



# Research Productivity in Ireland

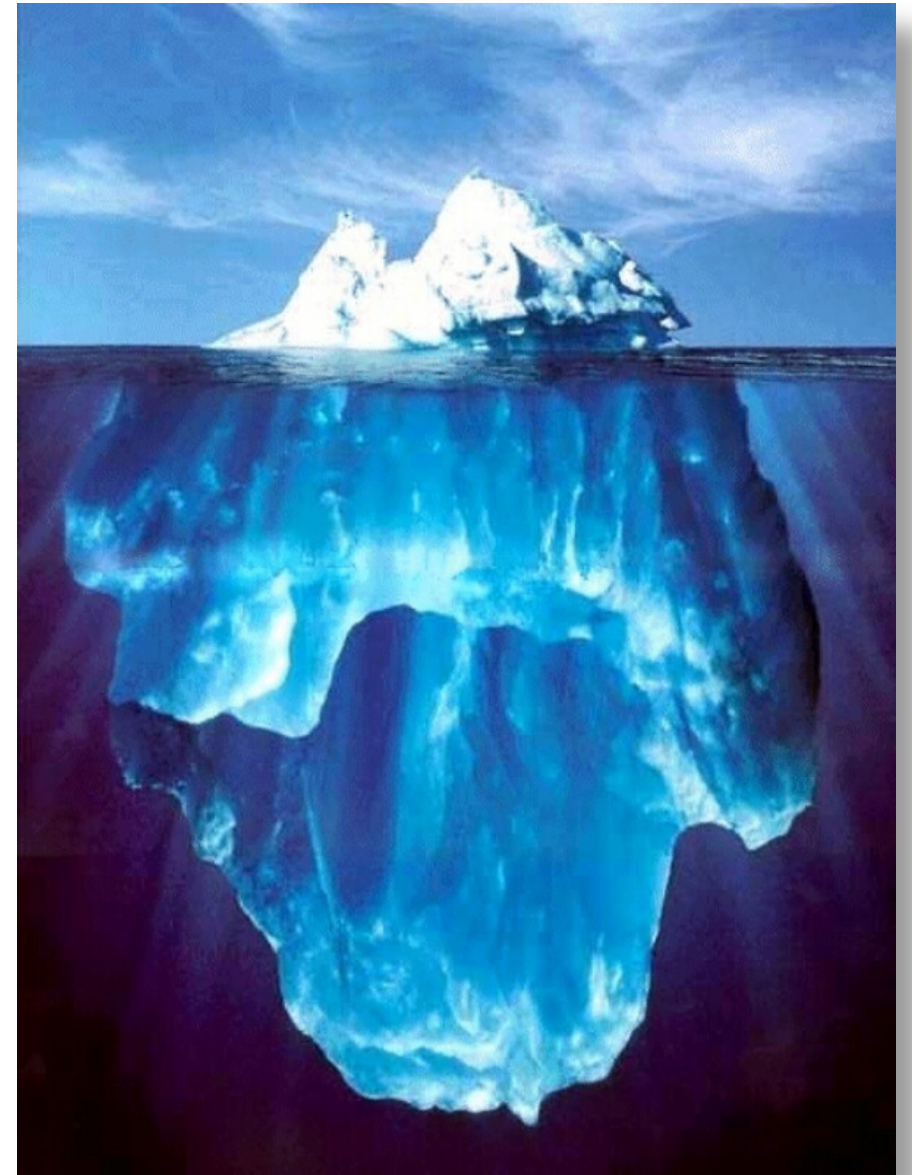
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Investment Timeline

