"Il settore Manufatturiero, Manufuture ed il 7PQ di RTD"

Andrea GENTILI
Andrea.Gentili@ec.europa.eu

**Directorate for Industrial Technologies, Directorate-General for Research,
European Commission**

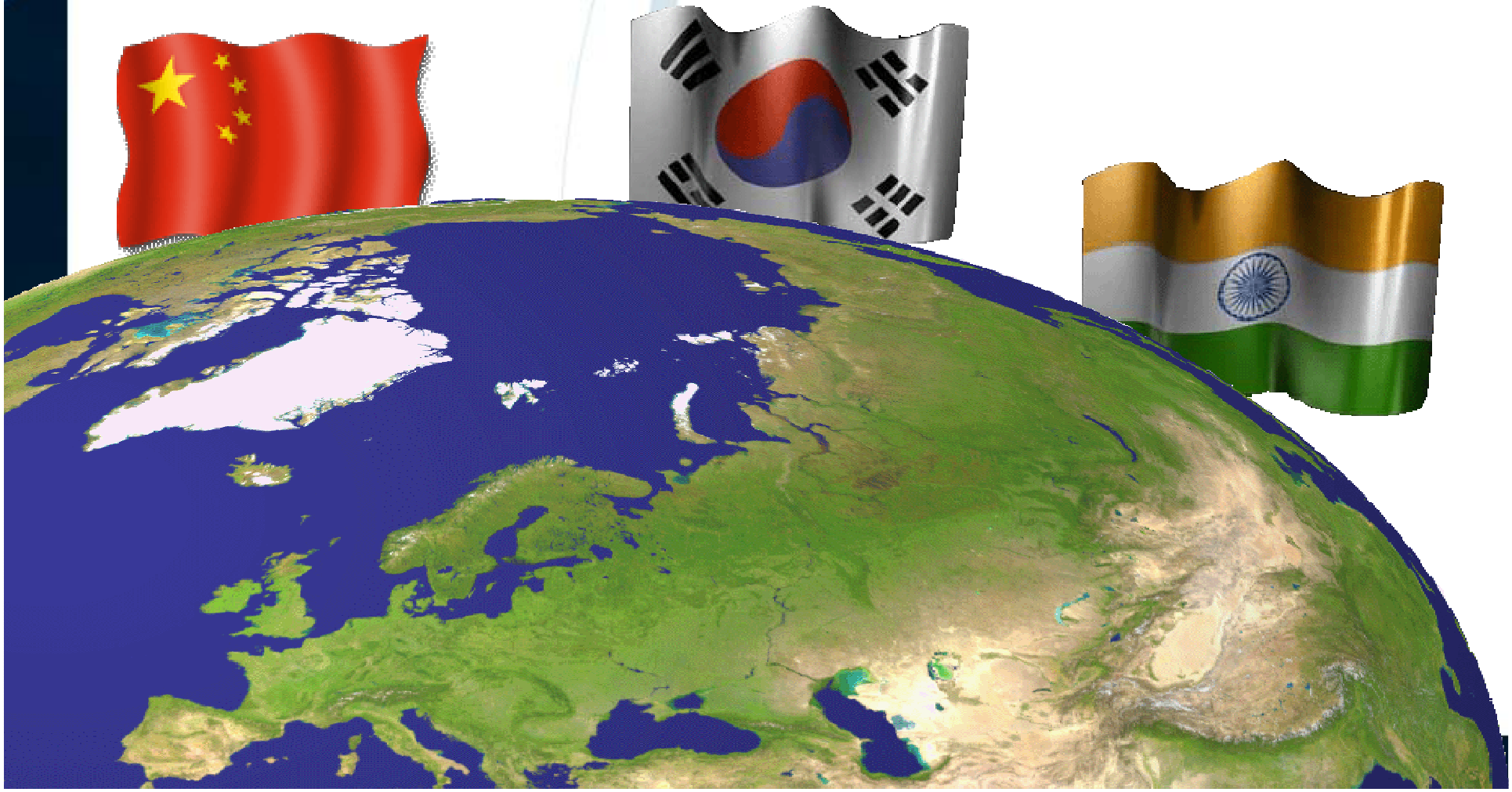
«Insieme per Fare Sistema», Piacenza 7 Luglio, 2006, Italy

Manufacturing is (still) the driving force of the European Economy

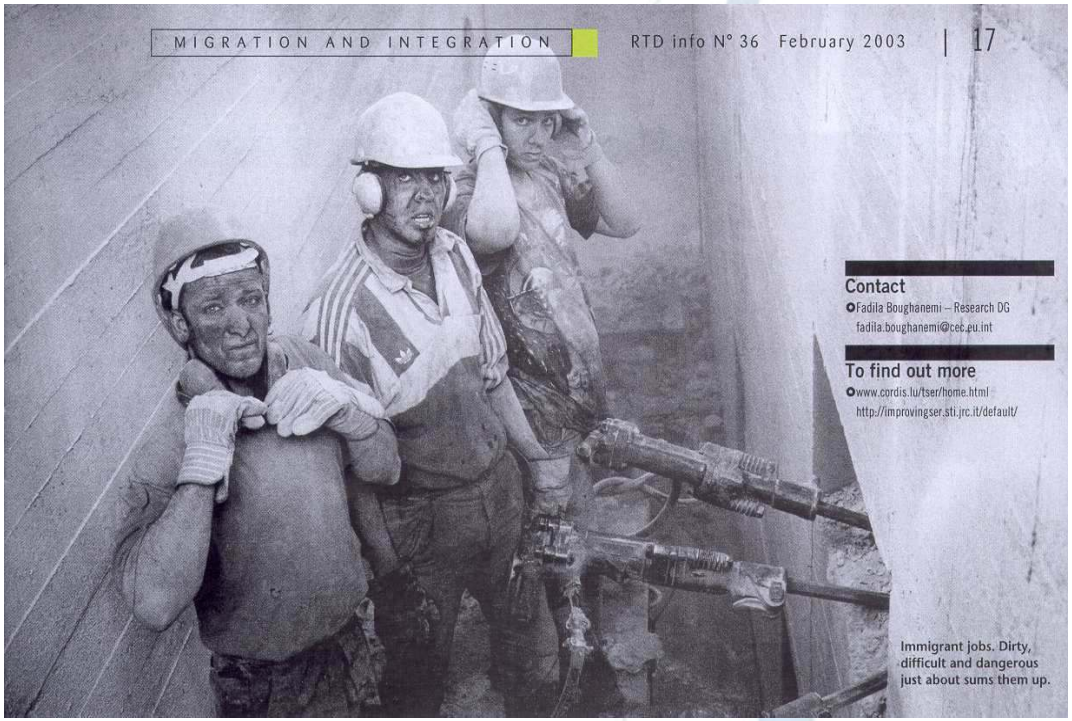
"The European Union (EU-25) Manufacturing industries employ about **34 (30.4%) million people** and they generate annually **€1535 (41.5%) billion of value added**"

