

TRUSTCHAIN

OPEN CALL #3 - CALL DOCUMENT

ECONOMICS AND DEMOCRACY

Closing dates for proposals: 07 February 2024 at 17:00 CET

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1 PREAMBLE

This document provides the challenges, expected outcomes and technical details important to be addressed when preparing applications for TrustChain Open Call #3. The guide is complemented by the Open Call #3 Annexes (Section 7. Kit for Application) available at <https://trustchain.ngi.eu/>.

TRUSTCHAIN OC3 focuses on trustworthy decentralized solutions in the areas of economics and democracy. Fraud in online transactions is still widespread. Fake news may manipulate the public opinion and the quality of democracy. Decentralized communities should be able to co-decide, even on potentially sensitive issues, while the anonymity and votes of individual members to be preserved. Data siloing still hinders huge economic potential. However, personal or proprietary data exchange could be subject to privacy violations, while data handing control and provenance should be provided to the data owners. Moreover, data valuation is a tricky problem, subject to data quality, but ultimately on the data overall usefulness, which is not easy to quantify. Also, consider how to value data contributed to a federated learning approach or any centralized AI model.

Trustworthy open data can foster innovation in Europe. A recently formed Digital Innovation Hub on Blockchain for Trusted Data Ecosystems (<https://datatrust.fri.uni-lj.si/>) exemplifies these needs. It is also important to be able to assess the value of specific data (e.g. NFTs), information and knowledge in a given context, and also to be able to promote new mechanisms for the publishing, access, exchange and monetisation of trusted data. The focus of many activities at the moment is about forming Open Data Spaces, with the support of various mechanisms such as decentralised governance and tokenomics.

Incentive mechanisms for achieving mutually beneficial objectives or common goals, e.g., based on tokenomics, are also of great interest. Appropriation of contributions in common goal creation and provenance and transparency on the actions undertaken by governing bodies or committees may boost support for common-goal initiatives.

Traditional price determination mechanisms, such as auctions, need a trusted-third party to operate, which may create certain biases and limitations. Moreover, participants in these mechanisms and in online transactions in general may need to maintain their anonymity, potentially, disclosing only properties related to their trustworthiness.

Federated or decentralized marketplaces among self-interested parties emerge in various contexts, such as cloud services, IoT data exchange and more, for increasing service coverage, availability, efficiency, etc. Providing support for trustworthy service provision logging, transparent billing, fair value sharing and coordination in resource allocation in these contexts is a challenge.

Moreover, solutions for transparent decision-making and asset management could boost public support and trust for public bodies and institutions. Also, for members of public bodies, transparency would enable them to avoid any unfair accusations for any alleged misdeeds. Decentralized decision making in decentralized virtual or physical communities, e.g., by means of referendums, in anonymized manner could further enhance the quality of democracy

online and beyond.

Decentralized markets may emerge where individual entities trade their products or services with potential customers. How such markets emerge, how they federate and how they become discoverable to customers could be interesting problems.

Open Call #3 welcomes protocols, services or applications that will clearly define, upgrade/extend the state-of-the-art, and develop solutions that address one or several of the aforementioned issues or related ones. Proposed solutions should utilize existing concepts and technologies already developed for data economics and democracy and fit within TrustChain's vision and objectives. The solutions should be provided as open-source software desirably at TRL 7, tested, evaluated, and validated by an adequate pool of potential end-users that should be identified and mentioned in the application, as well as supported by a self-sustaining business model for exploiting the developed system at the end of the project. Each proposed solution will have to use the latest technologies for full-stack development that are compatible with the current standards.

The call is open for submission from 06 December 2023 to 07 February 2024 at 17:00 CET.

