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Inclusive and Aligned Innovation Agendas Across Europe

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Deliverable 3.1

Guidelines for ecosystem monitoring, benchmarking, and impact evaluation results

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Executive Summary

These “Guidelines for ecosystem monitoring, benchmarking, and impact evaluation”, under WP 3, aim to provide Life Science and Healthcare clusters with a toolbox to monitor both their ecosystem and their own work. Adoption of these guidelines will allow cluster management organizations to increase the impact they have towards their own and their stakeholders’ goals by understanding offers, needs, and international collaboration interests in more detail.

A simple benchmarking survey has been developed that helps to identify strengths and weaknesses of Life Science and Healthcare ecosystems without being overly extensive. Proxies to measure main areas of interest are provided. The main purpose of the benchmarking survey is not to rank but rather to improve internal processes and activities and to align with other clusters with different backgrounds. However, it can also be used to identify aspects that are useful for public relations.

To directly link activities of cluster management organizations to impact on strategic goals and strengths and weaknesses identified in the benchmarking, INNAXE moreover developed an impact evaluation tool based on the logical framework approach. Here six needs that most Life Science and Healthcare clusters will have in common have been defined. Activities addressing those needs are outlined including indicators to measure output, outcome and impact.

I. Introduction and objectives

INNAXE (Inclusive & aligned INNovation Agendas across Europe) brings together 6 European clusters in Healthtech and Life Sciences that share the objective to address the fragmentation gaps in innovation capacities across Europe and deliver innovative and efficient services to their members. The consortium members will identify pain points, best practices, and actions to increase and sustain impact. With the delivery of a Joint Action Plan, INNAXE will support innovation capacities through interconnected, inclusive, sustainable, and competitive Life Sciences and Healthcare innovation ecosystems (across EU & Associated countries).

This document delineates guidelines for the monitoring of Life Science ecosystems. It provides best practices and methodology a) for analysis of the sector's strengths, weaknesses and needs, b) for a thorough impact assessment of activities carried out by cluster management organizations on their strategy and aims, and c) for benchmarking different Life Science and Health ecosystems across Europe over the minimum common information that cluster organisations gather. The adoption of the herein described guidelines, best practices and methodology will enable Life Science clusters to offer activities that are better suited to support their stakeholders in reaching their goals, to address the ecosystem's identified pain points, and to identify potentially interesting regions for collaboration, both for the cluster management organisations and the stakeholders they work for. A particular focus is set on improving innovation and competitiveness capacities as well as facilitating the twin transformation.

II. Ecosystem Monitoring

Clusters as regional concentration of a wide range of organizations operating in the same sector are thought to increase productivity and competitiveness of the respective sector. Initiatives to manage such clusters have resulted in the establishment of dedicated organizations whose aim is supporting the development of the cluster, mostly in terms of economic strength. To do so cluster management organizations should outline clear strategic goals and delineate strategies and roadmaps to reach these goals. Improving these aspects of management capabilities are targeted in the European Cluster Excellence Initiative (ECEI) and its benchmarking methodology. In addition, clusters must ensure that the activities they implement in their roadmaps indeed result in approaching their strategic goals. For this they must have a) a good understanding of their ecosystem's strength and weaknesses, and b) a good understanding of available activities and their potential impact on the ecosystem's strengths and weaknesses.

A continuous monitoring of various features of their respective sector is thus an essential task for cluster management organizations. Without a solid monitoring process in place, these organizations would not be able to detect trends and changes in their sector and region in an empirically substantiated fashion. As a result, charting progress and identifying gaps to adapt strategy and activities might become mere guessing games.

Importantly, the main purpose of ecosystem monitoring as envisioned by INNAXE is not to rank cluster management organizations according to their quality or the ecosystem's quality.

Rather, it aims at empowering such organizations to understand and support their ecosystems in the best way possible. However, constant monitoring will also help to identify aspects, for instance lighthouse stories, that can be used for public relation purposes. In addition, if comparable parameters such as those proposed by INNAXE are used, it may be used for comparison with other ecosystems.

a. Methodology for Collecting and Processing Information

In order to support cluster management organizations in collecting information relevant for their strategy INNAXE has defined categories of information. Moreover, a non-exhaustive list of practices used to collect, store and circulate knowledge from the Life Science and healthcare sector in a given region was assembled and linked to categories of information.

Categories of Information

Information to identify players in the city/region/country (e.g. name of company, address, company number, size, etc.)	Information about political initiative, strategies and regulations affecting the sector
Detail about companies (contacts, subsector, products, funding perceived, turnover)	Information relative to international markets of interest, imports and exports
Investment raised and other funds granted in the city/region/country	Information about the workforce in your ecosystem (e.g. number of employees in companies or healthcare providers)
Science performance in the city/region/country	Information about healthcare capacities (e.g. hospital beds, budget, waiting time, etc.)
Business generated from academia	Interconnection of the ecosystem players within the city/region/country and internationally
Information about the talent produced by universities (including gender information)	Information about patents generated and products procured and adopted by healthcare providers
Business dynamics (e.g. company survival rate, ratio of creation of companies, etc.)	Information about different organisations of support to the value chain of Life Science and Health in the ecosystem, and their activities

Practices used for collecting Information	Link to Categories of Information
Send surveys and open consultations to the ecosystem	Information to identify players in the city/region/country (e.g. name of company, address, company number, size, etc.) Detail about companies (contacts, subsector, products, funding perceived, turnover)
Organise discussion groups and forums open to a public audience Organise discussion groups and forums exclusive to expert participants from the ecosystem	Sectorial challenges in the region, perspectives and recommendations from different kinds of stakeholders Information about healthcare capacities (e.g. hospital beds, budget, waiting time, etc.)
One-to-one meetings with ecosystem players	Investment raised and other funds granted in the city/region/country Detail about companies (contacts, subsector, products, funding perceived, turnover) Business dynamics (e.g. company survival rate, ratio of creation of companies, etc.) Information about patents generated and products procured and adopted by healthcare providers
Training for staff members of cluster organisation (from internal or external experts)	Regulations, internal organisation optimisation methods and tools, sectorial trends in the regional, national or international landscape
Use of a Customer Relations Management (CRM) software (e.g. Salesforce)	Track record of contacts, organisations, products, investment, etc. Source of updated information for interaction and interconnection of the ecosystem and ecosystem showcasing
Open platforms for ecosystem players to include their information themselves	Information to identify players in the city/region/country (e.g. name of company, address, company number, size, etc.) Detail about companies (contacts, subsector, products, funding perceived, turnover)
Massive information update rounds (e.g. via email)	Information to identify players in the city/region/country (e.g. name of company, address, company number, size, etc.)

