



Research and Innovation in the EU: Challenges and Policies

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The grand questions

What strategic narrative should Europe follow in the preparation of FP9?

⇒ The world is changing: Why invest in Science and Innovation (S&I)?

⇒ S&I is changing: What does it mean for policies?

⇒ Policies are changing: How should the EU adapt?



Five strategic issues

- Grand challenges
- Globalisation of S&I
- Digitalisation of science
- Digital innovation
- Government budgets for R&D



1. Grand Challenges

Source: STI Outlook 2016

8 Megatrends for STI





Grand challenges: Policy Challenges

The world needs more growth, better environment, health etc.

❖ Science and innovation are part of the answer

⇒ The world needs more science and innovation

⇒ Research and innovation policies need be stronger and more challenge oriented [see latest G20 Heads of States Communiqué]



What this means for Europe

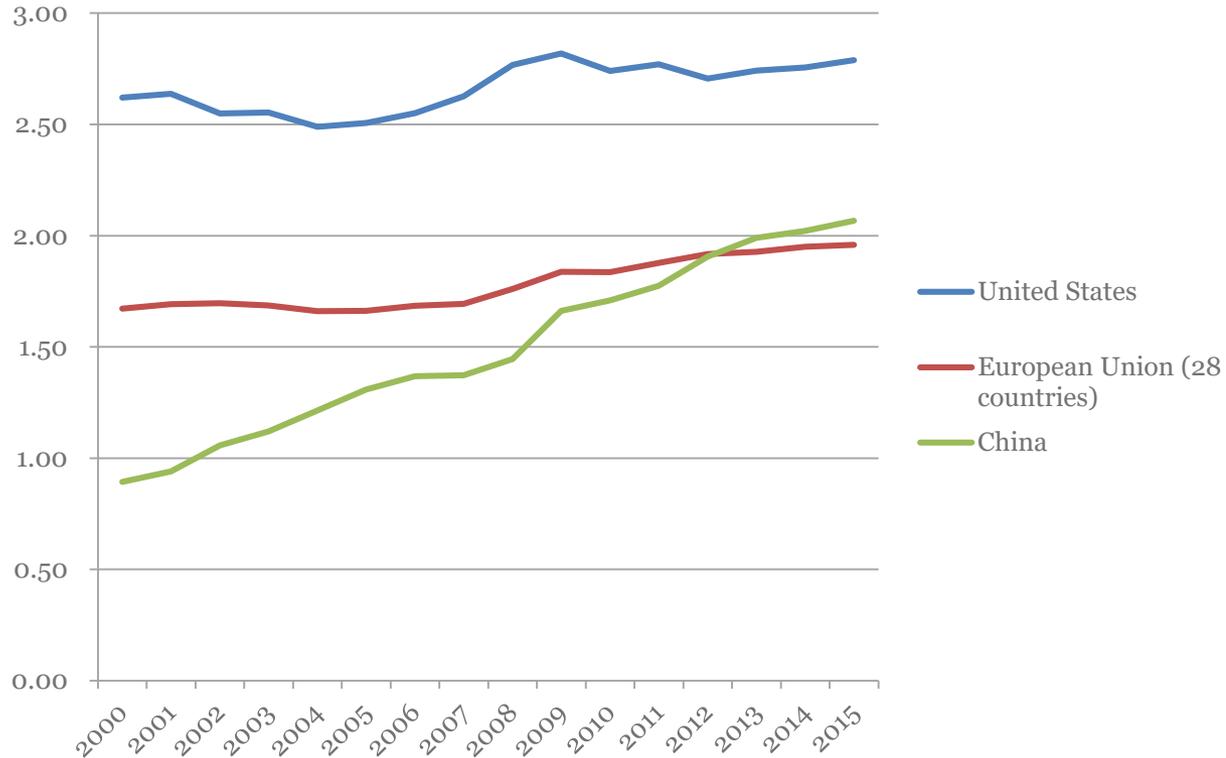
Europe:

- investment in science & innovation should be more explicitly targeted towards addressing grand challenges;
- challenge driven research requires 1) targeted basic research; 2) more interdisciplinarity; and 3) more cooperation between universities, businesses and civil society



2. Globalisation

GERD as % of GDP (Source: OECD MSTI)





