



**Regione Lombardia**

*Ricerca e Innovazione  
Tecnologica*

## RISE Project

Research, Innovation & Economic Development:  
a regional path for excellence

Larissa,

12<sup>th</sup> February 2004

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# 1.1 Economy and demography

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## Lombardy

- represents 15.6% of the overall national population;
- has approximately 9 million of inhabitants, with a demographic profile that has 24% of the population under the age of 25 and 17.4% over 65;
- has an unemployment rate of 3.8% (2002) compared to the national one of 9.5%;
- has an employment rate of 51,1% (female employment rate 39,9% and male employment rate 63%);
- has a Gross Domestic Product of 229 billion Euro (2000);
- has approximately 740,000 enterprises.

## 1.2 R&D data

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### Lombardy

- has the highest number of Universities and has the highest expenditure in scientific research in Italy;
- the total R&D spending in the region (in % of GDP) is 1,17%, divided in the following sectors: public sector 0,31%, Government 0,12%, University 0,19% and private sector 0,86%.

# 1.3 R&D Policies

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## **Main objectives of R&D policies of Lombardy Government**

- fostering cooperation among SME's and regional universities and research centres;
- supporting the transfer of scientific results into industrial applications;
- promoting the utilisation of advanced technologies on a large scale;
- advancing the social and economic system towards an "Information society", in order to keep and reinforce its competitiveness within the global economy;
- creating the ICT infrastructures needed by SME's to make an effective use of E-business methodologies.

# 2.1 Objectives of RISE Project

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## General objectives:

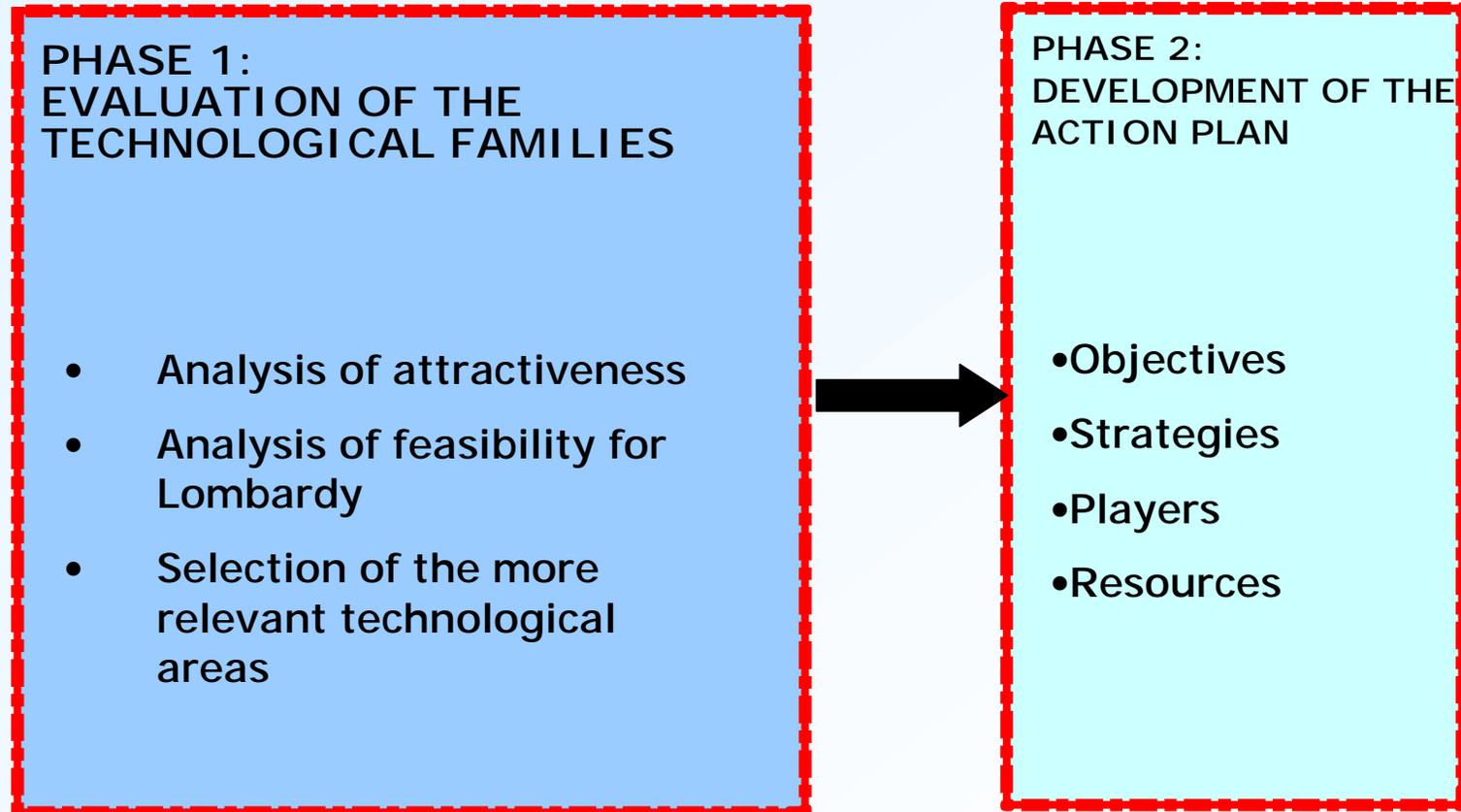
- to evaluate the regional interest and the scientific and industrial feasibility of developing new emerging technologies in some areas
- to allow public decision makers and large firms to set priorities, in a rational way, for the allocation of resources to R&D
- to optimise the impact of the regional economic development

