

Innovation in Chemistry: The answer to the “Double Twin” Transition



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Executive Director Innovation, CEPIC



Introduction of Speaker

Experience:

- Since 2021: **Executive Director Innovation at Cefic**
- Since 2001 at **Evonik** in several (leadership) roles
(VP New Business Development, Head of Strategy at Corporate Innovation)

Education:

- 2008: **MBA** University of Chicago
- 2001: **Ph.D. Organic Chemistry**, University of Münster

Other:

- Since 2017 **Lecturer** on Strategic Innovation Management at the TU Munich School of Management
- Several **Board Seats** (VCW, SusChem, A.SPIRE)





Setting the scene



Cefic is the voice of the European chemical industry

- Based in Brussels **since 1972**, Cefic has grown to become one of the largest trade organisations in Europe and in the world
- Representing large, medium and small chemical companies in Europe – **499 bil. Euro sales** – **1.2 million jobs** – **14,8%** of world chemicals production
- **One of the most active networks** of the business community: companies + national federations + industry (sector) associations
- **Cefic is the voice of the European chemical industry** in the European Union and in the world. At the centre stage of political and regulatory developments, debates and negotiations, it is a unique organisation in its expertise, track record and influence.

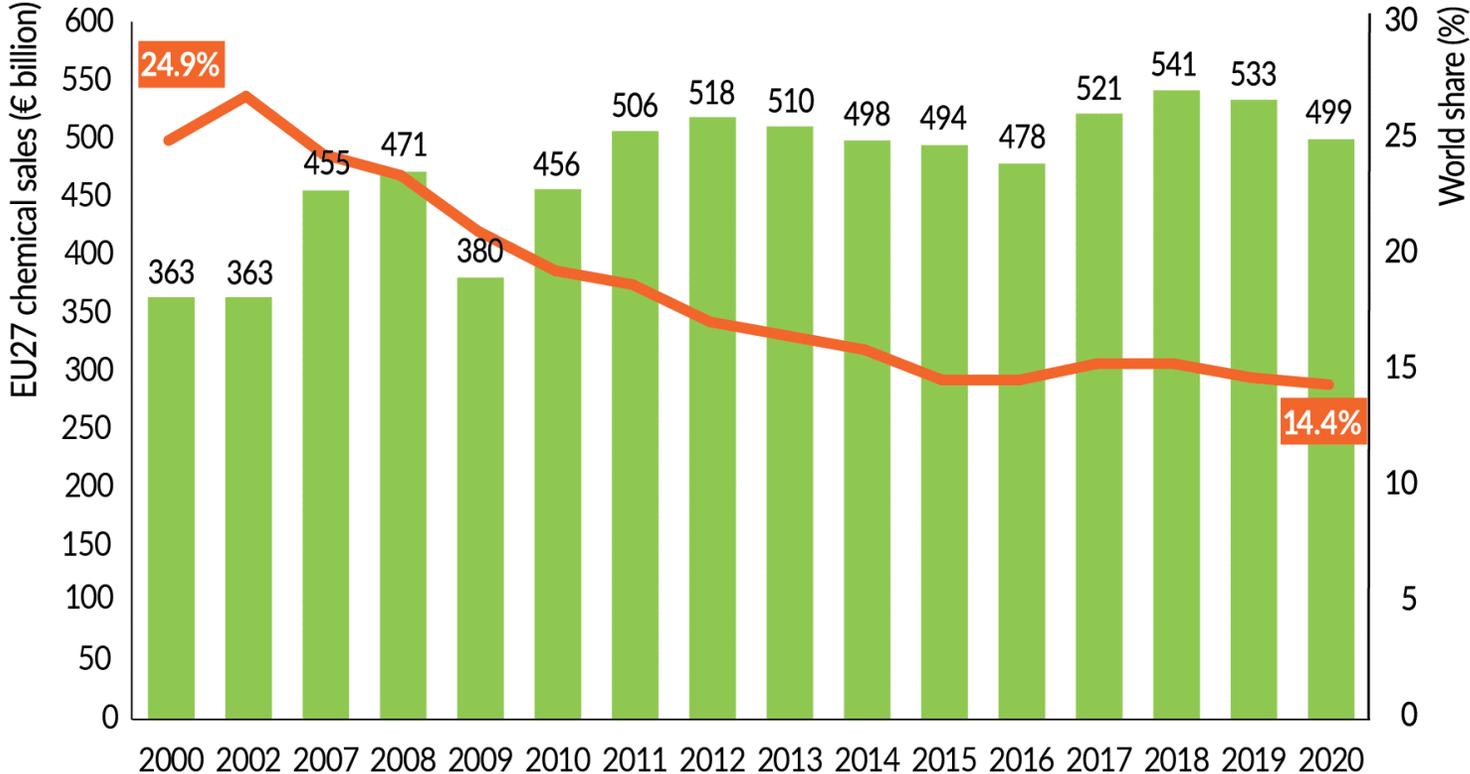
Europe is the second largest chemicals producer in the world

