

PRIME ENID Summer School

Amsterdam, 1-4 September 2009



***Positioning the European
Institute of Innovation and Technology***

Lorenzo Pirelli

Politecnico di Milano

Contact: lorenzo.pirelli@polimi.it



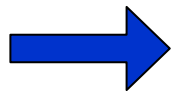
Outline

- ✓ The concept of the European Institute of Innovation and Technology
- ✓ Research questions
- ✓ Research design, data, analyses
 - identification of the **key dimensions** and **trade-offs** to be taken into account in positioning the EIT
- ✓ Findings and discussion
 - focus on the most **critical** and **controversial dimensions**
- ✓ Conclusions and policy implications



Research objectives

- ✓ Investigate how organizations aimed at **connecting public and private research systems** should be shaped
- ✓ Identify which are the most critical elements in positioning such organizations considering the points of view of the **different stakeholders**

 Designing the European Institute of Innovation and Technology (EIT) as a way to explore which is the **most effective model to integrate education, research and innovation**



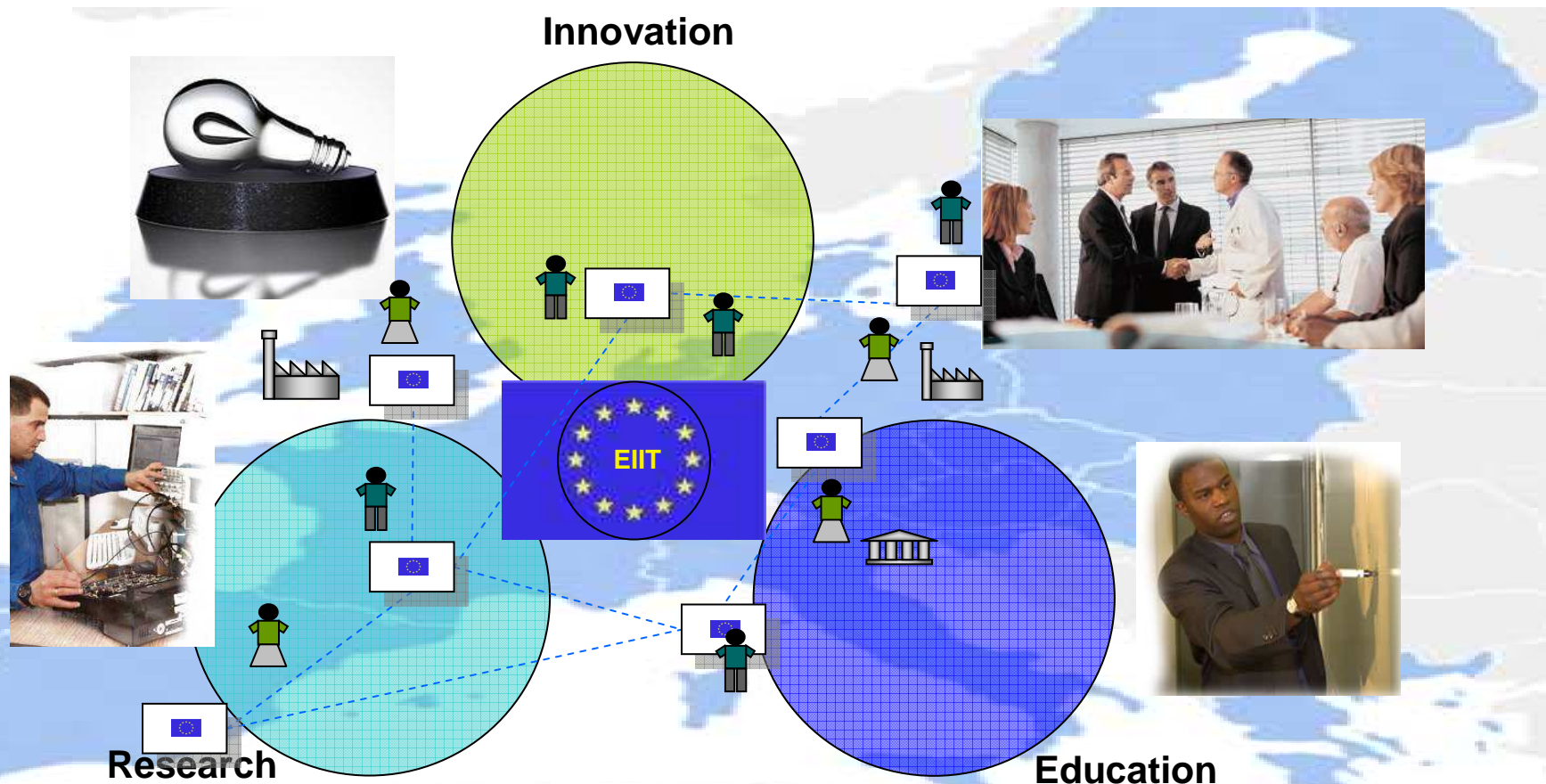
The EIT concept

- ✓ Knowledge is a form of **joint production**, with strong **complementarities** between public and private research
- ✓ The EIT will be at the same time a **university**, a **research centre** and an **industrial lab**, performing:
 - Master and doctoral education
 - Cooperative research projects
 - Dissemination and industrial exploitation of research results
- ✓ The envisaged **impact** of the EIT consists of:
 - Graduates and PhDs with a more entrepreneurial mindset
 - Publications, patents, inventions, spin-off companies
 - Improved performance of the European higher education and research institutions thanks to its reference role



The EIT mission and vision

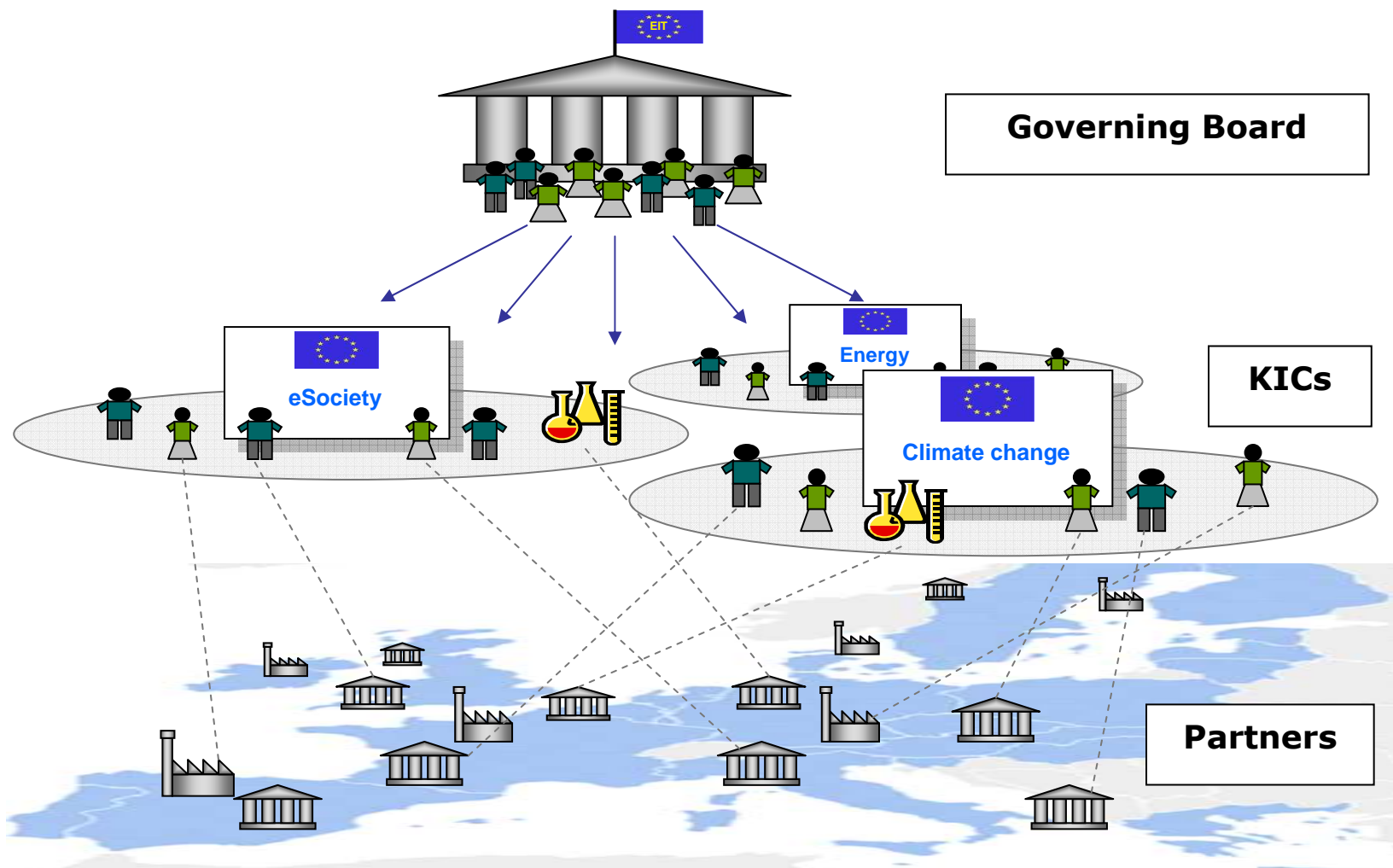
✓ **Vision** strengthening the integration between education, research and industrialization, creating a reference model for managing research across Europe





