Evaluating the performance of regional innovation intermediaries:

Insights from the experience of Tuscany's innovation poles

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Analisi e modellizzazione dei Poli di innovazione in Toscana

REGIONE TOSCANA

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Outline

- Regional innovation intermediaries as a focus of innovation policy, and the need for performance evaluation
- The function of regional innovation intermediaries in regional innovation systems (RIS)
- Key dimensions for performance evaluation of regional innovation intermediaries
- The case of Tuscany's innovation poles 2011-2014
- Implications and conclusions

Innovation intermediaries

- “Organisations or groups within organisations that work to enable innovation, either directly by enabling the innovativeness of one or more firms, or indirectly by enhancing the innovative capacity of regions, nations, or sectors” (Dalziel, 2010)

Innovation intermediaries

- Increasing focus of policy, particular regional policy, on funding innovation intermediaries, in a RIS perspective
- Examples: Regional Competitiveness Poles in France, Innovation Networks in Denmark, Strategic Centres for Science, Technology and Innovation in Finland, Innovation Poles in Italy (Fiordelmondo *et al.*, 2014).

Innovation intermediaries: addressing RIS failures

- Intermediaries are not easily identified or classified based on who they are or what they do
- General way to capture their functions: **what system failures** they address in the RIS
- RIS acknowledges that successful innovation processes require not only an efficient system of production and exchange of scientific, technical and organisational knowledge, but adequate supporting organisational and institutional conditions
- Failures can occur in numerous parts of the system

Functions of innovation intermediaries in RIS: addressing system failures

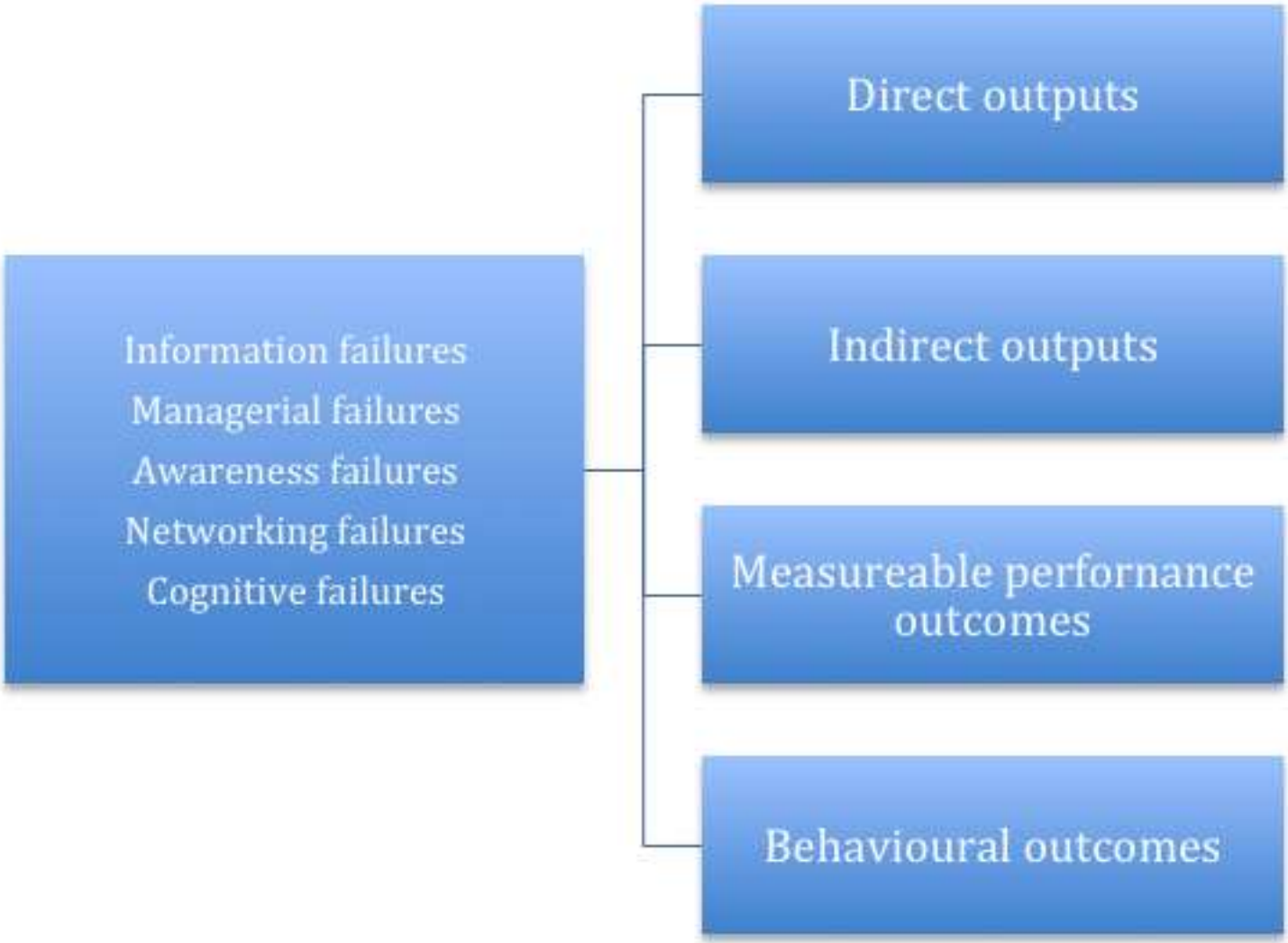
- Key system failures (Carlsson and Jacobsson, 1997; Malerba, 2009; Klein Woolthuis, Lankhuizen and Gilsing, 2005):
  - Infrastructure (physical, communication, science-technology)
  - Institutional (hard and soft institutions)
  - **Interactions** (weak and strong ties)
  - **Capabilities** (competences, capacity or resources to learn and innovate)

