



EUROPEAN
COMMISSION

Community research

L'opportunità EUROPA: il 7° Programma Quadro e la Ricerca finalizzata all'Innovazione

Renzo TOMELLINI

Capo-Unità “Materiali a valore aggiunto”

Commissione europea

renzo.tomellini@ec.europa.eu

DISCLAIMER: These slides do not represent any official position of the European Commission or engage it in any manner. Please refer to official documents.



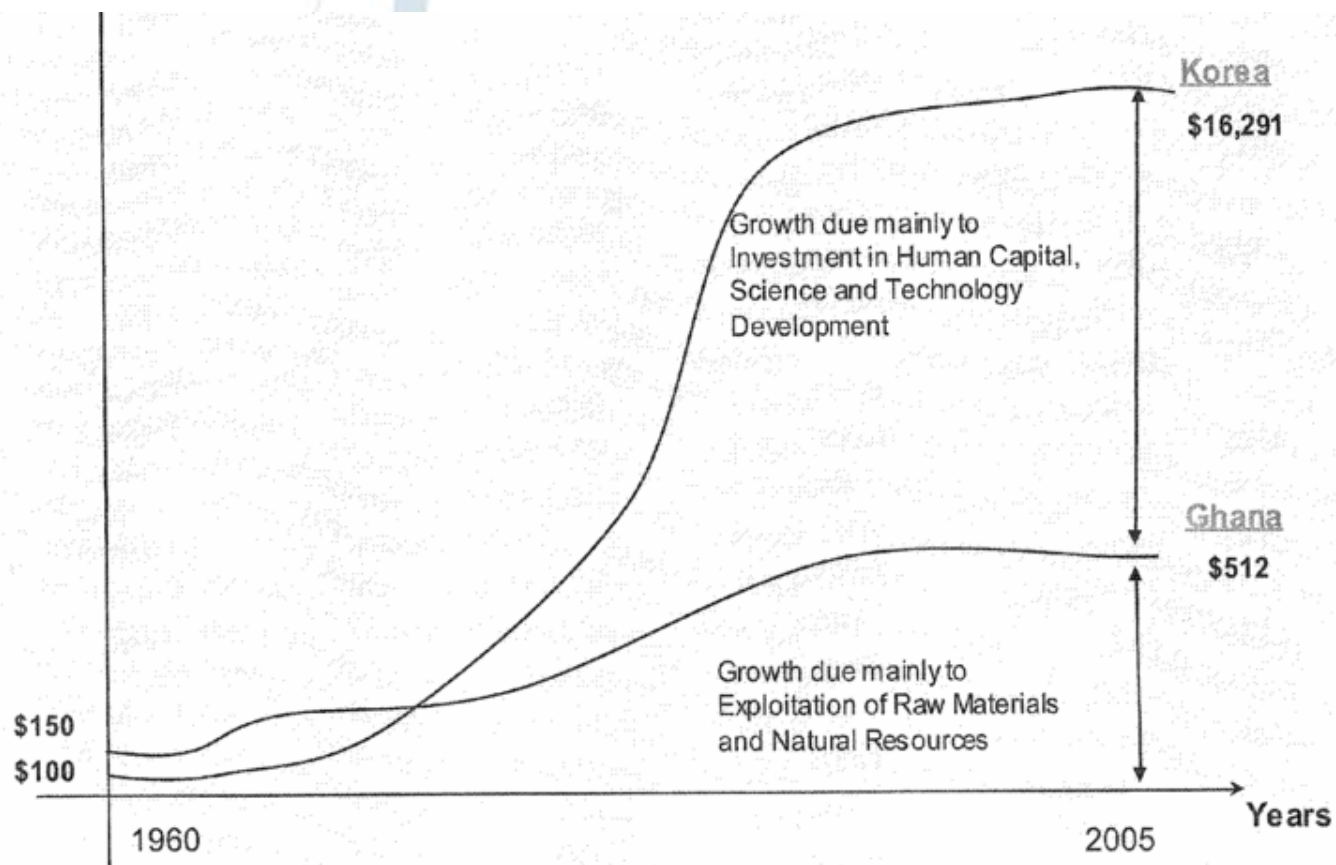
***Si fanno soldi* facendo Ricerca?**



**Fare ricerca non e' solo
PREPARARSI per il futuro
ma e' FARE il futuro**



Sì, la conoscenza è fonte di business e la gestione della conoscenza crea ricchezza



