

Horizon Europe 2021-2027

Pillars I, III and IV

Pilar II, Cluster 4, Digital, Industry and Space – Call information

HORIS^{NTTI} EUROOPPA

— EU:N TUTKIMUS- JA INNOVAATIO-OHJELMA —

Horizon Europe, ~95,5 billion euros for 2021 – 2027



Pillar 1 Excellent Science

European Research Council

Marie Skłodowska-Curie Actions

Research Infrastructures



Pillar 2 Global Challenges and European Industrial Competitiveness

Clusters

- 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

Joint Research Centre



Pillar 3 Innovative Europe

European Innovation Council

European innovation ecosystems

European Institute of Innovation
and Technology

Widening Participation and Strengthening the European Research Area

Widening participation and spreading excellence

Reforming and Enhancing the European R&I system

Pillar I: EXCELLENT SCIENCE: reinforcing and extending the excellence of the Union's science base

European Research Council (ERC)

- Supports excellence in frontier research through a bottom-up, individual-based, pan-European competition
 - Independent Scientific Council
 - Excellence as the only criterion,
 - Support for the individual scientist – no networks!
 - Global peer-review
 - Bottom-up, all fields of science

ERC contact in Finland

Annika Raitala, Academy of Finland

Marie-Sklodowska-Curie Actions (MSCA)

- Equipping researches with new knowledge and skills through mobility and training
 - International mobility
 - Bottom up, open to all domains of R&I
 - Open to the whole world
 - Supervision, mentoring, career guidance and career development
 - Participation of both academic and non-academic (private) sector organisations

MSCA contact in Finland

Satu Huuha-Cissokho, Academy of Finland

Research Infrastructures

- Integrated and inter-connected world-class research infrastructures
 - Developing, consolidating and optimising European Research Infrastructures
 - Enabling an operational European Open Science Cloud (EOSC) ecosystem
 - For frontier research and for challenge-driven research (e.g. health research, and green and digital transformation)

Research Infrastructure contact in Finland

Merja Särkioja, Academy of Finland

Pillar III: European Innovation Council, EIC

Support to the full innovation cycle from **research and development** to **rapid scale up** of innovative technologies and companies (mainly start-ups and SMEs) at international level.

- **Pathfinder** (ex-FET): early stage research of breakthrough technologies by a multidisciplinary consortium
- **Transition**: develop market readiness of most potential research findings – open only to Pathfinder or ERC PoC projects
- **Accelerator** (ex SME Instrument): finalize the technology, commercialisation and scale-up by single innovative SMEs

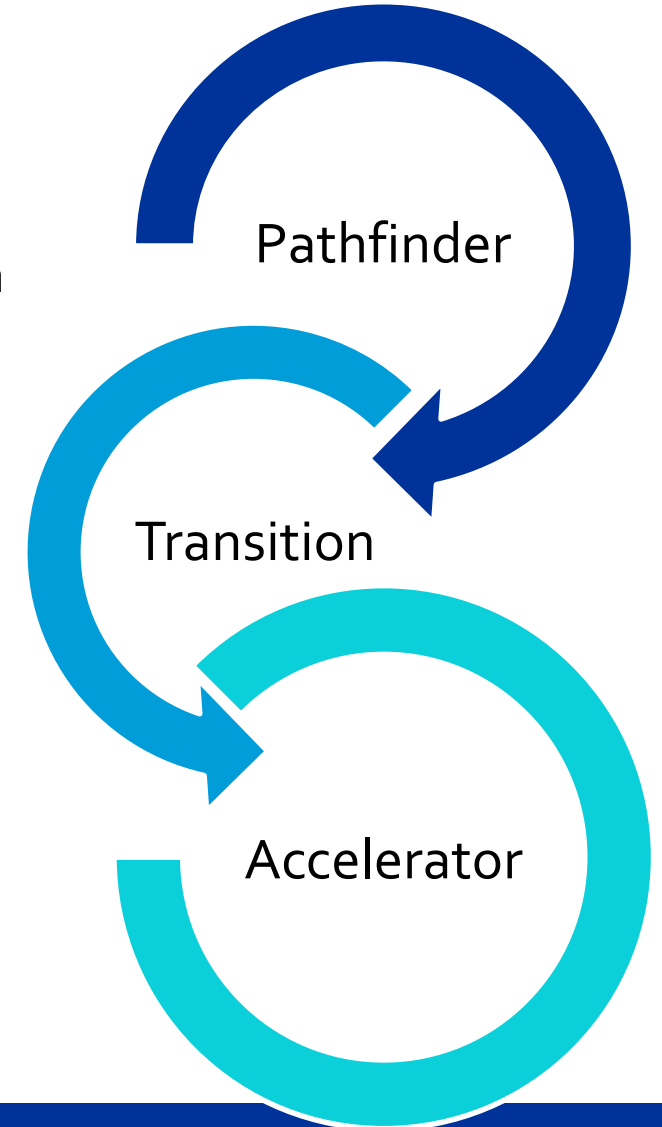
Funding mainly through **bottom-up schemes** – *Open Calls*

