



# ProTON

E U R O P E

Innovation from Public Research

## Financial consequences of institutional engagement in knowledge transfer and innovation activities

**Gilles Capart**

Chairman of ProTon Europe

**EUA 2006 SPRING CONFERENCE**

# Environmental factors

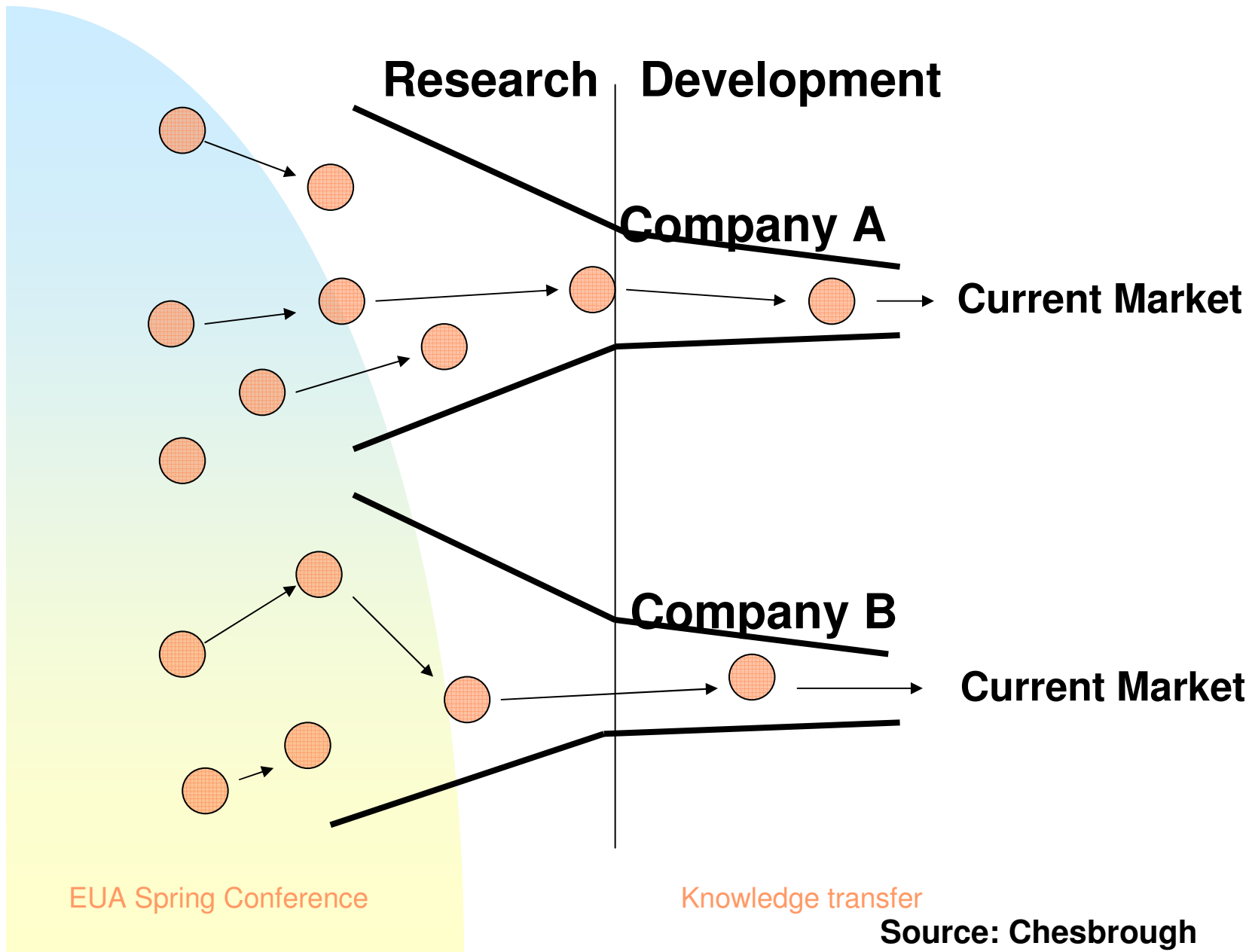
- Public policy agenda (Lisbon, Barcelona + national innovation policies)
- Industry is moving to “Open Innovation”
- The development of the knowledge transfer function is spreading rapidly in Europe. Several countries have adopted “Bayh Dole” like regulations on IPR from public research.

