

EU Innovation Convention, March 11, 2014

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# Excellence – Grand Challenges – International Perspectives

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# The world is vastly interconnected

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Flights



Facebook

# We share global trends for (2030, NIC, USA)

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- **Individual empowerment** supported by greater educational attainment, widespread use of ICT, new manufacturing technologies and healthcare advances.
- **Diffusion of power** with a shift of power from the few hegemony to networks and coalitions of states and non-state actors in a multipolar world.
- **Demographic patterns changing** due to aging societies, migration and urbanization.
- **Increasing food, water and energy demand** owing to an increase in global population.

# We share global challenges



# There is an innovation crisis in Europe

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- The R&D intensity in the EU is stagnant, while it grows in Asia and the US maintain their higher level.
- The EU contributes to high impact publications less than the US. However, the EU still publishes most scientific material worldwide and has a growing research community. Thus, Europe could be attractive for non-European research investments.
- Less than 25% of the global research funds are spent in the EU. At the same time we are facing growing R&D-investments in emerging countries.

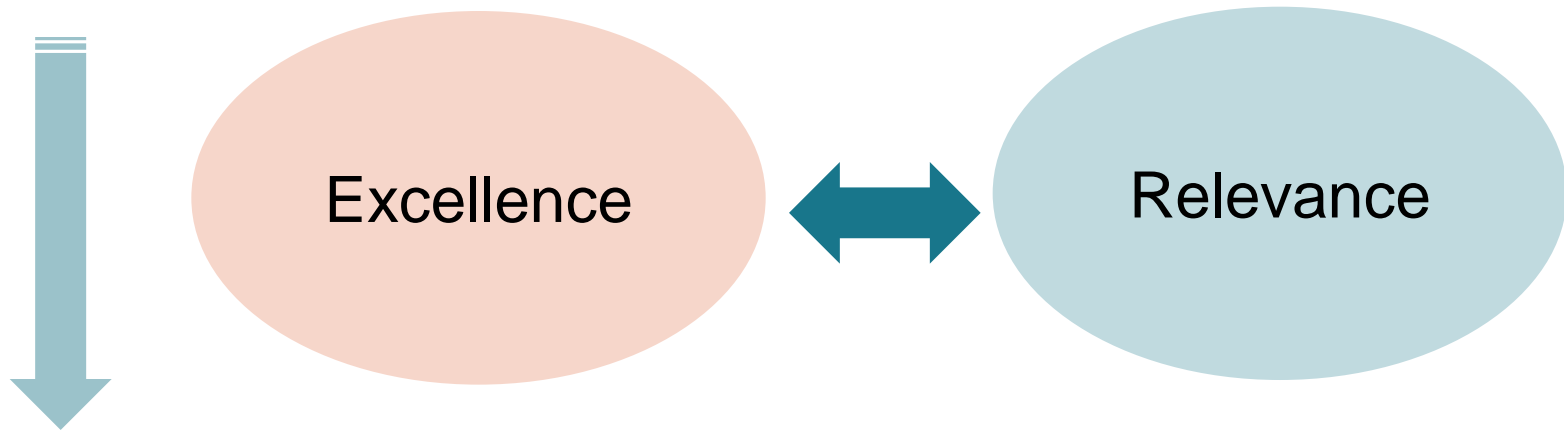
# Europe not ready to manage globalization

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- **Achievements on strategic level:** During the first years of the IU, comprehensive strategies, financial support as well as legislative instruments have been proposed.
- **Low impact:** However, impact on the ground and particularly on the demand side of research and innovation has not yet materialized sufficiently:
  - Europe's overall competitiveness has not yet substantially improved.
  - Europe still appears too concerned about getting organized and is not yet prepared to cope with globalization.

# Excellence <--> Relevance

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- 1980/90: Competition between different research strategies and funding priorities:
  - «Excellent» fundamental research – or
  - «Relevant» applied research

