



HORIZONT EVROPA

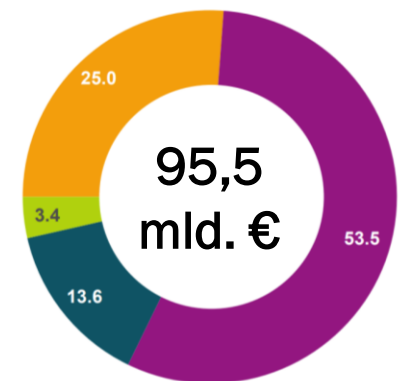
KLASTER 4 - DIGITALIZACE, PRŮMYSL A VESMÍR

Národní informační den Klastru 4 HE
7. 12. 2021, Technologické centrum AV ČR

Petr Pracna, Lenka Švejcarová, Ondřej Mirovský
Národní kontakty

PILÍŘE PROGRAMU HORIZONT EVROPA

 1. PILÍŘ 25 mld. € Vynikající věda	 2. PILÍŘ 53,5 mld. € Globální výzvy a konkurenceschopnost průmyslu	 3. PILÍŘ 13,6 mld. € Inovativní Evropa
Evropská rada pro výzkum	Klastry - Zdraví - Kultura, kreativita a inkluzivní společnost - Civilní bezpečnost pro společnost Digitalizace, průmysl a vesmír - Klima, energetika a doprava - Potraviny, bioekonomika, přírodní zdroje, zemědělství a životní prostředí Společné výzkumné středisko (JRC)	Evropská rada pro inovace
Akce Marie Skłodowska-Curie		Evropské inovační ekosystémy
Výzkumné infrastruktury		Evropský inovační a technologický institut



Rozšiřování a posilování Evropského výzkumného prostoru 3,4 mld.€
Rozšiřování účasti a šíření excelence | Reforma a zlepšování evropského systému výzkumu a inovací

Bottom-up

Top-down

Bottom-up / Top-Down

Individuální

Konsorcium

>> Obojí



POLITICKÝ KONTEXT



Rámcový program HORIZONT EVROPA

Program na podporu výzkumu a inovací
na období 2021-2027

Key strategic orientations (KSO)

- [KSO A](#) Promoting an **open strategic autonomy** by leading the **development of key digital, enabling and emerging technologies**, sectors and values
- [KSO B](#) Restoring Europe's ecosystems and biodiversity, and **managing sustainably natural resources**
- [KSO C](#) Making Europe the first **digitally led circular, climate-neutral and sustainable economy**
- [KSO D](#) Creating a more **resilient, inclusive and democratic** European society



KLASTRY PILÍŘE 2 – Globální výzvy a konkurenceschopnost průmyslu

Klastr 1 – Health

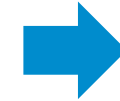
Klastr 2 – Culture, Creativity and Inclusive Societies

Klastr 3 – Civil Security for Society

Klastr 4 – Digital, Industry & Space

Klastr 5 – Climate, Energy & Mobility

Klastr 6 – Food, Bioeconomy, Natural, Resources, Agriculture & Environment



Oblasti (Destinations)

Vlastní sekce

Pracovního programu
+ výzvy

Základní charakteristika

Konsorciální projekty – minimálně 3 partneři, výzkumné a inovační akce (RIA / IA)

Rozsah / trvání nejsou dány - mají odpovídat plánovaným cílům projektu (3-5 let)

Top-down charakter – cíle jsou popsány v jednotlivých tématech pracovního programu

! Účast SME – vítána

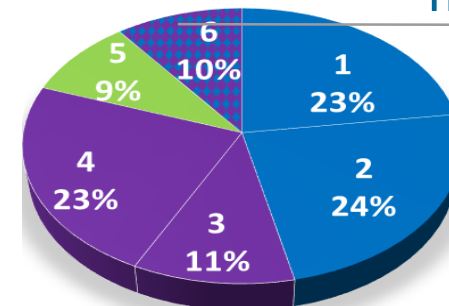
KLASTR 4 - STRUKTURA PRACOVNÍHO PROGRAMU

6 DESTINATIONS



Celkový rozpočet výzev 2021 - 2022 **3 007 mil. €**

Rozdělení rozpočtu mezi **6 Destinations**



DESTINATION 1

Výzva - Climate neutral, circular and digitised production

- Call ID: **TWIN-TRANSITION**, **13 témat** v roce 2022 (**4** RIA / **9** IA), alokovaný rozpočet **334.5 M€**
- Otevření výzvy **12/10/2021** -> uzávěrka **30/03/2022 (jednokolová)**

