

Research Infrastructures and the Engineering Sciences

Sustainable Growth in Europe

The pre-requisite for Europe is to maintain and develop the capability to create and exploit:

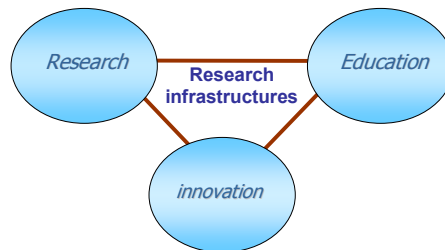
- new technologies
- new products
- new services
- New industrial approaches

Engineering Sciences

Development goes hand in hand with scientific endeavour:

- no progress in science without new engineering breakthroughs
- research needs push for new technological advances

Research Infrastructures are at the core of the knowledge Triangle



Pan-European Research Infrastructures (RI)

There is an increasing demand from scientific communities and industries for the availability of such facilities

RI may range from large single site facilities (e.g. high power computers, Synchrotrons) to distributed facilities (e.g. in environment), to collections, data banks and libraries, or electronic high throughput networks

Role of Research Infrastructures

- create important supply (direct)
 - new technologies applied in building world-level facilities (e.g. telescopes)
 - enterprises profiting from RTD results or by using facilities themselves (e.g. wind tunnels)
- demand effects (indirect)
 - spin-off products (e.g. new instruments)
 - start-up companies (e.g. in nanotechnologies)

Effects of Research Infrastructures on Engineering Sciences (1)

On the one hand, they stimulate industrial design and development of new technologies (e.g. new detectors, sensors, robotics), with sometimes huge industrial and societal effects (e.g. space, ITER)

Effects of Research Infrastructures on Engineering Sciences (2)

On the other hand there is a catalyzing effect for enhanced innovation through availability of techniques and know-how, pushing for multi-disciplinary approaches and convergence of technologies (e.g. for nano-sciences)

Effects of Research Infrastructures on Engineering Sciences (3)

Last but not least there is an attracting effect for the young generation of scientists as well as for training of students, engineers and technicians

Challenging the needs

... the role of the European Technology Platforms...