## Specific objectives

- to select technological areas aimed at getting an excellent position at an international level
- to define an Action Plan Proposal for the economical development of these areas, linked with the regional research policies
- to develop and to apply a new approach and method to be replicated in other regional and territorial areas

## 2.2 Organizational features: the role of the two phases

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# 3.1. Project framework: technological areas

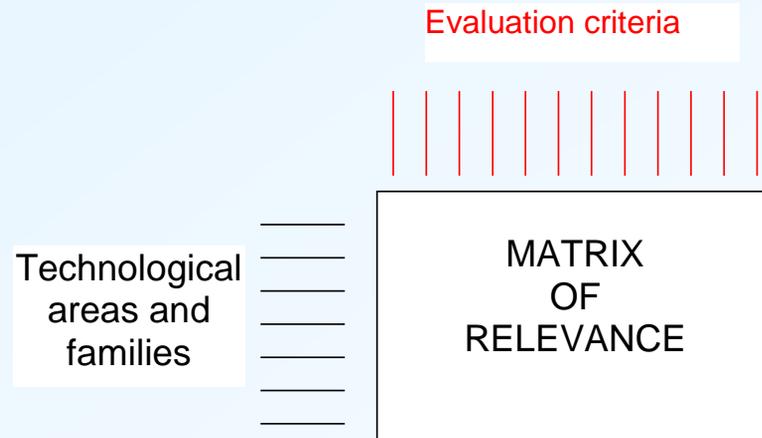
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## Technological areas

- ICT
- Advanced Materials
- Biotechnologies
- Energy Technologies
- Nanotechnologies

# 3.1 Project framework: evaluation criteria

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## Evaluation criteria

### *a. Attractiveness of the technological families:*

Impacts of each technological family on industrial and socio-economical systems. Capability of the technological family of enabling economical development and growth

### *b. Feasibility of the technological families:*

highlights *if* and *how* a territorial area may success in the research, scientific and economical development of the technological family, reaching an excellent position at an international level