	Detail about companies (contacts, subsector, products, funding perceived, turnover)
Common internal document repository for staff of cluster organisation	Monitoring and record keeping for projects, programmes, and other actions in a collaborative fashion for all staff
Navigate databases (related to companies, IP, clinical trials, academic publications etc.)	Information about the workforce in your ecosystem (e.g. number of employees in companies or healthcare providers) Investment raised and other funds granted in the city/region/country Science performance in the city/region/country Business generated from academia Information about the talent produced by universities (including gender information) Business dynamics (e.g. company survival rate, ratio of creation of companies, etc.) Information about patents generated and products procured and adopted by healthcare providers Information relative to international markets of interest, imports and exports Information about healthcare capacities (e.g. hospital beds, budget, waiting time, etc.)
Close collaboration with technology transfer offices	Business generated from academia Business dynamics (e.g. company survival rate, ratio of creation of companies, etc.) Information about patents generated and products procured and adopted by healthcare providers
Active follow-up of media and policy releases	Interconnection of the ecosystem players within the city/region/country and internationally Information about political initiatives, strategies and regulations affecting the sector Information about different organisations of support to the value chain of Life Science and Health in the ecosystem, and their activities

In most cases the main obstacle for proper ecosystem monitoring is a lack of resources allocated to such tasks. Partially this is due to notoriously tight budgets which results in personnel working at capacity, such that there is no time left for monitoring activities. In fact, very few cluster organizations have personnel dedicated to business intelligence tasks. However, it is very important that cluster managers, their stakeholders and funders realize that understanding your ecosystem beyond subjective impressions is indispensable for cluster management organizations to fulfil their mandate. Furthermore, some of the tools that can be used for collecting and processing information, if used correctly, can often be used to optimise the time of the staff in the cluster management organisations, being, thus, of high added value.

b. Guidelines for Ecosystem Monitoring

1. **Strategy in place with goals that can be linked to your activities**
2. **Funders understand the importance of monitoring ecosystem**
3. **Allocation of resources (human and monetary) to ecosystem monitoring**
4. **Benchmarking with indicators (e.g. those provided here) at least annually to monitor ecosystem**
5. **Evaluate impact of activities (e.g. whit logical frameworks provided here) at pre-defined intervals to monitor activities and their impact**
6. **Adaptation of activities and strategy depending on outcome of monitoring**

III. Ecosystem Benchmarking

The INNAXE consortium has developed and provides here a concise questionnaire in the form of a survey with 30 questions which is designed to provide a good overview of key aspects of Life Science and Health ecosystems. As mentioned above, this benchmarking is not primarily designed for cluster ranking, rather it can support the internal strategy development of cluster management organizations. Using this questionnaire allows continuous benchmarking and thus monitoring of an ecosystem's development. The idea is a) to define strategy and ecosystem which are highly dependent on factors such as business and funding model, b) to collect practices of gathering knowledge as an empowerment tool, and c) to identify proxies for various possible indicators for the main areas of interest for Life Science and Health clusters, which are **Scientific Excellence**, **Clinical Excellence**, **Talent Production**, **Science to Business Interphase, Scale-up and Ecosystem Consolidation**, **Collaboration**. These proxies allow to have a solid estimate of status and development of the sector in a region, while at the same time not being unmanageable extensive for standard implementation in cluster management organizations.

This benchmarking approach explicitly does not claim to be exhaustive but tries to define key parameters for each of the main areas Life Science and Health clusters are working on. This approach was chosen because an analysis of work routines and resource allocation in the INNAXE consortium organizations showed that in most cases very few resources are allocated for systematic ecosystem monitoring and benchmarking such that any methodology requiring

more than a minor effort would probably not be adopted. There is no public data available regarding this topic, but personal communications from other clusters lead to similar conclusions. Non-adoption is particularly likely because of the repeated effort necessary to collect long-term data which is indispensable for identifying trends and a subsequent meaningful adaptation of strategy and activities. It is not sufficient to collect data just once. Such a snapshot might allow for comparison with other ecosystems in terms of strength and weaknesses if comparable parameters are used. For proper monitoring and adaptation of strategy and activities it is necessary to implement the collection of data routinely.

