
Pioneering the future Internet
GÉANT launch
Stockholm, 1st, 2nd December 2009

Enabling Research and Education
Impact on *next generation* and their expectations

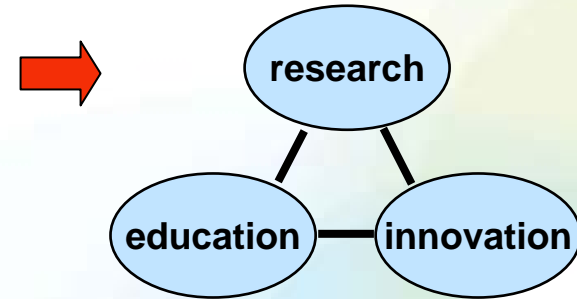
Giovanni Colombo
EIT Executive Committee

Improve European competitiveness by addressing a sustainable economic growth through a stronger innovation capability and impact

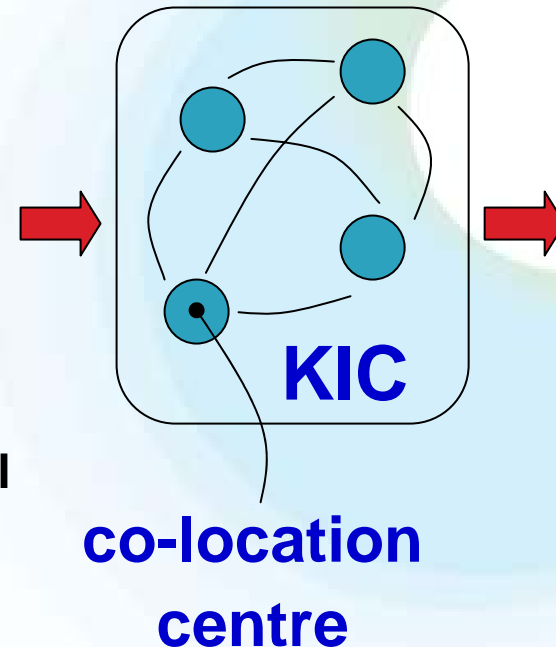
First action is the creation of

Knowledge and Innovation Communities:

- build innovative ‘webs of excellence’
- create new business
- educate and develop entrepreneurial people
- have societal impact, e.g. job creation and brain gain
- Stakeholders: **Business, Entrepreneurs, Research and Technology Organisations, Education, Investment Communities, Local and National Governments**



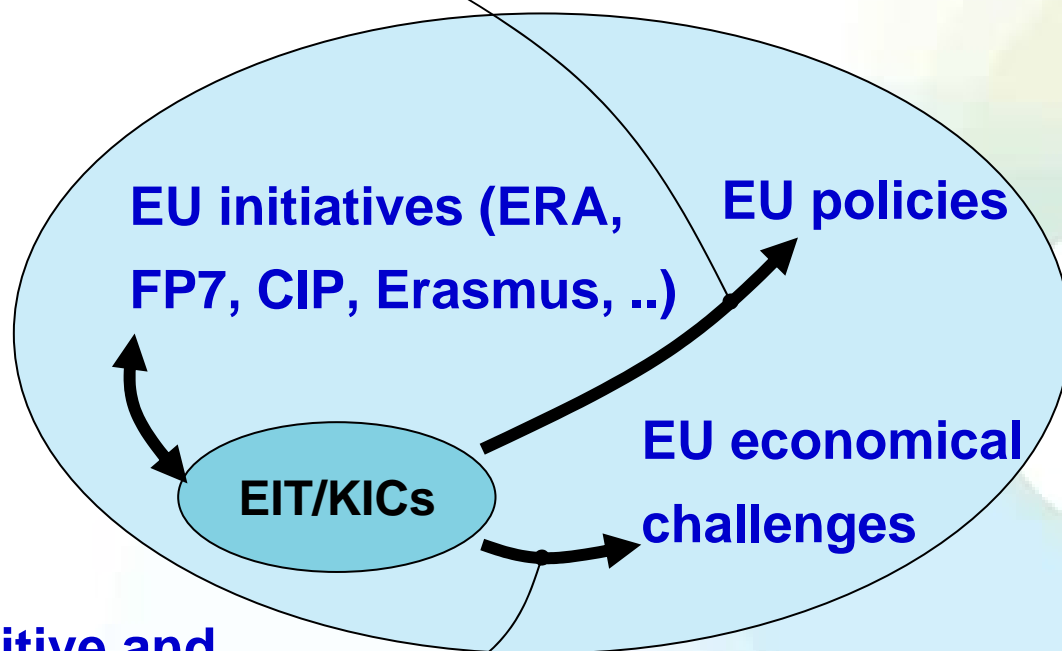
- high-profile, collaborative consortium
 - a “legally and financially structured and managed entity”
 - of geographically distributed but thematically convergent stakeholders
 - open to international participation
 - **climate change and mitigation, sustainable energy and future of ICT the first acting KICs**
- aiming at becoming a world leader in its field
 - (innovation chain from education to economy)
- by creating a measurable impacts on society
 - economic, scientific, educational, entrepreneurial
- minimum life of 7 years