6 oblastí



- **Green, flexible** and advanced manufacturing (4 témata)
- Advanced **digital technologies** for manufacturing (2)
- A new way to **build**, accelerating disruptive change in construction (1)
- **Hubs for circularity**, a stepping stone towards climate neutrality and circularity in industry (1)
- Enabling **circularity of resources** in the process industries, including waste, water and CO₂/CO (2)
- Integration of **renewables** and **electrification** in process industry (3)

Přehled témat ve výzvách Klastru 4

<https://horizontevropa.cz/cs/struktura-programu-he/globalni-vyzvy-konkurenceschopnost/klastr-4-digitalizace-prumysl-vesmir/dokumenty>

DESTINATION 1 - topics	17	13	Climate neutral, circular and digitised production	Action	M€/topic	M€/total	# proj	Partnership(s)
Section	4	4	Green, flexible and advanced manufacturing			103,5		Made in Europe = FoF
TWIN-TRANSITION-01-2021			AI enhanced robotics system for smart manufacturing	IA	8 - 12	30	3	Made in Europe
TWIN-TRANSITION-02-2021			Zero-defect manufacturing towards zero-waste	IA	9 - 12	27,5	3	Made in Europe
TWIN-TRANSITION-03-2021			Laser-based technologies for green manufacturing	RIA	5 - 7	26	4	Made in Europe
TWIN-TRANSITION-05-2021			Manufacturing technologies for bio-based materials	RIA	4 - 6	20	4	Made in Europe / BBI
TWIN-TRANSITION-01-2022			Rapid reconfigurable production process chains	IA	8 - 12	27,5	3	Made in Europe
TWIN-TRANSITION-02-2022			Products with complex functional surfaces	RIA	4 - 6	20	4	Made in Europe
TWIN-TRANSITION-04-2022			Excellence in distributed control and modular manufacturing	RIA	4 - 6	20	4	Made in Europe
TWIN-TRANSITION-05-2022			Intelligent work piece handling in a full production line	RIA	4 - 8	20	4	Made in Europe
Section	2	2	Advanced digital technologies for manufacturing			41,5		
TWIN-TRANSITION-07-2021			Artificial Intelligence for sustainable, agile manufacturing	IA	3 - 8	19	3	Made in Europe
TWIN-TRANSITION-08-2021			Data-driven Distributed Industrial Environments	IA	4 - 8	22,5	3	Made in Europe
TWIN-TRANSITION-06-2022			ICT Innovation for Manufacturing Sustainability in SMEs (I4MS2)	IA	4 - 8	21	3	Made in Europe
TWIN-TRANSITION-07-2022			Digital tools to support the engineering of a Circular Economy	RIA	3 - 6	22	3	Made in Europe
Section	3	1	A new way to build, accelerating disruptive change in construction			60		Build 4 Europe
TWIN-TRANSITION-10-2021			Digital permits and compliance checks for buildings and infrastructure	IA	5	15	3	
TWIN-TRANSITION-11-2021			Automated tools for the valorisation of construction waste	RIA	6 - 10	21	3	
TWIN-TRANSITION-12-2021			New breakthrough technologies for technological sovereignty in construction	IA	10 - 15	24	3	
TWIN-TRANSITION-10-2022			Demonstrate the use of Digital Logbook for buildings	IA	4,5	9	2	
Section	2	1	Hubs for circularity, a stepping stone towards climate neutrality and circularity in industry			29,5		Processes 4 Planet
TWIN-TRANSITION-14-2021			Deploying industrial-urban symbiosis solutions for the utilization of energy, water, industrial waste and by-products at regional scale	RIA	8 - 12	27,5	3	Processes 4 Planet = SPIRE
TWIN-TRANSITION-16-2021			Hub for European Circularity Community of Practice (ECoP) platform	CSA	2	2	3	Processes 4 Planet

DESTINATION 2

Výzva - Increased autonomy in key strategic value chains for resilient industry

- Call ID: **RESILIENCE**, **22 témat** v roce 2022 (**11** RIA / **7** IA / **3** CSA / **1** PCP), alokovaný rozpočet **411.2 M€**
- Otevření výzvy **12/10/2021** -> uzávěrka **30/03/2022**

6 oblastí



- Novel paradigms to establish **resilient and circular value chains** (1 téma)
- **Raw materials for EU strategic autonomy** and successful transition to a climate-neutral and circular economy (7)
- **Green and sustainable materials** (4)
- **Materials for the benefit of society and the environment** and materials for **decarbonising** industry (4)
- Materials and data **cross-cutting actions** (3)
- Improving the resilience and preparedness of EU businesses, especially **SMEs and startups** (3)

