



UNIUNEA EUROPEANĂ



**CeS-UTCN - Excelența Științifică și Specializare Inteligentă prin crearea unui Centru Suport dedicat facilitării accesului entităților publice și private la proiecte/competiții CD**

Proiect cofinanțat din Fondul European de Dezvoltare Regională prin Programul Operațional Competitivitate



**Avizat,**

**Manager de proiect,**

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## **BULETIN INFORMATIV NR. 20**

### **Programul Orizont Europa**

**Apeluri deschise în anul 2022 pentru Clusterul 4 – Digital, Industry and Space**

## CLUSTER 4 – DIGITAL, INDUSTRY AND SPACE

### Destination – Climate neutral, circular and digitized production

- *Call - Climate neutral, circular and digitized production 2022 - HORIZON-CL4-2022-TWIN-TRANSITION-01*

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million)	Number of projects expected to be funded
		2022		
<b>Opening: 12 Oct 2021 Deadline(s): 30 Mar 2022</b>				
<b>Rapid reconfigurable production process chains (Made in Europe Partnership) (IA):</b> HORIZON-CL4-2022-TWIN-TRANSITION01-01	IA	27.50	8.00 to 10.00	3
<b>Products with complex functional surfaces (Made in Europe Partnership) (RIA):</b> HORIZON-CL4-2022-TWIN-TRANSITION01-02	RIA	21.50	4.00 to 6.00	4
<b>Excellence in distributed control and modular manufacturing (Made in Europe Partnership) (RIA):</b> HORIZON-CL4-2022-TWIN-TRANSITION01-03	RIA	21.50	4.00 to 6.00	4
<b>Intelligent work piece handling in a full production line (Made in Europe Partnership) (RIA):</b> HORIZON-CL4-2022-TWIN-TRANSITION01-04	RIA	21.50	4.00 to 6.00	4
<b>ICT Innovation for Manufacturing Sustainability in SMEs (I4MS2) (Made in Europe Partnership) (IA):</b> HORIZON-CL4-2022-TWIN-TRANSITION01-06	IA	30.00	4.00 to 8.00	4
<b>Digital tools to support the engineering of a Circular Economy (Made in Europe Partnership) (RIA):</b> HORIZON-CL4-2022-TWIN-TRANSITION01-07	RIA	22.00	3.00 to 6.00	3
<b>Demonstrate the use of Digital Logbook for buildings (IA):</b> HORIZON-CL4-2022-TWIN-TRANSITION01-09	IA	9.00	Around 4.50	2
<b>Circular flows for solid waste in urban environment (Processes4Planet Partnership) (IA):</b> HORIZON-CL4-2022-TWIN-TRANSITION01-10	IA	42.50	12.00 to 18.00	3

<b>Valorization of CO/CO2 streams into added-value products of market interest (Processes4Planet Partnership) (IA):</b> HORIZON-CL4-2022-TWIN-TRANSITION01-11	IA	42.50	12.00 to 18.00	3
<b>Raw material preparation for clean steel production (Clean Steel Partnership) (IA):</b> HORIZON-CL4-2022-TWIN-TRANSITION01-13	IA	14.00	4.00 to 5.00	3
<b>New electrochemical conversion routes for the production of chemicals and materials in process industries (Processes4Planet Partnership) (RIA):</b> HORIZON-CL4-2022-TWIN-TRANSITION01-15	RIA	30.00	8.00 to 12.00	3
<b>Modular and hybrid heating technologies in steel production (Clean Steel Partnership) (IA):</b> HORIZON-CL4-2022-TWIN-TRANSITION01-16	IA	10.00	Around 3.00	3
<b>Integration of hydrogen for replacing fossil fuels in industrial applications (Processes4Planet Partnership) (IA):</b> HORIZON-CL4-2022-TWIN-TRANSITION01-17	IA	42.50	12.00 to 18.00	3
Overall indicative budget		334.50		

### **Destination – Increased autonomy in key strategic value chains for resilient industry**

- *Call - A digitized, resource-efficient and resilient industry 2022 - HORIZON-CL4-2022-RESILIENCE-01*

