



**EUROPEAN COMMISSION**

Directorate-General for Communications Networks, Content and Technology

Digital Single Market

**Digital Innovation and Blockchain**

**Call for tenders CNECT/2020/OP/0055**

**EU Blockchain pre-commercial procurement**

**Open procedure**

**TENDER SPECIFICATIONS**

## **TABLE OF CONTENTS**

1.	SCOPE AND DESCRIPTION OF THE PROCUREMENT .....	4
1.1.	Contracting authority: who is the buyer? .....	4
1.2.	Subject: what is this call for tenders about? .....	4
1.3.	Lots: is this call for tenders divided into lots? .....	4
1.4.	Description: what do we want to buy through this call for tenders?.....	4
1.5.	Place of performance: where will the contract be performed?.....	37
1.6.	Nature of the contract: how will the contract be implemented? .....	37
1.7.	Volume and value of the contract: how much do we plan to buy? .....	39
1.8.	Duration of the contract: how long do we plan to use the contract? .....	39
1.9.	Electronic exchange system: can exchanges under the contract be automated? .....	39
2.	GENERAL INFORMATION ON TENDERING.....	40
2.1.	Legal basis: what are the rules?.....	40
2.2.	Rules on access to procurement: who may submit a tender? .....	40
2.3.	Registration in the Participant Register: why register? .....	41
2.4.	Ways to submit a tender: how can economic operators organise themselves to submit a tender? .....	42
3.	EVALUATION AND AWARD .....	46
3.1.	Exclusion criteria.....	46
3.2.	Selection criteria.....	47
3.3.	Compliance with the minimum requirements of the Tender specifications.....	51
3.4.	Award criteria.....	52
3.5.	Award (ranking of tenders) .....	57
4.	FORM AND CONTENT OF THE TENDER .....	58
4.1.	Form of the tender: how to submit the tender? .....	58

4.2. Content of the tender: what documents to submit with the tender? .....	58
4.3. Signature policy: how can documents be signed?.....	62
4.4. Confidentiality of tenders: what information and under what conditions can be disclosed? .....	63
APPENDIX: LIST OF REFERENCES .....	64
ANNEXES .....	65
Annex 1. List of documents to be submitted with the tender or during the procedure .....	66
Annex 2. Declaration on Honour on exclusion and selection criteria.....	71
Annex 3. Power of attorney.....	77
Annex 4. List of identified subcontractors .....	79
Annex 5.1. Commitment letter by an identified subcontractor .....	80
Annex 5.2. Commitment letter by an entity on whose capacities is being relied .....	81
Annex 6. Financial offer form .....	82
Annex 7. Technical offer form.....	83
Annex 8. List of pre-existing rights .....	86

## **1. SCOPE AND DESCRIPTION OF THE PROCUREMENT**

### **1.1. Contracting authority: who is the buyer?**

This call for tenders is launched and managed by the European Commission, referred to as the *Contracting authority* for the purposes of this call for tender, assisted by its COMMUNICATIONS NETWORKS, CONTENT AND TECHNOLOGY Directorate General.

### **1.2. Subject: what is this call for tenders about?**

The subject of this call for tenders is the EU Blockchain pre-commercial procurement.

### **1.3. Lots: is this call for tenders divided into lots?**

This call for tenders is not divided into lots.

### **1.4. Description: what do we want to buy through this call for tenders?**

The services that are the subject of this call for tender, including any minimum requirements, are described in detail below.

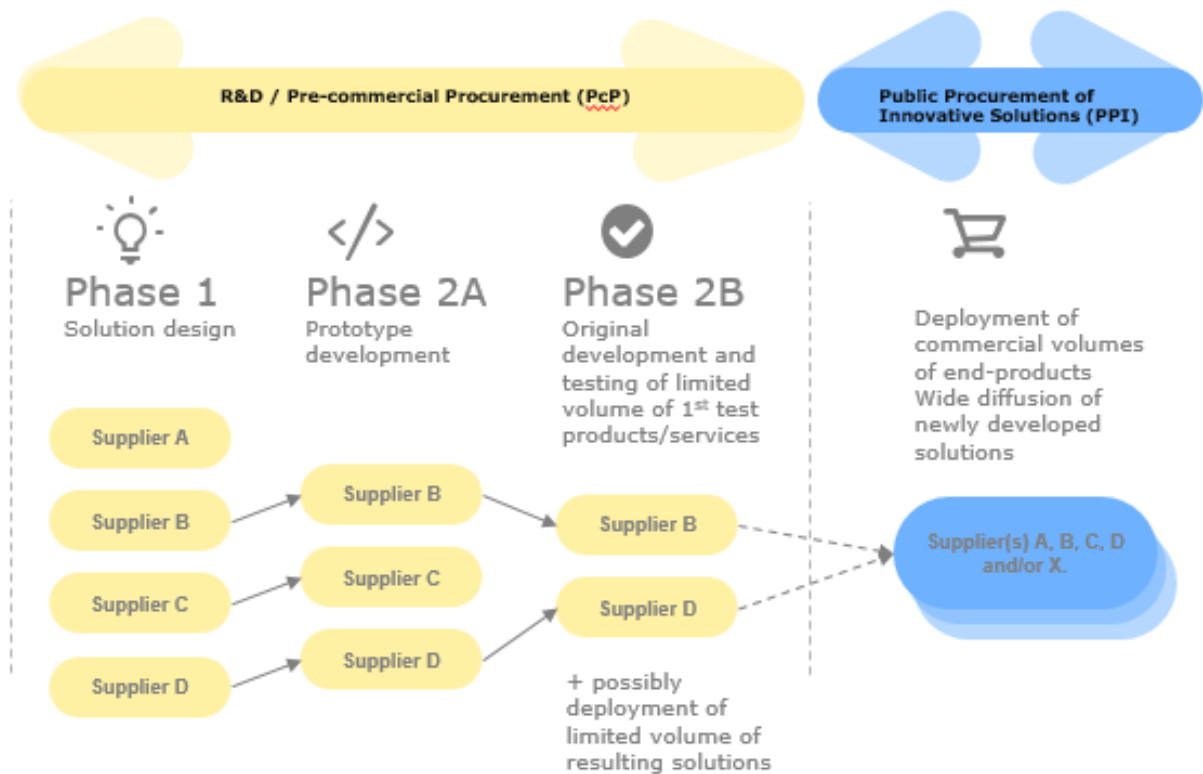
Variants (alternatives to the model solution described in the Tender Specifications) are not allowed. The *Contracting authority* will disregard any variants described in a tender.

#### **1.4.1. Background and objectives**

##### **1.4.1.1 What is Pre-Commercial Procurement (PCP)?**

PCP challenges innovative players on the market, via an open, transparent and competitive process, to develop new solutions for a technologically demanding mid- to long-term challenge that is in the public interest and requires new research and development.

In this context, PCP enables the co-creation of innovative solutions by R&D suppliers (e.g. technology providers, researchers) and contracting authorities.



Pre-Commercial Procurement is an approach to procure R&D services that involves competitive development in phases, risk-benefit sharing under market conditions and that aims to create growth and jobs in Europe<sup>1</sup>.

#### Public procurement of R&D services

- PCP addresses mid- to long-term public procurement needs for which either no commercially stable solutions yet exist on the market, or existing solutions exhibit structural shortcomings that it requires further R&D to resolve. PCP is a way for contracting authorities to trigger the market to develop new solutions that address these shortcomings. PCP focuses on specific identified needs and provides customer feedback to businesses from the early stages of R&D. This improves the likelihood of commercial exploitation of the newly developed solutions.

#### Competitive development in phases (multiple sourcing)

- PCP targets situations that require R&D and for which there are no solutions on or close to the market yet. Different market parties may have different ideas for solutions to the problem. As R&D is yet to take place, there is not yet any proof as to which of these potential alternative solutions would best meet customers' needs.
- PCP therefore awards R&D contracts to a number of competing contractors at the same time, in order to compare different approaches to solving the problem. It thus offers

<sup>1</sup> For more info about pre-commercial procurement (PCP): <https://ec.europa.eu/digital-single-market/en/pre-commercial-procurement>

innovators an opportunity to show how well their solution compares with others and to obtain a first customer test reference.

- The phased approach progressively identifies the solutions that offer the best value for money and best meet the customer needs. It allows successful contractors to improve their solutions gradually based on lessons learnt and feedback from the contracting authority. It also makes it easier for smaller companies (including SMEs and start-ups) to participate in the PCP and to grow their business step-by-step throughout the PCP.
- PCP may include the purchase of the limited set of innovative solutions that were developed and tested during the PCP. Depending on the outcome of the PCP, contracting authorities may or may not decide to follow-up the PCP with a public procurement for wider diffusion of the innovative solutions (Public Procurement of Innovative solutions).

#### Risk-benefit sharing at market conditions

- PCP allocates to each contractor the ownership of the IPRs attached to the results it generates during the PCP so that contractors can widely exploit the newly developed solutions commercially. The contracting authority receives the rights to use the R&D results and licensing rights subject to certain conditions (see more details in the contract).
- PCP is not a grant or subsidy. It is a public procurement of R&D services at market price, thus providing contractors with a transparent, competitive and reliable source of financing for the early stages of their research and development.

#### Creating growth and jobs in Europe

- PCP procurements are exempted from the EU public procurement directives, the WTO Government Procurement Agreement (GPA) and the EU's other procurements agreements with third countries.
- PCP procurements can thus contain conditions, for example conditions that restrict access of third country bidders to the procurement and place of performance conditions that require selected contractors to locate a specific part of the R&D activities for the contract, including in particular the principal researcher(s) working for the PCP contract, in Europe<sup>2</sup>.

#### **1.4.1.2 What is EBSI and the EBP?**

The **European Commission's blockchain strategy** has a holistic approach to blockchain technologies, and Distributed Ledger Technologies (DLT) more generally<sup>3</sup>, which aims at positioning Europe at the forefront of blockchain innovation and uptake.

The **European Blockchain Partnership (EBP)**<sup>4</sup>, created in April 2018, is a partnership endorsed at a political level, which establishes a cooperation between the European

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<sup>2</sup> C(2019) 5494 final, Communication from the Commission, "Guidance on the participation of third country bidders and goods in the EU procurement market"

COM (2007)799 final and associated Staff working document SEC(2007)1668 "Pre-commercial Procurement: Driving innovation to ensure sustainable high quality public services in Europe"

<sup>3</sup> Read more about the European Commission blockchain strategy and initiatives.: <https://ec.europa.eu/digital-single-market/en/blockchain-technologies>

Commission, all EU Member States and some members of the European Economic Area (Norway and Liechtenstein). It is a joint public sector endeavour with the aim to reap the potential of blockchain to enhance the way that citizens, governments and businesses interact, by enhancing trust between entities and improving the efficiency of operations, and to help create new business opportunities and to establish new areas of leadership.

The Partnership is building a **European Blockchain Services Infrastructure (EBSI)**<sup>5</sup>, which aims to deliver EU-wide cross-border public services using blockchain technology with the highest standards of security and privacy. Other strategic aims of EBSI are to enhance cross border government services, and reduce Europe's environmental impact, enable development of European technology hubs & projects and enhance cross border citizen and enterprise mobility while respecting relevant regulations including GDPR and eIDAS.

Today, EBSI is in the process of being materialised as a network of distributed nodes across Europe (the European blockchain), that will support an increasing number of applications focused on specific use cases. In 2020, the EBSI starts to provide first sets of reusable software, specifications and services to support adoption by EU institutions and European public administrations.

To make this happen, the EBSI has started to deploy four use cases that are currently being tested in EBP member countries:

- 1) Notarisation: Leveraging the power of blockchain to create trusted digital audit trails, automate compliance checks in time-sensitive processes and prove data integrity.
- 2) Diplomas: Giving control back to citizens when managing their education credentials; significantly reducing verification costs and improving authenticity trust.
- 3) European Self-Sovereign Identity: Implementing a generic Self-Sovereign Identity capability, allowing users to create and control their own identity across borders.
- 4) Trusted Data Sharing: Leveraging blockchain technology to securely share data between authorities in the EU (e.g. IOSS VAT identification numbers and import one-stop-shop) amongst customs and tax authorities in the EU.

In 2020, the EBP has identified a larger set of 20 potential use cases (see figure below), from which three new use cases were selected to be developed by the EBP (asylum demand management, unique European social security number, debt & equity / SME financing).

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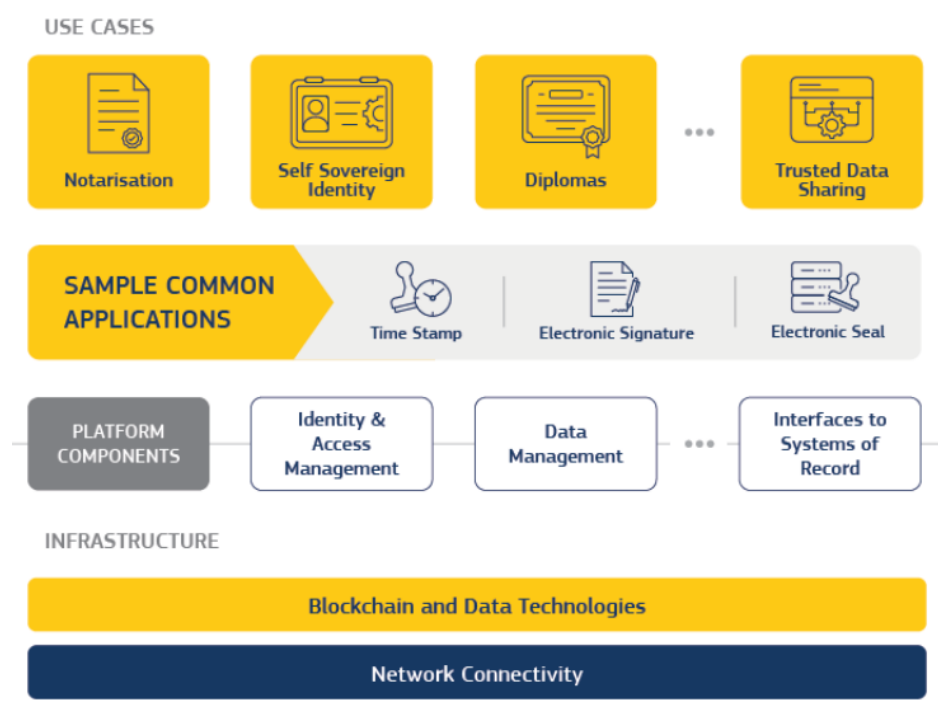
<sup>4</sup> More info about the European Blockchain Partnership, including the full list of EBP member countries can be found here: <https://ec.europa.eu/digital-single-market/en/news/european-countries-join-blockchain-partnership>

<sup>5</sup> More info about the European Blockchain Service Infrastructure: <https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/ebsi>



How will EBSI work? While the European Commission operates the core EBSI building blocks, the Member States will also operate EBSI nodes. These nodes will be able to create and broadcast transactions that will update the ledger. The architecture of each node will be composed of two main layers:

1. A layer of Use Case-specific APIs developed to enable business applications to interface with the node.
2. An infrastructure layer with capabilities common to all Use Cases. This layer will include generic capabilities and connectivity to Blockchain networks.



In order to deploy cross-border blockchain services across Europe as soon as possible, the current EBSI work done by the EBP is using existing blockchain technologies and developing use cases that can be implemented in a relatively short timeframe.

### 1.4.1.3 Objectives

It is clear that there are gaps in existing blockchain solutions to enable the delivery of more demanding cross-border blockchain services (e.g. regarding higher performances, full



compliance with the EU legal framework, security, interoperability, robustness, sustainability). The future evolution of the EBSI thus requires new, improved blockchain solutions.

