

# Horizon Europe

## Digitális gazdaság, ipar világűr

Németh Edina

Nemzeti Kutatási, Fejlesztési és Innovációs  
Hivatal



# HORIZONT EURÓPA



## 1. pillér Kiváló tudomány

Európai Kutatási Tanács

Marie Skłodowska-Curie-  
cselekvések

Kutatási infrastruktúrák



## 2. pillér Globális kihívások és az európai ipar versenyképessége

Klaszterek

- Egészségügy
- Kultúra, kreativitás és befogadó társadalom
- A társadalmat szolgáló polgári biztonság
- **Digitális gazdaság, ipar és világűr**
- Eghajlat, energia és mobilitás
- Élelmiszerek, biogazdaság, természeti erőforrások és környezet

Közös Kutatóközpont



## 3. pillér Innovatív Európa

Európai Innovációs Tanács

Európai innovációs  
ökoszisztémák

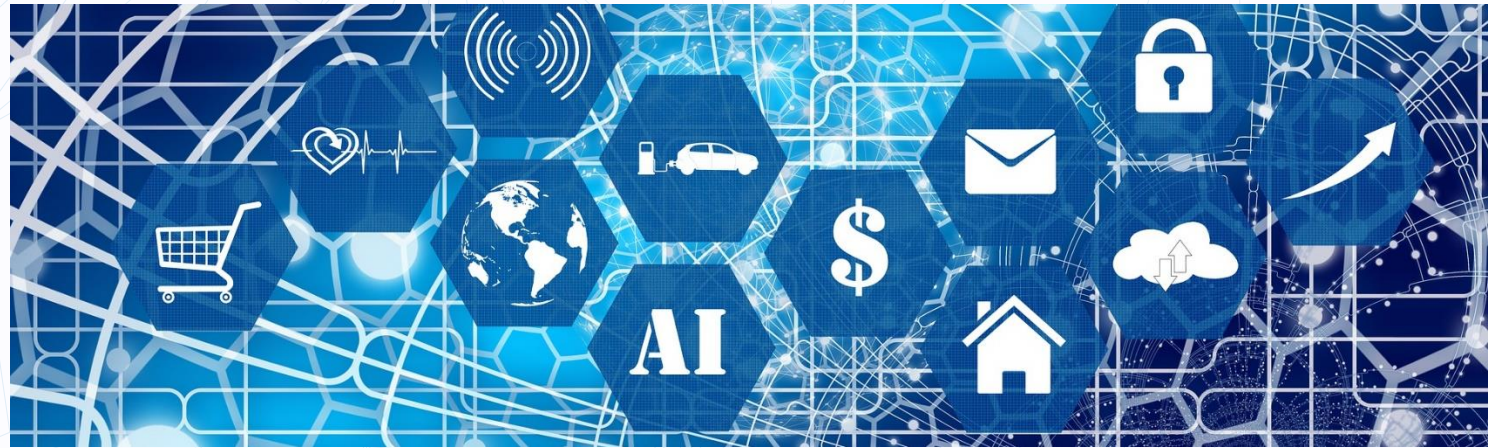
Európai Innovációs és  
Technológiai  
Intézet

## A részvétel bővítése és az Európai Kutatási Térség megerősítése

A részvétel bővítése és a kiválóság terjesztése

Az európai K+I-rendszer megreformálása és megerősítése

# Szakpolitikai kontextus



- New Industrial Strategy for Europe
- Green Deal
- Circular Economy
- ‘Shaping Europe’s Digital Future’,
- ‘Data’ ‘Artificial Intelligence White Paper
- ‘Space Strategy for Europe’





**Impact  
driven**

# HORIZON EUROPE IMPACT LOGIC

STRATEGIC PLAN

WORK PROGRAMME

EC POLICY PRIORITIES	Political Guidelines for the European Commission 2019-2024 Cluster 4 focuses on Green Deal; Europe fit for a Digital Age; and Economy that Works for People
KEY STRATEGIC ORIENTATIONS	10 strategic objectives within the EC policy priorities, where R&I investments are expected to make a difference (shared by six Clusters)
EXPECTED IMPACTS = DESTINATIONS	Wider, long-term effects on society, environment, economy and science, enabled by the outcomes of R&I outcomes (6 impacts per Cluster)  <b>Packages of actions</b> in Work Programmes to reach expected impacts.
TOPICS	<b>Outcomes</b> , i.e. medium-term effects of uptake of project results
PROJECTS	<b>Outputs</b> , i.e. what is produced in the short-term during the project implementation, such as innovative solutions, demonstrators, business models, recommendations etc.