# 3.1 Criteria of Attractiveness

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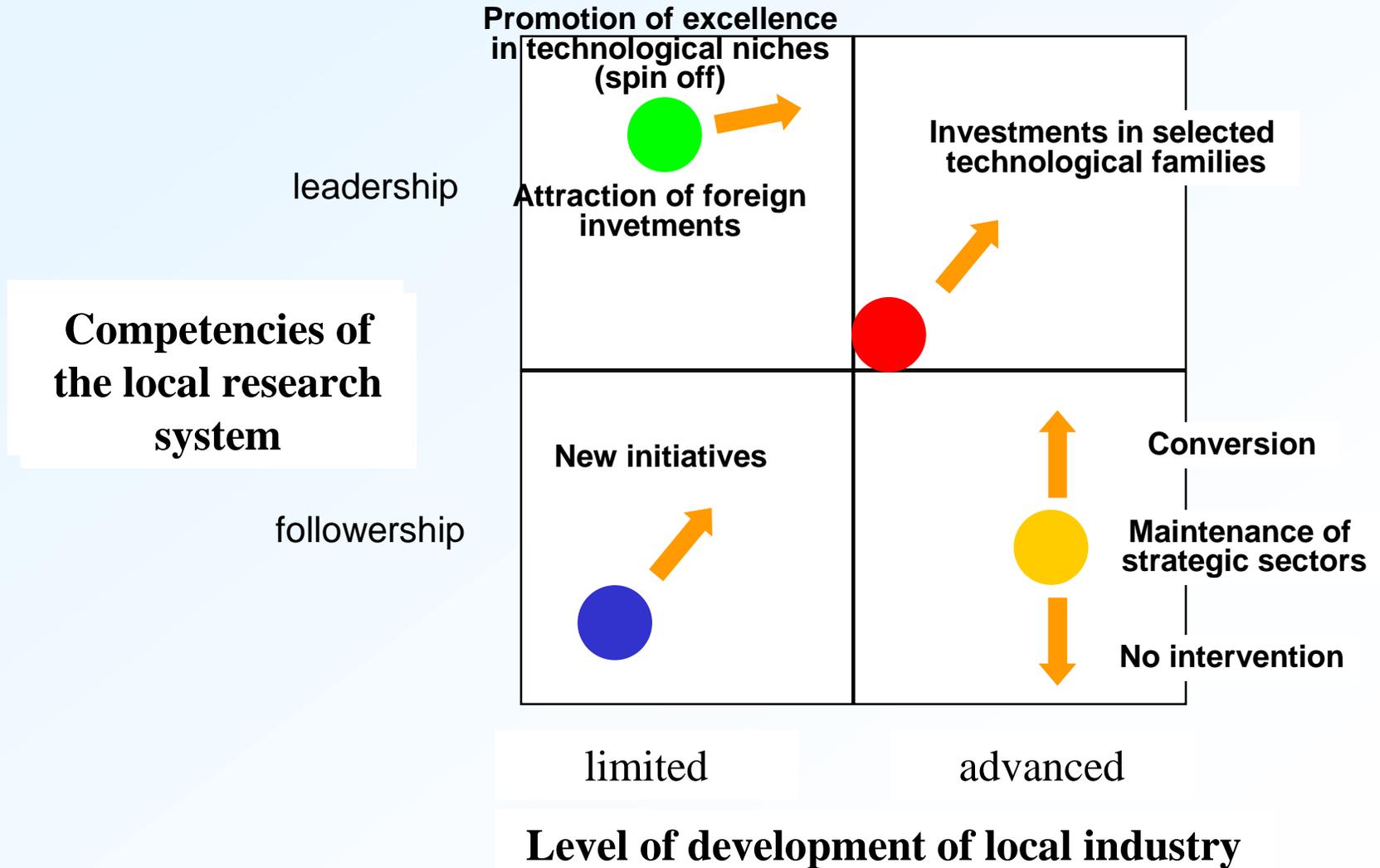
- *Economical and industrial impacts*
  - capability of enabling product and process innovation
  - dimensions of related sectors
  - dynamics of sectors
  - technology pervasiveness
  - potential creation of start-up
- *Stage of development*
  - First stage
  - Growing stage
  - Mature
- *Social Impacts*
  - ambient
  - health
  - mobility
  - safety

## 3.1 Criteria of feasibility

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- *Actual competencies of the local research system:*
  - level of knowledge, researchers and assets
  
- *Needed resources*
  - researchers, assets and funding needed for excellence
  
- *Local level of industrial development:*
  - Access to leads markets
  - Consistency of industrial system and infrastructure assets
    - high level competencies in technologies correlated
    - possibility of accessing materials and resources correlated
    - relations with national and international partners
    - consistency of the regional industrial structure, of its systems of regulations and of its system of infrastructures

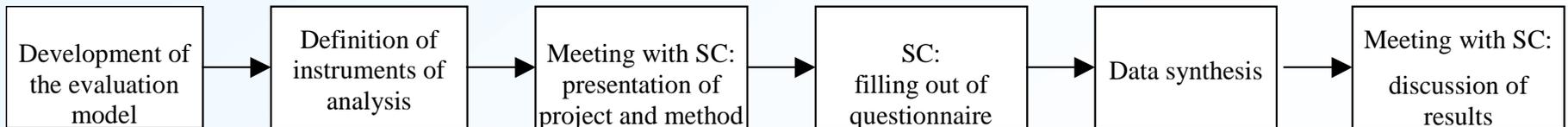
# 3.1 Feasibility: portfolio of strategies



