



The chemical industry in the R&I ecosystem

EuroNanoForum 2019
Bucharest, 12 June 2019

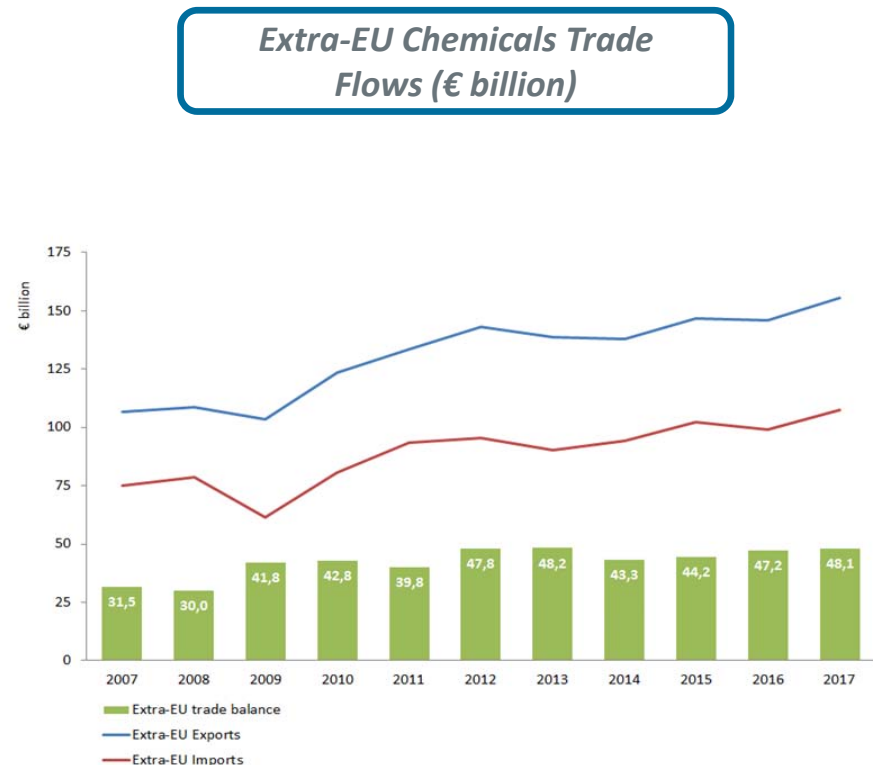
Pierre Barthélemy



At the Heart of European Industry Providing the essentials



- **29 000** companies
- **1,2 million jobs**
- **97%** of European chemical companies are **SMEs** (2015)
- Network of more than **5,000** chemical industry **experts**
- **€ 542** billion in sales in 2017
- EU chemical trade surplus of **€ 48,1** billion in 2017
- The third largest investor in EU manufacturing (**€21,6** bn 2017)





