

*European Union Sustainable
Energy Week 2007*

The innovation background for RETs: core elements of the innovation process

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Outline

- ❖ **Facts and figures on innovation processes**
- ❖ **Core elements of RET- based innovation**
- ❖ **Recommendations to improve innovation process effectiveness in the RET sector**
- ❖ **Conclusions**

Outline

❖ **Facts and figures on innovation processes**



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Facts and figures

- **Knowledge (or technology) transfer (exchange ?):** *the process of detecting, developing and validating the potential for practical and profitable applications of the results of scientific and technological research*
- **Innovation:** *the process of developing, industrializing and profitably selling the products or services which may benefit from scientific and technology research.*

Facts and figures

- **Innovation is the most critical process of any industrial enterprise worldwide¹**
 - ***Europe must rely more on innovation-based growth***
 - ***Innovation has demonstrably led to superior growth performances for the USA and Japan***

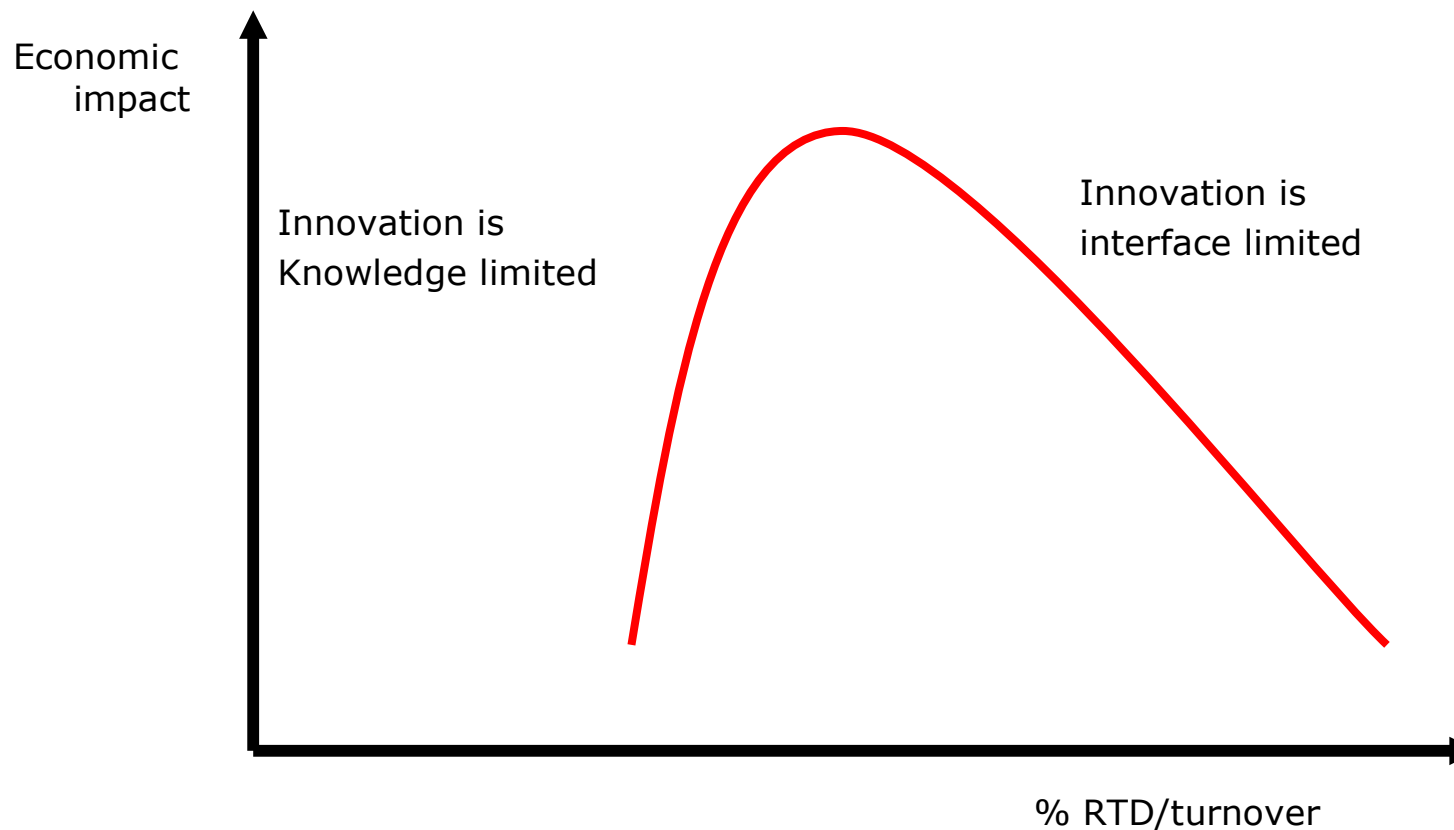
¹ ***B.Jaruzelski et al., Strategy+ Business, Issue 41, Winter 2005, p 40***