## 3.2 Method

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- Evaluation through a “Matrix of Relevance”:
  - Attractiveness of each technological family
  - Feasibility for the industrial and technical-scientific regional system
- Evaluation by experts (Steering Committee) from these areas:
  - Research institutions
  - Developers/producers of enabling technologies
  - Industrial users of enabling technologies
- Tool: the questionnaire
- Evaluation process:



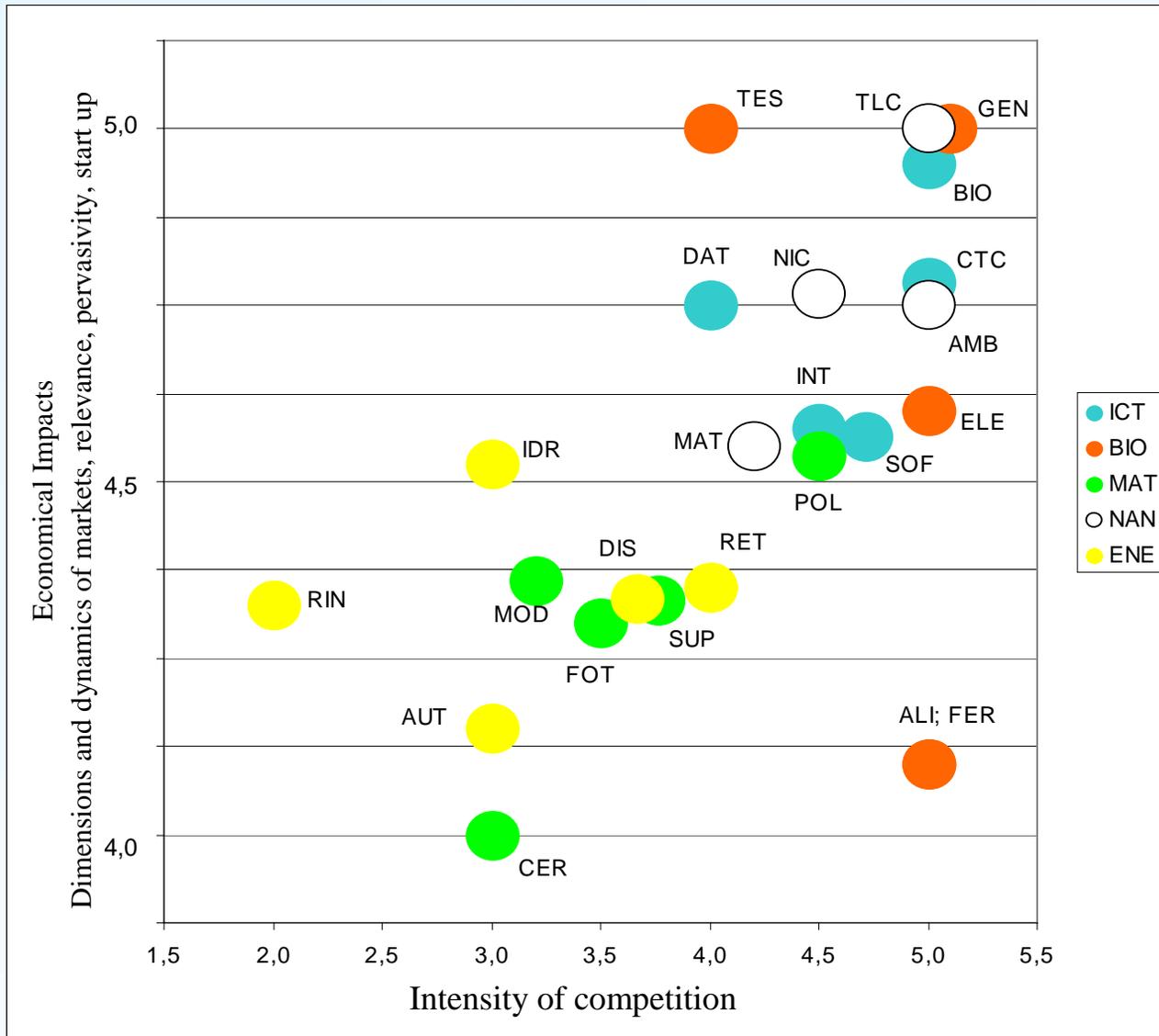
## 3.3 Synthesis of results: tableau of answers and method of synthesis

Technological areas	Number of questionnaires
ICT	16
Biotechnologies	7
Advanced Materials	15
Nanotechnologies	13
Energy technologies	9