Eurostat 2005

Challenges for European manufacturing

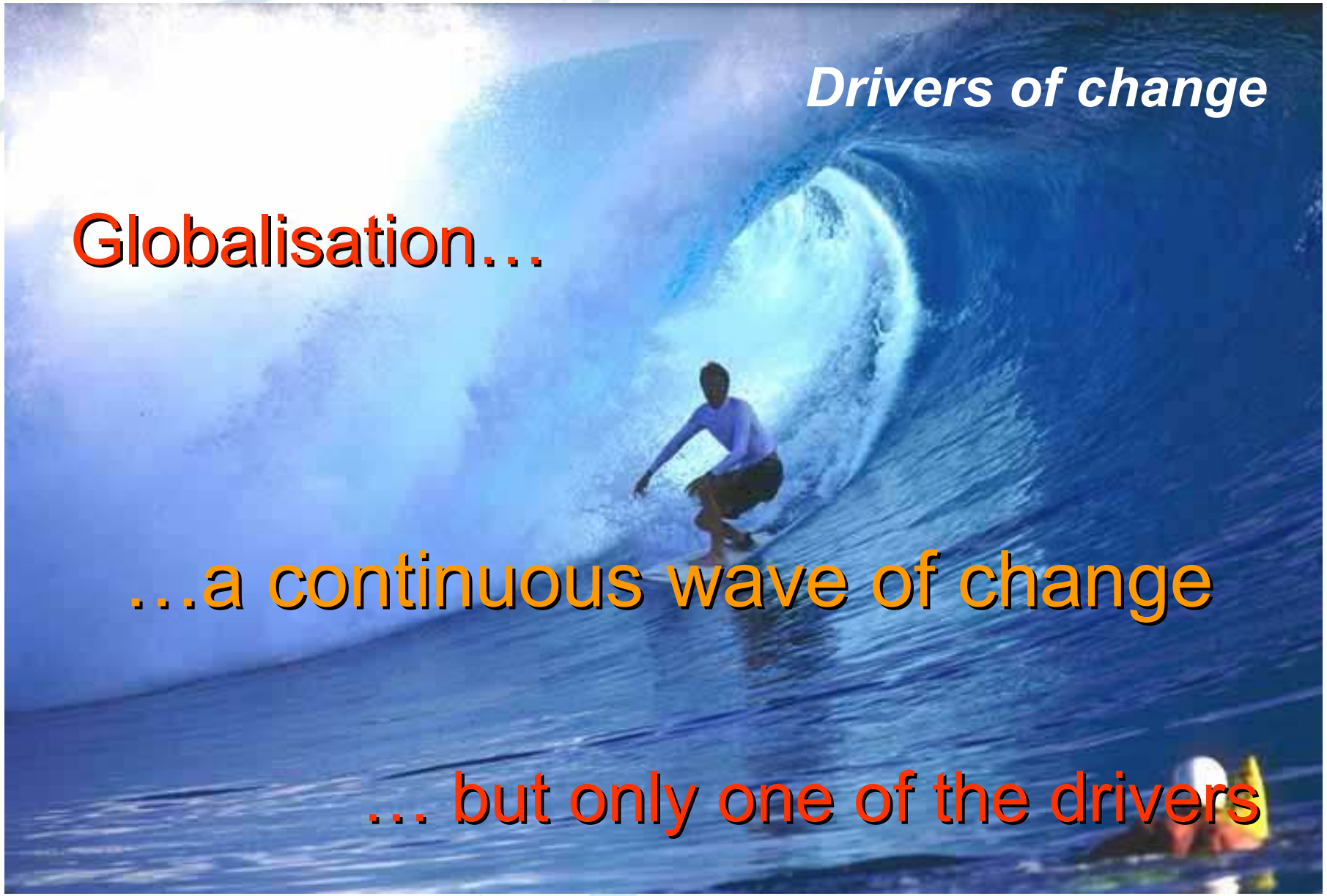


EU Manufacturing under pressure



Migration of manufacturing activities to lower wage economies

Deindustrialisation accompanied by loss of productive employment and R&D capability


Drivers of change
Globalisation…
…a continuous wave of change
… but only one of the drivers

…drivers of change

- **Increasingly competitive economic climate;**
- **Rapid advances in science and technology;**
- **Environmental challenges and sustainability requirements;**
- **Socio-demographic aspects;**
- **The regulatory environment, standards and IPR;**
- **Values and public acceptance of new technology;**

European Manufacturing Strengths

- European industry is modern and competitive in many areas. A long-lasting industrial culture with a supply to service networks;
- Leading-edge research capabilities are available across Member States, leading to high levels of knowledge generation and a reputation for scientific excellence;
- Some 99% of European businesses are SMEs, which typically exhibit greater flexibility, agility, innovative spirit and entrepreneurship;
- Europe has taken on board sustainable development. Significant investments in environmental protection, technologies and processes have led to new manufacturing and consumption paradigms; and
- Historic and cultural differences between individual Member States and regions bring a diversity of viewpoints and skills.

