HORIZON-CL4-2022-HUMAN-01-01/02

Leadership in AI based on trust

CALL:
Opening June 22
Closing November 22

HORIZON-CL4-2022-HUMAN-01-01

- AI for human empowerment (AI, Data and Robotics Partnership) (RIA)

HORIZON-CL4-2022-HUMAN-01-02

- European Network of AI Excellence Centres: Expanding the European AI lighthouse (RIA)

European Commission

Work Programme topic – HUMAN-01-01
AI for human empowerment

1. What are you looking for? (1/3)

Next level of **perception**, **visualisation**, **interaction** and **collaboration** between humans and AI systems working together as partners to achieve common goals, sharing mutual understanding and learning of each other's abilities and respective roles.

Work Programme topic – HUMAN-01-01
AI for human empowerment

1. What are you looking for? (3/3)

Innovative and promising approaches including **human-in the loop** approaches for **truly mixed human-AI initiatives** combining the best of human and machine knowledge and capabilities, **tacit knowledge extraction** (to design the next generation AI-driven co-creation and collaboration tools embodied e.g. in industrial/working spaces environments).

Work Programme topic – HUMAN-01-01 AI for human empowerment

Human centric approach:

- **multidisciplinary** and **trans-disciplinary** approaches paying particular attention to **intersectional** factors relevant to stimulate **novel research avenues**, and eventually improve **user-acceptance**. **Collaborative design** and evaluation with **users involvement** should also be considered.

- proposals in this topic will dedicate part of their activities on investigating **novel ways** of **engagement** by **citizens** or **citizen representatives** with AI development, with a view of optimising experience towards **improving usability** and **experience** for **citizens** (both at professional or daily life environment).

Leadership in AI based on trust

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HORIZON-CL4-2022-HUMAN-01-02

- European Network of AI Excellence Centres: Expanding the European AI lighthouse (RIA)

European Commission

Work Programme topic – HUMAN-01-02 European Network of AI Excellence Centres

1. What are you looking for?

- Scientific progress in AI, addressing major challenges hampering its deployment, including systems engineering.
- Build-up the European AI lighthouse, initiated by earlier Networks of excellence centers
- Unify and reinforce the world-class European AI community
  ➔ Create strong visibility & identity for the vibrant AI community in Europe
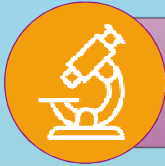
**Reinforce and network excellence centres in AI
Best scientists from academia and industry join forces
Major AI challenges hampering deployment**

Reinforce excellence through collaboration in AI throughout Europe

European Commission

2. What do you <u>NOT</u> want?

HORIZON-CL4-2022-HUMAN-01-01 – AI for human empowerment (AI, Data and Robotics Partnership) (RIA)

- Scientific progress disconnected from industry needs / incremental – lack of ambition
- Purely technical approach (SSH is an integral part of the research)

HORIZON-CL4-2022-HUMAN-01-02: European Network of Network of AI Excellence Centres: Expanding the European AI Lighthouse (RIA)

- Second-Class experts in AI
- Disjoint efforts of the AI community to address the research challenge

3. Is this new or has it been called before?

European Commission

HORIZON-CL4-2022-HUMAN-01-01

AI for human empowerment (AI, Data and Robotics Partnership) (RIA)

- New

HORIZON-CL4-2022-HUMAN-01-02: European Network of AI Excellence Centres: Expanding the European AI lighthouse (RIA)

- ICT-48 ➔ all together will form part of the AI lighthouse
- HORIZON-CL4-2021-HUMAN-01-03 (focus on safe and secure AI)

➔ALL TOPICS RELEVANT TO AI, DATA AND ROBOTICS PPP ➔ TASK TO CONTRIBUTE TO THE PPP ACTIONS

HC(3

➔ALL TOPIC REQUESTED TO PUT THEIR RESULTS ON THE AI-ON-DEMAND PLATFORM

HC(3 added

HUET Cecile (CNECT); 25.11.2021

Topic evolution

4. Current project portfolio *(if relevant)*

e.g. Please mention some highly relevant projects!
Is there an overview of current project portfolio?
*Are there clusters / **groups of projects**?*

