



#InvestEUresearch

Environment and health research funded by the EU - Now and the future

Dr Tuomo Karjalainen
Senior Expert - Environment and Health
European Commission, DG Research & Innovation
People Directorate, Healthy Lives unit
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Research and
Innovation

- ❑ **Environment and health (E&H) research and research drivers in the EU**
- ❑ **Looking into the future**

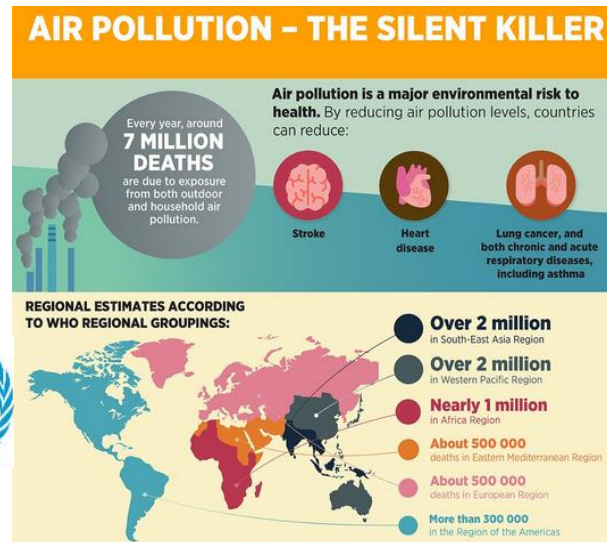
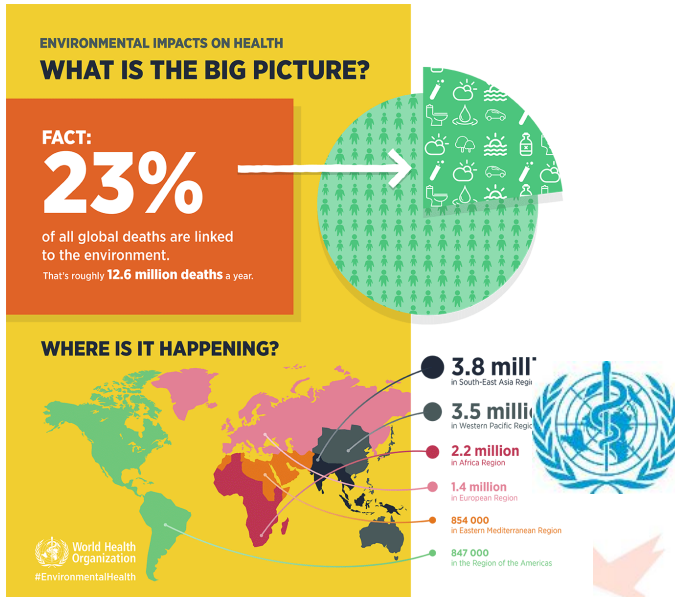


Driver 1: Scope and cost of the E&H problems

- ¼ of all deaths and disease burden in the world
- At least 13 million deaths

90% of people breathe polluted air!

120 000 work-related cancer cases occur each year as a result of exposure to carcinogens at work in the EU



Source:
ROADMAP
ON CARCINOGENS

WHO data

Driver 2: WHO/Global policy processes



European
Environment and
Health process
(since 1989)

54 countries in the WHO
European Region

Declaration of the Sixth
Ministerial Conference
on
Environment and
Health 2017



Ostrava, CZ

'BIG 5' priorities identified at Ostrava:



Water quality &
sanitation



Waste



Chemical risks



Air quality



Climate change



European
Commission

Driver 3: European policy processes

6th Environment Action Programme (2002-2012):
'Environment and health' one of four priorities



European E&H Strategy and Action Plan (2003-2010)

Large number of projects funded through EU Research Framework Programmes on, e.g., climate change, exposome, chemical risks, urbanisation



7th Environment Action Programme (2013-2020):
'Safeguarding the Union's citizens from environment-related pressures and risks to health and well-being' one of three thematic objectives

Research/policy actions proposed:
Chemical mixtures, endocrine disruptors, human biomonitoring, urbanisation