All instruments also contribute to **thematic priorities**: Health & Biotech, Digital, Energy, Climate & Environment – *Challenge Calls*

EIC contacts in Finland

Elina Holmberg, Business Finland

Hannele Lahtinen, Academy of Finland



Pillar IV: Widening participation and strengthening the European Research Area

A horizontal programme supporting

- 1) excellence and development of critical mass in the low R&I performing Member states (= widening countries), i.a. through collaboration with more R&I intensive MSs
- 2) mobility to widening countries (Inclusion Fellowships, ERA Chairs)
- 3) development of institutional policies and practices in ERA, related e.g. to open science, gender equality, citizen science, research integrity, science communication

Widening/ERA contact in Finland

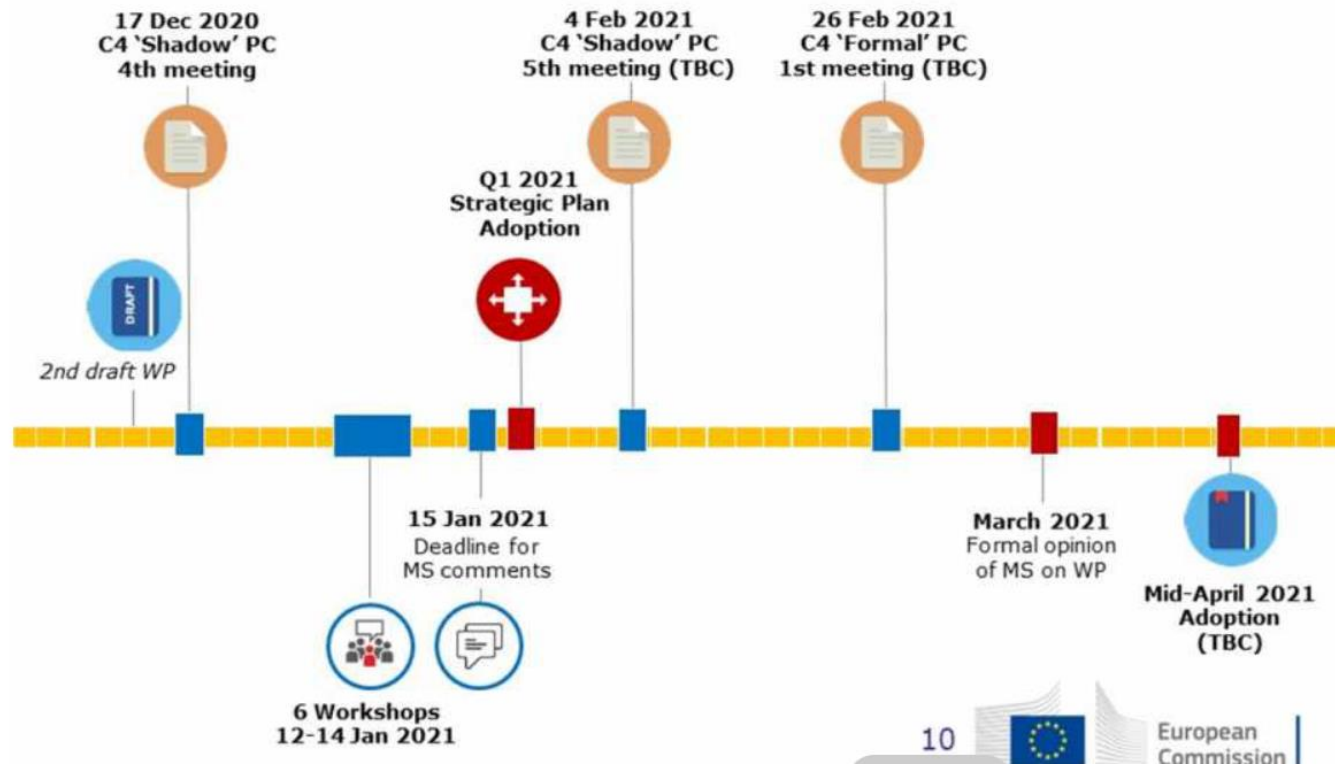
Vera Mikkilä, Academy of Finland

Cluster 4, Digital, Industry and Space time-line



Work Programme 2021-2022

TIMELINE



Cluster 4 Destinations:

1. Climate neutral, circular and digitised production
2. Strategic autonomy for resilient industry
3. World leading data and computing technologies
4. Digital and emerging technologies for competitiveness and fit for the green deal
5. Strategic autonomy in developing, deploying and using global space-based infrastructures, services, applications and data
6. A human-centred and ethical development of digital and industrial technologies

Horizon Europe acronyms

- RIA, Research and Innovation Action
- IA, Innovation Action
- CSA Coordination and Support Action
- FPA Framework Program Agreement
- PCP, Pre-Commercial Procurement