Recent Performance

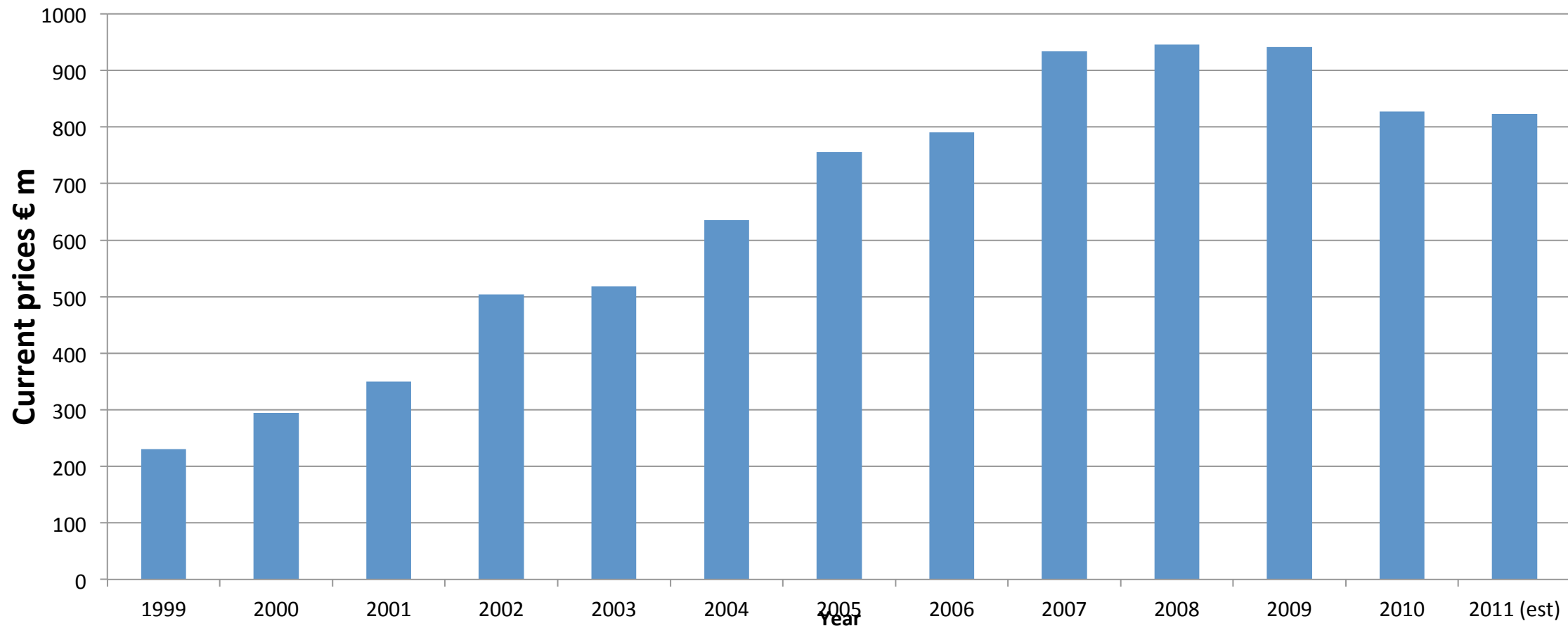
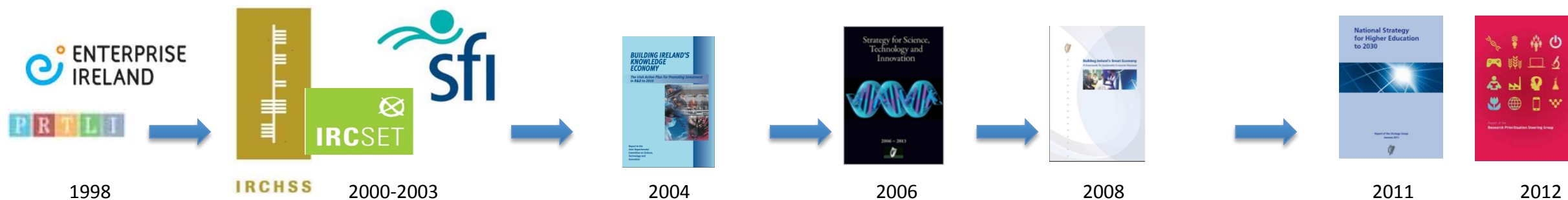
Strategic Challenges:

- **What?** *Balancing basic/applied, long-term/short-term, AHSS/STEM.*
- **Who?** *Developing & maintaining the human capacity to conduct research.*
- **Where?** *Fostering differentiation & collaboration: Universities, IoTs, Proposed TUs*





# Nearly 15 years of investment in Irish R&D



(Sources: Forfas. The Science Budget 2010-2011: State Expenditure on Science & Technology Research & Development; Forfas. The Science Budget 2008-2009)



# Result: Real improvement in research performance

## Knowledge Creation

### Reputational Metrics

- **> 2x** increase in published output ('98-'07, G7 countries roughly level)
- **10<sup>th</sup>** international scientific co-publications (well above EU avg)
- **11<sup>th</sup>** scientific publications cited worldwide (just above EU avg)

## Enterprise Focus

### ROI Metrics

- *From 2005 to 2010*
  - **> 6x** increase in spin-outs (to 31)
  - **> 7x** increase in licence/option/assignments (to 93)
  - **+ 22%** Patent applications (14<sup>th</sup> in EU)
  - **+ 63%** Patents granted (*per capita* 8<sup>th</sup> in EU)

Sources: European Commission, Innovation Scoreboard 2011, doi:10.2769/32530; European Patent Office Main Science & Technology Indicators, 2009/1, OECD) SFI Annual Report and Accounts 2011. 12 July 2012.); Forfas. (2009). Research strengths in Ireland: a bibliometric study of the public research base; Love, G. (2012, July 17), Personal communication; World Intellectual Property Organization (2012). World Intellectual Property Indicators, 2011 edition.