2 THE TRUSTCHAIN PROJECT

The Internet has pushed our existence into the digital era, revolutionising our health, our wellbeing, our social life, our education, and our information. Today we approach the Internet with our digital identities. There is a plethora of such digital identities that currently do not properly serve their purpose. Multiple threats related to truthfulness, trust, and identity (ID) arise when people interact in the digital world: delusion and manipulation, personal privacy violation and personal data exploitation, unknown provenance of information, anonymity for performing criminal activities, spread of fake news using fake identities, skills mismatches, serious breaches of security are only a few of the threats that have emerged. The spirit of the first-generation Internet based on individual freedom, material progress, and moral community is slowly turning into individualism, materialism, and moralism, diverging from essential ethical and democratic principles that should underline this technology. The design choice of the past, based on a mix of centrally managed networking and device technologies makes today's Internet obsolete when it comes to empowering all citizens to act for a more environmentally friendlier digital transformation, as well as to create a more resilient, inclusive, and democratic society, addressing inequalities and human rights, better prepared for and responsive to threats and disasters.

For TrustChain, the current emergence of Internet of Things (IoT), Decentralised Oracles, Artificial Intelligence (AI), Cloud-to-Edge (aka Fog) Computing, Distributed Ledger (DLT) and Digital Twin (DT) technologies created the need to build democratic systems without central points of control that can establish the missing link between universally agreed objectives in the physical world, and the digital representation of the reality, thus contributing to the realisation of trusted relationships in the Next Generation Internet. This can be achieved by using various consensus mechanisms that associate proofs with digital representations and thus help humans understand the objective truth, achieve trusted relationships on the digital world, allowing them to undertake well-informed decisions, in either a manual or automated

manner. The ability to arrive at the objective truth by employing democratic governance mechanisms, consensus-based proofs, verification, and certification can lead to a Next Generation Trusted Internet supporting humanity in all aspects of life. Today more than ever, challenges faced all over the world push for our society to reorganise itself to survive. The United Nations have called to reach 17 Sustainable Development Goals. Essentially, TrustChain must be leveraged to embed in the Next Generation Internet principles of human-rights, sustainability, ethics, and other human values that have been developed and maintained through long lasting centuries of human evolution.

The key concept of TrustChain is to embed the key humanity principles in the co-creation of the Next Generation Internet and to provide autopoietic, evolutionary, decentralised, and therefore democratic, transparent, traceable, and regulatory compliant mechanisms that can support any ecosystem of entities and actors participating with their digital identities. The basis for this to happen is the use of decentralised digital identity architectures together with IoT, AI, Cloud-to-Edge, DLT and DT. Our intention is to embed in such solution's important societal goals in accordance with objective truth and therefore, trustworthiness.

TrustChain - Fostering a Human-Centred, Trustworthy and Sustainable Internet is a European project funded by the European Commission under the European Union's Horizon Europe Research and Innovation Programme and the call topic CL4-2022-HUMAN-01-03. As such, it is part of the European Commission's Next Generation Internet (NGI) initiative. Its overall objective is to create a portfolio of Next Generation Internet protocols and an ecosystem of decentralised identity management software solutions that is transparent to the user, interoperable, privacy aware and regulatory compliant that can seamlessly integrate and interoperate with any of the existing decentralised applications. **TrustChain was launched in January 2023 to address the inherent challenges within the current centralised Internet architecture that is not transparent to the user, does not protect the privacy-by -default and does not scale well through 5 Open Calls and an overall budget of 8,775 M€.**

The 5 Open Calls are the following:

Open Call #1- Decentralised digital identity

The overall objective of Open Call #1 was to define and develop:

- A framework for decentralised user-centric identity management,
- Protocols for trustworthiness assessment of entities and their data by means of verifiable credentials and decentralized reputation systems,
- Smart oracles assessing the trustworthiness of data.

Open Call #2- User privacy and data governance

The objective of the Open Call 2 was to develop tools, cryptographic mechanisms, and other algorithms for data handling and sharing as well as for the management of data lakes in compliance with the GDPR and other regulations that implement techniques such as:

- Multi-party data sharing mechanisms,
- Federated learning mechanisms considering both vertical and horizontal frameworks,
- Encrypted data analytics based on homomorphic encryption,

- Secure and privacy preserving data analytics mechanisms based on local and global data privacy techniques,
- Privacy-preserving usage of Artificial Intelligence, IoT, Cloud or combinations of those environments to provide the decentralised next generation smart digital services.