World chemical sales (2020, €3,471 billion)



World market share of EU27 chemical sales drops substantially

EU27 share of global chemicals market



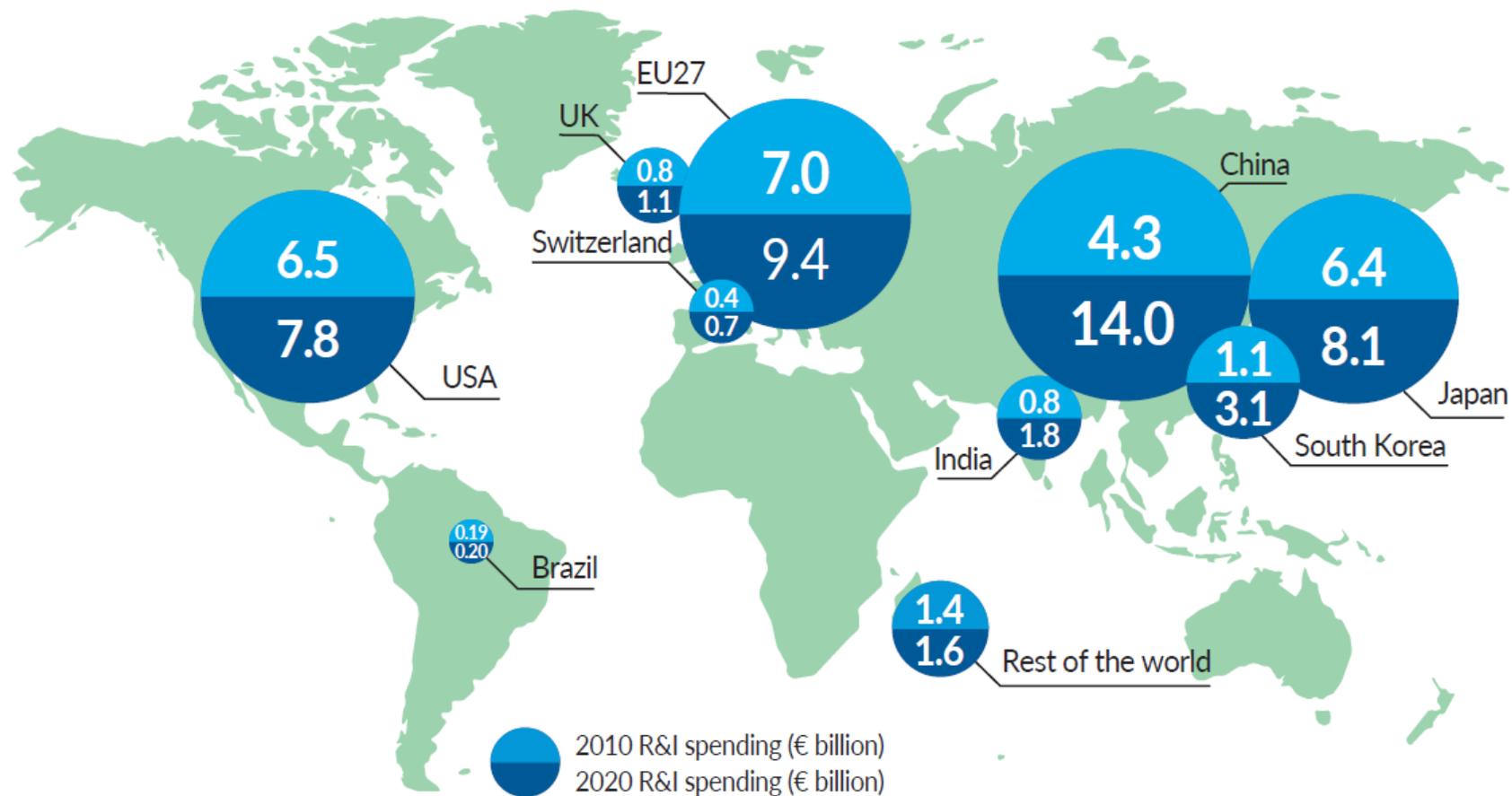
■ EU27 chemical sales (€ billion)
— World share (%)

