Chemical Sciences for Horizon 2020: Education and Employability

EuChemS event at the European Parliament
Brussels, 7 March 2019

Pierre Barthélemy

cefic

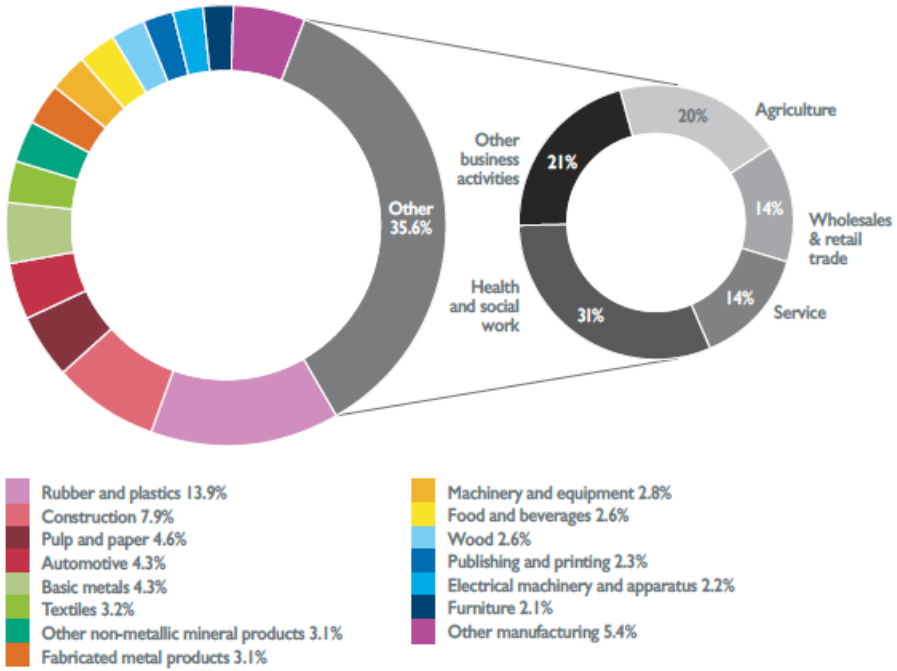
Responsible Care®
OUR COMMITMENT TO SUSTAINABILITY

At the Heart of European Industry
Providing the essentials

- The European chemical industry is of major importance for economic development and wealth,
- Providing modern products and materials and enabling solutions in virtually all sectors.
- It is a wealth generating sector of the economy, and a valuable part of Europe's economic infrastructure.
- It aims to provide solutions for the achievement of a competitive, low carbon and circular economy in Europe and beyond.
- The European chemical industry is highly successful.
- Traditionally, it has been a world leader in chemicals production