# Public Research and Innovation

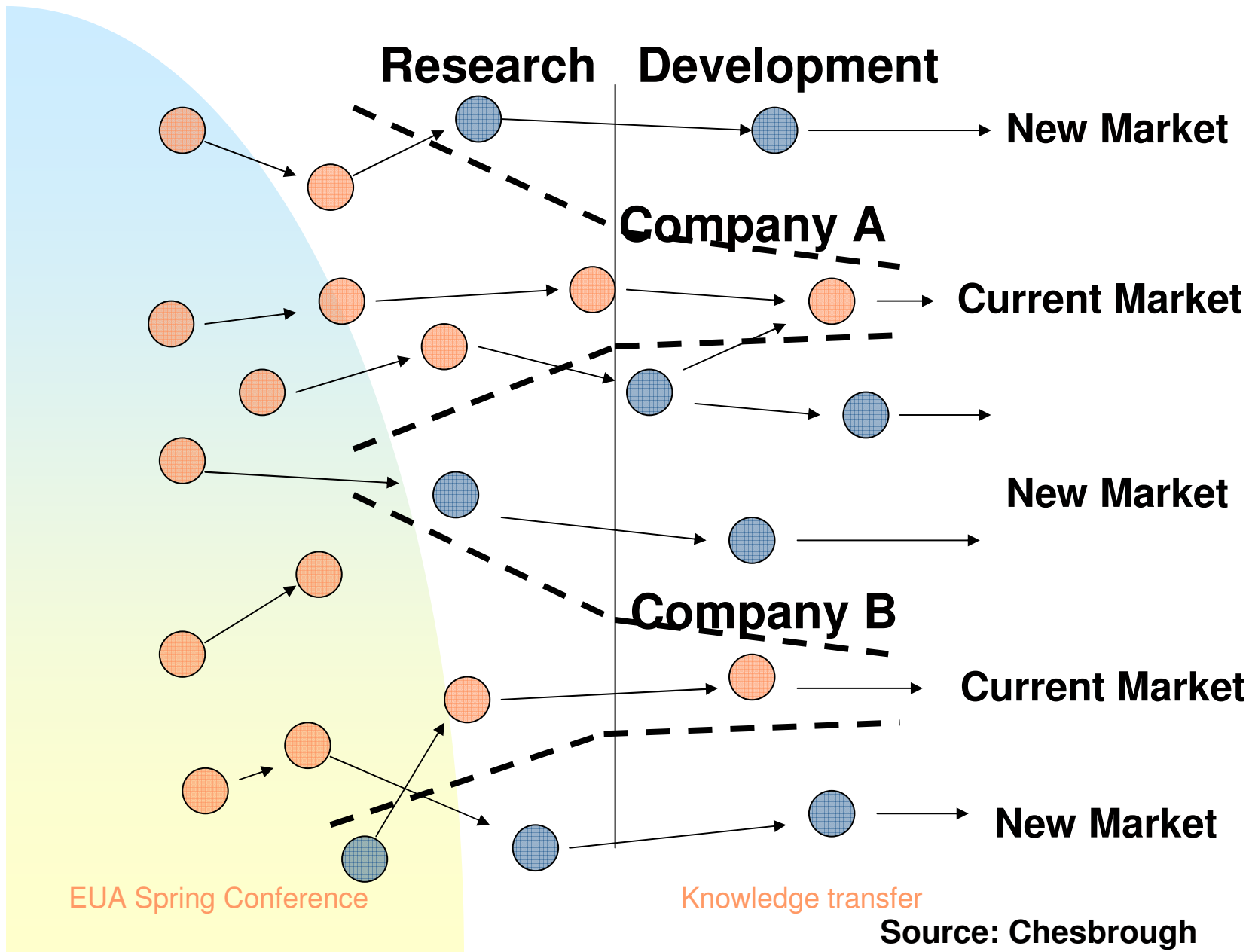
- Lisbon: Universities should participate more directly to the knowledge economy
- Barcelona: 3% of GDP in R&D, of which about 30% goes to Public Research, mostly pre-competitive.
- > 70% of all US patents filed by Industry are based on PRO results (*Narin et al.*)
- The conversion of research results into innovation is 5 times lower than in the USA

**Increase in funding alone will not bridge the gap  
More active participation of universities is needed**

# Traditional (closed) Innovation in Industry



# New “Open Innovation” paradigm



# Contrasting closed and open models

Closed innovation	Open innovation
The smart people in our field work for us	Not <i>all</i> smart people work for us. We need to work with smart people inside <u>and</u> outside the company
To profit from R&D, we must discover it, develop it and ship it ourselves	External R&D can create significant value. Internal R&D is needed to claim some portion of that value
The company that gets innovation to market first will win	Building a better <i>business model</i> is more important than getting to market first
If we create the most and the best ideas in the industry, we will win.	If we make the best use of internal <u>and</u> external ideas, we will win.
We should control our IP, so that our competitors cannot profit from it.	We should profit from other's use of our IP and we should license in other's IP whenever it advances our business model.
We will <u>own</u> all results from contract research with universities	We will partner with universities to create knowledge and encourage use outside our field

