The role of the EC projects Round Table

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The use of Accelerators

The development of state of the art accelerators is essential for many many fields of science (fundamental, applied or industrial)

Research accelerators

- **Particle Physics, Nuclear Physics, Research fields using light source, Research fields using spallation neutron sources, Study of material for fusion, Study of transmutation…**

In past 50 years, about 1/3 of Physics Nobel Prizes are rewarding work based on or carried out with accelerators

This « market » represents ~15 000 M€ for the next 15 years, i.e. ~1 000M€/year

Clinical accelerators

- **radiotherapy, electron therapy, hadron (proton/ion)therapy…**

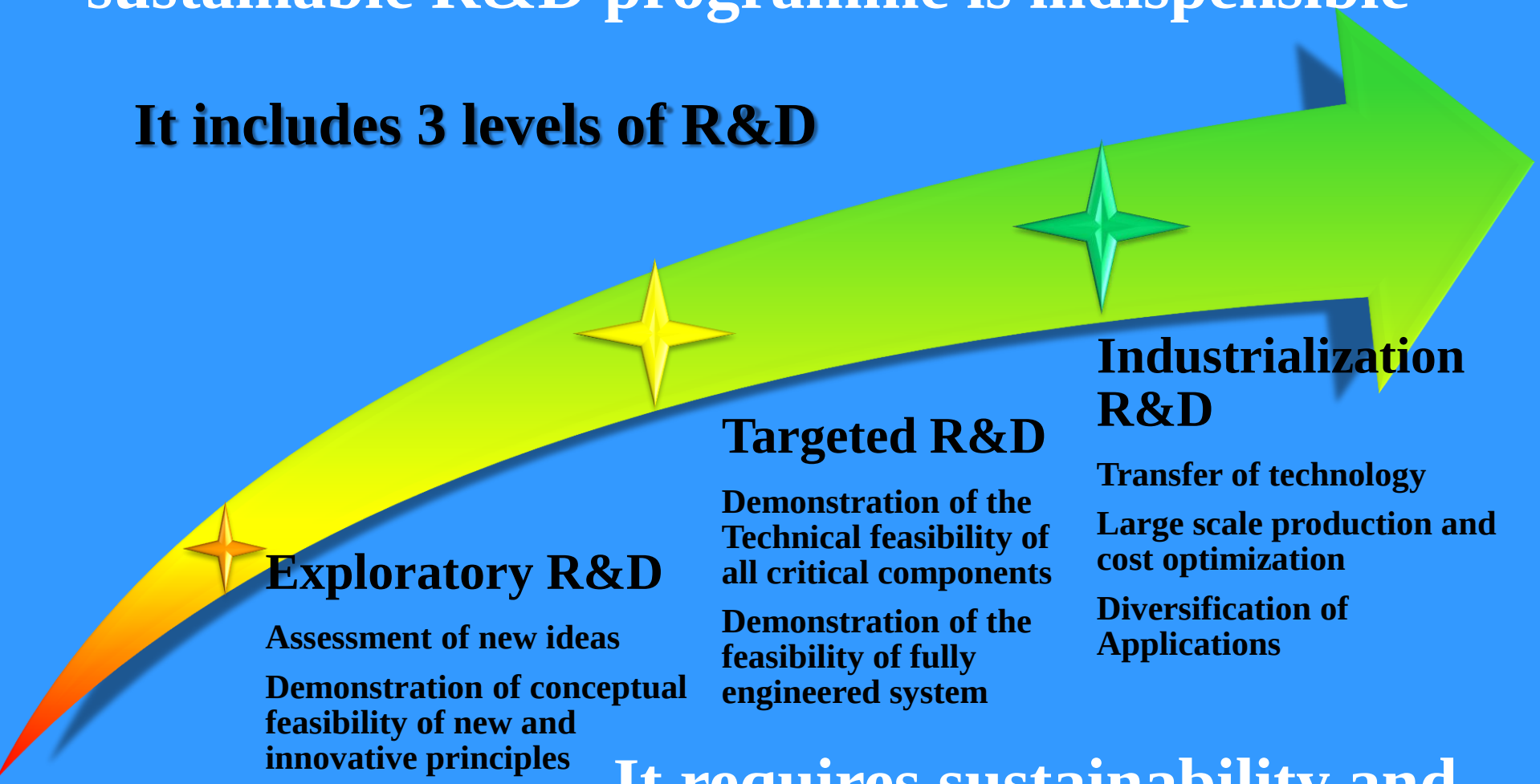
Industrial accelerators

- **ion implanters, electron beam and X-ray irradiators, radioisotope production…**

This market represents ~3 000M€/year and is increasing at a rate of ~10% /year