- **AI-on-demand platform (ICT26 – ICT 49) => 7 projects**
- **ICT-48 – 4 NoEs + 1 CSA**

➔ **All together reinforce the scientific foundation for trustworthy AI**

Key actors

5. Who are the types of main stakeholders that are addressed?

- Top scientists + Industry as relevant / right mix of disciplines (adapted to the project focus)

6. Is there a key group of actors (eg. Partnership or other) driving this?

- HORIZON-CL4-2022-HUMAN-01-01: AI, Data and Robotics Partnership

7. ADDITIONAL/BACKGROUND DOCUMENTS?

PPP – SRIDA: https://ai-data-robotics-partnership.eu/

EUROPEAN AI STRATEGY: HTTPS://DIGITAL-STRATEGY.EC.EUROPA.EU/EN/POLICIES/EUROPEAN-APPROACH-ARTIFICIAL-INTELLIGENCE

Including:
- White paper on AI: Ecosystem of excellence & Trust
- Coordinated plan on AI ➔ from the lab to the market
- Ethics guidelines for trustworthy AI
- Regulatory Framework proposal

Future Outlook

8. Do you have information about future trends, emerging initiatives, roadmaps, type of stakeholders in this area?

- New PPP https://adr-association.eu/
- Coordinated plan on AI: https://digital-strategy.ec.europa.eu/en/library/coordinated-plan-artificial-intelligence-2021-review (section *From the lab to the market*)

Upcoming events / information days

9. Please list upcoming information days and other events of relevance to this area

Launch event of the AI, Data and Robotics Partnership 25/09/2021: https://ai-data-robotics-partnership.eu/

Interested stakeholders can join the AI Data and Robotics association: https://adr-association.eu/

HORIZON-CL4-2022-HUMAN-01-03/07

NEXT GENERATION INTERNET IN WP 2022

Section: AN INTERNET OF TRUST

NCP presentation 25/11/2021

European Commission – DG CONNECT

Work Programme: An Internet of Trust

1. What are you looking for?

- The objective of this section is to develop a trustworthy digital environment, built on a more resilient, sustainable, and decentralised internet, to empower end-users with more control over their data and their digital identity, and to enable new social and business models respecting European values

Work Programme 2022 topics

- **Research and Innovation actions (RIA):**
    - Internet architecture & decentralised technologies (€ 22 million)

- **International Collaboration - USA and Canada (RIA):**
    - NGI International Collaboration - USA and Canada (€ 6 million)

Work Programme topics: (1)

- **Trust & data sovereignty on the Internet (€ 22 million, 80% FSTP)**

    Two research areas (at least one project selected in each area):

    - To review and upgrade the **open Internet architecture** (hardware, software, protocols) to increase the performance of the network, adapt it to new application requirements, improve quality of service, make it more resilient to security threats, more energy efficient and respectful of the environment …

    - Address the current limitations of **decentralised technologies**, such as Blockchain and DLT, including those related to scalability, interoperability, energy efficiency, privacy or security, in order to make them dependable building blocks of the future Internet

Work Programme topics: (2)

- **NGI International Collaboration - USA and Canada (RIA, € 6 million, 80% FSTP)**

  - To reinforce EU cooperation and strategic partnerships with the US and Canada in the area of Next Generation Internet

  - Open calls for joint projects involving EU teams together with USA and/or Canadian teams on emerging topics for the EU Next Generation Internet and corresponding US and Canadian programmes, including technology development, joint demonstrators and joint contributions to standards

Work Programme topics:

- **Common requirements to both topics:**

  - Support open source software and open hardware design, open access to data, standardisation activities, access to testing and operational infrastructures as well as an IPR regime ensuring lasting impact and reusability of results

  - The consortium should provide the programme logic for the third-party projects, ensure the coherence and coordination of these projects, and provide the necessary technical support, as well as coaching and mentoring, in order to ensure that the collection of third party projects contributes to a significant advancement and impact in the R&I domain.