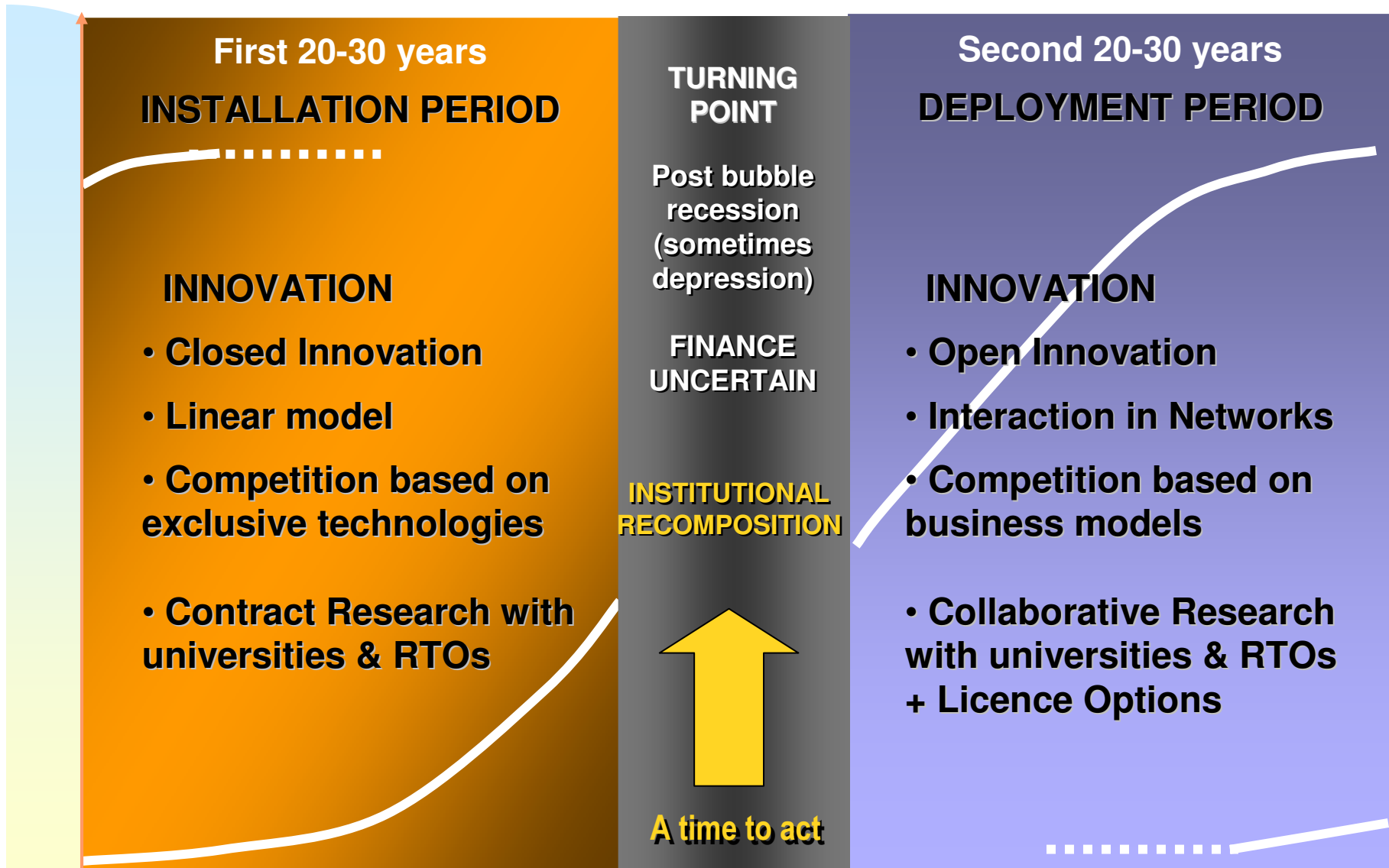
Adapted from Chesbrough

# The world of innovation has changed

- 2 driving forces:
  - ❑ Low cost of accessing vast knowledge
  - ❑ Multi-technology nature of most products
    - » **Economies of scale in R&D have disappeared**
- New model of innovation (**Open Innovation**)
  - ❑ Networking, collaborative research
  - ❑ Business model has become more important than technology edge (opportunity for human sciences and SMEs)
    - » **exchanging IP** rather than goods and services.