European Manufacturing Weaknesses

- Productivity growth in European manufacturing industry as a whole has been below US levels in recent years. Investment in ICT and new technologies is still too low, and has not so far led to the desired productivity gains;

  and

- Innovation activity is too weak!
  (The EU does not suffer from a lack of new ideas, but is not so good at transforming these into new products and processes.)


Research, Technology
and Innovation can be key contributors
for reversing the trend !

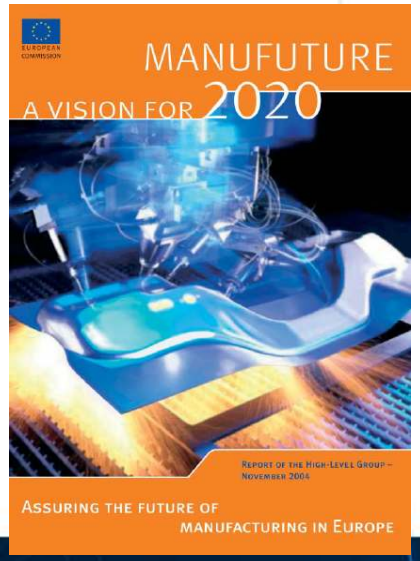
Research Directions from various RoadMaps

1. The importance of ICT as an enabling technology
2. New materials and new design paradigms are needed
3. Miniaturisation and precision engineering
4. Integrative approaches, eg. Mechatronics, process control
5. Extended Product Life Cycle
6. New Technologies for tomorrow's products


How can Europe ride the wave of change?
« MANUFUTURE »
Investing in
European Manufacturing research
for Innovation and Market Leadership

The Manu*future mission*

The mission of MANU*FUTURE* is to propose a strategy based on research and innovation capable of speeding up the rate of industrial *transformation* in Europe, securing high added value employment and winning a major share of world manufacturing output in the future knowledge-driven economy.

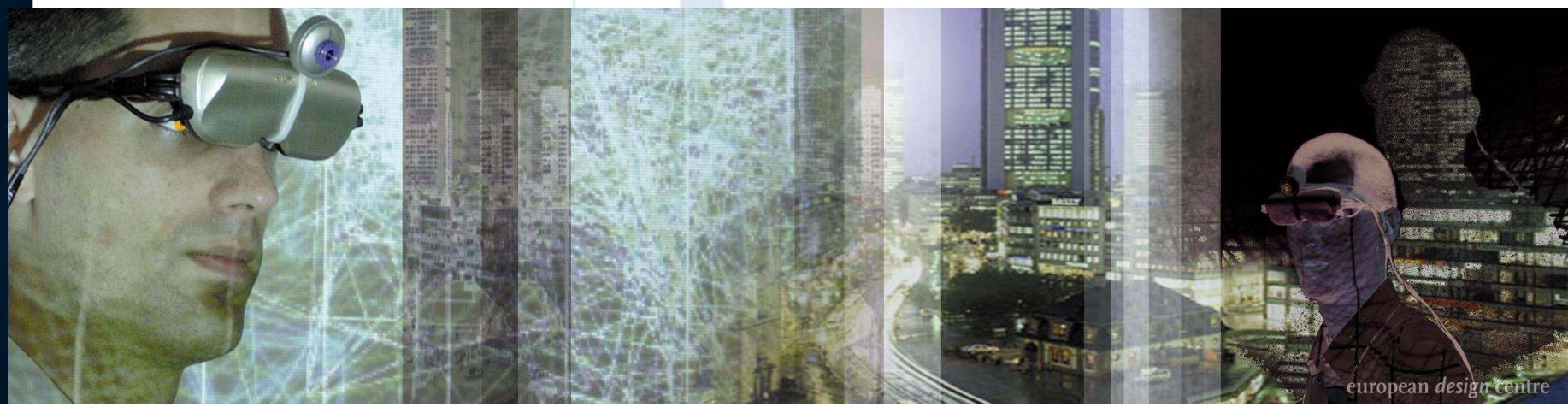


Manufuture: the strategy

Fostering new attitudes to knowledge generation and use:

- Knowledge-based manufacturing
- Multi-level and collective action

Europe and its regions will become the most attractive place for researchers, engineers and, consequently, new industry