Therefore, the European Union's Horizon 2020 Research and Innovation Programme allocates funding for the blockchain PCP to focus on the development and testing of novel distributed ledger technologies or blockchain solutions. Such a public infrastructure should meet core requirements of scalability and throughput, interoperability with other systems, security, robustness, sustainability, energy efficiency and continuity of the service. It should build on the EU legal framework, in particular the GDPR Regulation<sup>6</sup>, the eIDAS Regulation<sup>7</sup>, the NIS Directive<sup>8</sup>. It should anticipate the implementation of a wide range of new cross-border use cases or services that could involve public or private actors. The aim is to go significantly further than what is offered by existing solutions. The PCP should aim at setting a global standard for blockchain infrastructures. The PCP will start in 2020, with the objective to lead to the deployment of solutions within the next three years.

Please note that in the context of this PCP, the term blockchain refers to any type of Distributed Ledger Technology (DLT). Proposed solutions for this PCP are thus not solely limited to classical Blockchain solutions, but can also be based on other DLT type solutions.

### **The State of the Art today**

This PCP procurement was preceded by an open market consultation (OMC) that was announced in TED via a prior information notice (PIN). The PIN, presentations, video, report and Q&A from the OMC are published on the EU blockchain PCP website<sup>9</sup>.

The OMC concluded that the main unsolved technological challenges relate to:

- **Scalability:** to enable EBSI to meet the requirements of use cases that require transaction performance levels (volume and velocity) that are significantly higher than what has been demonstrated in the field to date.
- **Sustainability:** Although several initiatives are working on improving energy efficiency, blockchain has a bad reputation when looking at sustainability aspects due to the extremely high energy consumption of permissionless blockchain solutions based on Proof of Work. EBSI is today a permissioned infrastructure, allowing already better performance regarding energy efficiency, however new solutions should enable EBSI to contribute to meet the EU's Green Deal ambitions for the coming years.
- **Security:** to enable EBSI to meet its objective to deliver EU-wide cross-border public services with the highest standards of security and privacy. There are still challenges to deliver an EU wide interoperable blockchain solution to reliably track and exchange large amounts of information, not only about persons / organizations but also about objects and their contents, and all of this in a fully secure and GDPR compliant way.

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<sup>6</sup> Regulation (EU) No 679/2016: [https://ec.europa.eu/info/law/law-topic/data-protection/data-protection-eu\\_en](https://ec.europa.eu/info/law/law-topic/data-protection/data-protection-eu_en)

<sup>7</sup> Regulation (EU) No 910/2014: <https://ec.europa.eu/digital-single-market/en/trust-services-and-eid>

<sup>8</sup> Directive (EU) 2016/1148 : <https://ec.europa.eu/digital-single-market/en/network-and-information-security-nis-directive>

<sup>9</sup> <https://ec.europa.eu/digital-single-market/en/news/european-blockchain-pre-commercial-procurement>

To secure EBSI from quantum computing attacks, EBSI will also need to become quantum safe, a challenge that cannot be met yet by existing solutions.

In addition, current initiatives that are working on improved scalability or sustainability for blockchains typically result in reduced security or robustness. This is not acceptable for infrastructures like EBSI that aim to be able to deliver cross-border blockchain services to millions of citizens, businesses and public administrations without compromising scalability, sustainability or security.

### **Envisaged progress beyond the State of the Art**

The PCP aims to develop solutions that deliver the future capabilities of EBSI in terms of: -

- high volume and velocity performance for dealing with new types of use cases involving a high number of digital objects (or digital representation of objects);
- the associated improvements needed on identification, traceability, exchanges and management of data, automation of tasks (e.g. through smart contracts); and
- ensuring that those solutions are green, secure and cost efficient.

This is needed for use cases that require the handling of a high number of objects, products, their digital twins or directly native digital products.

Typical envisioned key use cases or applications are, for example (non-exhaustive list):

- Support to the development of a circular economy and the exploitation of digital product passport enhancing the traceability and circularity of all products and components on the EU market<sup>10</sup>. It potentially concerns the tracking of raw materials in physical products that are traded and used across the EU or, for instance, data that should be tracked through different life cycles of products (e.g. batteries).
- Traceability of data and documents concerning entire buildings, equipment and materials.
- Traceability of products for limiting counterfeiting.
- Proving the origin and conditioning of product in food and agri chains. .
- IoT-enabled customs item tracking and other IoT apps, such as real-time tracking of the geo-positioning and system status of fast moving objects across frontiers.
- Tracking of transactions or invoices for VAT purposes (limiting VAT fraud).
- EU wide management of IP rights (like patents, trademarks, copyrights), including also the management of copyrights that can directly associated to digital content in near real-time.

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<sup>10</sup> The key ambition is to be able to track all products and services sold on the EU market, from cradle to cradle. This requires the tracking of all products as well as their contents and associated objects (materials, user manuals etc.) produced within the EU and imported into the EU, starting from the raw materials, over the manufacturing and updates during their lifetime up until the recycling, reuse and/or disposal of the product and all the involved stakeholders in between. This use case requires an enormous amount of transactions on a daily basis and quick transaction speeds.

Consequently, given the high number of objects or products to register and their high consumption rate, we refer to these use cases as high volume and velocity (V&V) use cases.

These envisioned V&V use cases require advanced capacities and possibly new approaches for dealing with high volumes and with high velocity performances. Overall, this can amount to billions of transactions per minute.

Predictable cost models and cost-efficiency are essential drivers for ensuring full deployment as well as long-term availability, maintenance and usage of the platform. Cost aspects are particularly relevant when addressing scalability. Cost efficiency can also be achieved by using blockchain more intensively to reduce administrative overheads by facilitating and increasing the automation of transactions and of the monitoring and reporting tasks.

In addition, aspects like security and privacy, as well as environmentally sustainable operation should be on a par with the EU's ambitions. The EBSI aims to deliver EU wide cross-border public services or services in areas of public interest with the highest standards of security and privacy. Therefore, improvements are needed to ensure that the future EBSI is agile enough to upgrade to evolving security solutions to counter new threats, can become resistant to quantum computing attacks and is compliant with the NIS directive as well as the GDPR and eIDAS regulations.

Widespread usage of existing computationally intensive and energy-demanding blockchains has a noticeable effect on the environment. Part of the European Commission's ambitions is to halve CO<sub>2</sub> emissions by 2030 and be climate neutral by 2050. As such, it is of vital importance that the future EBSI is designed in a way that is 'green by design' and in particular the end-to-end impact on energy usage is optimised and as low as possible. The EBSI today is based on a permissioned approach, and is already using one of the more energy-efficient proof of authority consensus algorithms. However, green performance remains a challenge that requires further improvements given the expected expansion of the EBSI network size with an increasing amount of high volume applications. It should also take into account the evolution to more computationally demanding security and privacy levels; and the need for more and more blockchain apps to work in a performant and energy-efficient way on lightweight devices (e.g. smartphones in the context of IoT apps). Therefore, we need sustainable 'green by design' approaches to ensure that in the long term the use of blockchain to deploy more and more demanding applications - such as the ones for tracking products for sustainability purposes - does not become unsustainable in itself. One particular aspect to address is the prerequisite for EBSI to be able to identify the different objects and processes for the new types of use cases. This will complement the work for persons and organisations, which is addressed by the current EBSI and the work on a European Self Sovereign Identity Framework (ESSIF). The PCP aims for a flexible solution that can adapt to evolving use case requirements and technology evolutions over time. It aims to take into account new developments regarding the identification of objects, as well as other technologies and systems with which the EBSI should interoperate.

The objective is also to leverage on and complement the existing EBSI architecture and functionalities in order to enable in the best timeframe the implementation of the above new types of use cases and to facilitate, as much as possible, the integration of the PCP solution within the existing EBSI environment.

The modular and multilayers architecture proposed for the current EBSI would facilitate future integration of new solutions. However different approaches are not to be discarded if

duly justified. The current EBSI today uses two proof of authority based protocols: Ethereum Enterprise with Hyperledger Besu Client & Hyperledger Fabric. The solution developed through the PCP can propose to use other/new DLT protocols/topologies.

The role of European public authorities through the European Blockchain Partnership (EBP) should remain central in the governance model. EBP should keep control of EBSI and endorse the rules governing the future EBSI.

In conclusion, this PCP aims to:

- develop new capabilities for future versions of EBSI;
- enable the implementation of use cases with high volume and velocity requirements that can be integrated within the current EBSI initiative;
- leverage on and possibly complement the existing EBSI architecture and governance through the EBP.

This will clearly require improvements compared to today's systems. The OMC reflected that current solutions on the market are not able to meet the high volume and high transaction performance requirements to develop the envisioned use cases at scale. The main new capacities and quality/efficiency improvements that this PCP is looking for are thus in a nutshell:

*Solutions for future EBSI capabilities,  
to support a new and wide range of use cases concerning the handling of  
a vast amount of transactions and objects at a very large scale,  
whilst enhancing the  
sustainability, security, identification & data processing,  
together with integration & robustness aspects.*

#### **1.4.2. Detailed characteristics of the purchase**

This section identifies different functional or technical requirements that the proposed solutions in Tenderer's technical offer will have to address:

##### 1. Scalability

###### 1.a) Capacities

EBSI needs to be future-proof and able to propose new capabilities to support the use cases introduced in the previous section. While some applications are already being deployed, solutions are needed to support new V&V use cases all across Europe. IoT applications for example are growing at an exponential rate, and the integration of IoT use cases in EBSI would cause the global amount of transactions per minute to grow very rapidly. Similarly, the introduction of other new V&V use cases may result in stricter requirements regarding transaction turnaround time or a sudden growth in data storage needs.

The high volume and velocity (V&V) requirement use cases require a blockchain network that is able to cope with a high volume and high amount of transactions per second. It is important to understand that these use cases have the ambition to ultimately support the entire EU for various applications.

High-level numbers for the circular economy digital product passport use case relate to an EU population of 446 million citizens and approximatively 30 million of active enterprises. As an example, it is estimated that IoT-enabled customs item tracking would result in 25 million new product registrations per minute, 15 billion total transactions per minute (both read & write) and 120 trillion updates over the course of one year. Transaction profiles should be considered for the expected upcoming use cases, as described in the chapter 1.4.1.3 (page 10) considering also the growth of data, official documentation and regulatory reporting associated to them.

The Tenderer is expected to develop a solution, including potentially new architectural approaches and the use of off-chain combined with on-chain services, that enables V&V use cases, and is invited to construct a model highlighting the transaction parameters required. Note that in many situations, transactions should mainly be registered and viewable in (near) real-time in a specific context or regional area, e.g. in one Member State (concept of localisation). However, it should be possible to consolidate information at more aggregated levels, like the EU level. Hence the solution should also foresee the possibility to enable visibility on transactions through the entire network almost immediately for specific cases.

Must-have requirements:

- The proposed solution is able to scale as requirements increase in all possible dimensions (e.g. range of objects and their related data to be handled, amounts of transactions per minute, transaction turnaround time, data storage needs, nodes used, etc.). Evidence must be provided on possible levels of performance that could be achieved gradually overtime, in 2 to 3 years times and beyond. The proposed solution is able to scale towards the high level of performance required to support the objectives of the EU green deal and the EU Circular Economy Action Plan<sup>11</sup>.
- The proposed solution is able to reach high scalability levels without or with limited increase of the energy demand, with sustainable energy models and cost models, without compromising on security.
- Evidence must be provided how the network will scale, horizontally (e.g. more nodes, parallel approaches, interaction with more external networks etc.) and vertically (different protocols etc.). Evidence must be provided on the theoretical upper limit of transaction volume and speed that the solution can attain.

Nice-to-have requirements:

- The proposed solution can enable that the majority of the transactions be treated with high velocity in a specific context or area (e.g. a country), and be able to give access, extract and process part of the data through the entire network (almost) immediately.

#### 1.b). Cost models

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<sup>11</sup> [https://ec.europa.eu/environment/circular-economy/index\\_en.htm](https://ec.europa.eu/environment/circular-economy/index_en.htm)

Cost models are required for preparing a scalable infrastructure, ensuring gradual deployment as well as long-term availability, maintenance, and usage of the platform. The main objective is to be able to deploy new capacities for supporting new use cases. Cost models should be considered in a scenario where EBSI is a public good (e.g. financed by the EU) and can be complemented by economic models with cost sharing and pay-per-use approaches.

This should include cost-efficiency approaches, which are of course related to multiple key aspects for this PCP. Hence the solution should be scalable, with predictable cost models aiming to optimise costs related to the need for additional networks, nodes and their level of performance, the need for multiple protocols, additional core services, additional development efforts concerning applications, etc.

This is related as well to the easiness to develop, deploy and run applications on top of EBSI (reusing core services as well as APIs, templates, Dapps etc). It means also to enable EBSI to function, as much as possible, as an autonomous operating network, minimising administrative overhead and manual interventions / manipulations and automating operations where possible. This does apply to the mechanisms concerning the platform, the use cases, but also to meta-mechanisms such as audits, as well as to the governance.

Must-have requirements:

- The developed solution should be proposed with demonstrable cost model(s) for extending the networks, the nodes, services and operations in a predictable way.
- The developed solution and cost model(s) should propose an optimized approach regarding the deployment of the EBSI network, with respect to the amount of transactions to be addressed.
- The proposed solution allows for re-use of core services, APIs, templates, Dapps limiting development costs for new applications running on top of EBSI.
- The proposed solution allows for maximum automation within legal limits of functional operations.

Nice-to-have requirements:

- The developed solution is proposed with different economic models.
- The proposed solution uses innovative ways that can create further cost reductions, enabling those cost savings to be redirected towards other functional or quality improvements.

## 2. Sustainability / Environmental impact

One of the key tenets of the EU's Green Deal ambitions is ensuring the sustainable operation of digital infrastructures and solutions. The widespread usage of existing computationally extensive blockchains can have a noticeable effect on the environment and too energy-intensive solutions should be avoided. EBSI has the ambition to develop or integrate innovative solutions able to further reduce the environmental footprint, including notably the energy consumption requirements, to contribute to the EU's ambition to halve CO<sub>2</sub> emissions by 2030 and be climate neutral by 2050.

Obviously, the notion of energy performance is important in the end-to-end performance of the network. It means that it requires an environmentally conscious design regarding the servers hosting the nodes and off-chain databases and the impacts of: data transfers (both inter-node and between node and client); using more computationally demanding security / encryption techniques; smart contracts and token exchange mechanisms; as well as client queries on the network and running Blockchain apps on end-user devices. Approaches that do not reduce the on-chain energy consumption itself but simply offload calculations to off-chain systems (e.g. end user's devices, databases) and do not reduce the end-to-end energy consumption, are not appropriate.

Must-have requirements:

- The developed end solution can reach the increased scalability requirements whilst being able to halve by 2030 the end-to-end energy consumption per transaction compared to commonly available solutions (like proof of authority based approach used by EBSI today).
- Models and proof must be provided for what the end-to-end sustainability impact of the solution is, regarding energy usage in relation to the level of V&V/scalability achieved.

Nice-to-have requirements:

- The developed solution can further reduce the global EBSI energy consumption in line with the EU objectives to climate neutrality at the latest by 2050 and proof can be provided (e.g. in the form of a theoretical model / estimation) how this can be achieved.

### 3. Security & privacy

In order to ensure the widespread user adoption and that EBSI and the data handled through it are trustworthy, top-level security is a key priority of EBSI. Therefore, the proposed solution must provide advanced security features to ensure that the network is fully equipped to handle security attacks and guarantee that the encrypted data on the blockchain is fully secure. In addition, the proposed solutions must be agile regarding security and privacy threats and prepare EBSI to become resistant to quantum computing attacks.

EBSI also needs to provide end-users with the trust that their data is handled with the highest respect for privacy and in full compliance with GDPR. The new capacities to be developed through the PCP concern mainly objects; however, privacy should be taken into account when those objects and data are related to individuals - it can be for instance the case when dealing with rights management applications.