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million)	Number of projects expected to be funded
		2022		
<b>Opening: 12 Oct 2021 Deadline(s): 30 Mar 2022</b>				
<b>Circular and low emission value chains through digitalization (Processes4Planet Partnership) (RIA):</b> HORIZON-CL4-2022-RESILIENCE-01-01	RIA	25.30	6.00 to 8.00	4
<b>Monitoring and supervising system for exploration and future exploitation activities in the deep sea (RIA):</b> HORIZON-CL4-2022-RESILIENCE-01-02	RIA	14.00	Around 14.00	1

<b>Streamlining cross-sectoral policy framework throughout the extractive life-cycle in environmentally protected areas (CSA):</b> HORIZON-CL4-2022-RESILIENCE-01-03	CSA	2.40	Around 2.40	1
<b>Developing digital platforms for the small scale extractive industry (IA):</b> HORIZON-CL4-2022-RESILIENCE-01-04	IA	15.00	Around 5.00	3
<b>Technological solutions for tracking raw material flows in complex supply chains (RIA):</b> HORIZON-CL4-2022-RESILIENCE-01-05	RIA	13.50	Around 13.50	1
<b>Sustainable and innovative mine of the future (IA):</b> HORIZON-CL4-2022-RESILIENCE-01-06	IA	36.00	Around 12.00	3
<b>Innovative solutions for efficient use and enhanced recovery of mineral and metal by-products from processing of raw materials (IA):</b> HORIZON-CL4-2022-RESILIENCE-01-07	IA	36.00	Around 12.00	3
<b>Earth observation technologies for the mining life cycle in support of EU autonomy and transition to a climate-neutral economy (RIA):</b> HORIZON-CL4-2022-RESILIENCE-01-08	RIA	13.50	Around 4.50	3
<b>Innovative materials for advanced (nano)electronic components and systems (RIA):</b> HORIZON-CL4-2022-RESILIENCE-01-10	RIA	20.00	3.00 to 5.00	4
<b>Advanced lightweight materials for energy efficient structures (RIA):</b> HORIZON-CL4-2022-RESILIENCE-01-11	RIA	20.00	3.00 to 5.00	5
<b>Functional multi-material components and structures (RIA):</b> HORIZON-CL4-2022-RESILIENCE-01-12	RIA	20.00	4.00 to 6.00	4
<b>Smart and multifunctional biomaterials for health innovations (RIA):</b> HORIZON-CL4-2022-RESILIENCE-01-13	RIA	20.00	3.00 to 5.00	3
<b>Membranes for gas separations - membrane distillation (IA):</b> HORIZON-CL4-2022-RESILIENCE-01-14	IA	21.00	6.00 to 8.00	6
<b>Building and renovating by exploiting advanced materials for energy and resources efficient management (IA):</b> HORIZON-CL4-2022-RESILIENCE-01-16	IA	21.00	5.00 to 7.00	3
<b>Advanced materials modelling and characterization (RIA):</b> HORIZON-CL4-2022-RESILIENCE-01-19	RIA	18.00	4.00 to 6.00	3
<b>Climate Neutral and Circular Innovative Materials Technologies Open Innovation Test Beds (IA):</b> HORIZON-CL4-2022-RESILIENCE-01-20	IA	34.00	10.00 to 12.00	3

<b>Leveraging standardization in Digital Technologies (CSA):</b> HORIZON-CL4-2022-RESILIENCE-01-21	CSA	4.50	Around 4.50	1
<b>Safe- and sustainable-by-design organic and hybrid coatings (RIA):</b> HORIZON-CL4-2022-RESILIENCE-01-23	RIA	20.00	3.00 to 5.00	4
<b>Novel materials for supercapacitor energy storage (RIA):</b> HORIZON-CL4-2022-RESILIENCE-01-24	RIA	23.00	4.00 to 6.00	4
<b>Optimized Industrial Systems and Lines through digitalization (IA):</b> HORIZON-CL4-2022-RESILIENCE-01-25	IA	15.00	4.00 to 5.00	1
<b>'Innovate to transform' support for SME's sustainability transition (CSA):</b> HORIZON-CL4-2022-RESILIENCE-01-26	CSA	10.00	Around 5.00	2
Overall indicative budget		402.20		