# Example of success: Biotechnology

## Worldview W Scorecard 2012

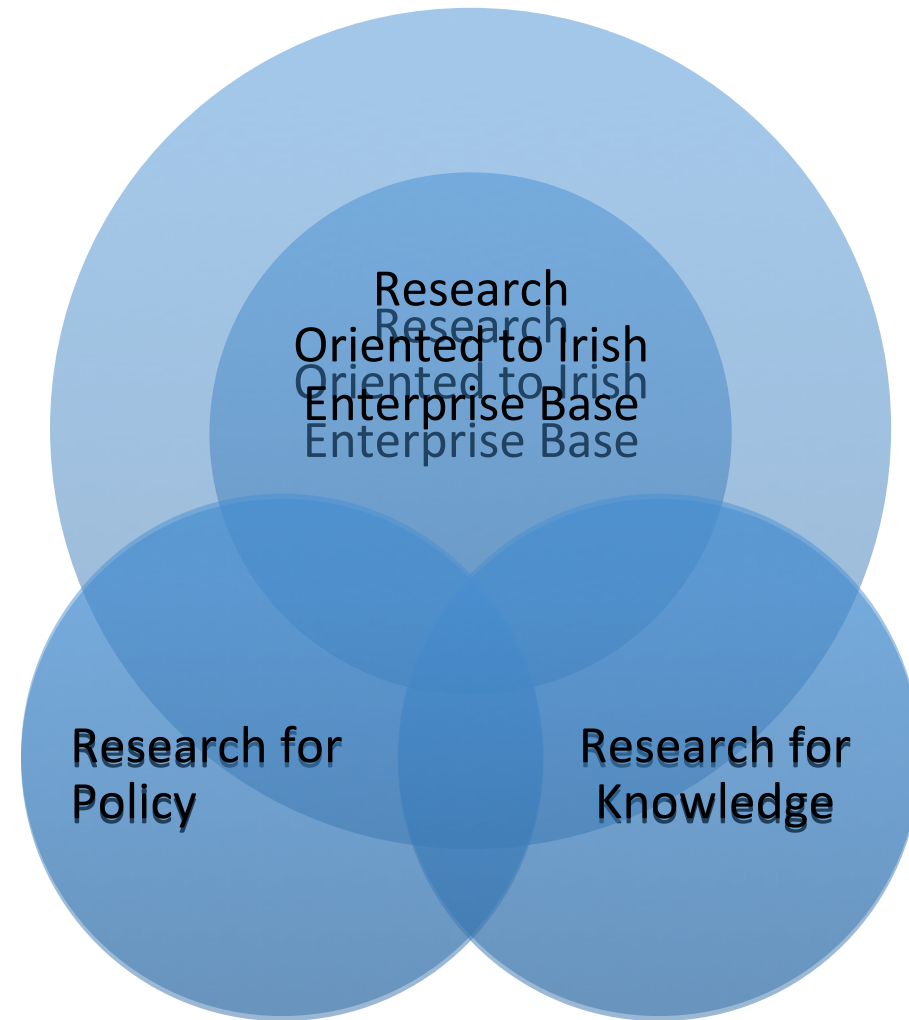
(Scientific American)

- *Overall Scores = 8<sup>th</sup> (United States 1<sup>st</sup>)*
- *Education/Work-Force = 3<sup>rd</sup>*
- *Intensity = 6<sup>th</sup>*
- *Intellectual Property = 7<sup>th</sup>*
- *Policy & Stability = 14<sup>th</sup>*
- *Team Work = 16<sup>th</sup>*
- *Enterprise Support = 19<sup>th</sup>*
- *Foundations = 23<sup>rd</sup>*

