaling “smart” will not be achieved by continuing to approach our health/care challenges as we have done to date – "Insanity is doing the same thing over and over again and expecting different results.";
- overall, in terms of policy and practise, can facilitate engagement and collaboration between relevant actors, including the policy actors to help on one hand practice to move closer to the desired vision and on the other hand to improve and impact policy based on the identified barriers in the practice of the stakeholders in the ecosystem;
- enable local exploration and overcoming challenges jointly. As ECHAlliance puts it, an ecosystem is a multi-stakeholder group from a geographical area (region or country) committed to work together on a regular basis;
- in the real world are fluid structures that might be fragmented (ecosystems within ecosystems) and unformalised. Anyhow, they still exist be it in a formalised or unformalised form;
- offer an opportunity to leverage trans-regional insight, knowledge and collaboration.

Pre-requisites are:

- a wide range of stakeholders need to be engaged, as suggested by the quadruple helix model, to support and strengthen the (ongoing) development of regional ecosystems and the activities that flow from them;
- the value of ecosystems needs to be characterised by a long-term view, focusing on improved social conditions as well as company performance;
- the impact of ecosystems on policy and practice needs to be measured for the ecosystem as a whole, rather than individual units should be measured in terms of triple win settings;
- for the translation of policy to practice the focus on "smart health and care eco systems" includes development, testing and deployment of, or combination of assets in innovative ways to support active and healthy living: these assets typically include digital products and data but also citizens' personal assets (e.g. skills, family, friends, neighbours etc.) cultural, environmental and economic assets;
- ITHACA ecosystems cannot just offer a business model for creating powerful competitive advantage, they must also support the easing of societal challenges relating to delivery of health/care in the face of increasing demand within static/reduced resources.

In conclusion, within an ITHACA context, a quadruple helix based ecosystem is defined as a community of stakeholders interacting as a formal or informal system(s), which offers threefold, triple-win, opportunities – for citizen, business and the health and care system with a view to have a positive impact upon society and business.

Ecosystems offer routes to dialogue, facing challenges jointly, collaboration and sharing, a highly complex way of interacting and braking down silos, between multiple interest, skills and approaches, with the aim of identifying the best way to bring about improvements in the field of active and healthy living.

Examples of regional ecosystems

Liverpool City Region
In Liverpool City Region, the eco-systems that are based on a quadruple helix approach include:

- The Liverpool City Region Innovation Board
- The eHealth Cluster;
- HELIUM.

Liverpool City Region Innovation Board is responsible for driving the strategic development of the City Region's innovation agenda. The City Region's Local Enterprise Partnership services and facilitates the Innovation Board. It primarily aims to deliver the City Region Growth Strategy by translating knowledge and ideas into commercial activities, and to accelerate the growth and competitiveness of the City Region's economy. The Innovation Board comprises a series of strategically important stakeholders within Liverpool City Region. Including Unilever, there are leading industry representatives, Innovate UK, STFC, Liverpool University and Liverpool John Moores Universities, Liverpool CCG, Liverpool Health Partners, and the Combined Authority (made up of all City Region local authorities).

LCR eHealth Cluster was launched in 2013 by a small group of technology sector SMEs that had an interest in working in the health and care sector. This grassroots initiative, whilst remaining SME-led, has expanded to become a multi-sectoral cluster with 330 individuals engaged. It brings together large organisations, like LCCG and Liverpool City Council, with social care providers and SMEs. The cluster's SMEs are from diverse sectors

- technology companies, domiciliary care providers and charities that provide supportive living. The cluster creates entry points into the ecosystem for these different groups and enables members to develop an understanding of what different members and groups are seeking to achieve. Strategically, the eHealth cluster is a vehicle for marrying the "social model of health" with clinical needs and the technology sector. In this way, it promotes a focus on innovation in prevention, self-care, well-being and quality of life matters.

HELIUM is an Interreg project engaged in the smart health and care sector. HELIUM has formed a Liverpool City Region Steering Group that brings together academia with health commissioners and providers, and the multi-sectoral eHealth Cluster. It is a dementia-focused, intersectoral partnership to enhance the city region's living lab capacity. HELIUM builds on the earlier Innovate Dementia Interreg project that aimed to develop innovative, transferable dementia care models by exploring how technology and innovation can develop products and ways of living that can improve quality of life for people living with dementia and their families. It provides further opportunity to share transnational learning through good practices dedicated to health innovation. Specifically, it aims to create a large scale, accessible, attractive, connected and sustainable experimental landscape. The Living Lab approach is at the heart of this approach.Examples of ITHACA partner ecosystems.