Work Programme: An Internet of Trust

2. What do you <u>NOT</u> want?

"apps and services that innovate without a research component are not covered by this topic"

An Internet of Trust – topic evolution

3. Is this new or has it been called before?

Both Internet of Trust topics have continuity with previous NGI topics in H2020

Both topics have been updated in terms of scope and expected outcomes, however, given the use of FSTP, it will be at the time of launching the open calls for third parties when the content of these calls will have to be adapted to the current research priorities in the given area

An Internet of Trust – project portfolio

4. Current project portfolio

All the information on current NGI projects is available at:
https://www.ngi.eu/ngi-projects/

This includes projects from previous H2020 calls in the same areas as the current topics

An Internet of Trust – key actors

5. ## Who are the types of main stakeholders that are addressed?

    These are organisations that have leadership in Internet R&I and that can mobilise the ecosystem of Internet innovators

    These organisations will have to run later on the FSTP calls for Internet innovators (open source developers, hi-tech startups and SMEs, individual researchers) which requires expertise and capacity in managing the full life-cycle of the open calls transparently and efficiently.

    Please note that the WP explicitely states "The proposals should support open source software and open hardware design"

6. ## Is there a key group of actors (eg. Partnership or other) driving this?

    No

An Internet of Trust - documents / events

7. Are there any additional / background documents?

8. Do you have information about future trends, emerging initiatives, roadmaps, stakeholders?

9. Please list upcoming information days and other events of relevance to this area

No, we do not have any background documents or any additional information elaborating the content of the call. We are not planning to organize any specific information day on Internet of Trust

However, at: www.NGI.eu, you may find documents / reports relevant to Next Generation Internet as well as events of relevance to this area; but these are not related to or supporting the call

HORIZON-CL4-2022-HUMAN-01-05

HORIZON-CL4-2022-HUMAN-01-05

Create AI tools and technologies (including classifiers) which allow identification, categorisation and prioritisation of Child Sexual Abuse Material (CSAM).

- The tools should combine different sources of informations and clues (images, videos, object identification, sound, text, age detection…) in order to make the results (the hits) more accurate

- Specific issue to be addressed is that the tools comply with the divers national definitions of CSAM in EU Member States to allow cross-border interoperability.

- Project will define the corresponding granularity of classifiers required.

- Project will develop the classifier.

- Project will compose and annotate representative CSAM data sets, train, and test the tools in cooperation with LEAs and INHOPE Hotlines.

HORIZON-CL4-2022-HUMAN-01-05

There are 2 ways to identify and classify online CSAM in an automated way:

- Hashes of known CSAM to identify known CSAM
- AI classifier to identify new CSAM

We are not looking for hashing technologies. We are not looking for tools which only rely on the analysis and classification of visual material.

HORIZON-CL4-2022-HUMAN-01-05 –topic evolution

- This is the first HE call on tools to identify and classify new CSAM.

HORIZON-CL4-2022-HUMAN-01-05 – topic evolution

- GRACE – Global Response Against Child Exploitation (Horizon 2020)

https://cordis.europa.eu/project/id/883341

www.grace-fct.eu

- AviaTor –Augmented Visual Intelligence and Targeted Online Research (Internal Security Fund)

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/org-details/942970272/project/101038713/program/31077817/details

https://web-iq.com/news/aviator-phase-2-creating-the-tool-to-get-the-job-done

HORIZON-CL4-2022-HUMAN-01-05 – Key actors

- INHOPE hotlines, private sector (e.g. IT companies specialised in data analysis and intelligence; AI), Law Enforcement Agencies (LEAs), academia / research institutes.

- LEAs incl. Europol, INHOPE Hotlines
- As CSAM is illegal, data sets need to be provided by or composed in cooperation with LEAs. INHOPE Hotlines and LEAs should be involved in the project.

HORIZON-CL4-2022-HUMAN-01-05

- Study on framework of best practices to tackle child sexual abuse material online (European Commission)
- Executive summary available online

https://op.europa.eu/en/publication-detail/-/publication/d3a6ec91-e5b3-11ea-ad25-01aa75ed71a1/language-en/format-PDF/source-150045937

- EU strategy for a more effective fight against child sexual abuse COM(2020) 607 24.7.2020

Future Outlook

- Interpol www.interpol.int
- Europol www.europol.europa.eu
- National LEAs with focus on child sexual abuse
- INHOPE network of internet hotlines www.inhope.org
- Private sector

Upcoming events / information days

- 1 December 2021 Cluster4 info Day

HORIZON-CL4-2022-HUMAN-01-14/19

HORIZON-CL4-2022-HUMAN-01-14:

eXtended Reality Technologies (RIA)

- Innovative eXtended Reality industrial and societal applications, integrating technologies such as:

- Advanced visualisation

- 3D

- Augmented and Virtual Reality experiences

- Human-machine interaction and cooperation

with a focus on well designed and fully tested scenarios in real-world environment.