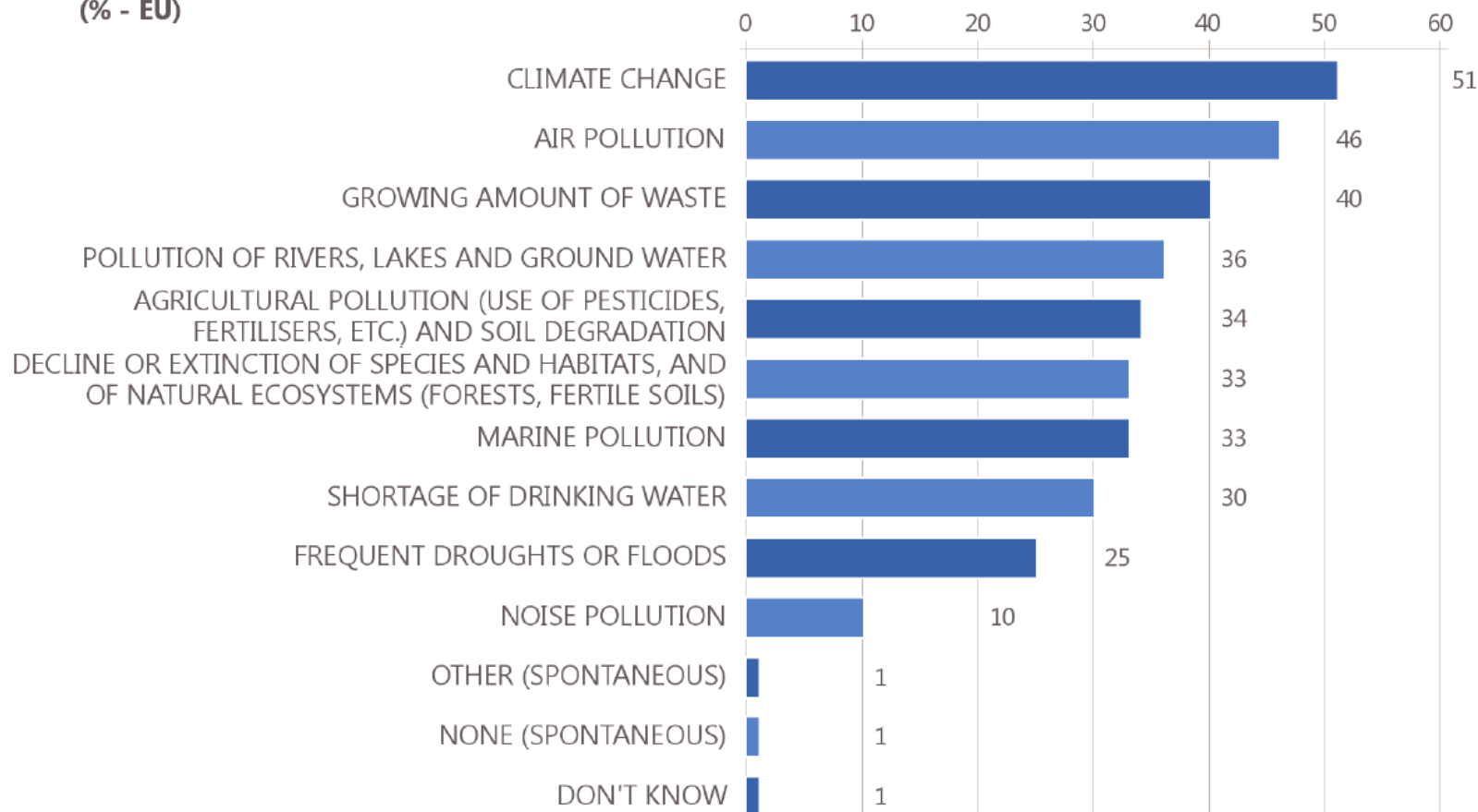
- ❖ EU Strategic Framework on Health and Safety at Work 2014-2020
- ❖ Thematic Strategy on Air Pollution
- ❖ Strategy on Plastics in a Circular Economy
- ❖ General Food Law
- ❖ European Union Framework on Endocrine Disruptors
- ❖ European Water Framework Directive
- ❖ The Combination Effects of Chemicals, Chemical Mixtures
- ❖ REACH Regulation
- ❖ Regulation on Classification, Labelling and Packaging of Substances and Mixtures
- ❖ Directive on the Protection of Animals Used for Scientific Purposes
- ❖ Rotterdam Convention on the International Trade in Hazardous Chemicals
- ❖ Waste Framework Directive
- ❖ The Strategic Approach to Pharmaceuticals in the Environment
- ❖ Regulation on Contaminants in Food
- ❖ Placing of Plant Protection Products on the Market
- ❖ etc

8th EAP?

Driver 4: Public concerns

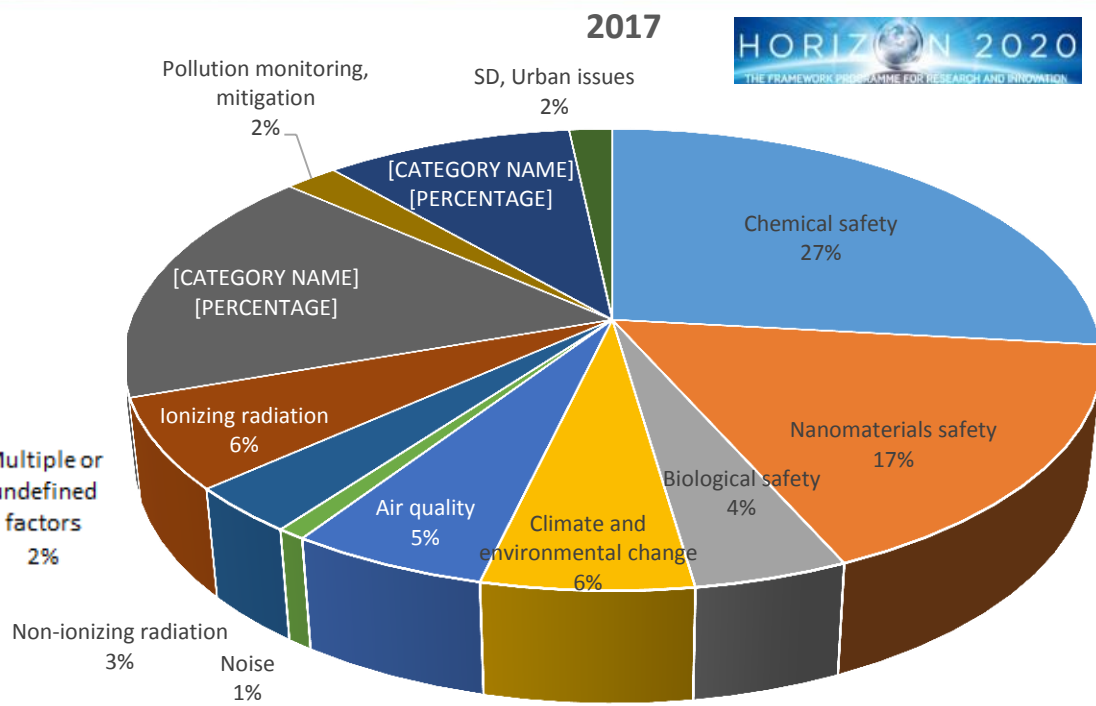
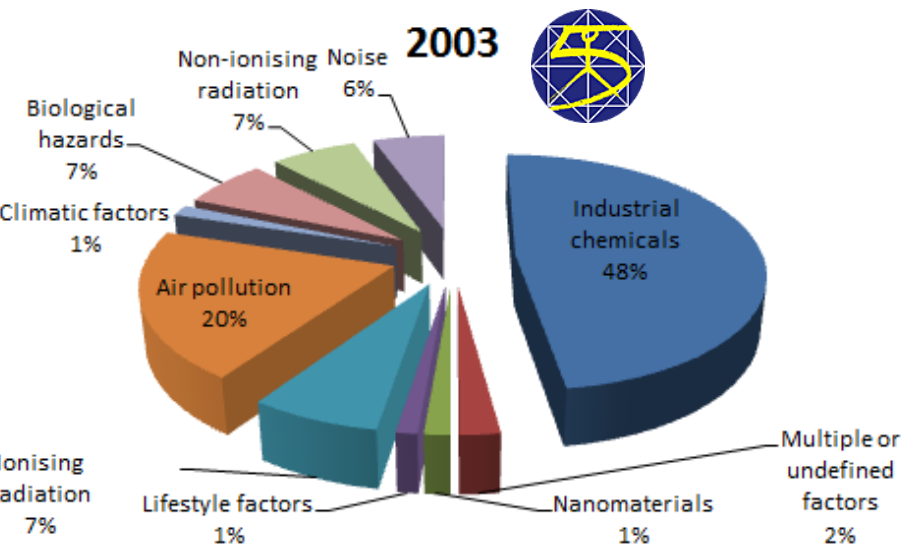
Eurobarometer 468 (November 2017: *Attitudes of European Citizens towards the Environment*): Europeans continue to express high levels of concern about the environment and to see it as an issue that affects them personally