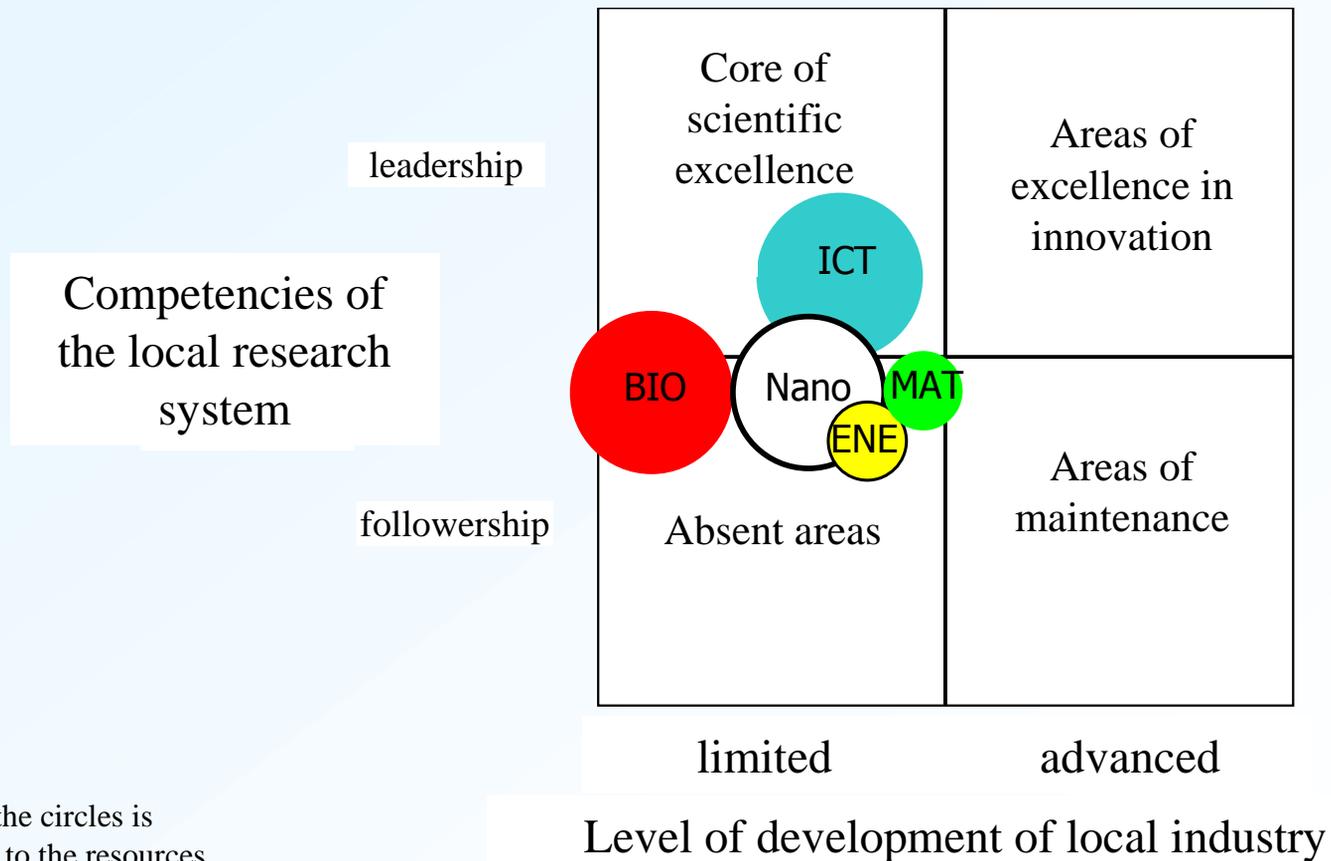
### Types of analysis:

- **Qualitative (SWOT)**
  - Focused on every technological family
  - Attractiveness analysis highlights the main opportunities and criticalities related to each technological family; the analysis of feasibility highlights the main strengths and weaknesses of Lombardy
  - Therefore we can define for each technological family the main rationales, objectives, wedlock and resources to be mobilized by the regional system for its development
- **Quantitative**
  - Oriented to a comparison between technological families