Structure of Survey

- What is INNAXE about and benefits for cluster organisations
- Data management
  - The information gathered in this survey will not be used in any ways that may lead to revealing your identity. Publications that may arise from the data gathered here w...
  - Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European
  - them.
- Strategy and ecosystem definition
  - The actions of clusters, both for internal organisation and towards organisations under their umbrella, are highly dependant on factors such as
  - following questions set a baseline knowledge about your organisations to clarify dependencies on the above variables.
  - 2. What is the extent of your geographical scope?
  - 3. What is the aproximate number of inhabitants in the area you are covering? w 1
  - 4. How many organisations from the following
  - categories do you consider under your umbrella?
  - 5. Which of the following groups are the target of your actions as a cluster? w 0
  - 6. Which of the following activities do you carry out to reach your organisational goals and those of your stakeholders? w 0
  - 7. What is your legal form? w 0
  - 8. How would you define your organisation? w 0
  - 9. How would you define the sources of funding for your organisation? w 0
  - 10. In what percentage (aproximate) does your funding come from public or private sources? w 0
  - 11. Which of the following are taken into consideration, or will be taken into consideration in short time, in the development of the strategy of your organisation? w 0
  - 12. In sight of the sectorial trends at the international level, which of the following are part of the strategy for the future in your organisation? w 0
- Gathering knowledge as an empowerment tool for the cluster organisation
  - Cluster organisations strongly rely on other players acknowledging their expertise on the different focus areas of their action. To ensure this expertise is present in the cl...
  - 14. Which of the following practices does your organisation use to collect, store and internally
  - organisation use to position itself to be recognised as sectorial experts by the ecosystem players, in relation to communicating the information gathered by the means...
  - 16. From which of the following categories does your organisation collect information? w 0
  - 17. Following with the previous question, what information would be of your interest to collect, or
- Baseline information from the different ecosystems
  - In this section we aim to collect some specific data which the INNAXE consortium has agreed as a
  - and have a broad view of potential leads for cross- cluster collaborations. Additionally, some of the questions provide you tools to find the information in case you are...
  - 18. What is the size of the workforce (aproximately) in the geographical area covered by your organisation? w 0
  - 19. How many research organisations represented in your geography are ranked among the top 100, in Life Sciences in Europe, according to Nature?
  - 20. How successful are players in the geopgraphic area you cover to attract european funding for R&D puroposes?
  - 21. How many clinical trials are being run in your area?
  - 22. What is the average stay time in hospitals of your area? w 0
  - 23. How many students (aproximately) are there in STEM degrees related to Life Sciences and Health
  - 24. How many patents applicable to the health domain have been filled in your country since 2022?
  - 25. How many new companies were born in the area you cover last year? w 0
  - 26. What was the volume of investment in young companies in your region last year?
  - 27. What is the sectorial turnover of the sector in your area? w 0
  - 28. To get a hint on the level of collaborations in the area you cover, if you make networking events, how many attendees have you had in the last year? w 0
  - 29. To estimate the relevance of internationalisation for organisations under your umbrella, chose below w 0
- Thank you so much!
  - The INNAXE consortium would like to thank you having completed this survey.
  - any comments in which you want to provideB
  - 30. Please, if you wish, add any comments, suggestions or information to complement the previous questions. w 0

IV. Impact Evaluation of Activities

At the core of cluster management organizations are the activities they perform for internal organization and towards their stakeholders. These activities should lead to achieving the strategic goals they have set for themselves, all of which are in turn typically aligned with their stakeholders' needs and strategic goals. It is therefore essential to be aware of the range of activities available and understand which impact they might have in any given situation towards certain goals.

a. Categories of Activities with Examples

The activities categories and examples given here are sampled from the INNAXE consortium partners. The list is not exhaustive and not meant to be a gold standard to be used by all cluster organizations. Rather, the list is meant to give inspiration. To which degree one or another category and associated examples are employed will depend heavily on priorities, resources and scope of cluster management organizations. Importantly, categorization of activities as presented here is not linked to the need an activity addresses or the impact it is aiming for. Thus, different activities falling under one category can work towards different impacts and needs. Similarly, a single activity can work towards different impacts and needs. See below under *IVb. Impact Evaluation* for orientation as to which activities work towards which impacts and needs.

Activities Category	**Examples**
Events	Annual Conference
	Webinars/thematic events
	Regular Networking Meeting with/without program
	Co-organized, dedicated events (with cluster participants)
	Presentations of Reports etc.
Marketing, Communication, Public Relations	Advertorial/articles in magazines
	Visit Fair/conference with booth
	Press releases
	Social media presence/activity
Internationalization	Soft-landing service (incoming)
	Internationalization service (outgoing)
	Engagement with foreign administration/politics
Translation support	Science/Start-up competitions
	Investor events
	Scouting /partnering services

	Acceleration programs
	Industry challenges
	Cascade Funding
Stakeholder alignment/engagement	Boards engagement/meetings
	Politics engagement/meetings
Project Management	Support grant applications within network
	Project management for running projects
	Partner for running projects
Education, Talent & Entrepreneurship promotion	Entrepreneurship programs
	Soft skill educational programs

b. Impact Evaluation

In order to provide Life Science and healthcare clusters with a tool to measure the impact of their activities towards their goals and adjust accordingly, INNAXE has developed a methodology based on the logical framework (logframe)[1] approach which is provided here (Appendix II). In a first step, an overall aim for Life Science and healthcare clusters and six needs whose fulfilment is highly relevant to reach that aim have been defined (see also below and Appendix II): Positive development in the fields **Market**, **Talent**, **Innovation&Transfer**, **Funding**, **Policies** and **Healthcare** will lead to **improving society's wellbeing and health by strengthening life science research, knowledge and the associated economy in a sustainable, resilient, and inclusive fashion**. Subsequently, for each of the needs a logframe was developed, outlining activities whose implementation will lead to outputs whose delivery in turn will generate outcomes that act towards achieving the desired impact. Importantly, for all activities, outputs, outcomes and the impact a set of indicators was defined which allows monitoring of activities and in how far desired outputs, outcomes and impact are achieved. Sources of verification and assumptions/risks were omitted from logframes because they vary widely between ecosystems and regions.

The purpose of these logframes is twofold: First, it provides a framework which can be extended and adapted according to other clusters' structures and needs. Second, it gives concrete examples of how to evaluate the impact of activities in greater depth. In theory these logframes can be directly applied by clusters which share the six needs INNAXE identified to reach the overall aim outlined above. Not all cluster management organizations have to carry out all activities or pursue all outcomes mentioned here.

[1] https://wikis.ec.europa.eu/display/ExactExternalWiki/Introduction+to+Results+and+Monitoring#IntroductiontoResultsandMonitoring-1.3.3LogicalFrameworkMatrix-Logframe