QD2 From the following list, please pick the four environmental issues which you consider the most important.
(MAX. 4 ANSWERS)
(% - EU)



Base: all respondents (n=27,881)

Driver 5: Science



- Ecotoxicology**
- EMF**
- Animal models**
- Epidemiology**
- One exposure – one disease**
- Human biomonitoring**
- Biomarker**
- Noise**
- Ambient air pollution**
- Endocrine disruptors**
- Chemical mixtures**

- Omics**
- Artificial intelligence**
- Sensors**
- Data**
- Machine learning**
- Epidemiology**
- Exposome**
- Climate change**
- Nanoparticles**
- Endocrine disruptors**
- Human biomonitoring**
- Life-course**
- Lifestyles and behaviours**
- Chemical mixtures**

E&H research and policy at the EU level: fragmentation

EU Environment and Health Policies, Programmes and Legislation

DG Health and Food Safety (SANTE)
Pesticides, endocrine disruptors, food contaminants, public health

DG Environment (ENV)
Chemicals (REACH), air/water quality, noise, waste, 7th Environment Action Programme, Life+

DG Employment, Social Affairs and Inclusion (EMPL)
Occupational health and safety

DG Internal Market, Industry, Entrepreneurship and SMEs (GROW)
Product safety, cosmetics, REACH

DG Research and Innovation (RTD)
Research and Innovation Framework Programmes

DG Joint Research Centre (JRC)
Scientific and technical support

Advisory Bodies

European Environment Agency



Information on the state of the environment



Implementation of EU chemical legislations



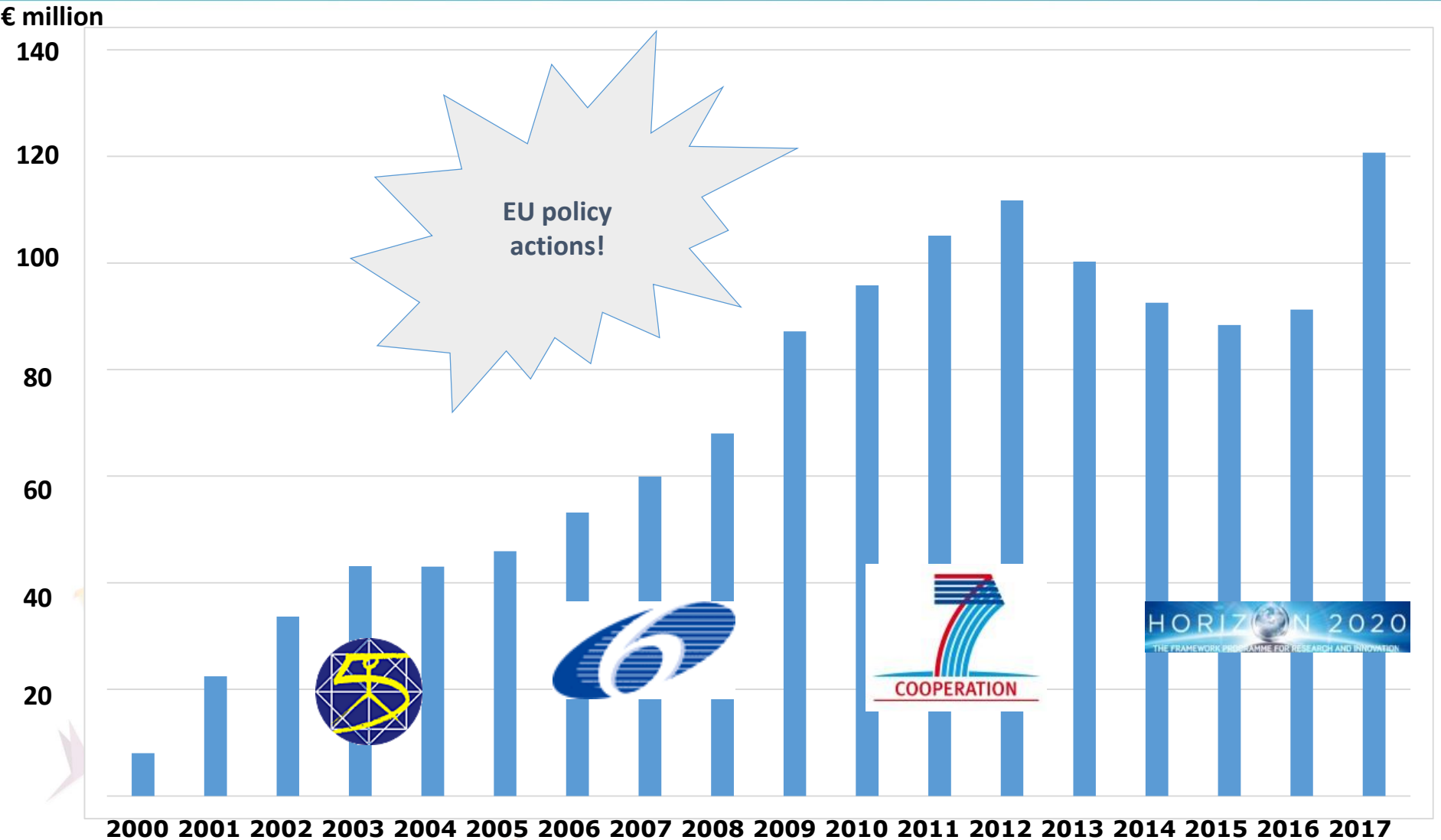
Advice and communication on risks associated with the food chain



European Agency for Safety and Health at Work

Advice on occupational health and safety issues

From Horizon 2020 to Horizon Europe - Spending on Environment and Health Research by EU Research Frameworks



Over 400 multi-national collaborative projects funded; received over 1.2 billion euros from FP5/FP6/FP7/H2020 (1998-2017)

Examples of research projects – chemical safety -1



European Human Biomonitoring Initiative (2017-2021)
28 countries and EEA – over 100 institutions!
€50 million from the EU

<https://www.hbm4eu.eu>

See video on YouTube!