4.2 Ecosystem challenges

How to achieve the ITHACA aim of *"Produc(ing) robust self, peer and expert assessments of each ITHACA region's policy, practice and ecosystem"*.

After two years of ITHACA activity, partners acknowledge that *"improving learning cultures and knowledge for all stakeholders in the smart health/care ecosystem"* with the purpose of *"bringing about real change to policy, practice and impact*" presents complex challenges.

ITHACA partners' ecosystems are at different stages of conception and development. Some exist formally, others informally in diverse forms, both as well-defined systems or small fragmented systems. What is clear is that partner ecosystems are different and reflect local context, culture and actors. A first ITHACA assessment found it difficult to identify key common tendencies or rationales about how regional ecosystems works.

Through further collaboration and dialogue, common challenges the ITHACA partners met as well as needed support are beginning to become apparent including:

- How to facilitate stakeholder engagement. Should we play an engaging role and how much?
- Ecosystems are self-running systems, but only in theory. In practice, they seem to require ongoing support and maintenance to flourish.
- Is it true that successful ecosystems are not owned or managed by any stakeholder and there may be conflicts in system leadership?
- Ecosystem development must be approached as more than a management task or an academic exercise for regions?
- How policy can support ecosystems and be more eco-system friendly?
- How do you make sure an ecosystem lever diversity of interest and skills?
- Interaction with other smart specialisation ecosystems, e.g. transport, manufacture, environment etc. is difficult but can add value.
- How much time should be used on understanding stakeholder interest in, benefit from and capacity to engage in ecosystems is essential.
- Identifying "super" actors and connectors, who can act as ecosystem champions, is key?

As a result of many hours discussion the ITHACA partners reached the conclusion *that there are not right answer to any of these questions*. Regional stakeholders cannot do everything but need work with what is their disposition.

4.3 Ecosystem development

This section sets out a framework for self, peer and expert assessment, a "check-list" to help partners identify challenges and possible actions to boost the regional ecosystems.

A. Determine needs for innovation and thereby focus areas of local ecosystems

- Identify possible key focus areas within health and care for ecosystems and sub-ecosystems in your region. This could be based on some of the following:
  - Societal challenges within health and care in general as expressed in politics, the press, society debate etc.
  - Issues and challenges within health and care of importance to your region
  - Existing studies on issues and challenges
  - Issues, challenges and subjects considered important by quadruple helix stakeholders in your region
  - New technological advances that could be brought into play in innovation processes
  - Experience and good practices from other ITHACA regions and elsewhere.

B. Establish context and assets to build on

Why "building" or supporting growth of local ecosystems

Before any work is undertaken on "building" or supporting growth of local ecosystems, work must be progressed to address the following key questions:

- WHY you want to engage stakeholders (it will differ for different groups)
- WHAT you need/require from that engagement
- HOW engagement will impact upon stakeholders (shorty, medium and long term).

Establishing point of departure

Recognise that you are unlikely to be starting with a "blank-page". Therefore, explore your region to identify what already exists and is contributing to triple win outcomes that could form part of the ecosystem. This could be done through:

- Assessment of existing ecosystems, sub-ecosystems, multi-stakeholder organisations, networks and similar structures or organisational formations that resemble ecosystems.
- Mapping of stakeholders in your region that may participate in ecosystems to assess their potential contributions, value and utility for themselves. This exercise is described in Section C: Understand stakeholders to engage effectively below.

This is an asset-based approach,[1] i.e. it builds upon existing resources and strengths rather than trying to make something new. Asset-based development is more economical and sustainable.

[1] https://www.nurturedevelopment.org/blog/asset-based-community-development-5-core-principles

Failing to take this approach risks alienating key ecosystem stakeholders (who are already working to the same goal as you or an element of your goal/triple win).

