

## CLUSTER 4 – DIGITAL, INDUSTRY AND SPACE (Updated 13 Jan 2023)

Progress in digital and industrial technologies, including in space, shape all sectors of the economy and society. They transform the way industry develops, produces new products and services, and are central to any sustainable future.

### Conditions and Funding Instruments

A consortium needs to include a minimum of three independent participants from three different EU Members States or Associated Countries. Funding for small projects are typically €3-5 M, for large ones €5-10 M and for industry pilots €10-20 M.

### Online Sources of Information

- European Commission Funding & tender opportunities:  
[ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home](https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home)
- EU Research and Innovation Programme (Horizon Europe):  
[https://ec.europa.eu/info/horizon-europe\\_en](https://ec.europa.eu/info/horizon-europe_en)
- Project databases of FP6, FP7 and H2020:  
<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/projects-results>

### Contact Information

#### Mr. Markus Ranne

Expert, NCP [Digital]  
Business Finland

Tel. +358 40 343 3453

[Markus.Ranne@businessfinland.fi](mailto:Markus.Ranne@businessfinland.fi)

#### Ms. Heini Günther

Expert, NCP [Industry]  
Business Finland

Tel. +358 40 502 0042

[Heini.Gunther@businessfinland.fi](mailto:Heini.Gunther@businessfinland.fi)

#### Mr. Pauli Stigell

Expert, NCP [Space]  
Business Finland

Tel. +358 50 5577 856

[Pauli.Stigell@businessfinland.fi](mailto:Pauli.Stigell@businessfinland.fi)

#### Ms. Katrine Mahlamäki

Expert, NCP [Digital, Industry]  
Academy Of Finland

Tel. +358 295 33 5062

[Katrine.Mahlamaki@aka.fi](mailto:Katrine.Mahlamaki@aka.fi)

#### Mr. Kari Leino

Committee Representative  
Business Finland

Tel. +358 50 5577698

[Kari.Leino@businessfinland.fi](mailto:Kari.Leino@businessfinland.fi)

#### Mr. Pekka Rantala

Expert, NCP [Digital]  
Business Finland

Tel. +358 40 343 3453

[Pekka.Rantala@businessfinland.fi](mailto:Pekka.Rantala@businessfinland.fi)

# BUSINESS FINLAND

## Disclaimer

Please note that this document has been prepared as a summary in order to provide an overview of Horizon Europe's Cluster 4 calls. It is not a legally binding document. All legal and up-to-date documents can be found in the EU Funding & Tenders portal. In case of discrepancy between this document and those in the portal, the documents in the portal take precedence.

## **I. DESTINATION – CLIMATE NEUTRAL, CIRCULAR AND DIGITISED PRODUCTION**

### **CALL - TWIN GREEN AND DIGITAL TRANSITION 2023**

#### Manufacturing Industry

HORIZON-CL4-2023-TWIN-TRANSITION-01-02: High-precision OR complex product manufacturing – potentially including the use of photonics (Made in Europe and Photonics Partnerships) (IA)

HORIZON-CL4-2023-TWIN-TRANSITION-01-04: Factory-level and value chain approaches for remanufacturing (Made in Europe Partnership) (IA)

HORIZON-CL4-2023-TWIN-TRANSITION-01-07: Achieving resiliency in value networks through modelling and Manufacturing as a Service (Made in Europe Partnership) (RIA)

HORIZON-CL4-2023-TWIN-TRANSITION-01-08: Foresight and technology transfer for Manufacturing as a Service (Made in Europe Partnership) (CSA)

#### Energy Intensive Process Industries

HORIZON-CL4-2023-TWIN-TRANSITION-01-31: Energy efficiency breakthroughs in the process industries (Processes4Planet partnership) (RIA)

HORIZON-CL4-2023-TWIN-TRANSITION-01-33: Electrification of high temperature heating systems (Processes4Planet Partnership) (IA)

HORIZON-CL4-2023-TWIN-TRANSITION-01-36: Modelling industry transition to climate neutrality, sustainability and circularity (Processes4Planet partnership) (RIA)

HORIZON-CL4-2023-TWIN-TRANSITION-01-37: Hubs for circularity for near zero emissions regions applying industrial symbiosis and cooperative approach to heavy industrialized clusters and surrounding ecosystems (Processes4Planet partnership) (IA)

HORIZON-CL4-2023-TWIN-TRANSITION-01-40: Sustainable and efficient industrial water consumption: through energy and solute recovery (Processes4Planet partnership) (RIA)

HORIZON-CL4-2023-TWIN-TRANSITION-01-42: Circular economy in process industries: Upcycling large volumes of secondary resources (Processes4Planet partnership) (RIA)

HORIZON-CL4-2023-TWIN-TRANSITION-01-43: Low carbon-dioxide emission technologies for melting iron-bearing feed materials OR smart carbon usage and improved energy & resource efficiency via process integration (Clean Steel Partnership) (IA)

HORIZON-CL4-2023-TWIN-TRANSITION-01-45: Circular economy solutions for the valorisation of low-quality scrap streams, materials recirculation with high recycling rate, and residue valorisation for long term goal towards zero waste (Clean Steel Partnership) (RIA)

# Call - TWIN GREEN AND DIGITAL TRANSITION 2023

*HORIZON-CL4-2023-TWIN-TRANSITION-01*

## Conditions for the Call

### Indicative budget(s)<sup>1</sup>

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million) <sup>2</sup>	Indicative number of projects expected to be funded
		2023		
Opening: 08 Dec 2022 Deadline(s): 20 Apr 2023				
HORIZON-CL4-2023-TWIN-TRANSITION-01-02	IA	48.00 <sup>3</sup>	5.00 to 6.00	8
HORIZON-CL4-2023-TWIN-TRANSITION-01-04	IA	37.60 <sup>4</sup>	5.00 to 7.00	6
HORIZON-CL4-2023-TWIN-TRANSITION-01-07	RIA	32.00 <sup>5</sup>	4.00 to 6.00	6
HORIZON-CL4-2023-TWIN-TRANSITION-01-08	CSA	1.00 <sup>6</sup>	Around 1.00	1
HORIZON-CL4-2023-TWIN-TRANSITION-01-31	RIA	32.00 <sup>7</sup>	8.00 to 10.00	3
HORIZON-CL4-2023-TWIN-TRANSITION-01-33	IA	35.67 <sup>8</sup>	12.00 to 15.00	3
HORIZON-CL4-2023-TWIN-TRANSITION-01-36	RIA	13.00 <sup>9</sup>	6.00 to 7.00	2
HORIZON-CL4-2023-TWIN-TRANSITION-01-37	IA	40.00 <sup>10</sup>	15.00 to 20.00	2

<sup>1</sup> The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.

The Director-General responsible may delay the deadline(s) by up to two months.

All deadlines are at 17.00.00 Brussels local time.

The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for years 2023 and 2024.

<sup>2</sup> Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

<sup>3</sup> Of which EUR 21.37 million from the 'NGEU' Fund Source.

<sup>4</sup> Of which EUR 17.00 million from the 'NGEU' Fund Source.

<sup>5</sup> Of which EUR 14.90 million from the 'NGEU' Fund Source.

<sup>6</sup> Of which EUR 0.40 million from the 'NGEU' Fund Source.

<sup>7</sup> Of which EUR 14.90 million from the 'NGEU' Fund Source.

<sup>8</sup> Of which EUR 16.30 million from the 'NGEU' Fund Source.

<sup>9</sup> Of which EUR 5.86 million from the 'NGEU' Fund Source.

<sup>10</sup> Of which EUR 17.93 million from the 'NGEU' Fund Source.