To be able to build future accelerators, a strong sustainable R&D programme is indispensible

It includes 3 levels of R&D



Exploratory R&D

Assessment of new ideas

Demonstration of conceptual feasibility of new and innovative principles

Targeted R&D

Demonstration of the Technical feasibility of all critical components

Demonstration of the feasibility of fully engineered system

Industrialization R&D

Transfer of technology

Large scale production and cost optimization

Diversification of Applications

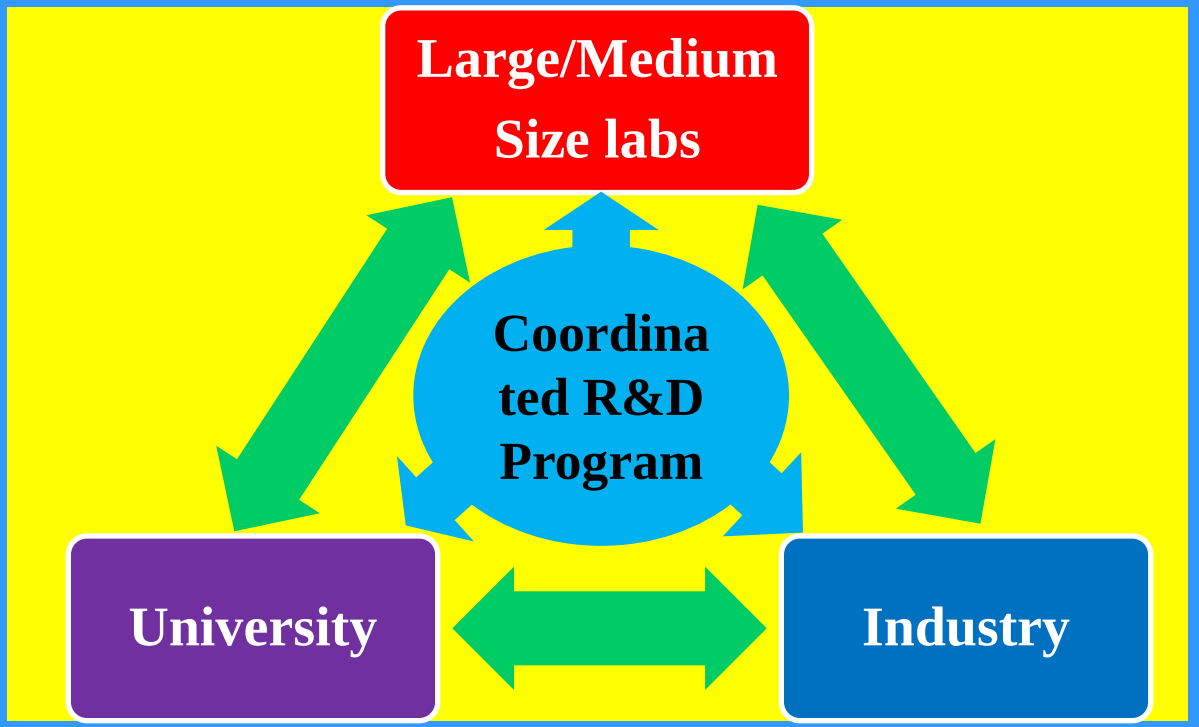
It requires sustainability and large (costly) infrastructures

We have to think at the European level, at least

Carrying the needed R&D requires

- Strong expertise and skilled personnel
- Large variety of infrastructures
- Education & Training of accelerator scientists

The partners



Hard to find all this to cover all aspects of accelerator R&D in a single location or even a single country

We have to think at the European level, at least

What is the role of EC projects in this landscape?