Must-have requirements:

- The developed solution must adhere to the latest security certification requirements and standards in compliance with the NIS directive and ensure that it is able to quickly upgrade its security levels in the case vulnerabilities are identified.

- The developed solution must be in line with the European Union's General Data Protection Regulation (GDPR) and the eIDAS regulation.
- The developed solution, including encryption, protocol, tokens, etc., must be able to prepare the EBSI to be quantum resistant and to facilitate the update of every vulnerable architecture element in use with a more secure variant within an acceptable timeframe.

Nice-to-have requirements:

- The developed solution proves to be already quantum resistant.

#### 4. Object identification and data processing

It is essential that the solution developed through the PCP offers capabilities for identifying and characterising the objects that should be tracked and treated through the new use cases to be implemented by the future EBSI. This is subject to various on-going R&I or standardisation works in different sectors, as it is the case for instance of the “digital product passport” in the context of the circular economy.

Hence the developed solution should integrate such capabilities and be agile and able to easily adapt to new specifications and standards concerning the identification and characterisation of objects, as outcomes of those on-going initiatives. The characterisation of the objects is particularly relevant (e.g. their components, materials that products are made of, updates regarding the status of products and documentation associated to them in the case of circular economy), it can concern also aspects related to co-creation, multi-ownership, multi-rights associated to objects.

This refers also to capacities for the interconnection with or integration of other technologies in EBSI in particular IoTs with, for instance, devices that can identify and inform on a product and its composition.

The future EBSI should also be seen as an infrastructure aiming to collect data from a wide range of different sources and to exploit them for different purposes. In the context of this PCP, sources refers to IoTs, external databases and data handled through other blockchain infrastructures. Purposes refers to traceability needs, monitoring for ensuring compliance with rules or regulations.

The future EBSI should contribute as well to the creation of data platform or data spaces. This requires the processing of data partly in EBSI and enabling them to be exploited outside it, for instance by artificial intelligence (AI) algorithms in external systems. It should facilitate the aggregation in data sets, breaking approaches in silos. It should guarantee for that the origin, authenticity and the integrity of the data. It should allow for a large range of patterns for processing those data and exploiting them in different contexts at different levels, the filtering of data for specific purposes. This could be organised per products, applications, sectors, for local geographies, countries or for the entire EU level, or different arrangement as appropriate.

It should be able to provide “anonymized data”, e.g. for R&D purposes, in which the data get stripped of all personal or too specific information when it is shared for exploitation in Europe and possibly beyond.



The developed solution through the PCP should propose capacities to create and exploit such specific data collections and treat them in a flexible way. It should facilitate the creation and reuse of different core services or block of functionalities that should be instantiated for specific use cases and applications.

All this should be possible through the combination of capacities and functionalities, in particular by using smart contracts, enabling the valorisation or rewarding of contributions through tokens, and facilitating exchanges of data through APIs for capturing data (e.g. from IoT devices) and for facilitating their exploitation through external systems and applications.

The tenderer is expected to propose and develop at least one blockchain based application in order to test during the PCP the new functionalities for the new type of V&V use cases. The application(s) that will be developed will be agreed by the EC and the contractor at the start of the PCP, during phase 1. Given its demanding V&V requirements, a digital product passport case is to be considered in priority.

Must-have requirements:

- The developed solution for tracking and identifying objects should offer capacities to implement a wide range of flexible patterns for the collection, processing and exploitation of authenticated data related to the different tracked objects. It should enable the combination of different functionalities to be re-used with different instantiations for different use cases.
- The developed solutions should contribute to the creation of data platform or data space. It should propose capacities to create and exploit specific data collections and data flows in a flexible way, exploiting smart contracts and tokenised approaches, and facilitating external exploitation of data through APIs. .
- The developed solution must be able to provide “anonymized data”.
- The developed solution should enable to create and operate incentive and reward mechanisms that facilitate the implementation of use cases (e.g. creating incentives for the implementation of the circular economy).
- The developed solution should rely on ongoing research, possible existing PoC, pilots and standardisation works, regarding objects identification frameworks and schemes like the digital product passport. Evidence shall be provided on how the proposed capabilities will be able to evolve to integrate new object identification and characterisation solutions and standards, when available in the coming years.
- The developed solution should in particular allow for interoperation and integration of IoT devices and systems facilitating the implementation of use cases.
- Development and testing of at least one blockchain based application concerning the circular economy/digital product passport. It will enable to evaluate the level of performance and the improvements achieved by the new capacities developed during the PCP.
- The developed capacities should be flexible and open enough to be tested with additional V&V type blockchain applications provided provided by the EC during the PCP.

Nice-to-have requirements:

- Development and testing of another blockchain based application concerning the EU wide management of IP rights for digital content. It will enable to evaluate further the flexibility, level of performance and the improvements achieved by the new capacities developed during the PCP.
- Additional blockchain based applications (in addition to the above digital product passport and IP rights for digital content cases) and associated datasets that are developed / made available by the contractor for the testing during the PCP, concerning for example other IoT use cases with high volume / velocity requirements.

## 5. Robust implementation and technical maturity

### 5.a) Interoperability

Interoperability is a key mission of EBSI as Member States and European Institutions have existing systems and potentially internal or sector blockchain networks they need to integrate. Therefore, solutions proposed for the EBSI platform, or external use case applications, should prove their openness to support a multitude of current use cases and clear interfaces to ensure the development of new applications. Consequently, it is expected that existing functionalities already present within EBSI are re-used as much as possible, as to ensure a coherent endresult.

Moreover, EBSI should also be able to interoperate gradually with other infrastructures that could be private ones and/or other public ones from other parts of the world.

Must-have requirements:

- The developed solution should facilitate interoperability with IoT solutions and with other existing blockchain initiatives, concerning in particular supply chains.
- The proposed solution should provide for well-defined and -documented interfaces in the form of APIs.
- The developed solution should facilitate the integration within the exiting EBSI<sup>12</sup>, ensuring high interoperability of existing building blocks and provide clear interfaces with it.
- Data descriptors should be in place, preferably described in formats such as JSON and XML. Interfaces of the protocols should be well defined in the form of APIs, preferably REST.

Nice-to-have requirements:

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<sup>12</sup> The current EBSI is based on a micro services architecture that allows flexibility of componentisation and allows inclusion or extraction from the overall architecture with minimal impact.

- The proposed solution must be accessible via clear open standards interfaces, preferably developed through International Standard Organisations.

### 5.b) Functional operation

It is expected that the proposed solution is able to offer the following basic functionalities that are to be combined together for the future EBSI to implement the above requirements, and be flexible to evolutions in this over time:

- Users (persons, companies, institutions or other entities)
  - Creating new users
  - Reading user data, as well as its history
  - Updating users (e.g. changing the name, permissions, etc.)
  - Deleting users (e.g. in context of “Right to be forgotten”)
- User roles
  - Creating new roles
  - Reading role data, as well as its history
  - Updating roles (e.g. changing the name, permissions, etc.)
  - Deleting roles
- Objects and data characterising them
  - Creating and identifying new objects
  - Reading object data, as well as its history
  - Updating objects (either due to own involvement, evolution of the state of the objects or rectifying mistakes of other users)
  - Deleting objects
- Tokens (could be any kind, e.g. financial tokens or utility tokens)
  - Creating new tokens
  - Reading token data, as well as its history
  - Updating tokens (e.g. transferring ownership, for example if its linked smart contract is not fulfilled)
  - Deleting tokens
- Smart contracts
  - Creating smart contracts
  - Reading smart contract data, as well as its history
  - Updating smart contracts (adhering to predefined rules, e.g. all parties agreeing)
  - Signing smart contracts
  - Deleting smart contracts

Note that the five elements mentioned above can be linked or combined together, either purely informatively (e.g. products with the same SKU being linked together) or with functional impact (e.g. Object data, linked to a smart contract, linked to a token which limits its usage). The chains that these links create should be traversable.

Must-have requirements:

- The proposed solution must offer the five basic functionalities mentioned above
- The above-mentioned elements can be linked and combined together for specific use cases.
- Both functionalities and the way to link them should be able to evolve, in particular to take into account new ways to identify and characterise objects, to collect and treat data, to propose a wide range of automated processes and incentive schemes that should enable to support various types of use cases.
- Evolving capacities should be possible while ensuring retro compatibility or enabling continuity in services (e.g. to ensure that history of records is not lost)
- Details must be provided on possible patterns, algorithms for interlinking, how automated creation will be secure & private enough to justify automation whilst still allowing human interventions where appropriate.

### 5.c) System auditing

A system auditing should be proposed for the future EBSI. It should facilitate resource management and increase transparency. Consistent monitoring, thorough reporting and responsive event management are a necessity for EBSI. This information should be available for example on the level of server (energy usage, bandwidth usage, available storage space), transaction (total transactions per minute, average transaction size), (anonymized) user (analyse average behaviour to improve usability), etc.

The monitoring & event management would be used for ad-hoc interventions to ensure a good working of the system, avoid data breaches & malicious behaviour, etc.; the reporting would be used for scientific studies, for auditing purposes and to improve the behaviour of the system as a whole long-term.

Note that, in order to be in compliance with the GDPR, all user data should be anonymized.

Must-have requirements:

- The developed solution must provide for system auditing and ensure that user anonymity is achieved and guaranteed (where appropriate) in auditing processes.

### 5.f) Interfaces/integration with other systems

It is necessary for the proposed solution to have open standards interfaces such as RESTful APIs which allow standard CRUD operations, identity management, batch requests, node traversal, etc. This should facilitate a wide range of activities, from user management to the integration/interoperation of a factory database or systems of record with the network, allowing basically live updates to flow from the factory to EBSI. The latter implies the need for adapters to harvest data between services and IT infrastructures, to create innovative data workflows supporting the creation of data platform or data spaces from distributed sources, avoiding approaches in silos and preventing vendor lock-ins. Note that the interface should be able to integrate both other blockchains as well as off-chain data storages.

An important part of this work relies on API. The ambition should be to rely on mature open API support, following best practices such as the Open Data Protocol (OData) and expanding

on its design principles in terms of: variety (mechanisms for a variety of data stores); extensibility (APIs shall support extended functionality without affecting basic functionality); REST principles; and, the presence of documentation supporting the description of the data models exposed, specifying metadata, data, operations (such as querying, editing, creating, deleting, updating data, etc.) and all used vocabularies and associated semantics.

The EBSI should be the Single Source Of Truth (SSOT) when it comes to object, transaction history, etc. meaning that an external integration should not be able to override this. It means that security elements should be duly considered when dealing with integration.

Must-have requirements:

- The developed solution should be able to integrate both with other blockchains as well as with off-chain data storages.
- The developed solution should provide for full extended API capabilities to support the integration requirements based on the existing API structure. It should propose facilities such as Web UI of API implementation.
- Information shall be provided on how the solution will guarantee that the EBSI blockchain will remain the SSOT.

#### 5.g) Robustness

The EBSI network involves a plethora of discrete actors over a wide geographical area. Due to this distributed nature, the probability of temporary degradation of some network features (e.g. a node going offline, the link between two nodes not functioning, etc.) is very high. As such, the EBSI network should be able to easily cope with these constantly changing circumstances. In other words, assuming degradation within realistic bounds, the proposed solution should be able to adhere to the V&V performance & sustainability requirements.

Another aspect that can negatively impact network performance or user experience is malicious data input, DDoS attacks, etc. The proposed solution should either be able to avoid or cope with this.

Must-have requirements:

- The developed solution will provide evidence on how robustness is achieved. For example, in the case of network degradation, extrapolation (see ‘scalability requirement’) or dynamic path selection could be used to show how even in case of less nodes or reduced bandwidth, the required performance & sustainability is still achieved.
- In case of critical failure, disaster recovery must always be possible. The developed solution should provide proof (such as ACIDity of transactions) that the solution can cope with critical failure.
- The developed solution will provide evidence on how to handle critical (yet not unrealistic) failures, such as all nodes within a Member State going offline.

### 1.4.2.1 Characteristics of the purchase

This procurement is for **purchasing R&D services** to develop and test **solutions** to tackle the EU blockchain **PCP challenge** (see sections 1.4.1.3 and 1.4.2). During the PCP, the R&D services will be procured in phases from several contractors in competition. This procedure will thus result in the conclusion of multiple framework contracts (one framework contract per contractor that is selected for the pre-commercial procurement) and multiple specific contracts (one specific contract for phase 1 of the PCP and another one for phase 2 of the PCP). For more information on the deliverable and payment schedule for each phase, see section 1.4.1. For more information on the nature and implementation of the contract, see section 1.6.

#### Phase 1: Solution Design

The aim of this phase is to enable the contracting authority to obtain a view on how the contractors conceptualise their solution. Contractors are to perform research to firstly elaborate the solution design and determine the approach to be taken to develop the new solutions and secondly demonstrate the technical, financial and commercial feasibility of the proposed concepts and approach to meet the procurement need.

As this phase is rather short, there is only one interim payment in the beginning of the phase, linked to the deliverables to be provided for the kick-off of phase 1. A short interim report will present an update of the proposed solution and first views on the test plan for phase 2 (testing will be done during phase 2). At the end of the phase, the Contractors shall describe the proposed solution in more detail in the End of Phase 1 report which demonstrates how the solution meets the requirements and describes how the solution is innovative. This End of Phase 1 Report outlines in addition also the technical choices and solution architecture design, the business model and the go-to-market / commercialisation plan. During this phase, the Contracting Authority will provide technical feedback on the solution design to the participating Contractors. The End of Phase 1 report therefore includes also feedback received from the Contracting Authority and reports on how this was taken into account. At the end of Phase 1, Contractors shall also give a detailed presentation to the Contracting Authority on the design and the work that was done as well as their plans for the next phase. The Phase 2 offer, which is requested also by the end of Phase 1 or a bit later if decided by the EC, will show as well as the overall project plan for phases 2A and 2B) and the specific project plan for phase 2A (including the proposed testing plan).

List of milestones, deliverables and payments of this phase 1 are given in chapter 1.4.3.1.

Phase 1 lasts 3 months. The Contracting Authority intends to sign contracts for this phase with at least 7 Contractors.

Phase 2 is further split up in two phases: Phase 2A and Phase 2B.

#### Phase 2A: Further solution development into a working prototype and lab testing

This phase 2A consists of the development of the concept into a working prototype addressing the above functional and technical requirements (scalability; sustainability; security and

privacy; Identifications and data processing; robust implementation and technical maturity) as well as any other aspect considered to be essential by the contractor.

The phase 2A consist also in the first demonstration and testing of that prototype in lab conditions, simulating the EBSI working conditions. This testing phase can be executed with limited datasets representing important elements to be considered for validating capabilities required of the envisaged set of use cases.

The detailed approach to testing activities will be further defined during Phase 1 and in Phase2A. Aspects to be tested include:

- Scalability testing
- Sustainability testing
- Security & privacy testing
- Identification and data processing testing
- Robust implementation and technical maturity
- Other functional, technical and operational testing

Testing of the solution will occur on different levels of complexity, in a phased approach.

- a) Functional testing: Local lab condition testing different functionalities and technical aspects (e.g. block generation data transmission)
- b) Integration testing: Testing of the API and reusability, integration of the solution with other technologies (e.g IoT), integration in the EBSI environment etc.
- c) Local Performance testing: Performance testing in blockchain (e.g. on the number of transactions and transaction size)

The prototype development and lab testing will be conducted in the facilities provided by the EC through a virtual testing network (emulating future EBSI nodes) or the test network of EBSI. The objective is to establish a joint reference for testing and evaluating the different solutions in completion through the Phase 2 of the PCP. However, it could be agreed between contractors and the EC that part of the testing is done in the selected contractors' facilities, to address specific aspects under specific conditions. More detailed information on the testing phase will be based on preparatory work in phase 1 and will be provided in the request for tenders for Phase 2, and this will be refined during the Phase 2A. Each contractor should already foresee remote assistance to the European Commission for testing. Remote assistance should include the definition of reference testing scenarios, the provision of data set(s) or other sample(s) for testing in relevant format, possible software adaptation of the solution to be tested to the virtual testing network provided by the European Commission, or the test network of EBSI.