# KEY STRATEGIC ORIENTATIONS HIGHLIGHTED FOR CLUSTER 4

1. Preserving and restoring ecosystems and biodiversity and managing sustainably natural resources on land and sea, and achieving climate neutrality and adaptation
2. Ensuring food and nutrition security through sustainable food systems from farm to fork
- 3. Transforming the EU industry for a clean, more bio-based, climate-neutral, circular and competitive economy**
4. Delivering clean, sustainable, competitive, secure, safe and smart energy and mobility for climate neutrality
- 5. Securing EU global industrial leadership and strategic autonomy in key technologies**
6. Enhancing the health, and well-being of all citizens and tackling inequality
7. Strengthening EU democracies and empowering all citizens to act in the transitions
- 8. Shaping technologies and innovations that work for people**
9. Stepping up EU resilience, inclusiveness and preparedness to respond to disasters, security challenges, emerging threats and improved border management
10. Leading the way and joining forces internationally for the transition to sustainability

# KSOs / EXPECTED IMPACTS

## KEY STRATEGIC ORIENTATION

**Transforming the EU industry  
for a clean, more bio-based, climate-  
neutral, circular and competitive economy**

## EXPECTED IMPACT

**Global leadership in clean and climate-neutral industrial value chains, circular economy and climate-neutral digital systems and infrastructures (networks, data centres),**  
through innovative production and manufacturing processes and their digitisation, new business models, sustainable-by-design advanced materials and technologies enabling the switch to decarbonisation in all major emitting industrial sectors, including green digital technologies.



# KSOs / EXPECTED IMPACTS

## KEY STRATEGIC ORIENTATION

## EXPECTED IMPACT

**Securing EU global industrial leadership and strategic autonomy in key technologies**

**Industrial leadership and increased autonomy in key strategic value chains with security of supply in raw materials**, achieved through breakthrough technologies in areas of industrial alliances, dynamic industrial innovation ecosystems and advanced solutions for substitution, resource and energy efficiency, effective reuse and recycling and clean primary production of raw materials, including critical raw materials.

**Sovereignty in digital technologies and in future emerging enabling technologies** by strengthening European capacities in key parts of digital and future supply chains, allowing agile responses to urgent needs, and by investing in early discovery and industrial uptake of new technologies.

**Globally attractive, secure and dynamic data-agile economy** by developing and enabling the uptake of the next-generation computing and data technologies and infrastructures (including space infrastructure and data), enabling the European single market for data with the corresponding data spaces and a trustworthy artificial intelligence ecosystem.

**Strategic autonomy in developing, deploying and using global space-based infrastructures, services, applications and data**, by reinforcing the EU's independent capacity to access space, and securing the autonomy of supply for critical technologies and equipment.