The main (**but not only**) functions of intermediaries relate to addressing **interactions** and **capabilities** failures

Key RIS failures addressed by innovation intermediaries

General system failures	Specific system failures	Explanation	Type of activity
Infrastructure	Information	Lack of information about sources of external knowledge and opportunities	• Diffusion of information about existing opportunities
Capabilities	Managerial	Inability to exploit knowledge and opportunities due to lack of adequate competences and skills	• Direct provision of knowledge-intensive services • Intermediation in the provision of knowledge-intensive services • Training and education activities
	Awareness	Lack of awareness of own need for information, knowledge, competences	• Technology scouting • Technological foresight
Interaction	Networking	Lack of connections between actors, due to weak or strong network failure	• Targeted introductions and meetings • General networking • Provision of interaction spaces
	Cognitive	Inability to interact due to cognitive distance	• Leading collaborative innovation projects • Leading communication within interaction spaces • Mobilizing resources for collective initiatives

Main dimensions of performance evaluation for innovation intermediaries



Case study: Tuscany's innovation poles (2011-2014)

- Tuscany's regional government funded twelve innovation poles whose aim was to provide a range of knowledge-intensive services - including technology scouting, support in the preparation of project proposals, matchmaking - to encourage technology transfer and stimulate the innovation capabilities of regional SMEs
- The final goal was to strengthen the RIS, which included a large number of SMEs that had relatively few connections with universities and other regional research hubs

