

TRUSTCHAIN OC5: GREEN SCALABLE AND SUSTAINABLE DLTS

Second webinar for Applicants

TRUSTCHAIN Consortium

09/12/2024

TRUSTCHAIN

TRUSTCHAIN IN BRIEF

TRUSTCHAIN - Fostering a Human-Centred, Trustworthy and Sustainable Internet

- European project - Horizon Europe Research and Innovation Programme (call topic CL4-2022-HUMAN-01-03).
- Member of the European Commission's Next Generation Internet initiative (NGI)
- Cascade funding project launched in January 2023

Up to 8,775 M€ funding and mentoring program with best international experts in their field as well as access to divers' support services (e.g., business development training, legal and regulatory training, communication support) **and infrastructure** (e.g., Alastria Blockchain)



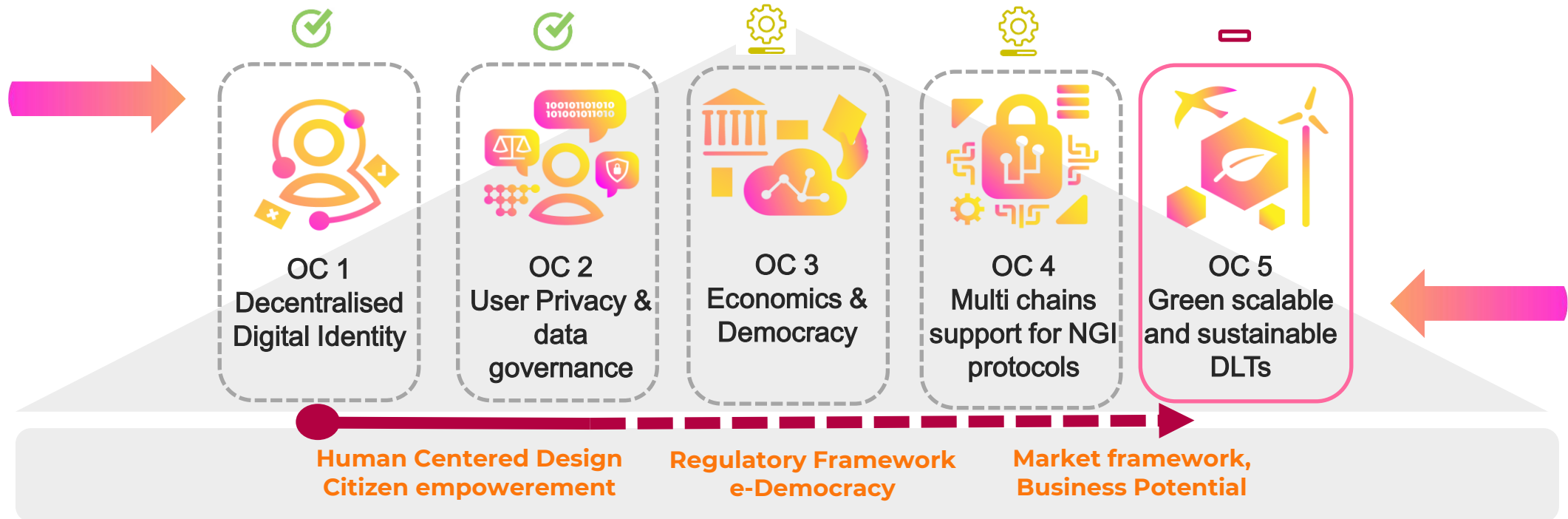
Overall objective:

To achieve a human centered, trustworthy and sustainable decentralised internet

To empower innovators and end users **through 5 Open Calls** to create a portfolio of Next Generation Internet protocols and an ecosystem of decentralised identity management software solutions that are transparent to the user, interoperable, privacy aware, regulatory compliant and that can seamlessly integrate and interoperate with any of existing decentralised applications.