The EIT architecture

✓ Combining **top-down** and **bottom-up** approaches





Research questions

- ✓ How do the **potential participants** in the EIT would like it to be organized?
 - What should be the **role of companies** in education and research?
 - Which model of **governance** and **financing** is most appropriate?
 - What should be the **geographical layout** of the EIT?
- ✓ Which are the most **critical** and **controversial dimensions** to be taken into account in the positioning of the EIT?
- ✓ What are the **implications** of the different possible configurations of the EIT?
- ✓ **Why** do different participants have **different views** on the model for the EIT?



Research design

- ✓ Literature review on university-industry collaboration and interviews with the EIT policy makers to **identify the key dimensions** and policy options in shaping the EIT
- ✓ **Survey** to investigate the preferences of the **potential participants** towards the EIT possible configurations
- ✓ Exploratory analysis of the most **critical** and **controversial** dimensions
- ✓ Ordered Probit econometric model to investigate which **respondents'** **attributes** may explain the different levels of criticality and controversiality



Key dimensions/indicators for the positioning of the EIT

Who should take part in the EIT?

1. Participants in the EIT
2. Criteria for partners selection
3. Role of companies

How should activities be performed?

4. Target of the training activities
5. Type of research
6. Level of inter-disciplinarity
7. Degree of specialization of the KICs

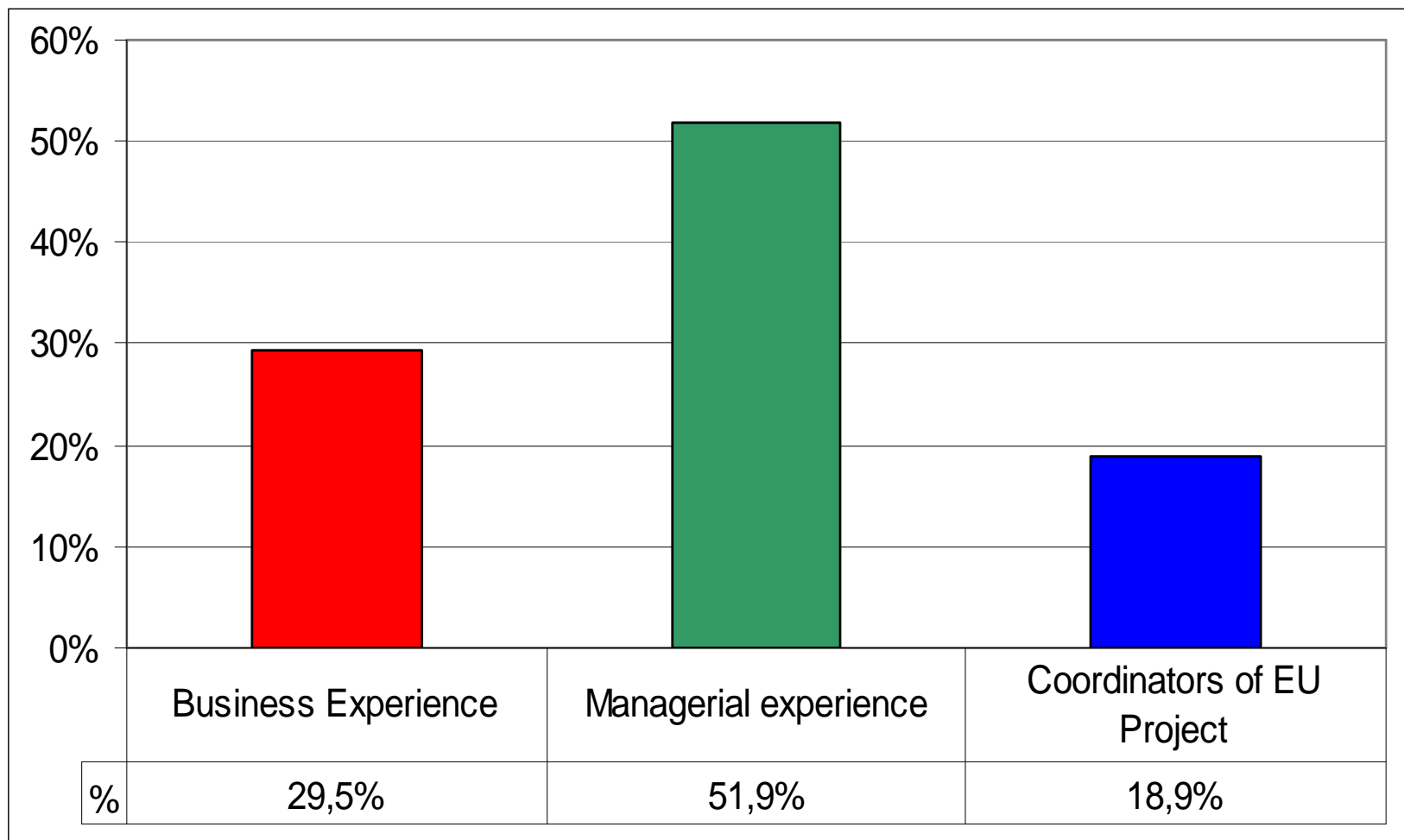
What should the structure of the EIT be?