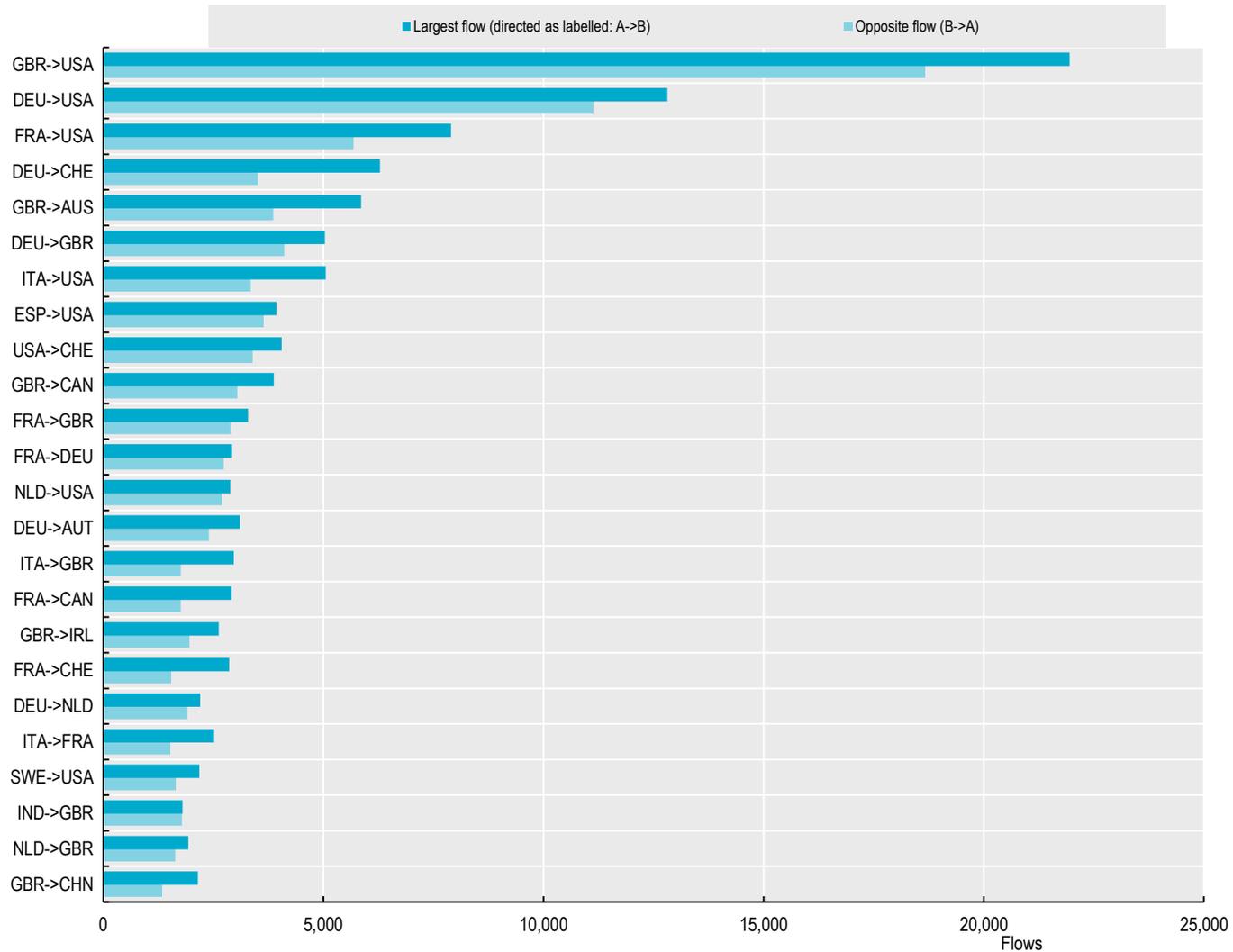
Globalisation: New players

- New players (China)
- competition is innovation-based and becoming more global (beyond Western world),
- Europe is a large player... among others:
 - ⇒ it needs putting higher priority on innovation;
 - ⇒ and develop further internal integration in order to better exploit cross-country synergies.