# **KSOs / EXPECTED IMPACTS**

## **KEY STRATEGIC ORIENTATION**

**Shaping technologies  
and innovations  
that work for people**

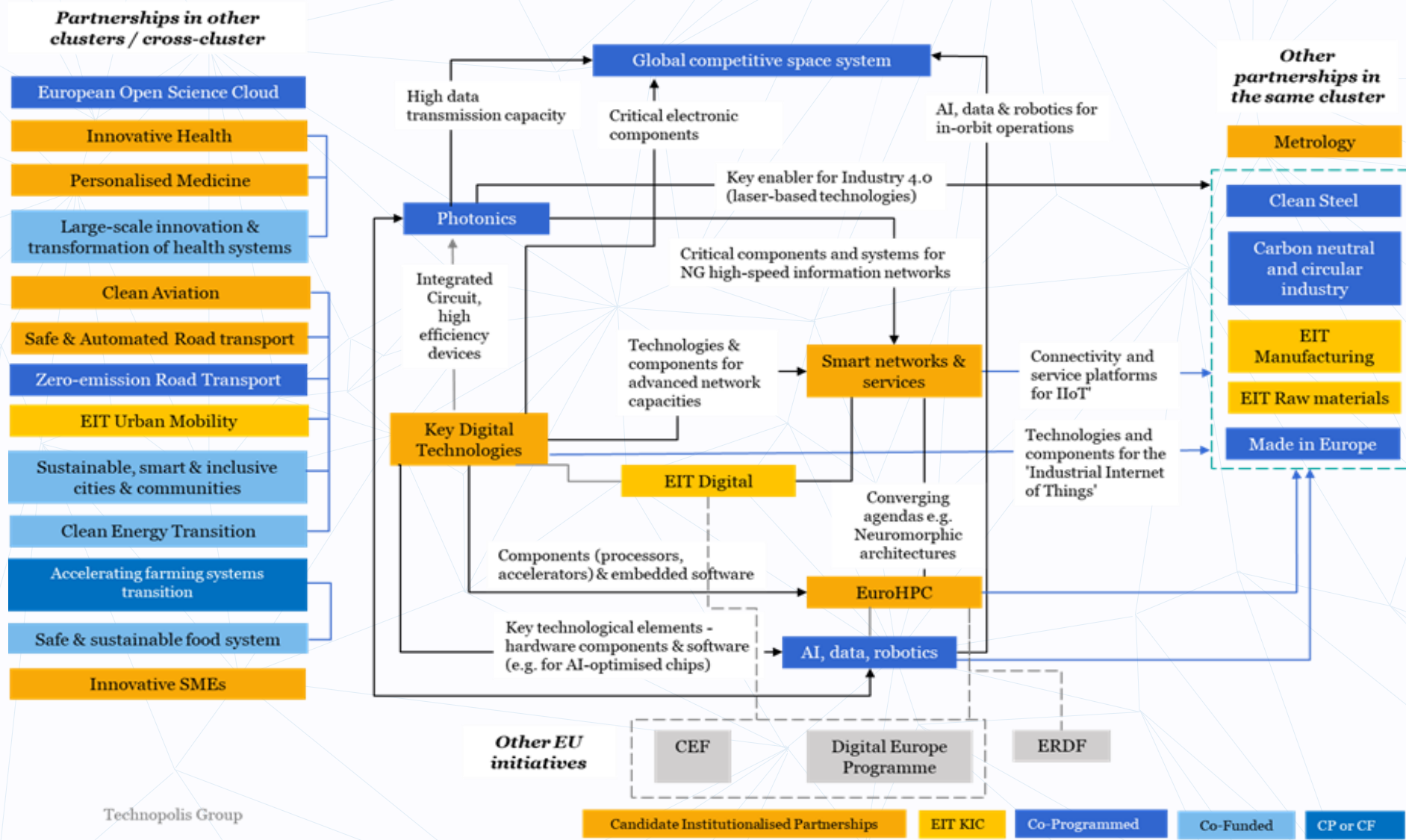
## **EXPECTED IMPACT**

**A human-centred and ethical development of digital and industrial technologies, through a two-way engagement in the development of technologies, empowering end-users and workers, and supporting social innovation.**

# Partnerség vezérelt program

[https://ec.europa.eu/info/horizon-europe-next-research-and-innovation-framework-programme/european-partnerships-horizon-europe\\_en](https://ec.europa.eu/info/horizon-europe-next-research-and-innovation-framework-programme/european-partnerships-horizon-europe_en)

# Horizon Europe



# Partnerships in Horizon Europe

- **Co-programmed European Partnerships**

These are partnerships between the Commission and private and/or public partners. They are based on memoranda of understanding and/or contractual arrangements.

- **Co-funded European Partnerships using a programme co-fund action**

Partnerships involving EU countries, with research funders and other public authorities at the core of the consortium.

- **Institutionalised European Partnerships**

These are partnerships where the EU participates in research and innovation funding programmes that are undertaken by EU countries.

# Digital Centric Partnerships

- **Key Digital Technologies** (proposed as institutionalised) addressing the technological challenges and emerging opportunities for Europe on key digital technologies. This include microelectronics, embedded software and smart microsystems enlarged with elements of photonics, higher-layers of software and complex system integration
- **High Performance Computing** (proposed as institutionalised) to develop and deploy highly competitive and innovative HPC ecosystems in Europe. It will build on the experience gained in EuroHPC for achieving world-class exascal eand post-exascale (HPC) technologies in Europe, including their integration with Quantum computing
- **Smart Networks and Services** (proposed as institutionalised) to strengthen the position of the European industry in the global race on digital connectivity infrastructures including “5G and beyond” and later "6G" network systems and associated services
- **Artificial Intelligence, data and robotics** (proposed as co-programmed) with a strong socio-economic transformational potential with impact in sectors like health, manufacturing, ship-building, construction, service industries and farming, etc.
- **Photonics** (proposed as co-programmed) with a strong and growing impact on a broad variety of end user industries, developing next-generation photonics components and systems fostering synergies and coordination amongst research and industrial actors.