Needs & context	Needs & context extended	Need in 1 word	Impact aimed at	Overall Aim
Sufficient market size	Strong industrial ecosystem with sufficient market size, scaling up companies and attraction of larger companies	Market	Increase in Life Science/healthcare contribution to GDP	Improving society's wellbeing and health by strengthening life science research, knowledge and the associated economy in a sustainable, resilient, and inclusive fashion.
Sufficient talent	High quality positions can be filled with trained and skilled researchers, innovators, entrepreneurs and healthcare system professionals to strengthen ecosystem and face transformation challenges	Talent	Regional Life Science companies and academic institutes are able to fill all positions with adequately trained personnel	
Technology created in academia and outside reaching market	Technology and innovations created in academia and the industry reaching the market and the Healthcare system in a fast and efficient way	Innovation & Transfer	Increased number of academic projects reach market and healthcare system in a fast and efficient way	
Sufficient funding for companies and academia	Increased / sufficient funding and investment for academia and companies to advance knowledge and scale up the ecosystem	Funding	Sufficient funding for academia and industry to reach their goals	
Political support to the sector	Increased prioritization of the innovative life science and healthcare sector in the political agenda, with targeted budget and initiatives	Policies	Increased prioritization of the Life Science and healthcare innovative sector in the political agenda	
Efficient healthcare provision	A stronger, more resilient, sustainable, innovative and inclusive healthcare system, contributing to a more personalized and efficient healthcare provision	Healthcare	Efficient healthcare provision improved through research and innovation	

c. Instructions for Using the Logframes (Appendix II)

First check if the ***Pre-condition*** in the top right corner for each ***logframe*** applies to your cluster. If yes, you can consider if your strategy entails alleviating this problem. If this is the case you can consider implementing some, all, or similar ***Activities*** as provided. The implementation of ***Activities*** will lead to certain ***Outputs***, which in turn will generate ***Outcomes*** feeding into the desired ***Impact***. In general, this logical chain depends on assumptions that must hold, however, because assumptions and risks may vary widely

between different regions they are omitted here for simplicity's sake. All ***Activities***, ***Outputs***, ***Outcomes***, and ***Impact*** should be measured at pre-defined intervals by some, all, or similar ***Indicators*** as provided. As ***Impact*** and ***Outcomes*** are rather long-term, and also ***Activities*** and ***Outputs*** in Life Science ecosystems follow longer cycles than in standard projects, intervals should not be too short. For instance, ***Impact*** could be measured bi-annually, ***Outcomes*** annually, and both ***Outputs*** and ***Activities*** twice per year. Sources for verification of ***Indicators*** might also vary widely between different regions and structures of clusters and are therefore omitted here. In fact, for internal monitoring purposes it might be more important to consistently collect metrics in the same way than to utilize only "perfect" indicators. All ***Indicators*** are always referring to the region or regional aspects unless otherwise stated.

APPENDIX I

Long European Cluster Benchmarking - INNAXE

What is INNAXE about and benefits for cluster organisations

The INNAXE consortium (conformed by Medicen, BioRN, Health and Life Science Cluster Bulgaria, Danish Life Science Cluster, CEBR and Biocat) launches this survey to all members in the CEBR in an effort to increase the share of knowledge about the different regions in Europe and about the organisations that promote the Life Science and Health sector in these regions.

This survey is one of several actions that aims to help clusters to have more accurate information about what their ecosystems offer, what they need, what common interests for collaboration they may have with international players, and what actions that they conduct have a high impact and should continue to be implemented.

With the results of the survey, the INNAXE consortium will ultimately be able to share with the CEBR members different practices for maximising the knowledge about the organisations under the umbrella of clusters, and to increase the impact of their actions on the innovative potential of the region, always taking into account the different models of clusters, strategy, focus, and context.

OK

Long European Cluster Benchmarking - INNAXE

Data management

The information gathered in this survey will not be used in any ways that may lead to revealing your identity. Publications that may arise from the data gathered here will not include any personal data that you may provide, which neither will be shared with any other organisation within the INNAXE consortium nor outside it. The only organisation that will manage the data that you provide will be Biocat in compliance with our corporate privacy policy. By clicking on next you accept these terms.

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OK

Long European Cluster Benchmarking - INNAXE

Strategy and ecosystem definition

The actions of clusters, both for internal organisation and towards organisations under their umbrella, are highly dependant on factors such as business and funding model, subsectorial focus if any, mandate, strategy, and even location. The following questions set a baseline knowledge about your organisations to clarify dependencies on the above variables.

1. What is the name of your cluster and were is it located?

Company	
City/Town	
State/Province	
ZIP/Postal Code	
Country	

2. What is the extent of your geographical scope?

- ◯ We work at the city level
- ◯ We work at the regional level
- ◯ We work at the country level

3. What is the aproximate number of inhabitants in the area you are covering?

- ◯ Less than 50.000
- ◯ 50.000 to 100.000
- ◯ 100.000 to 500.000
- ◯ 500 000 to 2.000.000
- ◯ 2.000.000 to 5.000.000
- ◯ More than 5.000.000

4. How many organisations from the following categories do you consider under your umbrella?

Empty fields will be counted as 0. In case divided numbers cannot be provided, please try to provide, at least the aproximated total.

You shall consider under your umbrella any organisation in your geographical area of coverage that is targeted by any action of the cluster organisation.

Pharma companies	
Biotech companies	
Medical technologies companies	
Digital Health companies	
Research organisations	
Universities	
Hospitals and healthcare providers	
Patient representatives and organisations	
Administration bodies and authorities	
Other not belonging to the health domain	
Aproximated total	

5. Which of the following groups are the target of your actions as a cluster?

- [ ] Big enterprises
- [ ] Consolidated SMEs and scale-ups
- [ ] Start-ups and entrepreneurs
- [ ] Service-provider companies
- [ ] Tech-transfer offices
- [ ] Research institutes (including those from hospitals)
- [ ] Universities
- [ ] Hospitals and other healthcare providers
- [ ] Patients and citizens directly
- [ ] Administration bodies at a local, regional or national level
- [ ] Administration bodies at an international level
- [ ] Other local, regional or national networks from the life science and health sector
- [ ] Other local, regional or national networks from other sectors
- [ ] Other international networks from the life science and health sector
- [ ] Other international networks from other sectors
- [ ] Other (please specify)

6. Which of the following activities do you carry out to reach your organisational goals and those of your stakeholders?

- [ ] Event organisation and attraction
- [ ] Education programmes
- [ ] Sectorial marketing and communication
- [ ] Internationalisation
- [ ] Support to translation of science into business
- [ ] Stakeholder alignment/engagement
- [ ] Support to project development and management

7. What is your legal form?

- ◯ Non-Governmental-Organisation (NGO)
- ◯ Government agency
- ◯ Company
- ◯ Public-Private-Partnership (PPP)
- ◯ Association
- ◯ Cooperative/consortium

8. How would you define your organisation?

- ◯ Membership-based organisation
- ◯ Non- membership-based organisation

9. How would you define the sources of funding for your organisation?

- ☐ Public non-competitive (automatic or dedicated)
- ☐ Public competitive (in response to a competitive call and / or EU Grants)
- ☐ Membership fees
- ☐ Fees from services
- ☐ Other (please specify)

10. In what percentage (aproximate) does your funding come from public or private sources?

100% Public | 50 - 50 | 100% Private

11. Which of the following are taken into consideration, or will be taken into consideration in short time, in the development of the strategy of your organisation?