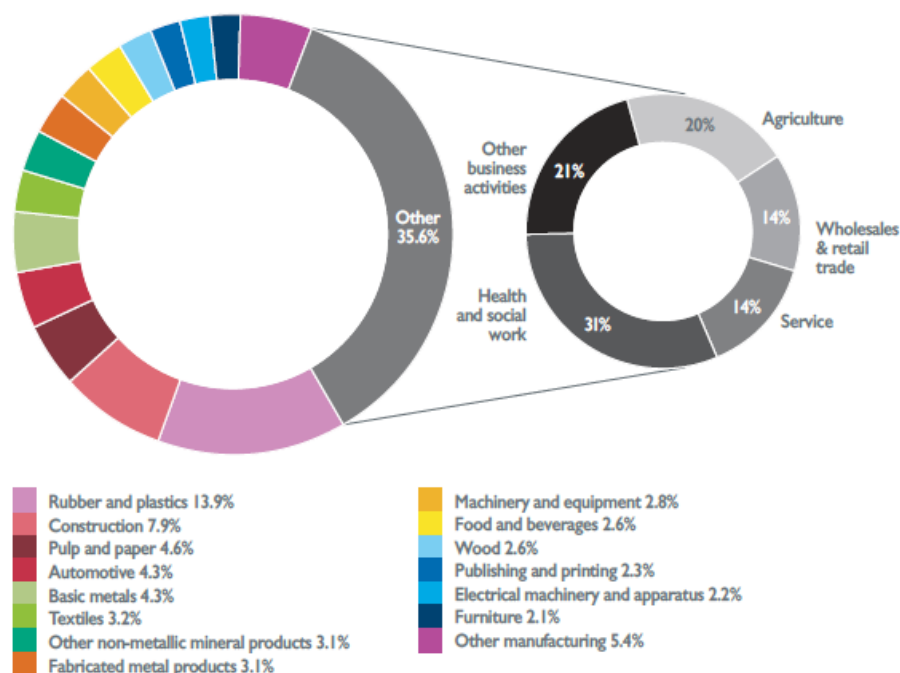
At the Heart of European Industry

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

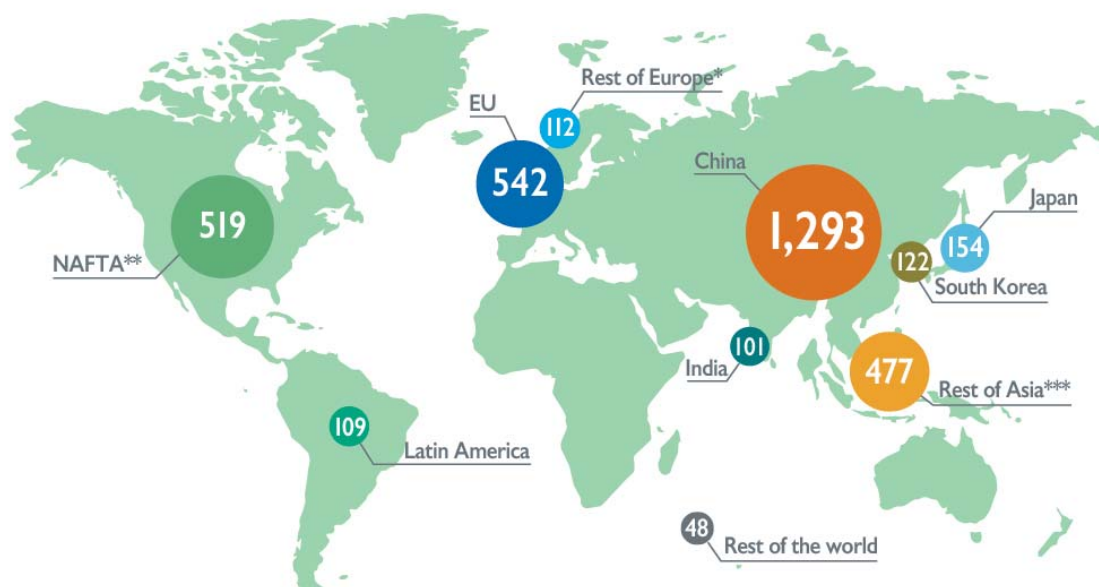
Customer sectors of the EU chemical industry



Europe is the second largest chemicals producer in the world



World chemical sales (€3,475 billion)



Source: Cefic Chemdata International 2018

* Rest of Europe covers Switzerland, Norway, Turkey, Russia and Ukraine

** North American Free Trade Agreement

*** Asia excluding China, India, Japan and South Korea

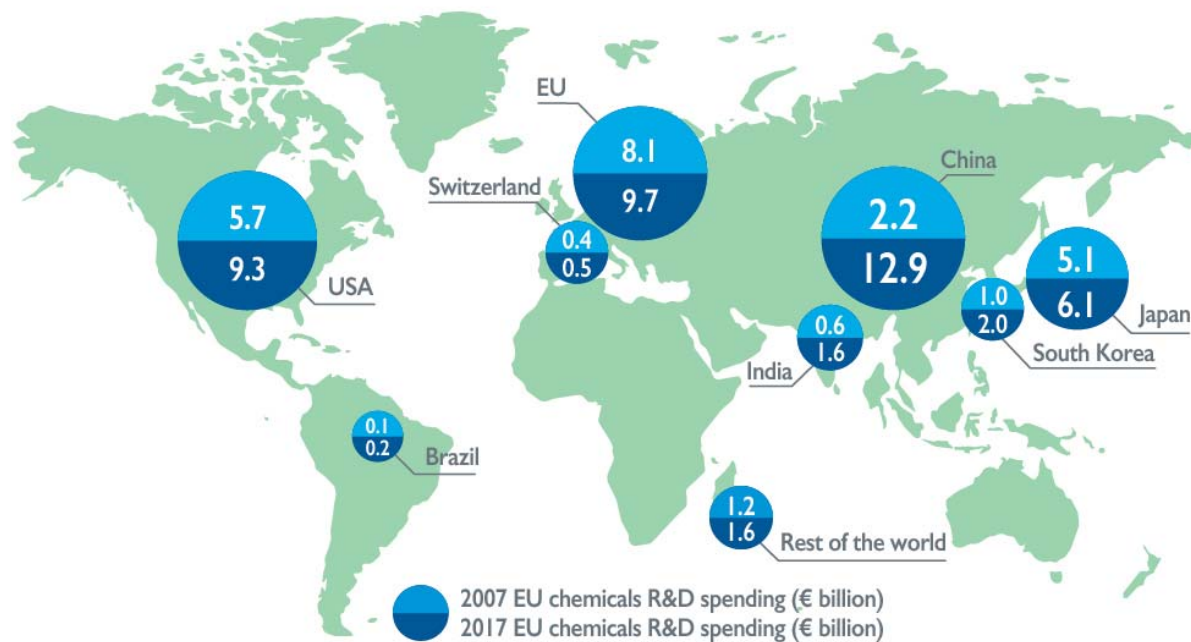
Unless specified, chemical industry excludes pharmaceuticals