Open Call #3- Economics and democracy

The objective of Open Call #3 is to define and build mechanisms for smarter data exchange and data trading as well as innovative win-win federated business models' open data.

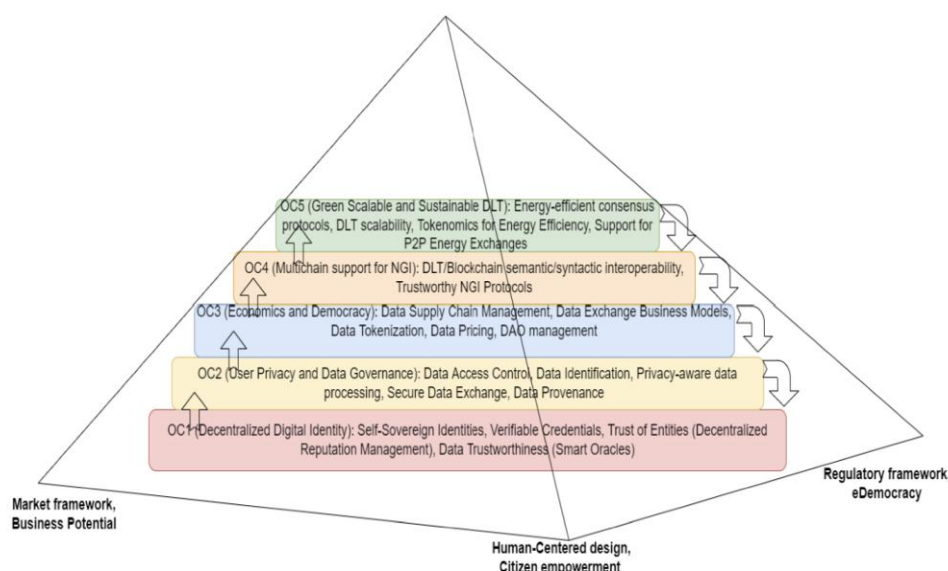
Open Call #4- Multi chains support for NGI protocols

Open Call #4 goal will be to design and build the gateways that will make it possible to transfer knowledge/metadata/data/process/requirements from one chain to another in a trustworthy and secure manner. Interoperability across multiple chains will be a cornerstone in this call.

Open Call #5- Green scalable and sustainable DLTs

This call will build on top of all past Open Call #1-4 calls. Its objective will be 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 DLTs. We are looking for the most appropriate, relevant and pertinent trade-offs between the use of technologies, the security of consensus protocols on one side, and the sustainability and energy efficiency requirements on the other.

The overall structure of the Open Calls is summarized in the figure below. Note that 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, e.g., Open Call #3 can pose additional requirements for the final outcomes of Open Call #1 and 2 projects.



In this technological framework, TrustChain Open Call #3 is thus closely related to Open Call #4 “Multi chains support for NGI protocols” and Open Call #5 “Green, Scalable and Sustainable DLT” as well as with technologies developed in Open Call #1 and Open Call #2. Better solutions for data economics and democracy will subsequently encourage ways for multi-chain interaction to exchange data/assets. Thus, knowledge created within this Open Call #3 will be transferred / integrated into future Open Call #4 and Open Call #5 calls.

Following the spirit of calls for the Next Generation Internet, the TrustChain Research and Innovation Action encourages presentation of results as open-source software and open hardware designs, open access to data, standardisation activities, access to testing and operational infrastructures as well as an IPR regime ensuring interoperability, reusability of results, lasting and sustainable with a long-term societal impact.

This guide is specifically dedicated to the Open Call #3 and outlines its context and its application modalities.

3 OPEN CALL 3: ECONOMICS AND DEMOCRACY

3.1 INTRODUCTION

It's indicative budget is 1.755.000 € and will be distributed among up to 15 selected projects led and executed by a critical number of developers, innovators, researchers, SMEs and entrepreneurs among others, actively involved in research, development and application activities in the fields of data economics, data governance, blockchain, semantic web, ontology engineering, software engineering, Cloud engineering, digital twins, edge and fog computing, ecosystem economics, smart applications, cryptography, standardisation and security engineering.