HORIZON-CL4-2023-TWIN-TRANSITION-01-40	RIA	30.00 <sup>11</sup>	10.00 to 12.00	3
HORIZON-CL4-2023-TWIN-TRANSITION-01-42	RIA	30.00 <sup>12</sup>	10.00 to 12.00	3
HORIZON-CL4-2023-TWIN-TRANSITION-01-43	IA	23.00 <sup>13</sup>	4.00 to 6.00	4
HORIZON-CL4-2023-TWIN-TRANSITION-01-45	RIA	12.00 <sup>14</sup>	3.00 to 6.00	2
Overall indicative budget		334.27		

---

<sup>11</sup> Of which EUR 14.15 million from the 'NGEU' Fund Source.

<sup>12</sup> Of which EUR 14.15 million from the 'NGEU' Fund Source.

<sup>13</sup> Of which EUR 10.50 million from the 'NGEU' Fund Source.

<sup>14</sup> Of which EUR 5.60 million from the 'NGEU' Fund Source.

## **CALL - TWIN GREEN AND DIGITAL TRANSITION 2023 TWO STAGE**

*A New Way to Build, accelerating disruptive change in construction*

HORIZON-CL4-2023-TWIN-TRANSITION-01-11: Intelligent data acquisition and analysis of materials and products in existing built works (RIA)

### **Call - TWIN GREEN AND DIGITAL TRANSITION 2023 TWO STAGE**

#### ***HORIZON-CL4-2023-TWIN-TRANSITION-01-TWO-STAGE***

### **Conditions for the Call**

#### **Indicative budget(s)**<sup>15</sup>

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million) <sup>16</sup>	Indicative number of projects expected to be funded
		2023		
Opening: 08 Dec 2022 Deadline(s): 07 Mar 2023 (First Stage), 05 Oct 2023 (Second Stage)				
HORIZON-CL4-2023-TWIN-TRANSITION-01-11	RIA	12.00	5.00 to 6.00	2
Overall indicative budget		12.00		

<sup>15</sup> The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.

The Director-General responsible may delay the deadline(s) by up to two months.

All deadlines are at 17.00.00 Brussels local time.

The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for years 2023 and 2024.

<sup>16</sup> Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

## **CALL - TWIN GREEN AND DIGITAL TRANSITION 2024**

### **Manufacturing Industry**

HORIZON-CL4-2024-TWIN-TRANSITION-01-03: Manufacturing as a Service: Technologies for customised, flexible, and decentralised production on demand (Made in Europe Partnership) (RIA)

HORIZON-CL4-2024-TWIN-TRANSITION-01-05: Technologies/solutions to support circularity for manufacturing (Made in Europe Partnership) (RIA)

### **Energy Intensive Process Industries**

HORIZON-CL4-2024-TWIN-TRANSITION-01-32: Optimisation of thermal energy flows in the process industry (Processes4Planet partnership) (IA)

HORIZON-CL4-2024-TWIN-TRANSITION-01-34: Renewable hydrogen used as feedstock in innovative production routes (Processes4Planet Partnership) (RIA)

HORIZON-CL4-2024-TWIN-TRANSITION-01-35: Turning CO<sub>2</sub> emissions from the process industry to feedstock (Processes4Planet partnership) (IA)

HORIZON-CL4-2024-TWIN-TRANSITION-01-38: Hubs for circularity for industrialised urban peripheral areas (Processes4Planet partnership) (IA)

HORIZON-CL4-2024-TWIN-TRANSITION-01-41: Breakthroughs to improve process industry resource efficiency (Processes4Planet partnership) (RIA)

HORIZON-CL4-2024-TWIN-TRANSITION-01-44: Digital transformation and ensuring a better use of industrial data, which can optimise steel supply chains (Clean Steel Partnership) (IA)

HORIZON-CL4-2024-TWIN-TRANSITION-01-46: CO<sub>2</sub>-neutral steel production with hydrogen, secondary carbon carriers and electricity OR innovative steel applications for low CO<sub>2</sub> emissions (Clean Steel Partnership) (RIA)

## Call - TWIN GREEN AND DIGITAL TRANSITION 2024

*HORIZON-CL4-2024-TWIN-TRANSITION-01*

### Conditions for the Call

#### Indicative budget(s)<sup>17</sup>

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million) <sup>18</sup>	Indicative number of projects expected to be funded
		2024		
Opening: 19 Sep 2023 Deadline(s): 07 Feb 2024				
HORIZON-CL4-2024-TWIN-TRANSITION-01-03	RIA	35.00	5.00 to 7.00	5
HORIZON-CL4-2024-TWIN-TRANSITION-01-05	RIA	36.00	4.00 to 6.00	6
HORIZON-CL4-2024-TWIN-TRANSITION-01-32	IA	30.00	10.00 to 15.00	2
HORIZON-CL4-2024-TWIN-TRANSITION-01-34	RIA	20.00	8.00 to 10.00	2
HORIZON-CL4-2024-TWIN-TRANSITION-01-35	IA	30.00	10.00 to 15.00	2
HORIZON-CL4-2024-TWIN-TRANSITION-01-38	IA	40.00	15.00 to 20.00	2
HORIZON-CL4-2024-TWIN-TRANSITION-01-41	RIA	30.00	10.00 to 12.00	3
HORIZON-CL4-2024-TWIN-TRANSITION-01-44	IA	10.00	3.00 to 5.00	2
HORIZON-CL4-2024-TWIN-TRANSITION-01-46	RIA	20.00	3.00 to 5.00	4
Overall indicative budget		251.00		

<sup>17</sup> The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.  
 The Director-General responsible may delay the deadline(s) by up to two months.  
 All deadlines are at 17.00.00 Brussels local time.  
 The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for years 2023 and 2024.

<sup>18</sup> Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

## **CALL - TWIN GREEN AND DIGITAL TRANSITION 2024 TWO STAGE**

### **Manufacturing Industry**

HORIZON-CL4-2024-TWIN-TRANSITION-01-01: Bio-intelligent manufacturing industries (Made in Europe Partnership) (RIA)

### **A New Way to Build, accelerating disruptive change in construction**

HORIZON-CL4-2024-TWIN-TRANSITION-01-12: Enhanced assessment, intervention and repair of civil engineering infrastructure (RIA)

## **Call - TWIN GREEN AND DIGITAL TRANSITION 2024 TWO STAGE**

### ***HORIZON-CL4-2024-TWIN-TRANSITION-01-TWO-STAGE***

### **Conditions for the Call**

#### **Indicative budget(s)**<sup>19</sup>

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million) <sup>20</sup>	Indicative number of projects expected to be funded
		2024		
Opening: 19 Sep 2023 Deadline(s): 07 Feb 2024 (First Stage), 24 Sep 2024 (Second Stage)				
HORIZON-CL4-2024-TWIN-TRANSITION-01-01	RIA	25.00	4.00 to 5.00	5
HORIZON-CL4-2024-TWIN-TRANSITION-01-12	RIA	12.00	5.00 to 6.00	2
Overall indicative budget		37.00		

<sup>19</sup> The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.  
The Director-General responsible may delay the deadline(s) by up to two months.  
All deadlines are at 17.00.00 Brussels local time.  
The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for years 2023 and 2024.

<sup>20</sup> Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.