Some common ecosystem elements may be important to bear in mind as a starting point:

- Ecosystems will always be there. They have their limits, which we cannot always control.
- An ecosystem is not a value in itself – it is how we use the opportunity that makes it a resource.
- Ecosystems still maintain silos in the stakeholder involvement: there are often a missing link to politicians and policy makers. A policy improvement is to better bridge between policy and what is happening on the ground. In addition, we are often missing policy makers from economic fields that might be important to structure.
- Lack of interconnected learning on different levels. We can facilitate learning at personal, local, regional and national levels.

Be creative, create capacity

As noted above, ecosystems are complex and achieving impact at scale is difficult. While health and care related challenges are generally common, regions are comprised of unique assets and actors. Therefore, you region may be able to learn from colleagues in other regions, *BUT there is no blueprint!* All that is offered in this document are checks to help you on your way.

You will need time, permission and capacity to dedicate to ecosystem development. Stakeholders will require the same to engage effectively. Experience to date across ITHACA partners indicates that the capacity of many stakeholders is limited. Consequently, you may have to be creative in relation to how you optimise local resources to enhance capacity of stakeholders, including your own organisation's capacity.

C. Understand stakeholders to engage effectively

Explore your region to understand:

Government / policy

Initially those relating to health, care and economic development. Include regions, local government (municipalities and similar organisations).

- Policy and strategy in the field of health and care
- Policy and strategy formulation in the field of innovation
- Existence of explicit needs for innovation
- Interest and willingness to engage in innovation activities
- Desire to innovate and involve ecosystem stakeholders
- Experience and maturity in supporting innovation activities involving relevant stakeholders
- Investment priorities and resources for innovation.

Industry / business (service & product)

- Type of businesses operating in your region (small, larger, large firms and industries) of relevance to health and care related innovation

- "Health" of sectors that are and could be involved in health and care related innovation
- Present level of innovation and innovation areas
- Type and extent of participation in ecosystems and similar cooperation structures
- Interest and experience in and resources for participating in innovation in cooperation with other stakeholders
- Value to firms and industry of participation in innovation ecosystem (what's in it for us).

Academia & education: universities and other higher education and further education institutions

- Focus areas and strengths of research
- Compatibility with businesses and health/care in the region/area
- Accessibility of academia to ecosystem stakeholders
- Interest and experience in and resources to participate in innovation ecosystems.

Civil society, incl. citizens

- Presence of relevant organisations in the region
- Tradition for participating in stakeholder collaboration in the field of innovation
- Capacity to engage.

Health/care practitioners

Include practitioners e.g. doctors, nurses, social workers, community workers + staff working in back-office functionality such as finance, managers etc.

- Tradition for participating in collaboration working with other health and care partners
- Willingness, capacity and permission to engage
- Workforce and workforce development strategies and programmes.

D. Recognise that each sector has different challenges and priorities, e.g.

Health and care stakeholders may have:

- very limited R&D capacity to engage in activity beyond their immediate strategic and operational priorities
- limited sight of accessible support opportunities for innovation
- increasingly, as resources tighten, focused upon ill-health rather than prevention and well-being – physical, mental and economic
- moved from "invest to save" to "damage control"
- not traditionally engaged in "economic" development activity at either policy or operational levels (however, some regions combine health, care and economic development)
- failed to present the economic development opportunities that exist within the sector
- over the years, developed into silos of service and practice
- no regional budgets to implement new models.

Economic development stakeholders may:

- be challenged by the size, complexity and fragmentation of health/care structures and services in comparison with other sectors

- regard the health and care sector as a drain on resources rather than offering the potential for innovation and economic growth
- not have been challenged by the health/care sector to engage and understand the potential opportunities that exist in the sector (as a result of health and care factors set out above)
- observe regular health/care reorganisation and social care market failure.

Industry stakeholders may:

- be extremely diverse and do not see themselves as a "sector"
- have limited R&D capacity
- expect, but do not see, short-term benefits of engagement

Academic stakeholders may:

- focus on their core institutional objectives which are not necessarily locally focussed and aligned to (smart health) sector need
- focus more upon research than impact
- generate far more income from large international and national industry than local SMEs
- can be very IP defensive
- operate in faculty silos and do not always coordinate programmes with the institutions themselves, or outside organisations.