Round Table

15:50	Role & goals of EC projects- a vision for Europe	Dr. MENNA, Mariano
16:00	View of project coordinator(s)	Dr. KOUTCHOUK, Jean-Pierre
16:10	View of CERN	Prof. ROSSI, Lucio
16:20	View of a National lab	Dr. ASSMANN, Ralph Wolfgang
16:30	View of a university	Prof. WELSCH, Carsten
16:40	View of ESGARD & TIARA	Dr ALEKSAN Roy
16:50	View of an industrial partner	Dr. GRASSO, Gianni
17:00	View of non EU partners (Japan)	Prof. TOKUSHUKU, Katsuo
17:10	Round table discussion	Dr ALEKSAN Roy

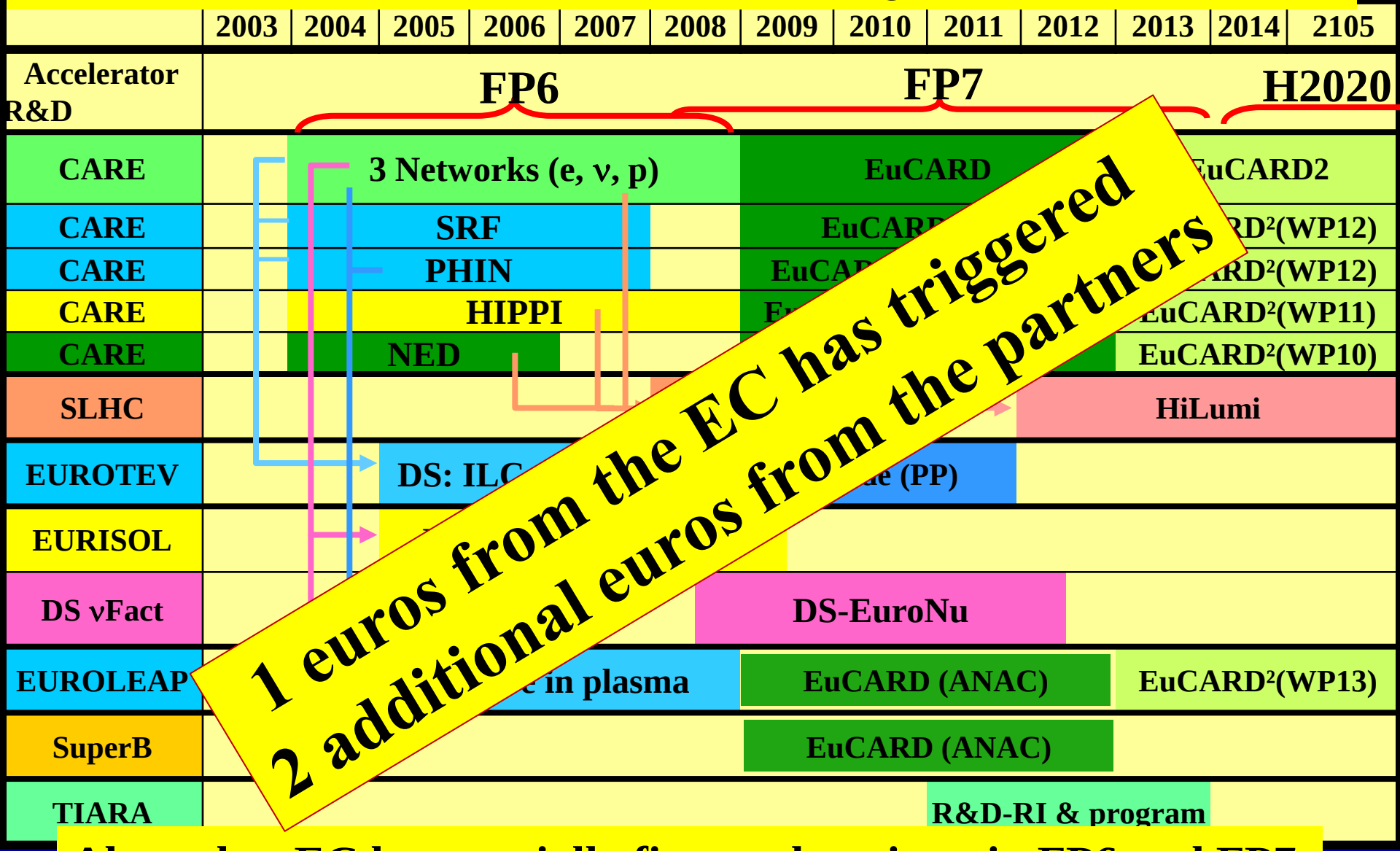
http://www.esgard.org

ESGARD mandate develop and implement a Strategy to optimize and enhance the outcome of the Research and Technical Development in the field of accelerator physics in Europe