- *Call - A digitized, resource-efficient and resilient industry 2022 (PCP) - HORIZON-CL4-2022-RESILIENCE-02-PCP*

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million)	Number of projects expected to be funded
		2022		
<b>Opening: 12 Oct 2021 Deadline(s): 30 Mar 2022</b>				
<b>Boosting green economic recovery and open strategic autonomy in Strategic Digital Technologies through pre-commercial procurement (PCP action):</b> HORIZON-CL4-2022-RESILIENCE-02-01-PCP	PCP	9.00	Around 9.00	1
Overall indicative budget		9.00		

## Destination – World leading data and computing technologies

- *Call - World leading data and computing technologies 2022 - HORIZON-CL4-2022-DATA-01*

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million)	Number of projects expected to be funded
		2022		
<b>Opening: 23 Nov 2021 Deadline(s): 05 Apr 2022</b>				
<b>Methods for exploiting data and knowledge for extremely precise outcomes (analysis, prediction, decision support), reducing complexity and presenting insights in understandable way (RIA): HORIZON-CL4-2022-DATA-01-01</b>	RIA	33.00	8.00 to 12.00	3
<b>Cognitive Cloud: AI-enabled computing continuum from Cloud to Edge (RIA): HORIZON-CL4-2022-DATA-01-02</b>	RIA	50.00	4.00 to 6.00	10
<b>Programming tools for decentralized intelligence and swarms (RIA): HORIZON-CL4-2022-DATA-01-03</b>	RIA	40.00	4.00 to 8.00	5
<b>Technologies and solutions for data trading, monetizing, exchange and interoperability (AI, Data and Robotics Partnership) (IA): HORIZON-CL4-2022-DATA-01-04</b>	IA	52.00	10.00 to 13.00	4
<b>Extreme data mining, aggregation and analytics technologies and solutions (RIA): HORIZON-CL4-2022-DATA-01-05</b>	RIA	30.00	Around 5.00	6
Overall indicative budget		205.00		

## Destination – Digital and emerging technologies for competitiveness and fit for the green deal

- *Call - Digital and emerging technologies for competitiveness and fit for the green deal - HORIZON-CL4-2021-DIGITAL-EMERGING-02*

Topics	Type of Action	Budgets (EUR million)		Expected EU contribution per project (EUR million)	Number of projects expected to be funded
		2021	2022		
<b>Opening: 02 Nov 2021 Deadline(s): 27 Jan 2022</b>					
<b>Strengthening the quantum software ecosystem for quantum computing platforms (RIA): HORIZON-CL4-2021-DIGITALEMERGING-02-10</b>	RIA		12.00	5.00 to 7.00	2
<b>Framework Partnership Agreement for developing the first large-scale quantum computers (FPA): HORIZON-CL4-2021-DIGITALEMERGING-02-15</b>	FPA				0
<b>Basic Science for Quantum Technologies (RIA): HORIZON-CL4-2021-DIGITALEMERGING-02-16</b>	RIA		16.00	2.00 to 3.00	5
<b>Framework Partnership Agreement for developing large scale quantum simulation platform technologies (FPA): HORIZON-CL4-2021-DIGITALEMERGING-02-17</b>	FPA				0
<b>Framework Partnership Agreements in Quantum Communications (FPA): HORIZON-CL4-2021-DIGITALEMERGING-02-19</b>	FPA				0
<b>Quantum sensing technologies for market uptake (IA): HORIZON-CL4-2021-DIGITALEMERGING-02-20</b>	IA	23.00		7.00 to 10.00	3
<b>Framework Partnership Agreements for open testing and experimentation and for pilot production capabilities for quantum technologies (FPA): HORIZON-CL4-2021-DIGITALEMERGING-02-22</b>	FPA				0
Overall indicative budget		23.00	28.00		