E. Engagement challenges to overcome

Considering the above factors, from a health and care ecosystem perspective there are some basic ENGAGEMENT challenges to overcome:

- Convincing stakeholders that there are benefits to be gained from engaging in dialogue about health and care
- Changing the mind-set of economic development policy makers away from the cost of health and care to the economic assets and benefits that the sector offers
- Enabling the components of health and care industry to engage in activity that may not result in immediate, direct business results but will generate cross-cutting, long-term benefits, e.g. well-being initiatives
- Accessing a broad range of academic resources that could contribute to health and care policy and practice.

F. Organisation and getting together – steps to consider

- Establish if health/care issues and challenges could most appropriately be handled on a broad scale or divided into subject subareas
- Establish how existing ecosystems or professional communities engage around the challenges and opportunities today – if they do
- Consider how most appropriately to bring together and engage stakeholders in health/care sectors and/or subsectors - building on existing experience
- Agree on common objectives, activities and procedures of the ecosystem and/or sub-ecosystem
- Consider how best to organise resulting ecosystems or sub-ecosystem.

- Establish if there is there a need to formalise ecosystems or sub-ecosystems and the way they engage
- If yes, determine which stakeholder(s) could most obviously be tasked with organising meetings and other forms of engagement – including preparation of agenda and background material
- Decide on how often ecosystem members should meet and what would determine the life of the ecosystem/sub-ecosystem
- Discuss if ecosystem members/stakeholder should pay for their participation
- If so, decide how much and how this should it be done
- Describe links and engagement with other possible ecosystems in the region of across regions in the relevant subject areas.

G. Communication-v-Broadcasting

There is currently a high volume of COMMUNICATION being issued to health/care practitioners about innovation and “smart”, communication issued by international, national, regional and local stakeholders from across sectors. To engage stakeholders, communication needs to be attractive, accessible and easy to understand.

Key actors within your ecosystems are likely to be connected to more than one health/care programme, funded regionally, nationally and/or by EC. Even if they are not, your exploration is likely to uncover a range of smart health/care initiatives. All of these programmes and initiatives will be (trying to) engage the same target group of stakeholders. Ecosystem communication therefore needs to align and operate from the top down i.e. core messaging about smart-health flowing down into programme messaging where appropriate. Trying to communicate with stakeholders about individual smart-health initiatives has proven unsuccessful when not set in an over-all context or theme.

5 Pillar 3: Innovation Cycle

5.1 Innovation concept, features and the ITHACA project

ITHACA aims at policies stimulating technological as well as social innovation in health and social care. According to Schumpeter[2], innovation is „the doing of new things or the doing of things that are already done in a new way“. It is about activities of people and/or organizations to change themselves and/or the environment. It also means breaking daily routines and dominant ways of thinking, introducing new things and services, approaches and instruments, scenarios, behaviours, breaking rules and launching new standards. It is important to say, however, that an innovation has to fulfil some major criteria in order to be called an “innovation”:

1. it has to be new (i.e. new product, new service, new process, new market);

2. it has to make it to the market or society;

3. it has to be implemented successfully and on a larger scale.

This means, a good idea, process or service on a level of a project or pilot is just an invention – it needs scaling-up in order to become an innovation.

Innovation often occurs within systems of various actors (quadruple helix: academia, economy, society and administration/government) encompassing both: demand and supply side of the market. Both sides are important stimulus for an innovation process. But (too) often innovation processes still follow the concept of a technology-push, meaning that a new technology is looking for a proper use case or market. Especially in the area of health and social care, however, the ITHACA partner regions are in favour of an innovation process which is based on concrete needs and demands. Therefore, it is important to involve potential users and payers of an innovation right from the beginning. Innovation processes do not follow a linear logic. Instead, these are highly iterative processes consisting of various phases. For analytical reasons we use the concept of an innovation cycle: invention, co-creation, market testing, validation and scaling up.

