From Research Infrastructures

to Demonstrators

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Research Infrastructures for Industry

- Adequate research infrastructures are vital for promoting innovation
  - Create critical mass
  - Offer conditions required to carry out cutting-edge research
  - Generate ideas for new industrial or societal applications
  - Serving as beacons for high-tech companies, research establishments, and educational institutions
  - Having a multiplier effect through innovative results, creating new economic activities and fresh employment opportunities

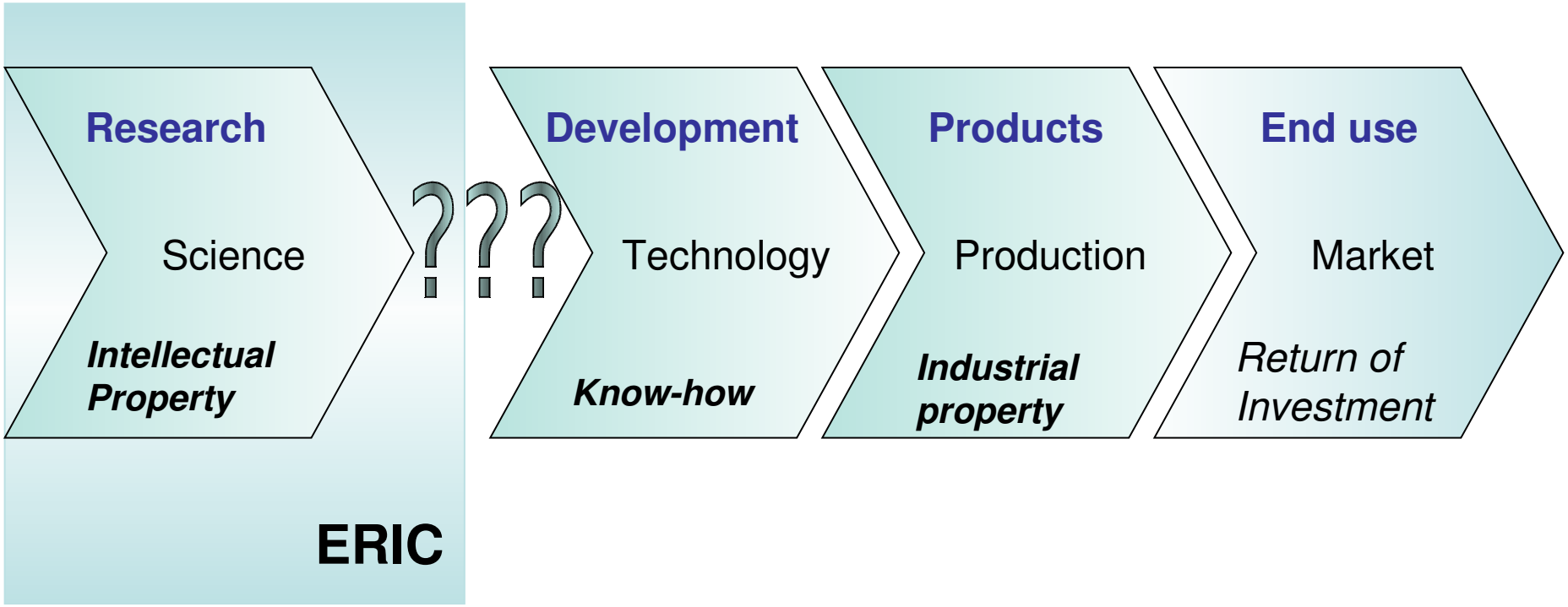
Challenges related to industrial involvement in Research Infrastructures (1)

- Industrial partners are not willing to pre-finance any RI investment costs
  - industry consider this the mission of R&D centers
  - complemented with public money of the hosting country in view of the large macro-economic advantages of hosting a large R&D center
  - industry wishes to have flexibility in moving-out whenever needed
  - as such they do not wish to have any long-term (>3 years) commitment

Challenges related to industrial involvement in Research Infrastructures (2)

- Industrial partners are willing to pay on a service = R&D basis including amortization costs
  - **Proposal for a Council Regulation on the Community legal framework for a European Research Infrastructure**: “An **ERIC** set up under this Regulation should have as its principal task the establishment and operation of a research infrastructure on a **non-economic basis** and shall devote most of its resources to this principal task. In order to promote innovation and knowledge and technology transfer, the ERIC should be allowed to carry out some **limited economic activities** if they are closely related to its principal tasks and that they do not jeopardise its achievement.”