International flows of researchers

(2013; Source: OECD STI Scoreboard)





Globalisation: International linkages

- International linkages are key to innovation
 - International linkages have been growing over the past decades
- ⇒ Cross-country circulation of knowledge/people is a key issue
- ⇒ Europe needs to develop internal links, but also links with all other large players (China)



3. Digitalisation of science

Open Science

Open Data

Research Collaboration

Openness to Society



Digitalisation of science: New Opportunities

- To cooperate among scientists.
 - To share & reuse data.
 - To increase the productivity of research (AI).
 - To involve more citizens in agenda setting.
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What this means for Europe

- Develop the European Science Cloud (an integrated digital platform for science)
- Encourage cross-country access to data (harmonise data regimes)
- Train scientists in all disciplines to master digital tools



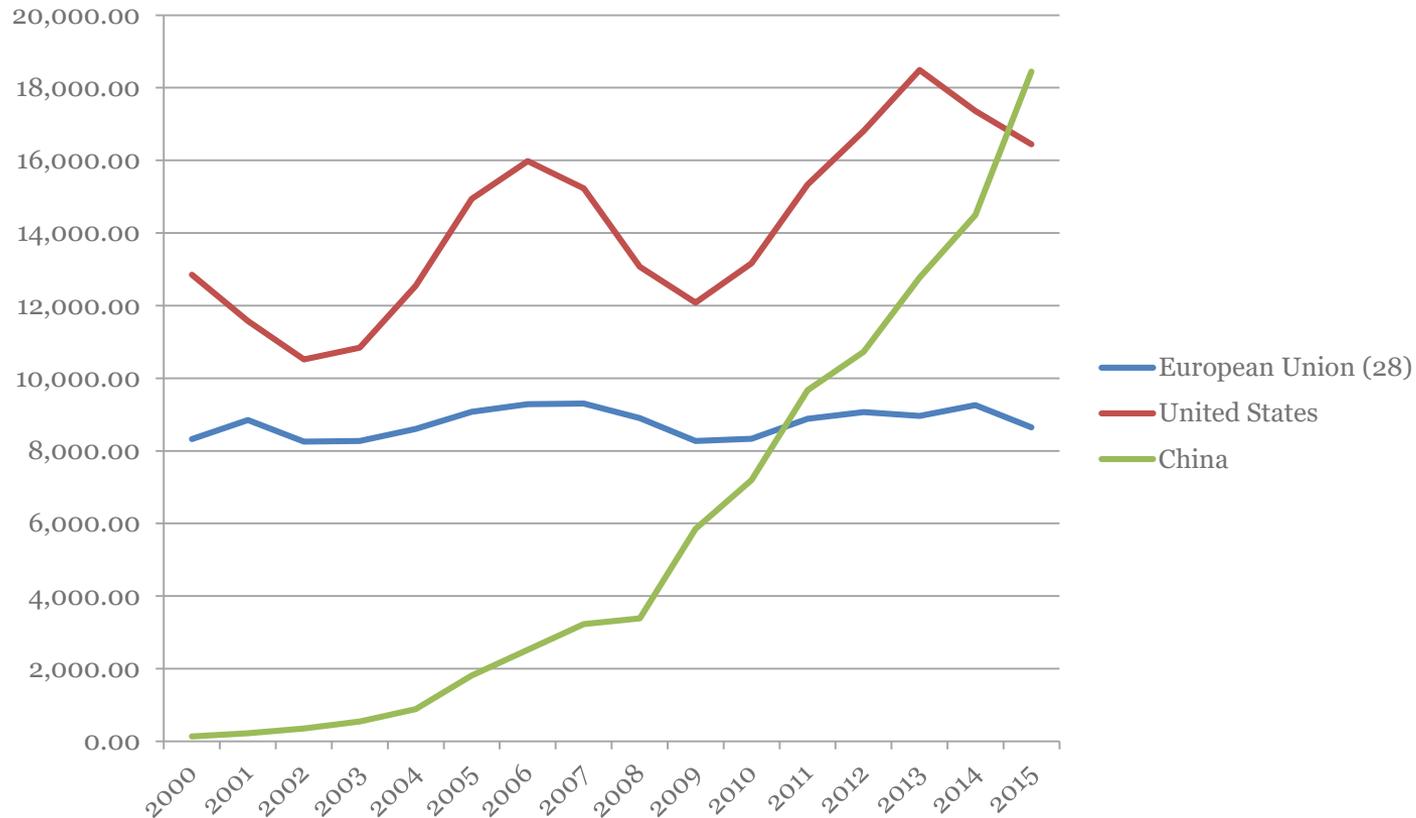
4. Digital innovation

- Innovation is increasingly based on digital => Internet of Things, robots, autonomous vehicles, 3D printing, simulation etc.
- The economics of digital innovation = polarised markets: global superstar companies (most from US and China) and vibrant entrepreneurship