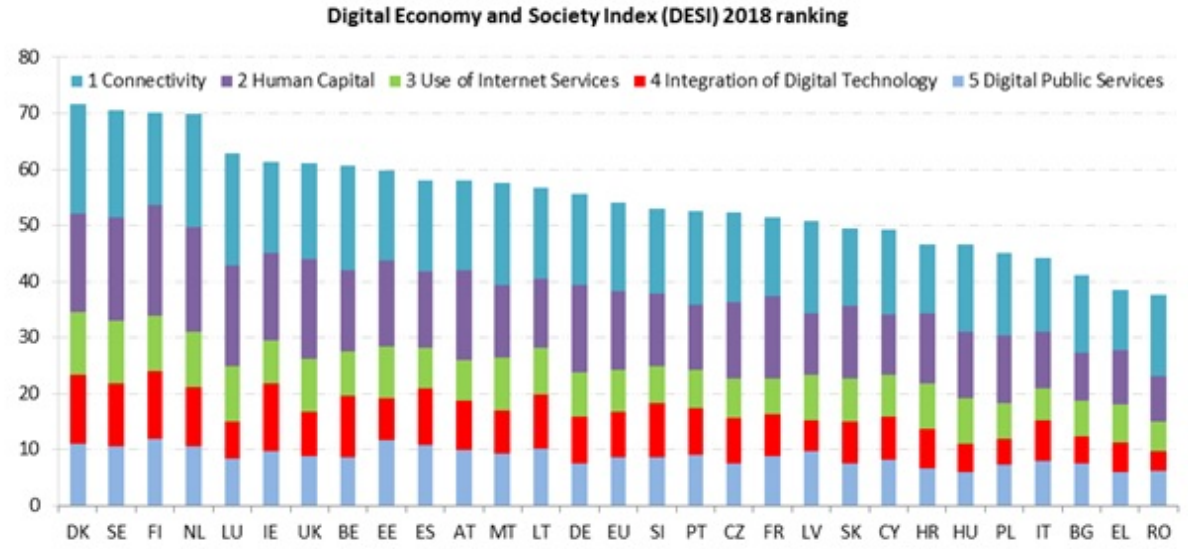
5.2 State of the art if innovation in ITHACA’s partner regions

All ITHACA regions exhibit (quadruple helix) ecosystems for innovation in health and care, however, the grade of development and the overall institutional setting (innovation system) vary a lot. A lot of innovation in the area of health and care are determined by the architecture of the welfare state. Who provides what, who is responsible for what, who is the payer of specific services? Here, the specific settings and institutions of the health and care system (Welfare state) determine the demand for innovation in a very strong way. And often the state or a public agency is responsible for or even the provider of these health and care services and has therefore a direct influence on the health and care market. This determines the variation on the demand side. But we can see differences on the supply side as well. For instance, research and development intensity is still uneven among EU regions, with investment and research heavily concentrated in Northern and Western Europe. Therefore, also the “performance” of innovation systems (on the national level) differ. According to the

[2] Schumpeter, Joseph A. (1934; 2008): The Theory of Economic Development An Inquiry into Profits, Capital, Credit, Interest and the Business Cycle, translated from the German by Redvers Opie, New Brunswick (U.S.A) and London (U.K.).

Global Innovation Index (GII)[3] the ranking of countries involved in ITHACA is as follow Netherlands is the 2nd, United Kingdom is the 4th, Denmark is the 8th, Germany is the 9th, France is the 16th, Spain is the 28th, Slovenia is the 30th, Italy is the 31th and Poland is the 39th.

Since all ITHACA regions are member of CORAL (Community of Regions for Assisted Living) there has been also a lot development taken place in the area of digital or "Smart Health and Care". These digital health and care innovations, however, evolve in different national innovation systems that do also vary regarding their level of digital development or "E-readiness", which can be compared by the European Digital Economy and Society Index (DESI)[4]. It is a composite index that summarizes relevant indicators on Europe's digital performance and tracks the evolution of EU member states in digital competitiveness. Here, Denmark has the highest score of all ITHACA member states, followed by the Netherlands, UK, Spain, Germany, Slovenia, France, Poland and Italy.



In a more and more digitalized world the convergence of production and interaction, work and communication are increasingly interdisciplinary competencies for staying economically competitive. In addition to expert knowledge, flexibility, creativity and innovation, these are critical success factors for companies and their employees. For companies and businesses, however, these competencies do not just appear out of nowhere. Therefore, digitalization also needs to be promoted through appropriate innovation policies. However, it is not only a task for the state. Just like government officials, the stakeholders from civil society, business and the sciences have to develop a systematic understanding of innovation in order to usher in comprehensive digitalization processes for enterprises. This is crucial if we want to improve the "innovative capability" of our economies and societies[5].