Priority substances investigated (sample)



Polyfluorinated compounds
*Memory and learning problems,
reduced fertility, cancer*



Flame retardants
*Memory and learning
problems, reduced fertility,
cancer?*



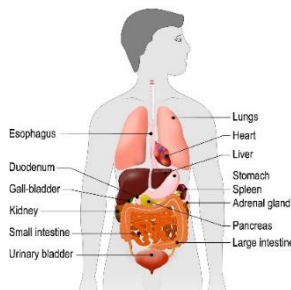
Phthalates
*Reproductive and developmental
effects; possible endocrine
disrupters*



Mycotoxins
Poisoning



Pesticides
*Acute toxicity,
neurodevelopmental effects etc*



Mercury
*Neurodevelopmental disorders,
reproductive effects*

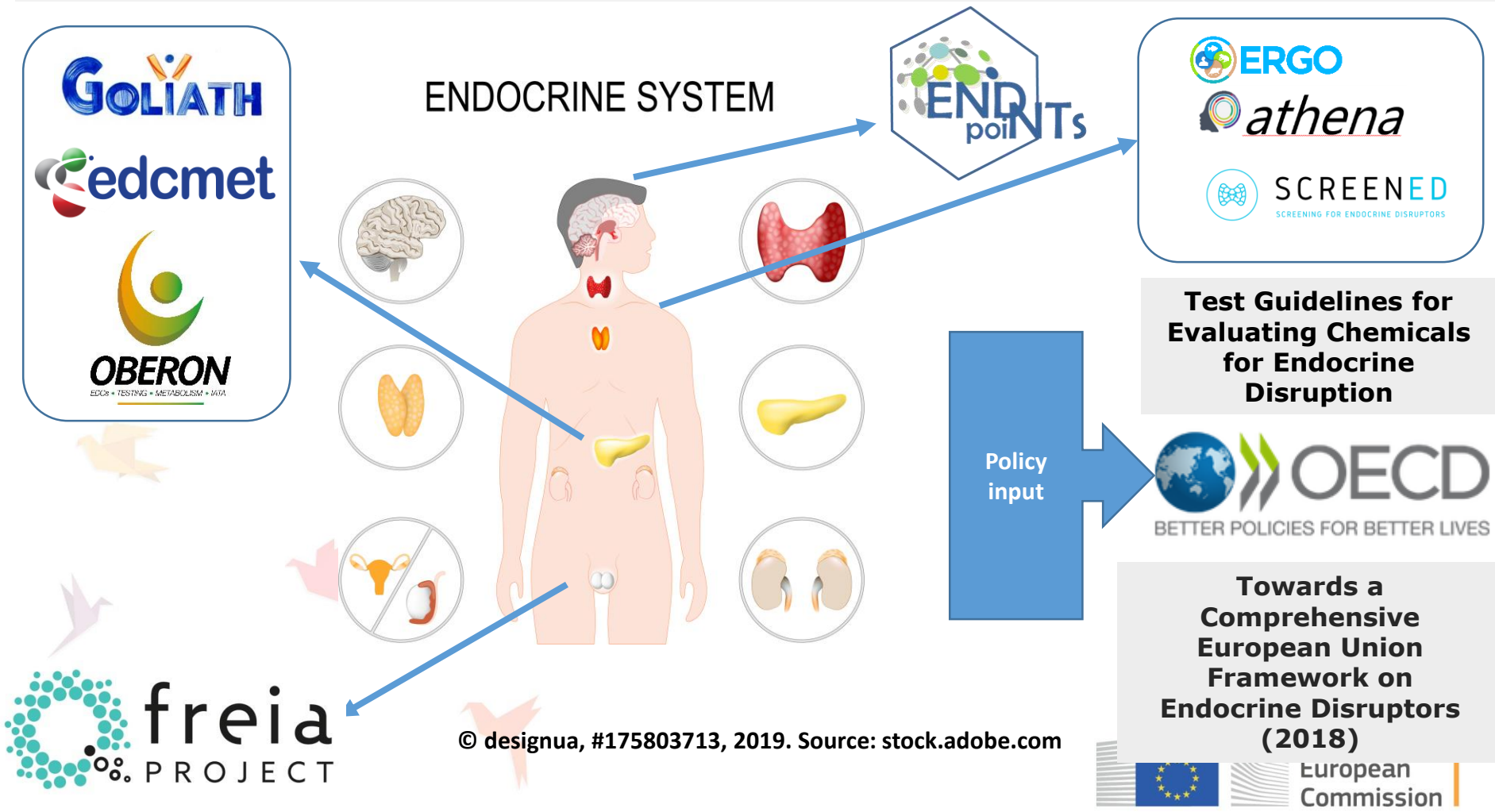
Support for REACH + other chemicals regulations



Examples of research projects – chemical safety - 2



EURION
eurion-cluster.eu
European Cluster to Improve Identification of Endocrine Disruptors (2019-2023)
8 projects, 19 countries, >70 research groups, €50 million from the EU