Selected projects will last for a duration of 9 months. However, the TrustChain overall action lasts 36 months, and the selected projects are requested to participate after these 9 months in future Joint Meetings for knowledge and know-how transfer to TrustChain Open Call #4,5 and for the development of the TrustChain ecosystem.

As part of the TrustChain action, experts in diverse fields will also provide to Third party innovators selected technology development guidance, working methodology as well as access to technical infrastructure, training in business model development and data related topics, coaching, mentoring, visibility, and community building support.

Applicants are invited to submit their proposals on any topic that serves the overall TrustChain Open Call #3 vision and objectives. Their proposed solution should consider as minimal requirement to:

- Be grounded on end users needs and requirements,
- Use standard technology for full stack development,
- Be open source,
- Extend the state-of-the-art in the domain of user privacy, and/or solve existing real-

world problems with data governance and provide new highly usable software solutions.

Using the mandatory TrustChain proposal template, applicants are expected in relation to the specific objectives identified hereafter (section 3.2) to explain in their application:

- The specific technological innovation they 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 privacy and data governance needs or challenge they propose to address and who would benefit from it immediately and in the longer term,
- Whether the innovation will focus on the development of new solutions for existing areas, or a totally disruptive approach or idea,
- Any work they 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 their project,
- Explain how their proposed solutions will align with the building blocks developed as part of the Open Call #1&2 call on digital identity, user privacy and data governance (more details are available on the [TrustChain webpage](#)).

Applicants when applying should clearly specify the Open Call #3 challenges they are going to address. Those are described in the section 3.2.

3.2 CHALLENGES TO BE ADDRESSED

Navigating the data exchange/trading arena proves challenging due to the involvement of multiple parties, leading to issues of trust, privacy, consent, and regulatory complexities. The existing market mechanisms for data exchange face hurdles, exacerbated by the dynamic nature of data and the digital landscape. Additionally, challenges in market competition, fair settlement practices, and determining ownership rights further complicate the ecosystem. Organizations must grapple with these challenges, ranging from establishing trust frameworks to addressing evolving privacy regulations and ensuring fair compensation for data contributors. Tackling these complexities necessitates collaborative efforts and innovative solutions to create a secure, transparent, and ethical data exchange environment. Some of the challenges to be tackled in this call are the following:

- The current form of data-sharing practises does not fairly reward the data owners/content producers. Data platform owners make decisions around the terms and conditions of data sharing.
- Accurate data discoverability on such marketplaces is a challenge. Precise matchmaking between sellers and buyers on a marketplace can significantly improve its performance.
- Data trading and exchange raise significant concerns about data privacy and security. There is a risk that sensitive or personal data could be mishandled, leading to privacy breaches, identity theft, or other malicious activities.

- Establishing enforceable data marketplace contracts for data exchange is missing; Clear and fair service level agreements for both sellers and buyers needs to be in place for a trustworthy marketplace.
- There is no standard pricing model for data, making it challenging to determine the fair market value of different data types. Mechanisms to ascertain the data quality and hence its price fairly is a challenging issue as the value of data can be subjective and context-dependent
- Issue around data provenance exist as it can be difficult to verify the data source. Techniques to inspect the provenance of a specific product, service or data is missing. Open reputation management can be one of the solutions, but it requires careful design considerations.
- Establishing clear data governance practices, including data access controls and usage policies, is essential for responsible data exchange. Data governance frameworks can be complex to implement and enforce.
- Federated marketplaces among self-interested parties emerge in various contexts, such as cloud services, IoT data exchange and more, for increasing service coverage, availability, efficiency, etc. Providing support for trustworthy service provision logging, transparent billing, fair value sharing and coordination in resource allocation in these contexts is a challenge.
- Innovative incentive mechanisms for decentralized, coordinated outcomes, potentially involving tokenomics, in various application contexts should be provided.
- Enabling a sustainable circular economy that involves sharing, leasing, reusing existing materials and products demand data provenance on the transformation of properties of materials and on processes applied on them. Means to achieve such an economy requires innovation in terms of material traceability and digital passports.
- Marketplaces for AI/ML models trading/exchange has witnessed a rise with advancement in AI training models and fear of data exchange due to privacy violations. A comprehensive comparison of such models on marketplace remains a challenge.
- Digital solutions to enhance civic mobilisation and engagement. Such solutions can utilize real-time information, platforms for crowdsourcing ideas, and platforms for facilitating access to participatory channels, in order to transform and enhance democratic decision-making.