DESTINATION 3

Výzva - World leading data and computing technologies

- Call ID: **DATA**, **5 témat** v roce 2022 (**4** RIA / **1** IA), rozpočet **205 M€**
- Otevření **23/11/2021** -> uzávěrka **05/04/2022**

3 oblasti



- **Data sharing** in the common European data space (1 téma)
- Strengthening Europe's **data analytics** capacity (2 témata)
- From **Cloud to Edge to IoT** for European Data (2 témata)
- High-end computing for exascale performance & beyond

TOPIC	Link to FT portal
Technologies and solutions for data trading, monetizing, exchange and interoperability (IA)	2022-DATA-01-04
Methods for exploiting data and knowledge for extremely precise outcomes (analysis, prediction, decision, support), reducing complexity and presenting insights in understandable way (RIA)	2022-DATA-01-01
Extreme data mining, aggregation and analytics technologies and solutions (RIA)	2022-DATA-01-05
Cognitive Cloud: AI-enabled computing continuum from Cloud to Edge (RIA)	2022-DATA-01-02
Programming tools for decentralised intelligence and swarms (RIA)	2022-DATA-01-03

DESTINATION 4

(1/2)

Výzva - Digital and emerging technologies for competitiveness and fit for the green deal

- Call ID: **DIGITAL-EMERGING**, **14 témat** v 2022 (**9** RIA / **3** IA / **2** CSA / **4** FPA), rozpočet **243.5 M€**
- Otevření **21/12/2021** -> uzávěrka **05/04/2022**,
Graphen témata **16/06/2022** -> **16/11/2022**, Quantum témata **28/10/2021** -> **27/01/2022**

9 oblastí

- **Ultra-low power processors** (1 téma)
- European Innovation Leadership in **Electronics** (1 téma)
- European Innovation Leadership in **Photonics** (1 téma)
- **6G** and foundational **connectivity technologies** (2 téma)
- Innovation in **AI, Data and Robotics** (1 téma)
- Tomorrow's deployable **Robots** (2 téma)
- Leadership in **Emerging Enabling Technologies** (1 téma)
- Flagship on **Quantum** Technologies: a Paradigm Shift (7 témat z výzvy 2021, 2 RIA/ 1 IA / 4 FPA). [DEP-QCI](#).
- **Graphene**: Europe in the lead (5 témat)

DESTINATION 4

(2/2)

Výzva - Digital and emerging technologies for competitiveness and fit for the green deal

TOPIC	Link do FT Portal
Open source for cloud-based services (RIA)	2022-DIGITAL-EMERGING-01-26
International cooperation in semiconductors (CSA)	2022-DIGITAL-EMERGING-01-38
Advanced multi-sensing systems (RIA)	2022-DIGITAL-EMERGING-01-03
European Enabling technologies for Beyond 5G/6G RAN disaggregated architectures (RIA)	2022-DIGITAL-EMERGING-01-30
Ultra low energy and secure networks (RIA)	2022-DIGITAL-EMERGING-01-39
AI, data and robotics for industry optimisation (including production and services) (IA)	2022-DIGITAL-EMERGING-01-05
Pushing the limit of physical intelligence and performance (RIA)	2022-DIGITAL-EMERGING-01-06
Increased robotics capabilities demonstrated in key sectors (IA)	2022-DIGITAL-EMERGING-01-07
Advanced characterisation methodologies to assess and predict the health and environmental risks of nanomaterials (RIA)	2022-DIGITAL-EMERGING-01-35
New generation of advanced electronic and photonic 2D materials-based devices, systems and sensors (RIA)	2022-DIGITAL-EMERGING-02-17
2D materials-based devices and systems for energy storage and/or harvesting (RIA)	2022-DIGITAL-EMERGING-02-18
2D materials-based devices and systems for biomedical applications (RIA)	2022-DIGITAL-EMERGING-02-19
2D-material-based composites, coatings and foams (IA)	2022-DIGITAL-EMERGING-02-20
Supporting the coordination of the Graphene Flagship projects (CSA)	2022-DIGITAL-EMERGING-02-22
Framework Partnership Agreement for developing the first large-scale quantum computers (FPA)	2021-DIGITAL-EMERGING-02-15
Framework Partnership Agreement for developing large scale quantum simulation platform technologies (FPA)	2021-DIGITAL-EMERGING-02-17
Framework Partnership Agreements in Quantum Communications (FPA)	2021-DIGITAL-EMERGING-02-19
Framework Partnership Agreements for open testing and experimentation and for pilot production capabilities for quantum technologies (FPA)	2021-DIGITAL-EMERGING-02-22
Quantum sensing technologies for market uptake (IA)	2021-DIGITAL-EMERGING-02-20
Strengthening the quantum software ecosystem for quantum computing platforms (RIA)	2021-DIGITAL-EMERGING-02-10
Basic Science for Quantum Technologies (RIA)	2021-DIGITAL-EMERGING-02-16