Last calls for proposals under H2020 - examples



Chemical safety



Urbanisation

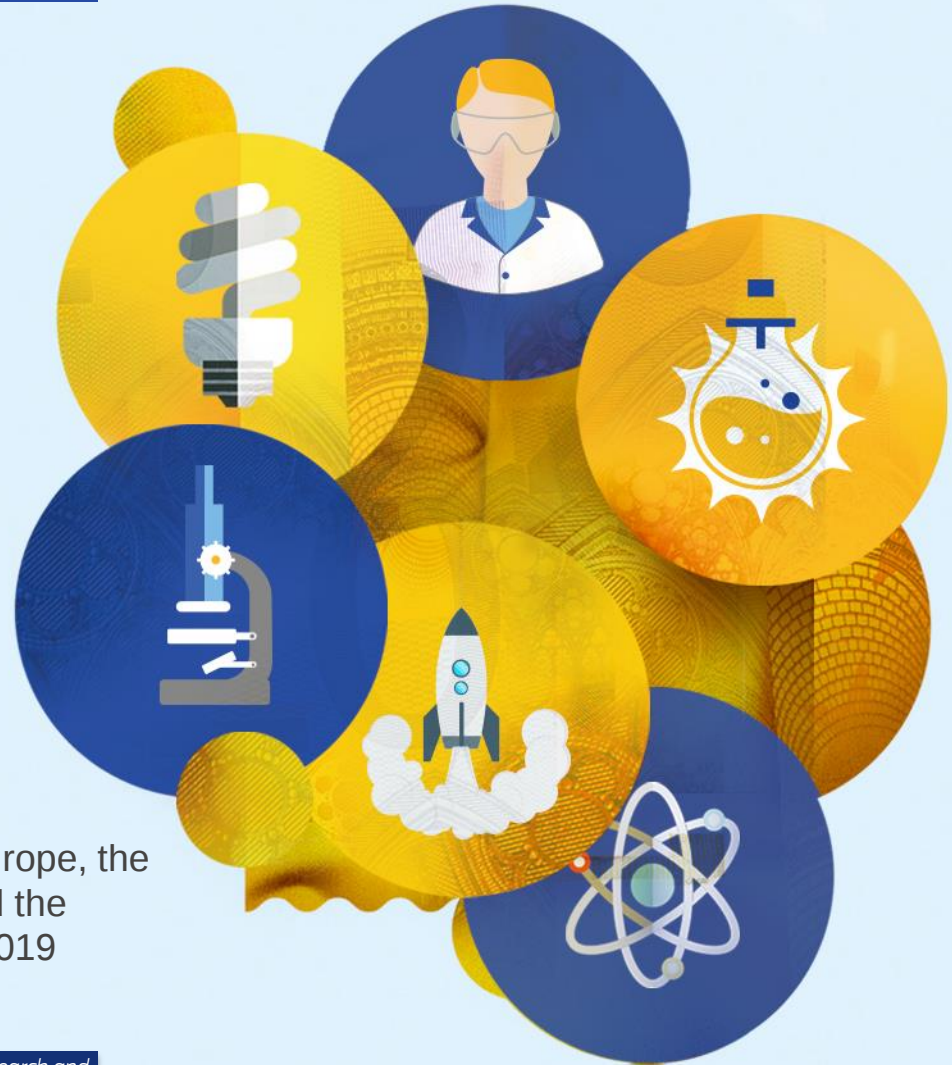
- **SC1-BHC-36-2020: *Micro- and nano-plastics in our environment: Understanding exposures and impacts on human health***
- **SC1-BHC-11-2020: *Advancing the safety assessment of chemicals without the use of animal testing***
- **H2020-SFS-2018-2020 *Integrated health approaches and alternatives to pesticide use***
- **SC1-BHC-29-2020: *Innovative actions for improving urban health and wellbeing - addressing environment, climate and socioeconomic factors***

Commission proposal for **Horizon Europe**

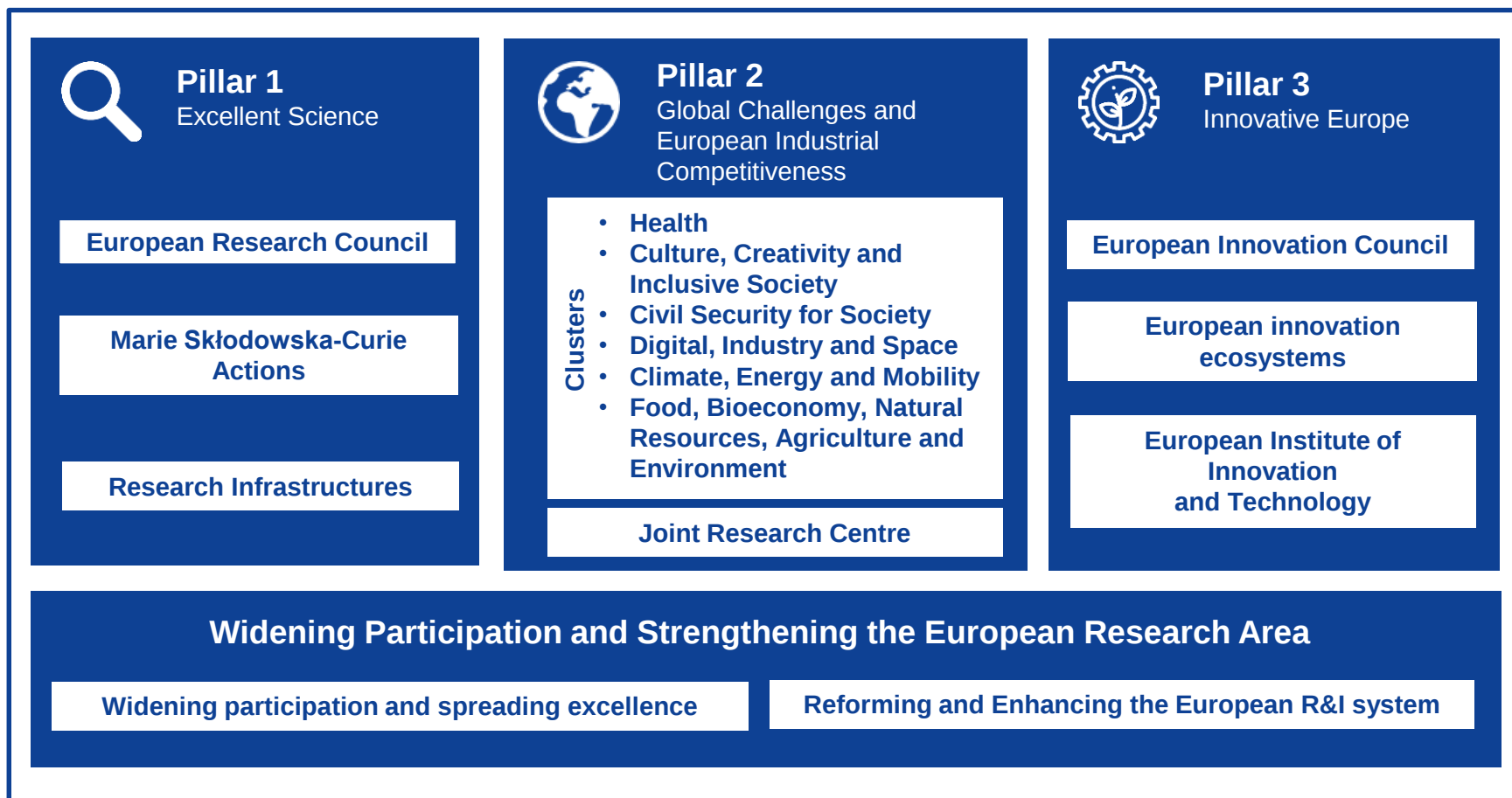
THE NEXT EU RESEARCH & INNOVATION
PROGRAMME (2021 – 2027)