Each of the contractors is expected to prepare its own data sets to facilitate the testing process. To ensure compatibility between the data sets, all contractors should also be able to handle data sets agreed with the EC. Subject to agreement in preparing the testing phases, the data sets agreed with the EC could be data sets provided by the EC, by the contractors or by third parties.

To assess the interim results of the final solution development and lab testing, this phase will have two interim prototype deliverables and the final prototype delivery at the end of Phase

2A. This enables to implement two lab testing cycles during Phase 2A: prototype testing at the Contractor's lab (month 2-4) and prototype testing at the Contracting Authority's lab (month 4-6). It will require that common reference testing scenarios be included in the test plan, in order to facilitate the comparison between the solutions provided by the different contractors. A key first deliverable (month 2) will concern a presentation of the proposed solution, a refined plan for testing and the completion of a first version of the prototype for starting the first test cycle that will be carried out (month 2-4) at the Contractor's lab. The second key deliverable (month 4) will be an intermediate evaluation of the defined solution approach and of the developed prototype, based on the results of the first cycle of lab testing that was carried out (month 2-4) at the Contractor's premises. It will also include the delivery of the second version of the prototype for starting the second test cycle that will be carried out (month 4-6) at the Contracting Authority's lab. To monitor the progress and facilitate the dialogue, at each iteration (month 2 and month 4), the contractor will present the current status of the defined solution and prototype to the Contracting Authority as well as any updates on the test plan and the Contractor will receive feedback from the Contracting Authority on the status of the ongoing work. This phase will thus provide technical feedback to the participating Contractors. Outcomes of the phase will be an end of phase 2A report together with a functioning prototype, a demonstration of the prototype in lab conditions and a detailed plan for further developing the prototype into the final solution and field testing.

At the end of Phase 2A, the Contractors shall also provide a detailed presentation to the Contracting Authority on the Phase 2A prototype and the final solution envisaged for Phase 2B. The End of Phase 2A Report shall be a written document of the proposed solution and prototype including development details, operational procedures, specifications report, test demonstration of the prototype in lab conditions, updated cost/benefit evaluation and description of the results, conclusions and the development plan for the continuation of the development activities in Phase 2B. It includes also the feedback received from the Contracting Authority during the phase and reports how this was taken into account.

More detailed information on the field testing (for phase 2B) may be provided by the Contracting Authority near the end of phase 2A.

To assess the interim results of the prototype development and testing, this phase 2A will have interim evaluations.

List of milestones, deliverables and payments of this phase 2A are given in chapter 1.4.3.2.

Phase 2A lasts 6 months. The Contracting Authority intends to sign contracts for this phase with at least 4 Contractors.

#### Phase 2B: Finalisation of solutions and field testing

In this final phase, the prototypes are developed further into solutions that are validated through field tests, emulating real-life EBSI conditions. In this phase, Contractors should be ready to test with larger datasets, a larger set of use cases and on a larger set of nodes than in Phase 2A.

The aim of the field testing is to deliver sufficient insight into the capabilities of the solution in line with the PCP challenge / objectives and the requirements and which can work in a near real-life conditions.



Reference scenarios for the testing will be established to be able to benchmark solutions through a normalised approach and to ensure that competing solutions from the different contractors can be tested and evaluated in a fair and appropriated way. They will be inspired by previous work regarding testing, and defined between the EC and the contractors at the end of Phase2A and beginning of Phase2B.

Those reference scenarios should enable to evaluate the improved capacities in terms of the requirements that are identified in the previous sections, as well as other functional, technical and operational aspect that will be identified through this PCP.

They should correspond to one or two types of use cases to be considered for the field testing: (i) a circular economy / digital product passport use case to be considered in priority and (ii) a management of IP rights for digital content use case.

Like in phase2A, aspects to be tested include:

- Scalability testing (including resilience aspects
- Sustainability testing
- Security & privacy testing.
- Identification and data processing testing
- Robust implementation and technical maturity
- Other functional, technical and operational testing

It will include also testing of API and reusability aspects, systems monitoring aspects (reporting, event triggering etc...)

Testing of the solution will occur on different levels of complexity, in a phased approach including for instance:

- a. **Point-to-point bottleneck performance testing:** (e.g. Performance testing on a point-to-point blockchain network, also taking into account the storage requirements for the use case.
- b. **Extensive network real-life performance testing:** Building on the previous configuration, the testing is now performed on an extensive testing network. (e.g. it will take into account network latency, interfaces with smart contracts, an extensive chain of x million records already present and real-life data).
- c. **Functional and systems interoperation testing:** Testing will be done on the time required to perform transactions, data processing, both in the beginning of the chain and at the end. Therefore, testing scenarios and environment are required with significant and tangible data samples. It requires also that the interface with IoT devices are created and/or simulated for testing purposes.

The aim of this phase is the successful integration of one, or if possible two or more of the above-mentioned use cases (e.g. circular economy / digital product passport, IP rights management, other IoT use cases) and successful completion of field tests of the Contractor solution. Like for the Phase 2A, it will be done on a virtual testing network (emulating EBSI nodes) provided at EC level, or through a test network using EBSI nodes in the European Commission and in interested EBP countries. More detailed information on the possible

testing on EBSI nodes in interested EBP member countries will be provided in the request for tenders for Phase 2 and refined through iterative process during Phase 2, as solutions will continue to be developed by the different contractors.

Phase 2B kicks off with reaching a common understanding of all the technicalities for the field testing setup and implementation (month 2). To assess the interim results of the final solution development and field testing, this phase will have two interim deliveries of the solution with two associated interim payments (at month 4 and month 8) and a final payment linked to the final solution delivery. This enables to implement two field testing cycles during Phase 2B (month 4-8 and month 8-12).

The expected outputs of the phase 2B are a stable solution that is verified through field tests in virtual or real life settings to work on a technical level, described in an End of Phase 2B Report and demonstrated to the Contracting Authority and to the EBP members. The end of Phase 2B deliverable includes also some promotion material that outlines the benefits of the solution for the Contractor and the Contracting Authority, so that the Contracting Authority can help promote the finalised solutions more widely to other potential users / markets.

List of milestones, deliverables and payments of the phase 2B are given in chapter 1.4.3.3.

Phase 2B lasts 12 months. The Contracting Authority intends to sign contracts for this phase with at least 3 Contractors.

For the initial offer to the call for tender for the framework contract, the contractor should foresee that it will have to provide remote assistance to the European Commission for testing, in particular for field testing. Remote assistance should include the definition of reference testing scenarios, the provision of data set or other sample for testing in relevant format, possible software adaptation of the solution to be tested to the virtual testing network provided by the European Commission or the test network of EBSI. The specific setup and circumstances of each field test will be further detailed during the different phases of the PCP.

### **1.4.2.2 Minimum requirements**

**The minimum requirements are:**

#### **1.4.2.2.1 Compliance with the definition of R&D services**

The services provided may not exceed the scope of R&D services.

R&D covers fundamental research, industrial research and experimental development. It may include exploration and design of solutions and prototyping up to the original development of a limited volume of first products or services in the form of a test series. Original development of a first product or service may include limited production or supply in order to incorporate the results of field-testing and to demonstrate that the product or service is suitable for production or supply in quantity to acceptable quality standards.<sup>13</sup> R&D does not

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<sup>13</sup> See Article XV(1)(e) [WTO GPA 1994](#) and the Article XIII(1)(f) of the [revised WTO GPA 2014](#) (in order for the PCP to fall under the exemption for R&D services specified in Annex 4 to the WTO GPA, the PCP must comply with this WTO GPA definition of R&D)

include quantity production or supply to establish commercial viability or to recover R&D costs. It also excludes commercial development activities such as incremental adaptations or routine or periodic changes to existing products, services, production lines, processes or other operations in progress, even if such changes may constitute improvements.

The definition of services means that the value of the total amount of products covered by the contract must be less than 50 % of the total value of the PCP framework contract.

#### 1.4.2.2.2 Place of performance obligation

Contracts must be implemented in compliance with the following place of performance obligation:

- At least 70% of the total value of activities covered by PCP phase 1 and at least 70% of the total value of activities covered by PCP phase 2A must be performed in the EU Member States and/or in countries associated to Horizon 2020. The principal R&D staff working on each specific contract must be located in the EU Member States and/or in countries associated to Horizon 2020.
- At least 70% of the total value of activities covered by the framework contract (*i.e. the total value of the activities covered by all the phases of the PCP, i.e. phase 1, phase 2A and phase 2B*) must be performed in the EU Member States and/or in countries associated to Horizon 2020. The principal R&D staff working on the PCP must be located in the EU Member States and/or in countries associated to Horizon 2020.
- 100% of the total value of activities on new security components developed for the contract must be performed in the EU Member States. In each specific contract, the principal R&D staff working on new security components covered by the contract must be located in the EU Member States.

The percentage is calculated as the part of the total monetary value of the contract that is allocated to activities performed in the EU Member States and/or in other countries associated to Horizon 2020, and respectively for the security components in the EU Member States. All activities covered by the contract are included in the calculation (*i.e. all R&D and operational activities that are needed to perform the R&D services, e.g. research, development, testing and certifying solutions*). This includes all activities performed under the contract by contractors and, if applicable, their subcontractors.

The principal R&D staff are the main researchers, developers and testers responsible for leading the R&D activities covered by the contract

The countries associated to Horizon 2020 are those listed as associated countries in the Funding & Tenders Portal [Online Manual](#)<sup>14</sup>.

#### 1.4.2.2.3 Technical minimum requirements

See the must-have requirements for each technical solution requirement in section 1.4.2

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<sup>14</sup> [List of H2020 associated countries.](#)

In addition, for the entire development across all phases of the pre-commercial procurement:

The contractor shall grant access to a source code repository in a version control system, where the source code shall be maintained (preferably Git, or equivalent). The contractor shall use the code repository following the best practices

The produced software and further modifications shall be delivered in the form of releases. A release shall comprise:

- Release note. This document describes the implemented functionalities and list the changes.
- Installation manual. This document describes how to install the release.
- Test plan. This document specifies the test cases and the data used to verify the quality of the changes implemented.
- Source code. The source code shall be managed by the contractor through the version control system.
- Scripts to build the binary code and automate the installation.
- Update reference document (i.e. architecture, interface control documents,...).

### 1.4.3. Deliverables

This section describes the Milestones and Deliverables resulting from each Phase. All Milestones and Deliverables mentioned below are the responsibility of the Contractor.

Deliverables must be submitted in English.

#### 1.4.3.1 Deliverables and Milestone for Phase 1

The following table gives an overview of the Phase 1 deliverables and Milestones.

Phase 1						
	Milestones (M) and deliverables (D)		By when?	How? <sup>15</sup>	Output and results	Linked to payment
	<b>M 1.1</b>	Kick-off for phase 1	2 weeks after start of phase 1	Discussion (webinar) based on presentation (powerpoint)	Presentation of the Contractor's team, solution approach and Q&A	Yes (interim payment)
	<b>D 1.1</b>	List of pre-existing IPR	2 weeks after start of phase 1	Document (word)	Agreed List of pre-existing IPR	Yes (interim payment)
	<b>M 1.2</b>	Interim follow-up	6-7 weeks after start of phase 1	Presentation (powerpoint) and discussion (webinar)	Presentation & discussion on the progress achieved by the Contractor	No
	<b>D 1.2</b>	Update on the proposed solution and first views on Phase 2	6-7 weeks after start of phase 1	Document (word)	Updated description of the proposed solution and of the first views regarding test plan and test setup	No

<sup>15</sup> Due to COVID-19 or other practical limitations it may not always be possible to organise physical meetings

		testing				
	<b>M 1.3</b>	Concept presentation	End of phase 1	Slide presentation (powerpoint) in Brussels or remotely for the end of phase 1 review	Presentation of the proposed solution and how it meets the tender requirements	Yes (payment of balance phase 1)
	<b>D 1.3</b>	End of phase 1 report	End of phase 1	Document (word)	Description of the solution design, any security/integration issues and non-technical aspects	Yes (payment of balance phase 1)
	<b>D 1.4</b>	Phase 2 offer	End of phase 1 (or later if decided by EC)	Document (word)	Detailed updated offer for phase 2A and phase 2B	No

The Phase 1 deliverables shall cover the following aspects:

<b>D 1.1</b>	List of pre-existing IPR	Agreed list that identifies for each pre-existing IPR: <ul style="list-style-type: none"> <li>• The pre-existing material concerned</li> <li>• The rights to the pre-existing material</li> <li>• The rights holder</li> </ul>
<b>D 1.2</b>	Update on the proposed solution and first views on phase 2 testing	Updated presentation of the proposed solution Description of the first views of the contractor regarding the test plan and test setup for phase 2 of the PCP, covering: <ul style="list-style-type: none"> <li>• New network capabilities to be tested</li> <li>• Application(s) to be tested</li> <li>• Data sets to be used</li> <li>• Methodology for testing</li> <li>• Technical testing setup</li> <li>• Planning for implementing the testing</li> </ul>
<b>D 1.3</b>	End of phase 1 report	The end of phase 1 report contains 3 sections: <ol style="list-style-type: none"> <li>1) Solution Design <ul style="list-style-type: none"> <li>• Detailed description of the technical results achieved and technical conclusions from phase 1</li> <li>• Detailed description of the proposed solution</li> <li>• Show per technical requirement how the solution meets the must-have criteria and nice-to-have criteria.</li> <li>• Show per requirement how the solution is innovative</li> <li>• Show additional innovative features achieved (if any)</li> </ul> </li> <li>2) Security and EBSI integration issues <ul style="list-style-type: none"> <li>• Description of any issues noticed during phase 1 by the contractor regarding <ul style="list-style-type: none"> <li>• security aspects</li> <li>• interoperability aspects</li> <li>• other issues of integration the contractor's solution with EBSI</li> </ul> </li> </ul> </li> <li>3) Non-technical aspects <ul style="list-style-type: none"> <li>• Detailed description of the non-technical results achieved and non-technical conclusions from phase 1</li> <li>• Measures taken to protect Results (IPR)</li> <li>• Commercialisation plan</li> <li>• Detailed time schedule and implementation plan</li> <li>• List of names and location of personnel that carried out the R&amp;D activities</li> <li>• Breakdown of spent resources (detailing the value spent on overall R&amp;D activities carried out in EU Member States and Horizon 2020 associated countries + the value spent on security R&amp;D activities carried out in EU Member States + the value spent on supplies versus R&amp;D services)</li> <li>• Re-assessment of the R&amp;D efforts for phase 2A and phase 2B</li> </ul> </li> </ol>

<b>D 1.4</b>	Phase 2 offer	<ul style="list-style-type: none"> <li>• Project Management plan &amp; Project Team</li> <li>• Detailed Project Plan for Phases 2A and 2B</li> <li>• Adapted Risk Plan</li> <li>• Adapted Quality Assurance Plan</li> <li>• Impact on Challenge</li> <li>• Technical Quality of the solution</li> <li>• Quality Assurance and Testing</li> <li>• Commercial Feasibility, business model and marketing plan</li> <li>• Lab and field testing approach (test plan)</li> <li>• Intellectual Property handling for phase 2</li> <li>• The Contracting Authority's assessment on the successful completion of Phase 1 (see section 1.4.6) is annexed to the Phase 2 offer and forms part of the Phase 2 offer.</li> </ul>
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### 1.4.3.2 Deliverables and Milestone for Phase 2A

The following table gives an overview of the Phase 2A deliverables and Milestones. Milestones and Deliverables for the Phase 2A are indicative at this stage and could be subject to change. Any changes will be included in the Phase 2 request for services.