## **II. DESTINATION – INCREASED AUTONOMY IN KEY STRATEGIC VALUE CHAINS FOR RESILIENT INDUSTRY**

### **CALL - RESILIENT VALUE CHAINS 2023 TWO STAGE**

#### *Strategic innovation markets driven by advanced materials*

HORIZON-CL4-2023-RESILIENCE-01-32: Bioinspired and biomimetic materials for sustainable textiles (IA)

HORIZON-CL4-2023-RESILIENCE-01-33: Smart sensors for the Electronic Appliances market (RIA)

HORIZON-CL4-2023-RESILIENCE-01-34: Advanced (nano and bio-based) materials for sustainable agriculture (RIA)

HORIZON-CL4-2023-RESILIENCE-01-37: Advanced materials for magnets in applications for the New Energies Market (RIA)

## Call - RESILIENT VALUE CHAINS 2023 TWO STAGE

### *HORIZON-CL4-2023-RESILIENCE-01-TWO-STAGE*

#### Conditions for the Call

#### Indicative budget(s)<sup>21</sup>

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million) <sup>22</sup>	Indicative number of projects expected to be funded
		2023		
Opening: 08 Dec 2022 Deadline(s): 07 Mar 2023 (First Stage), 05 Oct 2023 (Second Stage)				
HORIZON-CL4-2023-RESILIENCE-01-32	IA	31.00	6.00 to 8.00	4
HORIZON-CL4-2023-RESILIENCE-01-33	RIA	31.00	6.00 to 8.00	4
HORIZON-CL4-2023-RESILIENCE-01-34	RIA	31.00	6.00 to 8.00	4
HORIZON-CL4-2023-RESILIENCE-01-37	RIA	31.00	6.00 to 8.00	4
Overall indicative budget		124.00		

<sup>21</sup> The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.  
The Director-General responsible may delay the deadline(s) by up to two months.  
All deadlines are at 17.00.00 Brussels local time.  
The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for years 2023 and 2024.

<sup>22</sup> Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

## **CALL - RESILIENT VALUE CHAINS 2023**

### **Raw Materials for EU open strategic autonomy and successful transition to a climate-neutral and circular economy**

HORIZON-CL4-2023-RESILIENCE-01-02: Innovative technologies for sustainable and decarbonised extraction (RIA)

HORIZON-CL4-2023-RESILIENCE-01-03: Technologies for processing and refining of critical raw materials (IA)

HORIZON-CL4-2023-RESILIENCE-01-05: Recycling technologies for critical raw materials from EoL products (IA)

HORIZON-CL4-2023-RESILIENCE-01-06: Earth Observation platform, products and services for raw materials (IA)

HORIZON-CL4-2023-RESILIENCE-01-07: Expert network on Critical raw materials (CSA)

HORIZON-CL4-2023-RESILIENCE-01-09: Recyclability and resource efficiency of Rare Earth based magnets (IA)

### **Safe and Sustainable by Design (SSbD) Chemicals and Materials**

HORIZON-CL4-2023-RESILIENCE-01-21: Innovative methods for safety and sustainability assessments of chemicals and materials (RIA)

HORIZON-CL4-2023-RESILIENCE-01-22: Integrated approach for impact assessment of safe and sustainable chemicals and materials (RIA)

HORIZON-CL4-2023-RESILIENCE-01-23: Computational models for the development of safe and sustainable by design chemicals and materials (RIA)

### **Strategic innovation markets driven by advanced materials**

HORIZON-CL4-2023-RESILIENCE-01-39: Coordination and knowledge sharing across materials development communities (CSA)

### **Improving the resilience of EU businesses, especially SMEs and Startups**

HORIZON-CL4-2023-RESILIENCE-01-42: Boosting generation and diffusion of advanced technologies in SMEs based on a supply chain model (CSA)

HORIZON-CL4-2023-RESILIENCE-01-44: Affordable Housing District Demonstrator (IA)

## Call - RESILIENT VALUE CHAINS 2023

*HORIZON-CL4-2023-RESILIENCE-01*

### Conditions for the Call

#### Indicative budget(s)<sup>23</sup>

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million) <sup>24</sup>	Indicative number of projects expected to be funded
		2023		
Opening: 08 Dec 2022 Deadline(s): 20 Apr 2023				
HORIZON-CL4-2023-RESILIENCE-01-02	RIA	25.00 <sup>25</sup>	Around 5.00	5
HORIZON-CL4-2023-RESILIENCE-01-03	IA	22.00	Around 7.30	3
HORIZON-CL4-2023-RESILIENCE-01-05	IA	28.00 <sup>26</sup>	Around 7.00	4
HORIZON-CL4-2023-RESILIENCE-01-06	IA	20.00 <sup>27</sup>	Around 6.70	3
HORIZON-CL4-2023-RESILIENCE-01-07	CSA	3.00	Around 3.00	1
HORIZON-CL4-2023-RESILIENCE-01-09	IA	20.00 <sup>28</sup>	Around 6.70	3
HORIZON-CL4-2023-RESILIENCE-01-21	RIA	29.00 <sup>29</sup>	6.00 to 8.00	4
HORIZON-CL4-2023-RESILIENCE-01-22	RIA	15.00 <sup>30</sup>	3.00 to 4.00	4
HORIZON-CL4-2023-RESILIENCE-01-23	RIA	29.00 <sup>31</sup>	6.00 to 7.00	4

<sup>23</sup> The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.

The Director-General responsible may delay the deadline(s) by up to two months.

All deadlines are at 17.00.00 Brussels local time.

The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for years 2023 and 2024.

<sup>24</sup> Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

<sup>25</sup> Of which EUR 5.00 million from the 'NGEU' Fund Source.

<sup>26</sup> Of which EUR 11.00 million from the 'NGEU' Fund Source.

<sup>27</sup> Of which EUR 8.00 million from the 'NGEU' Fund Source.

<sup>28</sup> Of which EUR 8.00 million from the 'NGEU' Fund Source.

<sup>29</sup> Of which EUR 4.90 million from the 'NGEU' Fund Source.

<sup>30</sup> Of which EUR 3.50 million from the 'NGEU' Fund Source.

<sup>31</sup> Of which EUR 5.55 million from the 'NGEU' Fund Source.

HORIZON-CL4-2023-RESILIENCE-01-39	CSA	2.00	Around 2.00	1
HORIZON-CL4-2023-RESILIENCE-01-42	CSA	10.00 <sup>32</sup>	2.00 to 3.00	4
HORIZON-CL4-2023-RESILIENCE-01-44	IA	10.00 <sup>33</sup>	Around 5.00	2
Overall indicative budget		213.00		

---

<sup>32</sup> Of which EUR 4.00 million from the 'NGEU' Fund Source.

<sup>33</sup> Of which EUR 4.00 million from the 'NGEU' Fund Source.

## **CALL - RESILIENT VALUE CHAINS 2024 TWO STAGE**

### *Strategic innovation markets driven by advanced materials*

HORIZON-CL4-2024-RESILIENCE-01-35: Biodegradable polymers for sustainable packaging materials (IA)

HORIZON-CL4-2024-RESILIENCE-01-36: Advanced biomaterials for the Health Care (IA)

## **Call - RESILIENT VALUE CHAINS 2024 TWO STAGE**

### ***HORIZON-CL4-2024-RESILIENCE-01-TWO-STAGE***

### **Conditions for the Call**

#### Indicative budget(s)<sup>34</sup>

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million) <sup>35</sup>	Indicative number of projects expected to be funded
		2024		
Opening: 19 Sep 2023				
Deadline(s): 07 Feb 2024 (First Stage), 24 Sep 2024 (Second Stage)				
HORIZON-CL4-2024-RESILIENCE-01-35	IA	31.00	6.00 to 8.00	4
HORIZON-CL4-2024-RESILIENCE-01-36	IA	31.00	6.00 to 8.00	4
Overall indicative budget		62.00		

<sup>34</sup> The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.

The Director-General responsible may delay the deadline(s) by up to two months.

All deadlines are at 17.00.00 Brussels local time.

The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for years 2023 and 2024.