This strategy led to the preparation and implementation of a coherent set of collaborative projects using the incentive funding of the 6th and 7th Framework Programme.

EC projects are at the very heart of the ESGARD strategy for promoting and supporting Accelerator Science and Technology

ESGARD developed and implemented a strategy to promote Accelerator R&D with the incentive of the EC Framework Programme within ERA



1 euros from the EC has triggered 2 additional euros from the partners

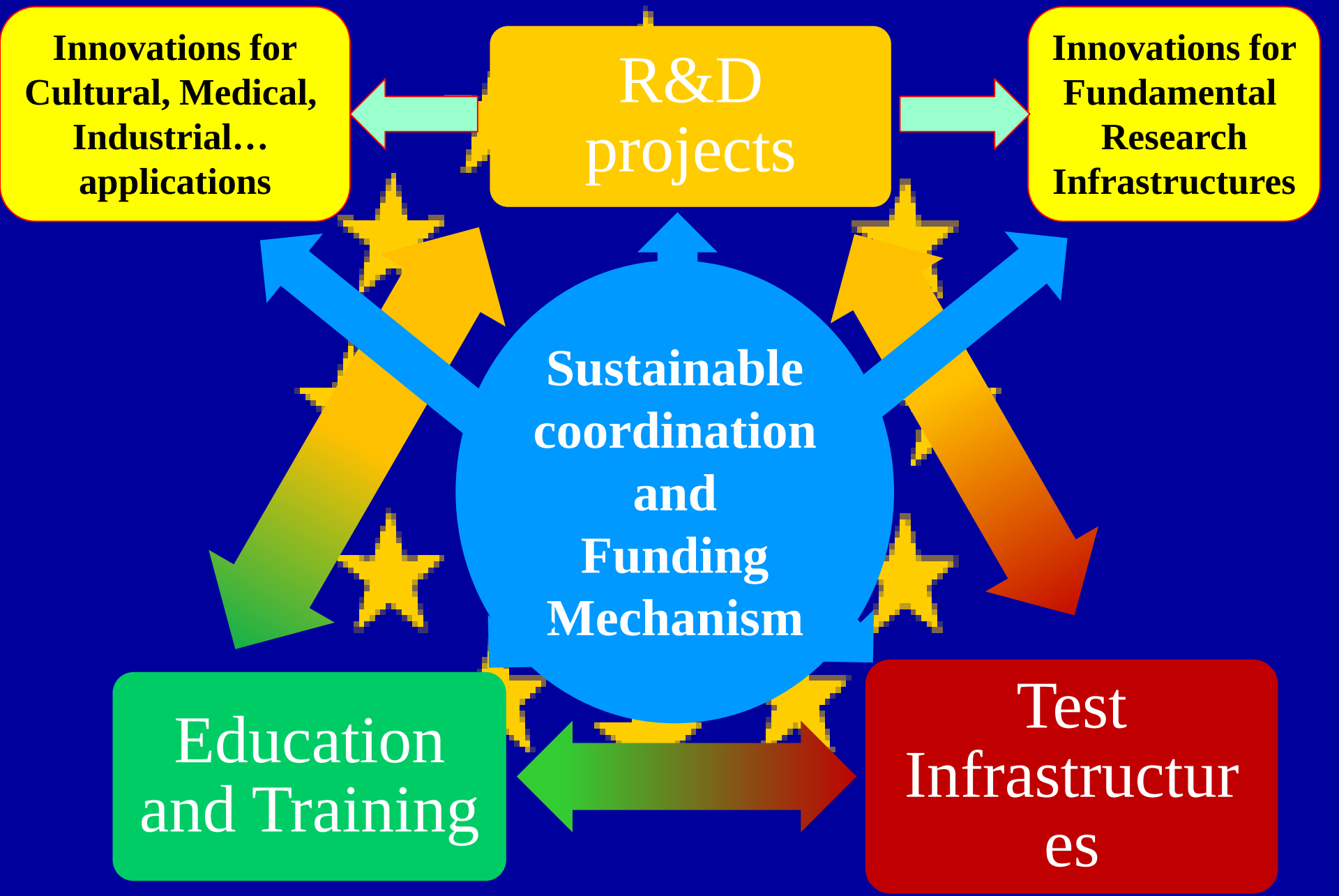
Altogether EC has partially financed projects in FP6 and FP7 with a total budget of ~228 M€ (68 M€ from EC)