Unless specified, EU refers to EU 28

China outspends industrial and emerging countries in chemicals R&I



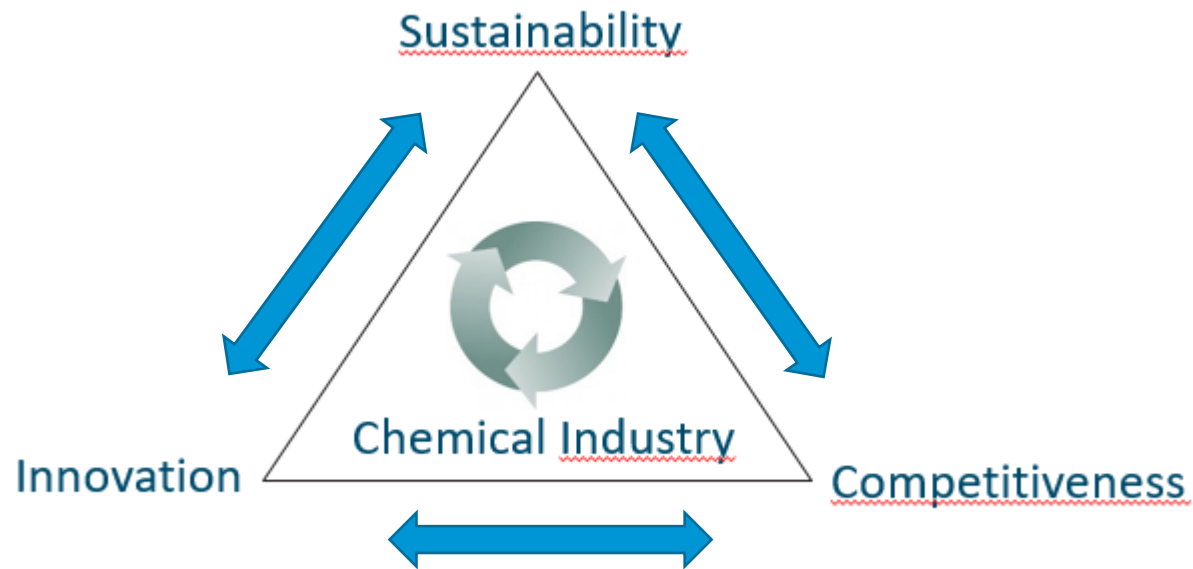
R&D spending by region



Source: Cefic Chemdata International 2018

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The interlink between competitiveness, innovation and sustainability