**The knowledge economy implies  
the development of an efficient knowledge market**

# The Knowledge Economy Cycle



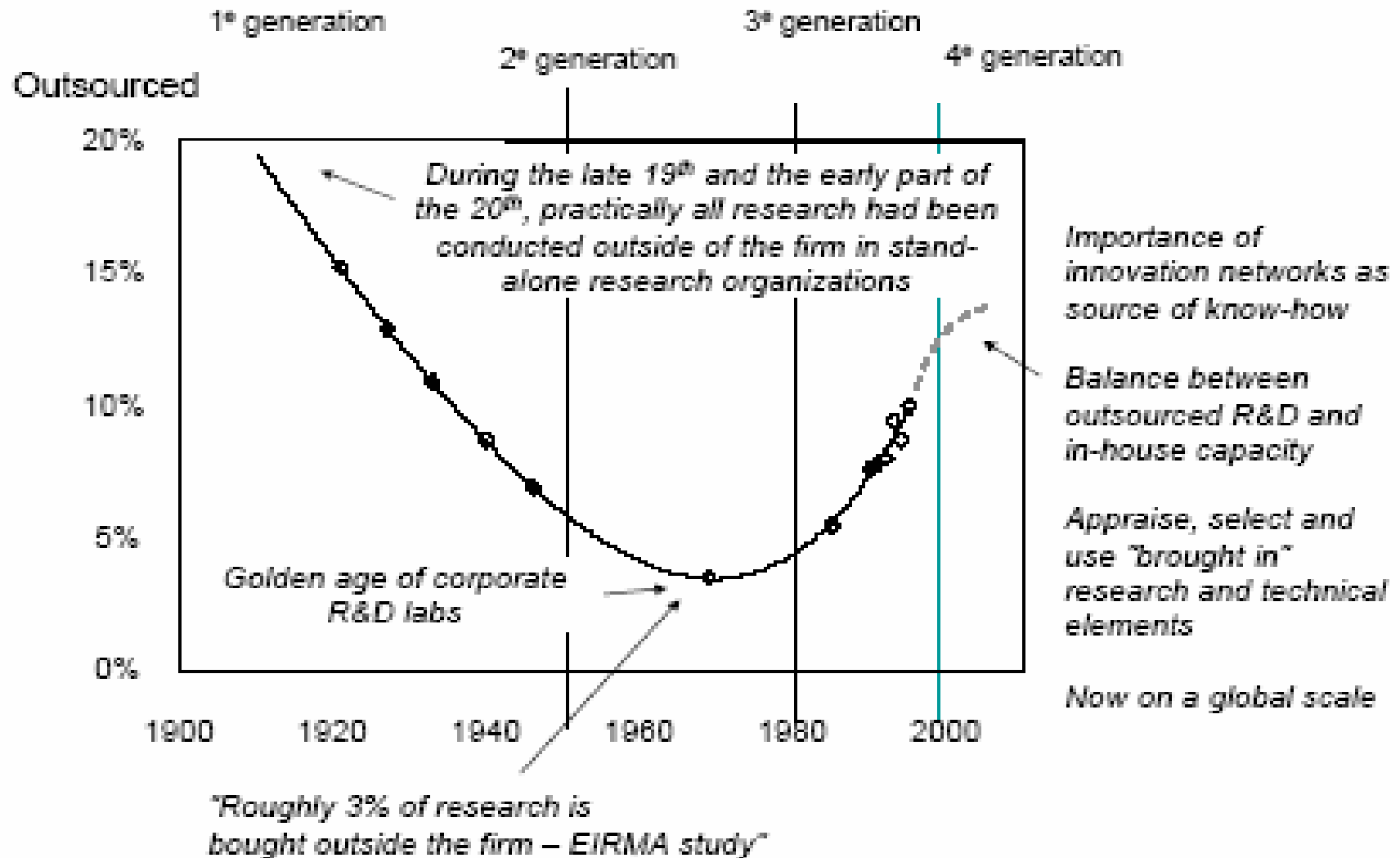
1971  
EUA Spring Conference

2000  
Knowledge transfer

Adapted from Perez



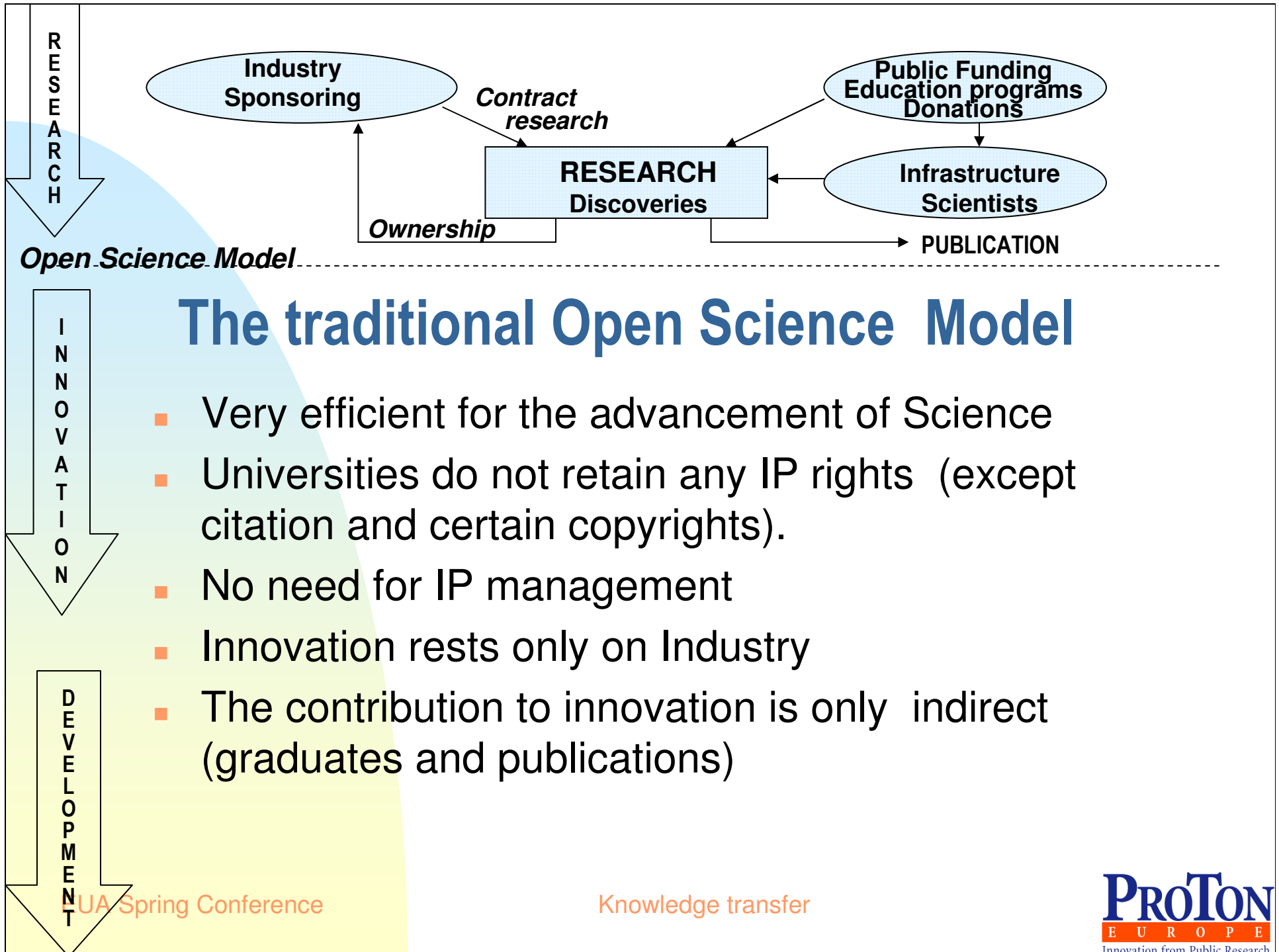
# Trends in collaborative research

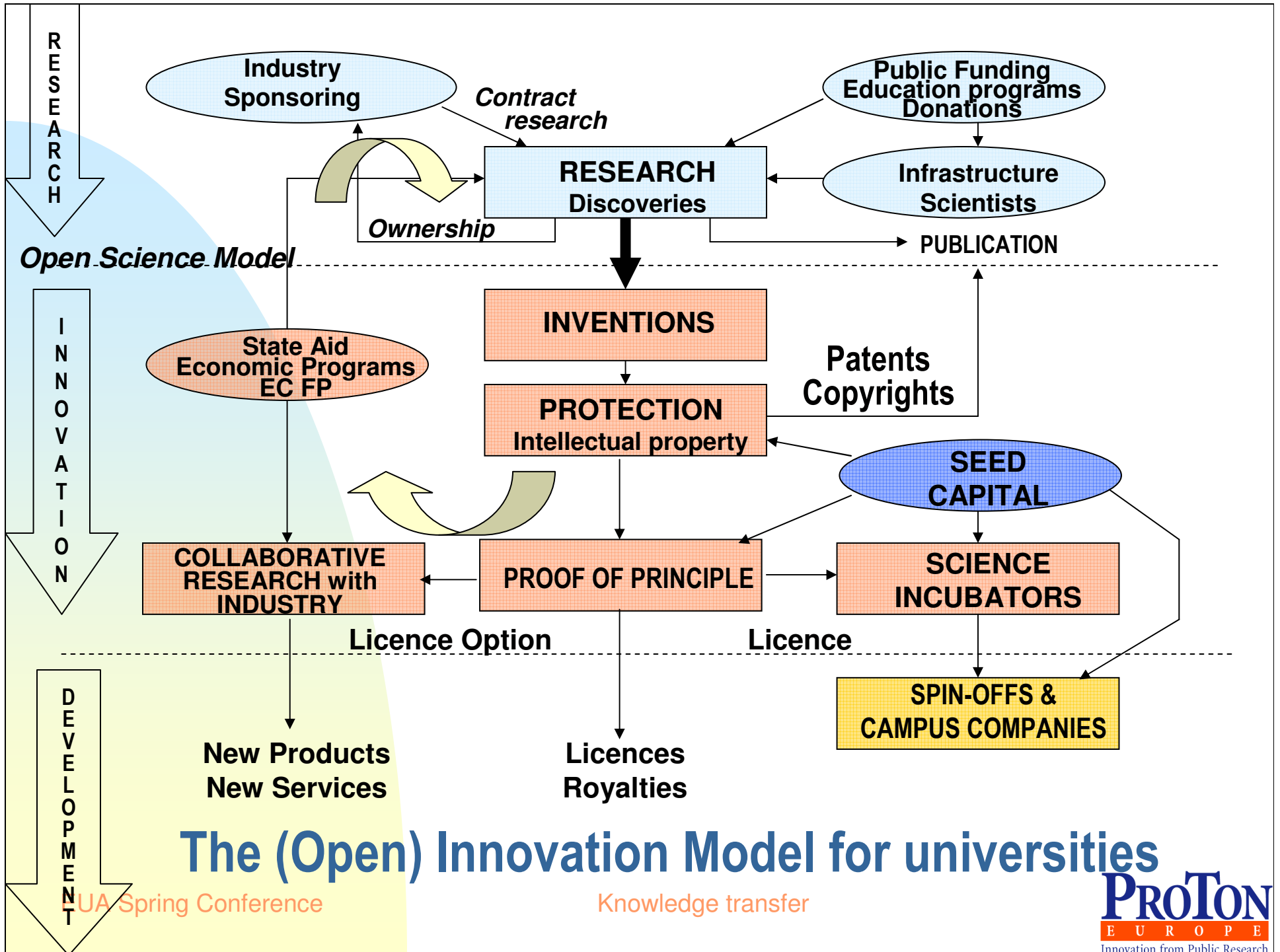