Source: Cefic Chemdata International



EU27 is the second largest R&I investor in the world

R&I spending in the chemicals industry by region: 2020 vs 2010

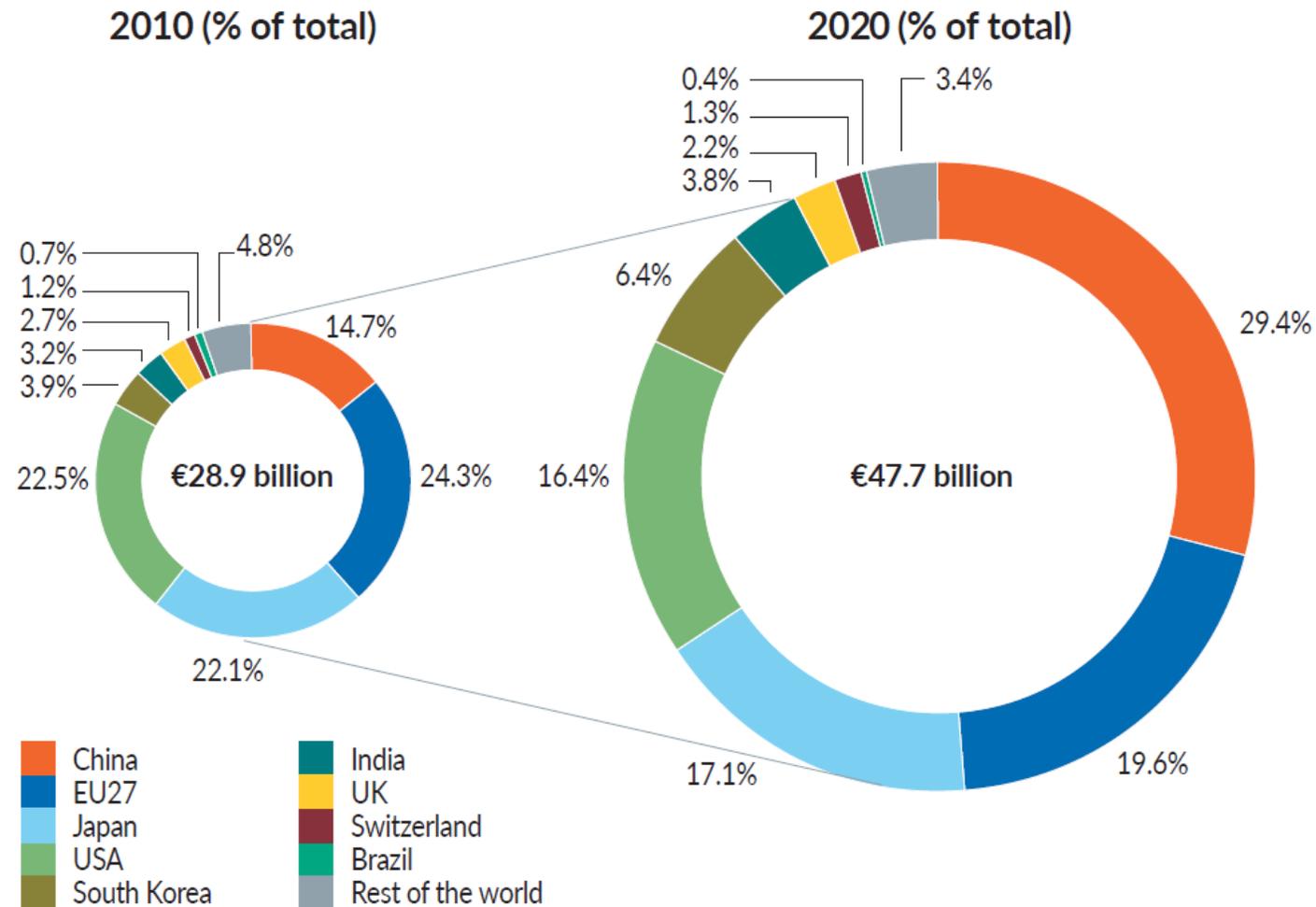


Source: OECD and Cefic Chemdata International



Decreasing share of chemicals R&I spending for the EU27, USA and Japan

Chemicals R&I spending by country, 2020 vs 2010

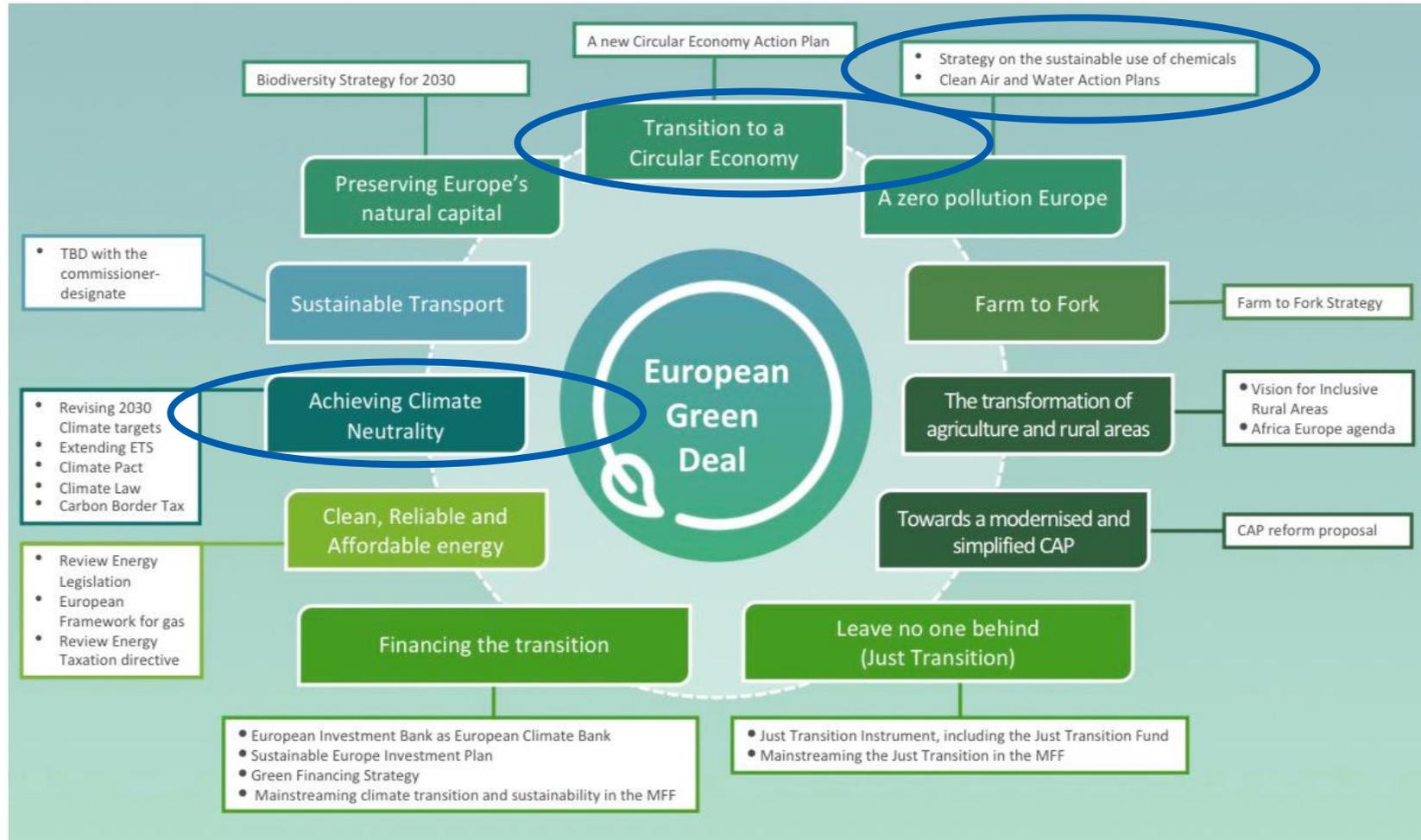




The context we work in



The “European Green Deal” published in 2019 by the Commission is the origin of many very relevant regulations for the Chemical Industry



The main topics in the area of Innovation are derived from the 4 major drivers of change in the chemical industry

Low CO₂ emission technologies

- Alternative energy (electrification) and materials for renewable energy
- Renewable and low carbon hydrogen (as feedstock and energy source)
- Alternative feedstocks (incl. renewable feedstocks)
- Carbon Capture and Storage (CCS)

Circularity

- Bio-based economy
- Chemical recycling
- Carbon Capture and Utilization (CCU)
- Recycling of waste including non carbon materials (e.g. for batteries)

CSS as trigger of Innovation

- Innovation as a solution to deliver on the objectives of the CSS while keeping the the chemical industry's competitive position including:
 - Safe and Sustainable-by-Design (SSbD)
 - Strategic Research and Innovation Agenda (SRIA) as part of the CSS

Digitalisation

- Application of digital technologies in the chemical industry incl.:
 - Artificial Intelligence
 - Blockchain
 - Modeling Technologies
 - Digitalisation of processes



The Chemicals Strategy for Sustainability was published in October 2020 as part of the European Green Deal

- Part of the EU's zero pollution ambition, which is a key commitment of the **European Green Deal**
- **Published on 14 October 2020**
- Contains **around 80 actions**, most of them legislative changes, to be launched between 2021 – 2024
- Involves 'targeted revision' of **REACH and CLP, the pillars of EU chemicals legislation**