# What is being researched?



March 2012

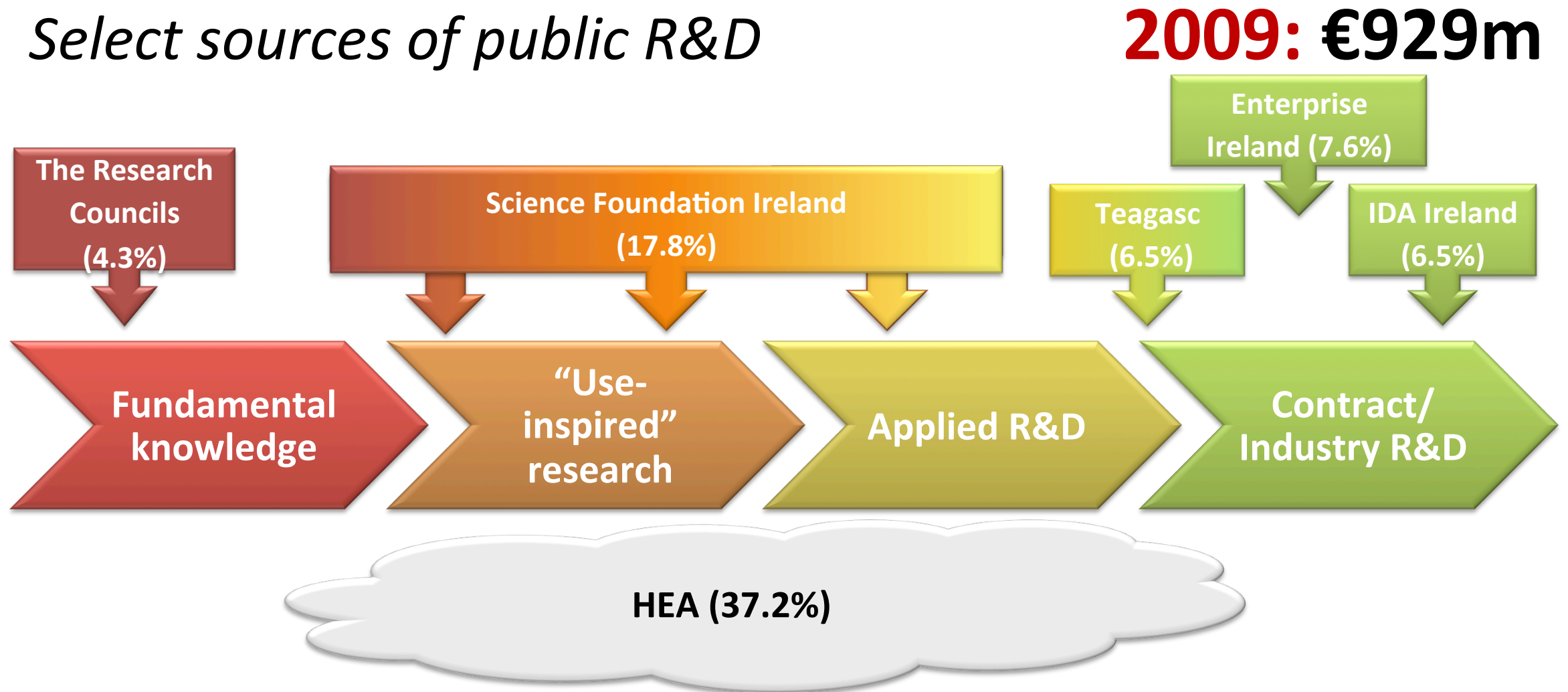


*Illustrative only – does not represent scale of funding*