# Digital Transformation Partnerships

- **Innovative Health Initiative:** collaborative platform bringing the pharmaceuticals, diagnostics, medical devices, imaging and digital sectors together for precompetitive R&I in areas of unmet public health need, to accelerate the development and uptake of people-centred health care innovations.
- **Large-scale innovation and transformation of health systems in a digital and ageing society:** improving health and care models in an ageing, data-driven and digital society, shifting to holistic health promotion and person-centred care approaches through health policy and health systems research.
- **Made in Europe:** Towards a competitive discrete manufacturing industry with a world-leading reduction of the environmental footprint whilst guaranteeing the highest level of well-being for workers, consumers and society.
- **Mobility and Safety for Automated Road Transport:** long-term framework to the strategic planning of research and pre-deployment programmes for connected and automated driving on roads at EU and national levels in a systemic approach (vehicle, interactions, infrastructure, technical and non-technical enablers and societal impact)
- **Batteries:** Towards a competitive European industrial battery value chain: development of a world-class European R&I system on batteries, with a view towards European industrial leadership. Develop a coherent strategic programme, in cooperation with industry and research community, substantially contributing to fulfilling the Paris Agreement, and enhance the competitiveness of current and emerging European industries along the battery value chain.
- **Clean Energy Transition:** respond to the call for decarbonisation in medium-and long-term in a holistic way, synthesizing all fragmented actions to allow for greater integration of relevant research & innovation areas and provide greater impact.

# Other Cluster 4 related partnerships

- **European Partnership for Globally competitive Space Systems:** The vision is to support the competitiveness of the sector and reinforce EU capacity to access and use space. The main objectives for 2030 are to contribute to capturing 50% of the global accessible telecom satellite market, becoming the worldwide leader for Earth observation systems, reducing the cost/price of launch services by 50% by 2030, reaching a maturity of technology readiness level 6 in the fields of ecosystem for on-orbit operation, doubling the accessible new services in the space transportation market available to European industry
- **Processes4Planet – Transforming the European Process Industry for a sustainable society:** The partnership aims at circularity and an extensive decarbonisation of European process industries, with a strong focus on competitiveness. Within a cross-sectorial approach, it will develop and deploy the innovations needed for a profound transformation of process industries, e.g., cement, chemical, steel, to achieve the EU Green Deal targets by 2050.
- **European Partnership on Metrology:** The partnership will accelerate the global lead of Europe in metrology research. By 2030, it will create sustainable European metrology networks in highly competitive and emerging metrology areas able to compete with China and the US. Europe will have a world-class metrology system, offering fit-for-purpose solutions supporting and stimulating new innovative products, responding to society's challenges and enabling effective design and implementation of regulation and standards underpinning public policies.
- **European Partnership for Clean Steel - Low Carbon Steelmaking:** Aligned with the European Green Deal targets, the partnership supports EU leadership in transforming the steel industry into a carbon-neutral one, serving as a catalyser for other strategic sectors. By 2027 it will implement at least 2 demonstration projects leading to a 50% reduction in CO2 emissions and achieve technology readiness level 8 by 2030 in at least 12 areas funded by the partnership. The final ambition is to reduce CO2 emissions by 80-95% by 2050, ultimately achieving carbon neutrality.



# 4. klaszter

# Digitális technológiák

**Hol találunk Horizon Europe  
IKT felhívásokat?**

**Mindenhol !**

[https://ec.europa.eu/info/horizon-europe-next-research-and-innovation-framework-programme/european-partnerships-horizon-europe\\_en](https://ec.europa.eu/info/horizon-europe-next-research-and-innovation-framework-programme/european-partnerships-horizon-europe_en)

# DIGITAL IN THE NEXT MFF: OVERVIEW

## Digital Europe

1. High Performance Computing (HPC)
2. Artificial Intelligence (AI)
3. Cybersecurity
4. Advanced digital skills
5. Digital transformation and interoperability

~ 7.5 B €

## Digital in Horizon Europe

1. Digital under "global challenges"
  - Digital and industry cluster
  - Digital in other clusters - health, mobility, energy, environment...
2. FET Open under Open Innovation
3. Research Infra under Open Science