# New role(s) for universities

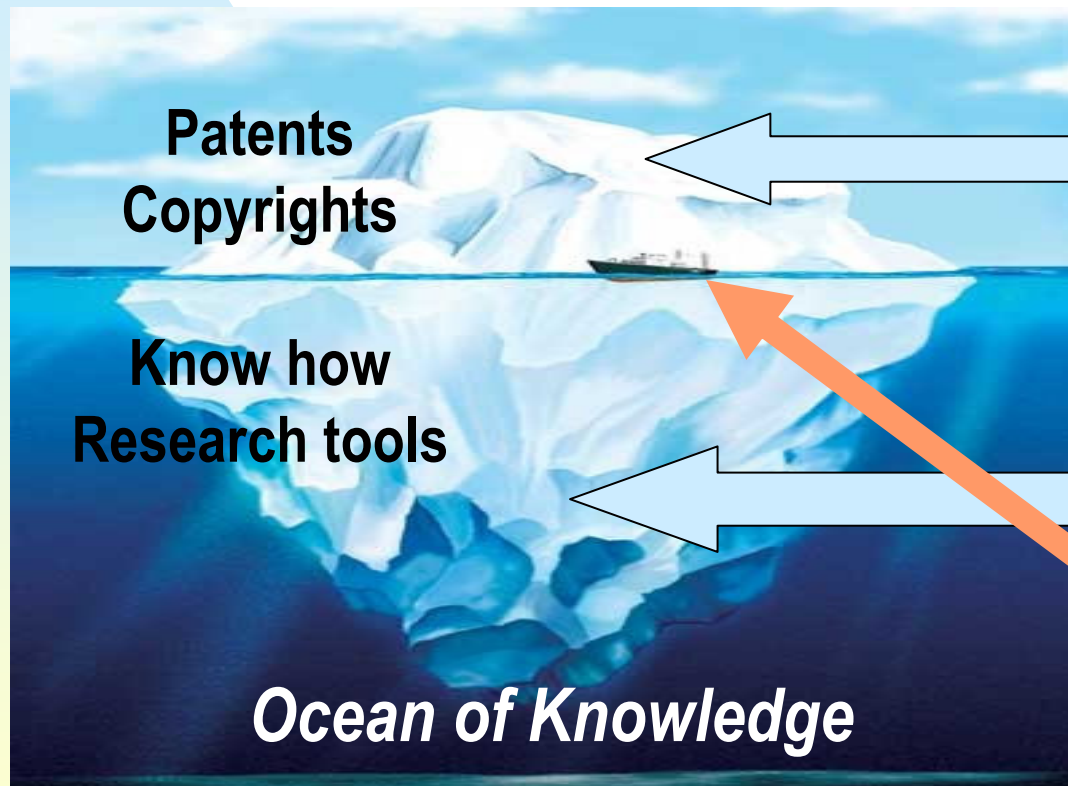
- Long term investment in excellence in scientific disciplines (*industry will not do it any more*)
- Efficient knowledge transfer with industry in a sustainable way (*building bridges*)
- Enormous need for training of knowledge transfer professionals, both in university and industry
- Help develop new business models (spin-out model)