TRUSTCHAIN IMPLEMENTATION: 5 OPEN CALLS

TRUSTCHAIN : Human centered, trustworthy & sustainable decentralised internet



Each Open Call provides key technologies that can be used as basis for development in the subsequent calls, while also the opposite interaction can be employed by later calls.

TRUSTCHAIN OC5

Green scalable and sustainable DLTs

5

| TRUSTCHAIN.NGI.EU

OC5 GREEN SCALABLE AND SUSTAINABLE DLTS



11th November 2024 until 15th January 2025 (17:00 CET)



- **€ 1 989 000** distributed among up to 17 selected projects for 9 months
- Up to **K€ 117** per project



The goal is to employ digital identities, trustworthy data, and already designed novel mechanisms for the ecosystems' economy, in order to achieve high energy efficiency and optimisation of particular DLTs. We are looking for the most appropriate, relevant and pertinent tradeoffs between the use of technologies, the security of consensus protocols on one side, and the sustainability requirements on the other.

You are invited to submit your proposals on any topic that serves the OC5 vision and objectives with as minimal requirement :

- **Adopt a co-creation process with end users from requirements elicitation till validation**
- **Use standard technology for full stack development,**
- **Be open source and desirably reach TRL 7,**
- **Extend the state-of-the-art in the domain of green scalable and sustainable DLTS**

WHAT ARE WE LOOKING FOR? (INDICATIVE/ NOT LIMITED TO)

 Solutions, protocols, services or applications that clearly define, upgrade/extend the state-of-the-art and address one or several of the following issues /aspects/topics:

- **Develop Energy-Efficient Consensus Mechanisms:** Design and implement consensus mechanisms that reduce energy consumption, potentially moving away from Proof of Work (PoW), while ensuring the security and trustworthiness of DLT systems
- **Introduce Sharding for Scalable Decentralization:** Implement sharding techniques to divide the network into smaller, energy-efficient groups of maintainers, drastically lowering energy usage while maintaining the security and integrity of the entire DLT network. These techniques could be related or employ DePIN incentive mechanisms and approaches.
- **Optimize Data Management for Energy Reduction:** Explore methods for secure data removal to reduce the storage demands of DLTs, allowing for the safe deletion of obsolete data while maintaining the integrity and reliability of the ledger.
- **Enable Consensus-less DLT Functionality:** Investigate and implement systems that perform DLT functionalities without requiring communication between miners, eliminating the need for costly consensus protocols and drastically reducing energy consumption.

WHAT ARE WE LOOKING FOR? (INDICATIVE/ NOT LIMITED TO)

- **Ensure Interoperability and Scalability:** Develop solutions that maintain openness and ensure that the optimized DLT systems can seamlessly interact with existing infrastructures, while ensuring scalability to accommodate future growth without increased environmental impact. Moreover, innovative DePIN solutions that enable scalability and sustainability are envisioned.
- **Energy-efficient and interoperable smart oracle solutions:** Develop scalable, decentralized oracle solutions that exploit the capabilities of AI/ML, while being energy-efficient, and ensuring the reliability and integrity of real-world data. Interoperability with legacy systems, including legacy identity systems, is important. Also important is investigating the trade-offs between energy efficiency and other performance metrics such as latency and number of oracle nodes.
- **Energy-efficient Trusted Enclaves:** Develop solutions and mechanisms towards energy-efficient trusted enclaves, potentially involving secure decentralized processing, secure multiparty computation, ZKP-based analytics, etc.
- **Energy-efficient Cross-chain bridges:** Develop resilient and highly available bridging solutions that support interoperability and the seamless integration of multiple DLT-based ecosystems. These bridges should facilitate state/data/asset exchange, privacy-enabling mechanisms, and digital identities across multiple chains. The solutions can utilize mechanisms such as TEE, reputation, and data aggregation to ensure trust while increasing energy efficiency.