<sup>35</sup> Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

## **CALL - RESILIENT VALUE CHAINS 2024**

### **Raw Materials for EU open strategic autonomy and successful transition to a climate-neutral and circular economy**

HORIZON-CL4-2024-RESILIENCE-01-01: Exploration of critical raw materials in deep land deposits (RIA)

HORIZON-CL4-2024-RESILIENCE-01-04: Technologies for processing and refining of critical raw materials (IA)

HORIZON-CL4-2024-RESILIENCE-01-08: Rare Earth and magnets innovation hubs (IA)

HORIZON-CL4-2024-RESILIENCE-01-10: Addressing due diligence requirements in raw materials supply chains. (CSA)

HORIZON-CL4-2024-RESILIENCE-01-11: Technologies for extraction and processing of critical raw materials (IA)

### **Safe and Sustainable by Design (SSbD) Chemicals and Materials**

HORIZON-CL4-2024-RESILIENCE-01-24: Development of safe and sustainable by design alternatives (IA)

### **Improving the resilience of EU businesses, especially SMEs and Startups**

HORIZON-CL4-2024-RESILIENCE-01-41: 'Innovate to transform' support for SME's sustainability transition (CSA)

## Call - RESILIENT VALUE CHAINS 2024

*HORIZON-CL4-2024-RESILIENCE-01*

### Conditions for the Call

#### Indicative budget(s)<sup>36</sup>

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million) <sup>37</sup>	Indicative number of projects expected to be funded
		2024		
Opening: 19 Sep 2023 Deadline(s): 07 Feb 2024				
HORIZON-CL4-2024-RESILIENCE-01-01	RIA	20.00	Around 5.00	4
HORIZON-CL4-2024-RESILIENCE-01-04	IA	22.00	Around 7.30	3
HORIZON-CL4-2024-RESILIENCE-01-08	IA	32.00	Around 16.00	2
HORIZON-CL4-2024-RESILIENCE-01-10	CSA	2.20	Around 2.20	1
HORIZON-CL4-2024-RESILIENCE-01-11	IA	15.00	Around 7.50	2
HORIZON-CL4-2024-RESILIENCE-01-24	IA	59.00	12.00 to 15.00	4
HORIZON-CL4-2024-RESILIENCE-01-41	CSA	10.00	Around 5.00	2
Overall indicative budget		160.20		

<sup>36</sup> The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.  
The Director-General responsible may delay the deadline(s) by up to two months.  
All deadlines are at 17.00.00 Brussels local time.  
The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for years 2023 and 2024.

<sup>37</sup> Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.



### **III. DESTINATION – WORLD LEADING DATA AND COMPUTING TECHNOLOGIES**

#### **Call - World leading data and computing technologies (2023)**

##### *Data sharing and analytics capacity*

HORIZON-CL4-2023-DATA-01-02: Integration of data life cycle, architectures and standards for complex data cycles and/or human factors, language (AI, data and robotics partnership) (RIA)

HORIZON-CL4-2023-DATA-01-07: Collaboration with NSF on fundamental research on new concepts for distributed computing and swarm intelligence (CSA)

##### *From Cloud to Edge to IoT for European Data*

HORIZON-CL4-2023-DATA-01-04: Cognitive Computing Continuum: Intelligence and automation for more efficient data processing (AI, data and robotics partnership) (RIA)

HORIZON-CL4-2023-DATA-01-06: Coordination and Support of Cognitive Computing Continuum research and policy (CSA)

## Call - World leading data and computing technologies

*HORIZON-CL4-2023-DATA-01*

### Conditions for the Call

#### Indicative budget(s)<sup>38</sup>

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million) <sup>39</sup>	Indicative number of projects expected to be funded
		2023		
Opening: 08 Dec 2022 Deadline(s): 29 Mar 2023				
HORIZON-CL4-2023-DATA-01-02	RIA	45.00 <sup>40</sup>	Around 9.00	5
HORIZON-CL4-2023-DATA-01-04	RIA	28.00 <sup>41</sup>	4.00 to 6.00	6
HORIZON-CL4-2023-DATA-01-06	CSA	2.00 <sup>42</sup>	Around 2.00	1
HORIZON-CL4-2023-DATA-01-07	CSA	1.00 <sup>43</sup>	Around 1.00	1
Overall indicative budget		76.00		

<sup>38</sup> The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.

The Director-General responsible may delay the deadline(s) by up to two months.

All deadlines are at 17.00.00 Brussels local time.

The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for years 2023 and 2024.

<sup>39</sup> Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

<sup>40</sup> Of which EUR 15.75 million from the 'NGEU' Fund Source.

<sup>41</sup> Of which EUR 11.20 million from the 'NGEU' Fund Source.

<sup>42</sup> Of which EUR 0.70 million from the 'NGEU' Fund Source.

<sup>43</sup> Of which EUR 0.35 million from the 'NGEU' Fund Source.

## **Call - World leading data and computing technologies (2024)**

### Data sharing and analytics capacity

HORIZON-CL4-2024-DATA-01-01: AI-driven data operations and compliance technologies (AI, data and robotics partnership) (IA)

### From Cloud to Edge to IoT for European Data

HORIZON-CL4-2024-DATA-01-03: Piloting emerging Smart IoT Platforms and decentralized intelligence (IA)

HORIZON-CL4-2024-DATA-01-05: Platform Building, standardisation and Up-scaling of the 'Cloud-Edge-IoT' Solutions (Horizontal Activities - CSA)

## **Call - World leading data and computing technologies**

***HORIZON-CL4-2024-DATA-01***

### **Conditions for the Call**

#### Indicative budget(s)<sup>44</sup>

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million) <sup>45</sup>	Indicative number of projects expected to be funded
		2024		
Opening: 15 Nov 2023 Deadline(s): 19 Mar 2024				
HORIZON-CL4-2024-DATA-01-01	IA	38.00	8.00 to 10.00	4
HORIZON-CL4-2024-DATA-01-03	IA	45.00	20.00 to 25.00	2
HORIZON-CL4-2024-DATA-01-05	CSA	2.00	Around 2.00	1
Overall indicative budget		85.00		

<sup>44</sup> The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.

The Director-General responsible may delay the deadline(s) by up to two months.

All deadlines are at 17.00.00 Brussels local time.

The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for years 2023 and 2024.

<sup>45</sup> Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

#### **IV. 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 (2023)**

###### *AI, Data and Robotics (incl. efficient, robust, safe, adaptive and trusted robots)*

HORIZON-CL4-2023-DIGITAL-EMERGING-01-01: Novel paradigms and approaches, towards AI-driven autonomous robots (AI, data and robotics partnership) (RIA)

###### *European Leadership in Emerging and Enabling Technologies*

HORIZON-CL4-2023-DIGITAL-EMERGING-01-12: Adaptive multi-scale modelling and characterisation suites from lab to production (RIA)

###### *European Innovation Leadership in Photonics*

HORIZON-CL4-2023-DIGITAL-EMERGING-01-51: Pervasive photonics - multi-technology integration for digital infrastructure, sensors and internet of things (Photonics partnership)(RIA)

HORIZON-CL4-2023-DIGITAL-EMERGING-01-53: Versatile light sources and systems as tools for manufacturing and medical application (Photonics Partnership) (RIA)

HORIZON-CL4-2023-DIGITAL-EMERGING-01-57: Advanced imaging and sensing technologies (IA)(Photonics Partnership)

## Call - Digital and emerging technologies for competitiveness and fit for the Green Deal

### *HORIZON-CL4-2023-DIGITAL-EMERGING-01*

#### Conditions for the Call

#### Indicative budget(s)<sup>46</sup>

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million) <sup>47</sup>	Indicative number of projects expected to be funded
		2023		
Opening: 08 Dec 2022 Deadline(s): 29 Mar 2023				
HORIZON-CL4-2023-DIGITAL-EMERGING-01-01	RIA	30.00 <sup>48</sup>	Around 8.00	4
HORIZON-CL4-2023-DIGITAL-EMERGING-01-12	RIA	22.00	5.00 to 7.00	4
HORIZON-CL4-2023-DIGITAL-EMERGING-01-51	RIA	18.00 <sup>49</sup>	3.00 to 5.00	4
HORIZON-CL4-2023-DIGITAL-EMERGING-01-53	RIA	18.00 <sup>50</sup>	3.00 to 5.00	4
HORIZON-CL4-2023-DIGITAL-EMERGING-01-57	IA	20.00 <sup>51</sup>	5.00 to 7.00	4
Overall indicative budget		108.00		

<sup>46</sup> The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.