SOURCE: African Development Bank



Representative examples:

Korea in 50 year became the 11th economy in the world (Pro-capite: from 79 US\$ in 1960 to 18,372 US\$ in 2006)



Argentina declined from being the world's 10th wealthiest nation in 1913 to the 36th in 1998. In early 2002, the real GDP has been 18% smaller than in 1998 and almost 60% of Argentines were under the poverty line.

Various sources



From an economy of QUANTITY to an economy of QUALITY: from use and waste to sustainability

If Industry relies only or substantially upon labour and capital as factors of success within this period, the risk can be great:

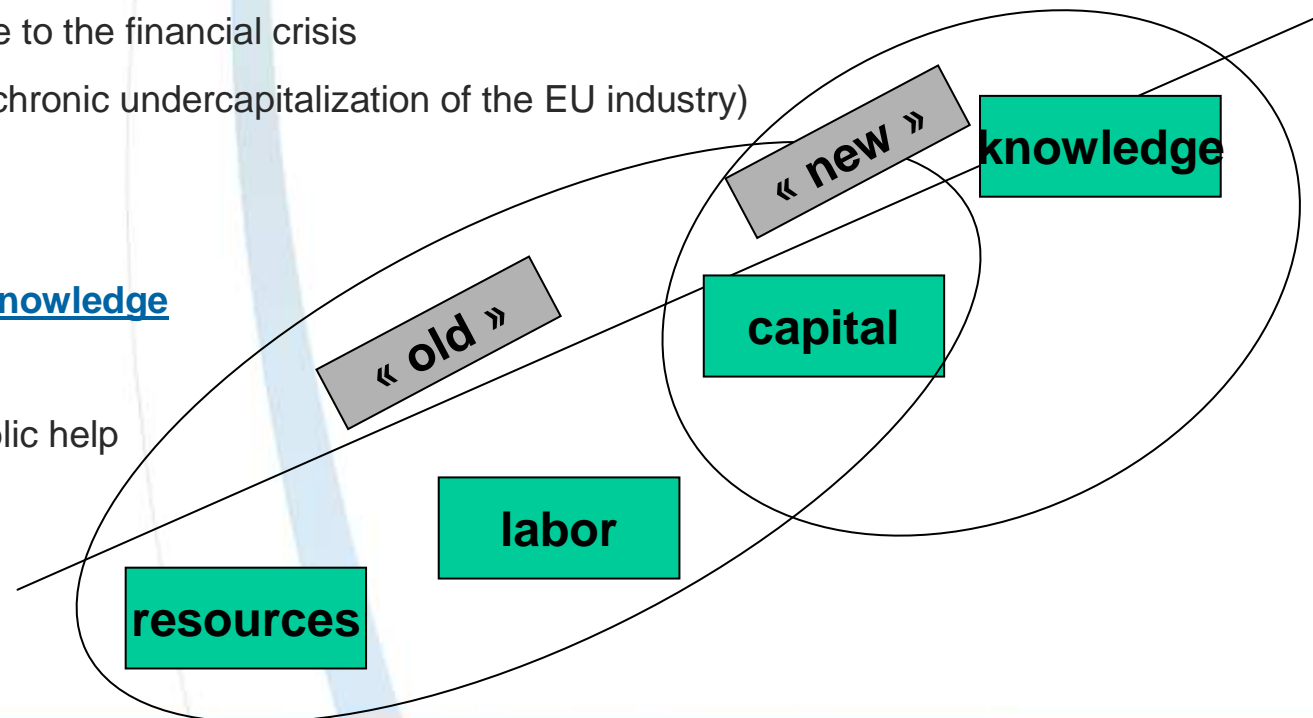
Labour → can be externalized out of Europe or replaced by robots

Capital → can be critical due to the financial crisis

(also in view of the already chronic undercapitalization of the EU industry)

Industry's investment in knowledge
should not be decreased

→ hence the key role of public help





La competitività è del sistema !