DESTINATION 5

Výzva - Strategic autonomy in developing, deploying and using global space-based infrastructures, services, applications and data

Informace následují v závěru této prezentace

DESTINATION 6

Výzva - A human-centred and ethical development of digital and industrial technologies

- Call ID: **HUMAN**, **7 témat** v 2022 (**6** RIA / **1** IA), rozpočet **121 M€**
- Otevření **21/12/2021** -> uzávěrka **05/04/2022**

3 oblasti



- Leadership in AI based on trust (1 téma)
- An Internet of Trust (2 témata)
- eXtended Reality (XR) (2 témata)

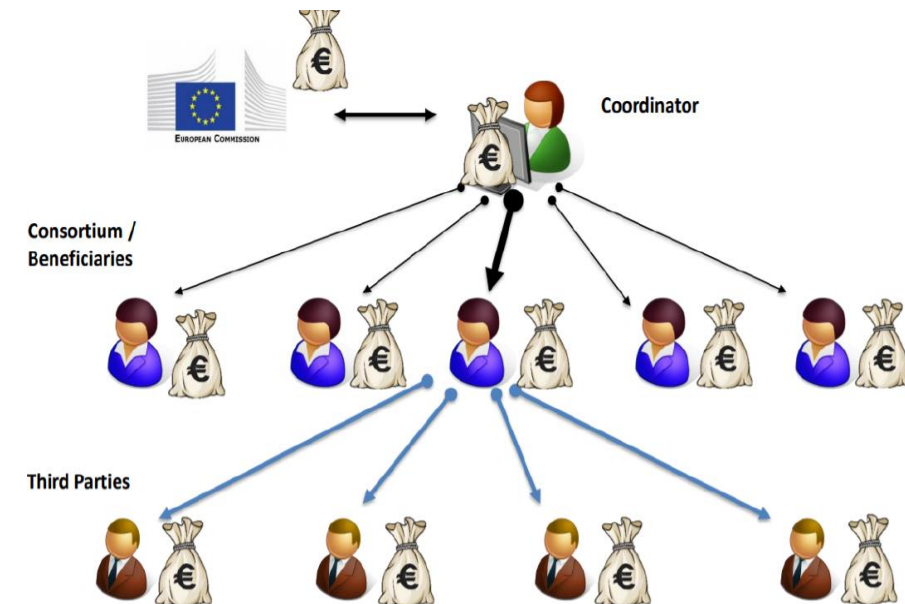
TOPIC	Link to FT portal
AI for human empowerment (RIA)	2022-HUMAN-01-01
European Network of AI Excellence Centres: Expanding the European AI lighthouse (RIA)	2022-HUMAN-01-02
Internet architecture and decentralised technologies (RIA)	2022-HUMAN-01-03
Next Generation Safer Internet: Technologies to identify digital Child Sexual Abuse Material (CSAM) (RIA)	2022-HUMAN-01-05
NGI International Collaboration - USA and Canada (RIA)	2022-HUMAN-01-07
eXtended Reality Learning - Engage and Interact (IA)	2022-HUMAN-01-19
eXtended Reality Technologies (RIA)	2022-HUMAN-01-14

FSTP (FINANCIAL SUPPORT TO THE THIRD PARTIES)

- V některých projektech Horizontu 2020 a Horizontu Evropa se vyskytují tzv. **Kaskádové granty**, kde příjemce podpory vyhlásí vlastní výzvy k podávání návrhů.
- Seznam otevřených výzev naleznete na stránce [Funding & Tenders portálu](#).
- Jedná se převážně o příležitosti v oblasti ICT nabízené firmám a startupům za účelem podpořit využívání digitálních technologií. Tato finanční podpora "třetím stranám" dosahuje obvykle 60 – 100 000 EUR. Příprava žádosti je méně náročná.

Příklady:

- Projekt [BOWI](#) zaměřený na technologie v oblastech [AI](#), [IoT](#), [kyberfyzické systémy](#) a [low-energy computing](#) připravuje výzvu s uzávěrkou v **únoru 2022**, v níž mohou žadatelé z ČR (firmy) získat podporu ve výši až 60 000 €. [Úspěšní řešitelé](#) z ČR. 
- Projekt [Smart4All](#) podporuje přenos technologií spojených s [CPS](#) a [využitím IoT v dopravě, ŽP, zemědělství](#) a jinde. Podpora (nejen firmám) je až 80 000 €. Uzávěrky jsou v **květnu, srpnu a v listopadu 2022**. [Žadatel](#) z ČR. 
- Projekt [SmartAgriHubs](#) zaměřený na [digitální transformaci zemědělského a potravinářského sektoru](#) otevřel výzvu s uzávěrkou **17. února 2022**. Výše podpory je až 200 000 €. [Partner](#) z ČR. 