a double role in the EU context

To model, experiment and disseminate new innovation, business and education approaches as a support to EU policies

To develop new economic organisations having a positive and significant impact on the European innovation and societal scene

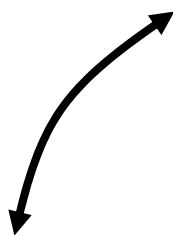


KICs are special communities:

- **geographically distributed, but pointing at a common (and new) business**
- **experimenting new linkages and interaction models between Business, Research and Education**
- **... in an open and distributed innovation environment**

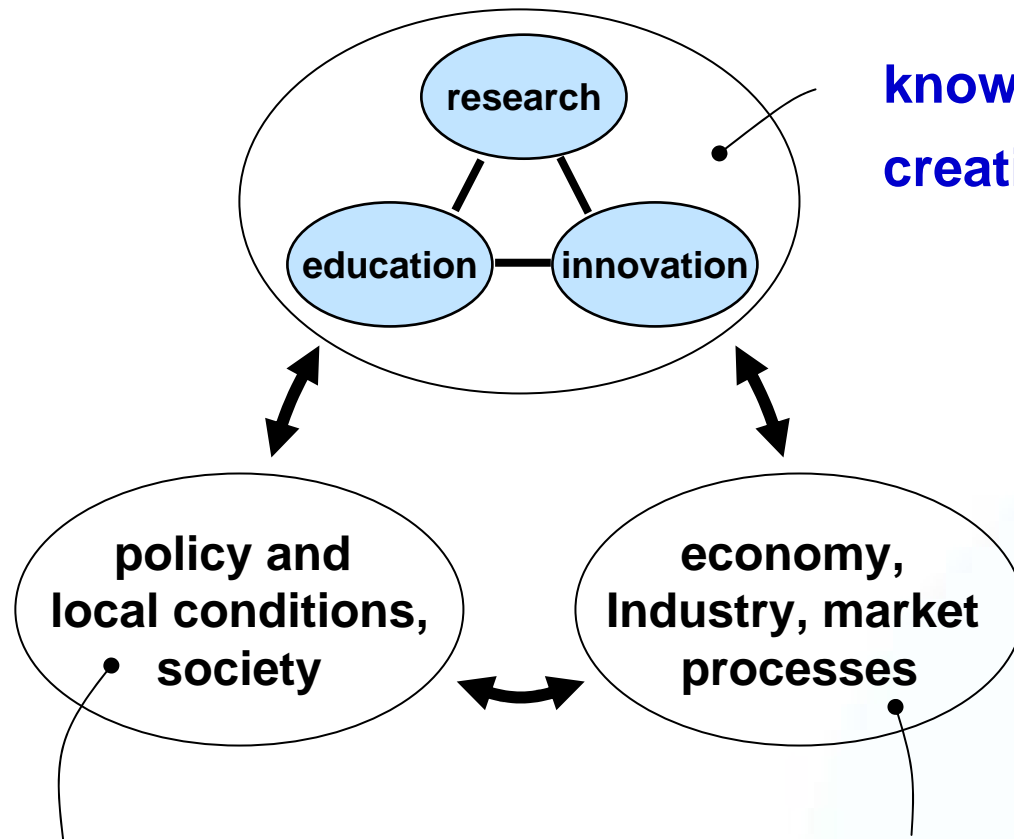
GÉANT, a powerful grid to support KICs:

- **connection, interaction**
- **security**
- **co-operation enabling**



Future internet applications are vital to enable new forms of co-evolution of the three dimensions of knowledge