- [ ] Sustainable Development Goals (see them here)
- [ ] Gender and equality (i.e. having a gender plan in place)
- [ ] Resilience and recovery (e.g. from COVID, the war in Ukraine and other potential crisis situations)

12. In sight of the sectorial trends at the international level, which of the following are part of the strategy for the future in your organisation?

- [ ] Advanced Therapies (gene therapy, cell therapy and tissue engineering) and/or personalisation of healthcare
- [ ] Preventive care and/or diagnostics
- [ ] Transfer of academic knowledge into business
- [ ] Digitalisation of health (including health data, digital therapeutics, etc.)
- [ ] Green transition of the health sector
- [ ] Other (please specify)
- [ ] Antimicrobial resistance
- [ ] Facilitate public procurement and adoption of innovation
- [ ] Skill development
- [ ] Manufacturing and value chain independence

Long European Cluster Benchmarking - INNAXE

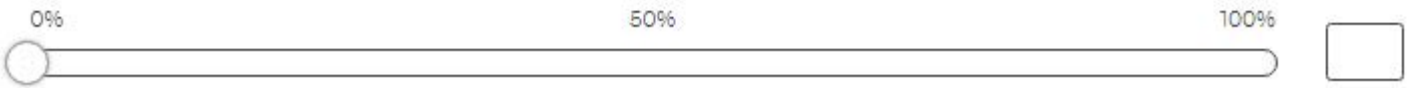
Gathering knowledge as an empowerment tool for the cluster organisation

Cluster organisations strongly rely on other players acknowledging their expertise on the different focu areas of their action. To ensure this expertise is present in the cluster organisation, and to make it visible to the target players, different clusters may take different approaches. These approaches depend strongly in the priorities, resources and scope of the clusters. However, awareness of specific tools or methods that support knowledge collection may habilitate cluster organisations to expand their information pools, hence supporting strategy definition and decission-making. For allowing the INNAXE consortium to provide recommendations in this regard, please answer the following questions

13. What percentage (aproximately) of the FTEs in your organisation are dedicated to collecting, curating and storing information?

To answer this question, please consider the effort that you externalise in addition to your own staff.

FTE: Full-Time-Equivalents, considering a full working week of 40 hours



14. Which of the following practices does your organisation use to collect, store and internally circulate knowledge from the sector and players in the geography covered by cluster organisation?

- [ ] Send surveys and open consultations to the ecosystem
- [ ] Organise discussion groups and forums open to a public audience
- [ ] Organise discussion groups and forums exclusive to expert participants from the ecosystem
- [ ] One to one meetings with ecosystem players
- [ ] Training for staff members in the cluster organisation (from internal or external experts)
- [ ] Use of a Customer Relations Management (CRM) software (e.g. Salesforce)
- [ ] Other (please specify)

- [ ] Open platforms for ecosystem players to include their information themselves
- [ ] Massive information update rounds (e.g. via email)
- [ ] Common internal document repository for staff of the cluster organisation
- [ ] Navigate databases (related to companies, IP, clinical trials, academic publications)
- [ ] Close collaboration with technology transfer offices
- [ ] Active follow-up of media and policy releases

15. Which of the following practices does your organisation use to position itself to be recognised as sectorial experts by the ecosystem players, in relation to communicating the information gathered by the means from above?

- [ ] Publish periodic (e.g. annual) reports summarising information and indicators from the ecosystem
- [ ] Lobbying at local, regional or national level
- [ ] Lobbying at an international level
- [ ] Advise to policymaking
- [ ] Other (please specify)
- [ ] Advise/consulting to companies
- [ ] Organisation of trainings
- [ ] Scouting and connection to investors
- [ ] Attraction or support to attracting large events

16. From which of the following categories does your organisation collect information?

- [ ] Information to identify players in the city/region/country (e.g. name of company, address, company number, size, etc.)
- [ ] Detail about companies (contacts, subsector, products, funding perceived, turnover)
- [ ] Investment raised and other funds granted in the city/region/country
- [ ] Science performance in the city/region/country
- [ ] Business generated from academia
- [ ] Information about the talent produced by universities (including gender information)
- [ ] Business dynamics (e.g. company survival rate, ratio of creation of companies, etc.)
- [ ] Information about political initiative, strategies andregulations affecting the sector
- [ ] Information relative to international markets of interest, imports and exports
- [ ] Information about the workforce in your ecosystem (e.g. number of employees in companies or healthcare providers)
- [ ] Information about healthcare capacities (e.g. hospital beds, yearly budget, waiting time, etc.)
- [ ] Interconnection of the ecosystem players within the city/region/country and internationally
- [ ] Information about patents generated and poducts procured and adopted by healthcare providers
- [ ] Information about different organisations of support to the value chain of Life Science and Health in the ecosystem, and their activities
- [ ] Other (please specify)

17. Following with the previous question, what information would be of your interest to collect, or you would like to improve at collecting?

Would be interested in collectting	
Would like to improve at collecting	

Long European Cluster Benchmarking - INNAXE

Baseline information from the different ecosystems

In this section we aim to collect some specific data which the INNAXE consortium has agreed as a baseline for allowing to identify similarities between the populations covered by cluster organisations and have a broad view of potential leads for cross-cluster collaborations. Additionally, some of the questions provide you tools to find the information in case you are not aware about the figures asked for and would like to have it.

Please note that the information provided here should be fairly accurate, and that in case you cannot provide an answer to a question it can be skipped.

