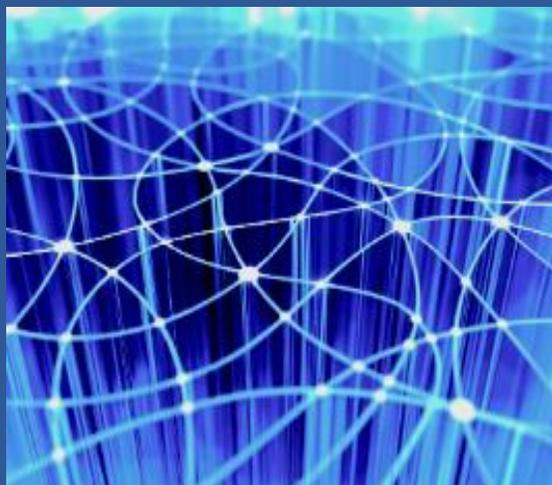


## WORKINGPAPER 2



# Health Innovation Enablers

## Consensus Framework

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Frank Graage, Petr Rychtecký and Peter Frank



**DANUBALT**

Novel Approaches in Tackling the Health Innovation and Research Divide in the Danube and Baltic Sea Region

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## Introduction

The document has been divided into two parts. This page provides a general background of the project and the completed steps have been summarised. Page 3 onwards presents the consensus framework and then offers more detailed information for each enabler including proposed validation questions and rationale.

This consensus framework is based on triangulating findings from a systematic review, online survey, stakeholder fora (3) and follow-up interviews. The Working Paper (No.1) and Summary Reports (Nos. 1 and 2) can be accessed at: <http://www.danubalt.eu/danubalt/reports?r=true>

## About DanuBalt

DanuBalt has been funded to analyse the mechanisms hindering the efficient exploitation of EU and regional instruments in the Baltic Sea and Danube macro regions as well as provide remedies that can help improve investment in regional health systems by efficiently using Structural Funds in combination with Horizon 2020. Currently, the divide in research and innovation potential has regressed to 2009 performance levels with specific differences in scientific excellence, internationalisation and business innovation cooperation.

The mechanisms that are central to unlocking better use of EU and regional instruments are health innovation 'enablers'. However, a weakness with current performance indexes (including the Innovation Union Scoreboard and Regional Innovation Scoreboard) is that regional data on enablers is limited as is the scope of enablers that should facilitate performance in modest and moderate innovator regions.

## Purpose of the Consensus Framework

The purpose of the framework is to offer a set of enablers that can contribute to improving performance in modest and moderate innovator regions. It does this in ways that address differing circumstances in the Baltic Sea and Danube Macro-Regions while generating evidence that is comparable and provides a basis for identifying appropriate assessment options (strategic and operational).

The enablers presented in this Framework have been categorised as foundation, core or optional by representatives from participating modest and moderate innovator regions who took part in the three stakeholder forums and/or follow-up interviews. Specific questions/variables have been added under each enabler that will help assess performance. These focus on inputs, processes and impacts.

The best way forward should avoid increasing the size of the bag of indicators and metrics available to measure performance. If this happens, then modest and moderate regional innovation systems risk being distracted by a demand for performance assessment that oversteps what is needed to improve performance. In this context and to maintain flexibility combined with quality within a regional innovation ecosystem, consideration should be given to focusing on the use of qualitative criteria for tracking the impact of enablers. Used in this way, assessing these enablers will provide insights that can add to evidence generated by the IUS, RIS and related performance indexes.

## The benefits of assessing health innovation enablers in your region

The benefits can be summarised as:

- Opportunity – the process will identify/confirm areas of opportunity, helping you to identify baselines, agree priorities and set realistic targets

- Good practice – assessment will show you what you do well, allowing you to share these practices across stakeholder organisations within and beyond your region
- Ownership – the process is designed to build ownership of the results among stakeholder panel members and across stakeholder organisations within and beyond your region
- Continuous improvement – develop measures for keeping track of progress over time.

