

OBSERVATORIES FOR THE ANALYSIS AND PLANNING OF TERRITORIAL INNOVATION ECOSYSTEMS

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The configuration process involves the analysis and monitoring of tools for managing and monitoring territorial science, technology and innovation policies

The construction of an observatory for analysing and planning a territory's science, technology and innovation policies goes beyond the configuration of a system of indicators. It can help boost the relevance of the territorial innovation ecosystem by repositioning these policies on a higher geographical scale.

The observatories devised by NAIDER **consolidate knowledge of the ecosystem and enable** its evolution to be analysed year after year. They also enable the socio-economic impact of the various innovation activities carried out by the ecosystem's stakeholders to be measured quantitatively, identifying strengths and areas for improvement. The observatories can even provide advanced values for key indicators, such as R&D investment in the ecosystem.

All of this facilitates coordination and collaboration between the various stakeholders in the innovation ecosystem, **boosting governance and collaborative decision-making** and supporting the development of evidence-based public policies to continuously improve the ecosystem. An observatory strengthens the cohesion of the territorial innovation system, consolidating it at the level of an autonomous community, the state or Europe.

The dimensions of the innovation ecosystem observatory

The observatories devised by NAIDER consider three dimensions in the construction process: to know, to monitor, to interpret.

_Knowing The process involves, in the first instance, **the design and implementation of a comprehensive system of indicators in the form of a technological platform** that allows the innovation ecosystem of the territory in question to be monitored and compared with those of its reference environment in Europe and internationally. The observatory is based on quantitative and qualitative indicators, and is integrated into an advanced technological platform for the collection and automatic updating of the data underlying the indicators. The platform also allows the generation of periodic semi-automated reports, which summarise the situation of the ecosystem and its impact over a given period of time. Knowledge makes it possible to act with judgement.

_Monitoring The process involves not only the availability of information but also **the establishment of a surveillance and monitoring system for key variables**. Based on indicators and adapted methodologies, the challenge is to articulate the continuous evaluation of key aspects such as investment in research and development, the innovative capacity of companies, collaboration in innovation projects, the economic impact of innovation and digitalisation. **Monitoring makes it possible to (re)orient policies**. Thus, the observatory regularly compiles specialised economic reports.

_Evaluating The observatory will finally include the results of the impact analysis of certain

indicators of the innovation ecosystem on the socio-economic conditions of the region. The project aims to establish cost-benefit analysis (CBA) processes of eventual investments and initiatives, as well as impact and cost-effectiveness assessment processes of the implemented initiatives and policy instruments.

Conceptual framework of the R&D System

The conceptual framework identifies different elements of the observatory to be developed, as illustrated in Figure 1 for a city and its metropolitan area.

The illustrated observatory divides the indicator system into three interrelated blocks. In each of the three large blocks, the most relevant strategic areas that define and delimit the block that contains them are identified. The model also makes it possible to define the dependencies between some areas and others, as well as between different blocks. As an example, the creation of knowledge impacts on the level of innovation of companies and, therefore, on the economic growth of the city, which in turn impacts on R&D investment. This creates a virtuous circle that promotes innovation in the city and its metropolitan area.

Tools of the Observatory

The proposed observatories are based on two management tools. On the one hand, a technological platform of innovation ecosystem indicators. On the other hand, a set of economic reports developed for the collaborative management of the innovation ecosystem in question.

Automated Indicator Platform

The conceptual framework gives a certain weight or relevance to each of the big blocks, to each of the areas within the blocks and to the indicators in each area. Most of the indicators come from existing structured databases, others will have to be generated either in collaboration with the corresponding responsible entities or through advanced computing techniques such as cluster analysis or web scraping, among others.

This system of indicators, based on national and international standards such as the COTEC Report, the Regional Innovation Scoreboard (European Commission), the Apex Green Cities or the Global Innovation Hubs Index (Nature) among others, has been adapted to the local context, ensuring the incorporation of relevant indicators, collaborative validation and adaptability for its application in other territories.