Contribution of the chemical industry to the EU economy

Customer sectors of the EU chemical industry

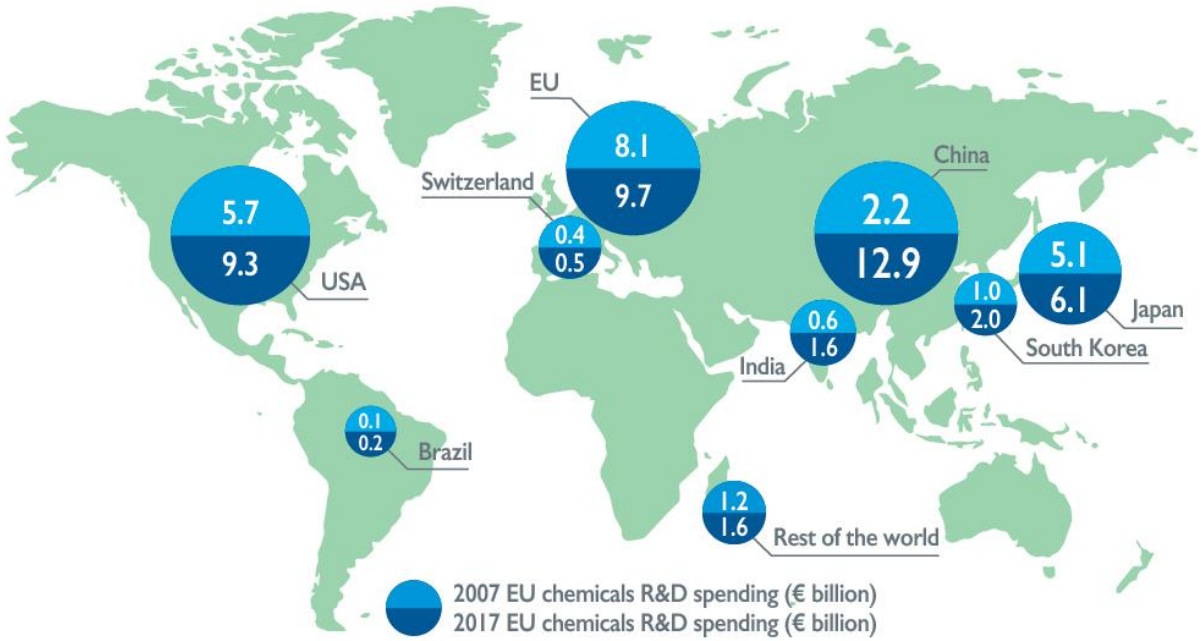


Innovation in the 21st century

- Advanced materials
  - Batteries (energy storage, e-mobility)
  - Lightweight (automotive, aeronautics)
  - Renewable energy (wind, PV, …)
- Advanced processes
  - Use of alternative feedstock (biomass, waste, CO/CO2 …)
  - Use of alternative energy sources
  - Cross-sectorial collaboration (Industrial symbiosis)
  - The journey to circularity
- Digital technologies

China outspends industrial and emerging countries in chemicals R&I

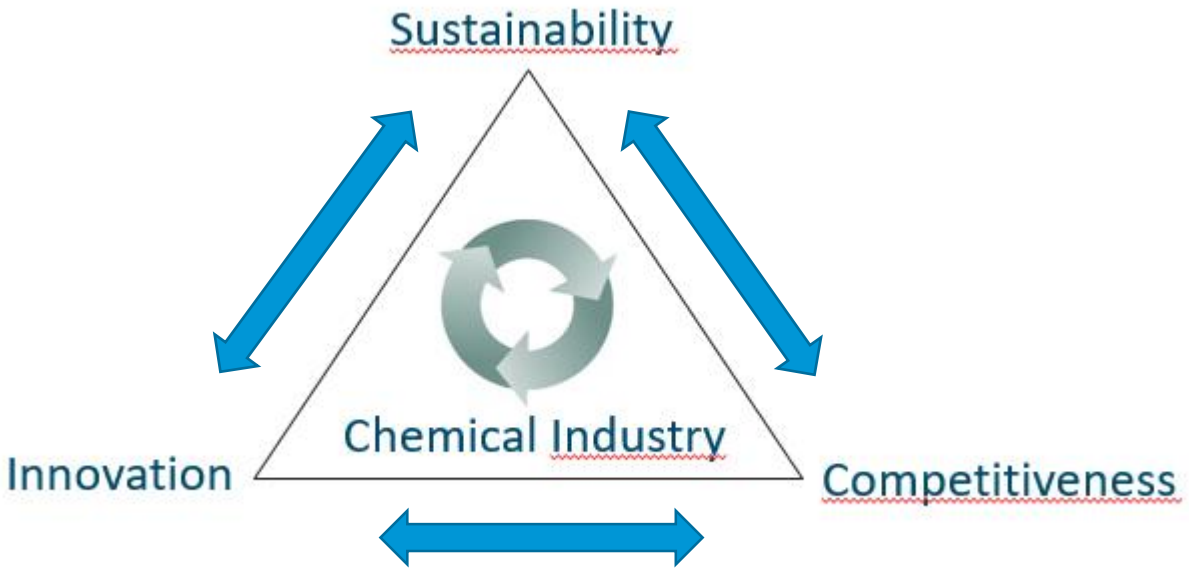
R&D spending by region



Source: Cefic Chemdata International 2018

Unless specified, chemical industry excludes pharmaceuticals
Unless specified, EU refers to EU 28