System dimensions in a knowledge economy

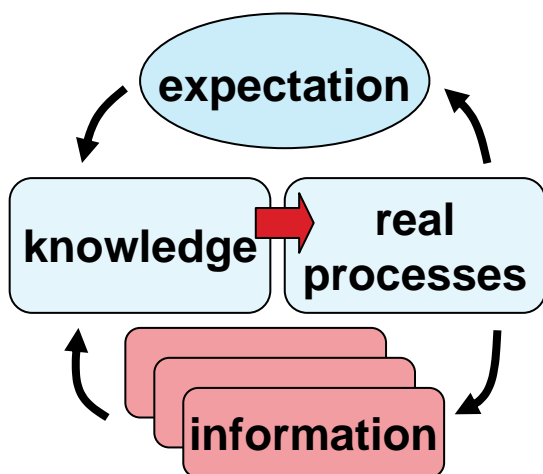


**knowledge
creation**

**knowledge dimensions are
embedded in the overall
social system (economy,
policy, local conditions) (°).**

**experimentation,
social interaction,
local abilities**

**sustainable
business models**



knowledge-based economy: value from available information (consolidated world) by pointing at a future perspective (expectation)

interactions taking place in the real system (re)define continuously the above perspective

sustainable economy is reflecting this model

- present transformations framed by future perspectives
- non-technological research
- essential role of policy and regulation



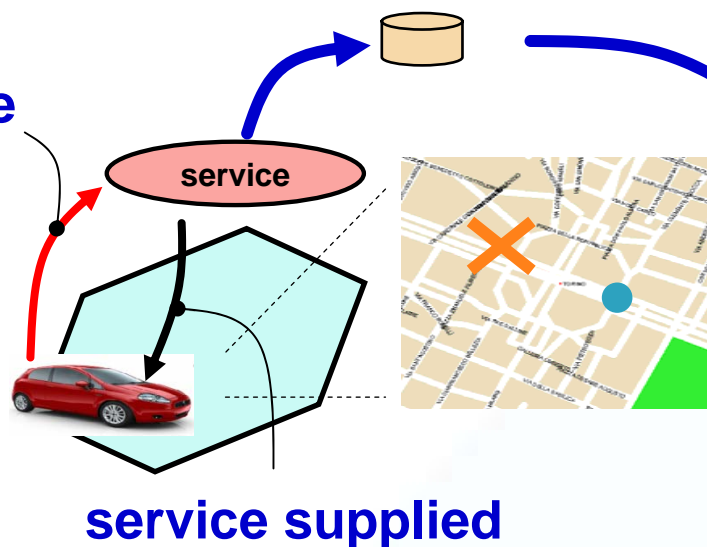
- trans-generational vision (long term horizon)
- ethical dimension
- future perspective

An example: sustainable mobility *from information to collective knowledge*

from Information to knowledge

location-aware service
request, generating
side-effect info:

- vehicle localisation,
speed, direction ...



collective knowledge
created

- status of the road grid
- traffic and mobility
statistics

Education and research challenges:



- value of connectivity and interaction
- knowledge creation mechanism
- modelling and abstraction techniques