8. Model of Governance
9. Financing model
10. Resources' ownership
11. Geographical layout



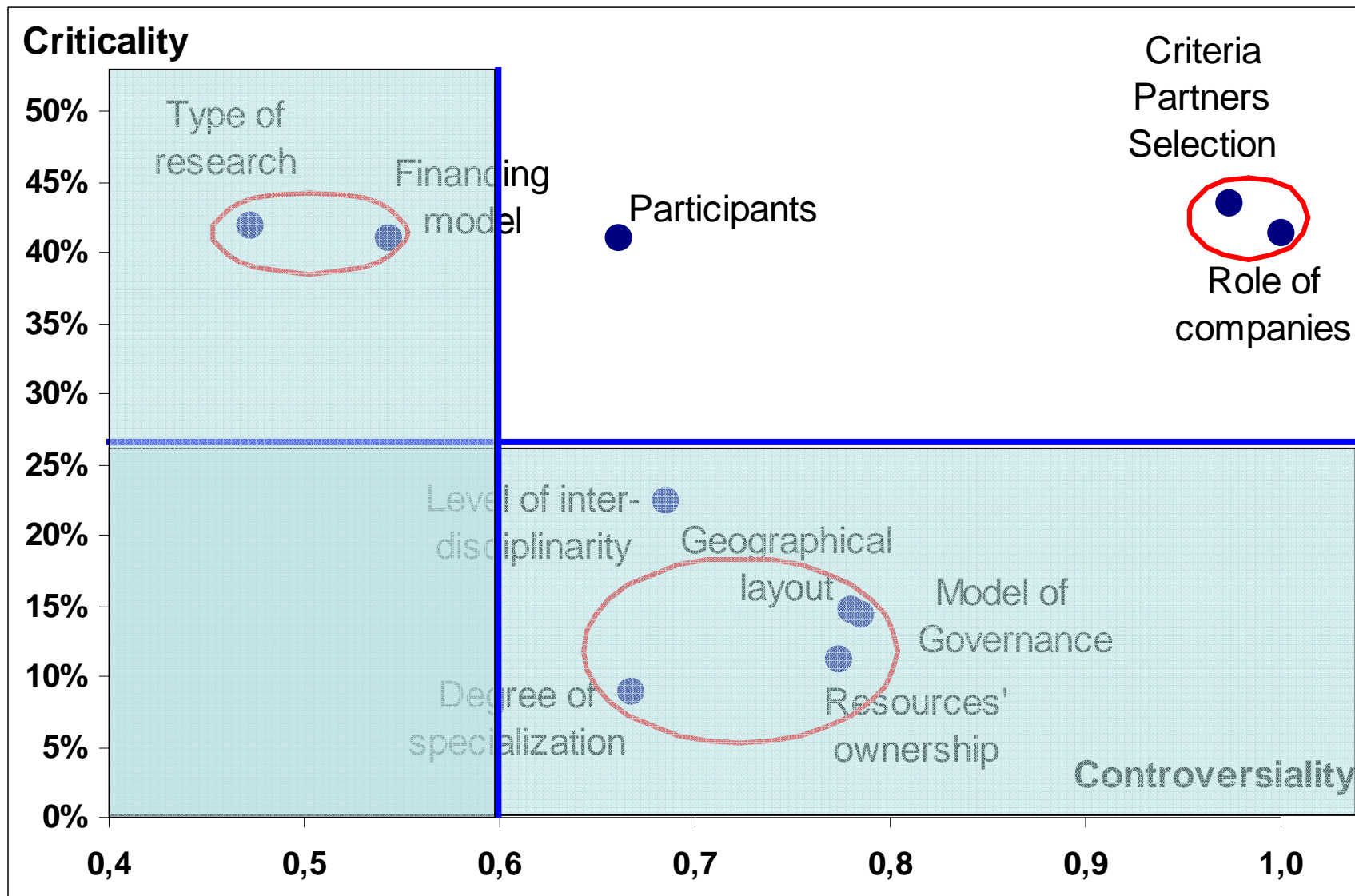
The respondents' sample

✓ **312** Italian **researchers** took part in the survey





Visualizing key dimensions: criticality vs controversiality





Respondents' attributes explaining controversiality

- ✓ Ordered Probit econometric model to investigate which **respondents' attributes** may explain the different levels of controversiality
 1. Age
 2. Years of **work experience** in:
universities / research centres / companies