Towards a Knowledge-based manufacturing

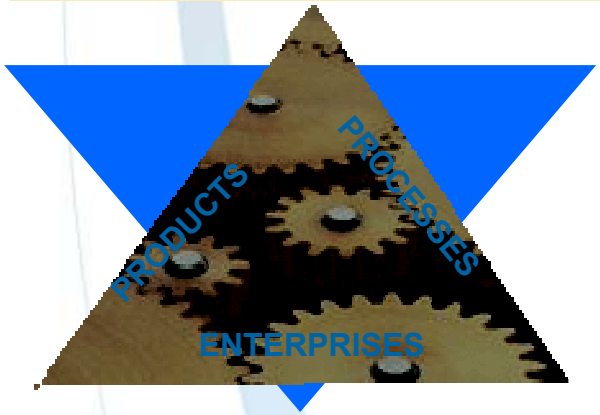
Manu*Future*

Compete by

REDUCING COSTS

Cheap labour, Automation

MANUFACTURING
Research-Innovation based



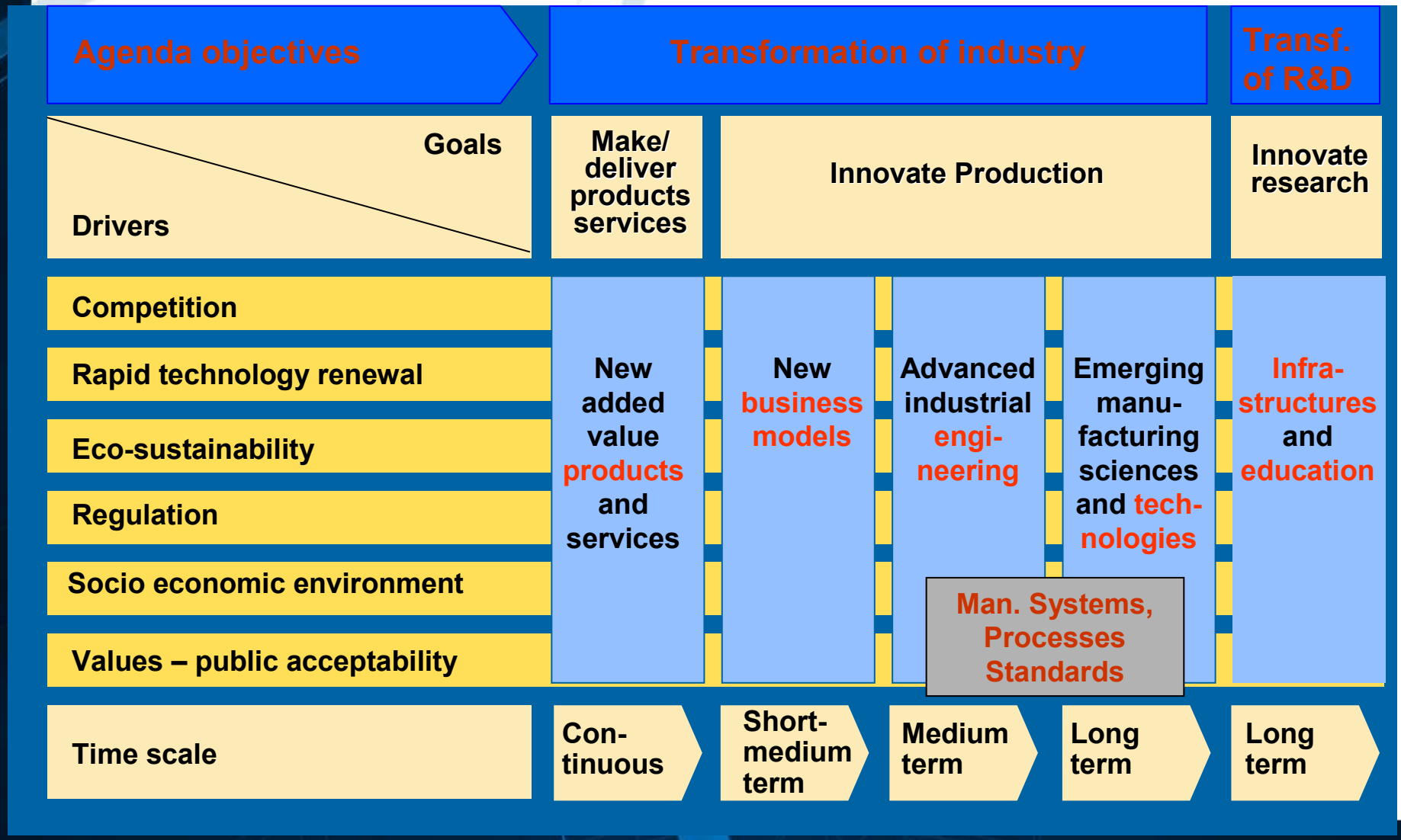
European industrial sectors

Compete by

HIGH VALUE ADDED

High performance technologies
Customisation
New business models
New human capital