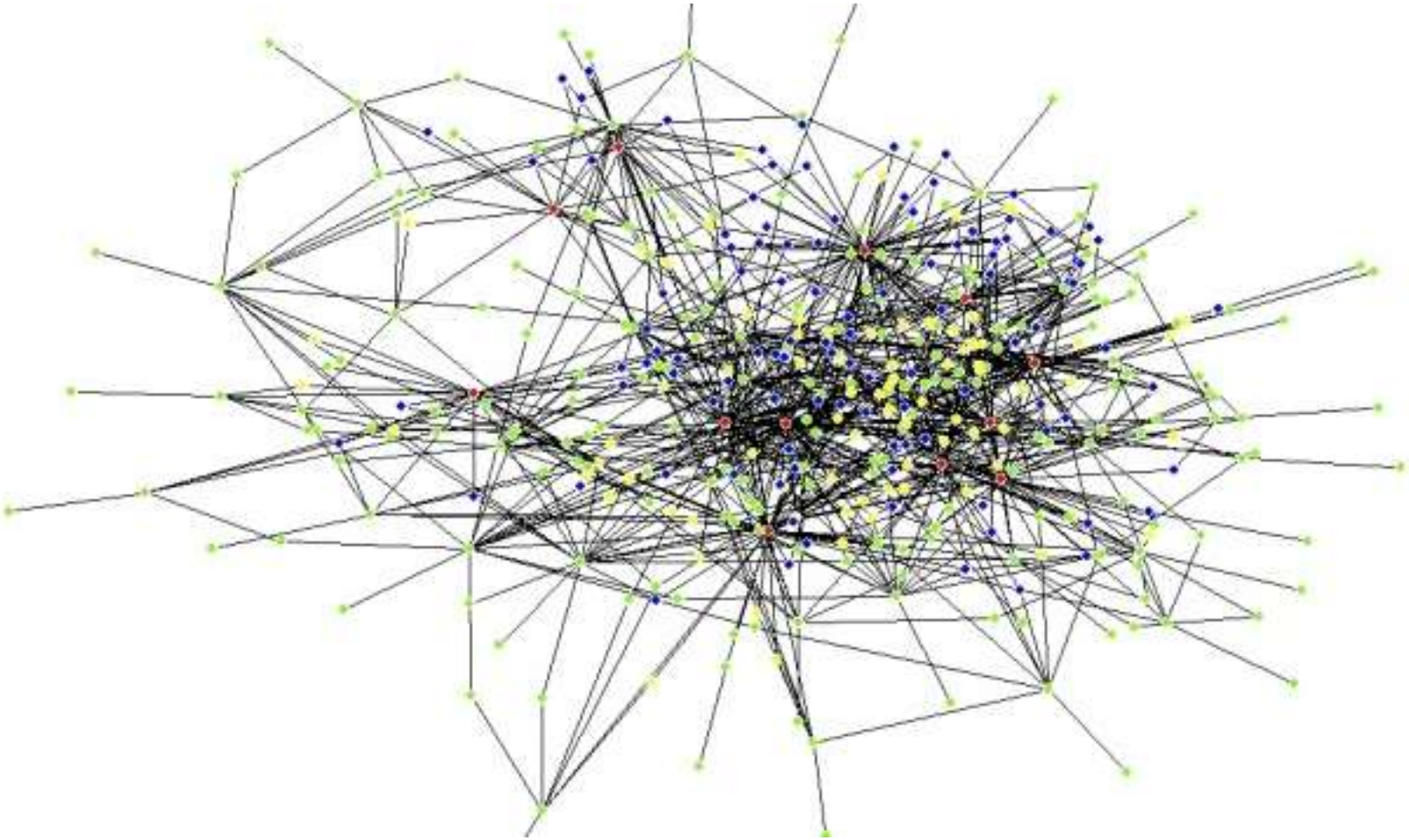
The programme

- 12 innovation poles with different sector/ technology specialisation
- Each pole managed by one or more organisations (46 overall)
- Companies had to ‘subscribe’ to a pole to access its services
- Key tasks:
  - marketing, to recruit new members, scouting to encourage companies to demand knowledge-intensive services and to invest in innovation
  - participation in R&D projects at regional, national and European levels
  - management of the pole’s open access infrastructures such as its laboratories
  - organisation of knowledge transfer programmes, workshops and seminars to facilitate knowledge sharing and networking between members