- Need for top-level infrastructures, especially for interdisciplinary R&D
- Need for suitable equipment
- Lack of interdisciplinary education and training
- Obstacles to researchers' mobility
- Conservatory character of the science systems
- Contrast between « easy acceptable » and « avant-garde »
- Conservatory character of industry, lack of flexibility in the organisation of work
- The emergence of global corporations and global competitiveness
- Regulatory and non-technological bottlenecks
- Difficulties in relationships amongst stakeholders
- Conservatory character of financial bodies
- Lack of marketing approach
- ... and good ideas 😊



Managing complexity → and networks

- Ethics, health & safety
- Context
- Acceptance
- Demand of high-tech products and services
- New consumers' attitude

- Interdisciplinarity
- Entrepreneurship
- Creativity
- Sustainability



- Fiscality
- Finance
- Patents, IPRs
- Norms/regulations
- Administrative rules
- Demand

- Industries
- Universities
- Research inst.
- Finance
- Policy makers

- Poles of attraction for minds and investors
- World-class laboratories
- Open innovation hubs



YESTERDAY

- heavy/rigid
- mass production
- production chain
- compact enterprise
- quantity driven
- production driven
- long-life products
- resources intensive
- many monofunctional
- linear approach
- monodisciplinarity
- individual work
- rigid specialization
- vertical hierarchy
- short term vision

TODAY

- flexible/lean
- focus to added value
- network of suppliers
- extended enterprise
- quality driven
- demand driven
- short-life prod/serv.
- brain intensive
- fewer intell. systems
- simultaneous approach
- team work
- interdisciplinary/conv.
- global system approach
- responsabilization
- sustainability



EU Industry challenged by:

- globalization
- introduction of new technologies
- changes of consumption patterns
- transformation of energy management (grid, ...)
- new public's attitude towards science and progress
- evolving regulatory environments
- ...





EUROPE 2020:

A EU strategy for smart, sustainable and inclusive growth



3 priorities:

- **Growth based on knowledge and innovation**
 - – Innovation
 - – Education
 - – Digital society
- **An inclusive high-employment society**
 - – Employment
 - – Skills
 - – Fighting poverty
- **Green growth: a competitive and sustainable economy**
 - – Combating climate change
 - – Clean and efficient energy
 - – Competitiveness



COMMUNICATION FROM THE COMMISSION COM(2010) 2020

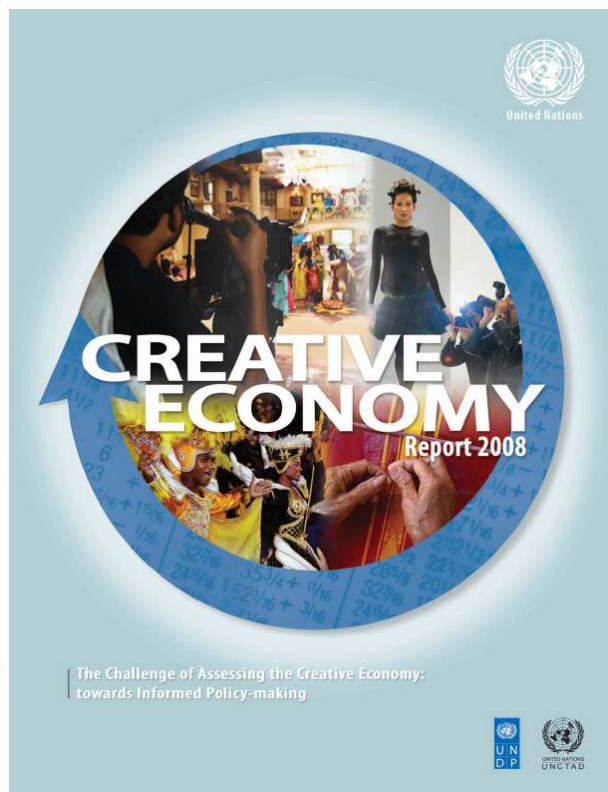
<http://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf>