VÝZVY S MECHANISMEM „FSTP“

- Z pracovních programů lze již nyní vyčíst, čemu budou vybraná konsorcia poskytovat podporu.
- Přehled [výzev a témat](#) indikuje budoucí projekty, které budou otevírat vlastní "mikrovýzvy", tzv. open calls či kaskádové granty.
- Výsledky hodnocení prvních výzev uzavřených v září 2021 budou k dispozici v prosinci 2021. Do zhruba 2 měsíců budou konsorcia ustavená a můžete se na nás obrátit pro doporučení konkrétních kaskádových grantů.

Cluster number	Cluster name	Year	Topic identifier	Topic name	Closing date
Cluster 3	Civil security for	2022	CS-2022-01-01	Improved monitoring of threats, intrusion detection and response in	16.11.2022
Cluster 3	Civil security for	2022	CS-2022-01-03	Transition towards Quantum-Resistant Cryptography	16.11.2022
Cluster 4	Digital, industry	2022	2022-DIGITAL-EMERGING-01-05	AI, data and robotics for industry optimisation (including production	05.04.2022
Cluster 4	Digital, industry	2022	2022-DIGITAL-EMERGING-01-07	Increased robotics capabilities demonstrated in key sectors	05.04.2022
Cluster 4	Digital, industry	2022	2022-HUMAN-01-02	European Network of AI Excellence Centres: Expanding the European	05.04.2022
Cluster 4	Digital, industry	2022	2022-HUMAN-01-03	Internet architecture and decentralised technologies	05.04.2022
Cluster 4	Digital, industry	2022	2022-HUMAN-01-07	NGI International Collaboration - USA and Canada	05.04.2022
Cluster 4	Digital, industry	2022	2022-HUMAN-01-19	eXtended Reality Learning - Engage and Interact	05.04.2022
Cluster 4	Digital, industry	2022	2022-RESILIENCE-01-26	'Innovate to transform' support for SME's sustainability transition	30.03.2022
Cluster 4	Digital, industry	2022	2022-TWIN-TRANSITION-01-06	ICT Innovation for Manufacturing Sustainability in SMEs (I4MS2)	30.03.2022
Cluster 6	Food, Bioeconomy	2022	CL6-2022-BIODIV-01-02	Building taxonomic research capacity near biodiversity hotspots and	15.02.2022
Cluster 6	Food, Bioeconomy	2022	CL6-2022-FARM2FORK-01-13	AU-EU Combatting all forms of malnutrition	15.02.2022
Cluster 6	Food, Bioeconomy	2022	CL6-2022-FARM2FORK-01-14	African food cities	15.02.2022
Cluster 6	Food, Bioeconomy	2022	CL6-2022-FARM2FORK-02-04-two	Smart solutions for the use of digital technologies for small- and med	15.02.2022
Cluster 6	Food, Bioeconomy	2022	CL6-2022-CLIMATE-01-04	Fostering the resilience of agricultural production: from observation	15.02.2022
Cluster 6	Food, Bioeconomy	2022	CL6-2022-CLIMATE-01-05	Forestry - European observatory of climate change impacts and dem	15.02.2022
Cluster 6	Food, Bioeconomy	2022	CL6-2022-COMMUNITIES-02-01-tv	Smart solutions for smart rural communities: empowering rural comm	15.02.2022
Cluster 6	Food, Bioeconomy	2022	CL6-2022-GOVERNANCE-01-10	Piloting approaches and tools to empower citizens to exercise their	15.02.2022

Výzvy Klastru 3 – Civil security for society

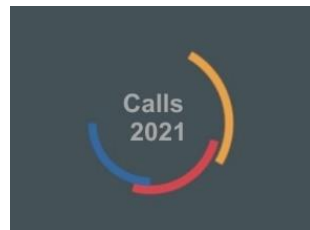
Work programme
Cluster 3 - 2022:
budget 189,8 mil €,
31 topics

- 1 Better protect the EU and its citizens against Crime and Terrorism (FCT)
- 2 Effective management of EU external borders (BM)
- 3 A Disaster-Resilient Society for Europe (DRS)
- 4 Resilient Infrastructure (INFRA)
- 5 **Increased Cybersecurity (CS)**
Otevření 30/06/2022 -> uzávěrka 16/11/2022, rozpočet 67,3 M€