Research and innovation proposals to develop and demonstrate *novel eXtended Reality technologies.*

What we are looking for:

Key words:

- Digital interfaces, spatial computing, interaction with real-time contextual information, multi-user, multi-sensory experiences, 3D acquisition, processing, storage and rendering, context-aware and embodied experiences, realistic digital avatars and intelligent agents. Fully tested real-world scenarios.

- TRL 2-4/5

Work Programme topic

We do <u>NOT</u> want

    a) State-of-the-art applications
    b) Non suitable, unethical or unsafe solutions
    c) Research non-grounded into real world scenarios
    d) Non-transdisciplinary research
    e) Research that does not involve end-users

Work Programme topic – topic evolution

3. This topic builds on:

H2020

- ICT-25-2018-2020 (Interactive Technologies): 6 RIA (Future Interaction) / 1 CSA (Interactive Community Building)
- ICT-55-2020: 10 IA (The uptake of Interactive Technologies in various industrial and societal domain)

Horizon Europe

XR calls under Pillar 2, Cluster 4

DESTINATION 6: A HUMAN-CENTRED AND ETHICAL DEVELOPMENT OF DIGITAL AND INDUSTRIAL TECHNOLOGIES

2021 - 5 topics in XR (on innovation for media, haptics, modelling, collaborative telepresence and Ethics, Interoperability and Impact)

2022 – XR Learning - Engage and Interact (IA)

Work Programme topic – topic evolution

4. Current project portfolio

H2020 projects in Construction, education, health, industry, medical rehabilitation, media, architecture, fashion and entertainment and focusing on multi-user and multi-modal interactions, authoring tools
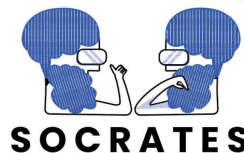
Work Programme topic – Key actors

Types of main stakeholders that are addressed

1. *Research institutions and universities*
2. *SMEs and start-ups*
3. *Targeted industries*
4. *End-users*
5. *XR Community in general*

Is there a key group of actors (eg. Partnership or other) driving this?

n/a

Work Programme topic

Additional / background documents

Call text:

https://ec.europa.eu/info/funding-
tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl4-2022-
human-01-14

XR4All: Landscape Report, Research agenda, wiki

https://xr4all.eu/research-agenda/

https://xr4all.hhi.fraunhofer.de/index.php/Landscape_Research_Report

The final versions of both reports were provided to the community in December 2020
and they describe and report the current state and the advances on technology,
applications, market, obstacles and challenges until that date.

Future Outlook

❑   XR is developing steadily and becomes mainstream, across sectors and applications.

❑   Technology is maturing.

❑   However, potential is not yet fully exploited.

❑   Interest was raised by COVID 19 crisis and climate / environmental concerns.

❑   The need for the development and the adoption of interactive and immersive technologies has accelerated.

Upcoming events / information days

Upcoming events of relevance to this area

Digital, Industry & Space Info Day from 29 November to 1 December 2021 (Pillar II of Horizon Europe, Cluster 4)

Destination 6 is on the 1st of December 16:00-18:00

HORIZON-CL4-2022-HUMAN-01-19:
eXtended Reality Learning - Engage and Interact (IA)

A European reference platform where to develop, apply and test the use of the XR technologies for teaching and learning

- **Innovative XR-enabled solutions** for education, awareness raising, training, distance and blended learning, accessibility and inclusion

- **Open** access – educational solutions to match needs

- A **place for sharing/marketing** existing digital educational XR solutions for EdTech and XR communities

- FSTP to **support digital start-ups, SMEs and industry** in the education area

- Linked to **existing relevant initiatives** (e.g. existing platforms, catalogues or repositories)

