NATIONAL CONTACT POINT (NCP)
DIGITAL AND INDUSTRIAL TECHNOLOGIES

NKS Digitale und Industrielle Technologien
Nationale Kontaktstelle zum EU-Programm Horizont Europa

Digital and industrial technologies in Horizon Europe – Materials-Related Topics in 2022

Factsheet on Digital and Industrial Technologies in Horizon Europe

In this factsheet, following basic information on Horizon Europe, an overview of materials-related topics with submission deadlines in 2022 for the calls of the Custer 4 “Digital, Industry and Space” work programme from Pillar II “Global challenges and European Industrial Competitivness” is given.

Horizon Europe: Structure and key figures

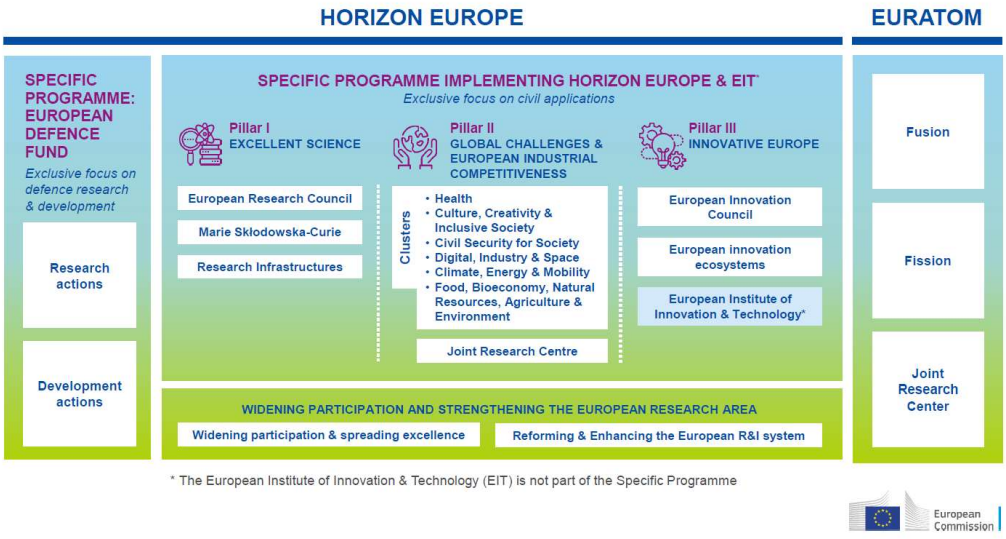
Horizon Europe is the European Union’s latest, and the world’s largest reseach and innovation programme.

Its general objective is to deliver scientific, technological, economic and societal impacts for a reseach and innovation-based society and a competitive and sustainable economy. Horizon Europe will help to implement the political guidelines of the European Commission; its work programmes will play a crucial role in society’s and industries’ digital[1] and green[2] transformation.

Horizon Europe consists of three pillars (“Excellent Science”, “Global Challenges and “European Industrial Competitiveness” and “Innovative Europe”) and the cross-cutting area “Widening Participation and strengthening the European Reseach Area”.

Excellent Science

The pillar ”Excellent Science” contains many bottom-up programmes for individual funding such as the European Research Council (ERC), the Marie Skłodowska-Curie actions (MSCA) and the funding programme for Reseach Infrastructures.



[1] A Europe fit for the digital age: https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age_en/

[2] A European Green Deal: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

Global Challenges and European Industrial Competitiveness

One of the major structural changes between Horizon Europe and its predessor Horizon 2020 was the merging of the latter's thematic programme sections "Leadership in Enabling and Industrial Technologies" (LEIT) and "Societal Challenges". In doing so, the 13 thematic areas of Horizon 2020 were combined into six clusters contained in Pillar II in Horizon Europe:

- Health
- Culture, Creativity and Inclusive Society
- Civil Security for Society
- Digital, Industry and Space
- Climate, Energy and Mobility
- Food, Bioeconomy, Natural Resources, Agriculture and Environment

The Joint Research Centre (JRC) is also included in this pillar.