3.3 SPECIFIC OBJECTIVES

The objective of this OC is to define and build market mechanisms for data exchange and data trading as well as innovative win-win federated business models open data in compliance with GDPR and other regulations that implements techniques such as:

- Federated business models that consider fair rewarding of its participants
- Establish new or enrich the existing marketplaces. Privacy preserving data sharing on third-party platforms
- Fair data marketplaces: publish, search, discovery, other mechanisms in decentralized environments; negotiation mechanisms for data prices
- Market competition that is fair and regulated in favour of the innovators.
- Tokenization of assets and its fair trading, protection against scams such as rug pulls,

- initial coin offering (ICO) fraud in digital asset trading
- Establishing the value of the coins based on their quality contents; creating liquidity in the existing data marketplaces.
- Decentralized governance models that are fair and trustworthy to all the parties in a data exchange ecosystem
- Use your eIDAS2 on the EU marketplaces
- Effective data monetization strategies and business models to incentivize data providers to share their data on exchange platforms.

Applications should cover real needs of the end-users in one a specific sector such as for example banking, education, healthcare, or e-government.

3.4 SPECIFIC REQUIREMENTS

3.4.1 Technical Requirement

In general, a user centric design and implementation, a co-created process with citizens as well as a use case driven approach will frame the proposed innovative solution development that should carefully consider the needs for security, privacy, human-rights, sustainability, and trustworthiness. Interoperability, scalability, greenness, openness, standards, as well as legal and regulatory compliance should be also considered, calculated, and assured.

The proposed solutions are intended to be co-created with end users focusing on online user privacy and data governance, adopting a user-friendly design. Therefore, they should be designed, implemented, piloted, and validated using a specific predefined and justified set of end users in an identified use case. The co-creation and validation approach should be clearly elaborated in the applicants' proposal. A citizen digital vulnerable collectives' approach that puts in the centre the needs of the general population and vulnerable people, instead of technical/experts' users should be considered. It is intended that the solution is accessible for the general population as well as for the marginalized/vulnerable communities.

To this end, the applicant should show collaboration with an EU end-user organisation (i.e., banking, healthcare, education, policing etc.) as well as consider vulnerable groups for the evaluation /validation process if possible.

The focus should be on what is currently missing (e.g., trustworthy data access, ensuring clear and informed user content and expanding what already exists, thus scaling) rather than building something new from scratch. It is desirable that the selected projects be able to demonstrate their solution at TRL 7 in a real end-user setting. If something completely new must be built (see point above), then it should be well motivated why the nature of the problem warrants a new solution and why the state-of-the-art solutions do not solve it today (i.e., barriers to technology adoption).

The proposed solution should work within a specific business context and emphasis should be put on its scalability, on its energy efficiency and its minimum value proposition. Cross-border data sharing, moving data across EU-international borders should be carefully considered. It

should be also compatible with existing data sharing frameworks, standards and demonstrate the energy efficiency through measurements that are quantifiable.

The proposal should 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.

Finally, focus should also be put on demonstration of the technology. In particular, the applicant should demonstrate to have access to an infrastructure that is EVM compatible where it can be deployed and piloted.

Link with other Open Calls: Understanding what digital identity (Open Call #1) is, data owners privacy policies requirements and data governance (Open Call #2) is prerequisite for designing and implementing innovative and fit for purpose market mechanisms for data exchange and data trading that are data owners centred. Solutions to be developed in this Open Call #3 should consider some of the approaches and outcomes identified in Open Call #1 and #2. Joint activities between Open Call #1 and #2 and Open Call #3 innovators will be facilitated by the Trust Chain consortium.