Facts and figures

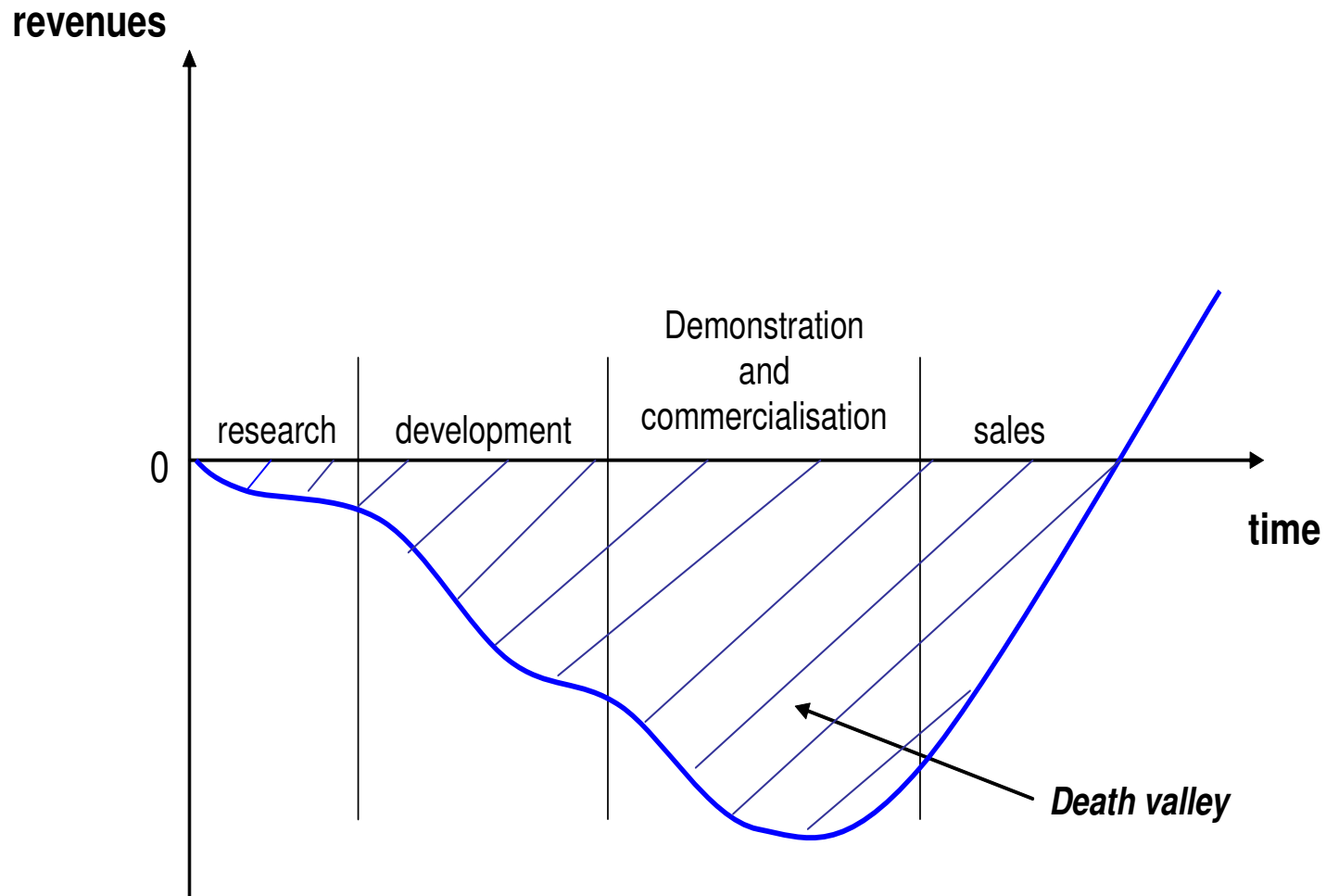
- **Yet, innovation is the least understood and managed process in industry worldwide**
 - ***It is an **unstable process** which requires feed back loops to become more manageable***
 - ***Improvement in SMEs is a challenge***
 - ***low inertia***
 - ***but very unstable***