Challenges offer tremendous innovation and business opportunities

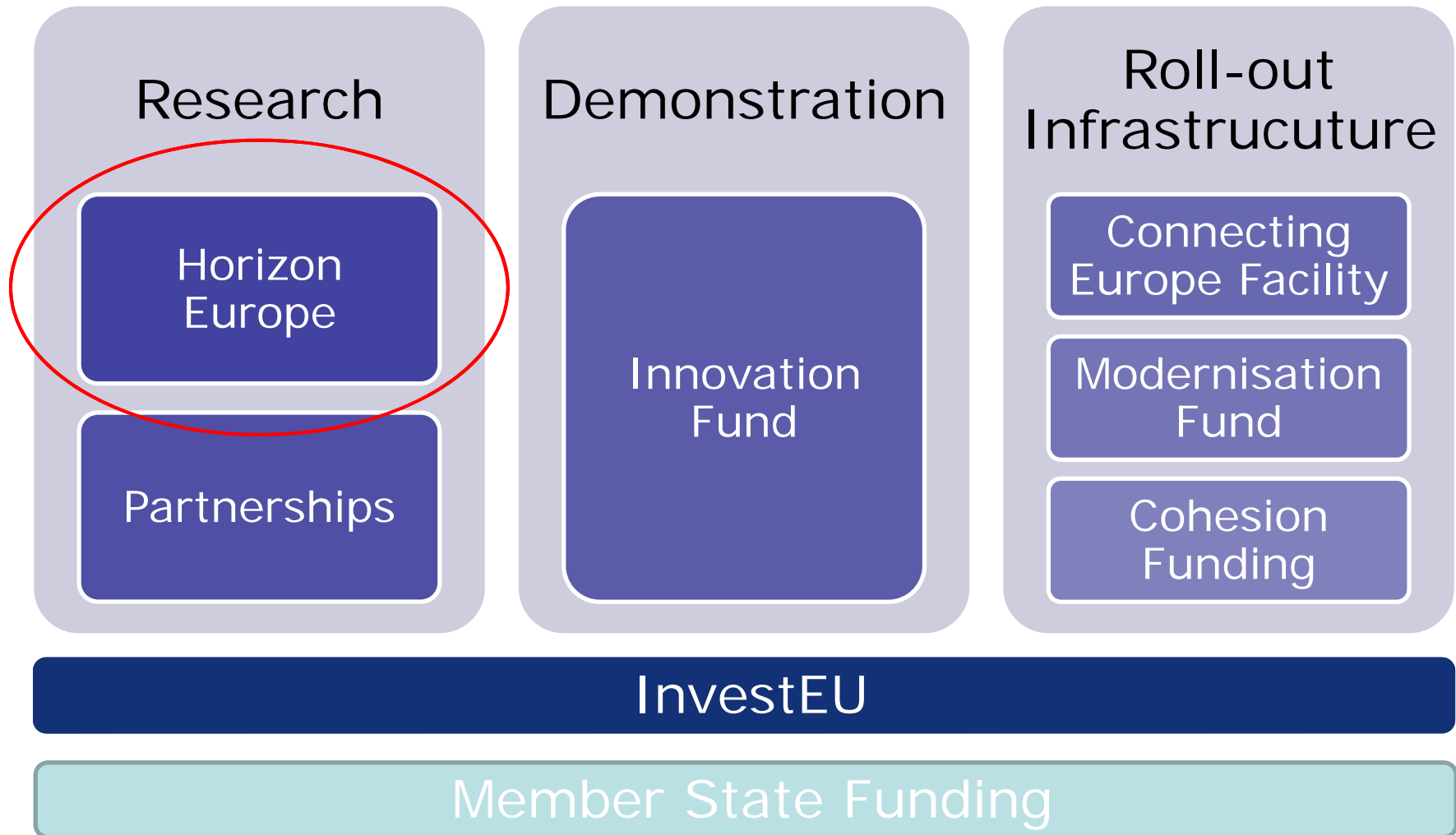
Chemical Innovation in the 21st century



- 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



Synergies – Innovation Fund





Horizon 2020: Status 2014-2017 Nanomaterials

Nanomaterials projects with participation by chemical industry

Year	Calls	Projects participated	Total
2014	NMP BIOTEC	13 1	14
2015	NMP	16	16
2016	NMBP FoF EEB	7 1 3	11
2017	NMBP SPIRE	7 1	8

(Source: CEFIC internal data)

Horizon 2020: Status 2014-2017

Advanced materials & Nanomaterials



Advanced materials & Nanomaterials projects with participation by chemical industry

Year	Calls	Projects participated	Total
2014	NMP BIOTEC FoF EEB SPIRE	20 6 1 4 1	32
2015	NMP FoF EEB SPIRE	22 2 2 1	27
2016	NMBP FoF EEB SPIRE	13 1 4 2	20
2017	NMBP BIOTEC SPIRE	13 4 2	19

(Source: CEFIC internal data)

Cefic Horizon Europe 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*)

Almost there – what's next?