**Our (last?) competitive advantage:  
We are in the middle of the market with the highest level needs**





# Most of the potential is below the surface.



***Intellectual  
Property available  
for licensing***

***Collaborative  
Research  
Opportunities***

***Spin-outs***

# Collaboration with industry is the most important direct contribution to Innovation

- Fosters Innovation through interaction
- What is “commercialised” is not just the IP but the research capability of PROs (the whole iceberg)
- Uses all forms of IP including know how and research tools
- Supported by State Aid and Framework Programs
- **Consistent with “Open Innovation”**

**Not used to a sufficient extent in Europe**

# The Responsible Partnering initiative



- Voluntary code of conduct and good practices
- Designed by practitioners
- Endorsed by ProTon Europe, EUA, EARTO and EIRMA
- Guidelines for constructing collaborative research agreements
- Supported by Commissioners Potočník and Verheugen
- Endorsed by the recent Esko Aho report on Lisbon agenda.

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Knowledge transfer

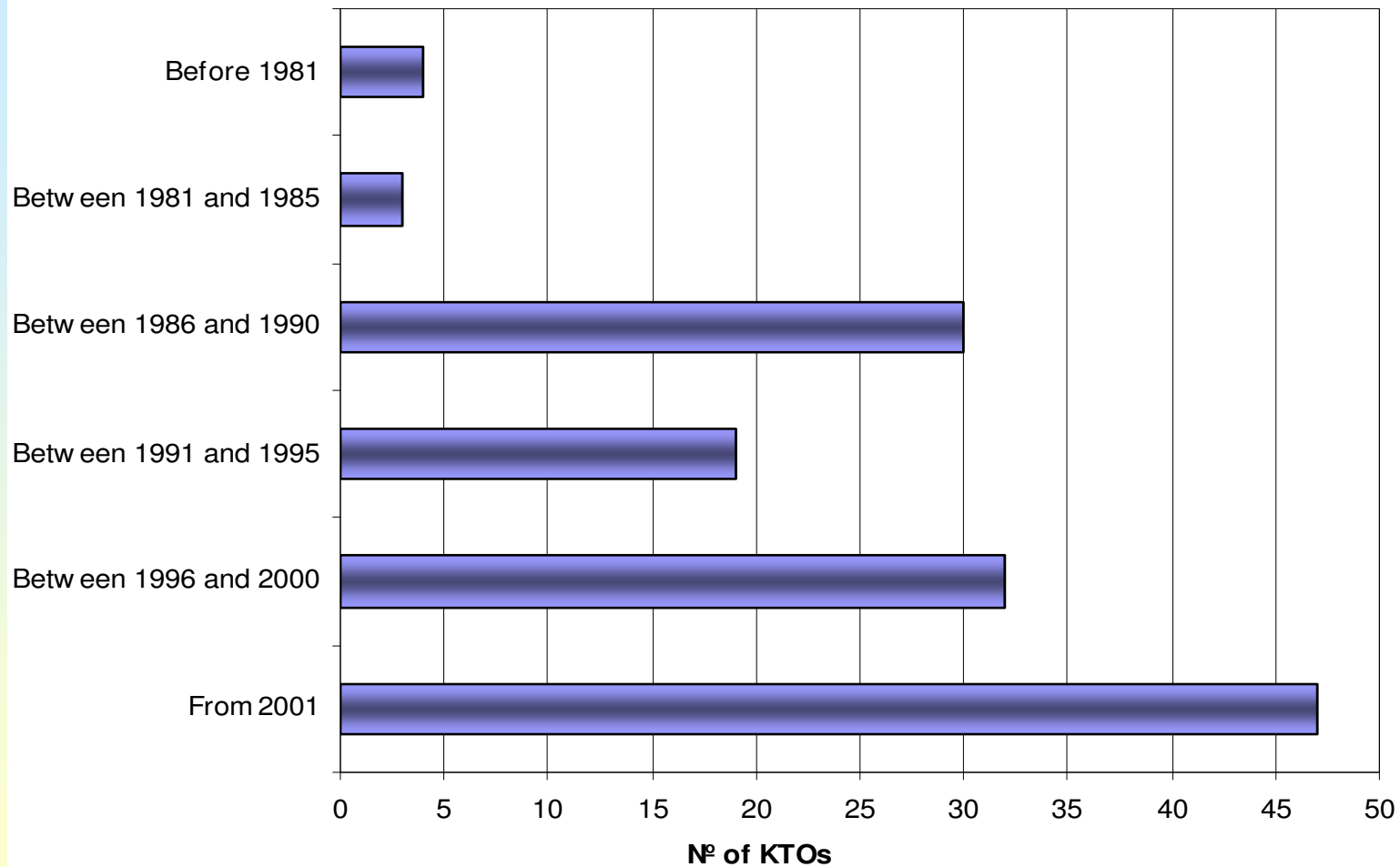
# Two governing principles

- **Maximum Beneficial Use** of the knowledge generated by PROs. This Entails:
  - ◆ Excellence in generating knowledge by PROs
  - ◆ Protection and use of IP
  - ◆ Interaction with Industry
- **Responsible Use.**
  - ◆ Sustain the research function of PROs
    - ☞ Adequate funding (full economic cost)
    - ☞ Balance between pure and applied research
  - ◆ Ensure knowledge is used to benefit the public interest.