Mind the innovation gap !!



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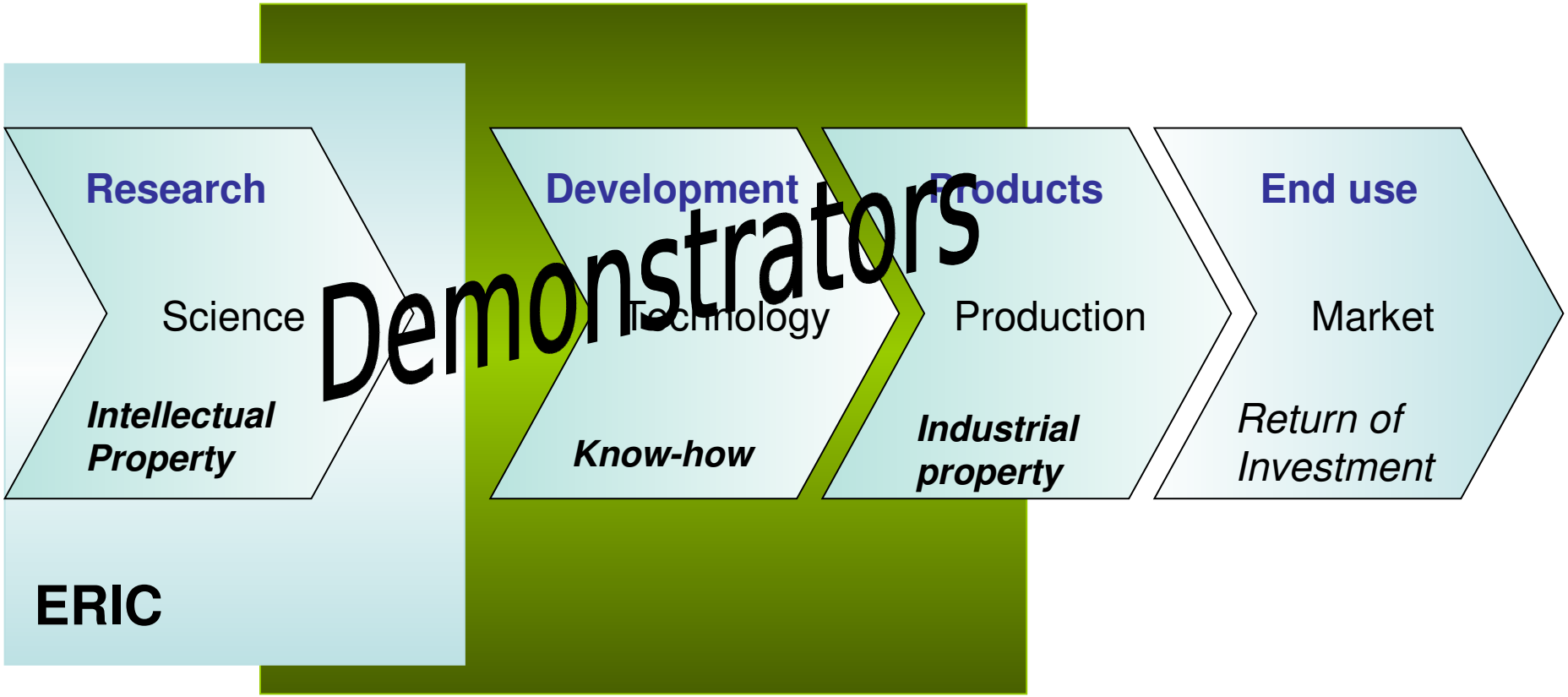
Mind the innovation gap !!