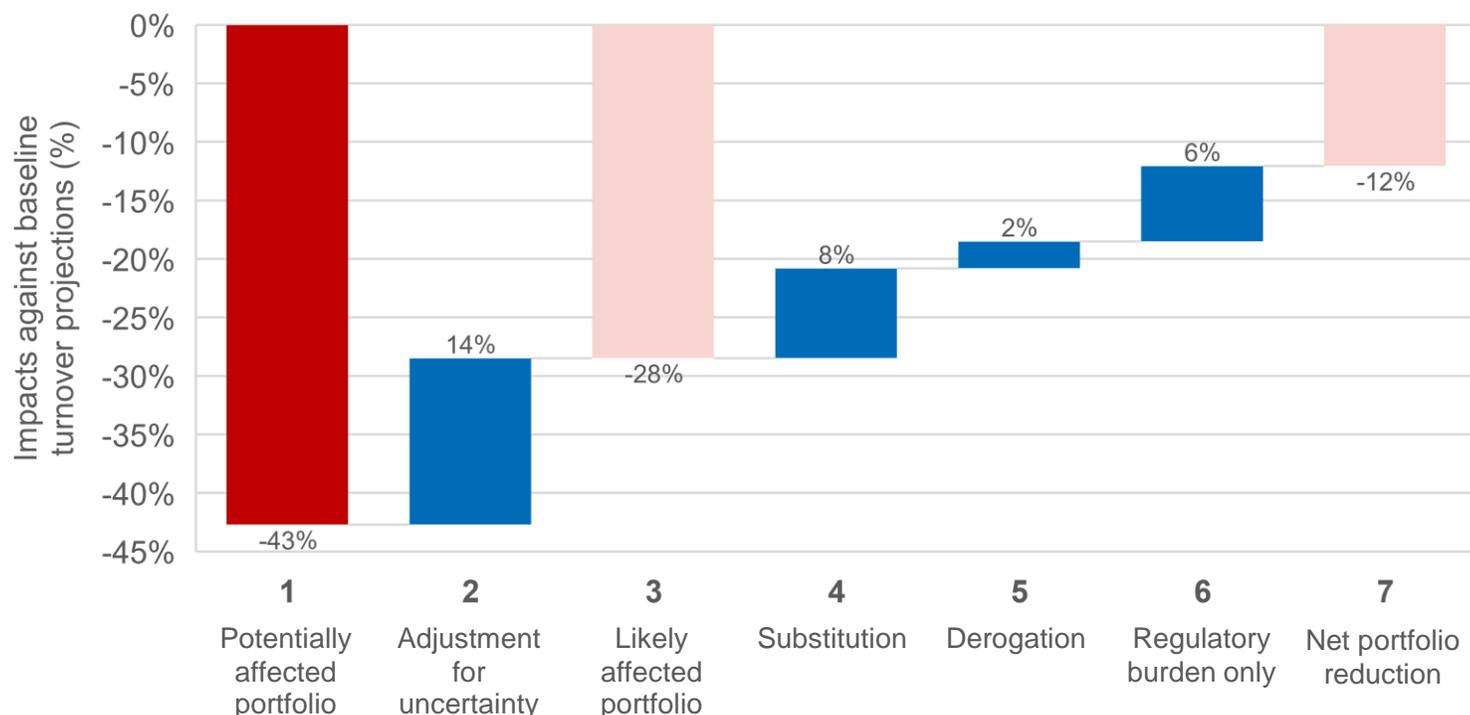
Cefic shares the goals : health and environmental protection and boost innovation



According to the 2020 Eurobarometer (<https://europa.eu/eurobarometers/surveys/detail/2257>) 84 % of European citizens are worried about the impact of hazardous chemicals present in everyday products on their healths, and 90 % are worried about their impact on the environment

First assessment of the Chemicals Strategy for Sustainability has a significant impact on the turnover development

Turnover - Size of the potentially affected product portfolio



Comments

- **Potentially affected** product portfolio: around **43% of sectoral turnover or over 12,000 substances**.
- **Likely affected portfolio** (after applying different weighting factors to account for uncertainty about definitions and criteria) by 2040: around **28% of the estimated sectoral turnover**.
- Changes to CLP and GRA, **when accounting for potential business responses**, could lead to a reduction in product portfolio and business (in turnover terms) of **around 12%**.