- *Call - Digital and emerging technologies for competitiveness and fit for the green deal - HORIZON-CL4-2022-DIGITAL-EMERGING-01*

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million)	Number of projects expected to be funded
		2022		
<b>Opening: 21 Dec 2021 Deadline(s): 05 Apr 2022</b>				
<b>Advanced multi-sensing systems (Photonics Partnership) (RIA):</b> HORIZON-CL4-2022-DIGITAL-EMERGING01-03	RIA	48.00	3.00 to 5.00	10
<b>Open source for cloud-based services (RIA):</b> HORIZON-CL4-2022-DIGITAL-EMERGING01-26	RIA	22.00	4.00 to 6.00	4
<b>European Enabling technologies for Beyond 5G/6G RAN disaggregated architectures (RIA):</b> HORIZON-CL4-2022-DIGITAL-EMERGING01-30	RIA	13.00	Around 13.00	1
<b>Advanced characterization methodologies to assess and predict the health and environmental risks of nanomaterials (RIA):</b> HORIZON-CL4-2022-DIGITAL-EMERGING01-35	RIA	17.50	2.00 to 3.00	5
<b>International cooperation in semiconductors (CSA):</b> HORIZON-CL4-2022-DIGITAL-EMERGING01-38	RIA	3.00	Around 3.00	1
<b>Ultra-low energy and secure networks (RIA):</b> HORIZON-CL4-2022-DIGITAL-EMERGING01-39	RIA	13.00	Around 13.00	1
Overall indicative budget		116.50		



- *Call - Digital and emerging technologies for competitiveness and fit for the green deal - HORIZON-CL4-2022-DIGITAL-EMERGING-02*

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million)	Number of projects expected to be funded
		2022		
<b>Opening: 16 Jun 2022 Deadline(s): 16 Nov 2022</b>				
<b>AI, Data and Robotics for Industry optimization (including production and services) (AI, Data and Robotics Partnership) (IA):</b> HORIZON-CL4-2022-DIGITAL-EMERGING02-05	IA	19.00	3.00 to 5.00	5
<b>Pushing the limit of physical intelligence and performance (RIA):</b> HORIZON-CL4-2022-DIGITAL-EMERGING02-06	RIA	28.50	Around 4.00	7
<b>Increased robotics capabilities demonstrated in key sectors (AI, Data and Robotics Partnership) (IA):</b> HORIZON-CL4-2022-DIGITAL-EMERGING02-07	IA	36.00	Around 6.00	6
<b>New generation of advanced electronic and photonic 2D materials-based devices, systems and sensors (RIA):</b> HORIZON-CL4-2022-DIGITAL-EMERGING02-17	RIA	16.50	Around 16.50	1
<b>2D materials-based devices and systems for energy storage and/or harvesting (RIA):</b> HORIZON-CL4-2022-DIGITAL-EMERGING02-18	RIA	9.00	Around 9.00	1
<b>2D materials-based devices and systems for biomedical applications (RIA):</b> HORIZON-CL4-2022-DIGITAL-EMERGING02-19	RIA	6.00	Around .00	1
<b>2D-material-based composites, coatings and foams (IA):</b> HORIZON-CL4-2022-DIGITAL-EMERGING02-20	IA	9.00	Around9.00	1
<b>Supporting the coordination of the Graphene Flagship projects (CSA):</b> HORIZON-CL4-2022-DIGITAL-EMERGING02-22	CSA	3.00	Around 3.00	1
Overall indicative budget		127.00		

**Destination – Open strategic autonomy in developing, deploying and using global space-based infrastructures, services, applications and data**

- *Call - Strategic autonomy in developing, deploying and using global space-based infrastructures, services, applications and data 2022 - HORIZON-CL4-2022-SPACE-01*