~ 12 B €

## CEF - Digital

### Connectivity

- Synergies with Transport /Energy
- WIFI/BB 4EU
- 5G roll out

~ 2 B €

## MEDIA under Creative Europe within Cohesion and Values

- Distribution of works
- Creation

~ 1 B €

# HORIZONT EUROPA



## 1. pillér Kiváló tudomány

Európai Kutatási Tanács

Marie Skłodowska-Curie-cselekvések

Kutatási infrastruktúrák



## 2. pillér Globális kihívások és az európai ipar versenyképessége

- Klaszterek
- Egészségügy
  - Kultúra, kreativitás és befogadó társadalom
  - A társadalmat szolgáló polgari biztonság
  - Digitális gazdaság, ipar és világűr
  - Eghajlat, energia és mobilitás
  - Élelmiszerek, biogazdaság, természeti erőforrások és környezet

Közös Kutatóközpont



## 3. pillér Innovatív Európa

Európai Innovációs Tanács

Európai innovációs ökoszisztémák

Európai Innovációs és Technológiai Intézet

## A részvétel bővítése és az Európai Kutatási Térség megerősítése

A részvétel bővítése és a kiválóság terjesztése

Az európai K+I-rendszer megreformálása és megerősítése

ICT

ICT

ICT

ICT

ICT

ICT

ICT

ICT

ICT

Nyitott felhívások

Infokommunikációs technológia-orientált kutatások

Infokommunikációs technológiák alkalmazása

Tematikus és nyitott felhívások

D1 Klímasemleges, körforgásos és digitális termelés

718.6 M €

D2 Digitális, erőforrás-hatékony és ellenálló ipar

759.3 M €

D3 Adat- és nagy teljesítményű számítástechnika a világ élvonalában

346 M €

D4 Digitális és áttörést jelentő technológiák a versenyképesség és az európai zöld megállapodás szolgálatában

724 M €

D5 Stratégiai autonómia globális űrinfrastruktúrák fejlesztésében bevezetésében és alkalmazásában

504.9 M €

D6 A digitalis és ipari technológiák emberközpontú és etikus fejlesztése

327 M €

# D3

## DESTINATION

World leading data and computing technologies

### AREAS

- Data sharing in the common European data space
- Strengthening Europe's data analytics capacity
- High end computing for escalate performance and beyond
- From Cloud to Edge to IoT for European Data



# D4 DESTINATION

## Digital & emerging technologies for competitiveness & fit for the green deal

### AREAS

- Ultra-low power processors
- European Innovation Leadership in Electronics
- European Innovation Leadership in Photonics
- 6G and foundational connectivity technologies
- Innovation in AI, data and robotics
- Tomorrow's deployable Robots: efficient, robust, safe, adaptive and trusted
- European Leadership in Emerging Enabling Technologies
- Flagship on Quantum Technologies: a Paradigm Shift
- Graphene – Europe in the lead