Europe is weak in innovation in ICT

Patents in the ICT sector (PCT, priority year; source: OECD MSTI)





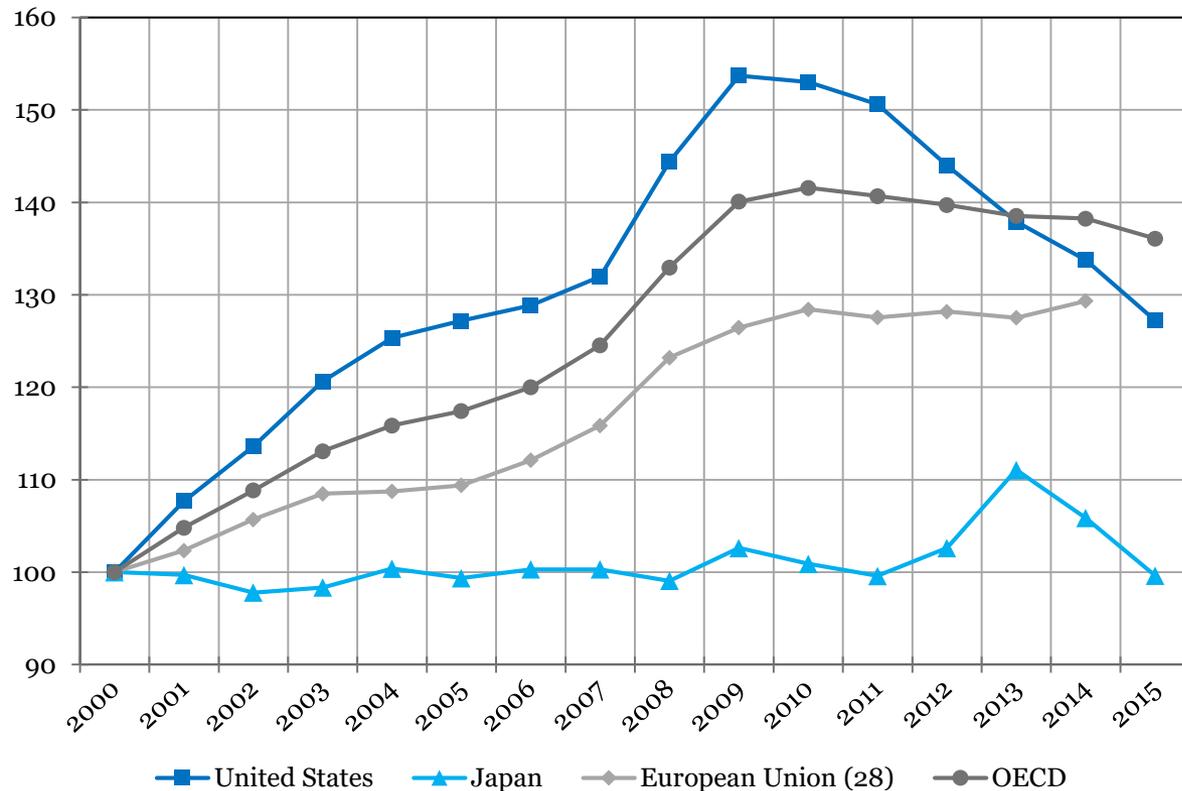
What this means for Europe

- Facilitate access to data within and across countries (health etc.)
- Need more global superstars and allow startups to grow more => complete the internal market (services, capital including VC)
- Support the digitalisation of SMEs



5. Government financed R&D has been stagnating for 8 years

R&D financed by government, constant PPPs, index 2000=100, source: OECD
MSTI





The budgetary challenge

Budgetary pressures (government resources for S&I are plateauing or even declining in many countries) because

1. sovereign debt needs to be limited;
2. priority given to S&I is not high enough in many countries (there are exception, notably in Northern Europe)



What this means for Europe

- In most countries national government need to make a bigger effort for research
- A higher EU budget for research is warranted (Lamy Commission's report) – for the coming FP9
- Need to make research more efficient (digitalisation, thematic choices, management)
- Must mobilise funding from other sources: regions, charities, businesses etc.



Thank You

Innovationpolicyplatform.org

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