e.g.: the “Creative Economy”



- The creative Industries are a dynamic trigger of economic activity and job creation throughout the European Union

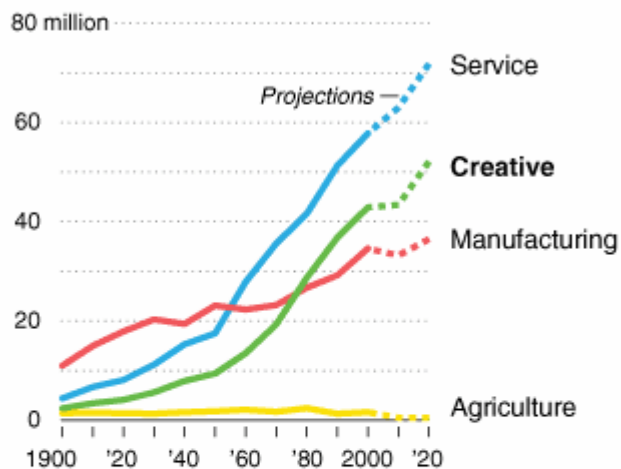


- 5.8 million people working in 2004 (=3.1% of total employed population EU25)
- The sector contributed around 2.6% to the EU GDP in 2003 (with significantly higher growth than that of the 1999-2003 economy)