Innovative Europe

Pillar II will develop the innovation ecosystem and make Europe a frontrunner in market-creating innovation. The three instruments European Innovation Council (EIC), European Innovation Ecosystems (EIE) and the European Institute of Innovation and Technology (EIT) will facilitate this.

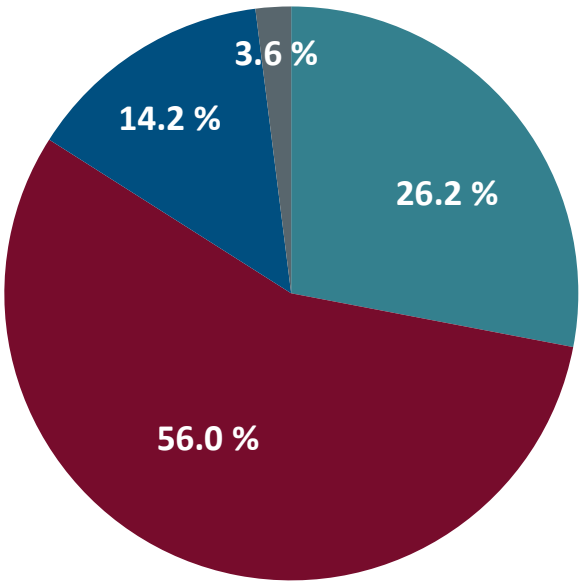
Widening Participation and strengthening the European Reseach Area

This cross-cutting programme area of Horizon Europe will increase support for the EU member states which were previously less active in promoting research and innovation.

Duration and budget

Horizon Europe will run for seven years (01.01.2021 until 31.12.2027).

Its total budget is € 95.5bn, distributed as:



- Pillar I – Exellent Science: € 25bn
- Pillar II – Global Challenges and European Industrial Competitiveness: € 53.5bn
- Pillar III - Innovative Europe: € 13.6bn
- Widening Participation and strengthening the European Reseach Area: € 3.4bn

Within Pillar II, the budget allocation is:

- Health: € 8.2bn
- Culture, Creativity and Inclusive Society: € 2.3bn
- Civil Security for Society: € 1.6bn
- Digital, Industry and Space: € 15.3bn
- Climate, Energy and Mobility: € 15.1bn
- Food, Bioeconomy, Natural Rescources, Agriculture and Environment: € 9.0bn

Materials-Relevant Calls of Cluster 4 "Digital, Industry and Space"

DESTINATION 1 – CLIMATE NEUTRAL, CIRCULAR AND DIGITISED PRODUCTION (Deadline: 30.03.2022)	
Topic	**Budget (€ m)**
Green, flexible and advanced manufacturing	
HORIZON-CL4-2022-TWIN-TRANSITION-01-01: Rapid reconfigurable production process chains (IA)	27.5
HORIZON-CL4-2022-TWIN-TRANSITION-01-02: Products with complex functional surfaces (RIA)	21.5
HORIZON-CL4-2022-TWIN-TRANSITION-01-04: Excellence in distributed control and modular manufacturing (RIA)	21.5
HORIZON-CL4-2022-TWIN-TRANSITION-01-05: Intelligent work piece handling in a full production line (RIA)	21.5
Hubs for circularity, a stepping stone towards climate neutrality and circularity in industry	
HORIZON-CL4-2022-TWIN-TRANSITION-01-10: Circular flows for solid waste in urban environment (IA)	42.5
Enabling circularity of resources in the process industries, including waste, water and CO2/CO	
HORIZON-CL4-2022-TWIN-TRANSITION-01-11: Valorisation of CO/CO2 streams into added-value products of market interest (IA)	42.5
HORIZON-CL4-2022-TWIN-TRANSITION-01-13: Raw material preparation for clean steel production (IA)	14
Integration of Renewables and Electrification in process industry	
HORIZON-CL4-2022-TWIN-TRANSITION-01-15: New electrochemical conversion routes for the production of chemicals and materials in process industries (RIA)	30
HORIZON-CL4-2022-TWIN-TRANSITION-01-16: Modular and hybrid heating technologies in steel production (IA)	10
HORIZON-CL4-2022-TWIN-TRANSITION-01-17: Integration of hydrogen for replacing fossil fuels in industrial applications (IA)	42.5