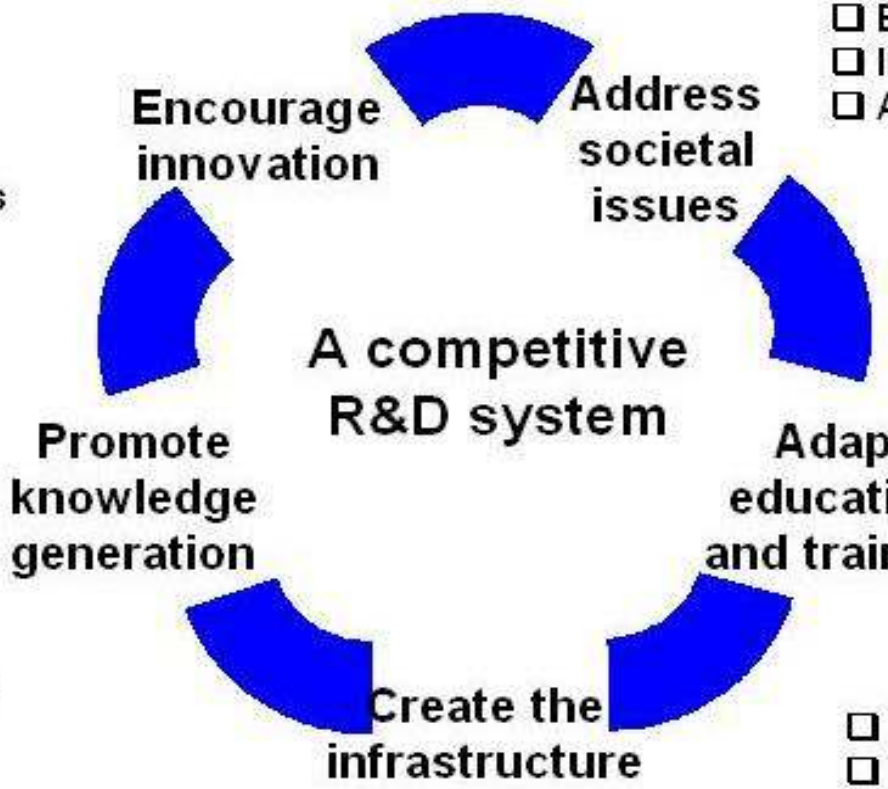
Manufuture SRA response



Creating the climate for success

Factors for competitive manufacturing R&D

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



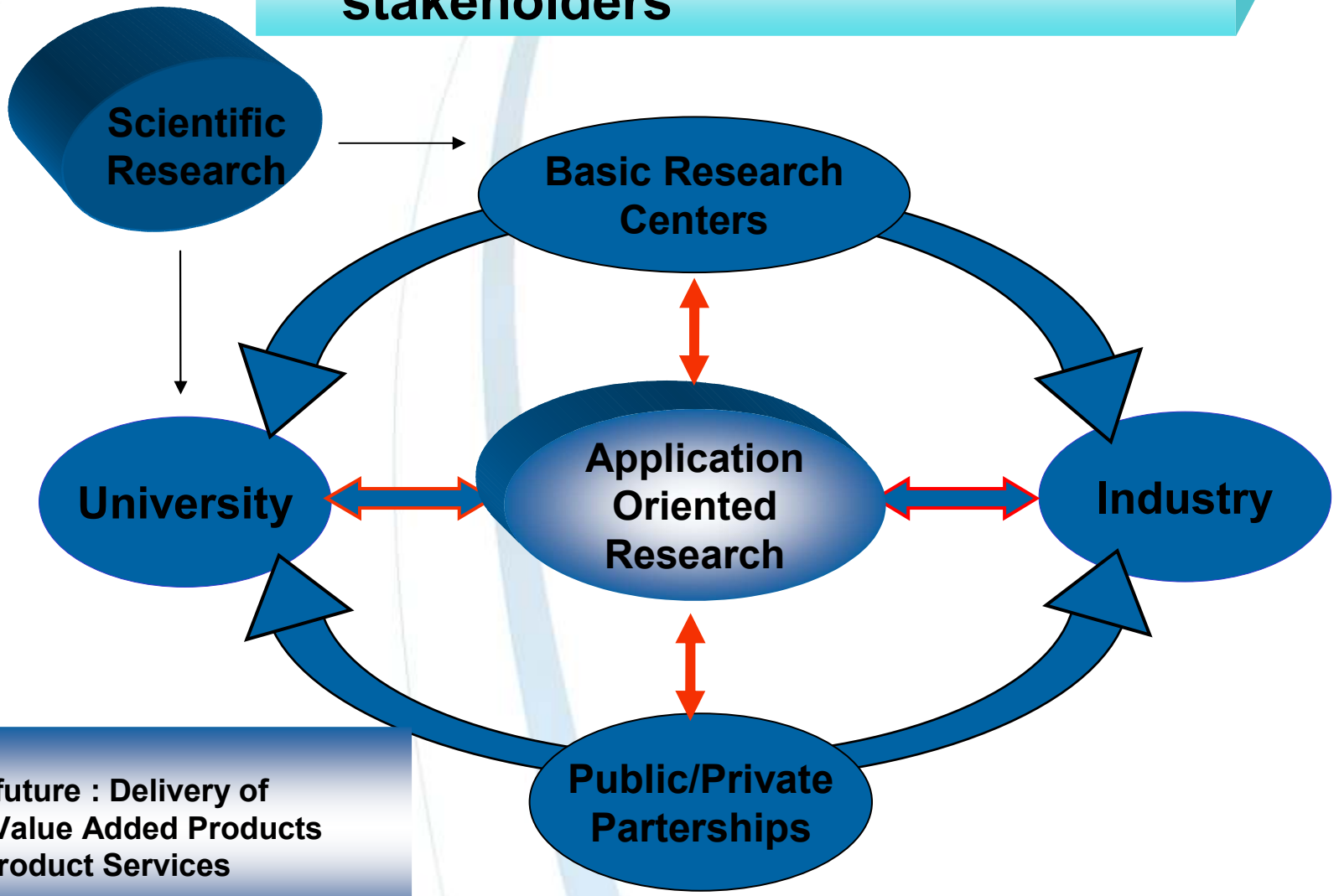
- ❑ Ethics, health & safety
- ❑ Information + dialogue
- ❑ Acceptance

Systems approach

- ❑ Industries
- ❑ Universities
- ❑ Research institutes
- ❑ Finance
- ❑ Policymakers

- ❑ Interdisciplinarity
- ❑ Entrepreneurship

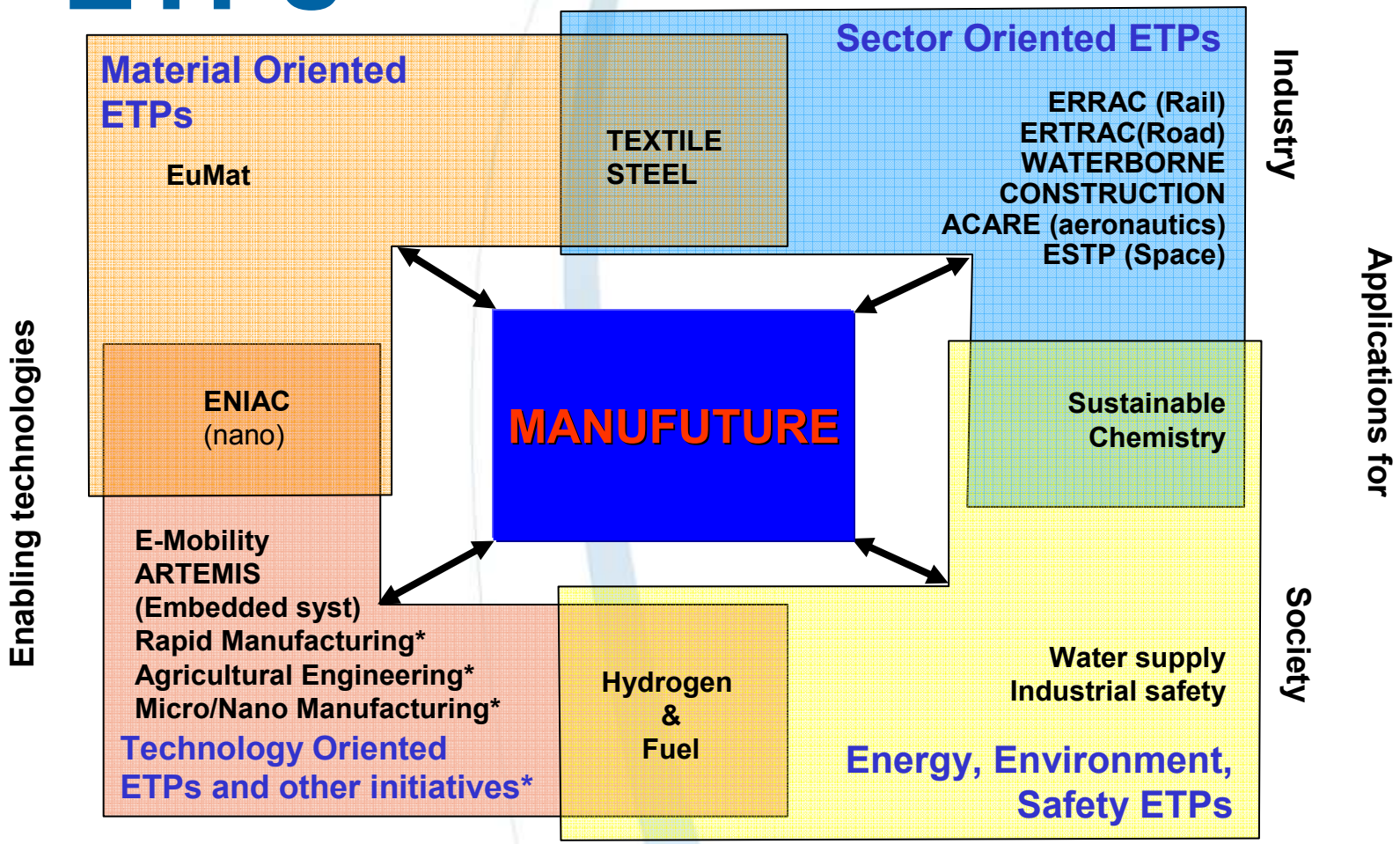
Model of Interactive, Networked Cooperative research between stakeholders