# R&D funding balance has put Ireland in the races...

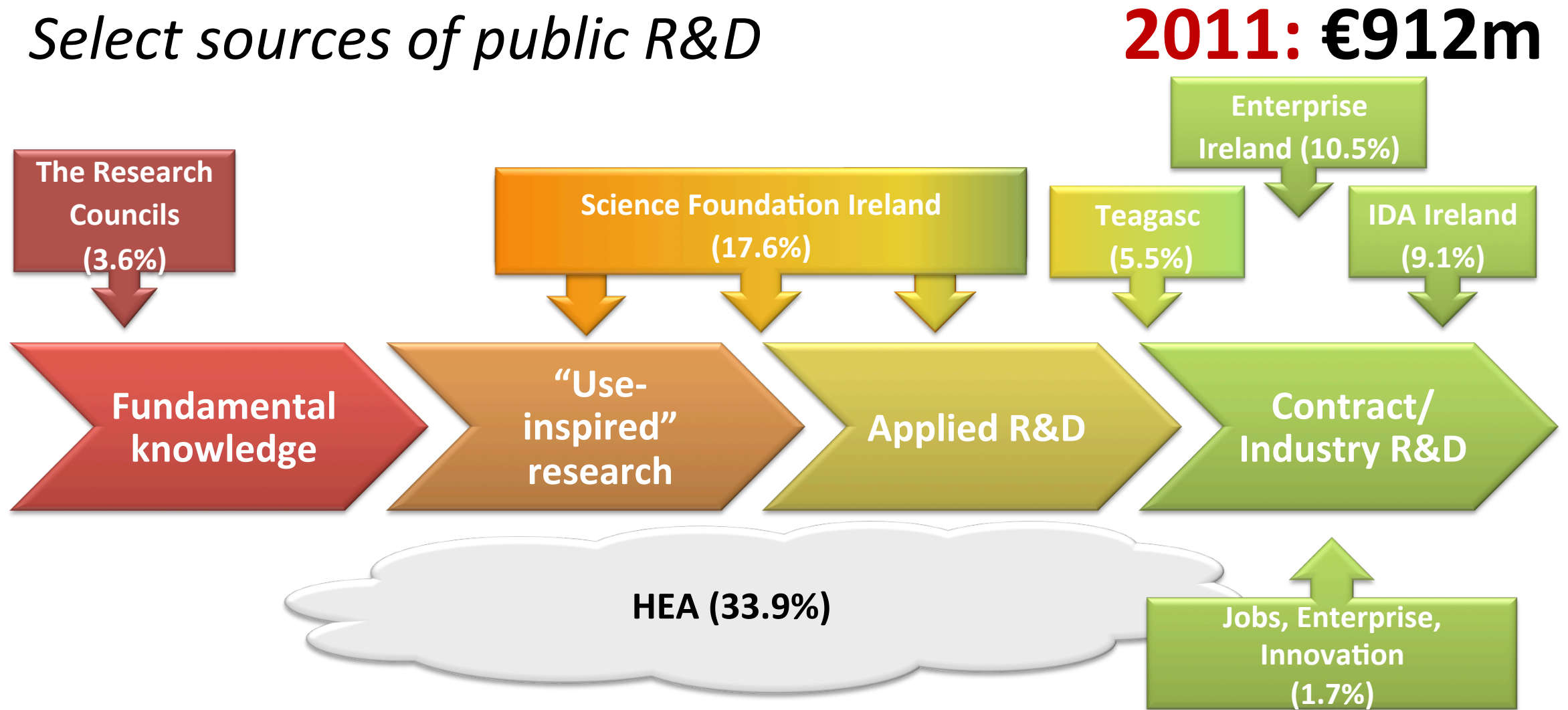
## Select sources of public R&D





... and research prioritisation seeks to shift that model.