## How to use this framework to assess health innovation enablers in your region?

DanuBalt is preparing a resource with guidance, checklists and assessment questionnaire templates for you to translate and use in your region. It will be available to download in late August. Additional advice on how to use it will be available from DanuBalt partners.

1 August 2016

# The Consensus Framework

LAYER	CATEGORY		
	Foundation	Critical	Optional
<b>Ecosystem</b>	E1 Policy maker competencies E2 Preventing corruption	E3 Favourable regulations E4 Competitive income policies E5 Recruiting and retaining a skilled workforce E6 Incentives for start-up and incubator support E7 Support for accessing EU funds E8 Support for accessing public/private capital E9 Training and education programmes	E15 Intellectual Property protection services E16 Technical business support E17 Social infrastructure and services
<b>Intermediary</b>		E10 Efficient and competitive value chains E11 Open health innovation networks E12 Innovation public procurement schemes	E18 Living Labs
<b>Organisational</b>		E13 Organisational capabilities E14 Technology development	E19 Absorptive capacity E20 Social capital

Table 1: The Consensus Framework

## Foundation enablers

Foundation enablers affect how other enablers at all levels (ecosystem, intermediary and organisational) promote or block performance improvement in modest and moderate innovator regions.

Enabler	E1 Policy maker competencies
Enabler status	Is this enabler active or inactive in your region?
Validation questions	<ul style="list-style-type: none"> <li>Do you believe that policy-makers responsible for shaping and monitoring implementation of innovation policy are informed enough about the challenges their health care providers face in identifying and adopting innovation to help modernize and improve service delivery? If no, how can this be improved?</li> <li>Do policy-makers conduct informed consultations with health innovation stakeholders regarding new policies, investment priorities, and the quality of health service procurement systems?</li> <li>Do policy-makers help you to make smarter use of EU Funds that can contribute to health care innovation? If yes, how?</li> <li>What actions have been taken to deliver practical synergies between S3, ESIF and Horizon 2020 investments?</li> </ul>
Rationale for enabler	Ecosystem - Health care is complex and models of care are changing. A focus on value creation and societal usefulness is essential for the long-term stability of health care systems. A focus on unmet health needs and user-driven innovation is a key success factor for new thriving innovation systems in both the Baltic Sea and Danube Macro-Regions. It is critical that policy-makers regularly engage with relevant regional and cross-border value chains and open innovation networks about emerging trends/issues that effects the generation, adoption and diffusion of health innovation.

Enabler	E2 Preventing corruption
Enabler status	Is this enabler active or inactive in your region?
Validation questions	<ul style="list-style-type: none"> <li>Are you aware of any examples of conflicts of interest in public procurement and investment decisions, evaluation of Structural Fund applications etc. in the last 3 years? If yes, give an example.</li> <li>Are there effective policies in place to address corruption risks locally and in specific sectors (public and private) involved especially in the adoption and diffusion of health innovation products? If yes, give examples.</li> <li>Has systematic use of corruption risk assessments become part of the public procurement process in your region/country? If yes, how? If no, why not?</li> <li>Do organisations responsible for public procurement implement high transparency and accountability standards for the whole procurement cycle? If yes, how? If no, why not?</li> <li>What other practical ways are there to minimise the impact of corruption on generating, diffusing and especially, adopting new innovations?</li> </ul>

Rationale for enabler	Ecosystem - Corruption is mostly perceived and experienced in the context of public procurement. Effective implementation of the EU initiative of Public Procurement of Innovative Solutions (PPI) requires the removal of corrupt practices and the circumstances that promote it with negative effects on SMEs and public health services in generating, adopting and diffusing often cheaper, less invasive and more effective health innovation products.
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## Critical enablers

Critical enablers are those enablers considered essential for supporting improvements in performance in modest and moderate innovator regions. These need to be in place and active for a well-functioning regional innovation system. However, their contributions will be limited unless the foundation enablers are also in play.