The 12 innovation poles

Technpole (acronym)	Key technologies/applications	N. of consortium participants	N. members as of 30.06.2011	N. members as of 30.06.2014
OPTOSCANA	Optoelectronics for manufacturing and aerospace	2	67	92
INNOPAPER	Paper	1	89	139
OTIR 2020	Fashion (textiles, apparel, leather, shoes, jewellery)	7	223	501
VITA	Life science	8	41	158
PIETRE	Marble	4	52	122
PENTA	Shipbuilding and maritime technology	5	225	352
POLIS	Technologies for sustainable cities	8	228	643
NANOXM	Nanotechnologies	6	70	128
CENTO	Furniture and interior design	6	177	322
PIERRE	Renewable energies and energy saving technology	13	120	368
POLO12	Mechanics, particularly for automotive and transport	6	198	390

innovation poles
economic institutions
people
laboratories

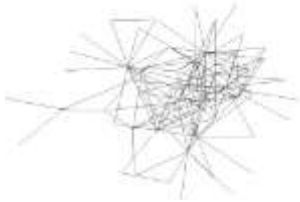


innovation poles
economic institutions
people
laboratories

Shareholders

Consortium leaders

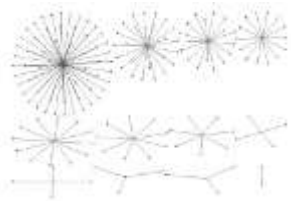
Managing organizations



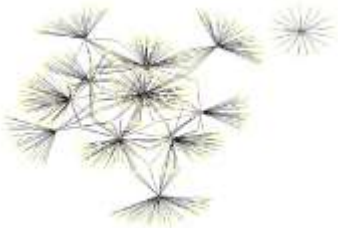
Collaboration agreements

Service provision

Service providing laboratories

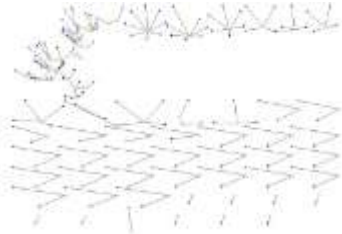


Workers/consultants



Employees seconded to poles

Own laboratories

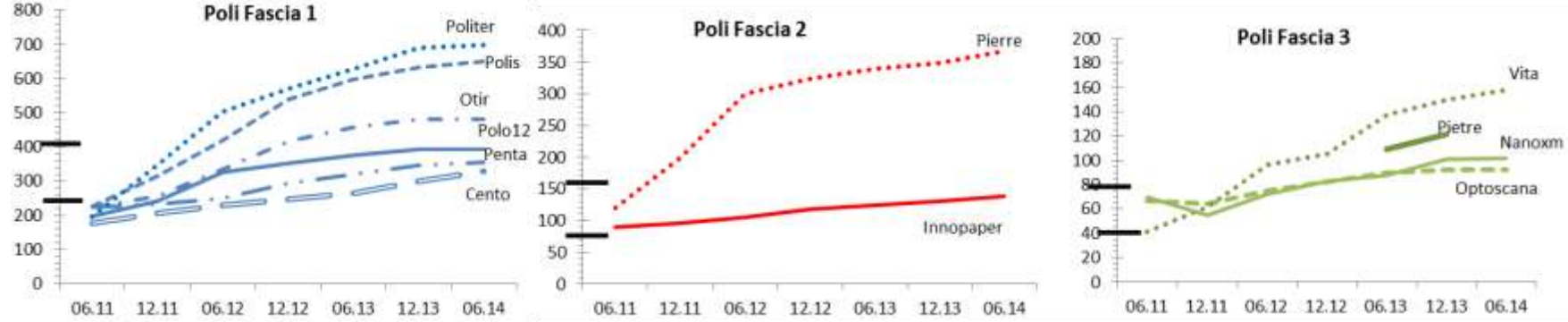


The innovation poles' performance targets for fund allocation purposes

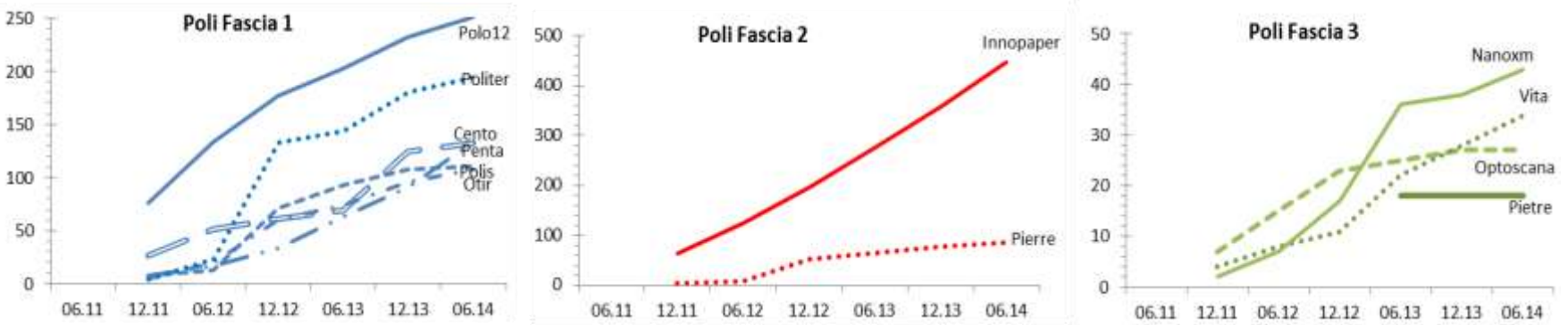