The interlink between competitiveness, innovation and sustainability



Challenges offer tremendous innovation and business opportunities

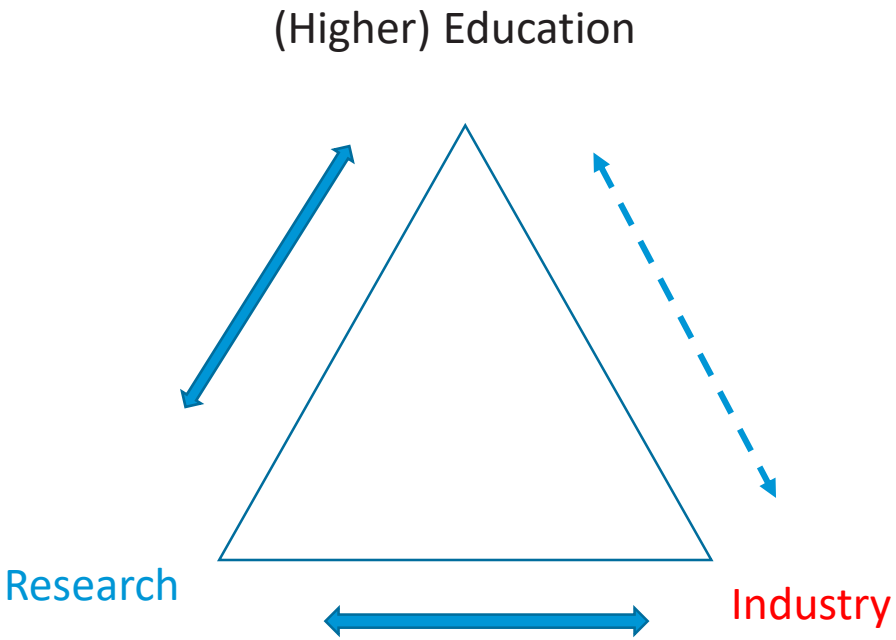
Supported by highly skilled teams

Talents for the future of the European chemical industry

- **STEM** skills & **Digital** skills
- Blurring of boundaries **across scientific disciplines**
- Blurring of boundaries between **different industrial sectors**
- **Value chains** approach
- Connection to **"adjacent" disciplines** (IPR, Regulatory, Toxicology/Ecotoxicology …)

  - **Lifelong learning** ever more important
  - Challenge : **attract**, **train** and **retain**
  - **Sense of purpose**

Building skills together



Right workforce for Research **and** Innovation

Cefic FP9 Priorities

- **Open Innovation and Industry Participation**
  - through collaborative projects along the value chain and between EU Member States and Regions taking innovation faster to the market for the benefit of our society. *Public Private Partnerships, such as SPIRE, demonstrate effectiveness to drive economic growth by removing barriers to innovation in a cross-sectorial setting*
- **Key Enabling Technologies**
  - that address global challenges *(resource efficiency, circular economy, and low carbon economy),* drive breakthrough innovations and support the development of high added-value products and processes
- **Industrial Process Technologies**
  - that are crucial for achieving a low carbon and circular economy *(through valorisation of alternative feedstock including waste, secondary materials, CO2, biomass, chemical recycling),* and the energy transition (better utilization of alternative energy sources in the chemical industry and technologies for renewable energy storage)
- **Digital Technologies**
  - that are fully integrated with processes technologies, materials development, and new business model creation and have a direct impact in the whole industrial environment *(artificial intelligence and modelling tools)*
- **Biotechnologies**
  - that enable the production of alternative fuels, chemicals and polymers from new versatile feedstock's *(biocatalyst engineering)*
- **Advanced Materials**
  - that enable breakthrough application development down the value-chain *(building insulation, innovative packaging, renewable electricity production and storage (incl. batteries), and mobility)*


Thank you
cefic
Responsible Care®
OUR COMMITMENT TO SUSTAINABILITY