Helicopter view on Horizon Europe- June 2019



- A strong pillar 2 – collaborative innovation
 - Several clusters of interest for the chemical industry

- Progressing on “missions”
 - Several “mission areas” of interest for the chemical industry

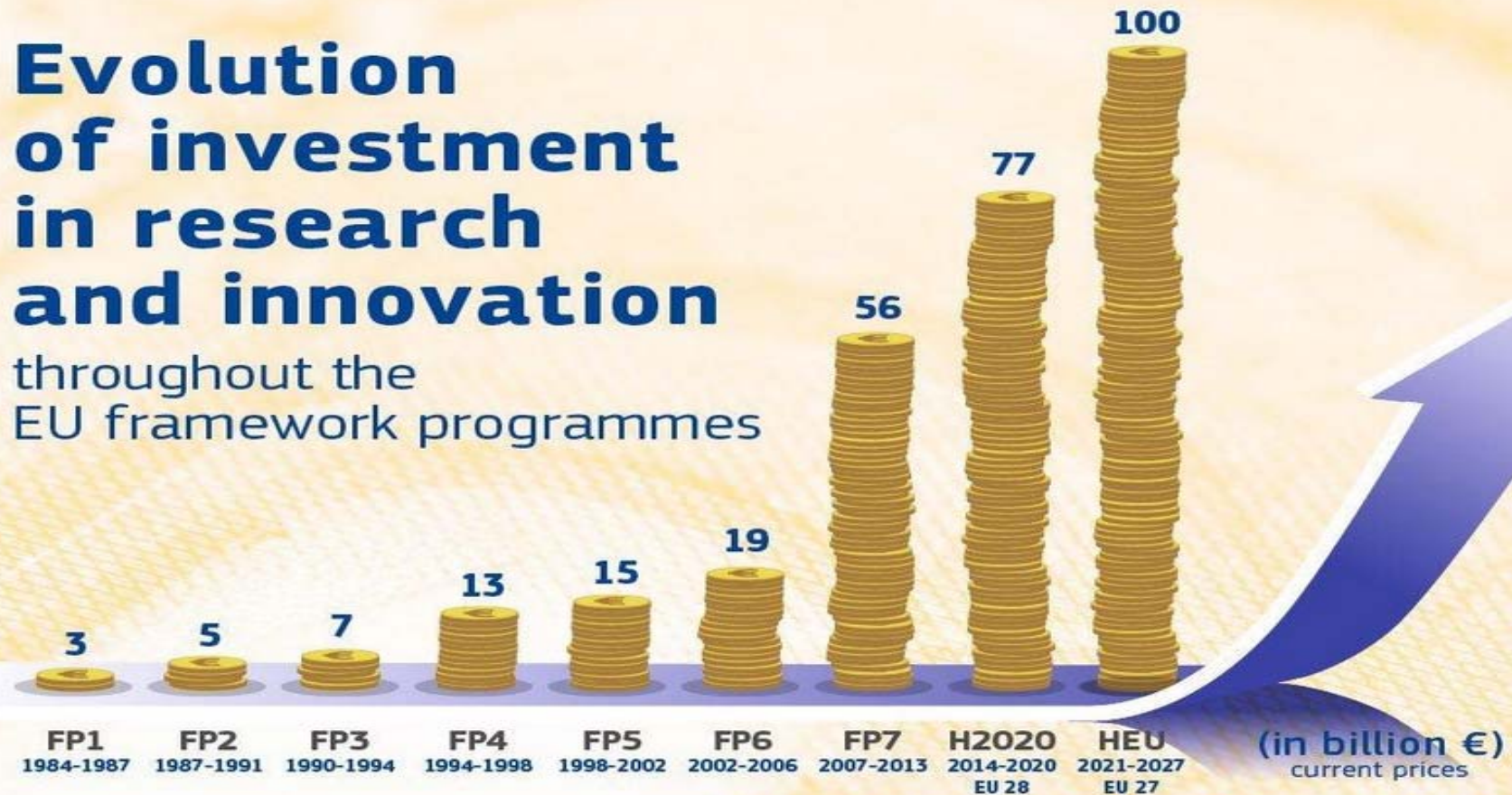
- Proposed partnerships
 - Several proposed partnership of direct relevance for the chemical industry