Manufuture : Delivery of High Value Added Products and Product Services


learning
« The only sustainable competitive advantage is the ability to learn faster than our competitors »
Arie de Geus, formerly of Royal Dutch/Shell

Manufuture and the other ETPs



SRA Implementation through collective action

European Manufacturing Innovation and Research Area (EMIRA)

Global scientific and technological RTD and innovation network

European technology platforms

Manufuture platform

European level

National level

National MF platform 1

National MF platform 2

National MF platform …

Regional level

Regional MF platform 1

Regional MF platform 2

Regional MF platform 3

Regional MF platform 4

Regional MF platform ..

Regional MF platform ..

The Vision of Manufuture

Europe is World Champion in Manufacturing:
Resources for manufacturing needed

Factories made in Europe....

- -Engineering
- -Engineering tools
- -Planning
- -Planning tools
- -Machines
- -Automation
- -Systems
- -Equipment (tools...)
- -Control systems
- -Methods
- -Process-Models
- -Management

Services: Training, Finance..

.....over the life cycle

....the R&D Focus on

- -Adaptive
- -Digital
- -Networked
- -Knowledge based
- -High Performance
- -New Taylor

....with R&D Networks

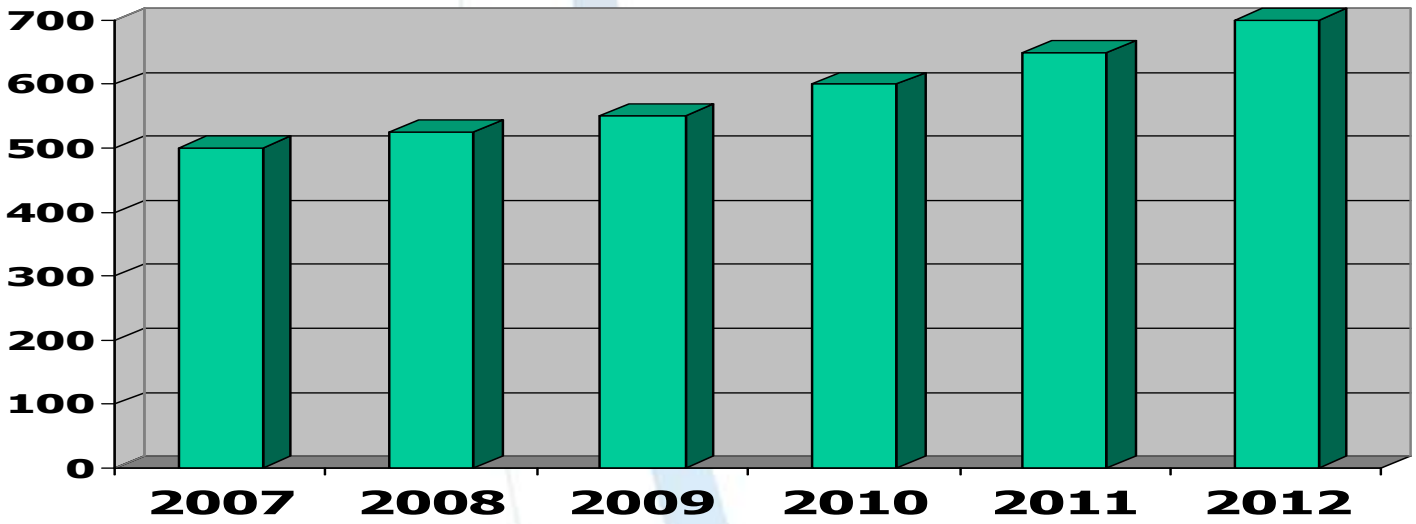
- - Virtual Research labs
- - Basic Research
- - Application oriented Research
- - Regional Centers

...enable Platforms of Manufacturing

Factories made in Europe with european Manufacturing Standards... adding value to win markets...being close to clients and sustainable.