# D6

## DESTINATION

A human-centred & ethical development of digital & industrial technologies

### AREAS

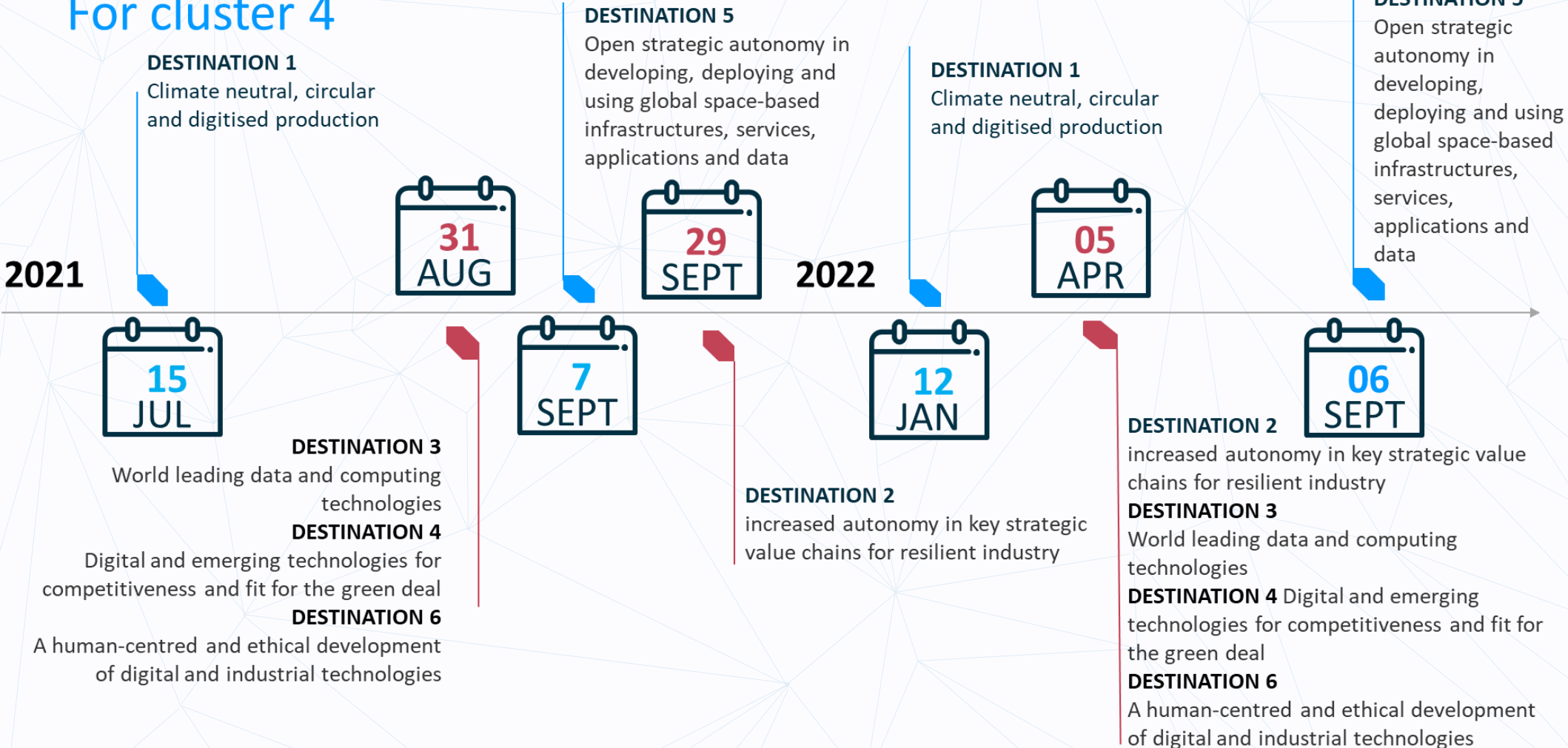
- Leadership in AI based on trust
- An Internet of Trust
- New digital interactions, 3D, augmented and virtual reality
- Digital learning technologies, including upskilling of the workforce
- Cross-cutting topics (incl. re-skilling work force, business intelligence, valorisation etc.)