EC projects have been instrumental

For collaborating, integrating, knowledge building and innovating

- **For fostering the community to carry out Accelerator R&D in a collaborative manner**
- **For enabling smaller institutes/universities to gain knowledge and experience by collaborating with large institutes and to access world class infrastructures**
- **For triggering new ideas and developing further novel concept, e.g. crab waist scheme, plasma acceleration**
- **For allowing Europe to build expertise in domains where it was behind, e.g. Nb3Sn magnet, HTS links**
- **For helping enabling the launch of large infrastructure project, e.g. linac4, ESS**
- **For enabling coordinated and efficient means for a regionally balanced scientific and technological development.**

Going beyond by implementing the Virtuous Triangle



Tiara

Test Infrastructure and Accelerator Research Area

- **Creation of a coordinated panEuropean multi-purpose distributed Test Infrastructure**
- **Joint Strategic Analysis of the accelerator needs and perspective for the development of R&D RI**
- **Joint R&D programming and launching of a set of consistent integrated accelerator R&D projects integrating the needs of all fields requiring accelerators**
- **Promotion of the education and training for accelerator science**
- **Strengthening the collaboration with the industry to boost innovation (facilitating joint venture)**
- **Enhance further Communication/Outreach**

- **Simplification in EC management and reporting rules**
- **Integration of EC instruments in a single and large instrument including IA, DS, CNI-PP, NEST, MC grants**
- **Integrate the funding of innovation and technology transfer in the instrument above**
- **Build thrust with consortia and delegate them the organization of specific calls for projects**

Conclusions

After having established an accelerator R&D strategy, implemented through several very successful projects in FP6 & FP7, it is proposed to go one step further in the integration of the Accerelaror R&D programme and infrastructure with TIARA

TIARA will hopefully establish the groundbase for supporting sustainably Accelerator R&D and infrastructures in Europe through “program funding” in Horizon2020

Accelerator science is a powerful mean toward scientific, technical and industrial breakthroughs and innovations…

TIARA will strengthen significantly this potential