# Excellence «&» Relevance

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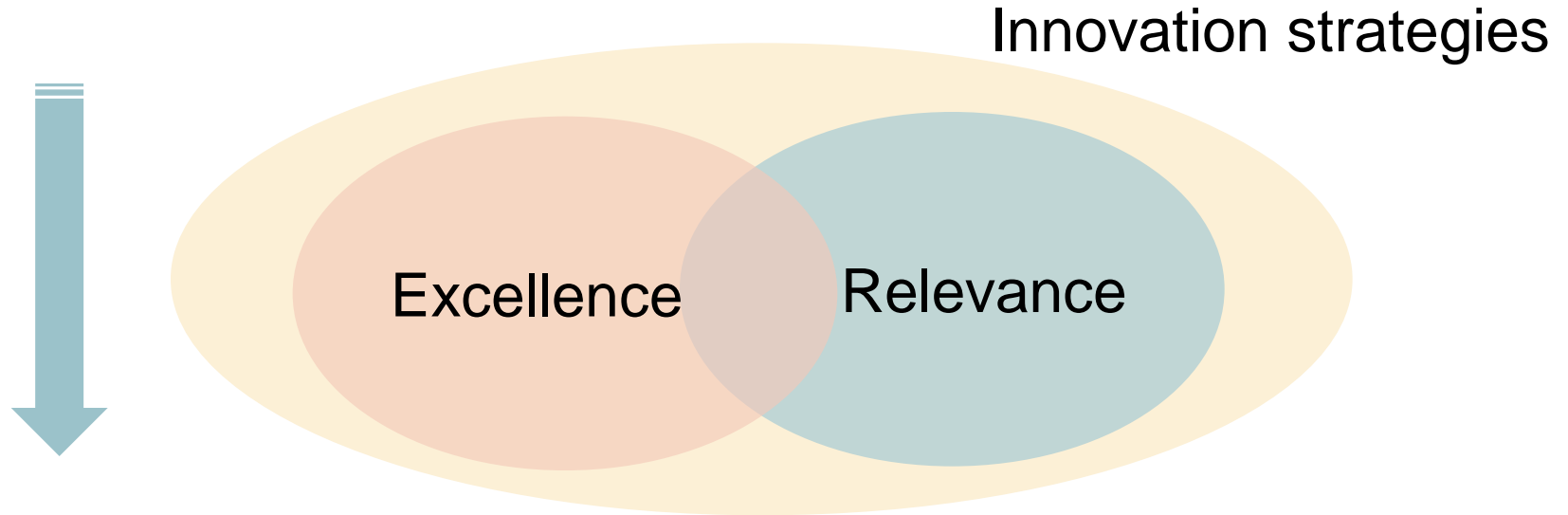


- Since 2000: Excellence and relevance merge:
  - An important part of fundamental research is geared towards Grand Challenges.
  - Also applied research has to meet criterias of excellence.



# Innovation strategies

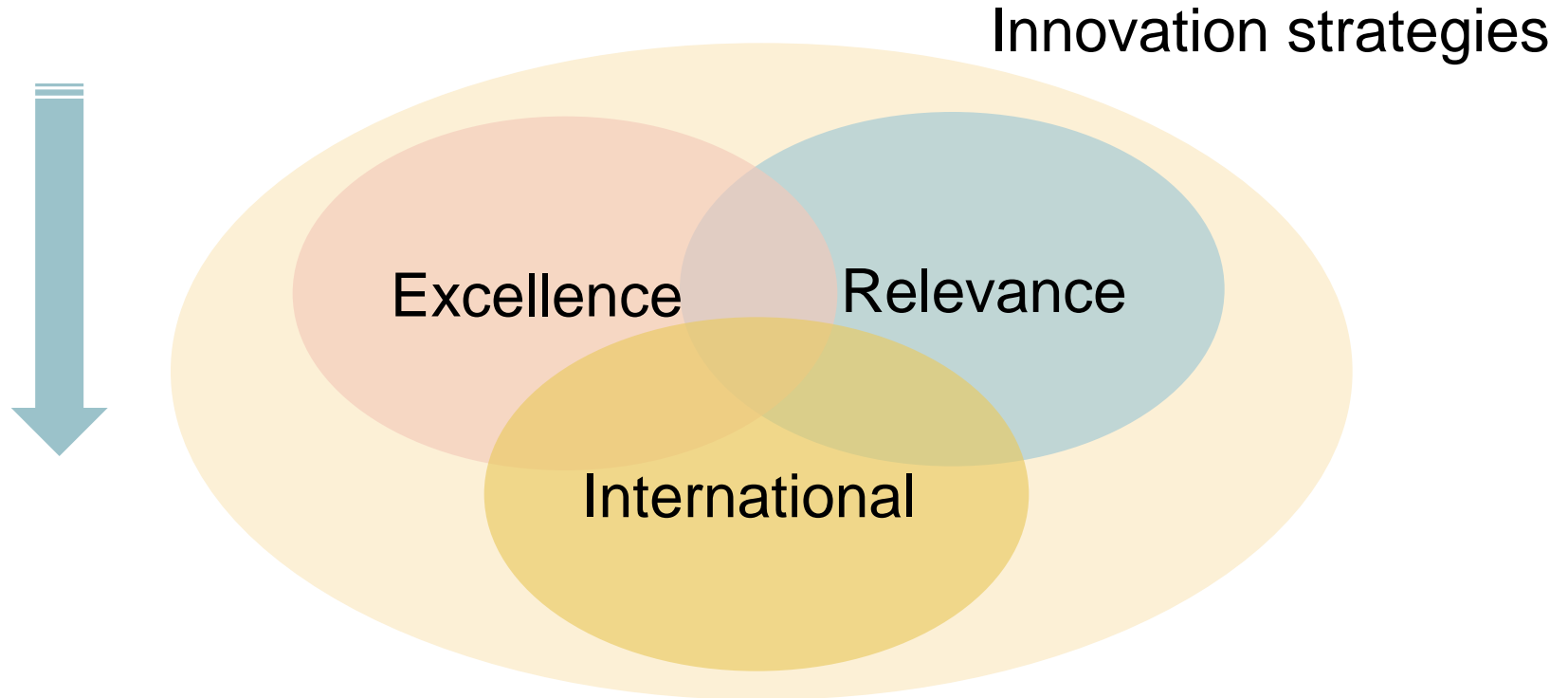
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- Since 2010: Comprehensive Innovation strategies are developed.
  - DG Research & Innovation
  - Horizon 2020, Innovation Union
  - Energy research strategies in MS