TOPIC	FT portal link
Improved monitoring of threats, intrusion detection and response in complex and heterogeneous digital systems and infrastructures (IA)	CS-2022-01-01
Trustworthy methodologies, tools and data security "by design" for dynamic testing of potentially vulnerable, insecure hardware and software components (RIA)	CS-2022-01-02
Transition towards Quantum-Resistant Cryptography (IA)	CS-2022-01-03
Development and validation of processes and tools used for agile certification of ICT products, ICT services and ICT processes (IA)	CS-2022-01-04

- 6 Strengthened Security Research and Innovation (SSRI)

FTOP (Funding and Tender Opportunities Portal)



NÁŠ WEB



- Pracovní programy
- Přehled výzev
- Seznamy témat
- Elektronická zadávací / reportovací dokumentace
- Nástroj pro hledání partnerů
- Přehled financovaných projektů (CORDIS)

- Struktura programu HE podle pilířů a klastrů (+ Mise / Partnerství)
- Horizontální agendy – finanční, právní + **e-learning**
- Přehled výzev
- Kalendář akcí
- Přehled souvisejících iniciativ

ec.europa.eu/info/funding-tenders/opportunities/portal/screen/programmes/horizon



www.horizontevropa.cz

Informační dny EK k výzvám Klastru 4



Informační dny EK Klastru 4 – tři dny **29/11 – 1/12/2021**

Představení Destinations 1 – 6 a jejich témat POs

>> **záznam** akce ([YouTube kanál EK](#))

Podrobné komentáře jednotlivých témat + prostor na dotazy >> **FAQ** na FTOP v oddílu Destination 5 (SPACE) - blok o hodnocení ([HaDEA](#) - Health and Digital Executive Agency)

- Navazující partnerská burza pro Destinations 1-4 a 6 – **2 - 3/12/2021** až do 4/2022
- Partnerská burza pro Destination 5 (SPACE) otevřena do 16/02/2022
- Brokerage ECS (Key Digital Technologies) **18 - 19/12/2022** (úč. poplatek)

Evropská partnerství (49)

PILLAR II - Global challenges & European industrial competitiveness

CLUSTER 1: Health	CLUSTER 4: Digital, Industry & Space	CLUSTER 5: Climate, Energy & Mobility
Innovative Health Initiative	Key Digital Technologies	Clean Hydrogen
Global Health Partnership	Smart Networks & Services	Clean Aviation
Transformation of health systems	High Performance Computing	Single European Sky ATM Research 3
Chemicals risk assessment	European Metrology (Art. 185)	Europe's Rail
ERA for Health	AI-Data-Robotics	Connected and Automated Mobility (CCAM)
Rare diseases*	Photonics	Batteries
One-Health Anti Microbial Resistance*	Made in Europe	Zero-emission waterborne transport
Personalised Medicine*	Clean steel – low-carbon steelmaking	Zero-emission road transport
Pandemic Preparedness* <i>Co-funded or co-programmed</i>	Processes4Planet	Built4People
	Global competitive space systems**	Clean Energy Transition
		Driving Urban Transitions

- Institutionalised Partnerships (Art 185/7)
- Institutionalised partnerships / EIT KICs
- Co-Programmed
- Co-Funded

PILLAR III - Innovative Europe

EIT	SUPPORT TO INNOVATION ECOSYSTEMS
InnoEnergy	Innovative SMEs
Climate	
Digital	
Food	
Health	
Raw Materials	
Manufacturing	
Urban Mobility	
Cultural and Creative Industries	

CROSS-PILLARS II AND III

European Open Science Cloud

* Calls with opening dates in 2023-24
 ** Calls with opening dates not before 2022



European Commission



Evropská partnerství – Klastř 4

■ Společně programovaná (společně programovaná)

- Artificial Intelligence, Data and Robotics
- Photonics
- Clean Steel - Low Carbon Steelmaking / RFCS
- Made in Europe (FoF)
- Processes4Planet (SPIRE)
- Globally Competitive Space Systems

↑ Jsou součástí WP pro **Klastru 4**
Financovaná přímo EK

■ Institucionalizovaná (Joint Undertakings)

- High Performance Computing
- **Key Digital Technologies (ECSEL)**
- Smart Networks and Services
- **European Metrology (EURAMET)**

➔ Právní zakotvení – **Single Basic Act** (xi-2021)
Publikace pracovních programů
+ otevření výzev do konce roku 2021
Kofinancované EK (+MS)

EK https://ec.europa.eu/info/horizon-europe/european-partnerships-horizon-europe_en