Financing 2007 to 2013

- Budget increase to approximately 3.5 Billion Euros
- Increase in real terms is about 40%



7th Framework Programme Content & budget

4 Specific Programmes ~ € 48.7 B

1. *Cooperation* – Collaborative research ~ € 32.3b
2. *Ideas* – Frontier Research ~€7.46b
3. *People* – Human Potential ~€ 4.73b
4. *Capacities* – Research Capacity ~€4.3b

\+

- JRC (non-nuclear)
- JRC (nuclear)
- Euratom

\+

Competitiveness & Innovation Programme ~ € 3.6 b

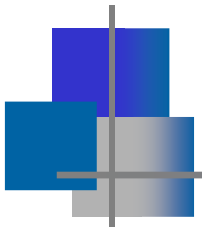
10 Cooperation Themes

1. Health
2. Biotechnology
3. Information Society
4. Nano, Materials & Production
5. Energy
6. Environment
7. Transport
8. Socio-economic Research
9. Security &
10. Space

Scientific engineering beyond borders

Skilling & Training in Manufacturing engineering

Infrastructure, clustering & SMEs



Nanoscience, Nanotechnology,
Materials and
new Production Technologies

SMEs

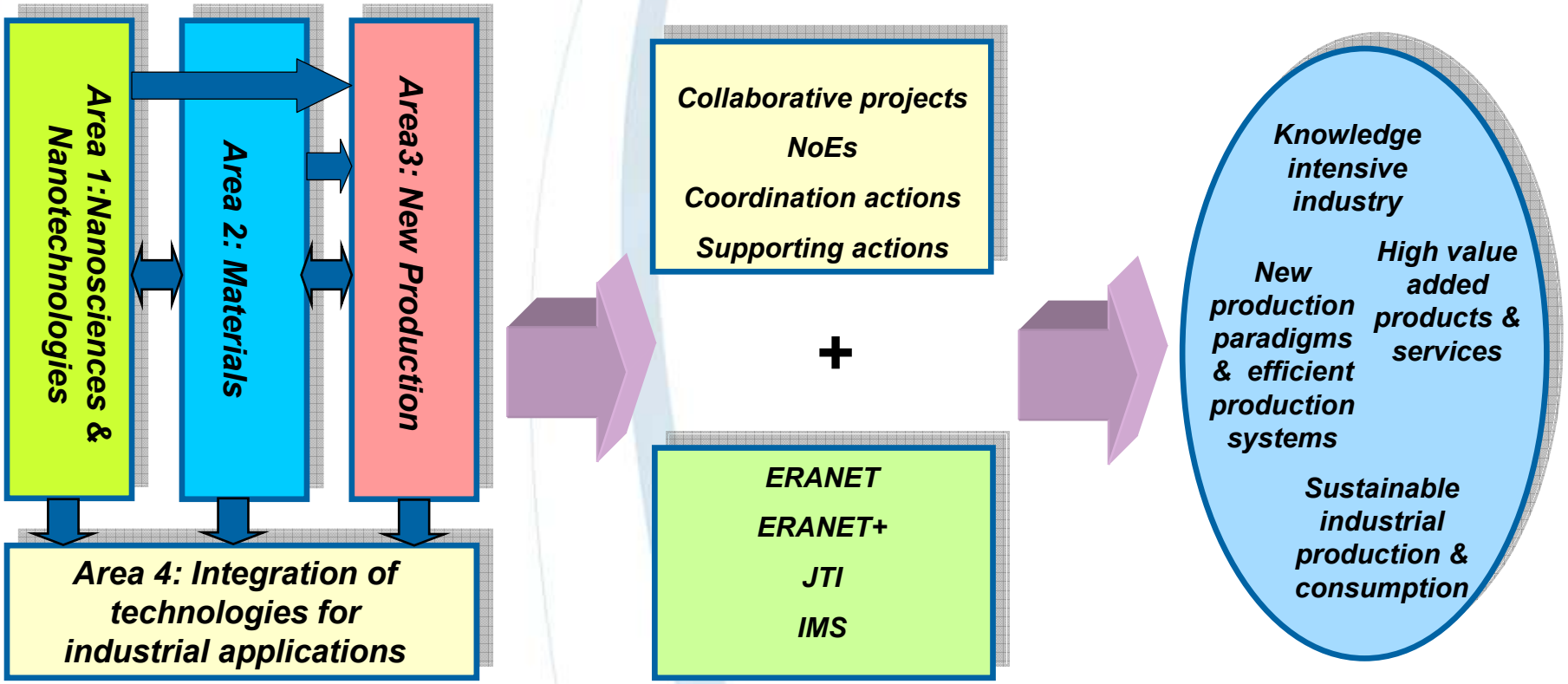
- *15% of the funding should go to direct participation of SMEs
- **Funding level for SMEs goes to 75% (Research) and 50% (Demonstration)
- Continuation of dedicated calls for *Collaborative Projects for SMEs* (similar to IP-SMEs)

*Target proposed by Council for Research Themes; separately Cooperative (*CRAFT*) and *Collective Research* continue under « Capacities » with more than 50% budget increase
**Still under discussion

Theme 4 - NMP

FP7 2007 - 2013

STRUCTURE INSTRUMENTS DELIVERABLES



Strengthening of leadership fields & integration of knowledge

Strategic research topics implemented through a range of instruments

Aimed at delivering industrial transformation

Strategy of “New Production”

NMP Research Areas (1)

1. Nanoscience and Nanotechnology

->creation of new materials and systems with pre-defined properties and behaviour

2. Materials

->advanced materials with higher knowledge content, new functionalities and improved performance

NMP Research Areas (2)

3. New production technologies

->new industrial models, adaptive production systems, networked production

4. Integration of technologies for industrial applications

->new applications, novel step-change solutions for industrial challenges and the RTD needs identified by the different ETPs

Holistic approach to Knowledge Based Factories

4.3.1 Development and validation of new industrial models and strategies

is about…

improving the operations efficiency of a factory through new production models and systems integration

4.3.2 Adaptive production systems

is about…

enhancing the production system performance within a factory through holistic manufacturing engineering concepts

4.3.3 Networked production *is about…*

enabling customer-oriented and cost-efficient manufacturing operations within dynamic networks of companies