<b>Phase 2A</b>					
	<b>Milestones (M) and deliverables (D)</b>	<b>By when?</b>	<b>How?</b> <sup>15</sup>	<b>Output and results</b>	<b>Linked to payment</b>
	<b>M 2.1</b> Kick-off Presentation phase 2A	2 weeks after start of Phase 2A	Remote or Physical meeting at EC premises (Brussels, Ispra or Luxembourg) with presentation (ppt)	Presentation of the Contractor's team, proposed solution and Q&A	No
	<b>D 2.1</b> List of pre-existing IPR	2 weeks after start of Phase 2A	Document (word)	Update of list of pre-existing IPR	No
	<b>M 2.2</b> First solution presentation for phase 2A	2 months after start of phase 2A	Discussion (webinar)	Presentation & discussion on the first solution elaboration and on the plan for phase 2A lab testing (see D2.2.)	
	<b>D2.2</b> First solution deliverable for phase 2A	2 months after start of phase 2A	Presentation (powerpoint) and Document (word)	Detailed presentation and document describing the proposed solution and the plan for phase 2A lab testing	Yes (1st interim payment phase 2)
	<b>M 2.3</b> First prototype lab testing cycle completed	4 months after start of phase 2A	Physical meeting at test location(s) or remotely	Presentation & discussion on the progress achieved by the Contractor and Prototype demonstration in lab conditions (Contractor's premises) and discussion of the results of the first cycle of lab tests that were carried out (in month 2-4) at the Contractor's lab	No
	<b>D 2.3</b> Second solution deliverable for phase 2A	4 months after start of phase 2A	Document (word) + One sample of the prototype	Report on the status of the prototype and on the month 2- 4 lab test results + delivery of one	No

					prototype sample including the prototype specification and refined test approach for evaluation by the Contracting Authority in its premises	
	<b>M 2.4</b>	Final lab testing completed	End of phase 2A	Physical meeting at test location(s) or remotely	Evaluation of the final test results (including results of the second cycle of lab testing that was carried out (month 4-6) at the Contracting Authority's premises) and discussion on the final results achieved at the end of phase 2A	
	<b>D 2.4</b>	Final Prototype deliverable + Presentation and lab demo	End of phase 2A	One sample of the prototype + Presentation (powerpoint) and lab demo of the final prototype	Delivery of one sample of the final prototype including the prototype specification for evaluation by the Contracting Authority + Presentation and lab demo of the architectural design, components and the functionalities of the final prototype	Yes (2 <sup>nd</sup> interim payment of phase 2)
	<b>D 2.5</b>	End of phase 2A report	End of phase 2A	Document (word)	Description of the final prototype and the results of the lab tests, any security/ integration issues and non-technical aspects	Yes (2 <sup>nd</sup> interim payment of phase 2)

The Phase 2A deliverables shall cover the following aspects:

<b>D 2.1</b>	List of pre-existing IPR	List that identifies for each pre-existing IPR: <ul style="list-style-type: none"> <li>• The pre-existing material concerned</li> <li>• The rights to the pre-existing material</li> <li>• The rights holder</li> </ul>
<b>D 2.2</b>	First solution deliverable for phase 2A	The first solution deliverable in phase 2A contains three parts: <ol style="list-style-type: none"> <li>1) First detailed presentation of the solution <ul style="list-style-type: none"> <li>• Slide presentation of the solution</li> </ul> </li> <li>2) Test plan for phase 2A <ul style="list-style-type: none"> <li>• Detailed description of the test plan and preparations for phase 2A lab testing (which functionalities are to be tested under which conditions)</li> </ul> </li> <li>3) One sample of the first version of the prototype <ul style="list-style-type: none"> <li>• source code + associated datasets to be used for lab testing</li> <li>• hardware components, if any</li> <li>• First technical documents of the solutions</li> </ul> </li> </ol>
<b>D 2.3</b>	Second solution deliverable for phase 2A	The second solution deliverable contains three parts: <ol style="list-style-type: none"> <li>1) Report on the prototyping and results of the month 2-4 lab testing <ul style="list-style-type: none"> <li>• Detailed description of the technical results achieved so far, the technical challenges encountered and the issues that are still to be addressed</li> <li>• Detailed description of the developed functionalities of the prototype</li> <li>• Detailed description of the results of the first cycle of lab testing that was carried out during month 2-4 at the Contractor's premises (which functionalities were tested under which conditions and what were the results)</li> </ul> </li> </ol>

		<ul style="list-style-type: none"> <li>• Explain per requirement how the prototype meets the must-have criteria and nice-to-have criteria</li> <li>• Explain per requirement how the prototype is innovative</li> <li>• Explain additional innovative features achieved (if any)</li> </ul> <p>2) One sample of the second iteration version of the prototype</p> <ul style="list-style-type: none"> <li>• source code + associated datasets used for lab testing</li> <li>• hardware components, if any</li> <li>• the technical documentation of the prototype</li> </ul>
<b>D 2.4</b>	Final prototype deliverable + Presentation and lab demo	<p>This deliverable consists of two parts:</p> <p>1) One sample of the final version of the prototype</p> <ul style="list-style-type: none"> <li>• source code + associated datasets used for lab testing</li> <li>• hardware components, if any</li> <li>• the technical documentation of the prototype</li> </ul> <p>2) Presentation and lab demo</p> <ul style="list-style-type: none"> <li>• Present the solution architecture, technical components and functionalities</li> <li>• Present the business model and the go to market / commercialisation plan</li> <li>• lab demo of the final prototype</li> <li>• Showcase the solution and lab test results and what was realised</li> <li>• Show how the solution realises the different technical requirements and how it is innovative</li> </ul>
<b>D 2.5</b>	End of phase 2A report	<p>The end of phase 2A report consists of 3 parts:</p> <p>1) Final prototype and lab testing results</p> <ul style="list-style-type: none"> <li>• Detailed description of the technical results achieved and technical conclusions from phase 2A</li> <li>• Detailed description of the developed prototype, the lab test activities and the results of the phase 2A lab testing (incl. results of the second cycle of lab tests that took place during month 4-6 in the Contracting Authority's premises)</li> <li>• Explain per technical requirement how the prototype meets the must-have criteria and nice-to-have criteria</li> <li>• Explain per requirement how the prototype is innovative</li> <li>• Explain additional innovative features achieved (if any)</li> </ul> <p>2) Security and integration issues</p> <p>Description of any issues noticed during phase 2A by the contractor regarding</p> <ul style="list-style-type: none"> <li>• security aspects</li> <li>• interoperability aspects</li> <li>• other issues of integration the contractor's solution with EBSI</li> </ul> <p>3) Non-technical aspects</p> <ul style="list-style-type: none"> <li>• Detailed description of the non-technical results achieved and non-technical conclusions from phase 2A</li> <li>• Measures taken to protect Results (IPR)</li> <li>• Commercialisation plan</li> <li>• Detailed time schedule and implementation plan</li> <li>• List of names and location of personnel that carried out the R&amp;D activities</li> <li>• Breakdown of spent resources (detailing the value spent on overall R&amp;D activities carried out in EU Member States and Horizon 2020 associated countries + the value spent on security R&amp;D activities carried out in EU Member States + the value spent on supplies versus R&amp;D services)</li> <li>• Update on assessment of the R&amp;D efforts for the field testing in phase 2B</li> </ul>

#### 1.4.3.3 Deliverables and Milestone for Phase 2B

The following table gives an overview of the Phase 2B deliverables and Milestones. Milestones and Deliverables for the Phase 2B are indicative at this stage and could be subject to change. Changes known at the start of Phase 2 will be included in the Phase 2 request for



services. Additional updates (e.g. regarding ongoing developments of EBSI) may be provided during Phase 2A.

<b>Phase 2B</b>					
	<b>Milestones (M) and deliverables (D)</b>	<b>By when?</b>	<b>How?<sup>15</sup></b>	<b>Output and results</b>	<b>Linked to payment</b>
	<b>M 3.1</b> Kick-off presentation phase 2B	1 month after start of Phase 2B	Physical or remote meeting, possibly visit of Contractor to EC premises (Ispra or Luxembourg)	Meeting and, if possible, visit of contractor to the EC field testing environment, goal definition phase 2B, discussion on field test work plan Q&A	No
	<b>D 3.1</b> Field test work plan	2 month after start of Phase 2B	Document (word)	Work plan for field testing and required adaptations for testing (Agreement on technicalities for field testing setup and implementation)	No
	<b>D 3.2</b> First solution deliverable for phase 2B	4 months after start phase 2B	The first version of the solution for field testing	Delivery of the first version of the solution for starting the first cycle of field testing that will be carried out in month 4-8 by the contracting authority	Yes (3 <sup>rd</sup> interim payment phase 2)
	<b>M 3.2</b> First field tests completed	8 months after start phase 2B	Webinar	Evaluation of the first cycle of field tests that were carried out in month 4-8 at the Contracting Authority's premises, discussion on iteration plans for the next months and agreement on aspects that require further iteration	
	<b>D 3.3</b> Second solution deliverable for phase 2B	8 months after start phase 2B	Document (word) + the second version of the solution for field testing	Description of the progress made and results achieved in the first cycle (month 4-8) of field testing and iteration plans for the next months + Delivery of the second version of the solution for starting the second cycle of field testing that will be carried out in month 8-12 by the contracting authority	Yes (4 <sup>th</sup> interim payment phase 2)
	<b>M 3.3</b> Final field tests completed	End of phase 2B	Physical meeting at field test location(s) or remotely	Evaluation of the final field test results (including results of the second cycle of field testing that was carried out in month 8-12 at the Contracting Authority's premises) and discussion on the final results achieved at the end of phase 2B	
	<b>D 3.4</b> Final solution deliverable + Final solution presentation and field test demo	End of phase 2B	One sample of the final field test version of the solution + Presentation (powerpoint) + Field test demonstration (to EC and possibly also to interested	Delivery of the final version of the solution for evaluation by the Contracting Authority + Presentation and field test demonstration of the final solution for the final review.	Yes (Payment of the balance phase 2)

				EBP members)		
	<b>D 3.5</b>	End of phase 2B report	End of phase 2B	Document (word)	Description of the final solution and the results of the field tests, any security/integration issues and non-technical aspects	Yes (Payment of the balance phase 2)
	<b>D 3.6</b>	Promo material describing solution and benefits achieved	End of phase 2B	Document, slide set (powerpoint) and short video (mp4) for publication / communication on main results achieved by the PCP	Slide set, short video, abstract and leaflet / brochure presenting the final solution and its benefits.	Yes (Payment of the balance phase 2)

The Phase 2B deliverables shall cover the following aspects:

<b>D 3.1</b>	Field test work plan	<ul style="list-style-type: none"> <li>• Detailed description of how to further develop the prototype to the final solution (taking into account the feedback from the end of phase 2A review)</li> <li>• Description of use cases, allocation of resources and practical technicalities for test setup, data sets, handling of security and other regulatory rules for field testing</li> <li>• Work plan describing what will be achieved per field test iteration</li> <li>• Description of technicalities for field testing setup and implementation</li> <li>• Description of required materials and adaptations for field testing</li> </ul>
<b>D 3.2</b>	First solution deliverable for phase 2B	Delivery of the first iteration of the solution for field testing: <ul style="list-style-type: none"> <li>• Source code + associated datasets used for field testing</li> <li>• Hardware components, if any</li> <li>• The technical documentation of the solution</li> <li>• Additional materials, adaptations required for field testing</li> </ul>
<b>D 3.3</b>	Second solution deliverable	The second solution deliverable contains two parts: <ol style="list-style-type: none"> <li>1) Results of the first cycle of field tests that were carried out in month 4-8               <ul style="list-style-type: none"> <li>• Detailed description of the technical results achieved so far, the technical challenges encountered and the issues that are still to be addressed</li> <li>• Detailed description of the further developed functionalities of the solution</li> <li>• Detailed description of the field test results (which functionalities were tested under which conditions and what were the results)</li> <li>• Explain per technical requirement how the tested solution meets the must-have criteria and nice-to-have criteria</li> <li>• Explain per requirement how the tested solution is innovative</li> <li>• Explain additional innovative features achieved (if any)</li> </ul> </li> <li>2) Delivery of the second iteration of the field test solution               <ul style="list-style-type: none"> <li>• source code + associated datasets used for field testing</li> <li>• hardware components, if any</li> <li>• the technical documentation of the solution</li> </ul> </li> </ol>
<b>D 3.4</b>	Final solution deliverable and Final solution presentation and field test demo	<ol style="list-style-type: none"> <li>1) Delivery of the final version of the field tested solution               <ul style="list-style-type: none"> <li>• source code + associated datasets used for field testing</li> <li>• hardware components, if any</li> <li>• the technical documentation of the final solution</li> </ul> </li> <li>2) Final solution presentation and field test demo               <ul style="list-style-type: none"> <li>• Present the solution architecture and technical design components</li> <li>• Present the business model and the go to market / commercialisation plan</li> <li>• Showcase the solution and field test results and what was realised</li> <li>• Show how the solution realises the different solution requirements</li> </ul> </li> </ol>
<b>D 3.5</b>	End of phase 2B report	The end of phase 2B report includes three parts: <ol style="list-style-type: none"> <li>1) Final solution and final field testing results</li> </ol>

		<ul style="list-style-type: none"> <li>• Detailed description of the technical results achieved and technical conclusions from the entire PCP</li> <li>• Detailed description of the final solution</li> <li>• Detailed description of the phase 2B field test results, including the results of the second cycle of field testing that was carried out in month 8-12 (which functionalities were tested under which conditions and what were the results)</li> <li>• Explain per functional and non-functional requirement how the final solution meets the must-have criteria and nice-to-have criteria</li> <li>• Explain per requirement how the final solution is innovative</li> <li>• Explain additional innovative features achieved (if any)</li> </ul> <p>2) Security and integration issues</p> <p>Description of any issues noticed during phase 2B by the contractor regarding</p> <ul style="list-style-type: none"> <li>• security aspects</li> <li>• interoperability aspects</li> <li>• other issues of integration the contractor's solution with EBSI</li> </ul> <p>3) Non-technical aspects</p> <ul style="list-style-type: none"> <li>• Detailed description of the non-technical results achieved and non-technical conclusions from the entire PCP</li> <li>• Measures taken to protect Results (IPR)</li> <li>• Commercialisation plan</li> <li>• List of names and location of personnel that carried out the R&amp;D activities</li> <li>• Breakdown of spent resources (detailing the value spent on overall R&amp;D activities carried out in EU Member States and Horizon 2020 associated countries + the value spent on security R&amp;D activities carried out in EU Member States + the value spent on supplies versus R&amp;D services)</li> </ul>
<b>D 3.6</b>	Promo material	<ul style="list-style-type: none"> <li>• Abstract of 1000 words</li> <li>• Leaflet / brochure (visually attractive, 2-4 pages)</li> <li>• Video (5-10 minutes)</li> <li>• Powerpoint slides</li> </ul> <p>describing the final solution and the benefits achieved for the Contracting Authority and the Contractor (for publication purposes)</p>

#### 1.4.4. Monitoring of contract implementation

During each phase, contract implementation will be monitored periodically and reviewed against the expected outcomes (*milestones, deliverables and output or results*) for the phase.

Each contractor will be assigned a main contact person by the Contracting Authority that will monitor progress and will provide regular feedback to contractors after meetings or visits. This should enable contractors to continuously improve the way in which their solutions address the pre-commercial procurement challenge.