Innovation capability is a precondition of innovative performance and the distribution of knowledge. Just like a person's intelligence is a precondition for his or her intellectual output. In a digitalized world, companies and their personnel have to strengthen their interaction competence, which refers to skills and abilities of an organization to successfully implement

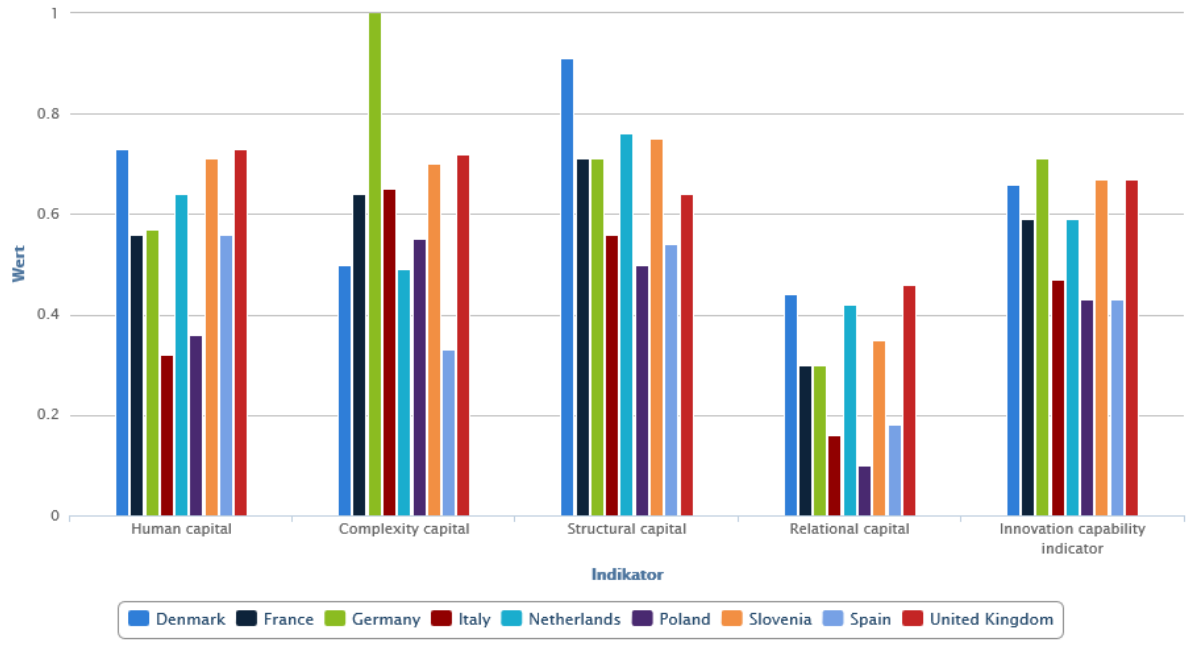
[3]Global Innovation Index 2018: http://www.wipo.int/pressroom/en/articles/2018/article_0005.html
[4] DESI 2018: https://ec.europa.eu/digital-single-market/en/desi

[5] Buhr, Daniel; Stehnken, Thomas (2018): Industry 4.0 and European Innovation Policy: Big plans, small steps. Berlin: http://library.fes.de/pdf-files/wiso/14455.pdf

processes of (open) innovation. Due to the fact that these processes, innovative products and services are increasingly marked by cross-sector technological integration, digital economy demands networked collaboration between differing skill sets and knowledge caches. With growing digitization, the latter will likely become codified and easily passed on. From this stems the need to combine each party's own competencies with the complementary knowledge and conduct of the others'.

Innovation policy has to take this into account. Therefore, it has not only focus on the invention aspect of a technical innovation but on the overall innovation capability. According to the "Innovation Capability Indicator"[6] by the Institute for Innovation and technology (IIT), the level of development can be measured by a mix of four sub-indicators: human capital, complexity capital, structural capital and relational capital. Since a well-educated workforce is a key factor for innovation capability, the IIT takes into account human capital, i.e. the qualification levels of formal and informal education and training. Innovation needs different ideas and concepts. The diversity of knowledge that enables the production of complex products and services is called complexity capital. Structural capital refers to internal structures and processes bringing together the heterogeneous knowledge that is distributed within an organization. An organization's ability to acquire and combine knowledge is also affected by its external relations, i.e. its relationships to external partners. This is referred to as relational capital.