Facts and figures

- There is no correlation between the R&D and innovation performance effectiveness in private companies, world wide, whatever the sector and size



Facts and figures



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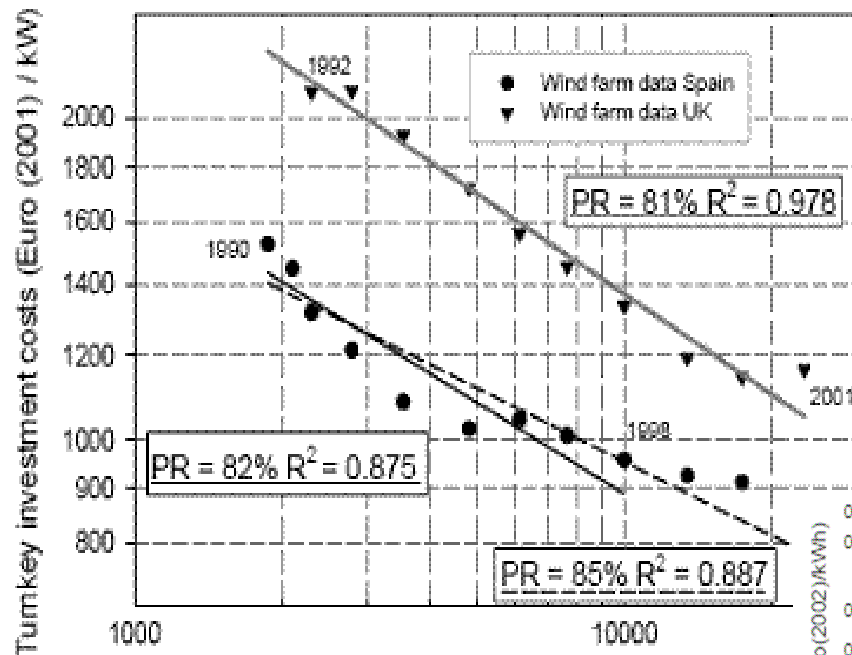
Core elements

- **Changes in the European Energy markets open innovation opportunities for RET:**
 - ***The unbundling of electricity and gas operators***
 - ***The liberalisation of energy markets***
 - ***The Kyoto protocol***
 - ***The advent of the information technology***
 - ***Regulators recognize innovation as a key process for the energy industry***

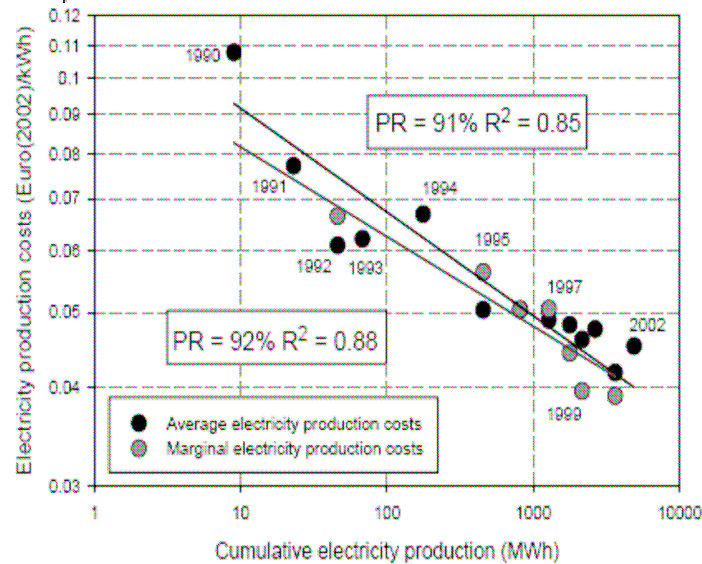
Core elements

- But Europe is facing **conflicting innovation energy scenarios**
 - *competitive pressure on retailers and electricity generators: **reduce risk averse strategies to develop demand-driven business models,***
 - *regulated players incentivised to reduce energy transport or distribution costs: **risk averse or short-term strategies are adopted***
 - *regulatory frameworks have **inadvertent barriers to innovation:** review periods too short for innovation to be implemented)*
 - *Energy policy AND industrial policy : **it can make the break** (Denmark, Germany, Spain)*

Core elements



Cost improvements from the early experience of new technologies are much larger than the ones observed for more mature technologies (here wind farms and biofuelled CHP plants)