Research Infrastructures in the Energy domain (1)

- Strategic Energy Technology Plan (SET-Plan) supporting the European Energy Policy goals
  - by 2020: 20 % reduction in greenhouse gas emissions compared to 1990 levels
  - by 2020: 20% reduction in global primary energy use (through energy efficiency)
  - by 2020: 20% of renewable energy in the EU's overall mix (sub target 10% renewables in transport)
  - by 2050: indicative 60 to 80% reduction in GHG
- SET-Plan emphasises the need for new research infrastructures in the field of energy

Research Infrastructures in the Energy domain (2)

- stronger cohesion among the European research actors in energy
- better performance in the commercialisation of new technologies
- for research infrastructures a stronger industrial orientation is required (open innovation model)
- more efficient employment of these research infrastructures
- promote regional clustering

Demonstrators in Flanders: facing the energy challenge (1)

R&D Infrastructure for Photovoltaics

- Material research
- PV cell technology development
- PV integration (modules, energy storage, …)

R&D Demonstrator for Wind Energy

- System and component condition monitoring
- Lab-test infrastructure for component durability tests
- Virtual test infrastructure for wind turbines

Demonstrators in Flanders: facing the energy challenge (2)

Bio Base Europe Pilot Plant

- Multi purpose pilot plant for second generation bio fuels
- One-stop-shop: from green raw material to end product
- Up-scaling new processes to pre-industrial level

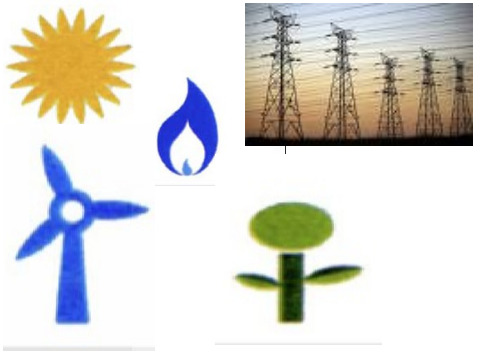
Hydrogen Demonstrators

- Hydrogen production
- Hydrogen infrastructure (filling stations)
- Early market applications (boats, fork-lift trucks, busses,...)

Demonstrators in Flanders: facing the energy challenge (3)