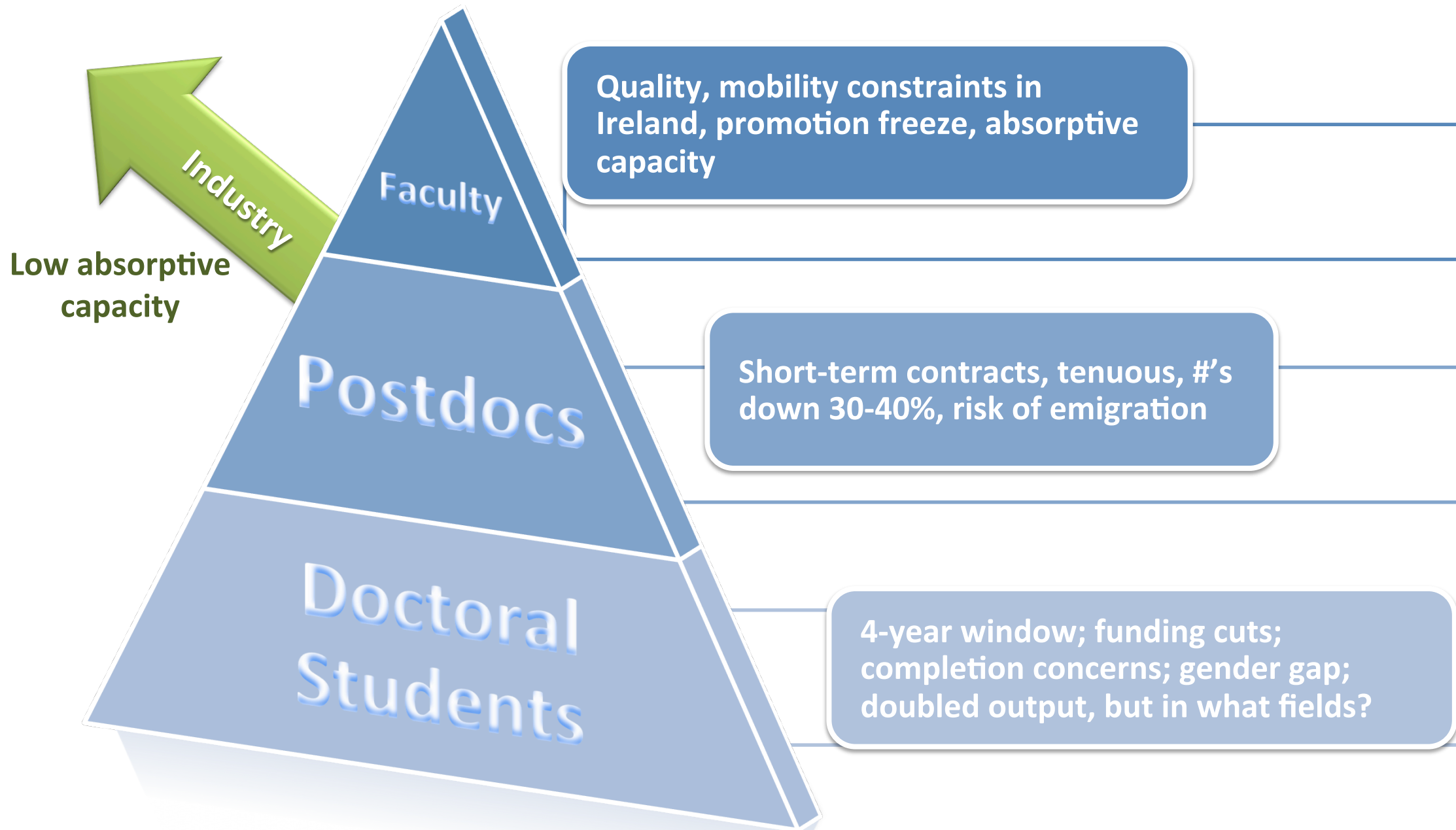
## Select sources of public R&D





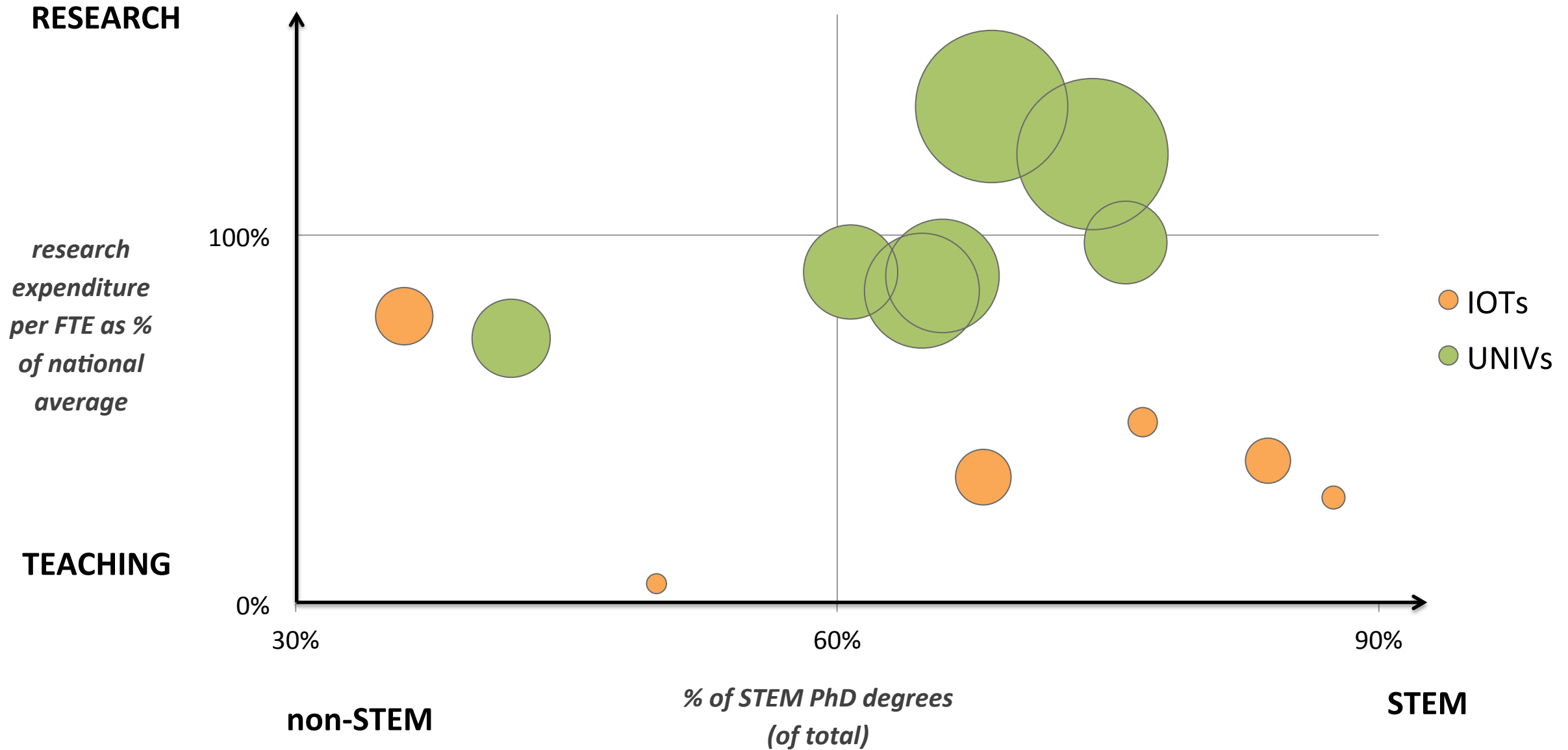


# Human Capital: Who does the research?



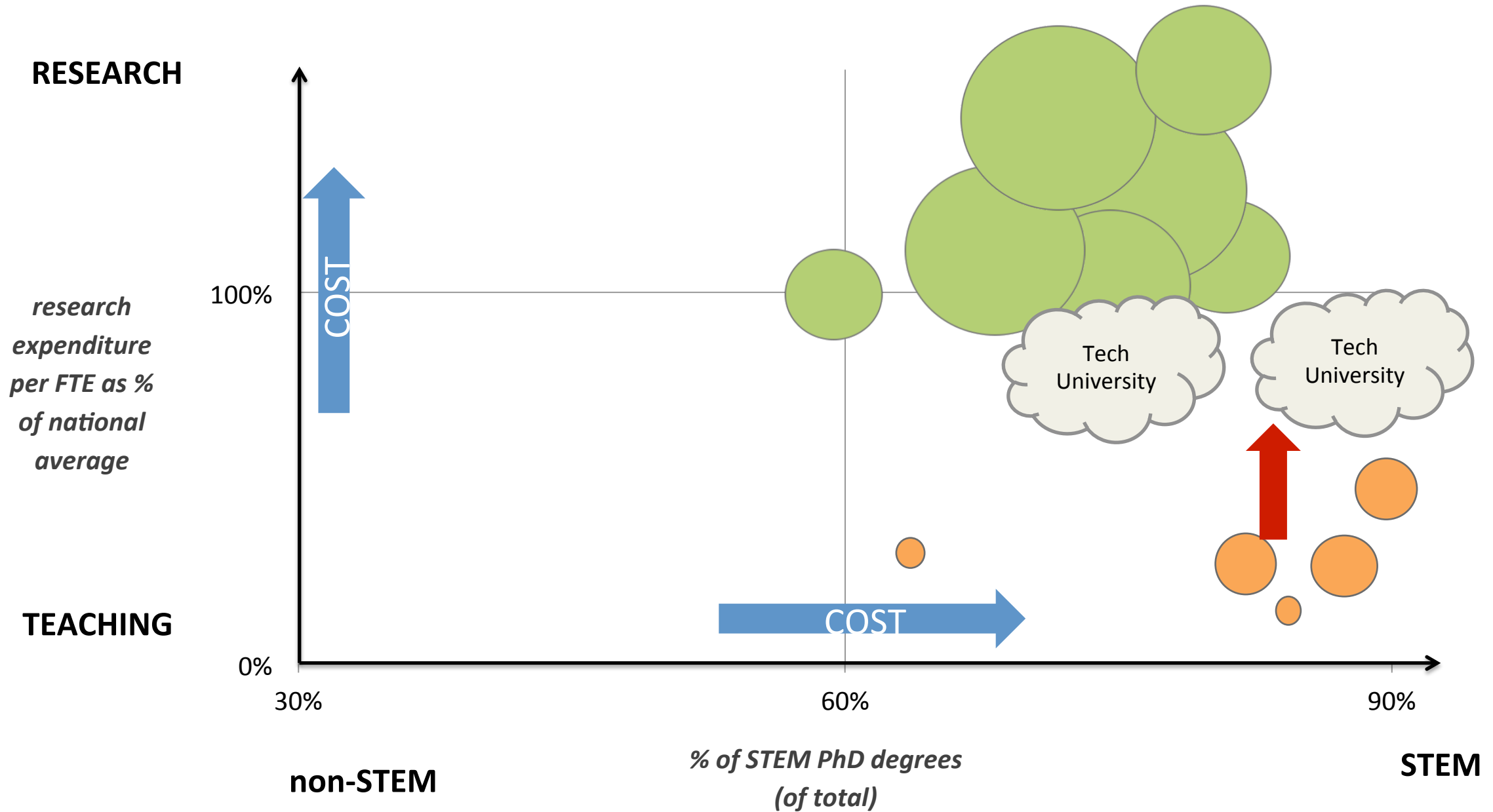