Enabler	E3 Favourable regulations
Enabler status	Is this enabler active or inactive in your region?
Validation questions	<ul style="list-style-type: none"> <li>• Do current regulations in your region/country make it more or less easy to set-up and run new businesses? If yes, provide 1-2 examples. If no, what is the most important change needed?</li> <li>• In your experience, does the enforcement of Intellectual Property Protection laws and contracts in your region/country help or hinder the ability of SMEs and value chains to get new innovation products from 'bench to bedside' and then into markets? Please explain.</li> <li>• How do current regulations stimulate entrepreneurship and create space for experimentation?</li> <li>• Is there a specific law/regulation/policy on technology transfer active in your region? If yes, what has changed for technology transfer since it came into effect?</li> <li>• Do current regulations contribute to clinic-industry collaborations in your region? If yes then how do they contribute? If no, then what needs to change to make such collaborations possible?</li> </ul>
Rationale for enabler	Ecosystem - an essential pre-condition for attracting and retaining business is the operation and regular review of favourable regulations and related legislation. Sustainable clusters allow a combination of foreign ownership, enforce intellectual property protection laws and contracts, instill clear rules to access and operate in the local market, and have clear employment regulations in place that are favourable to ECs' citizens. In practice this should extend to transparency of decisions and no corruption.

Enabler	E4 Competitive income policies
Enabler status	Is this enabler active or inactive in your region?
Validation questions	<ul style="list-style-type: none"> <li>• Does your organisation or system allow for setting pay and reward structures for local teams to ensure that they are appropriate for the pace and growth rate of relevant markets? If yes, how? If no, why not?</li> <li>• What incentives are in place to minimise the brain drain from researchers working locally or on foreign placements for EU funded projects?</li> <li>• In response to the impact of austerity measures in EU Member States the EU put in place additional programmes under Horizon 2020 to help modest and moderate innovator regions restructure to become more competitive with available incomes. To what extent has this affected the</li> </ul>

	salaries of scientists and researchers in your organisation/region?
Rationale for enabler	Ecosystem - Competitive incomes are crucial to recruiting and retaining sub-sets for a specialised skilled workforce. Setting pay and reward structures for local teams will help ensure that they are appropriate for the pace and growth rate of the market. Horizon 2020 includes new programmes to help the restructuring, recruitment and retention of leading scientists and researchers in the EU13.

Enabler	E5 Recruiting and retaining a skilled workforce
Enabler status	Is this enabler active or inactive in your region?
Validation questions	<ul style="list-style-type: none"> <li>• Can your organisation/region show how investing in human capital generates a good return on investment? For example: <ul style="list-style-type: none"> <li>○ Aligning financial rules and incentives with human capital goals</li> <li>○ Offering training/postdoctoral grants specifically aimed at retaining qualified researchers in your region/country</li> <li>○ Ensuring that training programmes for new graduates are aligned with both market and society needs</li> <li>○ Ensuring that local managers have the ability to make recruitment decisions</li> <li>○ “Right-skilling” the workforce</li> <li>○ Optimising talent through technology</li> </ul> </li> <li>• Can you provide examples of how it was possible to take forward new product or service ideas to meet local needs?</li> <li>• How does human resource policy in your organisation and/or regional innovation ecosystem stimulate more open and diverse recruitment policy?</li> <li>• Can you provide an example of how human resource management has been changed to reward creativity, experimentation, transparency and value chain stakeholder collaboration?</li> </ul>
Rationale for enabler	Ecosystem - Human capital is a necessary pre-condition for growth in modest and moderate innovator regions and so should be categorised as a development priority. Access to diverse, adequately skilled, and competitively priced pools of technicians, engineers, scientists, programmers, managers, and support staff is vital. Investing in human capital in modest and moderate innovator regions generate a better return on investment than R&D investment. The available workforce and sub-sets of specialised skilled workforce should be compatible with regional S3 priorities and are essential to attracting and retaining health innovation investment.