4.3.4 Rapid transfer and integration of new technologies into the design and operation of manufacturing processes

is about…

development of knowledge based engineering capacities drawing on in-depth understanding of the behaviour of machines, processes and systems

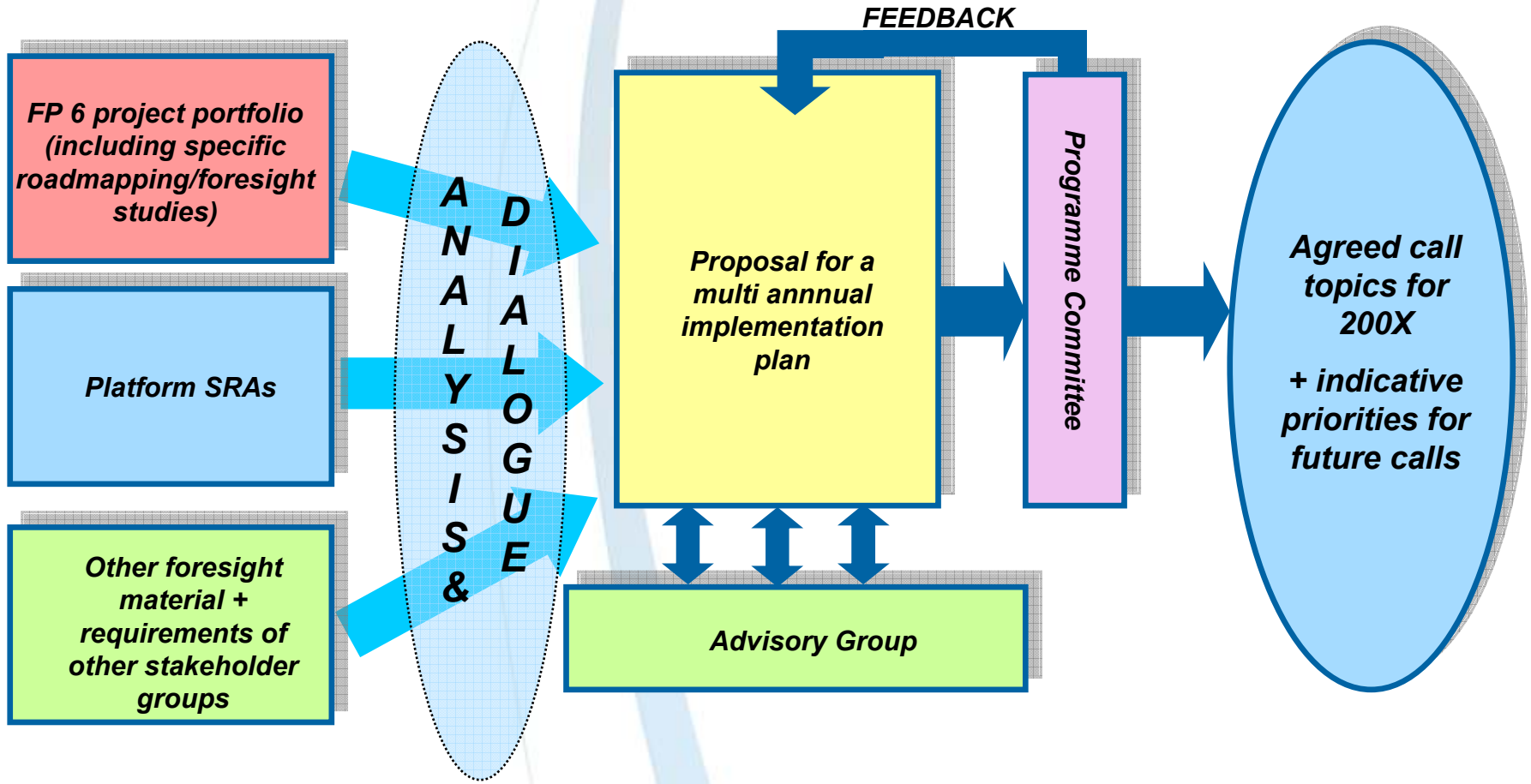
4.3.5 Exploitation of the convergence of technologies

is about…

stimulating the creation of new industries through application of basic research results in convergence technologies (e.g. nano, micro, bio, info)

FP7 2007 - 2013

Development of the work programme



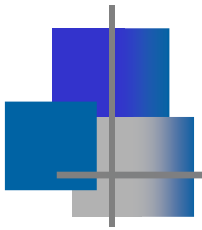
Information
General

- EU research: http://europa.eu.int/comm/research
- Seventh Framework Programme: http://europa.eu.int/comm/research/future/index_en.cfm
- Information on research programmes and projects: http://www.cordis.lu
- RTD info magazine: http://europa.eu.int/comm/research/rtdinfo/
- Information requests: research@cec.eu.int
- Manufuture platform: www.manufuture.org

Thanks for your attention

Disclaimer

Aspects of these presentations interpret legal documents. Only these legal documents are legally binding



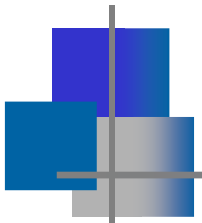
Nanoscience, Nanotechnology,
Materials and
new Production Technologies

Focus

- Focus on continuity with FP6
- Improved harmonisation between activities
- Avoiding oversubscription
- Narrower focusing per call topic
- Single instrument per call topic
- Support in synergy with other Themes (avoiding overlaps)

Strategy

- Industrial transformation as a single objective
- 4 Activity areas (NMP + Integration)
- Inclusion of the needs identified by the ETPs
- Clear choice of instruments



Nanoscience, Nanotechnology,
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Instruments

- Predominant use of the *Collaborative Project* instrument
- Collaborative Project instrument is replacing STREP and IP instrument
- Restricted use of *Networks of Excellence* instrument
- Focused use of co-ordination and support schemes (eg. *ERA-NET* and *ERA-NET+*)