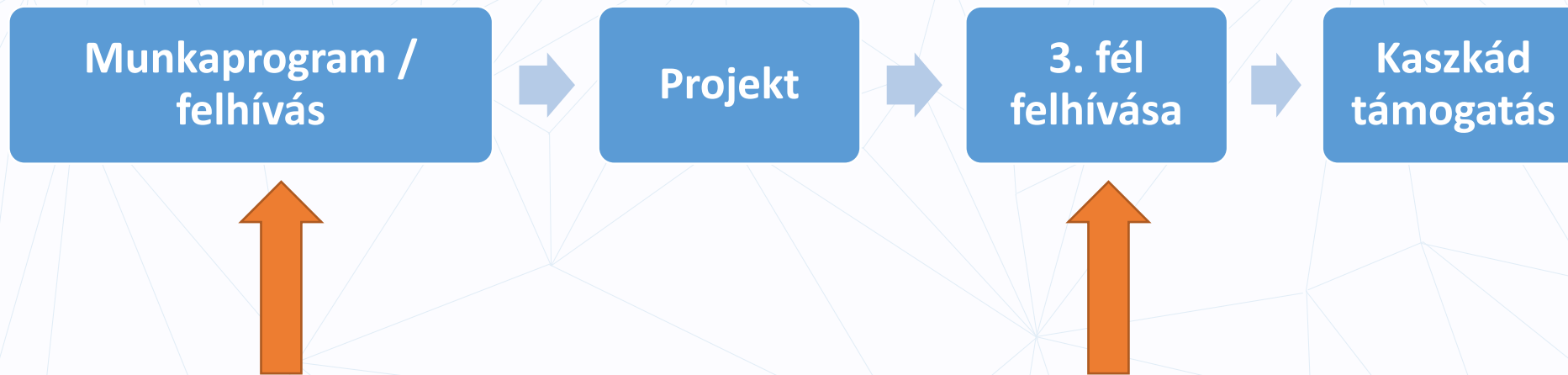
# 108 topics in 2021

## For cluster 4

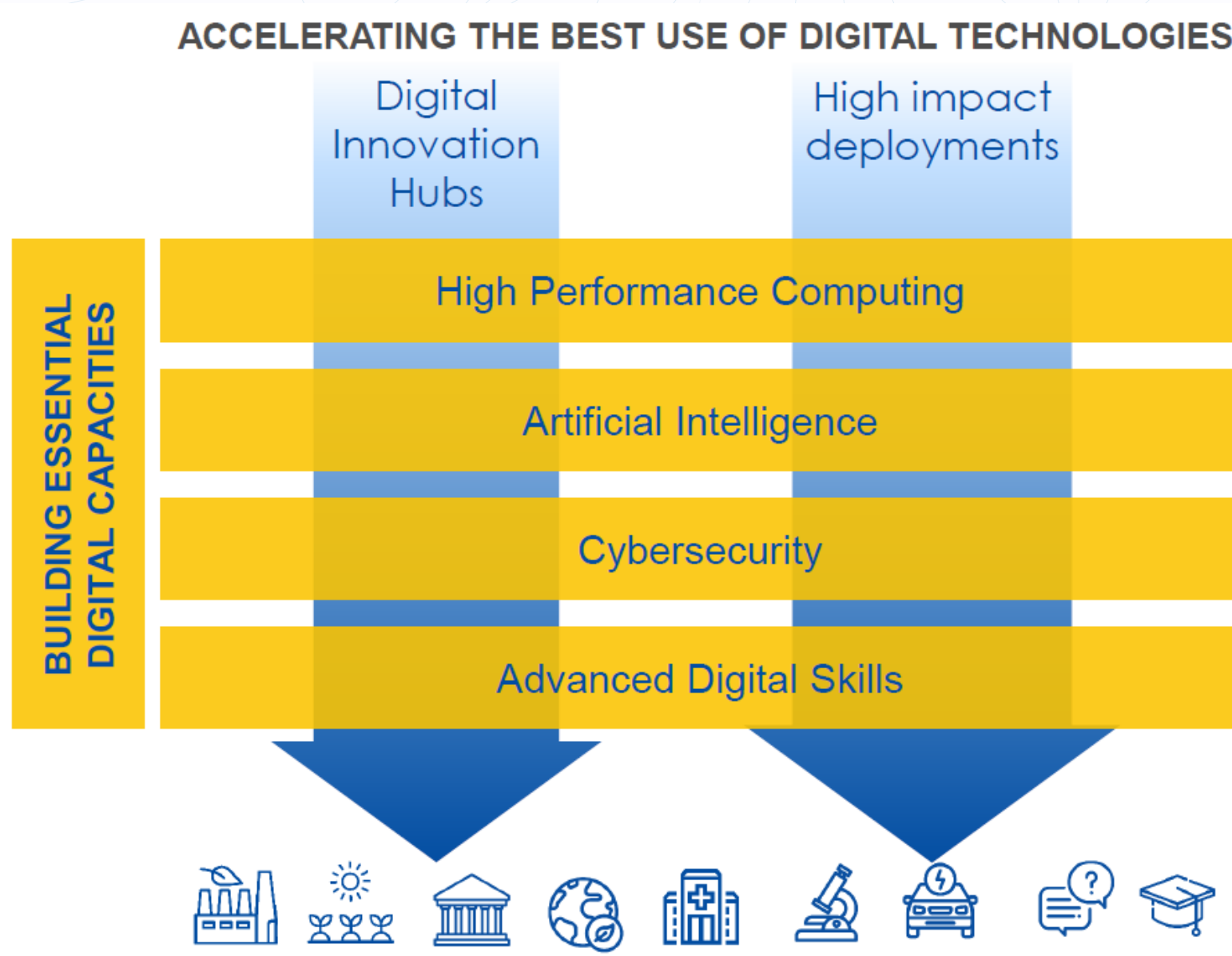


# Horizon Europe finanszírozás Harmadik felek felhívásai

(más néven **Kaszád támogatások**)