#HorizonEU

Based on the Commission Proposal for Horizon Europe, the common understanding between co-legislators and the Partial General Approach, both approved in April 2019

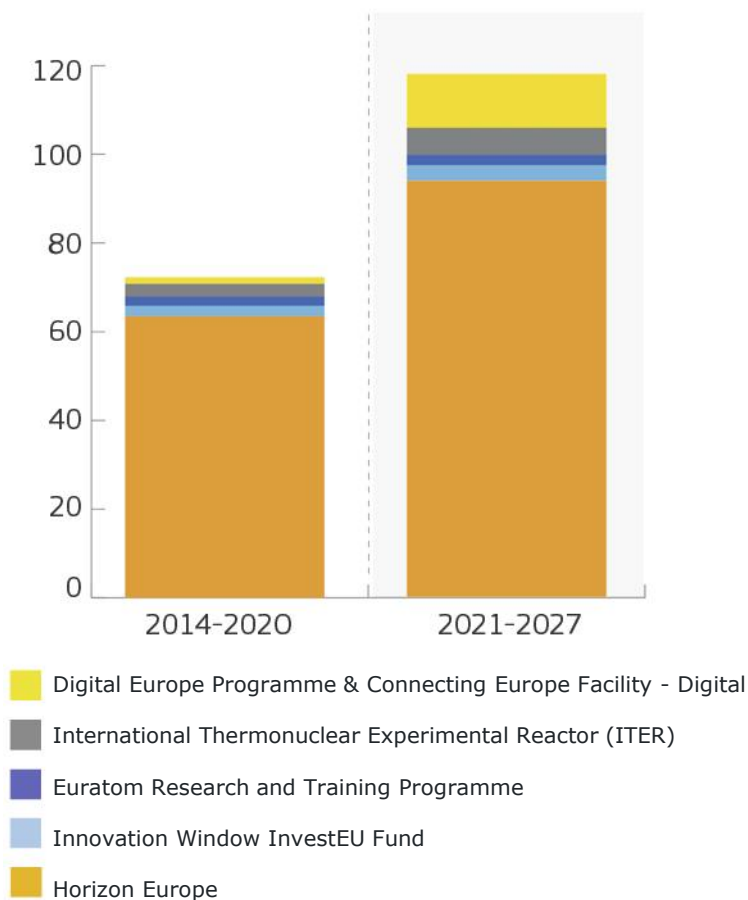


Horizon Europe: structure



The next long-term EU budget (2021-2027):

Investing in the future



Building on the success of the EU's past flagship research and innovation programmes, the Commission proposes to **increase investment in research-innovation and digital** by allocating **€ 114.2 billion** for the future Multiannual Financial Framework.

Source: European Commission
Note: Compared to the Multiannual Financial Framework 2014-2020 at EU-27 (estimate)

Lessons Learned

from Horizon 2020 Interim Evaluation

Key Novelties

in Horizon Europe



Support breakthrough innovation



European Innovation Council



Create more impact through mission-orientation and citizens' involvement



R&I Missions



Strengthen international cooperation



Extended association possibilities



Reinforce openness



Open science policy



Rationalise the funding landscape



New approach to Partnerships



Encourage participation



Spreading Excellence

**Adaptation to climate
change, including societal
transformation**



**Mission
areas**

**Healthy
oceans,
seas,
coastal
and inland
waters**



Cancer



**Climate-neutral
and smart cities**



**Soil health
and food**





New approach to European Partnerships

New generation of objective-driven and more ambitious partnerships in support of agreed EU policy objectives

Key features

- Simple architecture and toolbox
- Coherent life-cycle approach
- Strategic orientation

Co-programmed

Based on Memoranda of Understanding / contractual arrangements; implemented independently by the partners and by Horizon Europe

Co-funded

Based on a joint programme agreed and implemented by partners; commitment of partners for financial and in-kind contributions

Institutionalised

Based on long-term dimension and need for high integration; partnerships based on Articles 185 / 187 of TFEU and the EIT-Regulation supported by Horizon Europe