# Going international – beyond Europe

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- 2014: Research and innovation policies have to look beyond Europe!

# Excellent research is global

- 2005/09 almost 70% of research partnerships of researchers in Switzerland were international.

	1981-1985	1995-1999	2005-2009
<b>Anteil der internationalen Zusammenarbeit</b>	<b>52,1%</b>	<b>74,6%</b>	<b>69,3%</b>
Technische und Ingenieurwissenschaften, Informatik	62,3%	74,1%	70,9%
Physik, Chemie und Erdwissenschaften	77,8%	89,0%	86,8%
Landwirtschaft, Biologie und Umweltwissenschaften	41,4%	52,4%	62,8%
Life Sciences	47,7%	59,7%	60,4%
Klinische Medizin	24,9%	48,1%	52,4%
Sozial- und Verhaltenswissenschaften	47,8%	68,9%	62,6%
Geisteswissenschaften und Kunst	52,8%	57,7%	71,6%

Quelle: Thomson Reuters (SCI/SSCI/A&HCI), Bearbeitung SBF

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# Objectives of international research strategies

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- **Addressing grand challenges:** International scientific cooperation is imperative in order to address global challenges successfully.
- **International research competitiveness:** Strengthening Europe's excellence and attractiveness in research and innovation is decisive in order to remain competitive in an international environment.
- **International economic competitiveness:** Fostering Europe's economic competitiveness implies the support for European enterprises to become able to attract international financing and to build up corresponding networks.

# Adressing grand challenges (1)

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- **Sine qua non:** International scientific cooperation is imperative to address global challenges as climate change, energy, water and food security or urbanization processes successfully.
- **Successful strategies** of international science cooperation will be
  - focusing on global public goods and public interests,
  - identifying fields of specific common interest in view of regional strategic approaches,
  - developing anticipatory, flexible and dynamic governance structures ('tentative governance').

# Addressing grand challenges (2)

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- **Integrating capacities:** International scientific cooperation addressing grand challenges has the potential to integrate Europe's research and innovation capacities.
- **Integrating research approaches:** Moreover, it may lead to comprehensive innovation strategies, integrating research from basic science and technology all the way to innovations on the market and in society.

# Increasing research competitiveness (1)

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- **Strengthening attractiveness:** Increasing international research competitiveness means strengthening Europe's attractiveness for researchers from abroad.
- **Pooling money:** Investing pooled MS' money in large research facilities has the potential to foster Europe's attractiveness for researchers from abroad.
  - ESFRI roadmap
  - Flagship project for emerging technologies
  - "NIH" for Europe

# Increasing research competitiveness (2)

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- **Mobility:** National and EU-authorities should increase the support for the international flow of researchers by
  - distinctively increasing international participation in Horizon 2020
  - increasing the portability of ERC grants by enlarging the proportion of time that can be spent outside of Europe
  - envisaging total portability with specific countries – as long as reciprocity also regarding intellectual property rights are respected.



# Strengthening economic competitiveness

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- **Managing globalization** implies the support for European enterprises to attract international financing:
  - Due to the crisis, some financial value chains have collapsed and the risk capital market has been shrinking.
  - Sources of capital in the developed world have become risk-averse, focusing on short-term liquidity and short-term yield rather than on longer term returns.
  - However, there is money trapped on corporate balance sheets in emerging markets. It has to be mobilized and attracted to Europe.
  - Private “funds of funds” can provide access to venture capital and thus strengthen innovation.

# Innovation strategies: Multiple challenges

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