There will be regular monitoring meetings between contractor and the Contracting Authority. The table with milestones in section 1.4.3 lists the monitoring schedule and locations where monitoring meetings and demonstrations take place.

The contractor must cover its own travel costs, including transporting personnel and developed solutions, for participating in monitoring meetings – including those that involve testing and demonstration of solutions - that take place in locations outside of the Contractor's premises.

#### **1.4.5. Payments based on satisfactory completion of the phase**

Payments corresponding to each PCP phase will be subject to the *satisfactory* completion of the deliverables and milestones for that phase.

Satisfactory completion will be assessed according to the following criteria:

- if the work corresponding to that milestone / deliverable has been carried out in accordance with the tender specifications ;
- if a reasonable minimum quality has been delivered;
- if the reports have been submitted on time in accordance with the tender specifications;
- if the monies have been allocated to the planned objectives in accordance with the tender specifications;
- if the monies have been allocated and the work has been carried out according to the place of performance and the R&D definition requirements;
- if the work has been carried out in compliance with the provisions of the contract (including in particular verification if the contractor has duly protected and managed IPRs generated in the respective phase).

‘Reasonable minimum quality’ of a report means that:

- to ensure readability, the report can be read and understood by somebody who is familiar with the topic, but not an expert (for example, somebody with policy or operational experience but not technical design or implementation knowledge);
- the report gives insight in the tasks performed in and the results;

‘Reasonable minimum quality’ of a demonstration means:

- the demonstration can be understood by somebody who is familiar with the topic, but not an expert (for instance, somebody with policy or operational experience but not technical design or implementation knowledge);
- the demonstration shows how the innovation works, how it can be used and (if applicable) how it is operated and maintained;
- the demonstration is accessible to parties appointed by the Contracting Authority, unless these are direct competitors of the contractor;

The assessment will consider the efforts made by contractors to take into account the feedback from the monitoring meetings.

Satisfactory completion in each of the phases does not mean successful completion (see section 1.4.6). An R&D phase could for instance be satisfactorily completed, and result in payment for that phase, even if it concludes that the innovation is not feasible.

The Commission shall have 45 calendar days from receipt of a deliverable to approve or reject the deliverable, and in the latter case the Contractor shall have 30 calendar days in which to submit additional information or a new deliverable. The new deliverable shall likewise be subject to the above provisions. For the terms of approval of deliverables linked to payments please refer to article I.5 of the contract.

#### **1.4.6. Eligibility for the next phase based on successful completion of the phase**

Eligibility for participation in the next phase will be subject to *successful* completion of the current phase.

Successful completion of a phase will be assessed based on the following criteria:

- (a) if the R&D results meet the minimum requirements of the challenge description (see section 1.4.2.2 on minimum requirements)
- (b) if all milestones and deliverables have been successfully completed in accordance with the tender specifications, in particular in terms of the feasibility of the R&D results to meet the technical requirements for the innovative solutions set out by the Contracting Authority (see section 1.4.2 on technical requirements, section 1.4.2.1 on characteristics of the purchase and section 1.4.3 on milestones and deliverables).
- (c) if the results of the R&D are innovative and commercially viable (see section 1.4.1.3 on objectives as well as sections 1.4.2 on technical requirements and sections 1.4.3 and 3.4 on commercial viability).

‘Feasibility’ to meet the technical requirements is assessed based on:

- For end of phase 1: the feasibility of the solution design (this is assessed based on deliverable D1.3 – end of phase 1 report – and Milestone M1.4 – end of phase 2 presentation of achieved results)
- For end of phase 2A: the feasibility of the prototype and its applicability in an operational setting (this is assessed based on D2.3 and D2.4 - prototype deliverable and results from the lab tests and Milestone M2.5 - prototype demonstration)

(a) will be assessed against the minimum requirements defined in section 1.4.2.2.

(b) and (c) will be assessed against the quality criteria 1 to 6 defined in section 3.4.

Note the difference between satisfactory completion (requirement for payment) and successful completion (prerequisite for being eligible to go to the next phase).

#### **1.5. Place of performance: where will the contract be performed?**

The contract must be implemented in compliance with the place of performance requirement defined in section 1.4.2.

#### **1.6. Nature of the contract: how will the contract be implemented?**

This procedure will result in the conclusion of multiple framework contracts in cascade and with reopening of competition for Phase 2. The modalities of implementation of the framework contract in cascade and with reopening of competition for phase 2 are set out in Article I.4.3 of the draft contract.

A framework contract establishes a mechanism for future repetitive purchases (in this case, the R&D services for each phase of the PCP) by the Contracting authority to be awarded in the form of specific contracts (in this case, one specific contracts for phase 1 and phase 2 of the PCP). The signature of a framework contract does not impose an obligation on the Contracting authority to conclude specific contracts with a framework contractor.

Multiple framework contracts will be concluded in the form of separate but identical contracts with minimum 7 contractors, provided that there are enough tenderers that have access to the procurement, are not excluded, satisfy the selection and award criteria, and comply with the Tender specifications. Tenderers that are awarded a framework contract will also be awarded a specific contract for phase 1 (evaluation of tenders for the framework contract and phase 1 are combined). The tenders deemed admissible as a result of the evaluation will be ranked in descending order to establish a list of contractors and a sequence in which they will be offered contracts. Contracts shall be awarded to those contractors who have submitted the most economically advantageous tenders based on the award criteria set out in section 3.4 and on the available budget for phase 1 of the pre-commercial procurement set out below.

Reopening of competition will be implemented for the specific contracts for phase 2 which will be awarded on the basis of the same or, if necessary, more precisely formulated terms laid down in these Tender specifications. A request for services will be launched for phase 2, with the aim to award identical specific contracts for phase 2 to minimum 4 contractors. All competing Contractors in phase 1 will receive the request for services for Phase 2 and are expected to provide an offer for phase 2 (including Phase 2A and Phase 2B) based on the request for services. However, as framework contracts with contractors that have not successfully executed phase 1 (see section 1.4.6) will be terminated in accordance with Article I.13 of the framework contract, only offers from contractors that successfully completed phase 1 will be eligible for phase 2. The tenders deemed admissible as a result of the evaluation of phase 2 will be ranked in descending order to establish a list of contractors and a sequence in which they will be offered contracts. Specific contracts for phase 2 shall be awarded to those contractors who have submitted the most economically advantageous specific tenders based on the award criteria set out in section 3.4 and on the available budget for phase 2 of the pre-commercial procurement set out below.

As both Phase 2A and Phase 2B are covered by the same specific contract for Phase 2, there will be no new request for services for Phase 2B. The aim is to continue Phase 2B with minimum 3 contractors. Phase 2 contracts will only be continued for Phase 2B with those contractors that rank highest in the assessment of successful completion of phase 2A (see section 1.4.6) until exhaustion of the available budget for Phase 2B. Phase 2 framework contracts and Phase 2 specific contractors with contractors that have not successfully executed phase 2A, or with contractors that are not among those contractors that most successfully completed Phase 2A and can therefore not be financed within the available budget for Phase 2B, will be terminated in accordance with Article I.13 of the framework contract.

In total, € 6.200.000 is reserved for the PCP contracts. For each phase there is a minimum of contractors, a maximum budget and a maximum duration and maximum price per project.

Before phase 1 and phase 2 submitted tenders are evaluated and the best tenders are given a contract within the available budget per phase. The following amount of budget is available per phase.

	Max budget / phase	Max price / project	Min nr contractors	Max duration
Phase 1	€ 980.000	€ 140.000	7	3 months
Phase 2A	€ 1.920.000	€ 480.000	4	6 months
Phase 2B	€ 3.300.000	€ 1.100.000	3	12 months
Total	€ 6.200.000	€ 1.590.000	-	21 months

For phases 1 and 2, contracts will be financed until the remaining budget for the phase is insufficient to fund the next best tender. The exact number of contracts finally awarded in each phase will thus depend on the prices offered and the number of tenders passing the evaluation of each phase. As leftover budget from the previous phase will become available to the next phases, the total budget available for phases 2A and 2B may eventually be higher than stated in the table above. The lower the average price of tenders, the more contracts can be awarded. The total value of the contracts awarded can also be lower than initially expected if there are fewer tenders than expected that meet the award criteria. In case there is leftover budget from phase 2B, the contracting authority may decide to award additional specific contracts after phase 2 for further validation of phase 2B solutions, for example in a wider set of countries for a longer time and/or on a wider set of use cases/data sets. These specific contracts will then be awarded according to the same award criteria as those for Phase 2.

The framework contract sets all the framework conditions for the entire duration of the PCP (covering all the phases). The framework contract remains binding for the duration of all phases for which contractors remain in the PCP. Tenderers are therefore asked not only to submit their detailed offer for phase 1, but also to state their goals, and to outline their plans (*including pricing*) for phases 2A and 2B, thus giving specific details of the steps that would lead to commercial exploitation of the R&D results. The specific tenders for the phase 2 will be requested at the same time as the end-of phase deliverables for phase 1 (see section 1.4.3.1). All contractors of phase 1 will thus be invited to make offers for phase 2.

### **1.7. Volume and value of the contract: how much do we plan to buy?**

An indicative estimate of the volumes to be ordered over the whole duration of the framework contract is given in section 1.6. These volumes are estimates only and there is no commitment as to the exact quantities to be ordered. The actual volumes will depend on the quantities which the *Contracting authority* will order through specific contracts.

The *framework contract ceiling* is indicated in Heading II.2.6 of the contract notice.

### **1.8. Duration of the contract: how long do we plan to use the contract?**

The framework contracts resulting from the award of this call for tenders will be concluded for at most 24 Months. The details of the initial contract duration and possible renewals are set out in Article I.3 of the Model framework contract.

### **1.9. Electronic exchange system: can exchanges under the contract be automated?**

For all exchanges with the contractor during the implementation of the contract as well as for future possible subsequent proceedings for the purposes of EDES ([European Union's Early Detection and Exclusion System](#)) the *Contracting authority* may use an electronic exchange system meeting the requirements of Article 148 of [Regulation \(EU, Euratom\) 2018/1046 of the European Parliament and of the Council of 18 July 2018 on the financial rules applicable to the general budget of the Union](#)<sup>16</sup>. At the request of the *Contracting authority* the use of such a system shall become mandatory for the contractor(s) at no additional cost for the *Contracting authority*. Details on specifications, access, terms and conditions of use will be provided in advance.

## 2. GENERAL INFORMATION ON TENDERING

### 2.1. Legal basis: what are the rules?

This call for tenders is governed by the provisions of [Regulation \(EU, Euratom\) 2018/1046 of the European Parliament and of the Council of 18 July 2018 on the financial rules applicable to the general budget of the Union](#) (the Financial Regulation)<sup>16</sup>.

The *Contracting authority* has chosen to award the contract resulting from this call for tenders through an open procedure pursuant to Article 164(1) (a) of the Financial Regulation. In an open procedure any interested economic operator (any natural or legal person who offers to supply products, provide services or execute works) may submit a tender.

### 2.2. Rules on access to procurement: who may submit a tender?

The plurilateral agreement on government procurement concluded within the World Trade Organisation and other agreements in the field of public procurement concluded between the European Union and other third countries do not apply to this procurement.

In addition, when it comes to information that can be created, exchanged, processed and stored on the European Blockchain Service Infrastructure, security is a very important aspect to address in order to safeguard the cross-border delivery of services through the EBSI infrastructure against potential physical and cyber threats. Users must have trust that the information that they transmit or receive via the EBSI infrastructure has been exchanged in a confidential manner and that the integrity of that information has not been compromised. The PCP involves R&D on security aspects and the EBSI infrastructure as a whole will also be used for cross-border services that require the exchange of security sensitive information.

Therefore, participation in this call for tenders is subject to the following **place of establishment and control requirement**: Participation in this call for tenders is open on equal terms only to nationals (natural persons or legal entities) that are established or deemed to be established in the EEA<sup>17</sup> and are ultimately controlled by EEA countries and/or nationals of EEA countries. Nationals (natural persons or legal entities) that are established in EEA countries but that are controlled by third countries that are not an EEA country and/or by nationals of third countries that are not an EEA country, are not eligible for participation in the EU blockchain pre-commercial procurement.

A ‘national’ of a EEA country means any legal entity with registered offices in an EEA country or any natural person that has the nationality of an EEA country.

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<sup>16</sup> Regulation (EU, Euratom) 2018/1046 of the European Parliament and of the Council of 18 July 2018 on the financial rules applicable to the general budget of the Union, amending Regulations (EU) No 1296/2013, (EU) No 1301/2013, (EU) No 1303/2013, (EU) No 1304/2013, (EU) No 1309/2013, (EU) No 1316/2013, (EU) No 223/2014, (EU) No 283/2014, and Decision No 541/2014/EU and repealing Regulation (EU, Euratom) No 966/2012 (OJ L 193 of 30.07.2018, p.1).

<sup>17</sup> The EEA consists of all EU Member States, Norway, Liechtenstein and Iceland: [https://eeas.europa.eu/diplomatic-network/european-economic-area-eea\\_en](https://eeas.europa.eu/diplomatic-network/european-economic-area-eea_en)



‘Control’ means the ability to exercise a decisive influence on an undertaking, directly, or indirectly through one or more intermediate undertakings. Control can take any of the following forms: (i) the direct or indirect holding of more than 50% of the nominal value of the issued share capital in the legal entity concerned, or of a majority of the voting rights of the shareholders or associates of that entity, (ii) the direct or indirect holding, in fact or in law, of decision-making powers in the legal entity concerned; However, the following relationships between legal entities shall not in themselves constitute controlling relationships: (i) the same public investment corporation, institutional investor or venture-capital company has a direct or indirect holding of more than 50% of the nominal value of the issued share capital or a majority of voting rights of the shareholders or associates, (ii) the legal entities concerned are owned or supervised by the same public body.

The contractors must moreover ensure that any cooperation with nationals of third countries that are not EEA countries or that are controlled by such a country and/or by a national if such a country does not affect the security interests and avoids potential negative effects over security of supply of inputs that are critical to the procurement and related EBSI operations.

To enable *the Contracting authority* to verify the access, each tenderer must complete **Annex 9 ‘Declaration of ownership and control’** to indicate its country of establishment and its country/-ies of control (and in case of joint tender – the country of establishment and the country/-ies of control of each group member) and must present the supporting evidence normally acceptable under the law of that/those country/-ies as requested in Annex 9. In addition to the information requested in Annex 9, additional evidence may be requested by the contracting authority after the submission deadline to verify the country of establishment and country/-ies of control of the tenderer. The same document(s) could be used to prove country of establishment and country/-ies of control and the delegation(s) of the authorisation to sign as described in **Section 4.3**.

*For tenderers established in the United Kingdom:*

Please be aware that following the entry into force of the EU-UK Withdrawal Agreement<sup>18</sup> on 1 February 2020 and in particular Articles 127(6), 137 and 138, the references to natural or legal persons residing or established in a Member State of the European Union are to be understood as including natural or legal persons residing or established in the United Kingdom. UK residents and entities are therefore eligible to participate under this call.

Please note that participation in the pre-commercial procurement is also subject to place of performance conditions (see section 1.5).

### **2.3. Registration in the Participant Register: why register?**

Any economic operator willing to submit a tender for this call for tenders must be registered in the [Participant Register](#) - an online register of organisations and natural persons participating in European Commission's calls for tenders or proposals (participants).

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<sup>18</sup> Agreement on the withdrawal of the United Kingdom of Great Britain and Northern Ireland from the European Union and the European Atomic Energy Community

On registering each participant obtains a Participant Identification Code (PIC, 9-digit number) which acts as its unique identifier in the Participant Register. A participant needs to register only once – the information provided can be further updated or re-used by the participant in other European Commission's calls for tenders or calls for proposals.