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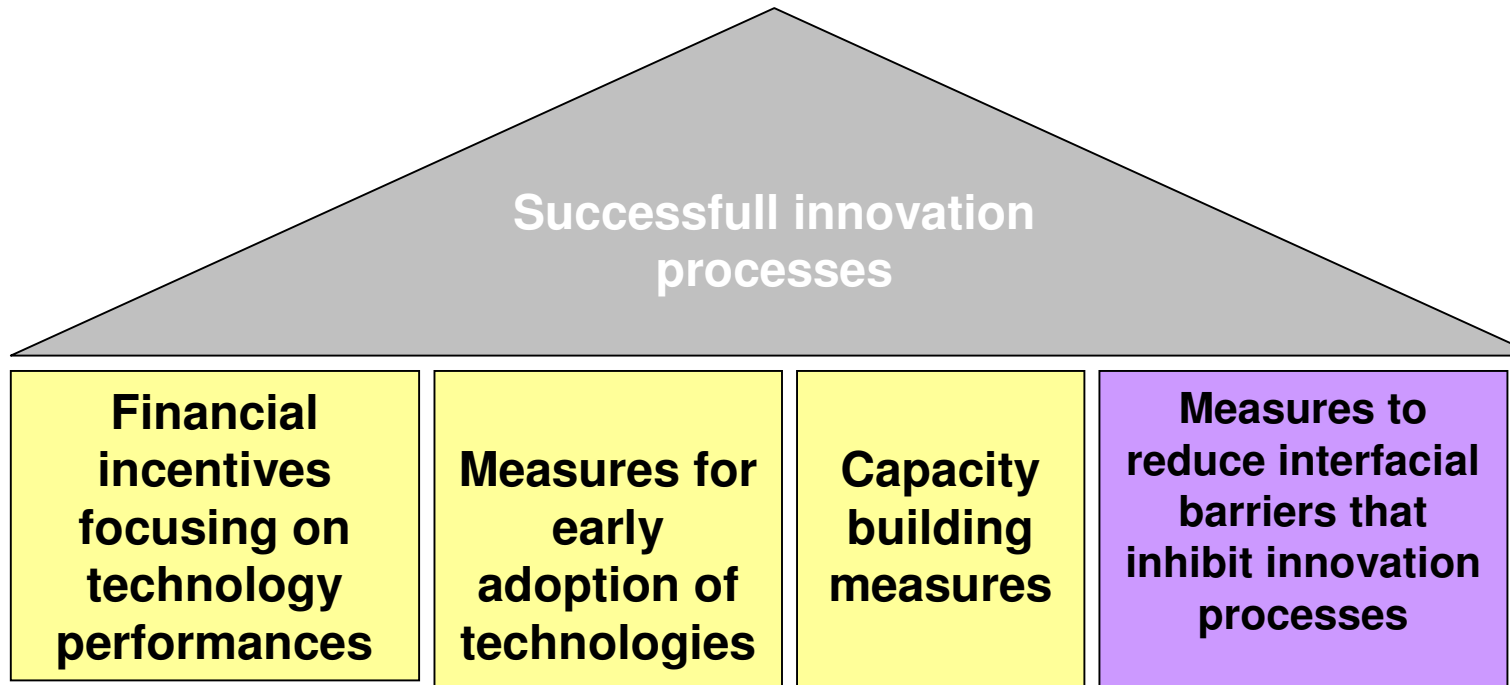
Core elements

- ❑ **The quality of R&D outputs to suit market requirements**
- ❑ **The optimization of interfaces between idea generation and first business sales**
- ❑ **The costs of the market learning curves to increase RET economic attractiveness**

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Recommendations



« Usual » pillars addressed by public measures

The additional pillar in support of future publicly supported RTD programmes

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Recommendations

- 1. Reduce the discontinuity of public funding, focusing on early stage innovation funding**
- 2. Acquire non-technology based knowledge through integrated R&D**
- 3. Better package the new knowledge produced**
- 4. Favor interdisciplinary dialogue between the technology specialists and energy technology integrators**
- 5. Expand European technical standards**
- 6. Improve global skills to reach market applications**
- 7. Increase effective professional engagement in innovation projects through appropriate incentives**

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Conclusions

1. Several EC-supported contracts are implementing some of the above improvement routes based on professional approaches of the innovation process:

- ❖ ***EU-DEEP (DG Research)***
- ❖ ***RELIANCE (DG Research)***
- ❖ ***SYNERGY + (DG Research)***
- ❖ ***PRO-RETT (DG TREN)***
- ❖ ***IMProve (DG Enterprise)***

Conclusions

- 2. Innovative early stage funding measures are still to be designed and implemented to encourage more SME-based innovation in RET**