	Criterion for allocation into bands:	**Targets to be achieved within three years**					**Maximum funding allocation**
	N. member companies (at launch)	scouting of new companies	% increase in members	n. services (contracted)	n. services (provided)	minimum revenue	
Band 1	> 160	160	50	80	40	500,000 €	800,000 €
Band 2	> 80	80	50	40	20	300,000 €	600,000 €
Band 3	> 40	40	50	20	10	150,000 €	400,000 €

Achievement of performance targets

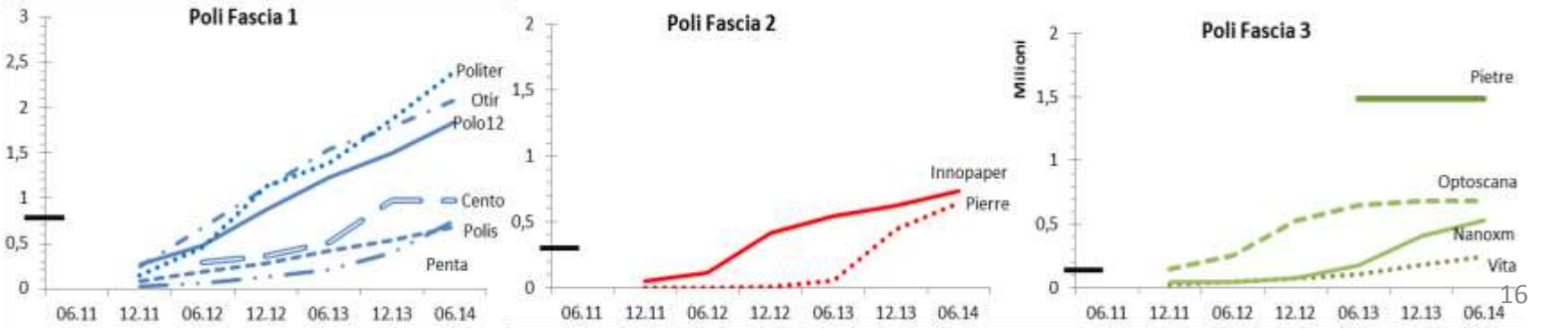
Number of members



Number of services supplied



Turnover (mln euro)



The poles' activites

General system failures categories	Specific system failures addressed by intermediaries	Type of activity
Infrastructure failure	Information failures	(i) Organisation of seminars, workshops, training and other informational or educational events
Capabilities failure	Managerial failures	(ii) Direct provision of knowledge-intensive services, and intermediation in the provision of knowledge-intensive services
	Awareness failures	(iii) Technology scouting
Interaction failures	Networking failures	(iv) Organisation of knowledge transfer programmes, technical tables, open days to facilitate knowledge sharing and networking between members
	Cognitive failures	(v) Support in the preparation of R&D project proposals and direct participation in R&D projects
	Other	(vi) Other activities not included among the previous ones