Enabler	E6 Incentives for start-up and incubator support
Enabler status	Is this enabler active or inactive in your region?
Validation questions	<ul style="list-style-type: none"> <li>• Do regional clusters, science parks and incubators provide a one-stop shop system to simplify the start-up process for new or recently formed SMEs? If yes, what services are available?</li> </ul>

	<ul style="list-style-type: none"> <li>• Have independent seed capital funds been set-up using public money and that are accessible to start-up and spin-off companies? If no, why not?</li> <li>• Can you give 1-2 examples of how publicly sourced seed-funds have been used to leverage private investment for start-up and spin-off companies in your region?</li> <li>• Is there a special strategy in your region for start-ups and financial tools to implement innovative projects and develop the creativity of young entrepreneurs? If yes, please describe. If not, why not?</li> <li>• Female entrepreneurship is an untapped resource for growth and competitiveness of the EU, which should be fostered and strengthened. What incentive schemes are active in your organisation/region to remove obstacles facing women creating start-ups, spin-offs or entering relevant labour markets?</li> </ul>
Rationale for enabler	Ecosystem - Providing start-ups and recently formed companies including university spin-offs, with targeted services through a one-stop shop service (seed funds, low rent options, innovation vouchers, fast track procedures for administration and evaluation of projects)

Enabler	E7 Support for accessing EU funds
Enabler status	Is this enabler active or inactive in your region?
Validation questions	<ul style="list-style-type: none"> <li>• What fast track procedures are in place regionally or nationally to facilitate applications by SMEs to relevant EU Funding instruments (ESIF, Horizon 2020, SME Instrument etc.)?</li> <li>• Are you able to get access to funding in your region/country to support preparation of Horizon 2020 and ESIF funding applications, (including commissioning external consultants to support you)? If yes, what benefits does this provide? If no, is this because access to these funds needs to be improved or because no preparation fund exists?</li> <li>• What prevents or stimulates local SMEs to become involved in partnerships with universities, public research centres or health care providers in order to access EU Funds?</li> <li>• What have National Contact Points for EU Funding instruments put in place to promote awareness of these instruments and access to advice on how to secure funds?</li> <li>• In what ways do the conditions required for accessing EU Funds block or open opportunities for investing in innovation that can have significant real world value?</li> <li>• Has action been taken within your region to incentivize universities to spend a significant amount of EU and national research funding in Public Private People Partnerships and/or Business-University Partnerships? If yes, how? If no, why not?</li> <li>• Does your experience of use of EU Funds in your region/country show examples of wasteful use on projects driven by lobbies without accountability for economic growth and employment? If yes, give an example.</li> </ul>

Rationale for enabler	Ecosystem - EU Funding is available for start-ups, entrepreneurs and companies of any size or sector. A wide range of financing is available: Business loans, microfinance, guarantees and venture capital. The decision to provide EU financing is made by local financial institutions such as banks, venture capitalists or angel investors. These financial institutions determine the exact financing conditions (the amount, duration, interest rates and fees). That said, because of the fragmentation of the banking sector and subsequent great divergence in lending rates and credit offer among countries, a differentiated approach to improving SMEs' access to funding will need to take into account country-specific circumstances.
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Enabler	E8 Support for accessing public/private capital
Enabler status	Is this enabler active or inactive in your region?
Validation questions	<ul style="list-style-type: none"> <li>• What stringent requirements, including personal guarantees, do SMEs in your region report having to provide in order to obtain financing from credit institutions?</li> <li>• What actions have been taken at national level to regulate the financial industry in ways that explicitly protect and stimulate effective lending to the real economy, in particular to SMEs?</li> <li>• What partnerships in place between banks and other operators involved in SME financing (accountancy professionals, business or SME associations or chambers of commerce)?</li> <li>• In order to support businesses in their start-up, growth and transfer phases (taking into account size, turnover and financing needs) what specific programmes are available in your region/country: e.g. equity (such as business angels, crowd funding and multilateral trading facilities), quasi-equity (such as mezzanine finance) or debt instruments (such as small-ticket company bonds, guarantee facilities and platforms)?</li> </ul>
Rationale for enabler	Ecosystem - Poorly designed regulation of the financial industry, combined with the severe and pervasive effects of the financial, economic and debt crisis, can make it more difficult for SMEs to access finance. A health cluster can significantly differentiate its offerings and improve its attractiveness (and in turn improve its ability to achieve economic development goals) by providing access to both capital and debt financing—access that otherwise would not be possible. Successful health innovation clusters facilitate and bring together various financing options, suitable for companies in different stages of maturity, from startups to multinationals. Finally, public seed funds can serve as underwriting for private financing programs, opening the gates to financing that otherwise would not be available

