Science and Innovation in the EU: Challenges and Policies

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The grand questions

What <u>strategic narrative</u> 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

Health, inequality and well-being

Demography

Society

Natural resources and energy

Economy, jobs and productivity

Science, Technology and Innovation Outlook 2016

Climate change and environment

Role of governments

Globalisation

5

The world is confronted with grand challenges

Grand 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]

Europe:

- needs invest more in science & innovation and be more efficient;

- challenge driven research requires 1) more interdisciplinarity and 2) more cooperation between universities, businesses and civil society

GERD as % of GDP (Source: OECD MSTI)
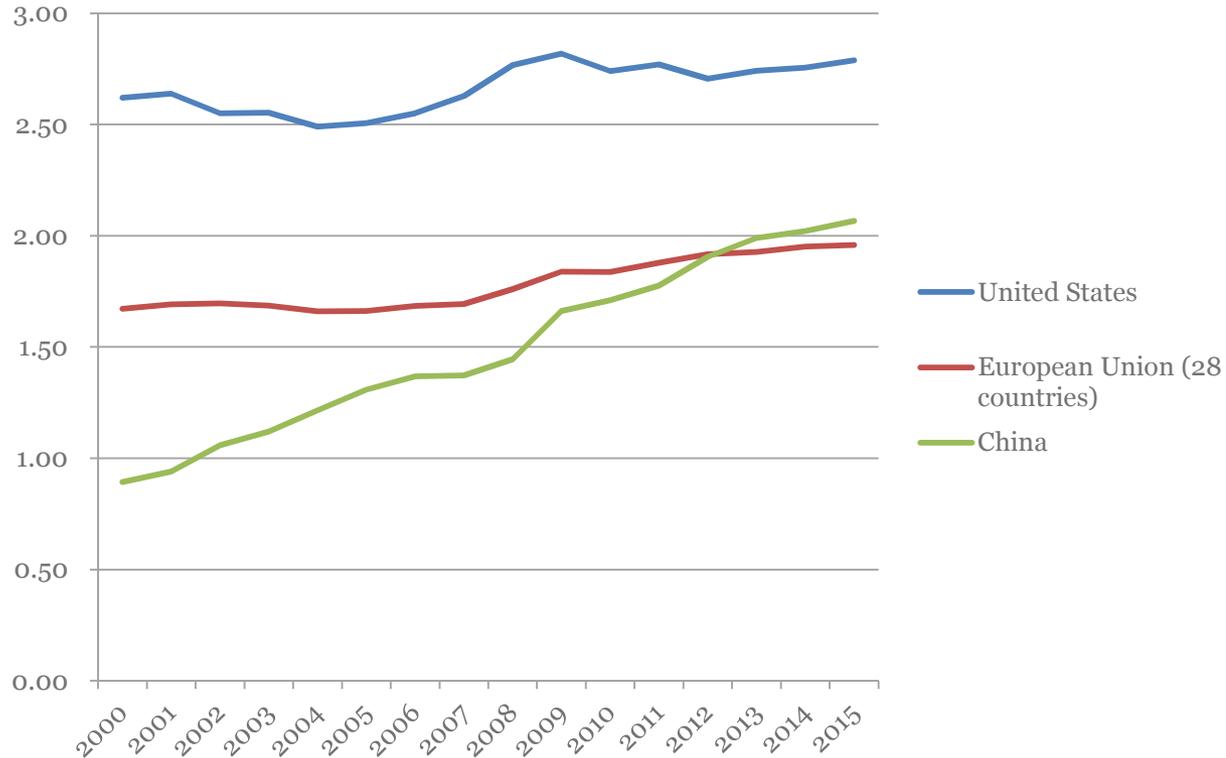
Globalisation

Globalisation =

- new players (China) and

- more international linkages

$\Rightarrow$ innovation-based competition will be more global (beyond Western world),

$\Rightarrow$ cross-country circulation of knowledge/ people becomes a key issue

- Europe is a large player... among others = need more internal integration in order to better exploit synergies;

- Europe needs to develop links with <u>all</u> other large players (China)

3. Digitalisation of science

Research Collaboration

Open Data

Open Science

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;