18. What is the size of the workforce (aproximately) in the geographical area covered by your organisation?

Number of employees

Scientific Excellence

19. How many research organisations represented in your geography are ranked among the top 100, in Life Sciences in Europe, according to Nature?

(See the Nature Index)

Number organisations

20. How successful are players in the geopgraphic area you cover to attract european funding for R&D puroposes?

(See the Horizon Dashboard)

Number of ERC grants

Total funding attracted from the Framework Programme (Horizon Europe)

Clinical Excellence

OK

21. How many clinical trials are being run in your area?

(See EUClinicalTrials and filter by country in the advanced search, and find more information in EudraCT)

Number of active clinical trials

22. What is the average stay time in hospitals of your area?

Average stay time in days

23. How many students (aproximately) are there in STEM degrees related to Life Sciences and Health in the universities of your area?

You can often find this information publically available searching online for university yearbooks in your region/country

Number of students	
Percentage of women	
Number of international PhD students	

24. How many patents applicable to the health domain have been filled in your country since 2022?

(Guidance: go to Espacenet, click on office/language on the top right side, and, on the new page, paste "cpc=A61 2022:2023")

Number of patents	

25. How many new companies were born in the area you cover last year?

Absolute number of new companies	
% of increase (indicate +) or decrease (indicate -) respective to last year figures	

Scale-up and Ecosystem Consolidation

26. What was the volume of investment in young companies in your region last year?

(to search for this information you can often find it in Dealroom)

Total amount invested	
Amount for the highest investment round	

27. What is the sectorial turnover of the sector in your area?

Turnover in €	
Percentage over the total GDP of the region/country	

Collaboration inside and outside of the ecosystem

28. To get a hint on the level of collaborations in the area you cover, if you make networking events, how many attendees have you had in the last year?

Number of events	
Number of attendees	

29. To estimate the relevance of internationalisation for organisations under your umbrella, chose below

	None	Little	Some	Many	A lot
How often do you get requests for internationalisation support?	○	○	○	○	○
Any internationalisation instruments put in place in your area?	○	○	○	○	○
How active is your organisation in international networks?	○	○	○	○	○

Long European Cluster Benchmarking - INNAXE

Thank you so much!

The INNAXE consortium would like to thank you having completed this survey.
We really value your input, and will be happy to take any comments in which you want to provide suggestions, or any other information you would like to share to complement your answers from above.

OK

30. Please, if you wish, add any comments, suggestions or information to complement the previous questions.

APPENDIX II

Logframe 1 - Market

Project strategy SUFFICIENT MARKET SIZE	Indicators	
Impact: Increase in Life Science/healthcare contribution to GDP	% of GDP deriving from Life Science/healthcare increasing over time % increase of regional companies' SAM over time	Pre-condition: Market size, access and scaling insufficient
Outcomes: 1. Regional companies acting internationally (collaborations and markets/exports) 2. Companies established in region (incl. subsidiaries) 3. Regional companies increasing sales (incl. outside of region)	1. - increase # of international deals (M&A, licensing, collaborative) - increase € sales abroad all regional companies compared to previous year - increase # scale-up companies 2. - increase # serviced companies establishing subsidiaries per year in region compared to pre-service - # employees hired by companies getting established in region per year compared to pre-service - increase # companies established in region compared to previous year - increase # manufacturing/prduction facilities established in region compared to previous year 3. - increase € sales for regional companies - increase € sales in target region for all serviced companies compared to pre-service -increase # regional companies with subsidiaries abroad compared to previous year	
Outputs: 1a. Relevant business missions (incoming&outgoing) 1b. Relevant training 1c. Cluster collaborations enhancing international network 2a. Relevant softlanding services provided 3a. Relevant internationalisation services provided 3b. Relevant marketing services provided	1a. - # of participants in missions - # of countries missions - € potential market size addressed in missions 1b. - # of participants in training - evaluation of training provided by participants - # active actors in network providing training 1c. - # international contacts facilitated by clusters - % collaborations leading to long-term relationships (e.g. follow-on projects between clusters or cluster actors) 2a. - € cluster income from softlanding services - # serviced companies having concrete plans to maintain operation in region - diversity of companies serviced (i.e. size, subsector, therapeutic area, technology type) - # countries of origin 3a. - € cluster income from internationalisation services - # serviced companies identifying first customers in target region - # different target regions - diversity of companies serviced (i.e. size, subsector, therapeutic area, technology type) 3b. - € cluster income from marketing services - # new customers for serviced companies - diversity of companies serviced (i.e. size, subsector, therapeutic area, technology type)	
Activities: 1a. Business/trade missions (incoming&outgoing) 1b. Trainings on market access 1c. Cluster-cluster collaborations 2a. Softlanding services (incoming) 3a. Internationalisation services (outgoing) 3b. Marketing services	1a. - # business/trade missions (incoming&outgoing) 1b. - # trainings offered 1c. - # projects in collaboration with other national or international clusters 2a. - # companies supported in soft-landing 3a. - # companies supported in internationalisation 3b. - # companies supported in marketing	