🔔 **Please provide information about the SME status of the participant in the Participant Register by filling in the SME Declaration section in the Participant Register. The section becomes available only when updating/modifying the details of the registered**

At any moment during the procurement procedure the Research Executive Agency Validation Services (hereafter *the EU Validation Services*) may contact the participant and ask for supporting documents on legal existence and status and financial capacity. The requests will be made through the register's messaging system to the e-mail address of the participant's contact person indicated in the register. It is the responsibility of the participant to provide a valid e-mail address and to check it regularly. The documents that may be requested by *the EU Validation Services* are listed in the [EU Grants and Tenders Rules on Legal Entity Validation, LEAR appointment and Financial Capacity assessment](#).

🔔 **Please note that a request for supporting documents by the *EU Validation Services* in no way implies that the tenderer has been successful.**

## **2.4. Ways to submit a tender: how can economic operators organise themselves to submit a tender?**

Economic operators can submit a tender either as a sole economic operator (sole tenderer) or as a group of economic operators (joint tender). In either case subcontracting is permitted.

In order to fulfil the selection criteria set out in **Section 3.2** the tenderer can rely on the capacities of subcontractors or other entities that are not subcontractors.

The role of each entity involved in a tender (hereafter referred to as “*involved entity*”) must be clearly specified in the eSubmission application: i) sole tenderer, ii) *Group leader* of a group of tenderers, iii) member of a group of tenderers, or iv) subcontractor. For an entity on whose capacities the tenderer relies to fulfil the selection criteria (that is not a subcontractor), this role is defined in the commitment letter (**Annex 5.2**). This applies also where the *involved entities* belong to the same economic group.

### **2.4.1. Joint tenders**

A joint tender is a situation where a tender is submitted by a group (with or without legal form) of economic operators regardless of the link they have between them. The group as a whole is considered a tenderer<sup>19</sup>.

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<sup>19</sup> References to *tenderer* or *tenderers* in this document shall be understood as covering both sole tenderers and groups of economic operators submitting a joint tender.

All members of the group assume joint and several liability towards the *Contracting authority* for the performance of the contract as a whole.

Group members must appoint a *Group leader* and a single point of contact authorised to act on their behalf in connection with the submission of the tender and all relevant questions, clarification requests, notifications, etc., that may be received during the evaluation, award and until the contract signature. The model power of attorney attached in **Annex 3** is to be used.

The joint tender must clearly indicate the role and tasks of each member and of the *Group leader* who will act as the *Contracting authority's* contact point for the contract's administrative or financial aspects and operational management. The *Group leader* will have full authority to bind the group and each of its members during contract execution. If the joint tender is successful, the *Contracting authority* shall sign the contract with the Group leader, authorised by the other members to sign the contract on their behalf via power of attorney drawn up in the model attached in **Annex 3**.

Changes in the composition of the group during the procurement procedure (after the submission deadline and before contract signature) shall lead to rejection of the tender except in case of a merger or takeover of a member of the group (universal succession), provided that the new entity has access to procurement (see **Section 2.2**) and is not in an exclusion situation, (see **Section 3.1**).

In any case the selection criteria must be still fulfilled by the group and the terms of the originally submitted tender may not be altered substantially, i.e. all the tasks assigned to the former entity must be taken over by the new entity member of the group, the change must not make the tender non-compliant with the tender specifications, and the evaluation of award criteria of the originally submitted tender may not be modified.

#### **2.4.2. Subcontracting**

Subcontracting is the situation where the contractor enters into legal commitments with other economic operators which will perform part of the contract on its behalf. The contractor retains full liability towards the *Contracting authority* for performance of the contract as a whole.

The following shall not be considered subcontracting:

- a) Use of workers posted to the contractor by another company owned by the same group and established in a Member State (“intra-group posting” as defined by Article 1, 3, (b) of [Directive 96/71/EC concerning the posting of workers in the framework of the provision of services](#)).
- b) Use of workers hired out to the contractor by a temporary employment undertaking or placement agency established in a Member State (“hiring out of workers” as defined by Article 1, 3, (c) of [Directive 96/71/EC concerning the posting of workers in the framework of the provision of services](#)).
- c) Use of workers temporarily transferred to the contractor from an undertaking established outside the territory of a Member State and that belongs to the same group (“intra-corporate transfer” as defined by Article 3, (b) of [Directive 2014/66/EU on the conditions of entry and residence of third-country nationals in the framework of an intra-corporate transfer](#)) .

- d) Use of staff without employment contract (“self-employed persons working for the contractor”), without the tasks of the self-employed persons being particular well-defined parts of the contract.
- e) Use of suppliers and/or transporters by the contractor, in order to perform the contract at the place of performance, unless the economic activities of the suppliers and/or the transporting services are within the subject of this call for tender (see **Section 1.4**).
- f) Performance of part of the contract by members of an EEIG (European Economic Interest Grouping), when the EEIG is itself a contractor or a group member.

The persons mentioned in points a), b), c) and d) above will be considered as “personnel” of the contractor as defined in the contract.

All contractual tasks may be subcontracted unless the *Technical specifications* expressly reserve the execution of certain critical tasks to the sole tenderer itself, or in case of a joint tender, to a member of the group.

By filling in the form available in **Annex 4**, tenderers are required to give an indication of the proportion of the contract that they intend to subcontract, as well as to identify and describe briefly the envisaged contractual roles/tasks of subcontractors meeting any of these conditions (hereafter referred to as *identified subcontractors*):

- on whose capacities the tenderer relies upon to fulfil the selection criteria as described under **Section 3.2**;
- whose individual share of the contract, known at the time of submission, is above 10 %.

Any such subcontractor must provide the tenderer with a commitment letter drawn up in the model attached in **Annex 5.1** and signed by its authorised representative.

Changes concerning subcontractors identified in the tender (withdrawal/replacement of a subcontractor, additional subcontracting) during the procurement procedure (after the submission deadline and before contract signature) require the prior written approval of the *Contracting authority* subject to the following verifications:

- any new subcontractor is not in an exclusion situation;
- the tenderer still fulfils the selection criteria and the new subcontractor fulfils the selection criteria applicable to it individually, if any;
- the terms of the originally submitted tender are not altered substantially, i.e. all the tasks assigned to the former subcontractor are taken over by another involved entity, the change does not make the tender non-compliant with the tender specifications, and the evaluation of award criteria of the originally submitted tender is not modified.

Subcontracting to subcontractors identified in a tender that was accepted by the *Contracting authority* and resulted in a signed contract, is considered authorised.

#### **2.4.3. Entities on whose capacities the tenderer relies to fulfil the selection criteria**

In order to fulfil the selection criteria a tenderer may also rely on the capacities of other entities, regardless of the legal nature of the links it has with them. It must in that case prove that it will have at its disposal the resources necessary for the performance of the contract by producing a commitment letter in the model attached in **Annex 5.2**, signed by the authorised

representative of such an entity, and the supporting evidence that those other entities have the respective resources.

If the contract is awarded to a tenderer intending to rely on another entity to meet the minimum levels of economic and financial capacity, the *Contracting authority* may require the entity to sign the contract or, alternatively, to provide a joint and several first-call financial guarantee for the performance of the contract.

With regard to technical and professional selection criteria, a tenderer may only rely on the capacities of other entities where the latter will perform the works or services for which these capacities are required (i.e. the latter will assume the role of subcontractors).

👉 Relying on the capacities of other entities is only necessary when the capacity of the tenderer is not sufficient to fulfil the required minimum levels of capacity. Abstract commitments that other entities will put resources at the disposal of the tenderer will be disregarded.

### 3. EVALUATION AND AWARD

The evaluation of the tenders that comply with the submission conditions will consist of the following elements:

- Check if the tenderer has access to procurement (see *Section 2.2*);
- Verification of administrative compliance (if the tender is drawn up in one of the official EU languages and the required documents signed by duly authorised representative(-s) of the tenderer);
- Verification of non-exclusion of tenderers on the basis of the exclusion criteria;
- Selection of tenderers on the basis of selection criteria;
- Verification of compliance with the minimum requirements defined in the procurement documents;
- Evaluation of tenders on the basis of the award criteria.

The *Contracting authority* will evaluate the abovementioned elements in the order that it considers to be the most appropriate. If the evaluation of one or more elements demonstrates that there are grounds for rejection, the tender will be rejected and will not be subjected to further full evaluation. The unsuccessful tenderers will be informed of the ground for rejection without being given feedback on the non-assessed content of their tenders. Only tenderer(s) for whom the verification of all elements did not reveal grounds for rejection can be awarded the contract.

The evaluation will be based on the information and evidence contained in the tenders and, if applicable, on additional information and evidence provided at the request of the *Contracting authority* during the procedure. If any of the declarations or information provided proves to be false, the *Contracting authority* may impose administrative sanctions (exclusion or financial penalties) on the entity providing the false declarations/information.

For the purposes of the evaluation related to exclusion and selection criteria the *Contracting authority* may also refer to publicly available information, in particular evidence that it can access on a national database free of charge.

#### 3.1. Exclusion criteria

The objective of the exclusion criteria is to assess whether the tenderer is in any of the exclusion situations listed in Article 136(1) of the Financial Regulation.

Tenderers found to be in an exclusion situation will be rejected.

As evidence of non-exclusion each tenderer needs to submit with its tender a Declaration on Honour<sup>20</sup> in the model available in *Annex 2*.<sup>21</sup> The declaration must be signed by an authorised representative of the entity providing the declaration.

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<sup>20</sup> The European Single Procurement Document (ESPD) may not be used yet in European Commission's calls for tenders.

The initial verification of non-exclusion of tenderers will be done on the basis of the submitted declarations and consultation of the [European Union's Early Detection and Exclusion System](#). The documents mentioned as supporting evidence in the Declaration on Honour need to be provided whenever requested and where this is necessary to ensure the proper conduct of the procedure within a deadline given by the Contracting authority<sup>22</sup>.

*Annex 1* specifies which of the *involved entities* participating in a tender need to provide the Declaration on Honour and, when requested by *the Contracting authority*, the supporting evidence.

**Please note that a request for evidence in no way implies that the tenderer has been successful.**

### **3.2. Selection criteria**

The objective of the selection criteria is to assess whether the tenderer has the legal, regulatory, economic, financial, technical and professional capacity to perform the contract.

The selection criteria for this call for tenders, including the minimum levels of capacity, the basis for assessment and the evidence required, are specified in the following subsections.

Tenders submitted by tenderers not meeting the minimum levels of capacity will be rejected.

When submitting its tender each tenderer shall declare on honour that it fulfils the selection criteria for the call for tenders. The model Declaration on Honour available in *Annex 2* shall be used.

The initial assessment of whether a tenderer fulfils the selection criteria will be done on the basis of the submitted declaration(s).

The subsections below specify which selection criteria evidence must be provided with the tender or may be requested later, at any time during the procurement procedure<sup>23</sup>. In any case,

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<sup>21</sup> Unless the same declaration has already been submitted for the purposes of another award procedure of the European Commission, the situation has not changed, and the time elapsed since the issuing date of the declaration does not exceed one year.

<sup>22</sup> The obligation to provide the supporting evidence will be waived in the following situations:

- if the same documents have already been provided in a previous award procedure of the European Commission, have been issued no more than one year before the date of their request by the *Contracting authority* and are still valid at that date;
- if such evidence can be accessed by the *Contracting Authority* on a national database free of charge, in which case the economic operator shall provide *the Contracting authority* with the internet address of the database and, if needed, the necessary identification data to retrieve the document;
- if there is a material impossibility to provide such evidence.

<sup>23</sup> The obligation to provide the supporting evidence will be waived in the following situations:

- if the same documents have already been provided in a previous award procedure of the European Commission, have been issued no more than one year before the date of their request by the *Contracting authority* and are still valid at that date;

to the extent that there is no ground for a waiver, the evidence must be provided, upon request and within a deadline given by the *Contracting authority*. The evidence must be provided in accordance with the applicable basis for assessment of each criterion: in case of a consolidated assessment – only by the *involved entities* who contribute to the fulfilment of the criterion, and in case of individual assessment – by each *involved entity* to whom the criterion applies individually.

### 3.2.1. Legal and regulatory capacity

Tenderers must prove that they are allowed to pursue the professional activity necessary to carry out the work subject to this call for tenders. The tenderer (including each member of the group in case of joint tender) must provide the following information in its tender if it has not been provided with the Legal Entity Form:

- For legal persons, a legible copy of the notice of appointment of the persons authorised to represent the tenderer in dealings with third parties and in legal proceedings, or a copy of the publication of such appointment if the legislation applicable to the legal person requires such publication. Any delegation of this authorisation to another representative not indicated in the official appointment must be evidenced.
- For natural persons, if required under applicable law, a proof of registration on a professional or trade register or any other official document showing the registration number.

Criterion L1	
<b>Minimum level of capacity</b>	Capacity to pursue the professional activity necessary to carry out the work subject to this call for tenders
<b>Basis for assessment</b>	Declaration or certificate of inclusion in a trade or professional register, or a sworn declaration or certificate, membership of a specific organisation, express authorisation, or entry in the value added tax (hereinafter 'VAT' <sup>24</sup> ) registry.

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- if such evidence can be accessed by the *Contracting Authority* on a national database free of charge, in which case the economic operator shall provide the *Contracting authority* with the internet address of the database and, if needed, the necessary identification data to retrieve the document.

<sup>24</sup> **For private entities:**

- ☐ a proof of registration, as prescribed in their country of establishment, on one of the professional or trade registers or any other official document showing the registration number;
- ☐ if the above documents do not show the VAT number, a copy of the VAT registration document, where applicable

**For individuals:**

- ☐ a legible copy of his or her identity card or passport;
- ☐ where applicable, a proof of registration, as prescribed in the individual's country of establishment, on one of the professional or trade registers or any other official document showing the registration number;
- ☐ if the above documents do not show the VAT number, a copy of the VAT registration document, where applicable.

**For public entities:**

- ☐ a copy of the resolution decree, law, or decision establishing the entity in question or failing that, any other official document attesting to the establishment of the entity;
- ☐ if the public entity has completed a VAT registration number in the legal entity form, an official document showing the VAT number.



👉 The evidence of economic and financial capacity does need not be provided with the tender but may be requested by the *Contracting authority* at any time during the procedure. **Please note that a request for evidence in no way implies that the tenderer has been successful.**

### 3.2.2. Economic and financial capacity

Tenderers must comply with the following selection criteria in order to prove that they have the necessary economic and financial capacity to perform the contract.

Criterion F1	
<b>Minimum level of capacity</b>	Average yearly turnover of the last two financial years above EUR 140.000
<b>Basis for assessment</b>	This criterion applies to the tenderer as a whole, i.e. a consolidated assessment of the combined capacities of all <i>involved entities</i> will be carried out.
<b>Evidence</b>	Copy of the profit and loss accounts and balance sheets for the last two years for which accounts have been closed from each concerned <i>involved entity</i> , or, failing that, appropriate statements from banks or business plan with appropriate statements from investors <sup>25</sup> . The most recent year must have been closed within the last 18 months.

👉 The evidence of economic and financial capacity does need not be provided with the tender but may be requested by the *Contracting authority* at any time during the procedure. **Please note that a request for evidence in no way implies that the tenderer has been successful.**

### 3.2.3. Technical and professional capacity

Tenderers must comply with the following selection criteria in order to prove that they have the necessary technical and professional capacity to perform the contract.

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<sup>25</sup> **For private entities that have profit and loss accounts:**

☐ Copy of the profit and loss accounts and balance sheet for the last one year for which accounts have been closed from each concerned *involved entity*, or, failing that, appropriate statements from banks. The most recent year must have been closed within the last 18 months.

**For private entities that do not have profit and loss account and use as evidence their business plan:**

☐ Detailed business plan outlining: past, current and future planned investments and their details (names of investors, investment amounts and conditions), past and projected future revenues and market forecast, past and projected future losses, evolution in staff numbers and fixed capital assets, any additional relevant information to assess the financial capacity to carry out the contract.