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)
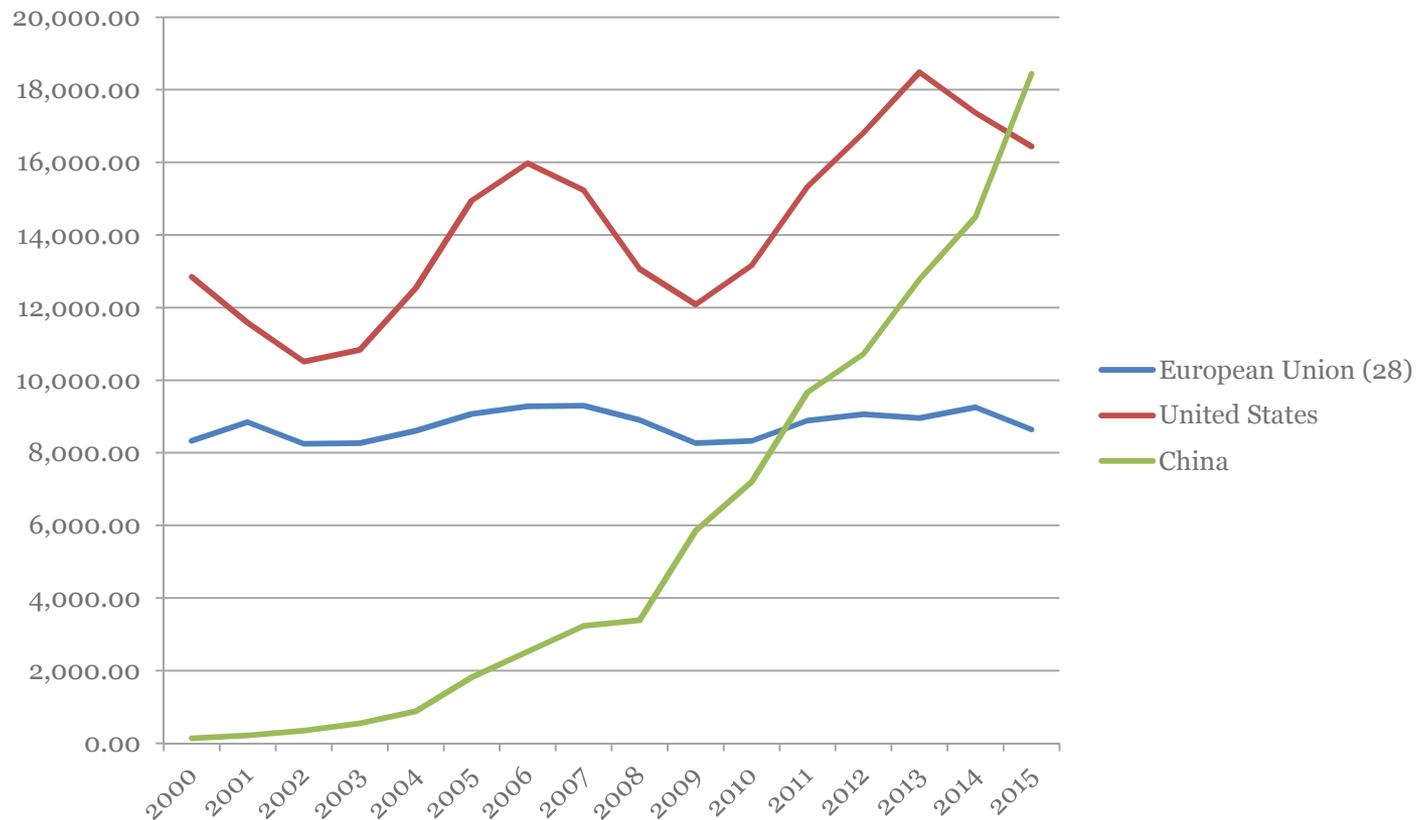
What this means for Europe

- 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
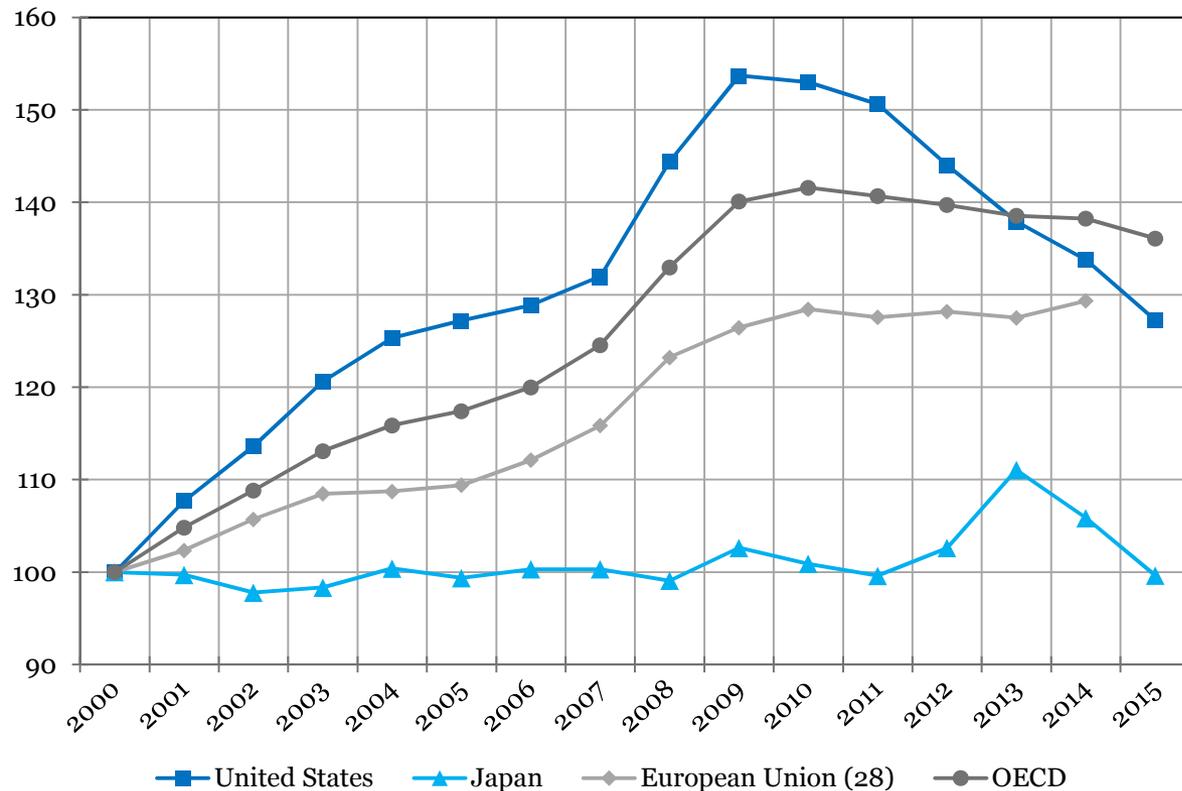
The budgetary challenge

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 in many countries (there are exception, notably in Northern Europe)

What this means for Europe

- In most countries national government need to make a stronger effort for research

- Must mobilise funding from other sources: regions, charities, businesses etc.

- A higher EU budget for S&I is warranted (Lamy Commission's report) – for the coming FP9

Thank You

Innovationpolicyplatform.org

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