Enabler	E9 Training and education programmes
Enabler status	Is this enabler active or inactive in your region?
Validation questions	<ul style="list-style-type: none"> <li>• Have partnerships been established between regional education institutions, businesses involved in health innovation and health care providers? If yes, what are the benefits?</li> <li>• What incentives are available in your organisation and/or region to improve the leadership competencies of individual investigators with respect to training and re-training researchers and clinicians wishing to conduct translational research?</li> <li>• Can you give an example of how your organisation/region optimises use of local talent? If yes, then how do you do it?</li> <li>• Do graduate students working locally report that they receive good mentoring? If yes, how is mentoring provided?</li> <li>• What mechanisms do health care providers have in place that will allow clinicians and nurses whose primary role is service delivery to devote some component of protected time to involvement in research programmes?</li> <li>• Can you identify appropriate mentoring and coaching schemes that are available for building managerial skills, financial and accountancy knowledge, since these are critical factors for SMEs in accessing funds, innovating, competing and growing?</li> <li>• Does the pre-university education system in your region provide opportunities for young people to develop entrepreneurship skills and programmes to learn how the market, economy and the financial system operate, function and interact? If no, why not?</li> <li>• Are local students aware of the Erasmus for Young Entrepreneurs programme, designed to promote an entrepreneurial culture and develop the single market and competitiveness? If yes, how is this done? If no, why not?</li> </ul>
Rationale for enabler	Ecosystem - Continuous attention is needed to right-skilling new and ongoing employees through the quality of available education and training in parallel with education and lifelong learning systems development. This needs to go beyond traditional forms of learning for younger researchers and technicians.

Enabler	E10 An efficient and competitive value chain
Enabler status	Is this enabler active or inactive in your region?
Validation questions	<ul style="list-style-type: none"> <li>• How do value chains within your region build on current knowledge-based and industrial strongholds or develop radically new ones and stimulate joint actions across sectors?</li> <li>• Provide 1-2 specific examples of health innovation value-added chains operating within your region engage health professionals and patients in generating and testing innovative products?</li> <li>• Can you give an example of the successful use of public or private funds to get an innovation product from basic research to market using the whole innovation value chain?</li> </ul>

	<ul style="list-style-type: none"> <li>• Is your national government or regional authority actively working on policies that support cross-border and cross-sectoral value chains? If yes, please give an example of what is happening.</li> <li>• Is there fragmentation between regulatory work and research investment in your region/country that breaks value chains by creating obstacles to getting access for new innovation products to markets? If yes, please give an example.</li> <li>• What future plans (in the next 3-5 years) are there to further improve the interaction between stakeholders (researchers, complementary innovators, industry, health care providers, clinicians and patients) in these and other value chains?</li> </ul>
Rationale for enabler	<p>Intermediary - In all countries excellence can be found in some individual enterprises. Discussion on improving competitiveness often concentrates on how to achieve more individual excellence. This is useful but not sufficient. The competitiveness of the individual firm depends upon the competitiveness of the value chain to which it belongs. The ongoing process of knowledge sourcing, transformation and exploitation comprises the innovation value chain. Critically, for policy makers and institutional intermediaries, value chain analysis helps us find out where the bottlenecks are.</p>