# KT is a recent phenomenon in Europe

## Year of KTO creation

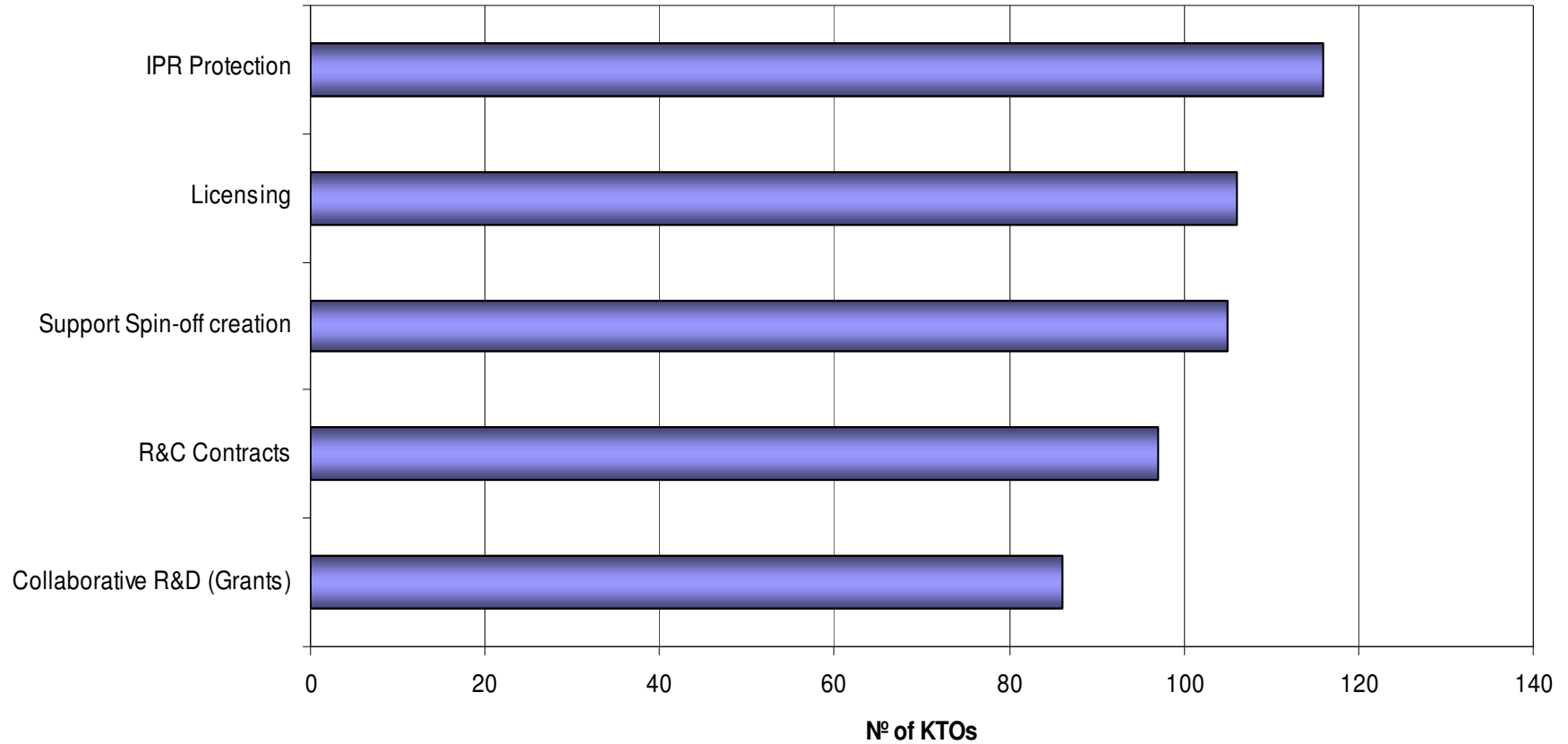


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Knowledge transfer

135 responses

# Functions served by KTOs



155 responses

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Knowledge transfer

# Europe versus United States

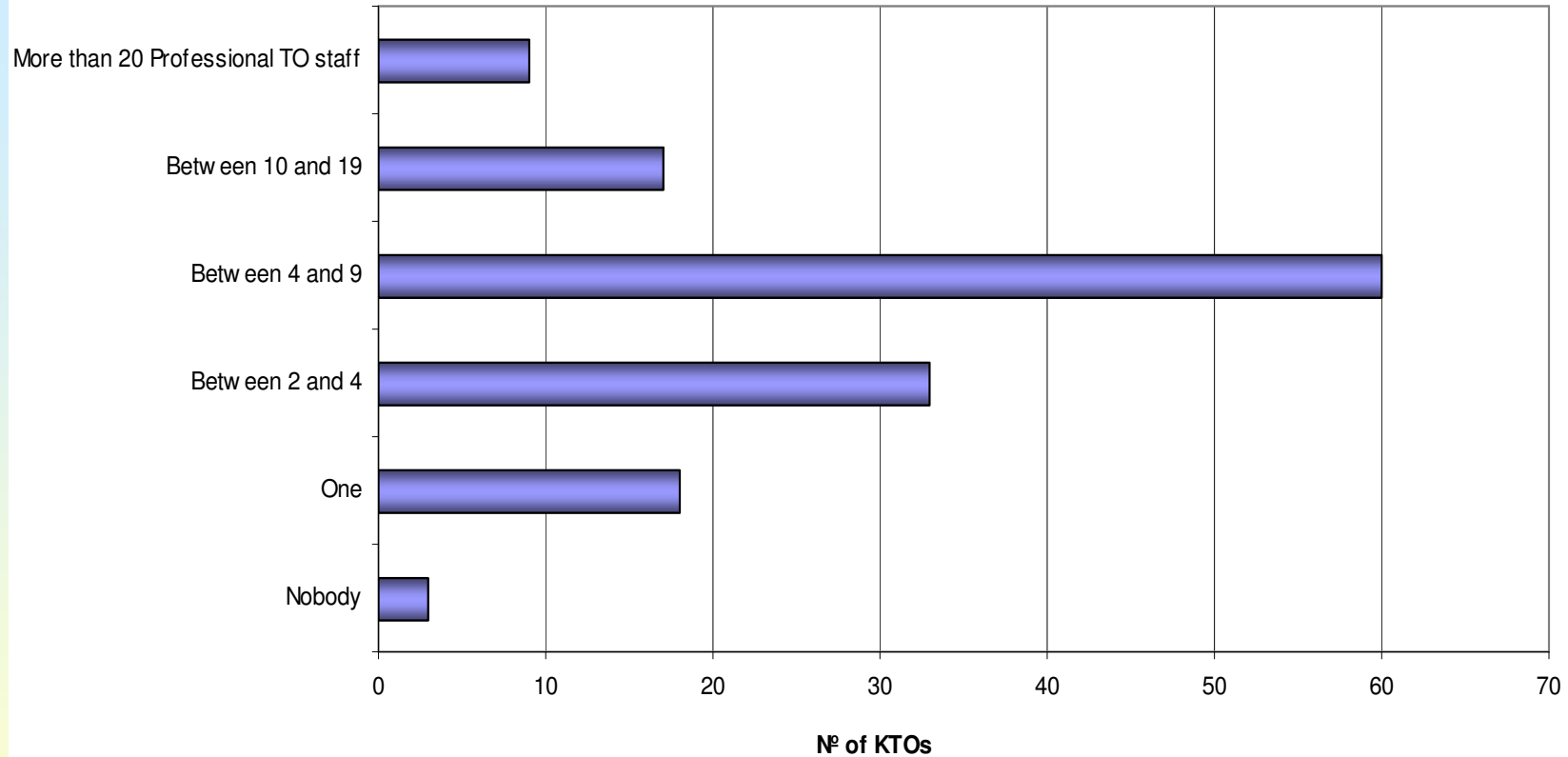
	<b>PROTON</b>	<b>US AUTM<sup>(1)</sup></b>
<b>Survey respondents</b>	<b>172</b>	<b>232</b>
<b># Invention disclosures</b>	<b>3,025</b>	<b>16,871</b>
<b>Priority patent applications</b>	<b>1,275</b>	<b>10,517</b>
<b># Options and licenses</b>	<b>652</b>	<b>4,783</b>
<b>Industry sponsored research</b>	<b>337 M€</b>	<b>1566 M\$ (1305 M€)</b>
<b># Spin-off</b>	<b>174</b>	<b>462</b>

(1) Source: AUTM US Licensing Survey FT 2004

# What is involved in implementing a KT function?

- Clear mission statement, consistent with nature of institution and expectations of stakeholders
- Reflected in adequate policies and incentives (*less than 50% of the survey institutions had policies*)
- Agree on realistic objectives (benchmarking)
- Obtain involvement of the academic community (*less than 15% in surveyed institutions*)
- Organize accordingly:
  - ◆ Good practices
  - ◆ Professional staffing (business development skills)
  - ◆ Structure and infrastructure
  - ◆ Funding

# Professional Staff FTE)



140 valid responses

**1066 professionals (62% of total KTO staff)**

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# Funding the KT function

- Net revenues from commercialisation (shared with innovators and institution):