HORIZON-CL4-2022-HUMAN-01-19:
eXtended Reality Learning - Engage and Interact (IA)

Not Called For:

➢ Actions exclusively focused on research rather than innovation
➢ Unclear idea of impact and sustainability
➢ Lack of connection to/ exploitation of existing relevant initiatives/solutions
➢ Poor overall concept of the platform and unclear coordination of the TP projects
➢ Access availability issues, low usability, user-unfriendly tools

HORIZON-CL4-2022-HUMAN-01-19:
eXtended Reality Learning - Engage and Interact (IA)

Topic evolution

➢ This is the first XR call fully dedicated to learning

➢ Prompted by the COVID-19 pandemic challenging circumstances in the education sector > XR => opportunities for personalised, innovative, efficient and inclusive learning

➢ The topic builds on H2020
  ❑ ICT-25-2018-2020 (Interactive Technologies): 6 RIA (Future Interaction) / 1 CSA (Interactive Community Building)
  ❑ ICT-55-2020: 10 IA (The uptake of Interactive Technologies in various industrial and societal domain)
  ❑ Other calls focusing on the use of emerging technologies to improve the learning and teaching process, e.g. ICT-21-2014 (gamification), ICT-20-2015 (technologies for better human learning and teaching), ICT-22-2016 (Technologies for Learning and Skills), ICT-30-2019-2020 (An empowering, inclusive Next Generation Internet), etc.

❑ XR applied to learning as a testing scenario – Notable projects - *ARETE (ICT-25-2018-2020) IMPACT EdTech (ICT-30-2019-2020)*

HORIZON-CL4-2022-HUMAN-01-19:
eXtended Reality Learning - Engage and Interact (IA)

Topic evolution - Current context:

➢ *Change in approach > Target:* to gain **industrial leadership in XR technologies** and support the digital transformation of education through them

➢ **Horizon Europe** - XR calls under Pillar 2, Cluster 4 Destination 6: A Human-centred and Ethical Development of Digital and Industrial Technologies
  ❑ 2021 - 5 topics in XR (on innovation for media, haptics, modelling, collaborative telepresence and Ethics, Interoperability and Impact)
  ❑ 2022 eXtended Reality Technologies (RIA)

➢ **Digital Europe Programme** – Strategic Objective 4 - Promoting European innovation in education (CSA)

HORIZON-CL4-2022-HUMAN-01-19:
eXtended Reality Learning - Engage and Interact (IA)

Current project portfolio

H2020 projects in Construction, education, health, industry, medical rehabilitation, media, architecture, fashion and entertainment and focusing on multi-user and multi-modal interactions, authoring tools
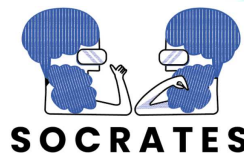
HORIZON-CL4-2022-HUMAN-01-19:
eXtended Reality Learning - Engage and Interact (IA)

Types of stakeholders:

➢ EdTech and XR communities (including SMEs, start-ups, companies, academia/research community, learning and instructional designers, social innovators)

➢ End-users, such as teachers, students, parents, schools administrations, training providers

➢ No pre-existing key group of actors/partnerships

**HORIZON-CL4-2022-HUMAN-01-19:
eXtended Reality Learning - Engage and Interact (IA)**

Additional / background documents

➢ Call notice: Funding & tenders (europa.eu)

➢ For the current state and advances in technology, applications, market, obstacles and challenges: XR4ALL Landscape Report, Research agenda (Dec.2020)

➢ For examples of digital education and learning initiatives under H2020 involving interactive technologies: Technologies for better human learning and teaching (2015), Gaming and gamification (2016), Interactive Technologies (2018), An empowering, inclusive Next Generation Internet (2019)

Future Outlook

➢ XR is developing and becomes mainstream, across sectors and applications

➢ Digital learning opportunities and demand have increased following the COVID crisis

Upcoming events / information days

➢ **Digital, Industry & Space Info Day from 29 November to 1 December 2021** (Pillar II of Horizon Europe, Cluster 4)

Destination 6 is on the 1st of December, 16:15-18:00