### 3.3 Analysis of attractiveness: Intensity of competition / Economical impacts

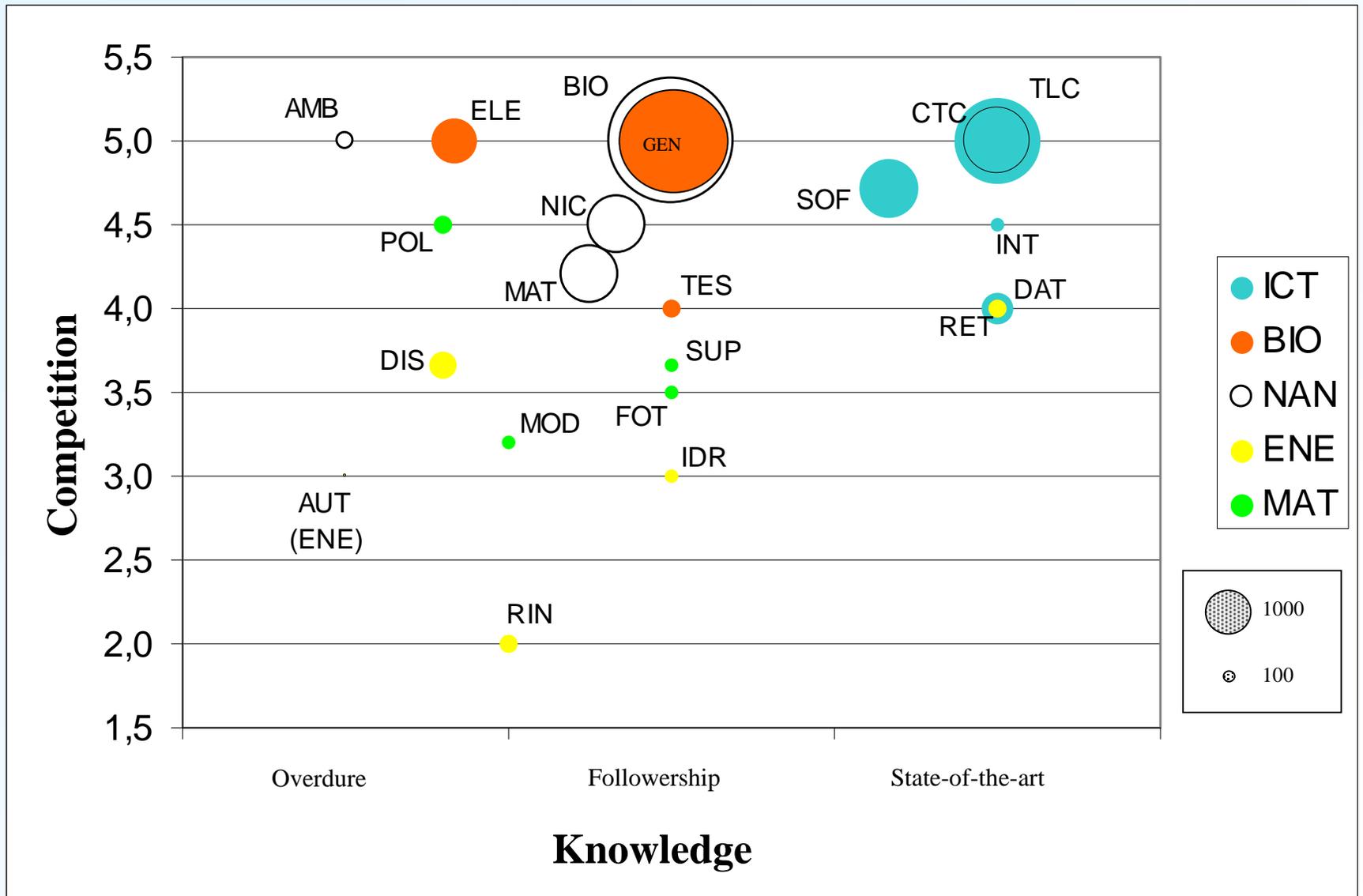


### 3.3 Analysis of feasibility: position of each technological area



**Note:**  
The area of the circles is proportional to the resources needed to reach excellence

### 3.3 Cross analysis of attractiveness and feasibility: Knowledge / Competition / $\Delta$ Resources needed



## 3.4 Conclusions

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### About methodology

The process is suitable to provide very useful outcomes, if:

- Participative approach
- Participants with broad experiences, being able to interact and to integrate their knowledge
- Knowledge system: availability of quantitative and statistical data
- Mutual validation (mostly of qualitative information)

### About the First Phase:

- Opportunity of deepening the analysis of the technological area of Advanced Materials, first of all, and then of ICT and Energy Technologies