# Where is research being conducted today?



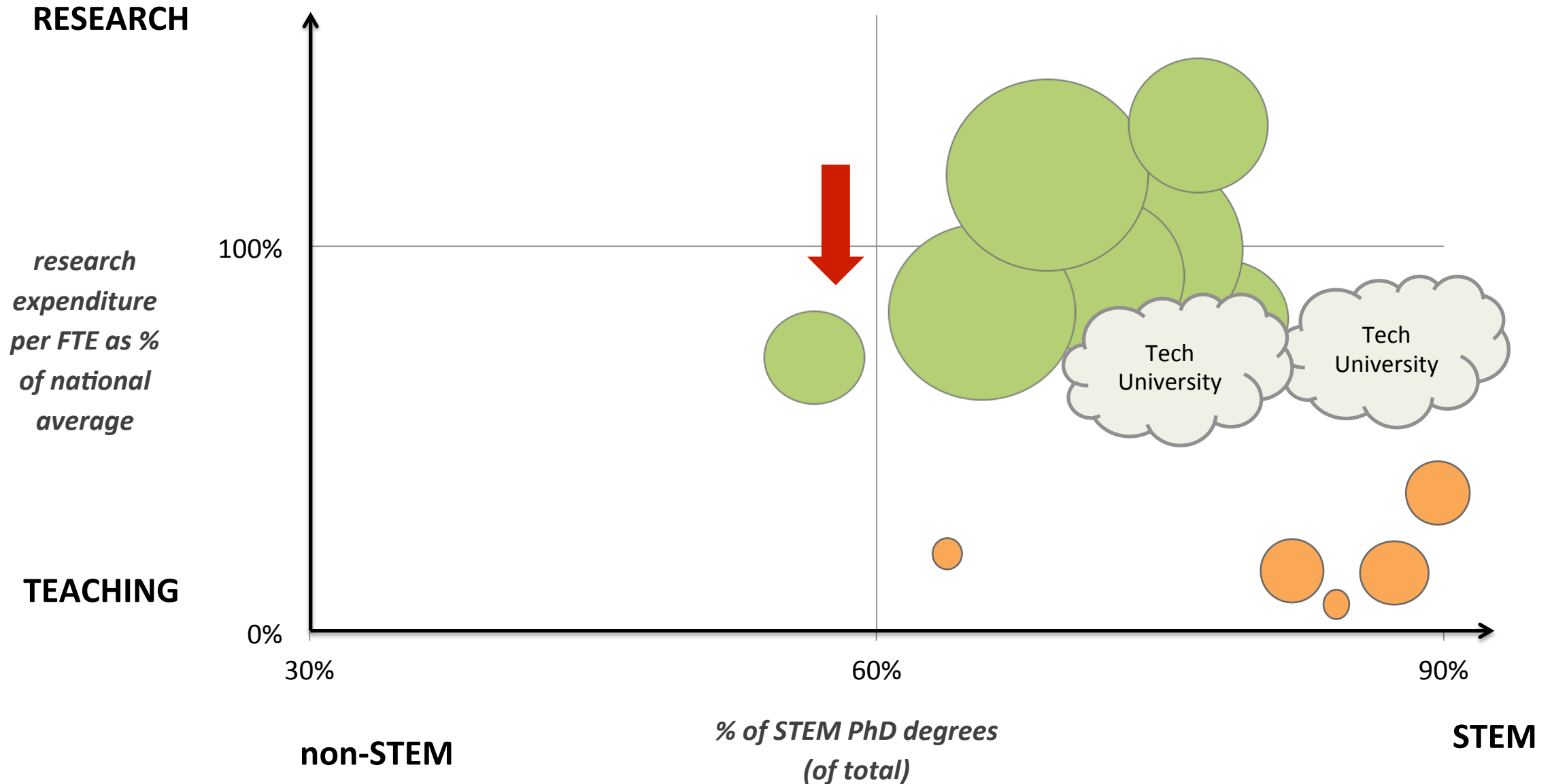


# Concentration? ... And cost?





# With less €, unintended consequences?



# Policy Questions

**What?** *What are the consequences of funding and policy focused on short-term and applied research?*

**Who?** *How will Ireland increase the absorptive capacity for research careers in HE and industry?*

**Where?** *Where should future research take place?*