Enabler	E11 Open health innovation networks
Enabler status	Is this enabler active or inactive in your region?
Validation questions	<ul style="list-style-type: none"> <li>• What are the main characteristics of any open health innovation operating in your region e.g. networking, collaboration between key stakeholders, business entrepreneurship, proactive IP management that creates markets for technology including university-led discoveries, R&amp;D?</li> <li>• How confident is your organisation and/or SMEs in your region in using external knowledge/ideas as well as internal knowledge/ideas?</li> <li>• Describe a case example where key stakeholders worked together to solve a problem by developing and testing a new innovation product</li> <li>• Have changes been made in the management and use of IP locally to maximise innovation opportunities? If no, why not?</li> </ul>
Rationale for enabler	<p>Intermediary - The principle of open innovation underpins three of the organisational enablers (E13 and E19-E20) and three of the intermediary enablers (E10, E12 and E18). In the context of networks these can provide a platform for knowledge sharing characterised by high levels of trust, refined information exchange and joint problem solving between academia, industry, public healthcare and patients/carers. This quadruple helix interaction is now more critical due to the focus on personalised medicine and the drive for affordable solutions in healthcare delivery.</p>

Enabler	E12 Innovative public procurement schemes
Enabler status	Is this enabler active or inactive in your region?
Validation questions	<ul style="list-style-type: none"> <li>• What ensures consistency in the information provided to potential contractors?</li> <li>• In the last three years, what proportion of tender calls have been open, restricted, closed or quick quote?</li> <li>• Are processes in place to improve local SME access to public procurement opportunities? If yes, what are these? If no, why not?</li> <li>• Does public procurement in your region/country help to develop and maintain open health innovation ecosystems with co-creation across borders and/or between sectors aligned with the Dublin Declaration on quadruple helix innovation?</li> <li>• Is pre-commercial public procurement in place for procuring R&amp;D services? If yes, how does it work? If no, why not?</li> <li>• What competencies do your supply chain managers have to help them critically appraise new innovation products against currently used products?</li> <li>• Are methods in place to overcome risk aversion in the use of public procurement budgets by health care supply chain managers in your region? If yes, what are they? If no, why not?</li> <li>• Do health care services within the region and their supply chain contractors have inclusive employment policies? If yes, how does it work? If no, why not?</li> </ul>
Rationale for enabler	Intermediary - Insufficient use of public procurement is a key issue to be addressed in order to foster SME's innovation capacity. Its weight is reflected in the often-cited fact that public procurement accounts ca. 17% of the EU's GDP corresponding to more than €2000bn. This can be exploited to foster innovation. Current rules do not hinder innovation procurement although they could also do more in fostering it. SMEs are more likely to engage in pre-commercial and other innovative procurement initiatives if they are seen as risk-benefit sharing, non-complex and compatible. Moreover, procurement processes need to be seen as transparent and corruption-free.

Enabler	E13 Organisational capabilities
Enabler status	Is this enabler active or inactive in your region?
Validation questions	<ul style="list-style-type: none"> <li>• How are organisational capabilities aligned with the vision and mission of your organisation?</li> <li>• Which organisational capabilities are most important for your company right now and then 3-5 years ahead? If there are differences in which capabilities are important, why this change?</li> <li>• How do you invest in maintaining and improving those capabilities that contribute most to organisational performance?</li> <li>• How do you measure the impact of training on the performance of your organisation?</li> </ul>
Rationale for enabler	Organisational - Capability as anything an organisation does well that drives meaningful business results. Companies need a portfolio of organisational