Chemical Risk Assessment

Strategic plan gives direction to the work programme



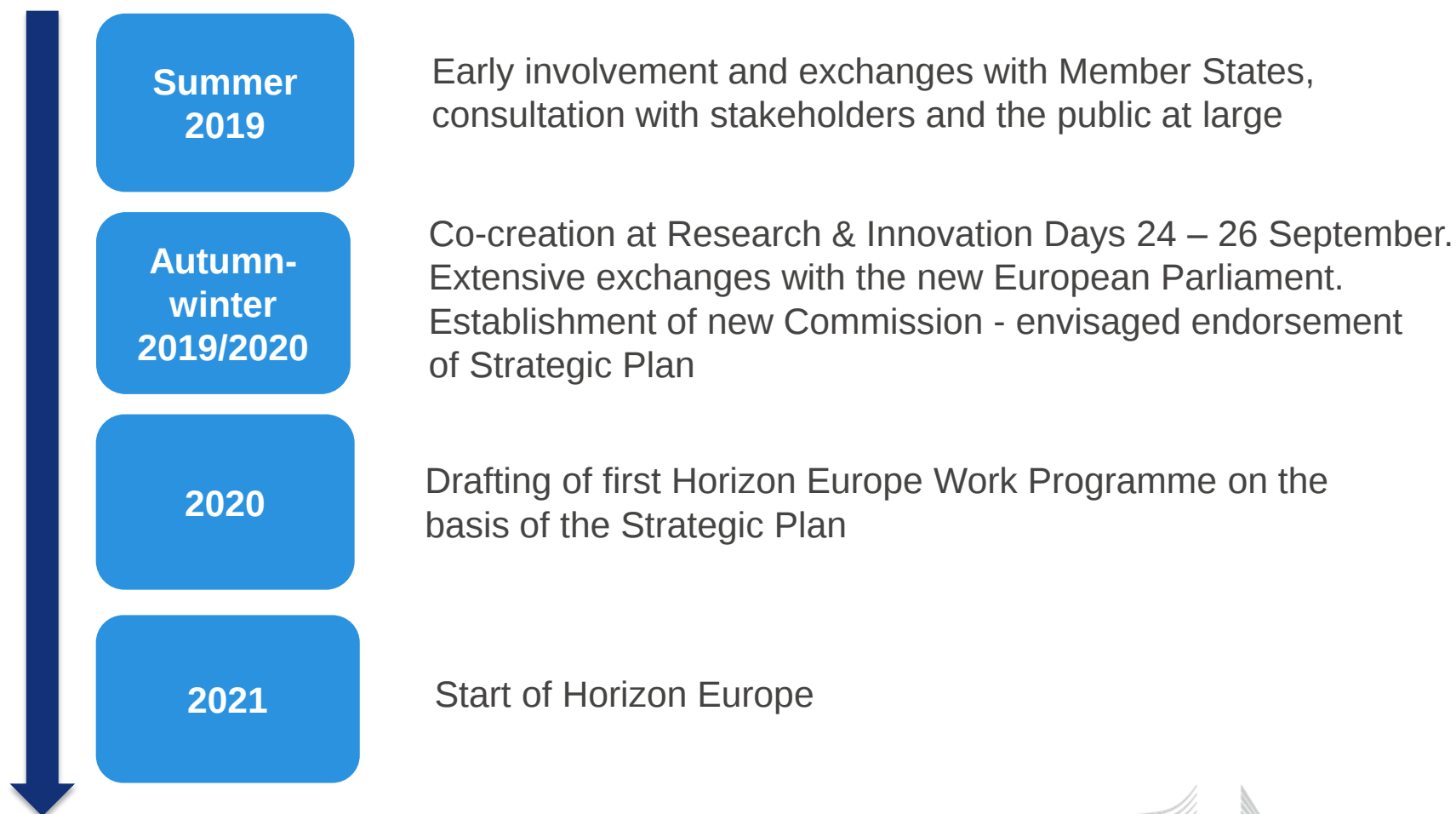
Main Features

Early involvement and extensive exchanges with Member States

Extensive exchanges with the European Parliament

Consultations with stakeholders and public at large

Steps towards the first Horizon Europe work programme

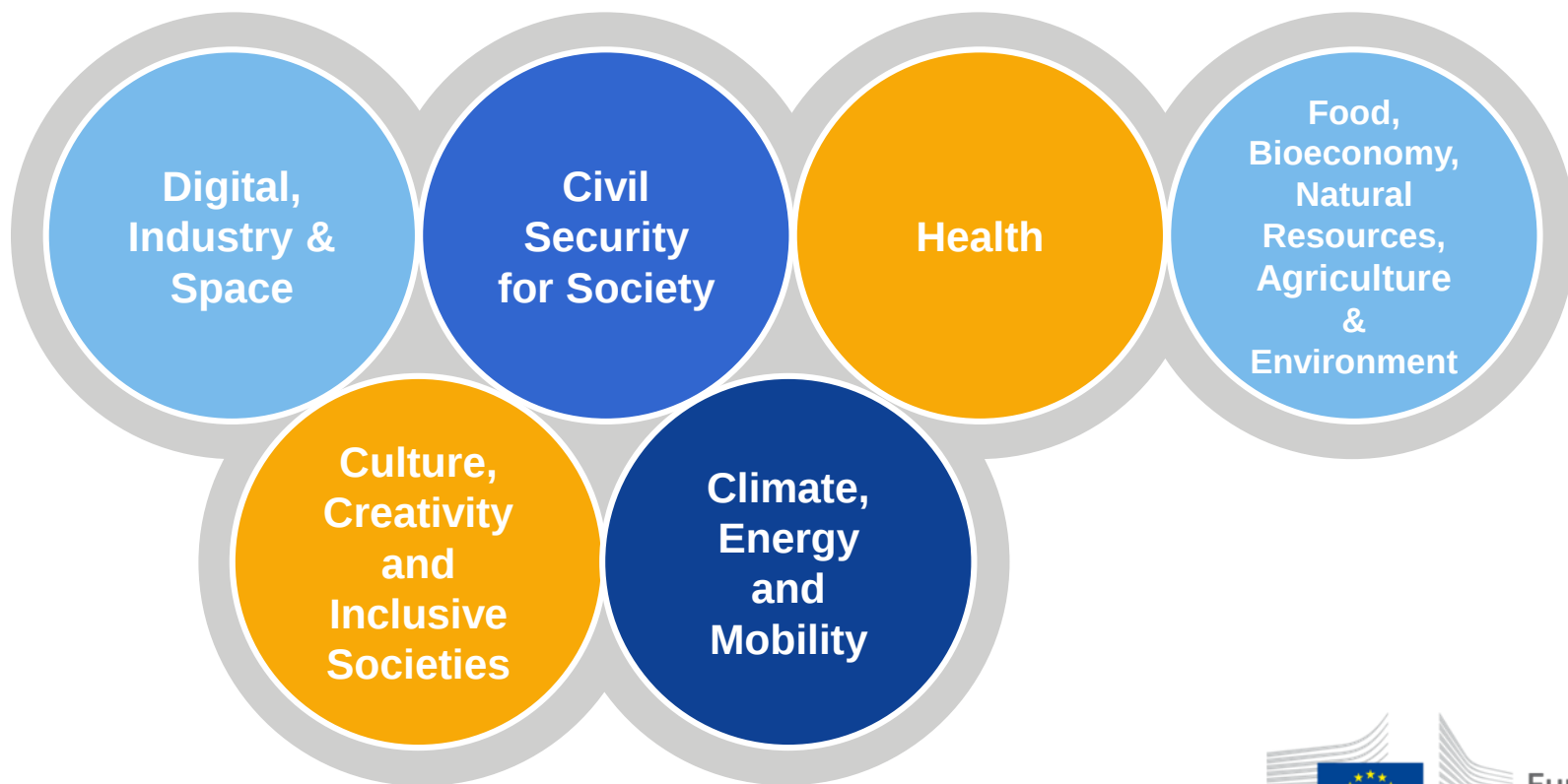


Pillar 2 - Clusters

Global Challenges & European Industrial

Competitiveness: boosting key technologies and solutions underpinning EU policies & Sustainable Development Goals