TC Horizont Evropa – Evropská partnerství

Další iniciativy

- **ERA-NETs** – výzvy obvykle 1x ročně, financování účastníků národními poskytovateli
menší projekty, především výzkumné projekty, více ´bottom-up´ charakter

Quant ERA (MŠMT/TAČR>>), M-ERA.NET, EuroNanoMed, CHIST-ERA, ERA-MIN
Aquatic Pollutants, BioDivRestore, Positive Energy Districts, EnerDigit

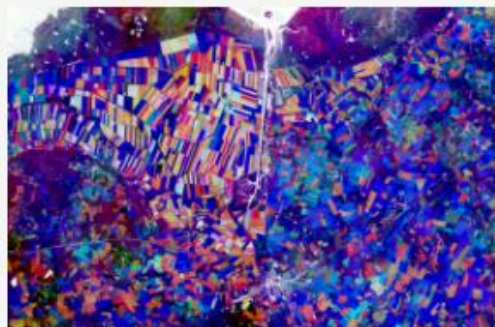


Informace – vlastní informační weby ERA-NETs + TAČR/MŠMT
+ web TC Horizont Evropa (Související iniciativy)

EU SPACE POLICY

- **Meeting key societal challenges:** EU space programmes provide public services to EU public authorities, companies and citizens. Space data is essential to answering societal challenges such as the sustainable consumption of natural resources, safety and security, and climate change.
- **Jobs and industrial growth:** The space sector provides over 230,000 jobs in the EU from manufacturing to space operations and downstream services. It is worth between €46-54 billion to the EU economy.
- **Ensuring EU autonomy:** Europe's access to space underpins the implementation of many EU policies, the competitiveness of European industry and businesses, as well as its security, defence and strategic autonomy. Space reinforces the role of Europe as a stronger global actor.

EU SPACE COMPONENTS



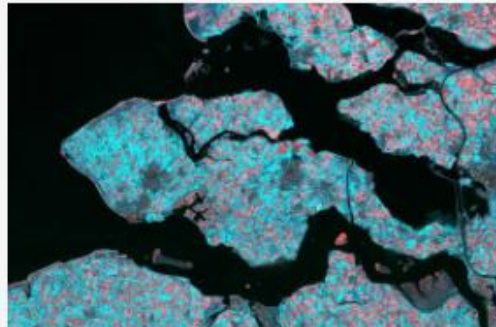
Copernicus

[More about Copernicus](#)



Galileo

[More about Galileo](#)



EGNOS

[More about EGNOS](#)

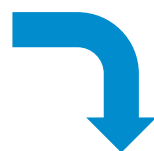


Govsatcom

[More about Govsatcom](#)

Přímé financování + Horizon Europe

€13,202 billion EUR for 2021 – 2027



SPACE IN HORIZON EUROPE

SPACE - Destination 5

Klíčové strategické cíle

- Foster competitiveness of space systems
- Reinforce our capacity to access to space
- Evolution of Space and ground infrastructures for Galileo/EGNOS
- Evolution of services for Galileo, EGNOS and Copernicus
- Development of applications for Galileo, EGNOS and Copernicus
- Innovative space capabilities: SSA, GOVSATCOM, Quantum
- Space entrepreneurship ecosystems (incl. New Space and start-ups) and skills
- Targeted and strategic actions supporting the EU space sector

DESTINATION 5 (1/2)

Výzva - Strategic autonomy in developing, deploying and using global space-based infrastructures, services, applications and data

Call ID: **SPACE**, **36 témat** in 2021-2022, Opening 28/10/2021 -> deadline **16/02/2022, 157 mil EUR**

TOPIC	Topic code
End to end satellite communication systems and associated services (RIA)	2021-SPACE-01-11
Future space ecosystems: on-orbit operations, new system concepts (RIA)	2021-SPACE-01-12
Future space ecosystems: on-orbit operations, preparation of orbital demonstration mission (RIA)	2022-SPACE-01-11
Technologies and generic building blocks for Electrical Propulsion	2022-SPACE-01-12
End-to-end Earth observation systems and associated services	2022-SPACE-01-13
Reusability for European strategic space launchers - technologies and operation maturation including flight test demonstration (RIA)	2021-SPACE-01-21
Low cost high thrust propulsion for European strategic space launchers - technologies maturation including ground tests (RIA)	2021-SPACE-01-22
New space transportation solutions and services (RIA)	2021-SPACE-01-23
Multi sites flexible industrial platform and standardised technology for improving interoperability of European access to space ground facilities (RIA)	2022-SPACE-01-21
Copernicus Climate Change Service evolution (RIA)	2021-SPACE-01-41
Copernicus Atmosphere Monitoring Service evolution (RIA)	2021-SPACE-01-42
Copernicus Security and Emergency Services evolution (RIA)	2021-SPACE-01-43
Copernicus evolution for cross-services thematic domains (RIA)	2021-SPACE-01-44
Copernicus Marine Environment Monitoring Service evolution (RIA)	2022-SPACE-01-41
Copernicus Anthropogenic CO ₂ Emissions Monitoring & Verification Support (MVS) capacity (RIA)	2022-SPACE-01-42
Copernicus Land Monitoring Service evolution (RIA)	2022-SPACE-01-43