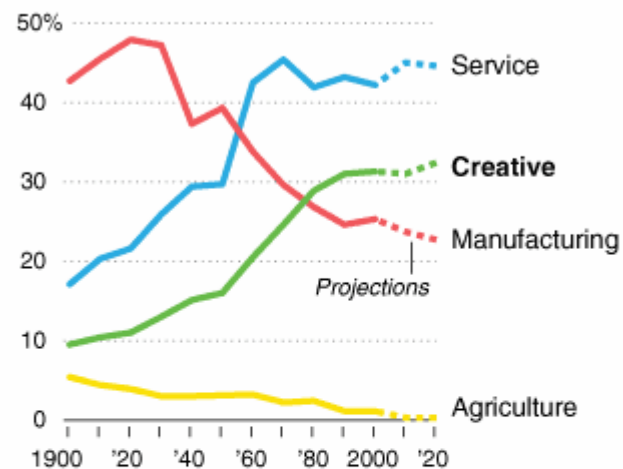


The class structure

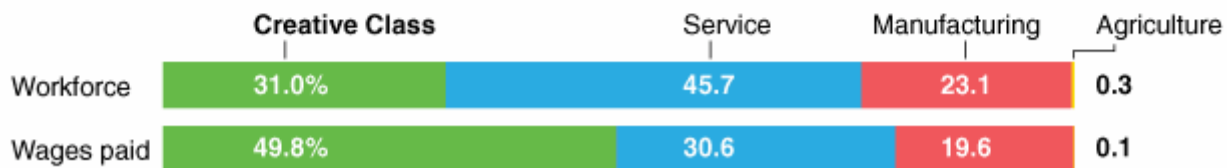
Number of workers, by decade



Percentage of workforce, by decade



Percentage of workforce vs. percentage of wages paid in 2006

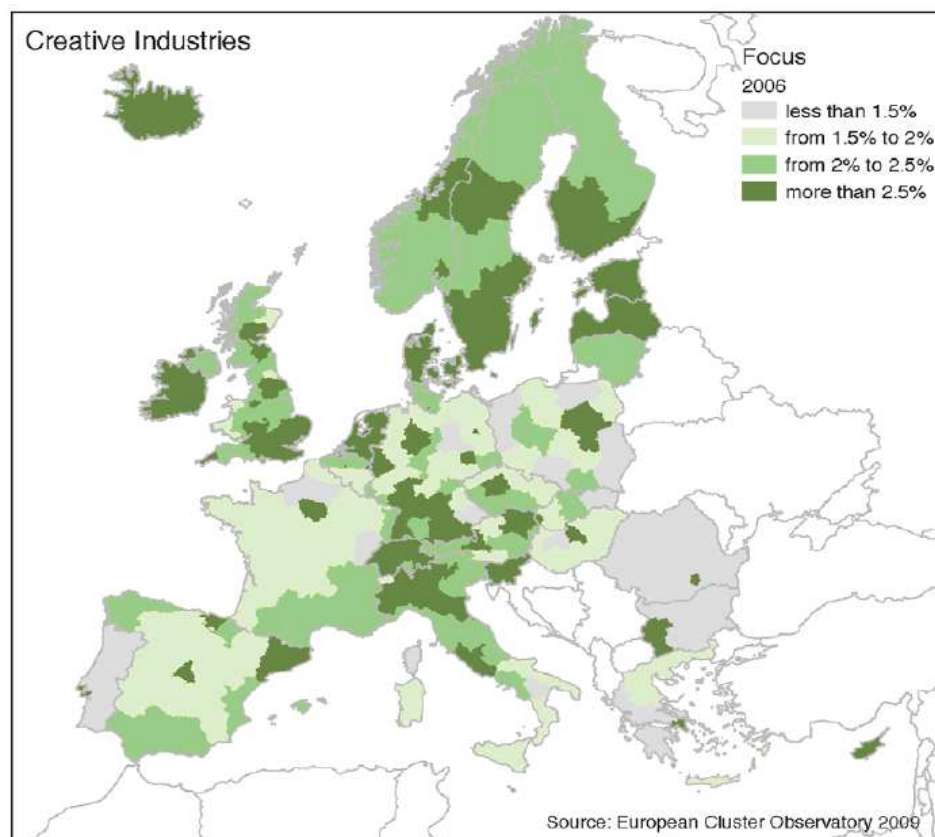


© 2008 Richard Florida www.whosyourcity.com

SOURCE: KEVIN STOLARICK; GRAPHIC BY RYAN MORRIS



Annual growth in EU creative industries



Creative and cultural industries average annual growth 2001-2006

<http://www.clusterobservatory.eu/upload/CreativeAndCulturalIndustries.pdf>



What is the 7th Framework Programme for Research (FP7)?



- **The Framework Programme is the strategic instrument for Research policy:**
 - ✓ General principles, objectives, financial means
 - ✓ Proposed by the Commission for co-decision by European Council and Parliament
- **The FP is implemented by Specific Programmes:**
 - ✓ Cooperation; Ideas; People; Capacities
 - ✓ Detailed research content
 - ✓ Types of activities and where they apply
 - ✓ Normally one call for research proposal per year, in summer