- FSTP, Financial Support to Third Parties, i.e. cascaded funding

D1 (Digitised production) calls 2021 - 2022

- TWIN GREEN AND DIGITAL TRANSITION
 - Green, flexible and advanced manufacturing (RIA, IA)
 - Advanced digital technologies for manufacturing (IA)
 - A new way to build, accelerating disruptive change in construction (RIA, IA)
 - Hubs for circularity, a stepping stone towards climate neutrality and circularity in industry (RIA, IA, CSA; only in 2021)
 - Enabling circularity of resources in the process industries, including waste, water and CO₂/CO (IA)
 - Integration of Renewables and Electrification in process industry (RIA, IA)

D2 (Resilient industry) Calls 2021 - 2022

- A DIGITISED, RESOURCE-EFFICIENT AND RESILIENT INDUSTRY
 - Novel paradigms to establish resilient and circular value chains (RIA, IA)
 - Raw materials for EU strategic autonomy and successful transition to a climate-neutral and circular economy (RIA, IA, CSA)
 - Green and Sustainable Materials (RIA, IA, CSA)
 - Materials for the benefit of society and the environment and materials for decarbonising Industry (RIA, IA, CSA)
 - Materials and data cross-cutting actions (IA, RIA, CSA)
 - Improving the resilience and preparedness of EU businesses, especially SMEs and Startups (PCP, CSA)

D3 (Data & Computing) 2021 – 2022:

- WORLD LEADING DATA AND COMPUTING TECHNOLOGIES
 - Data sharing in the common European data spaces (RIA, IA)
 - Strengthening Europe's data analytics capacity (RIA)
 - From Cloud to Edge to IoT for European Data (RIA, IA, CSA)

D4 (Digital & emerging) calls 2021 – 2022:

- Digital and emerging technologies for competitiveness and fit for the green deal
 - Ultra-low power processors (RIA, CSA; only 2021)
 - European Innovation Leadership in Electronics (RIA; only in 2021)
 - European Innovation Leadership in Photonics (RIA, IA)
 - 6G and foundational connectivity technologies (CSA; only in 2021)
 - Innovation in AI, data and robotics (IA)
 - Tomorrow's deployable Robots: efficient, robust, safe, adaptive and trusted (RIA)
 - European leadership in Emerging Enabling Technologies (CSA, RIA)
 - Flagship on Quantum Technologies: a Paradigm Shift (FPA, CSA, RIA, IA)
 - Graphene: Europe in the lead (RIA, CSA; only in 2022)

D5 (Space) calls 2021 – 2022:

- STRATEGIC AUTONOMY IN DEVELOPING, DEPLOYING AND USING GLOBAL SPACE-BASED INFRASTRUCTURES, SERVICES, APPLICATIONS AND DATA + APPLICATIONS
 - Foster competitiveness of space systems
 - Reinforce EU capacity to access and use space
 - Evolution of Copernicus services (only in 2021)
 - Evolution of services of the EU space programme components Galileo, EGNOS and Copernicus (only in 2022)
 - Innovative space capabilities: SSA, Govsatcom, Quantum (only in 2021)
 - Targeted and strategic actions supporting the EU space sector (only in 2021)
 - Development of applications from the EU space programme components

D6 (Human-centered) calls 2021 - 2022

- A HUMAN-CENTRED AND ETHICAL DEVELOPMENT OF DIGITAL AND INDUSTRIAL TECHNOLOGIES
 - Leadership in AI based on trust (CSA, RIA)
 - An Internet of Trust (CSA, RIA)
 - eXtended Reality – XR (CSA, RIA, IA, FSTP)
 - Systemic approaches to make the most of the technologies within society and industry (CSA, IA; only in 2021)
 - Industry and Space (RIA; only in 2021)

HEU Cluster 4 Partnerships

- European Partnership for High Performance Computing (HPC)
- European Partnership for Key Digital Technologies (KDT)
- European Partnership for Smart Networks and Services (SNS)
- European Partnership on Artificial Intelligence, Data and Robotics
- European Partnership for Photonics
- European Partnership for Clean Steel - Low Carbon Steelmaking
- European Partnership on Metrology
- European Partnership Made in Europe
- Processes₄Planet – Transforming the European Process Industry for a sustainable society
- European Partnership for Globally competitive Space Systems

Up-coming Horizon Europe events in Finland

<https://www.businessfinland.fi/suomalaisille-asiakkaille/palvelut/rahoitus/horisontti-2020/lyhyesti>
-> tapahtumat

- 13.1. Call information on HEU Cluster 1
- 14.1. Call information on HEU Cluster 5
- 14.1. Call information on HEU Cluster 2
- 19.1. Call information on HEU Clusteri 4
- 19.1. Euroopan innovaatio- ja teknologiainstituutti (EIT)
- 21.1. Call information on HEU Cluster 3
- 25.1. EOSC in Finland and in the European context
- 5.2. Horisontti Eurooppa: T&i-kumppanuudet

Present shadow committee and support network

- Kari J. Leino (BF; delegate)
- Satu Vasamo-Koskinen (TEM; 2. delegate, presently in Brussels)
- Noora Lähde (LVM)
- Kati Sulonen (SA)
- Saara Leppinen (STM)
- Support network representatives.:
 - Aalto YO, Tampere YO, Oulu YO, Metropolia AMK
 - VTT, GTK, Traficom;
 - Teknologiateollisuus, Metsäteollisuus, Photonics Finland, DIMECC
 - Nokia, Ericsson, Cargotec, Patria Group, Outokumpu, Valmet, ABB, Fastems

Thank You!

Contact: Kari J. Leino, Business Finland

Email: kari.leino@businessfinland.fi

Tel: +358 50 5577 698

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