Commission proposal for budget: € 52.7 billion

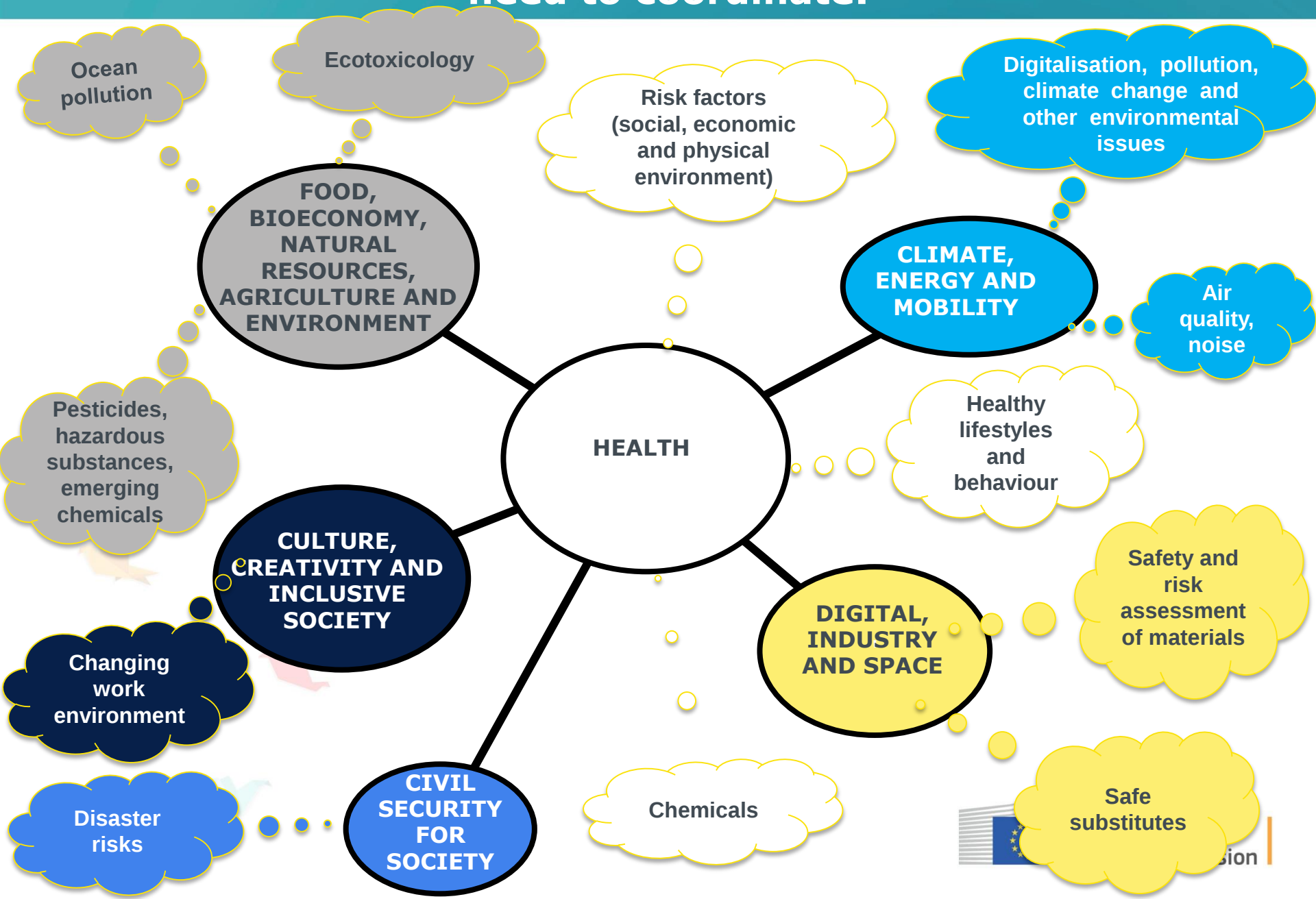


Clusters in 'Global Challenges and Industrial Competitiveness'

Clusters	Areas of intervention	
Health	• Health throughout the life course • Non-communicable and rare diseases • Tools, technologies and digital solutions for health and care, including personalised medicine	• Environmental and social health determinants • Infectious diseases, including poverty-related and neglected disease • Health care systems
Culture, creativity and inclusive society	• Democracy and Governance • Social and economic transformations	• Culture, cultural heritage and creativity
Civil security for society	• Disaster-resilient societies • Protection and Security	• Cybersecurity
Digital, Industry and space	• Manufacturing technologies • Advanced materials • Next generation internet • Circular industries • Space, including Earth Observation • Emerging enabling technologies	• Key digital technologies, including quantum technologies • Artificial Intelligence and robotics • Advanced computing and Big Data • Low-carbon and clean industry • Emerging enabling technologies
Climate, Energy and Mobility	• Climate science and solutions • Energy systems and grids • Communities and cities • Industrial competitiveness in transport • Smart mobility	• Energy supply • Buildings and industrial facilities in energy transition • Clean, safe and accessible transport and mobility • Energy storage
Food, bioeconomy, natural resources, agriculture and environment	• Environmental observation • Agriculture, forestry and rural areas • Circular systems • Food systems	• Biodiversity and natural resources • Seas, oceans and inland waters • Bio-based innovation systems in the EU Bioeconomy

E&H is everywhere!

Horizon Europe clusters: E&H issues are everywhere – need to coordinate!



Events



Session Healthy Environments, Healthy People



Europe That Protects: Safeguarding Our Planet, Safeguarding Our Health 3-4 December 2019, Helsinki





Thank you for your attention!