The Director-General responsible may delay the deadline(s) by up to two months.

All deadlines are at 17.00.00 Brussels local time.

The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for years 2023 and 2024.

<sup>47</sup> Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

<sup>48</sup> Of which EUR 10.50 million from the 'NGEU' Fund Source.

<sup>49</sup> Of which EUR 7.20 million from the 'NGEU' Fund Source.

<sup>50</sup> Of which EUR 7.20 million from the 'NGEU' Fund Source.

<sup>51</sup> Of which EUR 8.00 million from the 'NGEU' Fund Source.

**CALL - DIGITAL AND EMERGING TECHNOLOGIES FOR COMPETITIVENESS AND FIT FOR THE GREEN DEAL (CNECT 2023)**

*AI, Data and Robotics (incl. efficient, robust, safe, adaptive and trusted robots)*

HORIZON-CL4-2023-DIGITAL-EMERGING-01-02: Industrial leadership in AI, Data and Robotics – advanced human robot interaction (AI Data and Robotics Partnership) (IA)

*European Leadership in Emerging and Enabling Technologies*

HORIZON-CL4-2023-DIGITAL-EMERGING-01-11: Low TRL research in micro-electronics and integration technologies for industrial solutions (RIA)

*Graphene and 2D materials: Europe in the lead*

HORIZON-CL4-2023-DIGITAL-EMERGING-01-32: Sustainable safe-by-design 2D materials technology (RIA)

HORIZON-CL4-2023-DIGITAL-EMERGING-01-33: 2D materials of tomorrow (RIA)

*Flagship on Quantum Technologies: a Paradigm Shift*

HORIZON-CL4-2023-DIGITAL-EMERGING-01-40: Quantum Photonic Integrated Circuit technologies (RIA)

HORIZON-CL4-2023-DIGITAL-EMERGING-01-41: Investing in alternative quantum computation and simulation platform technologies (RIA)

HORIZON-CL4-2023-DIGITAL-EMERGING-01-43: Framework Partnership Agreement for developing large-scale quantum Computing platform technologies (FPA)

HORIZON-CL4-2023-DIGITAL-EMERGING-01-50: Next generation quantum sensing and metrology technologies (RIA)

*European Innovation Leadership in Photonics*

HORIZON-CL4-2023-DIGITAL-EMERGING-01-56: Photonic Strategies and Skills Development (CSA) (Photonics Partnership)

## Call - Digital and emerging technologies for competitiveness and fit for the Green Deal

### *HORIZON-CL4-2023-DIGITAL-EMERGING-01-CNECT*

#### Conditions for the Call

#### Indicative budget(s)<sup>52</sup>

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million) <sup>53</sup>	Indicative number of projects expected to be funded
		2023		
Opening: 08 Dec 2022 Deadline(s): 29 Mar 2023				
HORIZON-CL4-2023-DIGITAL-EMERGING-01-02	IA	30.00 <sup>54</sup>	Around 10.00	3
HORIZON-CL4-2023-DIGITAL-EMERGING-01-11	RIA	35.00	3.00 to 4.00	10
HORIZON-CL4-2023-DIGITAL-EMERGING-01-32	RIA	6.00 <sup>55</sup>	3.00 to 5.00	2
HORIZON-CL4-2023-DIGITAL-EMERGING-01-33	RIA	12.00 <sup>56</sup>	3.00 to 4.00	3
HORIZON-CL4-2023-DIGITAL-EMERGING-01-40	RIA	12.00 <sup>57</sup>	4.00 to 6.00	2
HORIZON-CL4-2023-DIGITAL-EMERGING-01-41	RIA	20.00 <sup>58</sup>	7.00 to 12.00	2
HORIZON-CL4-2023-DIGITAL-EMERGING-01-43	FPA			0
HORIZON-CL4-2023-DIGITAL-EMERGING-01-50	RIA	10.00 <sup>59</sup>	2.00 to 3.00	3
HORIZON-CL4-2023-DIGITAL-EMERGING-01-56	CSA	4.00 <sup>60</sup>	1.00 to 3.00	2

<sup>52</sup> The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.

The Director-General responsible may delay the deadline(s) by up to two months.

All deadlines are at 17.00.00 Brussels local time.

The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for years 2023 and 2024.

<sup>53</sup> Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

<sup>54</sup> Of which EUR 10.50 million from the 'NGEU' Fund Source.

<sup>55</sup> Of which EUR 2.10 million from the 'NGEU' Fund Source.

<sup>56</sup> Of which EUR 4.20 million from the 'NGEU' Fund Source.

<sup>57</sup> Of which EUR 4.20 million from the 'NGEU' Fund Source.

<sup>58</sup> Of which EUR 7.00 million from the 'NGEU' Fund Source.

<sup>59</sup> Of which EUR 3.50 million from the 'NGEU' Fund Source.

<sup>60</sup> Of which EUR 1.40 million from the 'NGEU' Fund Source.

Overall indicative budget		129.00		
---------------------------	--	--------	--	--



**CALL - DIGITAL AND EMERGING TECHNOLOGIES FOR COMPETITIVENESS AND FIT FOR THE GREEN DEAL (2024)**

*AI, Data and Robotics (incl. efficient, robust, safe, adaptive and trusted robots)*

HORIZON-CL4-2024-DIGITAL-EMERGING-01-03: Novel paradigms and approaches, towards AI-powered robots– step change in functionality (AI, data and robotics partnership) (RIA)

HORIZON-CL4-2024-DIGITAL-EMERGING-01-04: Industrial leadership in AI, Data and Robotics boosting competitiveness and the green transition (AI Data and Robotics Partnership)

(IA)[[[https://www.europarl.europa.eu/RegData/etudes/STUD/2021/662906/IPOL\\_STU\(2021\)662906\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2021/662906/IPOL_STU(2021)662906_EN.pdf)]]

*Open Source for Cloud/Edge and Software Engineering Fundamentals to support Digital Autonomy*

HORIZON-CL4-2024-DIGITAL-EMERGING-01-22: Fundamentals of Software Engineering (RIA)

*European Innovation Leadership in Photonics*

HORIZON-CL4-2024-DIGITAL-EMERGING-01-54: Smart photonics for joint communication & sensing and access everywhere (Photonics Partnership) (RIA)

HORIZON-CL4-2024-DIGITAL-EMERGING-01-55: Photonics Innovation Factory for Europe (Photonics Partnership) (IA)

## Call - Digital and emerging technologies for competitiveness and fit for the Green Deal

### *HORIZON-CL4-2024-DIGITAL-EMERGING-01*

#### Conditions for the Call

#### Indicative budget(s)<sup>61</sup>

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million) <sup>62</sup>	Indicative number of projects expected to be funded
		2024		
Opening: 15 Nov 2023 Deadline(s): 19 Mar 2024				
HORIZON-CL4-2024-DIGITAL-EMERGING-01-03	RIA	30.00	Around 8.00	4
HORIZON-CL4-2024-DIGITAL-EMERGING-01-04	IA	60.00	Around 10.00	5
HORIZON-CL4-2024-DIGITAL-EMERGING-01-22	RIA	13.50	4.00 to 6.00	4
HORIZON-CL4-2024-DIGITAL-EMERGING-01-54	RIA	18.00	3.00 to 5.00	4
HORIZON-CL4-2024-DIGITAL-EMERGING-01-55	IA	15.00	Around 15.00	1
Overall indicative budget		136.50		

<sup>61</sup> The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.  
The Director-General responsible may delay the deadline(s) by up to two months.  
All deadlines are at 17.00.00 Brussels local time.  
The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for years 2023 and 2024.