Situation and Positioning Report

The observatories' situation and positioning reports are based on a conceptual framework that aims to provide key information for decision-making purposes and to establish the territory as a benchmark in the innovation ecosystem. These tools facilitate an understanding of the current context, enable the anticipation of trends, and allow for the assessment of the impact of policies and initiatives within the territory. The following is a breakdown of a series of potential outputs:

- **Metropolitan positioning report in the context of the Regional Innovation Scoreboard:** This report analyses the territory's performance in relation to the Regional Innovation Scoreboard indicators, highlighting areas of strength and opportunities for improvement.
- **Synthetic territorial innovation indicator:** A comprehensive measure summarising the level of innovation in the territory by integrating different key dimensions of the ecosystem.
- **Territorial community R&D leading indicator:** A predictive tool that anticipates trends in R&D investment and activity within a regional context.
- **Report on the social perception of innovation in the territory:** An analysis of how a selected panel of people and agents within the innovation ecosystem perceive the evolution of the system, and the relevance of innovation initiatives and policies in the area.
- **Evolution of the financing of R&D&I activities of the agents of the innovation ecosystem of the territory:** Detailed monitoring of the sources and volumes of funding for research, development and innovation projects in the territory.
- **Synthetic territorial innovation indicator:** A comprehensive measure summarising the level of innovation in the territory by integrating different key dimensions of the ecosystem.
- **Territorial community R&D leading indicator:** A predictive tool that anticipates trends in R&D investment and activity within a regional context.
- **Report on the social perception of innovation in the territory:** An analysis of how a selected panel of people and agents within the innovation ecosystem perceive the evolution of the system, and the relevance of innovation initiatives and policies in the area.

These reports provide the basis for guiding public and private strategies, ensuring that decisions are backed by robust information and are in line with the objectives of sustainable development and competitiveness.

Degree of innovation

- **ORGANISATION OF THE INFORMATION.** *It provides up-to-date, organised, systematic information on all the variables and indicators of the innovation ecosystem.*
- **ADVANCED COMPUTING TECHNOLOGIES.** *It incorporates advanced computing algorithms to automatically extract, process and update indicators from a variety of sources, including those not connected to structured databases. This is a considerable improvement on the commonly used manual or semi-automated methods.*
- **MONITORING.** *It establishes a systematic monitoring process based on structured products and reports that provide valuable decision-making information.*
- **ANTICIPATION.** *Commitment to estimating effort and results indicators before official statistical sources are available, enabling informed decisions to be made based on*

current-year information.

- **NEW AND RELEVANT INFORMATION.** *This makes it possible to obtain additional information that is not currently available. This information comes from social perception studies, as well as from leading and synthetic positioning indicators in the different dimensions.*
- **COLLABORATIVE PROCESS.** *This approach fosters collective project development, ensuring the system meets the specific needs of the ecosystem. This inclusive approach promotes stakeholder engagement and improves the system's applicability.*

Results

Each observatory project aims to achieve concrete and measurable results. The first tangible result is an operational technological system comprising an interactive, accessible online tool for visualising and analysing the key indicators of the innovation ecosystem in question. This tool enables comparisons to be made with other national and European ecosystems. The tool is based on an automatic indicator updating system and collects, processes and periodically updates data from various sources using advanced technologies. The platform facilitates interaction with data, report generation and access to valuable information.

- **Databases:** collection of structured and normalised data available to the public through customised queries, for downloading visualisations from the platform, with download options in various formats.
- **Dashboards:** Visual tools that display key indicators in a graphical and structured way, allowing clear monitoring of objectives, degree of execution, expenditure and temporal progress.
- **Thematic Reports:** Detailed documents that delve deeper into specific topics related to the innovation ecosystem, including economic, evaluation and impact analysis.
- **Monitoring Bulletins:** Downloadable periodical publications that present indicators and trends, providing an overview of the changes and evolution of the observed conditions.
- **Infographics:** Simplified and visual graphic representations with information on complex issues or on projects of the agents of the innovation system of the territory.