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million)	Number of projects expected to be funded
		2022		
<b>Opening: 02 Nov 2021 Deadline(s): 16 Feb 2022</b>				
<b>Future space ecosystems: on-orbit operations, preparation of orbital demonstration mission: HORIZON-CL4-2022-SPACE-01-11</b>	RIA	26.00	20.00 to 26.00	1
<b>Technologies and generic building blocks for electrical Propulsion: HORIZON-CL4-2022-SPACE-01-12</b>	IA	5.10	1.00 to 2.00	3
<b>End-to-end Earth observation systems and associated services: HORIZON-CL4-2022-SPACE-01-13</b>	IA	8.10	2.00 to 3.00	3
<b>Multi sites flexible industrial platform and standardized technology for improving interoperability of European access to space ground facilities: HORIZON-CL4-2022-SPACE-01-21</b>	RIA	2.00	1.00 to 2.00	1
<b>Copernicus Marine Environment Monitoring Service evolution: HORIZON-CL4-2022-SPACE-01-41</b>	RIA	10.00	8.00 to 10.00	1
<b>Copernicus Anthropogenic CO<sub>2</sub> Emissions Monitoring &amp; Verification Support (MVS) capacity: HORIZON-CL4-2022-SPACE-01-42</b>	RIA	6.00	5.00 to 6.00	1
<b>Copernicus Land Monitoring Service evolution: HORIZON-CL4-2022-SPACE-01-43</b>	RIA	5.00	4.00 to 5.00	1
<b>Space Weather: HORIZON-CL4-2022-SPACE-01-62</b>	RIA	2.00	0.50 to 1.00	2
<b>Education and skills for the EU space sector: HORIZON-CL4-2022-SPACE-01-72</b>	CSA	3.00	2.00 to 3.00	1
<b>Space technologies for European non-dependence and competitiveness: HORIZON-CL4-2022-SPACE-01-81</b>	RIA	10.50	2.00 to 3.00	4
<b>Space science and exploration technologies: HORIZON-CL4-2022-SPACE-01-82</b>	RIA	8.00	1.00 to 1.50	6
Overall indicative budget		85.70		

## Destination – A human-centered and ethical development of digital and industrial technologies

- *Call - A human-centered and ethical development of digital and industrial technologies 2022 - HORIZON-CL4-2022-HUMAN-01*

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million)	Number of projects expected to be funded
		2022		
<b>Opening: 21 Dec 2021 Deadline(s): 05 Apr 2022</b>				
<b>Internet architecture and decentralized technologies (RIA): HORIZON-CL4-2022-HUMAN-01-03</b>	RIA	22.00	Around 11.00	2
<b>Next Generation Safer Internet: Technologies to identify digital Child Sexual Abuse Material (CSAM) (RIA): HORIZON-CL4-2022-HUMAN-01-05</b>	RIA	2.00	Around 2.00	1
<b>NGI International Collaboration - USA and Canada (RIA): HORIZON-CL4-2022-HUMAN-01-07</b>	RIA	6.00	Around 6.00	1
<b>eXtended Reality Technologies (RIA): HORIZON-CL4-2022-HUMAN-01-14</b>	RIA	19.00	5.00 to 8.00	3
<b>eXtended Reality Learning - Engage and Interact (IA): HORIZON-CL4-2022-HUMAN-01-19</b>	IA	21.50	5.00 to 8.00	3
Overall indicative budget		70.50		

- *Call - A human-centered and ethical development of digital and industrial technologies 2022 - HORIZON-CL4-2022-HUMAN-02*

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million)	Number of projects expected to be funded
		2022		
<b>Opening: 16 Jun 2022 Deadline(s): 16 Nov 2022</b>				
<b>AI for human empowerment (AI, Data and Robotics Partnership) (RIA): HORIZON-CL4-2022-HUMAN-02-01</b>	RIA	16.00	Around 4.00	4

<b>European Network of AI Excellence Centers: Expanding the European AI lighthouse (RIA): HORIZON-CL4-2022-HUMAN-02-02</b>	RIA	34.50	Around 11.50	3
Overall indicative budget		50.50		

Link pentru Programul de Lucru 2021-2022 al Clusterului 4:

[https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2021-2022/wp-7-digital-industry-and-space\\_horizon-2021-2022\\_en.pdf](https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2021-2022/wp-7-digital-industry-and-space_horizon-2021-2022_en.pdf)

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