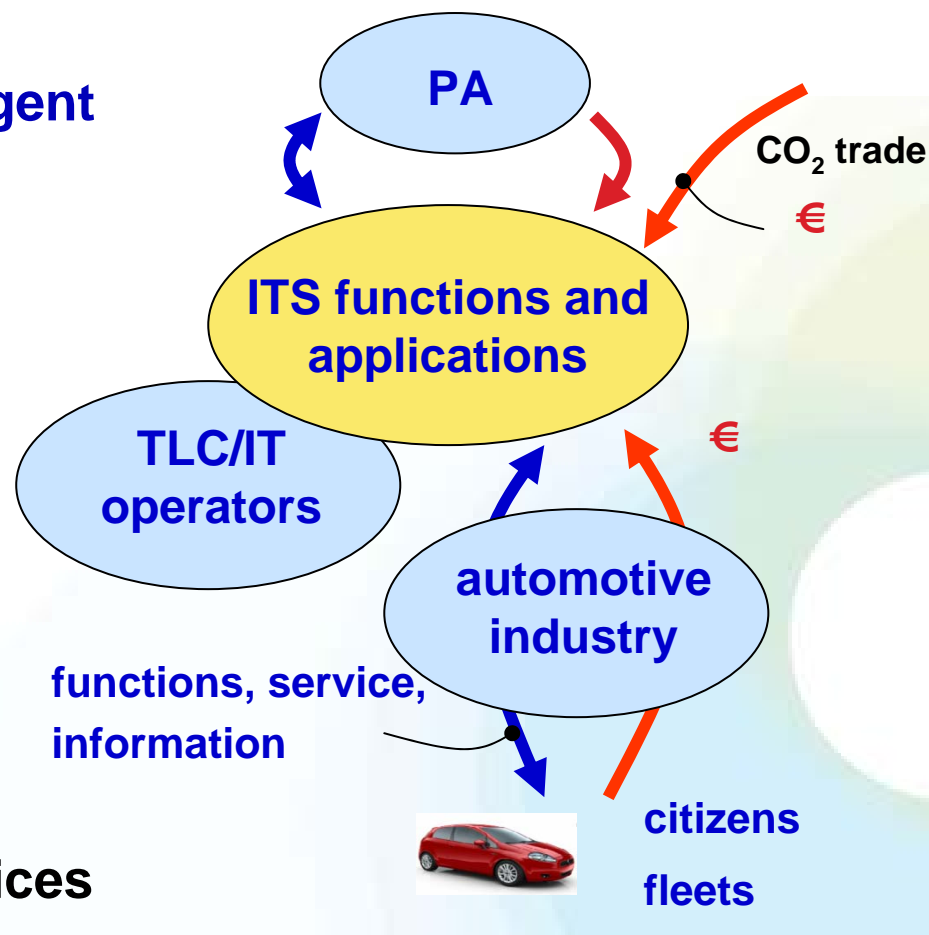
From knowledge to business: Intelligent Transport System

- new business models
- enabling functions *exposed* to third parties
- open and co-operative innovation



Education and research challenges for an ICT-enabled innovation:

- global vision of systems and services
- behaviour and control of complex systems
- definition of new value chains and remuneration mechanisms
- interdisciplinary approach



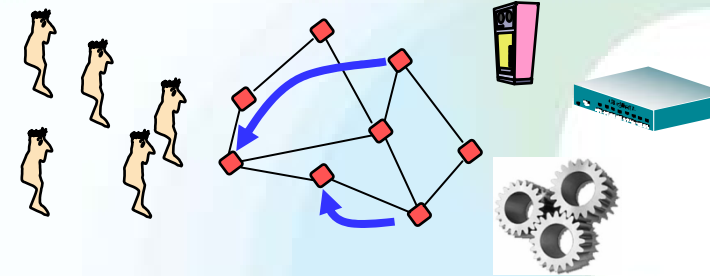
Intelligent Transport System and the changing Society

- new processes and social acceptance
- user innovation
- social impact (e.g. job creation and quality, reduced science-society gap)
- (measurable) support to European policy (20%, 20%, 20%)



Education and research challenges for an ICT-enabled innovation:

- system model, critical factors, metrics for induced benefits
- energy and CO₂ footprint
- connectivity and interaction in social networking
- social science and humanities in research/education process



- adopt a co-operative approach
- rely on the power of connectivity and interaction as well as on related dynamics
- use virtualisation mechanisms to optimise resources
- ... and modelling techniques to identify key success factors and to measure induced benefits

**user innovation,
open innovation**

**productive innovation
actions under uncertainty
and complexity**

- try to challenge on *How*, and also on *Why* an innovation step has to be adopted
- adopt a (non trivial) global view – from *technology* to *system* to *business model* to *Society* and use the *generic* power of models
- give freedom to curiosity, scepticism, creativity and promote the access to contiguous disciplines

**interdisciplinary and
cross-fertilisation**

**from science to *business*
from *info* to *knowledge* to
.... *wisdom***



Emerging challenges and new economical models:

- Knowledge-based economy and sustainability
- Un-matching of roles (Industry, Research, Finance, PA)
- Need to redefine the cycle Research, Innovation, Education
- Extension of *service, control and application layers*
- Research/Academic bodies are assigned a wider responsibility
- SMEs are enabled to occupy autonomous spaces

Non- technological issues:

- new value chains need to be defined and their sustainability proved
- economic models able to remunerate the (newly aggregated) stakeholders to be consolidated
- social and environmental benefits need to be embedded in the model

New alliances:

- active role of Public Administration
- use of Pre-commercial procurement
- role of Functional Specifications and PA as first adopter

Benefits, key system control factors

- metrics to measure benefits induced by the (innovated) process in the long run
- system performance models and sensitivity analysis to disseminate best practices