DESTINATION 2 – INCREASED AUTONOMY IN KEY STRATEGIC VALUE CHAINS FOR RESILIENT INDUSTRY (Deadline: 30.03.2022)	
Topic	**Budget (€ m)**
Novel paradigms to establish resilient and circular value chains	
HORIZON-CL4-2022-RESILIENCE-01-01: Circular and low emission value chains through digitalisation (RIA)	25.3
Green and Sustainable Materials	
HORIZON-CL4-2022-RESILIENCE-01-10: Innovative materials for advanced (nano)electronic components and systems (RIA)	20
HORIZON-CL4-2022-RESILIENCE-01-11: Advanced lightweight materials for energy efficient structures (RIA)	20
HORIZON-CL4-2022-RESILIENCE-01-12: Functional multi-material components and structures (RIA)	20
HORIZON-CL4-2022-RESILIENCE-01-23: Safe- and sustainable-by-design organic and hybrid coatings (RIA)	20

DESTINATION 2 – INCREASED AUTONOMY IN KEY STRATEGIC VALUE CHAINS FOR RESILIENT INDUSTRY (Deadline: 30.03.2022)	
Topic	**Budget (€ m)**
Raw materials for EU strategic autonomy and successful transition to a climate-neutral and circular economy	
HORIZON-CL4-2022-RESILIENCE-01-02: Monitoring and supervising system for exploration and future exploitation activities in the deep sea (RIA)	14
HORIZON-CL4-2022-RESILIENCE-01-03: Streamlining cross-sectoral policy framework throughout the extractive life-cycle in environmentally protected areas (CSA)	2.4
HORIZON-CL4-2022-RESILIENCE-01-04: Developing digital platforms for the small scale extractive industry (IA)	15
HORIZON-CL4-2022-RESILIENCE-01-05: Technological solutions for tracking raw material flows in complex supply chains (RIA)	13.5
HORIZON-CL4-2022-RESILIENCE-01-06: Sustainable and innovative mine of the future (IA)	36
HORIZON-CL4-2022-RESILIENCE-01-07: Innovative solutions for efficient use and enhanced recovery of mineral and metal by-products from processing of raw materials (IA)	36
HORIZON-CL4-2022-RESILIENCE-01-08: Earth observation technologies for the mining life cycle in support of EU autonomy and transition to a climate-neutral economy (RIA)	13.5
Materials and data cross-cutting actions	
HORIZON-CL4-2022-RESILIENCE-01-19: Advanced materials modelling and characterisation (RIA)	18
HORIZON-CL4-2022-RESILIENCE-01-20: Climate Neutral and Circular Innovative Materials Technologies Open Innovation Test Beds (IA)	34
HORIZON-CL4-2022-RESILIENCE-01-25: Optimised Industrial Systems and Lines through digitalisation (IA)	15
Materials for the benefit of society and the environment and materials for climate neutral Industry	
HORIZON-CL4-2022-RESILIENCE-01-13: Smart and multifunctional biomaterials for health innovations (RIA)	20
HORIZON-CL4-2022-RESILIENCE-01-14: Membranes for gas separations - membrane distillation (IA)	21
HORIZON-CL4-2022-RESILIENCE-01-16: Building and renovating by exploiting advanced materials for energy and resources efficient management (IA)	21
HORIZON-CL4-2022-RESILIENCE-01-24: Novel materials for supercapacitor energy storage (RIA)	23