 3. Experience in **managerial** positions
 4. Experience in **coordinating a EU project**
 5. Level of **basic/applied** research
 6. Field of research:
Eng&IT / Life Sciences / Basic Sc. / Geo Sc. / Other Sc.



Role of companies

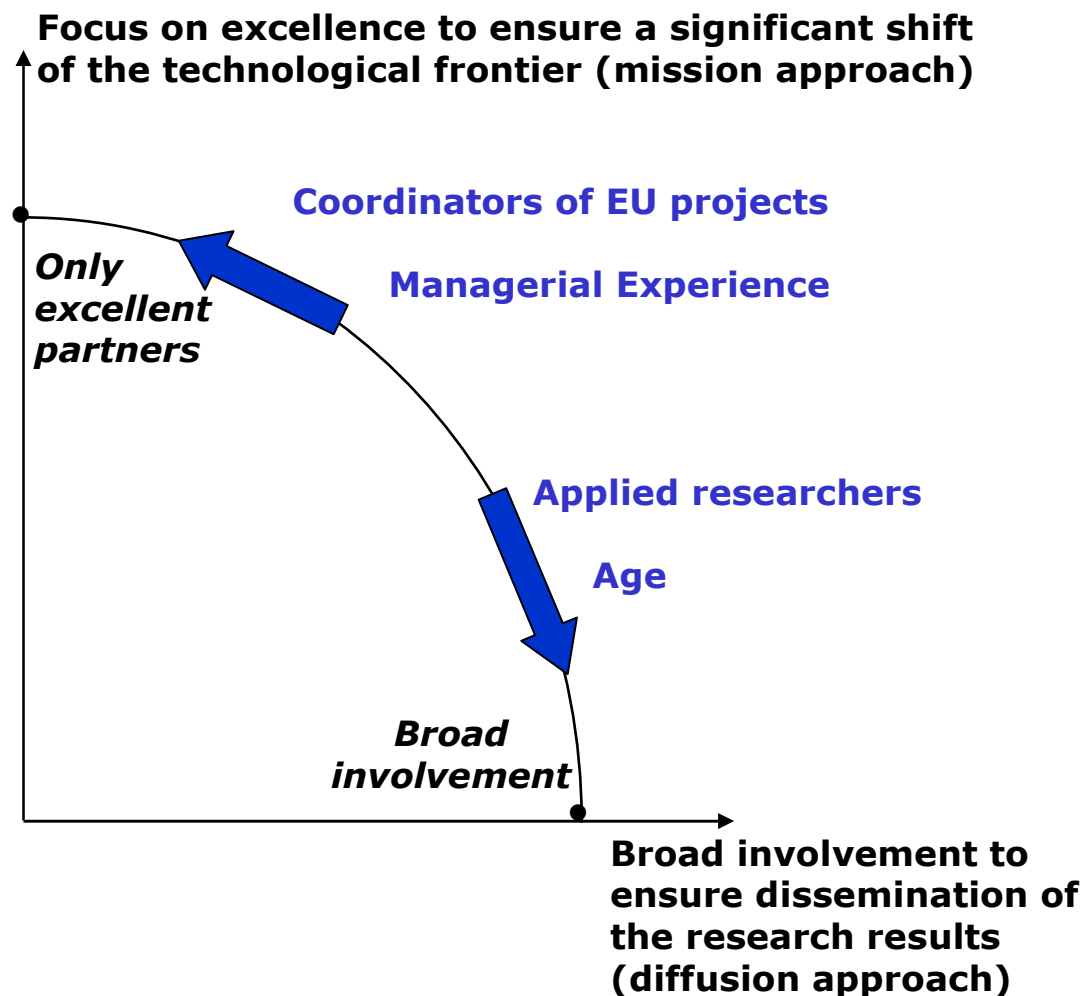
Which should be the <u>role of companies</u> within the EIT?	
<i>Funding and exploitation</i> of the results	34,2%
Also <i>strategic involvement</i> (e.g. priorities definition, evaluation, monitoring)	33,1%
Also <i>operative involvement</i> in training and research activities	32,7%