As part of the CSS the Strategic Research and Innovation Plan (SRIP) will be published in Q4 2022

Planned Chapter Headers of the SRIP

- 1) Sustainable production processes and technologies
- 2) **Safe and Sustainable-by-Design chemicals and materials**
- 3) Exposure
- 4) Hazard
- 5) Risk assessment
- 6) Decontamination and remediating pollution
- 7) FAIR data

Stakeholder Consultations

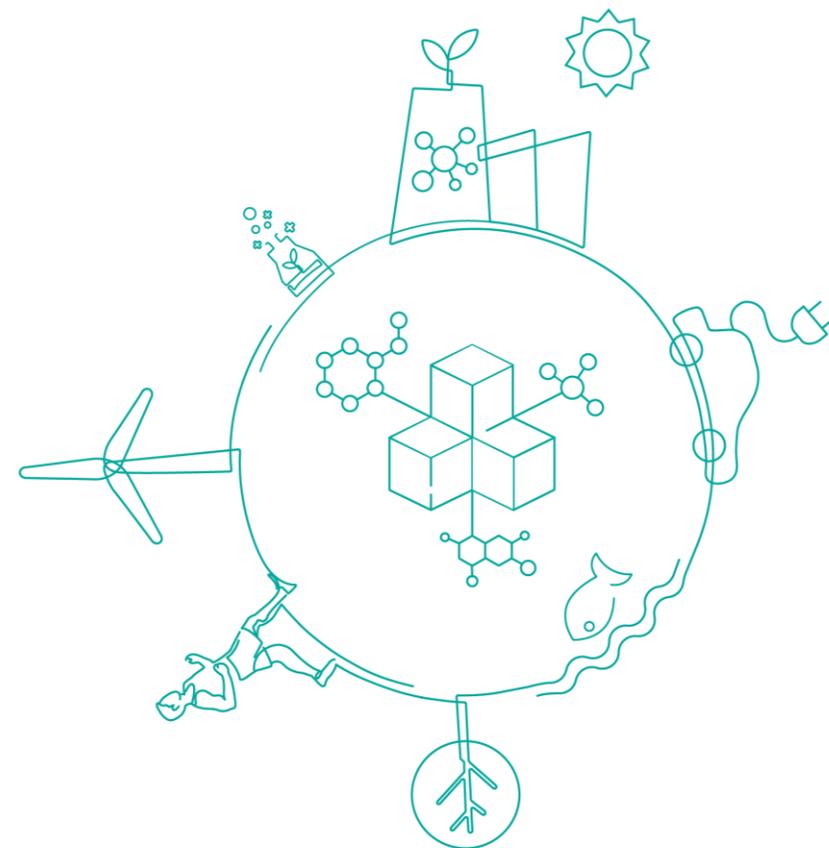
- First stakeholder consultation December-January
- Review by DG-RTD from Jan-April
- Second stakeholder consultation June
- Final publication Q4 2022

Aim of the SRIP is to identify the R&I gaps and thereby set joint future R&I priorities and guide decision makers on investments across EU, national and private funding programmes



The Safe and Sustainable-by-Design (SSbD) approach is a guiding principle for innovation

- Safe and Sustainable-by-Design approach represents a **key element of the EU Chemicals Strategy for Sustainability**
- It's a systemic approach to **integrate safety, circularity and functionality of products and processes throughout their lifecycle, from design to end of life**
- The integration of Safe and Sustainable-by-Design approach in research and innovation **will lead to safer, circular, and functional products and materials on the market and contribute to the European Green Deal.**



Key take-aways

- EU Institutions have a significant impact via **regulations and legislation on the future development of the Chemical Industry.**
- **Innovation is the key** to enable the industry to successfully go through the double twin transition and reach the many given targets, e.g. turn the CSS into a Growth Strategy for EU Chemicals.
- On behalf of their members, **Cefic is the voice of the European Chemical Industry in Brussels.** There are many Issue Teams and Network of Experts to engage with other experts to support Innovation in our industry.



Thank you!

Daniel Witthaut

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&
Accelerating **chemical innovations** that are safe and sustainable by design?

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