DESTINATION 5 (2/2)

Call - Strategic autonomy in developing, deploying and using global space-based infrastructures, services, applications and data

TOPIC	Topic code
Quantum technologies for space gravimetry (RIA)	2021-SPACE-01-62
Space Weather (RIA)	2022-SPACE-01-62
Education and skills for the EU space sector (CSA)	2022-SPACE-01-72
Space technologies for European non-dependence and competitiveness (RIA)	2021-SPACE-01-81
Space technologies for European non-dependence and competitiveness (RIA)	2022-SPACE-01-81
Space science and exploration technologies (RIA)	2022-SPACE-01-82
New & improved EUSST Missions and Services (RIA)	HORIZON-CL4-SSA-SST-MS
SST & STM system architecture and evolutions (RIA)	HORIZON-CL4-SSA-SST-STM-AE
Space-based SST (mission, system and sensors network) (RIA)	HORIZON-CL4-SSA-SST-SB
SST Sensors and Processing (RIA)	HORIZON-CL4-SSA-SST-SP
SST Networking, Security & Data sharing (IA)	HORIZON-CL4-SSA-SST-SD
EGNSS and Copernicus applications fostering the European Green deal (IA)	EUSPA-2021-SPACE-02-51
EGNSS applications for Safety and Crisis management (IA)	EUSPA-2021-SPACE-02-52
EGNSS applications for the Digital Age (IA)	EUSPA-2021-SPACE-02-53
EGNSS applications for Smart mobility (IA)	EUSPA-2022-SPACE-02-51
Public sector as Galileo and/or Copernicus user (PCP)	EUSPA-2022-SPACE-02-52
Copernicus downstream applications and the European Data Economy (IA)	EUSPA-2022-SPACE-02-54
Large-scale Copernicus data uptake with AI and HPC (RIA)	EUSPA-2022-SPACE-02-55
Designing space-based downstream applications with international partners (RIA)	EUSPA-2022-SPACE-02-56
GOVSATCOM Service developments and demonstrations (RIA)	EUSPA-2022-SPACE-02-61

SLUŽBY GALILEO/EGNOS A COPERNICUS VE VÝZVÁCH HORIZONTU EVROPA

- v tématech doporučujících využití navigačních, polohovacích a dalších služeb vč. dálkového pozorování Země **Evropská komise nařizuje zapojení pouze evropských systémů Galileo/EGNOS a Copernicus**
- Přehled všech výzev a témat v Pilíři 2 Horizontu Evropa obsahujících využívání služeb Galileo/EGNOS a Copernicus ke stažení zde:



Přehled témat obsahujících využívání služeb Galileo/EGNOS a Copernicus	
Pracovní programy pro r. 2021 a r. 2022, Pilíř 2 Horizontu Evropa, Globální výzvy a konkurenceschopnost evropského průmyslu	
Topic	Opening date
HORIZON-HLTH-2021-ENVHLTH-02-03: Health impacts of climate change, costs and benefits of action and inaction	22.06.2021
HORIZON-HLTH-2021-CARE-05-02: Data-driven decision-support tools for better health care delivery and policy-making with a focus on cancer	22.06.2021
HORIZON-HLTH-2022-ENVHLTH-04-01: Methods for assessing health-related costs of environmental stressors	06.10.2021
HORIZON-CL2-2021-HERITAGE-01-04: Preserving and enhancing cultural heritage with advanced digital technologies	22.06.2021
HORIZON-CL2-2021-HERITAGE-02-02: Coordination of European cultural heritage research and innovation among Member States	22.06.2021
HORIZON-CL2-2022-HERITAGE-01-07: Protection of artefacts and cultural goods from anthropogenic threats	20.01.2022
HORIZON-CL2-2022-HERITAGE-01-08: Effects of climate change and natural hazards on cultural heritage and remediation	20.01.2022
HORIZON-CL3-2021-FCT-01-07: Improved preparedness on attacks to public spaces	30.06.2021
HORIZON-CL3-2021-FCT-01-08: Fight against trafficking in cultural goods	30.06.2021



Pro další spolupráci ...

NCP programu Horizont Evropa Klastř 4 – Digital, Industry and Space

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