  - ◆ Royalties (take 10-20 year to develop)
  - ◆ Capital gains on spin-outs (5-15 years)
  - ◆ Except for luck, will not cover operating expenses. Even when they do, the contribution is small compared to the research budget (<2%)
- Government funding (performance contracts)
- Overhead on research contracts (<5%)
- Institution budget (least popular)

**Universities should not engage in knowledge transfer as an alternate source of funding of the institution**

# Increase in research funding

- Collaborative research with industry (requires excellence and project management) (20-30%)
- State Aid (EC framework programs and national schemes). Technology platforms.
- Leverage of public funding (KT will become part of research assessment) (UK, France, Belgium)
- Requires going to full cost accounting to avoid transfers from other budgets
- EC is showing the way in FP7 (also UK)

**Performance and full economic cost accounting are essential**

# Infrastructure and tools

- Incubator: part of the funding available from public sources, typically 50%. Operations sustainable after initial investment
- Seed capital: access to seed funds to develop a spin-out activity.
- Entrepreneurship programs and coaching
- Science Parks



# Benefits from efficient KT

- Recognition of the utility of the research function, hopefully leading to better funding
- Attracting more funding from private sources, leverage more public funding
- Conducive to excellence in research
- Attracting good scientists for recognition and career opportunities

**The sustainability of the research function of universities is at stake**