WHAT ARE WE LOOKING FOR? (INDICATIVE/ NOT LIMITED TO)

- **Energy-efficiency applications:** Develop applications that make use of decentralized technologies and significantly impact energy efficiency, circular economy and sustainability, token strategies for sustainability, e.g., green certificates, digital product passports, etc.
- **Embedding and embodying philosophical concepts** of indigenous populations that can be used to achieve sustainability and trustworthiness in the context of climate change are also possible, also related to 5Cs1 for sustainability, i.e., Consciousness, Conservation, Community, Commerce, Culture. Examples of applications may include, for example, but not limited to the DestinE (Destination Earth) programme.

WHAT ARE THE CHALLENGES YOU SHOULD CONSIDER & TACKLE? (INDICATIVE/ NOT LIMITED TO)

- Energy-Intensive Consensus Mechanisms
- Trustworthiness vs. Efficiency Trade-off
- Onchain/offchain Data Management and Transmission:
- Integration of Digital Identities:
- Compatibility with Existing DLT Infrastructure
- Oracles and Cross-chain Bridges:
- Oracles for green certificates
- Energy-efficient Trusted Enclaves
- Energy-efficient DePINs
- Token strategies for sustainable goals:
- Balance between privacy and sustainability:
- Adaptation to the Circular Economy and waste reduction
- Efficient use of underutilized resources:

WHAT DO YOU NEED TO EXPLAIN?



Use the mandatory
TRUSTCHAIN proposal
template

- The **specific Open Call #5 challenges** your solution will address,
- The **specific technological innovation** you propose to develop and how it is clearly different from alternative solutions that are already available in the market, or developed by previous EU research and innovation actions (i.e., the EU ONTOCHAIN Project and any other projects),
- The **specific User Centric Approach and co-creation process** you are going to implement,
- The specific **user privacy and data governance needs or challenge** you propose to address and **who would benefit from it** immediately and in the longer term,
- The specific **legal and regulatory framework** you are going to follow/contribute to,
- Whether the innovation will focus on the **development of new solutions** for existing areas, **or a totally disruptive approach or idea**,
- **Any work you have already done** to respond to this need, for example if the project focuses on developing an existing capability or building a new one,
- Any challenges or opportunities relating to **equality, diversity, ethics, and inclusion** arising from your project,
- Explain how your **proposed solution will align with the building blocks developed as part of the Open Call #1, #2, #3 and #4 on digital identity, user privacy and data governance, economics and democracy, Multi Chains support for NGI protocol** (more details are available on the [TrustChain webpage](#)) as well as **identify and justify how the proposed solution, or specific services and/or modules provided by it, can be used by other service and application developers of the TRUSTCHAIN ecosystem.**

HOW TO APPLY ?

- **Entry point for all proposals**

<https://www.f6s.com/trustchain-open-call-4/apply>

Submission received by any other channel will be automatically discarded

- **Provide a comprehensive research proposal according to the TRUSTCHAIN template and instruction set in the guidelines for Applicant**

- **Fill in the administrative part including any obligatory supporting documents specified in the guide for Applicant**



Tips and tricks for a good proposal

- 1 Read carefully the TRUSTCHAIN Open Call 4 document and Guide for Applicant
- 2 Check carefully the eligibility criteria
- 3 Take a look at the FAQs on our website
- 4 Use the official OC5 TRUSTCHAIN template for your proposal

LEARN
MORE

<https://trustchain.ngi.eu>

<https://www.f6s.com/trustchain-open-call-4>

WHY TO APPLY?

TRUSTCHAIN will offer you **equity free funding, coaching on technical and business aspects, access to top infrastructure** as well as **visibility, promotion support & networking.**



STAY UPDATED AND GET INVOLVED!



trustchain.ngi.eu



[@NGI_TRUSTCHAIN](https://twitter.com/NGI_TRUSTCHAIN)



https://www.youtube.com/@trustchain_ngi



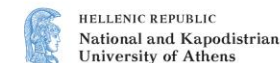
<https://www.linkedin.com/showcase/ngi-trustchain>



<https://www.f6s.com/ngi-trustchain/connect>

Thank you!

Looking forward for your proposition



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