	<p>capabilities. These are not usually ad hoc capabilities. Rather they are embedded in the working culture of a company or organisation. They can be summarised as: hunger or entrepreneurial attitude; collaborative instinct; lean operations; project management; external, organisational and individual impacts. The wider implications for business plans and operations include: selecting local partners carefully across every stage of the value chain (see also E10). At a local level SMEs should: have resources available to observe potential customers and assess where their unmet needs lie; develop the capability to conduct in-depth research; engage customers and treat them as partners and collaborators in the innovation process.</p>
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Enabler	E14 Technology development
Enabler status	Is this enabler active or inactive in your region?
Validation questions	<ul style="list-style-type: none"> <li>• Is technological development in your organisation driven more by “market pull” or “technology push”? Please explain why.</li> <li>• How do you manage risk across the lifetime of innovation projects?</li> <li>• What factors influence the development of ideas through to new products/services?</li> <li>• How effective is the management of regulatory compliance aspects of the innovation process especially between T3-5 on the translational research pathway?</li> <li>• How efficient is the management of field-testing/trialing/prototyping</li> <li>• What do you do to manage product launches for new products? Specifically, do you launch innovation products in relevant markets and market segments at the right scale?</li> </ul>
Rationale for enabler	<p>Organisational - The three catalysts for technology development are located at different stages of the translational research pathway based on the Harvard Catalyst ‘T-Spectrum’: T0 and T1 (scientific excellence); T2 and T3 (research &amp; development); T4 and T5 (commercialisation). At a local level SMEs need to: carry out an increasing proportion of their R&amp;D activities close to where these customers are located; develop a “reverse engineering” approach, where affordability forms the baseline from which to develop entirely new products and services; put in place mechanisms for new ideas to reach decision-makers, regardless of where in the organisation they originate. The critical shift is not the number of patents lodged but commercializing them successfully</p>

## Optional enablers

Optional enablers were identified as less essential but important to have available depending on local circumstances.

Enabler	E15 Intellectual property protection services
Enabler status	Is this enabler active or inactive in your region?
Validation questions	<p>IP strategy (balance open and proprietary strategies, generate licensing revenue while fostering collaboration, avoid one-size fits all approach), Patent applications, Patent approval</p> <ul style="list-style-type: none"> <li>• Do IPR strategies in your organisation and/or region foster an appropriate balance between open and proprietary patent rights?</li> <li>• If you look at current procedures for companies to patent innovations does this reduce opportunities for developers and users of technology to launch new products into markets?</li> <li>• Can you give examples of alternative and more affordable options to patents being used in your region e.g. brands, geographical indications, trademarks and copyrights or more flexible licenses e.g. Copyleft or Creative Commons?</li> <li>• How does intangible knowledge and skills (protected from unauthorised exploitation in order to reward innovative ideas/discoveries), enhance business competitiveness and maintain incentives for investing in innovative R&amp;D in your region?</li> </ul>
Rationale for enabler	Ecosystem - This is usually available locally and is seen as a means to support fair competition while generating a stream of health innovations. But IP management works best where it avoids: (i) creating obstacles to academia-industry relationships that can delay collaboration by 18-24 months. (ii) companies and universities being tempted to patent everything created in their labs as these have major cost implications.

Enabler	E16 Technical business support
Enabler status	Is this enabler active or inactive in your region?
Validation questions	<ul style="list-style-type: none"> <li>• Is technical business support available in your region and if yes, who provides it e.g. regional development agency, economic development board?</li> <li>• How do banks, chambers of commerce, business associations and accountancy professionals in your region work together to create and maintain a supportive financial environment for entrepreneurs?</li> <li>• Have you used any of the following technical business support since your company was established e.g. specialised legal services, strategic financial brokerage, marketing, advertising, design services, awareness of government funded programmes? If yes, how did it help/not help you?</li> <li>• Do you intend to use any of the following technical business support in the next 3 years e.g. specialised legal services, strategic financial brokerage,</li> </ul>

	marketing, advertising, design services, awareness of government funded programmes?
Rationale for enabler	Ecosystem – The process of company maturation, networking and competitiveness can be supported by outsourced specialist services: strategic financial brokerage, venture capital services, option appraisal of financing options, legal/design and marketing, briefings about government funded support, interregional and overseas market insight visits.

Enabler	E17 Social infrastructure and services
Enabler status	Is this enabler active or inactive in your region?
Validation questions	<ul style="list-style-type: none"> <li>• Was good quality local social infrastructure and services (e.g. hospitals, schools, affordable housing) a determining factor in why your company is located where it is? If yes, why? If no, why not?</li> <li>• How much is access to and the quality of social infrastructure and services locally, a determining factor in attracting people to work here?</li> <li>• What examples of local social infrastructure and services would you recommend to businesses and people considering re-locating to your region/community?</li> <li>• What examples of local social infrastructure and services really need improving before businesses and people would consider re-locating to your region/community?</li> </ul>
Rationale for enabler	Ecosystem - Access to transport airports, ports, road networks and, in some cases, railroads, is the minimum common denominator of health innovation clusters. Likewise, it is a must to offer pre-built or built-to-suit investment-grade premises. What makes a real difference is the breadth and depth of the social infrastructure provided in a location. Particularly in developed markets, offering differentiated children’s day care, clinics, banks, and other basic necessity outfits will influence the decision of a company to set-up or relocate to a specific cluster.