Partners' selection criteria

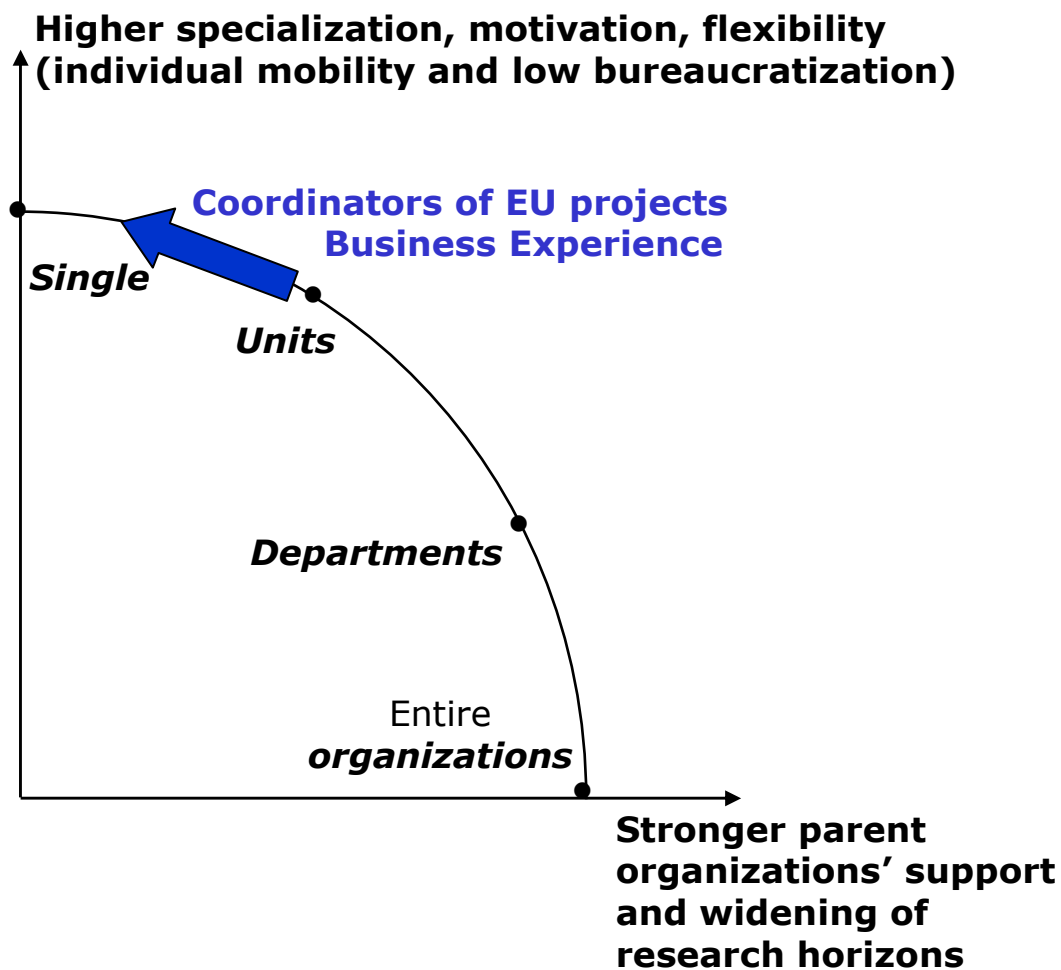
How would you <u>select the partners</u> (universities, research centres, companies) of a KIC (=Knowledge and Innovation Community)?	
Only <i>excellent partners</i> to ensure a significant shift of the technological frontier	41,5%
<i>Broad involvement</i> of partners to ensure the dissemination of the research results	58,5%