<sup>62</sup> Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

**CALL - DIGITAL AND EMERGING TECHNOLOGIES FOR COMPETITIVENESS AND FIT FOR THE GREEN DEAL (CNECT 2024)**

*Open Source for Cloud/Edge and Software Engineering Fundamentals to support Digital Autonomy*

HORIZON-CL4-2024-DIGITAL-EMERGING-01-21: Open Source for Cloud/Edge to support European Digital Autonomy (RIA)

HORIZON-CL4-2024-DIGITAL-EMERGING-01-23: Public recognition scheme for Open Source (CSA)

*Graphene and 2D materials: Europe in the lead*

HORIZON-CL4-2024-DIGITAL-EMERGING-01-31: Pilot line(s) for 2D materials-based devices (RIA)

HORIZON-CL4-2024-DIGITAL-EMERGING-01-34: Synergy with national and regional initiatives in Europe (CSA)

*Flagship on Quantum Technologies: a Paradigm Shift*

HORIZON-CL4-2024-DIGITAL-EMERGING-01-42: Stimulating transnational research and development of next generation quantum technologies, including basic theories and components (Cascading grant with FSTP)

HORIZON-CL4-2024-DIGITAL-EMERGING-01-45: Quantum sensing and metrology for market uptake (IA)

## Call - Digital and emerging technologies for competitiveness and fit for the Green Deal

### *HORIZON-CL4-2024-DIGITAL-EMERGING-01-CNECT*

#### Conditions for the Call

#### Indicative budget(s)<sup>63</sup>

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million) <sup>64</sup>	Indicative number of projects expected to be funded
		2024		
Opening: 15 Nov 2023 Deadline(s): 19 Mar 2024				
HORIZON-CL4-2024-DIGITAL-EMERGING-01-21	RIA	20.00	4.00 to 6.00	4
HORIZON-CL4-2024-DIGITAL-EMERGING-01-23	CSA	2.00	Around 2.00	1
HORIZON-CL4-2024-DIGITAL-EMERGING-01-31	RIA	33.00	Around 33.00	1
HORIZON-CL4-2024-DIGITAL-EMERGING-01-34	CSA	3.00	Around 3.00	1
HORIZON-CL4-2024-DIGITAL-EMERGING-01-42	RIA	15.00	Around 15.00	1
HORIZON-CL4-2024-DIGITAL-EMERGING-01-45	IA	15.00	4.00 to 5.00	3
Overall indicative budget		88.00		

<sup>63</sup> The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.  
 The Director-General responsible may delay the deadline(s) by up to two months.  
 All deadlines are at 17.00.00 Brussels local time.  
 The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for years 2023 and 2024.

<sup>64</sup> Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

## **V. 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 2023**

#### *Foster competitiveness of space systems*

HORIZON-CL4-2023-SPACE-01-11: End-to-end Earth observation systems and associated services

HORIZON-CL4-2023-SPACE-01-12: Future Space Ecosystem and Enabling Technologies

HORIZON-CL4-2023-SPACE-01-13: Future Space Ecosystem: Management and Coordination Activity

#### *Reinforce EU capacity to access to space*

HORIZON-CL4-2023-SPACE-01-21: Low cost high thrust propulsion for European strategic space launchers - technologies maturation including ground system tests

HORIZON-CL4-2023-SPACE-01-22: New space transportation solutions and services

HORIZON-CL4-2023-SPACE-01-23: Modern, flexible and efficient European test, production and launch facilities

#### *Evolution of services: Copernicus*

HORIZON-CL4-2023-SPACE-01-31: Copernicus for Atmosphere and Climate Change, including CO<sub>2</sub>

HORIZON-CL4-2023-SPACE-01-32: Copernicus for Emergency Management

HORIZON-CL4-2023-SPACE-01-33: Copernicus in-situ component

HORIZON-CL4-2023-SPACE-01-34: Copernicus for Marine Environment Monitoring

#### *Innovative space capabilities: SSA, GOVSATCOM, Quantum*

HORIZON-CL4-2023-SPACE-01-62: Quantum Communication Technologies for space systems

HORIZON-CL4-2023-SPACE-01-63: Quantum Space Gravimetry Phase-A Study

#### *Targeted and strategic actions supporting the EU space sector*

HORIZON-CL4-2023-SPACE-01-71: Scientific exploitation of space data

HORIZON-CL4-2023-SPACE-01-72: Space technologies for European non-dependence and competitiveness

**Call - STRATEGIC AUTONOMY IN DEVELOPING, DEPLOYING AND USING GLOBAL SPACE-BASED INFRASTRUCTURES, SERVICES, APPLICATIONS AND DATA 2023**

***HORIZON-CL4-2023-SPACE-01***

**Conditions for the Call**

Indicative budget(s)<sup>65</sup>

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million) <sup>66</sup>	Indicative number of projects expected to be funded
		2023		
Opening: 22 Dec 2022 Deadline(s): 28 Mar 2023				
HORIZON-CL4-2023-SPACE-01-11	IA	10.10 <sup>67</sup>	1.00 to 2.50	5
HORIZON-CL4-2023-SPACE-01-12	RIA	15.00 <sup>68</sup>	0.50 to 2.50	7
HORIZON-CL4-2023-SPACE-01-13	CSA	2.00	Around 2.00	1
HORIZON-CL4-2023-SPACE-01-21	RIA	20.00 <sup>69</sup>	Around 20.00	1
HORIZON-CL4-2023-SPACE-01-22	RIA	23.10 <sup>70</sup>	4.00 to 10.00	4
HORIZON-CL4-2023-SPACE-01-23	RIA	10.00 <sup>71</sup>	2.00 to 5.00	3
HORIZON-CL4-2023-SPACE-01-31	RIA	8.60 <sup>72</sup>	2.00 to 3.00	3
HORIZON-CL4-2023-SPACE-01-32	RIA	3.00 <sup>73</sup>	Around 3.00	1

<sup>65</sup> The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.

The Director-General responsible may delay the deadline(s) by up to two months.

All deadlines are at 17.00.00 Brussels local time.

The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for years 2023 and 2024.

<sup>66</sup> Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

<sup>67</sup> Of which EUR 5.00 million from the 'NGEU' Fund Source.

<sup>68</sup> Of which EUR 7.50 million from the 'NGEU' Fund Source.

<sup>69</sup> Of which EUR 8.00 million from the 'NGEU' Fund Source.

<sup>70</sup> Of which EUR 9.00 million from the 'NGEU' Fund Source.

<sup>71</sup> Of which EUR 4.00 million from the 'NGEU' Fund Source.

<sup>72</sup> Of which EUR 4.00 million from the 'NGEU' Fund Source.

<sup>73</sup> Of which EUR 1.00 million from the 'NGEU' Fund Source.

HORIZON-CL4-2023-SPACE-01-33	RIA	2.00 <sup>74</sup>	Around 2.00	1
HORIZON-CL4-2023-SPACE-01-34	RIA	5.00 <sup>75</sup>	Around 5.00	1
HORIZON-CL4-2023-SPACE-01-62	RIA	5.00 <sup>76</sup>	2.00 to 2.50	2
HORIZON-CL4-2023-SPACE-01-63	RIA	3.00 <sup>77</sup>	1.00 to 1.50	2
HORIZON-CL4-2023-SPACE-01-71	RIA	10.70	1.00 to 1.50	8
HORIZON-CL4-2023-SPACE-01-72	RIA	20.00 <sup>78</sup>	2.00 to 3.00	7
Overall indicative budget		137.50		

---

<sup>74</sup> Of which EUR 1.00 million from the 'NGEU' Fund Source.