Enabler	E18 Living Labs
Enabler status	Is this enabler active or inactive in your region?
Validation questions	<ul style="list-style-type: none"> <li>• Do you have any Living Labs operating in your region? If yes, then how are novel innovation activities in your Living Lab(s) coordinated?</li> <li>• If you stayed with using the traditional project model why did you make that decision?</li> <li>• What are the benefits and/or problems you have experienced in setting-up and running a Living Lab?</li> <li>• Do you have plans for using a living lab to service cross-border or cross-sectoral systemic health innovation? If yes, how will it happen? If no, why not?</li> </ul>
Rationale for enabler	Intermediary - A Living Lab is a real-life test and experimentation environment. In particular, they bring experimentation out of companies’ R&D departments

	or University Departments to real-life environments with the participation and co-creation of users, partners, and other parties As such, they have been characterised by the European Commission as Public-Private-People Partnerships (PPPP) for open innovation. The Living Lab is also an asset that can contribute to pre-procurement projects aimed at supporting public authorities to undertake relevant actions that stimulate health innovation.
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Enabler	E19 Absorptive capacity
Enabler status	Is this enabler active or inactive in your region?
Validation questions	<ul style="list-style-type: none"> <li>• Do you have enough capacity to absorb new technologies, processes and innovations that can help improve your competitiveness? If no, why not?</li> <li>• Do you regularly monitor trends within and outside your region to identify new opportunities for exploitation e.g. using technology surveillance? If no, why not?</li> <li>• Do you identify and absorb key business knowledge from the experiences of other businesses in your sector and/or organisations along your value chains? If yes, what key knowledge themes do you prioritise?</li> <li>• How do you encourage employees to share information based on their experience, knowledge and competencies?</li> <li>• What improvements in ITC have you made in the last 3 years in order to improve the flow of information externally and internally?</li> <li>• How does your ability to innovate improve your competitiveness e.g. by expanding your portfolio of new products and services?</li> </ul>
Rationale for enabler	Organisational - Absorptive capability is a firm's ability to understand, absorb, and apply new knowledge obtained from external sources. Firms with greater absorptive capacities tend to enhance their learning capabilities, which helps them effectively utilize external knowledge. To enable this, the composition of a firm's external network and its internal capabilities are critical in determining the level of innovation performance.

Enabler	E20 Social capital
Enabler status	Is this enabler active or inactive in your region?
Validation questions	<ul style="list-style-type: none"> <li>• How do you build productive social ties with health care providers, patients, suppliers and other industry in your sector plus other innovators?</li> <li>• Open innovation relies on external connections (your ability to make and manage relationships with other firms, health care providers who might buy your products, patients and end-users as co-producers). How do you build and maintain these connections?</li> <li>• What plans have you for expanding and/or improving your external connections in the next 3 years?</li> <li>• What makes you think you are working in a knowledge rich location e.g. characterised by network spillovers, or a knowledge poor location?</li> <li>• Are the value chains and/or networks in which you are engaged based on sufficient levels of trust and flexibility that allows your company or</li> </ul>

	members working together to be responsive and adaptable to new opportunities? If no, why not?
Rationale for enabler	Organisational - social capital is a strong resource that develops from productive social ties. Its use depends entirely upon the values and objectives of the actors involved. It depends on commitment by stakeholders to the principle of open innovation that underpins several other enablers at intermediary (E10, E12, E18) and organisational (E13-E19) levels. Networks provide a primary route for social capital to be spent and accumulated. Effective networks are characterised by high levels of commitment, trust, fine-grained information exchange, and joint problem solving.