Horizon Europe

Evolution of investment in research and innovation

throughout the EU framework programmes



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European Commission



Cefic Mid-Century Strategy Molecule Managers

A Journey into the Future of Europe with the European
Chemical Industry

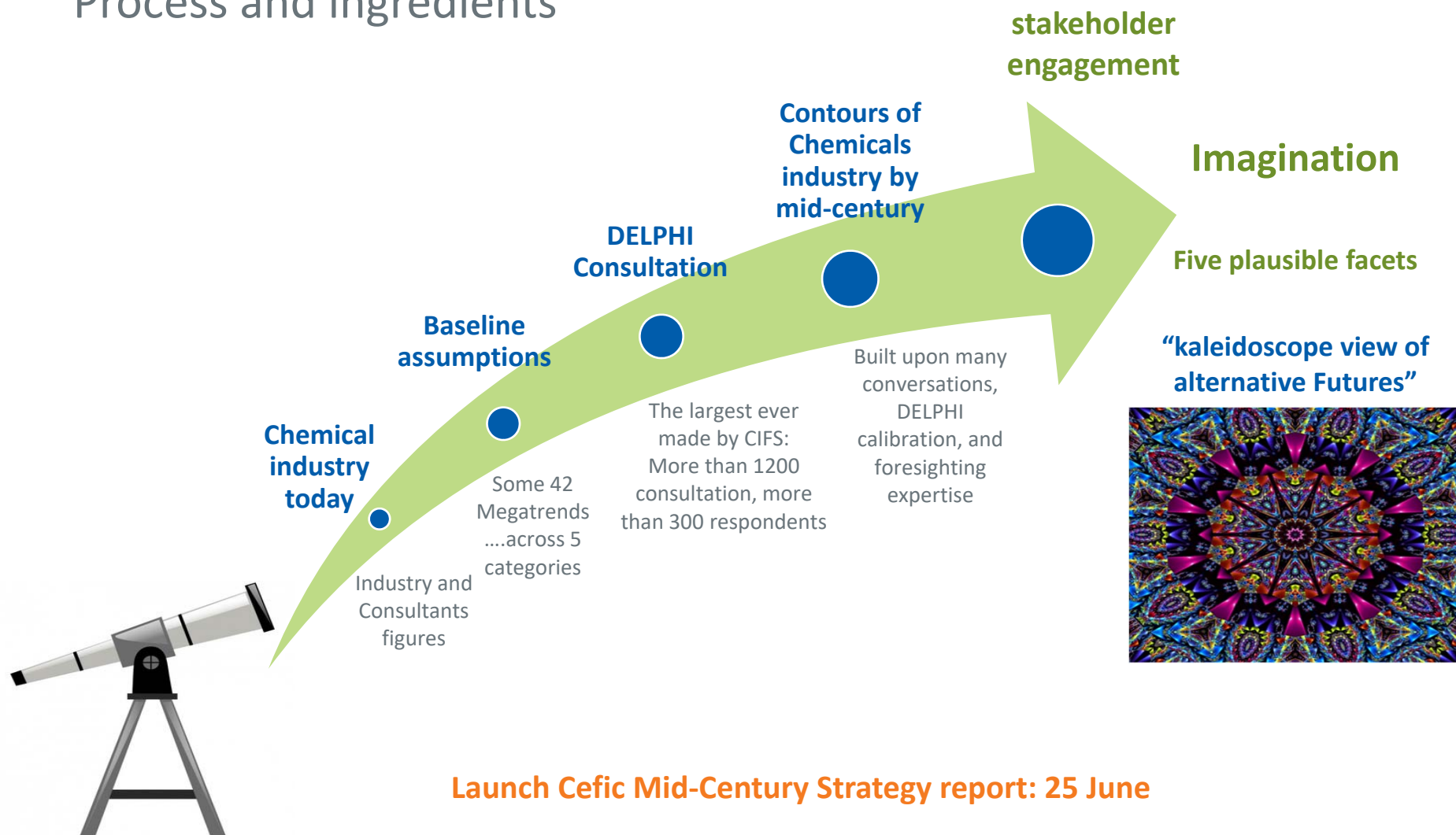
Information to Members-April 2019



Sketching out the future



Process and ingredients



Launch Cefic Mid-Century Strategy report: 25 June

Thank you