Logframe 2 - Talent

Project strategy SUFFICIENT TALENT	Indicators	
Impact: Regional Life Science companies and academic institutes are able to fill all positions with adequately trained personnel	% unfilled positions in sector and region decreasing over time	Pre-condition: Insufficient talent for industry and academia
Outcomes: 1. Less unfilled positions in sector in region 2. Large pool of university graduates and experienced industry employees with adequate skills 3. Skills of students matching industry needs 4. Talent attracted to sector and region	1. - reduced time untill filling of positions compared to previous year - increase # of persons switching from academia to industry and vice-versa compared to previous year 2. - increase # of incoming international students in exchange programs compared to previous year - increase # of students in STEM subjects compared to previous year - increase % of women in STEM carrers compared to previous year - increase % of women in C-level/top academic positions compared to previous year 3. - increase # of spinoffs from academia - increase % of graduates entering industry for first job - increase % of STEM students pursuing business studies after graduating 4. - increase # international/supra-regional employees assuming positions in sector and region compared to previous year	
Outputs: 1a. Relevant intelligence/training provided 2a. Relevant interaction between academia and industry 2b. Talents/students accessing job offers through social media/boards/fairs 2c. Relevant programs supporting Equality, Diversity, Inclusion 3a. Relevant training programs, upskilling and reskilling for employees and employers 4a. Government/universities consider cluster's input for talent/student attraction 4b. Increased awareness for attractivity of sector and region	1a. - # changes implemented by companies advised 2a. - # of companies offering MSc/PhD programs - # programs offered by regional/national administration - # students in industrial/shared MSc/PhD programs - # students attending lectures taught by industry professionals - increased pool of valued mentors 2b. - # attendants job fairs - # likes social media job offer posts - # applications to job offers on boards - # positions filled through social media/boards/fairs 2c. - #participants in EDI programs 3a. - Diversity of training programs (e.g. entrepreneurship, business, finance, industry skills etc.) - # students applying for entrepreneurship trainings - # researchers applying for entrepreneurship/business/finance trainings - # participants training programs conveying industry-relevant skills 4a. - # policy/framework changes based on cluster's input - # talent-related assignments for clusters from government/universities 4b. - # likes/shares/clicks/reads social media campaigns - # articles on sector/job market in region - # incoming requests for jobs in sector and region	
Activities: 1a. Provide intelligence for local companies about competitiveness in talent attraction/retention and executive training 2a. Exchange frameworks for academia and industry 2b. Job boards/fairs 2c. programs supporting Equality, Diversity, Inclusion 3a. Training programs both for students/employees (entrepreneurship, industry-specific content, see also logframe 2) 4a. Policy advice for talent/student attraction/retention 4b. PR campaigns advertising sector and region	1a. - # companies/executives advised - hours of training provided 2a. - # framework programs offered/supported 2b. - # job fairs - # job postings on job board/social media 2c. - # programs supporting Equality, Diversity, Inclusion 3a. - # training programs - hours of training provided 4a. - # Meetings/events with policymakers/university regarding talent/student attraction/retention 4b. - FTE on PR campaigns	

Logframe 3 – Innovation & Transfer

Project strategy TECHNOLOGY CREATED IN ACADEMIA AND OUTSIDE REACHING MARKET	Indicators	
Impact: Increased number of academic projects reach market and healthcare system in a fast and efficient way	% of investment into academic research that leads to development of products increasing over time	Pre-condition: New technologies not reaching the market
Outcomes: 1. Increase in partnerships/funding to develop projects towards market-readiness 2. Researchers/students are acknowledged/benefitting if participating in transfer activities 3. Policy/framework changes improving technology transfer conditions	1. - increase # licensing deals from regional startups to corporates - increase % follow-on financing/partnerships resulting from scoutings/investment events/acceleration programs/competitions etc. compared to previous year - increase % products on market/new milestones resulting from scoutings/investment events/acceleration programs/competitions etc. compared to previous year - increase # regional industry-academia co-publications compared to previous year 2. - reduced time untill filling of positions in start-ups compared to previous year - increased # students willing to work in start-ups compared to previous year - increase ratio academic spin-offs per research group compared to previous year - increase ratio applications technology transfer grants per research group compared to previous year - increase % in group leaders/department heads with clear transfer record compared to previous year - increase potentially commercializable projects are initiated/pursued compared to previous year 4. increase # policy/framework changes with positive effect on technology transfer compared to previous year	
Outputs: 1a. Relevant scoutings 1b. Relevant investment events 1c. Relevant acceleration programs 1d. Successful challenges and competitions 2a. Relevant training programs 2b. Increased awareness for/interest in entrepreneurship 3a. Policymakers/stakeholders consider cluster's input for improving technology transfer conditions	1a. - # returning scouting clients - # regional projects/companies presented in scope of scoutings 1b. - # start-ups attending events - # investors attending events 1c. - Diversity of acceleration programs (e.g. patient bootcamps, business plan, pitch etc.) - # projects/companies participating in programs - # (industry) mentors supporting programs 1d. - # applicants for challenges/competitions 2a. - Diversity of training programs (e.g. entrepreneurship, business, finance etc.) - # students applying for entrepreneurship trainings - # researchers applying for entrepreneurship/business/ finance trainings skills 2b. - # likes/shares/clicks/reads social media campaigns - # articles on technology transfer in region - # scientists/physicians attending technology transfer events 4a. - # policy/framework changes based on cluster's input	
Activities: 1a. Scouting for partnering needs (see also logframe 4) 1b. Investment events (see also logframe 4) 1c. Acceleration programs (see also logframe 4) 1d. Industry challenges and science/start-up competitions 2a. Training programs e.g. entrepreneurship, industry-specific content (see also logframe 2) 2b. Entrepreneurship/transfer promotion programs 3a. Policy advice to improve technology transfer conditions	1a. - # scoutings conducted 1b. - # investment events organized 1c. - # acceleration programs run 1d. - # of challenges and competitions organized 2a. - # training programs - hours of training 2b. - # of promotion programs/events - diversity of target groups entrepreneurship/transfer promotion programs (i.e. students, early/late career researchers, academic leadership) - FTE on entrepreneurship promotion 3a. - # meetings with policymakers/stakeholders regarding technology transfer	