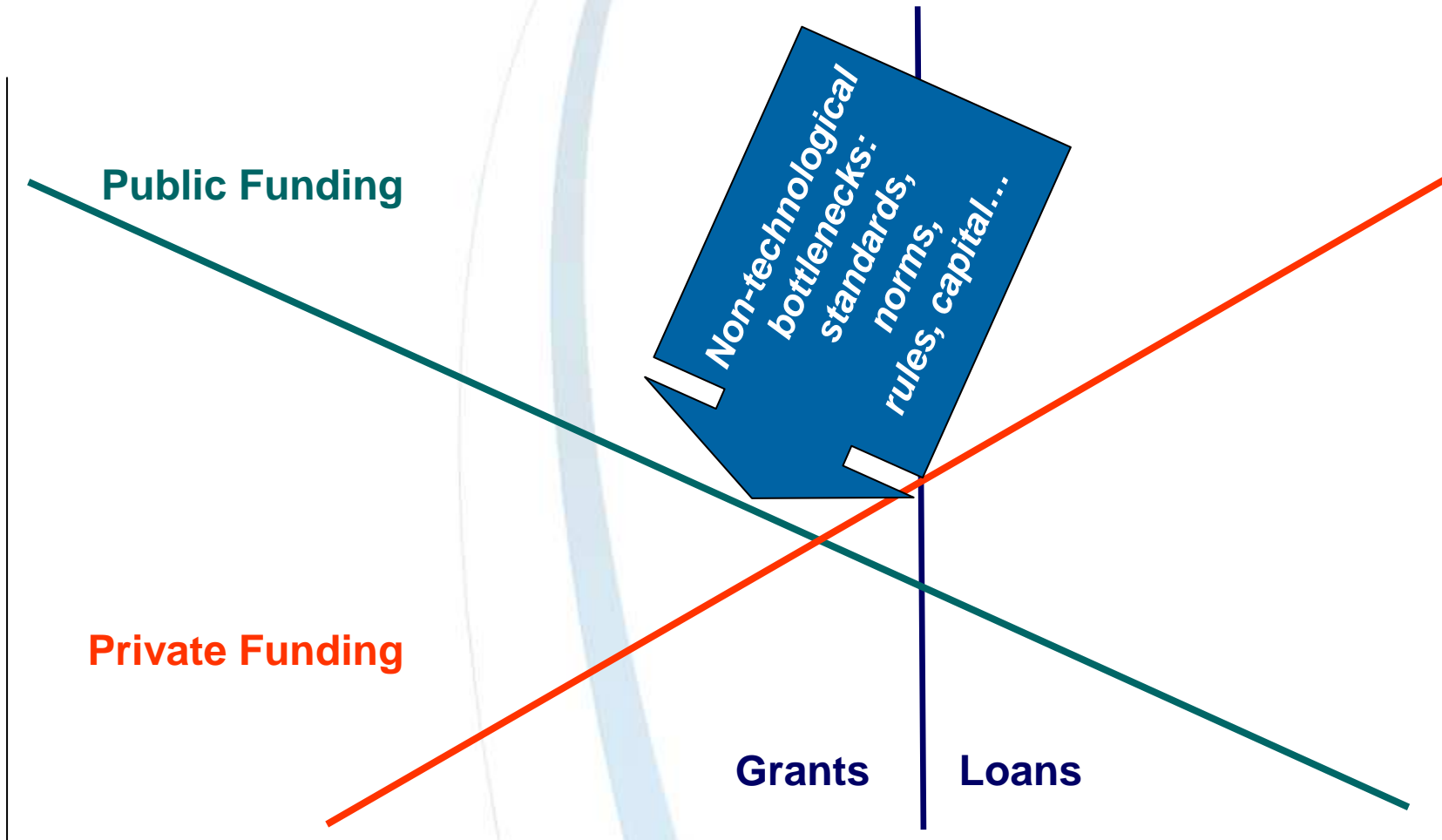
Participation is open to the world



Complex and integrated research support schemes



high technological risk → public funding



high industrial and commercial risk → private funding



FP7 Specific Programmes

Budget: more than 53 billion € (2007-2013)



× **CO-OPERATION**

32413

- Health 6100
- Food, Agriculture and Biotechnology 1935
- Information and Communication Technologies 9050
- Nanotechnology, **Materials** & Production Technologies (NMP) 3475
- Energy 2350
- Environment (including Climate Change) 1890
- Transport (including Aeronautics) 4160
- Socio-economic Sciences and the Humanities 623
- Space 1430
- Security 1400

× **IDEAS** (*European Research Council*)

7510

× **PEOPLE**

4750

× **CAPACITIES**

4097

× **JRC**

1751

× **Euratom** (*Fusion and Fission*)

2751



- **Fare meglio quel che si sa fare**
- **Creare il futuro**



E.g.: **new and improved Materials** represent an *invisible revolution* that changes products and processes by great extents. They introduce new functionalities and/or improved properties, and thus adding value to products/services.