3.4.2 Sustainability requirements

Various emerging technologies currently pose huge environmental impact. This negative impact should be assessed against the benefits from using these technologies. The applicants are requested to provide a short assessment of the trade-offs, considering from one viewpoint the benefits when using the technology, and from another, the potential energy-inefficiency. Various best effort solutions should be used as a baseline for providing such self-assessment.

3.4.3 Regulatory and standards requirements

New economic/business models for the ecosystem economy, user centric data management, addressing privacy aspects, legally and regulatory compliance (e.g. GDPR-compliance, verification and certification of records of data processing activities).

3.4.4 User centricity Requirements

As mentioned above, the proposed solutions should be designed, implemented, piloted, and validated using a specific predefined and justified set of end users in an identified use case. The co-creation and validation approach should be clearly elaborated in the applicant's proposal and the vulnerable collectives' approach should be used for the user testing.

A first step is to establish target groups of users. Once this is done, the users should be involved in the co-creation process. Then, accessibility standards should be incorporated through the onboarding according to the vulnerable collectives' approach.

Following that, a roadmap with the appropriate methodologies should be set up. The roadmap should include the approach, objectives and phases of the testing, and sample size. The

sample needs to be representative and randomized but within the relevant characteristics of the target population.

User should be onboarded in the design process (if applicable). Proposals for improvement and insights should come from the users during the co-creation process. Complementarily, insights can be proposed by non-users (for example developers, or business partners). This decision must be justified in the corresponding deliverable.

3.5 EXPECTED OUTCOMES AND POSSIBLE APPLICATION DOMAINS

With this OC, the following APIs or SDKs could be created, to be available for the rest of the teams, and for the European developer community, as open source:

- Real World Assets (RWA) tokenization (API or SDK)
- Tokenized Real-World Assets (RWA) management (API or SDK)
- Digital Assets (DA) tokenization (API or SDK)
- Tokenized digital assets management (API or SDK)
- Decentralized governance (DAO like) management (API or SDK)
- Data value management (API or SDK)

With this OC, the following outcomes are expected:

- New data value focused governance models
- Innovative business models for data sharing
- New data exchange framework in a more secure, resilient, and decentralized way
- Innovative data trading platform that considers data owner privacy policies

All this will help individuals and organisations to better govern and share their data when they participate in joint value chains where cooperating partners can also be competitors. Possible use-cases and application domains include:

- Tokenization of real-world assets (RWA)
- Tokenization of virtual assets
- Copyright management
- Gamification: Customer relationships, awards etc.

3.6 MANDATORY DELIVERABLES

Projects selected and funded by the TrustChain consortium will have to deliver four mandatory deliverables during their lifetime. The four deliverables are defined below:

D1: State of the art overview, use case analysis and preliminary technical specification of the solution. The deliverable should clearly specify how the proposed solution extends and/or upgrades the state-of-the-art.

D2: Detailed technical specification of the solution, software implementation work plan, demo scenarios, number of end users that will be involved in any pilots, and preliminary business plan.

D3: Implementation, deployment, testing, demonstration, and validation roadmap in a real-life application (e.g., banking, education, healthcare, utilities, defence or cross-border travel) and result of the validation process.

D4: Modularised software components ready for distribution, full documentation for developers/users, final business plan.

4 SUPPORT SERVICES PROVIDED BY TRUSTCHAIN TO THIRD PARTIES

Selected participants will receive support with the following services:

- **Access to Infrastructure:**

Access to the Alastria blockchain infrastructure (two different networks, T Network based on GoQuorum and B Network based on Hyperledger Besu), compliant with Ethereum, for demonstration purposes, will be provided to the Applicants that request to use it for testing their proposed solution. This will be made available by Alastria through TrustChain, at no cost for the third-party innovators selected, in a BaaS model without requiring that the Applicants install their own blockchain node.