Participants in the EIT

The <u>participants</u> in the EIT activities should be...	
<i>Single</i> experts/researchers	25,9%
<i>Units/teams</i>	54,6%
<i>Departments</i>	16,0%
<i>Entire organizations</i> (universities, research centres or companies)	3,5%





Main general findings

- ✓ Potential participants in the EIT strongly converge on:
 - focusing on **use-inspired basic research**
 - activities should be **financed by the central Governing Board** rather than directly by partners

- ✓ While participants tend to agree on the importance of:
 - **multi-/inter- disciplinarity** in performing activities
 - involving single researchers or units and **not entire organizations to avoid bureaucratization**

- ✓ But participants strongly disagree on:
 - the **role of companies** (funding/strategic/operative)
 - the **criteria for partners' selection**



Main findings related to the respondents' attributes

- ✓ **Applied researchers** would focus on **dissemination** of the research results and flexibility involving single participants not entire institutions
- ✓ While **basic researchers and senior academics are skeptical** towards the business interference in education and research, a broad involvement of partners and multi- disciplinary approach
- ✓ Respondents with experience in managing/coordinating projects would focus on **pooling excellent single participants** ensuring cross-fertilization and avoiding bureaucracy
- ✓ **Young researchers** have similar views with respondents performing applied research and having business experience



Conclusions and policy implications

- ✓ EIT potential participants seem to demand:
 - **Flexibility**/operative autonomy (single excellent individuals/teams), no bureaucracy, mobility of ideas/researchers across sectors and disciplines
 - ... and, at the same time:
 - Clear priority setting and financial support by the central Governing Board
- ✓ EIT based on networks of different stakeholders, thus:
 - need for **ex-ante clear definition and 'negotiation'** of partners' role, resource commitments, strategies and procedures for sharing results
 - EIT critical role is to create the **contextual conditions** for cross-profession and cross-discipline collaboration in order to foster community spirit, reduction of uncertainty on the commercial value of research outcomes

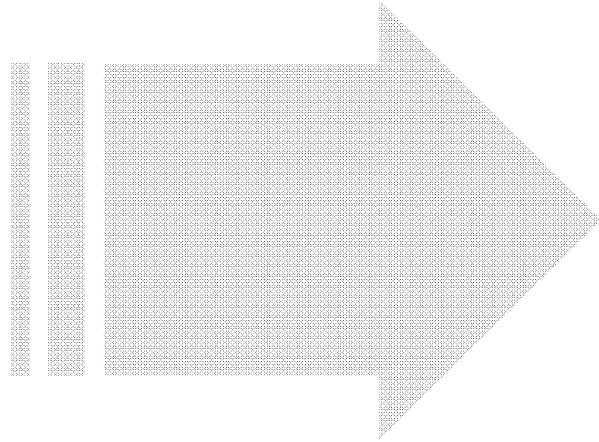
*Critical role of EIT Governing Board in **building shared vision** to make partners 'voluntary' hostages of the EIT world: stabilizing initially the context to increase focus on core activities (research)*



Further developments and open questions

- ✓ Further developments:
 - geographical extension of the survey at a **European level**, including researchers working for the **private sector**
 - complement with other methodologies (case studies on EIT pilot projects, conjoint/factor analysis)
 - using **other respondents' attributes** to explain controversiality (e.g. differences across sectors in terms of: tacitness of knowledge, need for critical mass, need for large infrastructures, patenting activity of public researchers)

- ✓ Open questions:
 - **how to translate 'soft concepts'** (like flexibility/operative autonomy) **into specific policy S&T indicators** or quantitative variables?
 - identifying literature or examples of boundary-spanning organizations similar to the EIT to support this exploratory research
 - verifying all critical dimensions in positioning the EIT and all respondents' attributes explaining controversiality have been properly identified



PRIME ENID Summer School

Amsterdam, 1-4 September 2009



***Positioning the European
Institute of Innovation and Technology***

Thank you for your attention

Lorenzo Pirelli

Politecnico di Milano

Contact: lorenzo.pirelli@polimi.it