Data sources

- Secondary information either in the public domain (innovation poles' websites) or provided by Tuscany's regional government (innovation poles' six-monthly activity reports)
- 27 semi-structured interviews (March-May 2014), with innovation poles, some member companies, local business associations, regional government
- Online survey sent to managers of the 12 innovation poles (March-April 2015)
- Focus group with 9 innovation poles (May 2015)

Findings

- Four main critiques to approach used in evaluation:
  - **Inadequate indicators**: some indicators were deemed unsuitable to evaluate the poles' performance in several key activities: service intermediation activities not considered, no differentiation on the basis of type of service provided, lack of attention for medium-term, indirect outputs (through follow-up activities)
  - **Missing activities**: some important activities were not measured and therefore not used for performance evaluation (R&D project applications, networking activities)

Findings

- Four main critiques to approach used in evaluation:
  - **Lack of sector/technology differentiation**: the poles' sectoral and technological specificities were not accounted for (the pools of firms they targeted were very different)
  - **Inadequate data collection tools**: the performance evaluation system did not encourage the poles to collect data accurately and systematically, and it imposed too many administrative requirements on the poles and the users of the services they provided

Findings

- Poles criticized regional government's indicators
- But mainly agreed with performance-driven funds allocation and with the concept of evaluation based on **quantifiable outputs**
- Proposed numerous additional output indicators (direct and indirect) and some indicators of measurable performance outcomes
- Did not propose any behavioural outcome indicators
- Did not suggest how sector / technology specificities could account for differential evaluation

How to improve the poles' performance evaluation system

- Emphasize self-evaluation (ex ante): ask poles to identify what system failures they are addressing, how they are confronting them, and how they will evaluate their own performance
  - Different sectors / technologies may differ in terms of the system failures that need addressing, or in terms of their relative importance
- For each of the poles' activities, adopt a system of indicators and qualitative metrics that captures direct and indirect outputs, as well as measurable performance outcomes and behavioural outcomes

A. Direct outputs	B. Indirect outputs
Number of companies (by sector, size) participating in events or receiving services directly provided or mediated by the innovation intermediary (by type of event or service)	Number of companies (by sector, size) involved in events or services provided or intermediated by the innovation intermediary, that engaged in follow-up activities with or intermediated by the innovation intermediary
Number of events held / number of services provided or intermediated by the innovation intermediary (by type of event or service)	Number and value of follow-up activities carried out (by the innovation intermediary or intermediated by it) with these companies

C. Measurable performance outcomes	C. Permanent behavioural outcomes
Measurable improvement in **companies' financial, market and innovation performance** by sector, size) Measurable improvement in **companies' human, physical and network resource**s by sector, size)	Qualitative analysis (**learning effects**) - of **what did the companies learn** from their experience of participating in events / receiving services directly provided or mediated by the innovation intermediary Analysis of the evolution in the events attended / services received, in terms of nature, value and frequency Changes in the companies' strategies and activities as a consequence of their involvement with the innovation intermediary
Measurable improvement in **the innovation intermediary's financial, market and innovation performance** Measurable improvement in the **innovation intermediary's human, physical and network resources**	Qualitative analysis (**learning effects**) of **what the innovation intermediary learned** from their experience of carrying out these activities of the objectives of the innovation intermediary's activities and whether they changed over time - of whether and how the activities implemented by the innovation intermediary changed over time (types of activities, skills required, procedures and approaches used)

Conclusions

- For the purpose of performance-driven fund allocation, a subset of output indicators could be used (direct outputs mainly), possibly differentiated by the objectives of the different poles in terms of what system failures they intend to prioritize
- For the purpose of returning a comprehensive evaluation, of the intermediaries' performance, all types of indicators should be used, encouraging the intermediaries to provide a detailed overview of their contribution to addressing system failures in the RIS in a short, medium and long-term perspective