The engineered realization of *materials by design* will allow re-designing or re-conceiving products and/or processes under a really sustainable systemic approach: energy and primary raw materials consumption, added value, safety (REACH, ...), less components, less production steps, ...

Industrial Production with Atomic Precision



Quale futuro?

- Che cosa esporteranno l'Europa e l'Italia nel 2025?
- Come sarà la composizione del reddito generato dalla produzione industriale nel 2025?
- Le nostre Università stanno generando i tecnici, gli ingegneri, i ricercatori di cui l'Industria avrà bisogno nel 2015-2025?
- L'Europa e l'Italia hanno un vantaggio: tutti i « building blocks » sono sul terreno, ci sono ricercatori brillanti e imprenditori dinamici ... e, a volte, di genio!
- Lo svantaggio da evitare: **una scarsa attrattività!**
Nel mondo globalizzato bisogna essere attrattivi: attirare giovani, idee, capitali...



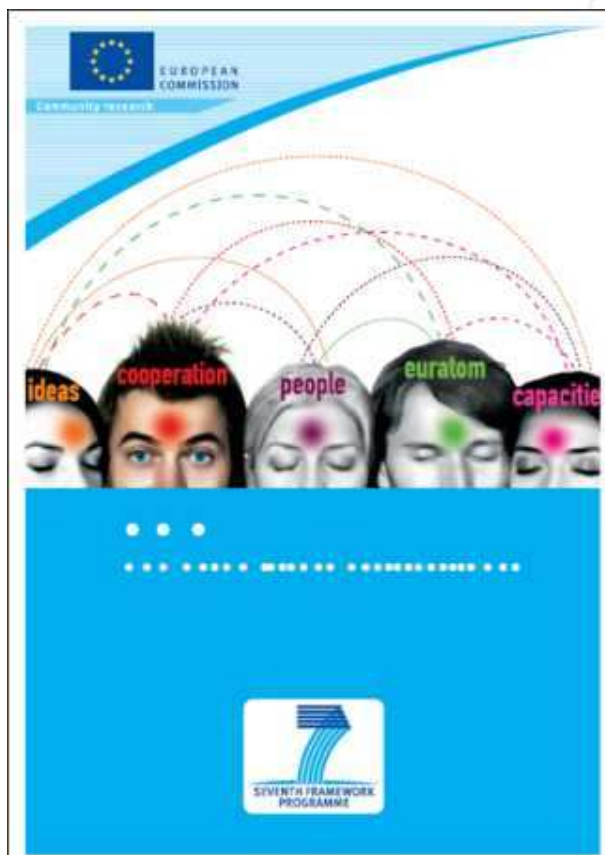
Industria e Ricerca



- In tutto il mondo, molte industrie manifatturiere « tagliano » gli investimenti per la ricerca
- **Si apre una sempre più forte opportunità di creare sinergia con la ricerca pubblica**
- Ci vogliono meccanismi appropriati e fondi
- Le imprese fanno sempre più ricerca con/in laboratori universitari o comunque pubblici, utilizzando gli strumenti scientifici, anche con proprio personale
 - le regole devono essere chiare
- Questo dirige anche parte della ricerca universitaria verso temi di interesse per le imprese ...
- ... e rende disponibili fondi anche privati per la ricerca a lungo termine



Tutte le informazioni sono in rete



FP7 Cooperation:

http://cordis.europa.eu/fp7/cooperation/home_en.html

Industrial Technologies website:

http://ec.europa.eu/research/industrial_technologies/index_en.html

National Contact Points:

http://ec.europa.eu/research/industrial_technologies/lists/support_en.html

Grazie per l'attenzione