- **Use of token:**

The TrustChain consortium understands that the ultimate value of a new and innovative application should be shown in business context, for example, by demonstrating that the users (physical persons or companies) are willing to pay for using the service. In this context, the TrustChain core consortium partners are willing to consider the possibility of issuing a crypto-token for the purpose of demonstration of the applications' business value, should such an interest be expressed by the applicants.

- **Business support services:**

To support the third-party innovators to exploit their use cases and successfully reach the market, different training events and sessions with mentors will be organised. Depending on the team profile, aspects such as Value Proposition, pitching or IPR (among others) will be addressed.

- **Communication support services:**

Major visibility, promotion and networking opportunities are offered as part of the

TrustChain project and the Next Generation Internet initiative. Selected third party innovators will:

- have access to communication tool kits and co-branding materials,
- be showcased in the TrustChain project website,
- be interviewed and promoted on relevant media channels,
- be invited to participate in top events, and
- connect with a vibrant ecosystem of innovators, investors, industry players and public authorities.

5 ANNOUNCEMENT

Submissions to the TrustChain Open Call #3 will open on 6 December 2023 (13:00 CET) and close on 7 February 2024 (17:00 CET). Dates for the different phases are outlined below but may be subject to change if any modifications in the project's schedule occur.

The table below presents the indicative dates during which each phase of TrustChain Open Call #3 will take place.

Call Announcement	6 December 2023 at 13:00 CET
Call closure and submission deadline*	7 February 2024 at 17:00 CET
Total EU funding available	1.755.000 €
Evaluation Period*	Up to three months after the call closure
Signature of Sub-grant Agreement*	Up to one month after the announcement of the final list of selected projects
Expected duration of projects	9 months
Task description	Navigating the data exchange/trading arena proves challenging due to the involvement of multiple parties, leading to issues of trust, privacy, consent, and regulatory complexities. The existing market mechanisms for data exchange face hurdles, exacerbated by the dynamic nature of data and the digital landscape. Additionally, challenges in market competition, fair settlement practices, and determining ownership rights further complicate the ecosystem. Organizations must grapple with these challenges, ranging from establishing trust frameworks to addressing evolving privacy regulations and ensuring fair compensation for data contributors. Tackling these complexities necessitates collaborative efforts and innovative solutions to create a secure, transparent, and ethical data exchange environment.