With the iit Innovation Capability Indicator you can rank and compare the innovation capability of 25 European countries. One can choose different sub-categories and graphical representations. The following graph shows the performance of the innovation capability in our nine ITHACA countries:



[6] IIT Innovation Capability Indicator 2018: https://www.iit-berlin.de/en/indicator/country-analysis/2018/@@idb-ranking

5.3 Strengthening the innovation cycle

DESI, Innovation Capability Index and GII, however, are all aggregated on a national level and do not necessarily represent the actual performance of our nine ITHACA regions. Therefore, the ITHACA project conducted in a comprehensive self-assessment (online survey and workshop at regional stakeholder meetings) and external peer evaluation process (nine EEPE and case studies) during phase 1 of the project. This provided the information to illustrate the strengths and weaknesses of every region regarding their specific regional innovation system.

Based on those findings we can conclude that the regional innovation systems have a lot of strengths related to the first three phases of the innovation cycle: Invention Co-creation and Market-testing.

However, it also revealed a common wicked challenge for all regions related to the lack of focus on or struggle with the last two validation and scaling phases of the innovation cycle.

Core elements of invention, co-creation and market-testing

The following elements can be derived from the identified strengths and considered as core-elements for invention, co-creation and market-testing:

- regional programmes with funding support for innovative collaborative projects of stakeholders;
- well developed triple helix oriented ecosystems for innovation and knowledge transfer, training and education with a strong industry basis related to high tech and medtech systems and Bioscience and Health stystem, demonstrated for example by the presence of technology parcs, Health-, IT-, Lifesciences- and Bio-science clusters, excellent hospitals, centres for technology transfer;
- a research & development infrastructure with public and privat research centres;
- strong policy frameworks;
- strong regional partnerships between businesses, government and research&education centres;
- demonstration and / or prototype phase established in medtech and high-tech industry.

For these first three phases It revealed learning and exchange opportunities related to still identified weaknesses in some regions concerning the following elements identified as weak:

- Weak policy framework
- Low support for regional innovation projects with a lack of focus on legal aspects;
- Lack of supportive programmes for ecosystem development and bureaucratic burden
- Not enough public-privat partnerships,
- Lack of active involvement of citizens and users

Core elements of validation and scaling

To create real impact in real life there is a need for policy change that builds on a shift from an industry driven approach to a societal driven approach.

Several elements are coming forward from the experience of the ITHACA partners that can be considered as core elements related to a top down governance and coordination of innovation and a bottom up approach for social innovation. A good synergy between both approaches is an important factor to improve the regional capacity on validation and scaling.

Several regions have developed elements that support the governance and commitment related to a top down coordination of innovations in health and care:

- A national strategy for Active and Healthy Ageing with focus on implementation and scaling, an example from Slovenia;
- Regional programmes for validation aiming at connecting the business sector and the health sector, such as the Innosasun programme of Basque Country.
- Large scale long term pilots governed carried out by multi-stakeholder partnership with commitment and support of regional or national government such as he pioneer region " Gesundes Kinzigtal" (valley in the heart of the Black Forrest with 30.000 citizens) in Baden Wurttemberg, that actually was able to proof the success of (social) process innovations in the health sector over a longer period of time (10 years), or the national pilot of the Long term Care Act of Slovenia;

Several regions have developed a social innovation base with bottom up approaches and concrete initiatives suchs as:

- Education and training programmes and initiatives such as the social innovation initiative "Ralley" in Nouvelle Aquitaine and "Lokaal Plus" in Noord-Brabant;
- A supporting regional pilot for social entrepeneurs and regional learning networks for scaling of social innovation initiatives and development of a new financial model for impact funding, such as the "Brabant Outcome Fund (BOF)" in Noord-Brabant;
- A supporting project that boost innovative attitude among the citizens and promote acceptance for failure as one of the important part of the stimulation of social innovation, such as The Malopolska Incubator of Social Innovation;
- Geographical local crossovers programme between innovation programmes, moving into the practice of real life with active involvement of citizens and civil society such as the "Brainport Smart District" in Noord-Brabant.
- Integration of innovative solutions provided by the region into national health care plans and systems
- Integration of healthcare and social care sectors and deinstitutionalisation of healthcare, such as "Hospital Plus" initiative implemented by the Babinski Clinical Hospital in Krakow;
- Living labs, such as in Liverpool City Region and some other regions.

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