<sup>75</sup> Of which EUR 2.50 million from the 'NGEU' Fund Source.

<sup>76</sup> Of which EUR 2.00 million from the 'NGEU' Fund Source.

<sup>77</sup> Of which EUR 1.00 million from the 'NGEU' Fund Source.

<sup>78</sup> Of which EUR 10.00 million from the 'NGEU' Fund Source.

**CALL - STRATEGIC AUTONOMY IN DEVELOPING, DEPLOYING AND USING  
GLOBAL SPACE-BASED INFRASTRUCTURES, SERVICES, APPLICATIONS AND  
DATA 2024**

*Evolution of services: Copernicus*

HORIZON-CL4-2024-SPACE-01-35: Copernicus for Land and Water

HORIZON-CL4-2024-SPACE-01-36: Copernicus for Security

*Innovative space capabilities: SSA, GOVSATCOM, Quantum*

HORIZON-CL4-2024-SPACE-01-64: Quantum Space Gravimetry Phase-B study & Technology  
Maturation

*Targeted and strategic actions supporting the EU space sector*

HORIZON-CL4-2024-SPACE-01-73: Space technologies for European non-dependence  
and competitiveness



**Call - STRATEGIC AUTONOMY IN DEVELOPING, DEPLOYING AND USING GLOBAL SPACE-BASED INFRASTRUCTURES, SERVICES, APPLICATIONS AND DATA 2024**

***HORIZON-CL4-2024-SPACE-01***

**Conditions for the Call**

Indicative budget(s)<sup>79</sup>

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million) <sup>80</sup>	Indicative number of projects expected to be funded
		2024		
Opening: 21 Nov 2023 Deadline(s): 20 Feb 2024				
HORIZON-CL4-2024-SPACE-01-35	RIA	4.00	1.50 to 2.00	2
HORIZON-CL4-2024-SPACE-01-36	RIA	8.00	Around 4.00	2
HORIZON-CL4-2024-SPACE-01-64	RIA	14.20	Around 14.00	1
HORIZON-CL4-2024-SPACE-01-73	RIA	20.10	2.00 to 3.00	7
Overall indicative budget		46.30		

<sup>79</sup> The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.  
 The Director-General responsible may delay the deadline(s) by up to two months.  
 All deadlines are at 17.00.00 Brussels local time.  
 The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for years 2023 and 2024.

<sup>80</sup> Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

## **VI. DESTINATION – A HUMAN-CENTRED AND ETHICAL DEVELOPMENT OF DIGITAL AND INDUSTRIAL TECHNOLOGIES**

### **CALL - A HUMAN-CENTRED AND ETHICAL DEVELOPMENT OF DIGITAL AND INDUSTRIAL TECHNOLOGIES (2023)**

#### *Systemic approaches for accelerating uptake of technology and innovation*

HORIZON-CL4-2023-HUMAN-01-31: Toolbox for efficient IP licensing for market uptake and societal value creation (CSA)

HORIZON-CL4-2023-HUMAN-01-32: Piloting communities of expert facilitators to improve industry-academia-public sector co-creation (CSA)

HORIZON-CL4-2023-HUMAN-01-33: Fostering knowledge valorisation through societal and cultural interactions (CSA)

#### *Research and Innovation for Industry 5.0*

HORIZON-CL4-2023-HUMAN-01-51: Pilots for an innovative human-centric industry (RIA)

HORIZON-CL4-2023-HUMAN-01-52: Drivers and success factors for progress towards Industry 5.0 (RIA)

HORIZON-CL4-2023-HUMAN-01-53: Localised and Urban Manufacturing, supporting creativity and the New European Bauhaus (RIA using FSTP)

HORIZON-CL4-2023-HUMAN-01-54: Green and digital skills and training needs for a just transition (CSA)

#### *European standards for industrial competitiveness*

HORIZON-CL4-2023-HUMAN-01-62: Boosting industrial symbiosis by standardisation (CSA)

HORIZON-CL4-2023-HUMAN-01-63: Provide for a strong and sustainable pool of experts for European Standardisation: attract the students of university/HEI

HORIZON-CL4-2023-HUMAN-01-64: Pre-normative research and standardisation in industrial ecosystems (CSA)

#### *International Cooperation*

HORIZON-CL4-2023-HUMAN-01-91: International Hub for Digital Partnerships in the Indo-Pacific (CSA)

HORIZON-CL4-2023-HUMAN-01-92: R&I cooperation with Sub-Saharan Africa (CSA)

HORIZON-CL4-2023-HUMAN-01-93: R&I cooperation with Latin America (Mexico, Brazil, Argentina, and other countries in the BELLA network or members of RedClara) (CSA)

**Call - A human-centred and ethical development of digital and industrial technologies**

***HORIZON-CL4-2023-HUMAN-01***

**Conditions for the Call**

Indicative budget(s)<sup>81</sup>

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million) <sup>82</sup>	Indicative number of projects expected to be funded
		2023		
Opening: 08 Dec 2022 Deadline(s): 29 Mar 2023				
HORIZON-CL4-2023-HUMAN-01-31	CSA	2.00	Around 2.00	1
HORIZON-CL4-2023-HUMAN-01-32	CSA	2.00	Around 2.00	1
HORIZON-CL4-2023-HUMAN-01-33	CSA	5.00	Around 1.00	5
HORIZON-CL4-2023-HUMAN-01-51	RIA	10.00	Around 10.00	1
HORIZON-CL4-2023-HUMAN-01-52	RIA	4.00	Around 4.00	1
HORIZON-CL4-2023-HUMAN-01-53	RIA	10.00	1.50 to 2.50	4
HORIZON-CL4-2023-HUMAN-01-54	CSA	2.50	Around 0.50	5
HORIZON-CL4-2023-HUMAN-01-62	CSA	2.00	Around 2.00	1
HORIZON-CL4-2023-HUMAN-01-63	CSA	3.00	2.50 to 3.00	1
HORIZON-CL4-2023-HUMAN-01-64	CSA	8.00	0.50 to 1.00	8
HORIZON-CL4-2023-HUMAN-01-91	CSA	2.50 <sup>83</sup>	Around 2.50	1

<sup>81</sup> The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.

The Director-General responsible may delay the deadline(s) by up to two months.

All deadlines are at 17.00.00 Brussels local time.

The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for years 2023 and 2024.

<sup>82</sup> Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

<sup>83</sup> Of which EUR 1.00 million from the 'NGEU' Fund Source.

HORIZON-CL4-2023-HUMAN-01-92	CSA	2.00 <sup>84</sup>	Around 2.00	1
HORIZON-CL4-2023-HUMAN-01-93	CSA	2.00 <sup>85</sup>	Around 2.00	1
Overall indicative budget		55.00		

---

<sup>84</sup> Of which EUR 0.80 million from the 'NGEU' Fund Source.

<sup>85</sup> Of which EUR 0.80 million from the 'NGEU' Fund Source.