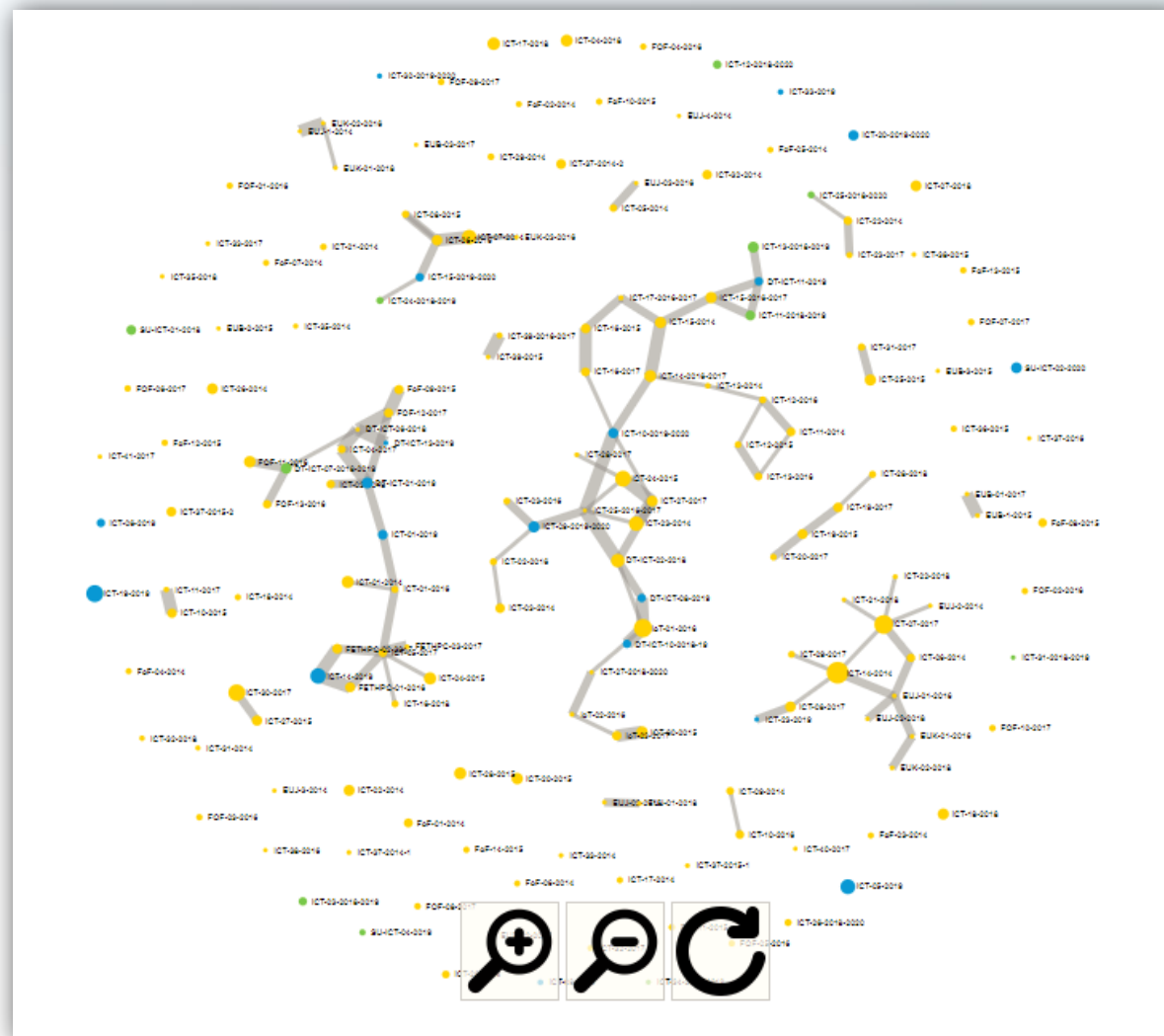
# Digital Europe program struktúra



How are call topics linked?

How have these areas evolved over the years?

What is the new focus this year?



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 645216

### Digital Innovation Ecosystems

Are you looking for a faster and easier way to get involved in Horizon programmes and the European research and innovation ecosystem?

Many running projects offer funding opportunities for innovative ideas embedded in dynamic digital ecosystems. In addition, these initiatives offer access to facilities and competence centers to help you experiment with the latest digital technologies.

[Find out more on our Other Funding Sources](#)

**Horizon Funding & Tenders Portal**

**Brokerage Events**

**Other Search Opportunities**

**Digital Innovation Ecosystems**

**Information days and Relevant Events**

# CONNECT | DIGITIZE | TRANSFORM

## **Edina Nemeth**

**Programme Committee delegate, National Contact Point**

Horizon Europe, Digital, Industry & Space (Cluster 4)

European Innovation Council (Pillar 3)

National Research, Development and Innovation Office

+36-70-221-0387 - [edina.nemeth@ist.hu](mailto:edina.nemeth@ist.hu)

Ideal-ist – the network of National Contact Points

[www.ideal-ist.eu](http://www.ideal-ist.eu)