Smart Grid initiative

- Smart measurement
- Smart Grid development



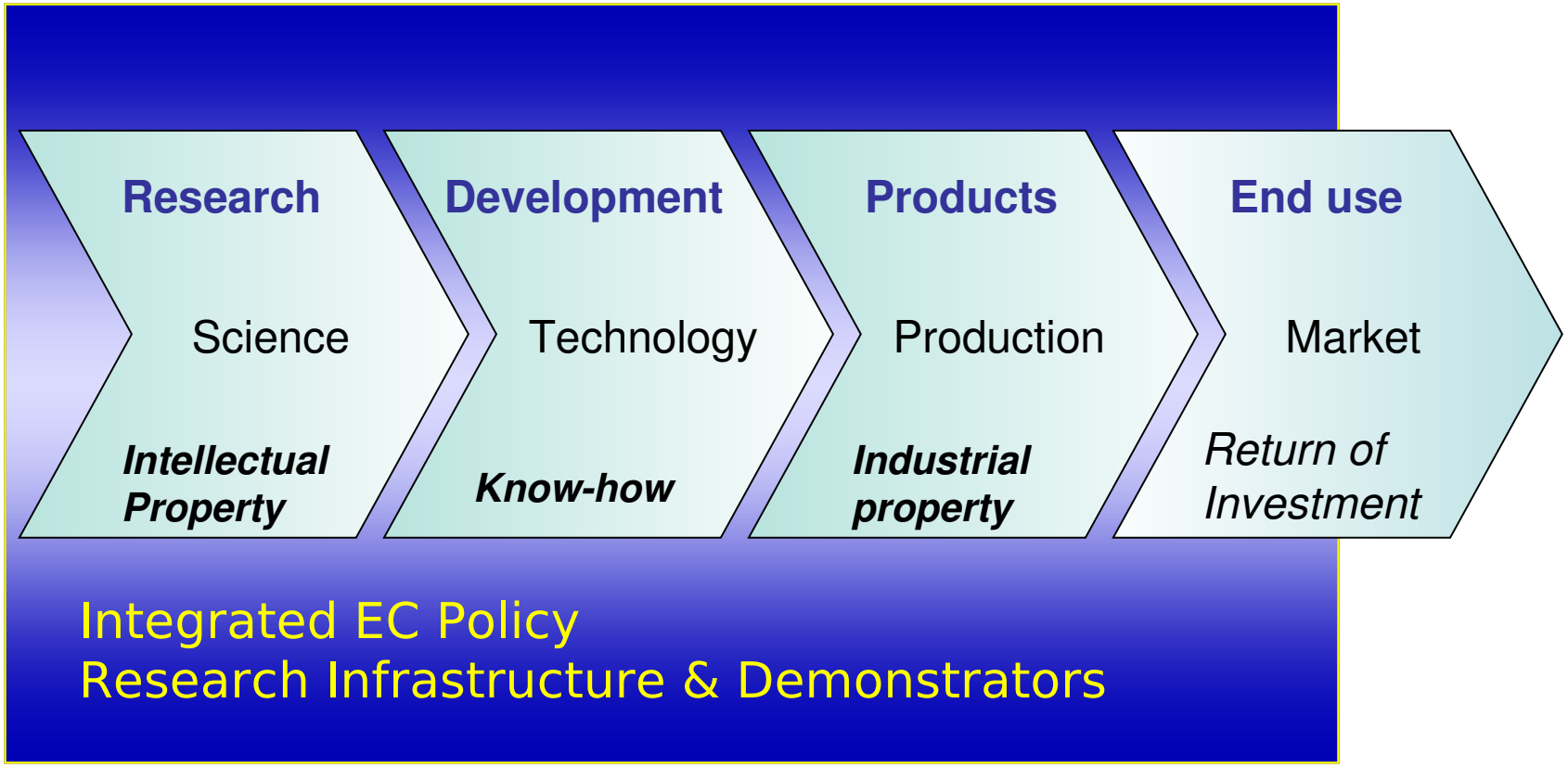
Financial contributions: 5 initiatives

- Flemish Government: 35,8 mio €
- Dutch Government: 10.6 mio €
- European Commission (Structural Funds): 10 mio €
- Private Sector: 39.5 mio €
- **Total investment : 95,9 mio €**

Employment in Flanders in FTE

	2007 manufacturing		2020 manufacturing
Wind	1350	+13% per year	7000
Solar	400	+25% per year	7000
Bio Energy	600	+20% per year	6500
Other	150	+14% per year	800
Total direct	**2500**		**21300**
Total indirect	**2100**		**17900**
Total	**4600**		**39200**

Conclusion


Research
Science
Intellectual Property
Development
Technology
Know-how
Products
Production
Industrial property
End use
Market
Return of Investment
Integrated EC Policy
Research Infrastructure & Demonstrators

Possible steps for the future (1)

- further initiatives should be taken to bring industry and academia closer together to pursue common strategic research, development and demonstration agendas
    - further enhancement of research infrastructures can support the implementation of the research that is defined within European Technology Platforms (catalyzing role of ESFRI)

- CREST-GPC should look for the synergies between joint programming - research infrastructures and demonstrators

- links should be made with the European Lead Market Initiative

Possible steps for the future (2)

- catalyzing and leveraging role of the EC should be increased
  - structural funds can play a key role
  - explore relevance of a fund for European research infrastructures and demonstrators in FP8 as part of an integrated EC-policy on Research Infrastructures

- different financing instruments should be explored to support the realisation of such innovation-driven research infrastructures
  - public-private partnerships, public procurement, financing and tax incentives for high risk initiatives, …