	<p>In order to achieve TrustChain vision, it is expected that applicants will define and build market mechanisms for data exchange and data trading as well as innovative win-win federated business models considering as well open data in compliance with GDPR and other regulations that implements techniques such as:</p> <ul style="list-style-type: none"> • Federated business models that consider fair rewarding of its participants, • Establish new or enrich the existing marketplaces. Privacy preserving data sharing on third-party platforms, • Fair data marketplaces: publish, search, discovery, other mechanisms in decentralized environments; negotiation mechanisms for data prices, • Market competition that is fair and regulated in favour of the innovators, • Tokenization of assets and its fair trading, protection against scams such as rug pulls, initial coin offering (ICO) fraud in digital asset trading, • Establishing the value of the coins based on their quality contents, creating liquidity in the existing data marketplaces, • Decentralized governance models that are fair and trustworthy to all the parties in a data exchange ecosystem, • Use your eIDAS2 on the EU marketplaces, • Effective data monetization strategies and business models to incentivize data providers to share their data on exchange platforms. <p>To develop such mechanisms and innovative win-win federated business models, Applicants are requested to addressed current challenges:</p> <ul style="list-style-type: none"> • The current form of data sharing practise does not fairly reward the data owners/content producers. Data platform owners make decisions around the terms and conditions of data sharing. • Accurate data discoverability on such marketplaces is a challenge. Precise matchmaking between sellers and buyers on a marketplace can significantly improve its performance. • Data trading and exchange raise significant concerns about data privacy and security. There is a risk that sensitive or personal data could be mishandled, leading to privacy breaches, identity theft, or other malicious activities. • Establishing enforceable data marketplace contracts for data exchange is missing; Clear and fair service level agreements for both sellers and buyers needs to be in place for a trustworthy marketplace. • There is no standard pricing model for data, making it challenging to determine the fair market value of
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	<p>different data types. Mechanisms to ascertain the data quality and hence its price fairly is a challenging issue as the value of data can be subjective and context-dependent.</p> <ul style="list-style-type: none"> • Issue around data provenance exist as it can be difficult to verify the data source. Techniques to inspect the provenance of a specific product, service or data is missing. Open reputation management can be one of the solutions, but it requires careful design considerations. • Establishing clear data governance practices, including data access controls and usage policies, is essential for responsible data exchange. Data governance frameworks can be complex to implement and enforce. • Federated marketplaces among self-interested parties emerge in various contexts, such as cloud services, IoT data exchange and more, for increasing service coverage, availability, efficiency, etc. Providing support for trustworthy service provision logging, transparent billing, fair value sharing and coordination in resource allocation in these contexts is a challenge. • Innovative incentive mechanisms for decentralized, coordinated outcomes, potentially involving tokenomics, in various application contexts should be provided. • Enabling a sustainable circular economy that involves sharing, leasing, reusing existing materials and products demand data provenance on the transformation of properties of materials and on processes applied on them. Means to achieve such an economy requires innovation in terms of material traceability and digital passports. • Marketplaces for AI/ML models trading/exchange has witnessed a rise with advancement in AI training models and fear of data exchange due to privacy violations. A comprehensive comparison of such models on marketplace remains a challenge. • Digital solutions to enhance civic mobilisation and engagement. Such solutions can utilize real-time information, platforms for crowdsourcing ideas, and platforms for facilitating access to participatory channels, in order to transform and enhance democratic decision-making. <p>Applications should cover real needs of the end-users in one a specific sector such as for example banking, education, healthcare, or e-government.</p> <p>A user centric design approach should frame the development of these solutions</p>
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Submission and evaluation process	<p>Proposals are submitted in a single stage and the evaluation process is composed of three phases as presented hereafter:</p> <ul style="list-style-type: none"> • Phase 1: Admissibility & eligibility check • Phase 2: Proposals evaluation carried out by the TrustChain Consortium with the assistance of independent experts. • Phase 3: Online interviews (10 minutes pitching & 20 minutes of Q&As) and final selection carried out by TrustChain Consortium and TrustChain Advisory Board Members.
Further information	Further details are available at: https://trustchain.ngi.eu/apply

***NOTE:** Dates for the different phases are indicative and may be subject to change if any modifications in the project's schedule occur.

6 SUPPORT TO APPLICANTS

The TrustChain consortium will provide information to the applicants only via trustchain@ngi.eu. No binding information will be provided via any other means (e.g., telephone or email).

More info at: <https://trustchain.ngi.eu/apply>

Apply via: <https://www.f6s.com/trustchain-open-call-3>

Support team: trustchain@ngi.eu

Personal Data Protection Policy available at: <https://trustchain.ngi.eu/privacy-policy/>

The TrustChain consortium will also organise webinars to connect with interested applicants so stay updated and get involved!

7 KIT FOR APPLICATION

TrustChain Open Call #3 supported materials can be found at <https://trustchain.ngi.eu/apply> and are the following:

Open Call #3 – Call document

The present document.

Annex A - Guide for Applicants

This document provides in detail the information to help apply to the TrustChain Open Call #3, such as an abstract of the TrustChain action, a description of the TrustChain Open Call #3, the modalities for application, the evaluation process, the scheme of the funding support, the IPR aspects related to TrustChain and how to prepare and submit a proposal.

The kit also includes the Model Sub-grant Agreement (draft template only), Administrative form (read only), Proposal description and the Additional Applicants templates, as follows:

Annex B – Model Sub-grant Agreement – draft template only

Annex C - Administrative Form – read only

Annex D - Proposal Description template – read only

Annex E - Additional Applicants template – read only

Note: Word templates (Annex D and Annex E) are available at the F6S Submission System.