Logframe 4 - Funding

Project strategy SUFFICIENT FUNDING FOR COMPANIES AND ACADEMIA	Indicators	
Impact: Sufficient funding for academia and industry to reach their goals	 € third party funding academia increasing over time € funding raised by startups/companies increasing over time	Pre-condition: Lack of funding to develop technologies and drive projects
Outcomes: 1. Increase of succesful financing rounds for start-ups 2. Increased interest global companies/investors in region 3. Increase non-dilutive funding for start-ups/companies and academia 4. Policy/framework changes faciliting financing of start-ups/companies and academia	 1. - Increase # financing rounds compared to previous year 2. - Increase # of VC offices in region compared to previous year - Increase # partnerships academia with global healthcare companies compared to previous year - Increase # partnerships start-ups/companies with global healthcare companies compared to previous year 3. - Increase € third party funding for academia compared to previous year - Increase € public grants for start-ups/companies compared to previous year - Increase # high impact publications compared to previous year 4. - Increase # policy/framework changes with positive effect on financing of academia/start-ups/companies	
Outputs: 1a. Relevant investment events 1b. Succesful preparation for events 2a. Succesful attendance to partnering/investment events 2b. Increased regional presence global healthcare companies and investors 2c. Relevant scoutings 3a. Relevant acceleration programs 3b. Succesful grant applications 4a. Policymakers/stakeholders consider cluster's input for improving access to funding	 1a. - # start-ups attending events - # investors attending events 1b. - % research groups/companies receiving funding/entering partnerships after attending events 2a. - # partnering meetings with global healthcare companies or investors during events 2b. - # follow-on meetings/visits global healthcare companies and investors 2c. - # returning scouting clients - # projects/companies presented in scope of scoutings 3a. - # projects/companies participating in programs - # (industry) mentors supporting programs 3b. - % grant applications successful (e.g for specific grants) 4a. - # policy/framework changes based on cluster's input	
Activities: 1a. Investment events (see also logframe 3) 1b. Preparation for events/interviews etc. 2a. Attendance to (partnering/investment) events 2b. Meetings with global healthcare companies or investors 2c. Scouting for partnering needs (see also logframe 3) 3a. Acceleration programs (see also logframe 3) 3b. Support in grant applications 4a. Policy advice for improving access to funding	 1a. # investment events organized 1b. # people prepared for events/interviews etc. 2a. # (partnering) events attended to showcase region 2b. # meetings with global healthcare companies or investors 2c. # scoutings conducted 3a. # acceleration programs run 3b. # grant applications supported 4a. # meetings with policymakers/stakeholders regarding funding	

Logframe 5 - Policies

Project strategy POLITICAL SUPPORT TO THE SECTOR	Indicators	
Impact: Increased prioritization of Life Science and healthcare innovative sector on political agenda	% of European Regional Development Funds from regional authorities going to Life Science Research increasing over time Highest regional executives officially endorsing Life Science and healthcare as key industry in region	Pre-condition: Lack of political support to the sector
Outcomes: 1. Increased bi-directional information flow 2. Increased understanding for sector's needs and importance 3. Meaningful changes legislation/administration towards improving healthcare/research	1. - increase # consultations regarding legislative/administrative changes related to Life Science and healthcare compared to previous year 2. - increased # of public mentions of sector by administrators/ policymakers compared to previous year - increased # administrators/policymakers attending sector-specific events 3. - increase # of policy changes according to cluster's input - improved scores in regional surveys on "business climate" in sector compared to previous year	
Outputs: 1a. Administration/policymakers actively engaged in boards of cluster 2a. Relevant meetings/events with/for administration/policymakers 2b. Administration/policymakers acknowledging reports 3a. Relevant collaborative programs with administration/policymakers	1a. - # administrators/policymakers regularly participating in board meetings - position of administrator/policymaker board members in decision-making process 2a. - # administrators/policymakers attending meetings/events - position of attendees in decision-making process 2b. - # feedback/public mentions reports/white papers by addressees 3a. - # administrators/policymakers actively participating in programs	
Activities: 1a. Administration/policymakers in boards of cluster 2a. Meetings with administrators/policymakers focused on sector-specific topics 2b. Specialist sectorial reports for administration/policymakers 3a. Collaborative programs with administration/policymakers	1a. - # administrators/policymakers in boards of cluster 2a. - # meetings/events with administration/policymakers 2b. - # reports/white papers on sector 3a. - # collaborative programs with administration/policymakers	

Logframe 6 - Healthcare

Project strategy EFFICIENT HEALTHCARE PROVISION	Indicators	
Impact: Efficient healthcare provision improved through research and innovation	 Decrease in # hospital days over time Improved results in population health surveys over time	Pre-condition: Inefficient healthcare provision
Outcomes: 1. Reduction of overload of clinic personnel 2 . Increase in efficiency of healthcare sector 3. higher attractivity of region for industry, research collaborations and healthcare professionals	1. - improved scores in clinic personell satisfaction surveys compared to previous year - reduced # drop-outs compared to previous year 2. - improved scores in patient satisfaction surveys compared to previous year - # gaps identified in innovation value chain reduced compared to last year - reduced % hospitals writing losses compared to previous year 3. - increased # cases secondary use of health data for research purposes - increase # collaborations academia-academia or academia-industry related to secondary use of health data compared to previous year - increase # high impact publications related to secondary use of health data	
Outputs: 1a. Relevant projects/programs for digitalisation of healthcare sector 2a. Relevant projects/programs for implementation of new devices/apps etc in healthcare sector 2b. Relevant collaborations with administration/healthcare providers/payers related to health technology assessment or new financial models 3a. Relevant projects/programs supporting secondary use of health data 3b. Policymakers/stakeholders consider cluster's input for improving healthcare provision 3c. Increased awareness of attractivity of sector and region	 1a. - # digitalisation milestones reached - % digitalized documents/processes 2a. - # new devices in pilots in regional hospitals - # new apps in pilots in regional hospitals 2b. - # of new health technology assessment and financial models seriously considered by administration/healthcare providers/payers 3a. - # projects resulting in endorsement by administration/health care providers - # cases secondary use of health data for research purposes 3b. - # policy/framework changes based on cluster's input 3c. - # likes/shares/clicks/reads social media campaigns - # articles on sector/job market in region - # incoming requests for jobs in sector and region	
Activities: 1a. Projects/programs for digitalisation of healthcare sector incl. automatisation 2a. Projects/programs for implementation of new devices/apps etc in healthcare sector 2b. Collaborations with administration/healthcare providers/payers related to health technology assessment or new financial models 3a. Projects/programs supporting secondary use of health data 3b. policy advice related to improving healthcare provision 3c. PR campaigns advertising healthcare sector and region (see also logframe 2)	 1a. - # projects/programs for digitalisation of healthcare sector 2a. - # projects/programs for implementation of new devices/apps in healthcare sector 2b. - # collaborations with administration/healthcare providers/payers 3a. - # projects/programs supporting seondary use of health data 3b. # meetings with policymakers/stakeholders regarding improving healthcare provision 3c. FTE on PR campaigns	