## **CALL - A HUMAN-CENTRED AND ETHICAL DEVELOPMENT OF DIGITAL AND INDUSTRIAL TECHNOLOGIES (CNECT 2023)**

### **Leadership in AI based on trust**

HORIZON-CL4-2023-HUMAN-01-01: Efficient trustworthy AI - making the best of data (AI, Data and Robotics Partnership) (RIA)

HORIZON-CL4-2023-HUMAN-01-02: Large Scale pilots on trustworthy AI data and robotics addressing key societal challenges (AI Data and Robotics Partnership) (IA)

HORIZON-CL4-2023-HUMAN-01-03: Natural Language Understanding and Interaction in Advanced Language Technologies (AI Data and Robotics Partnership) (RIA)

HORIZON-CL4-2023-HUMAN-01-04: Open innovation: Addressing Grand challenges in AI (AI Data and Robotics Partnership) (CSA)

HORIZON-CL4-2023-HUMAN-01-05: Through AI from Disinformation to Trust (IA)

### **An Internet of Trust**

HORIZON-CL4-2023-HUMAN-01-11: Next Generation Internet Fund (RIA)

HORIZON-CL4-2023-HUMAN-01-12: Pilots for the Next Generation Internet (IA)

HORIZON-CL4-2023-HUMAN-01-13: Next Generation Internet International Collaboration - USA (RIA)

HORIZON-CL4-2023-HUMAN-01-14: Next Generation Internet Commons Policy (CSA)

### **eXtended Reality**

HORIZON-CL4-2023-HUMAN-01-21: Next Generation eXtended Reality (RIA)

HORIZON-CL4-2023-HUMAN-01-22: eXtended Reality for Industry 5.0 (IA)

HORIZON-CL4-2023-HUMAN-01-23: Supporting the emergence of an open human-centric Metaverse (CSA)

### **European standards for industrial competitiveness**

HORIZON-CL4-2023-HUMAN-01-65: Support facility for digital standardisation and international cooperation in digital partnerships (CSA)

HORIZON-CL4-2023-HUMAN-01-66: Promoting EU standards globally (CSA)

### **Digital Humanism and human compatible technologies**

HORIZON-CL4-2023-HUMAN-01-81: Digital Humanism - Putting people at the centre of the digital transformation (CSA)

HORIZON-CL4-2023-HUMAN-01-82: Art-driven digital innovation: Towards human compatible and ecologically conscious technology (CSA)

## Call - A human-centred and ethical development of digital and industrial technologies

*HORIZON-CL4-2023-HUMAN-01-CNECT*

### Conditions for the Call

#### Indicative budget(s)<sup>86</sup>

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million) <sup>87</sup>	Indicative number of projects expected to be funded
		2023		
Opening: 08 Dec 2022 Deadline(s): 29 Mar 2023				
HORIZON-CL4-2023-HUMAN-01-01	RIA	35.00 <sup>88</sup>	7.00 to 9.00	5
HORIZON-CL4-2023-HUMAN-01-02	IA	24.00 <sup>89</sup>	Around 8.00	3
HORIZON-CL4-2023-HUMAN-01-03	RIA	20.00 <sup>90</sup>	6.00 to 8.00	3
HORIZON-CL4-2023-HUMAN-01-04	CSA	4.00 <sup>91</sup>	Around 4.00	1
HORIZON-CL4-2023-HUMAN-01-05	IA	10.00 <sup>92</sup>	Around 5.00	2
HORIZON-CL4-2023-HUMAN-01-11	RIA	27.00 <sup>93</sup>	Around 27.00	1
HORIZON-CL4-2023-HUMAN-01-12	IA	14.00 <sup>94</sup>	3.00 to 5.00	5
HORIZON-CL4-2023-HUMAN-01-13	RIA	4.00 <sup>95</sup>	Around 4.00	1

<sup>86</sup> The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.

The Director-General responsible may delay the deadline(s) by up to two months.

All deadlines are at 17.00.00 Brussels local time.

The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for years 2023 and 2024.

<sup>87</sup> Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

<sup>88</sup> Of which EUR 12.25 million from the 'NGEU' Fund Source.

<sup>89</sup> Of which EUR 8.40 million from the 'NGEU' Fund Source.

<sup>90</sup> Of which EUR 7.00 million from the 'NGEU' Fund Source.

<sup>91</sup> Of which EUR 1.70 million from the 'NGEU' Fund Source.

<sup>92</sup> Of which EUR 3.50 million from the 'NGEU' Fund Source.

<sup>93</sup> Of which EUR 9.45 million from the 'NGEU' Fund Source.

<sup>94</sup> Of which EUR 4.90 million from the 'NGEU' Fund Source.

<sup>95</sup> Of which EUR 1.40 million from the 'NGEU' Fund Source.

HORIZON-CL4-2023-HUMAN-01-14	CSA	2.00	Around 2.00	1
HORIZON-CL4-2023-HUMAN-01-21	RIA	26.00 <sup>96</sup>	5.00 to 8.00	4
HORIZON-CL4-2023-HUMAN-01-22	IA	25.00 <sup>97</sup>	5.00 to 8.00	4
HORIZON-CL4-2023-HUMAN-01-23	CSA	2.00	Around 2.00	1
HORIZON-CL4-2023-HUMAN-01-65	CSA	1.50 <sup>98</sup>	Around 1.50	1
HORIZON-CL4-2023-HUMAN-01-66	CSA	2.50 <sup>99</sup>	Around 2.50	1
HORIZON-CL4-2023-HUMAN-01-81	CSA	1.50 <sup>100</sup>	Around 1.50	1
HORIZON-CL4-2023-HUMAN-01-82	CSA	3.00 <sup>101</sup>	Around 3.00	1
Overall indicative budget		201.50		

---

<sup>96</sup> Of which EUR 9.80 million from the 'NGEU' Fund Source.

<sup>97</sup> Of which EUR 8.75 million from the 'NGEU' Fund Source.

<sup>98</sup> Of which EUR 0.53 million from the 'NGEU' Fund Source.

<sup>99</sup> Of which EUR 1.05 million from the 'NGEU' Fund Source.

<sup>100</sup> Of which EUR 0.53 million from the 'NGEU' Fund Source.

<sup>101</sup> Of which EUR 1.05 million from the 'NGEU' Fund Source.

**CALL - A HUMAN-CENTRED AND ETHICAL DEVELOPMENT OF DIGITAL AND INDUSTRIAL TECHNOLOGIES (2024)**

*Leadership in AI based on trust*

HORIZON-CL4-2024-HUMAN-01-06: Explainable and Robust AI (AI Data and Robotics Partnership) (RIA)

HORIZON-CL4-2024-HUMAN-01-07: Collaborative intelligence – combining the best of machine and human (AI Data and Robotics Partnership) (RIA)

*Systemic approaches for accelerating uptake of technology and innovation*

HORIZON-CL4-2024-HUMAN-01-34: Support for transnational activities of National Contact Points in the thematic areas of Digital, Industry and Space (CSA)

*European standards for industrial competitiveness*

HORIZON-CL4-2024-HUMAN-01-61: Facilitate the engagement in global ICT standardisation development (CSA)



## Call - A human-centred and ethical development of digital and industrial technologies

*HORIZON-CL4-2024-HUMAN-01*

### Conditions for the Call

#### Indicative budget(s)<sup>102</sup>

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million) <sup>103</sup>	Indicative number of projects expected to be funded
		2024		
Opening: 15 Nov 2023 Deadline(s): 19 Mar 2024				
HORIZON-CL4-2024-HUMAN-01-06	RIA	30.00	9.00 to 10.00	3
HORIZON-CL4-2024-HUMAN-01-07	RIA	20.00	Around 5.00	4
HORIZON-CL4-2024-HUMAN-01-34	CSA	5.00	1.50 to 5.00	3
HORIZON-CL4-2024-HUMAN-01-61	CSA	6.00	Around 6.00	1
Overall indicative budget		61.00		

<sup>102</sup> The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.  
The Director-General responsible may delay the deadline(s) by up to two months.  
All deadlines are at 17.00.00 Brussels local time.  
The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for years 2023 and 2024.

<sup>103</sup> Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.