Criterion T1	
<b>Minimum level of capacity</b>	Ability to perform R&D up to original development of the first products or services, including in the field of this procurement (blockchain). The capacity (i.e. resources, tools, materials and equipment) to carry out research, lab prototyping, testing, and to produce and supply a limited set of first products or services and demonstrate that these products or services are suitable for production or supply in quantity. At least 1 project completed in the field of blockchain in the last five years preceding the tender submission deadline.
<b>Basis for assessment</b>	This criterion applies to the tenderer as a whole, i.e. the combined capacities of all <i>involved entities</i> .
<b>Evidence</b>	<p>Three types of evidence are required:</p> <ol style="list-style-type: none"> <li>1) CVs of personnel, listing the competences which are needed to complete the project.</li> <li>2) Description of the resources, tools, materials and equipment that are available to the tenderer for research, prototyping, testing and limited production and supply of the first set of products or services.</li> <li>3) A list of references and/or projects in the last five years meeting the minimum level of capacity. The list shall include details of their start and end date, total project amount and scope, role and amount invoiced. In case of projects still on-going only the portion completed during the reference period will be taken into consideration.</li> </ol>

Criterion T2	
<b>Minimum level of capacity</b>	Ability to commercially exploit the results of the R&D performed during the procurement, including intangible results in particular IPRs
<b>Basis for assessment</b>	This criterion applies to the tenderer as a whole, i.e. the combined capacities of all <i>involved entities</i> .
<b>Evidence</b>	Description of the financial and organisational structures that are available to the tenderer for management, exploitation and transfer of IPRs and for generating revenue by marketing commercial applications of the results.

👉 **Only the evidence of technical and professional capacity for criterion T1 must be provided with the tender. The other evidence of technical and professional capacity for criterion T2 may be requested by the *Contracting authority* at any time during the procedure. Please note that a request for evidence in no way implies that the tenderer has been successful.**

### 3.3. Compliance with the minimum requirements of the Tender specifications

By submitting a tender a tenderer commits to perform the contract in full compliance with the terms and conditions of the procurement documents for this call for tender. Particular attention is drawn to the minimum requirements specified in Section 1.4 of these specifications and to the fact that tenders must comply with applicable data protection, environmental, social and labour law obligations established by Union law, national legislation, collective agreements or the international environmental, social and labour conventions listed in Annex X to Directive 2014/24/EU.

The minimum requirements shall be observed throughout the entire duration of the contract. Compliance with these requirements is mandatory and cannot be subject to any assumptions, limitations, conditions, or reservations on the part of a tenderer.

**👉 Tenders that are not compliant with the applicable minimum requirements shall be rejected.**

For the following minimum requirements the following evidence is required:

#### **1) Evidence required for the R&D definition minimum requirement**

- the financial part of the offer for the framework contract must provide binding unit prices for all foreseeable items for the duration of the whole framework contract
- the financial part of the offer for each phase must give a breakdown of the price for that phase in terms of units and unit prices for every type of item in the contract, distinguishing clearly the units and unit prices for items that concern products
- the offers for all phases may include only items needed to address the challenge in question and to deliver the R&D services described in the request for tenders
- the offers for all phases must offer services matching the R&D definition above
- the total value of products offered in phase 1 must be less than 50 % of the value of the phase 1 contract and the total value of products offered in phase 2 must be so that the total value of products offered in all phases (1 and 2) is less than 50% of the total value of the PCP framework contract.

#### **2) Evidence required for the place of performance requirement minimum requirement**

- The financial part of the offer must provide binding unit prices for all foreseeable items for the duration of the whole framework contract and give a breakdown of the price for the current phase in terms of units and unit prices (*days and unit price per day*), for every type of item in the contract (*e.g. junior and senior researchers*)
- the offer must contain a list of staff working on the specific contract (*including for subcontractors*), indicating clearly their role in performing the contract (*i.e. whether they are principal R&D staff or not, and whether they are working on security components of the solution or not*) and the location (*country*) where they will carry out their tasks under the contract
- a confirmation or declaration of honour that, where certain activities forming part of the contract are subcontracted, subcontractors will be required to comply with the place of performance obligation to ensure that the minimum percentage for the place of performance condition is respected

### 3.4. Award criteria

The objective of the award criteria is to evaluate the tenders with a view to choosing the most economically advantageous tenders.

Tenders will be evaluated on the basis of the following award criteria and their weighting:

Weighted award criteria	Maximum points	Thresholds	Weighting
<b>Phase 1</b>			
Quality criteria			
1) Methodology, project plan and schedule	20	12	16%
2) Scalability	15	9	10%
3) Sustainability / environmental impact	15	9	10%
4) Security and privacy	15	9	10%
5) Object identification and data processing	15	9	10%
6) Robustness and technical maturity	15	9	10%
7) Commercial viability	5	3	4%
<u>Total Quality criteria</u>	<u>100</u>	<u>60</u>	<u>70%</u>
Price criteria			
Binding price for Phase 1	/	/	8%
Indicative price for the total PCP (Phase 1 & Phase 2)	/	/	22%
<u>Total Price criteria</u>	<u>/</u>	<u>/</u>	<u>30%</u>
<b>Phase 2 (including Phase 2A and Phase 2B)</b>			
Quality criteria			
1) Methodology, Project plan and schedule	15	9	10%
2) Scalability	15	9	10%
3) Sustainability / environmental impact	15	9	10%
4) Security and privacy	15	9	10%
5) Object identification and data processing	15	9	10%
6) Robustness and technical maturity	15	9	10%
7) Commercial viability	10	6	10%
<u>Total Quality criteria</u>	<u>100</u>	<u>60</u>	<u>70%</u>
<u>Total Price criteria ( = binding price for Phase 2)</u>	<u>/</u>	<u>/</u>	<u>30%</u>

#### Price criteria

The price considered for evaluation of Phase 1 offers will be the total binding price for carrying out the work for phase 1 and the indicative price for carrying out the work across the whole PCP (including phase 1 and phase 2), covering all the requirements set out in the Tender Specifications.

The price considered for evaluation of Phase 2 offers will be the total binding price for carrying out the work for phase 2 (including phase 2A and phase 2B), covering all the requirements set out in the Tender Specifications and the request for services for Phase 2.

### Quality criteria for Phase 1

Section 1.4.2 describes the solution requirements that are expected to be a part of the end-product (must-haves and nice-to-haves), by the time the EU Blockchain pre-commercial procurement finishes. It is not expected that tenderers already have all these features in place when submitting their tender; the work to design, develop and test these innovative features is part of the R&D process that is covered by the pre-commercial procurement. In the Technical Offer, tenderers need to make clear how they intend to achieve the must-haves and (if and) how they will implement the nice-to-haves. This information will form the basis for evaluating the quality of the tender, which will be performed based on the following criteria:

#### **Quality criterion 1: Methodology, Project Plan and Schedule**

This criterion will assess the feasibility of the proposed methodology to meet the objectives of the pre-commercial procurement in a high quality manner. It will also assess how the roles and responsibilities of the proposed team and of the different economic operators (in case of joint tenders, including subcontractors if applicable) are distributed for each task, including the mechanisms for ensuring coordination with the team and service continuity. It also assesses the global allocation of time and resources to the project and to each task or deliverable, and whether this allocation is adequate for the work. The tender should provide details on the proposed approach, the division of the work in tasks, the allocation of time and human resources, the mechanisms for quality assurance and team coordination and the rationale behind the choice of this allocation. Details should be provided as part of the technical offer, not as part of the financial offer.

*Sub-criterion 1.1:* Feasibility of the proposed methodology to meet the objectives specified in the tender specifications. Adequacy of the mechanisms for quality assurance.

The tender shall describe the methodology and methods used for development, testing, and implementation. This shall include the measures for quality assurance and risk management, including a risk assessment and risk mitigation strategy.

The tender shall provide a description for each of the architecture components to be developed across the stack and to be delivered via the EBSI blockchain network in the context of this PCP. When applicable, the tender must elaborate on how R&D will be performed to extend/improve pre-existing services/modules that will be included in the designed solution.

The tender shall provide a summary describing the solution to be designed, specifically how it addresses the key challenges of EBSI, which components of the solution already exist that will be used as a baseline, where the R&D efforts will be focused, and why the proposed solution approach was chosen as opposed to other alternatives.

The tender shall describe the vision and plan for executing the phase 2A lab testing and phase 2B field testing in the context of this PCP. The tender shall explain any datasets (e.g. private datasets for e.g. IoT use cases) that the tenderer can make available for testing

and the tender shall describe the potential use cases that the tenderer proposes to develop and/or put at the disposal of the PCP for testing purposes.

*Sub-criterion 1.2:* Adequacy and appropriateness of the project planning and time schedule, outlined by a work plan including a timetable. Appropriateness of the overall allocation of time and resources to each task or deliverable, as well as the clarity in describing the identity, roles, activities and responsibilities (including of subcontractor(s), if any). Adequacy of the mechanisms for project management and ensuring service continuity and coordination within the team.

The tender shall describe the work organization and the supply chain that it plans to use to build the solution. The tender shall elaborate on the approach for selecting and managing its subcontractors. The tender shall provide detail and demonstrate the consistency of the schedule for the execution of the contract, split into phases 1, 2A and 2B. The tender shall include a work plan, time schedule, deliverables and milestones as detailed in the Tender Specifications.

All the sub-criteria above are of equal relative importance

## **Quality criterion 2: Scalability**

This criterion will assess the scalability of the solution (see section 1.4.2).

*Sub-criterion 2.1:* Feasibility to achieve all the must-have requirements

The tender shall describe how the must-have requirements regarding ‘scalability’ defined in section 4.2.1 will be reflected in the proposed solution.

*Sub-criterion 2.2:* Feasibility to achieve the nice-to-have requirements

The tender shall describe how the nice-to-have requirements regarding ‘scalability’ defined in section 4.2.1 will be reflected in the proposed solution.

*Sub-criterion 2.3:* Innovativeness of the proposed solution

The tender shall describe how the proposed solution will be innovative in the domain of ‘scalability’.

## **Quality criterion 3: Sustainability / environmental impact**

This criterion will assess the sustainable / environmental impact of the solution (see section 1.4.2).

*Sub-criterion 3.1:* Feasibility to achieve all the must-have requirements

The tender shall describe how the must-have requirements regarding ‘sustainability / environmental impact’ defined in section 4.2.1 will be reflected in the proposed solution.

*Sub-criterion 3.2:* Feasibility to achieve the nice-to-have requirements

The tender shall describe how the nice-to-have requirements regarding ‘sustainability / environmental impact’ defined in section 4.2.1 will be reflected in the proposed solution.

*Sub-criterion 3.3: Innovativeness of the proposed solution*

The tender shall describe how the proposed solution will be innovative in the domain of ‘sustainability / environmental impact’.

#### **Quality criterion 4: Security and privacy**

This criterion will assess the level of security, including privacy, of the solution (see section 1.4.2).

*Sub-criterion 4.1: Feasibility to achieve all the must-have requirements*

The tender shall describe how the must-have requirements regarding ‘security and privacy’ defined in section 4.2.1 will be reflected in the proposed solution.

*Sub-criterion 4.2: Feasibility to achieve the nice-to-have requirements*

The tender shall describe how the nice-to-have requirements regarding ‘security and privacy’ defined in section 4.2.1 will be reflected in the proposed solution.

*Sub-criterion 4.3: Innovativeness of the proposed solution*

The tender shall describe how the proposed solution will be innovative in the domain of ‘security and privacy’.

#### **Quality criterion 5: Object identification and data processing**

This criterion will assess the capacities and applications for tracking and handling of object related data, offered by the solution (see section 1.4.2).

*Sub-criterion 5.1: Feasibility to achieve all the must-have requirements*

The tender shall describe how the must-have requirements regarding ‘object identification and data processing’ defined in section 4.2.1 will be reflected in the proposed solution.

*Sub-criterion 5.2: Feasibility to achieve the nice-to-have requirements*

The tender shall describe how the nice-to-have requirements regarding ‘object identification and data processing’ defined in section 4.2.1 will be reflected in the proposed solution.

*Sub-criterion 5.3: Innovativeness of the proposed solution*

The tender shall describe how the proposed solution will be innovative in the domain of ‘object identification and data processing’.

#### **Quality criterion 6: Robustness and Technical maturity**

This criterion will assess the robustness and technical maturity of the solution (see section 1.4.2).

*Sub-criterion 6.1: Feasibility to achieve all the must-have requirements*

The tender shall describe how the must-have requirements regarding ‘robustness and technical maturity’ defined in section 4.2.1 will be reflected in the proposed solution.

*Sub-criterion 6.2: Feasibility to achieve the nice-to-have requirements*

The tender shall describe how the nice-to-have requirements regarding ‘robustness and technical maturity’ defined in section 4.2.1 will be reflected in the proposed solution.

*Sub-criterion 6.3: Innovativeness of the proposed solution*

The tender shall describe how the proposed solution will be innovative in the domain of ‘robustness and technical maturity’.

## **Quality criterion 7: Commercial viability**

As the tenderer retains the ownership of IPRs that it generates during this pre-commercial procurement, it is important that the tenderer has a credible approach for commercialising the results of the procurement and for bringing a viable product or service to the market. Therefore, this criterion will assess the completeness, sense of reality and feasibility of the tenderer’s plan to commercialise the results which it will generate during the pre-commercial procurement (commercialisation plan).

*Sub-criterion 7.1: Adequacy of the market analysis, viability of the business plan and appropriateness of the approach to handle commercialisation barriers*

The business plan is expected to take into account the involved stakeholders and value chain. Also, an indicative investment- and exploitation (revenues) plan is expected. Based on the market analysis, a first outlook shall be made on the cost/benefit ratio in the transition towards full scale deployment. The plan shall also list those topics that are very relevant for the commercialization, but for which no quantitative data are available yet.

The tender shall include an initial market analysis and approach to handle deployment/commercialisation barriers. The market analysis shall give a global qualitative insight in the market potential of the solution in both first pilot application fields as well as on a wider scale (expected full scale market potential on European and worldwide scale). The market analysis shall indicate possible deployment barriers (e.g. political, technical, organizational, financial, ethical) to move beyond possible first-to-target deployment areas (geographical/services). The tender shall describe the rationale for estimating the market potential and the potential risks based on the differentiation factors, the added value, of the proposed solution compared to the state-of-the-art and other alternative solution approaches that are being developed by competitors.

The tender shall estimate the time to market of the newly developed solution. It shall explain the underlying reasoning and major steps to reach wide scale deployment. The time-to-market estimate should, if possible and relevant, differentiate between geographical differences in expected uptake of the solutions.



*Sub-criterion 7.2: Feasibility of the proposed approach for protection, licensing, pricing and distribution of the results*

The tender shall describe the proposed approach regarding the protection of results (which forms of protection and radius/geographical scope of protection are considered, in which timeframe), licensing/business models (which licensing or other business models are proposed to generate revenue), pricing (what type of pricing strategy is considered), and distribution of the results (does the tenderer intend to distribute the results itself or does it intend to use intermediaries etc.).

All the sub-criteria above are of equal relative importance

### Quality criteria for Phase 2

The quality criteria for Phase 2 are the same as for Phase 1. However, additional sub-criteria may be added in the request for services for phase 2, as a way of making the award criteria more precise, provided that they do not substantially change the current award criteria for Phase 2.

### Evaluation approach

All the award criteria will be evaluated by examining the written tender.

Should there be any doubt as to any of the information provided by the tenderer in its tender to evaluate these criteria, tenderers may be requested to provide additional clarification.

## **3.5. Award (ranking of tenders)**

Tenders shall be ranked according to the best price-quality ratio in accordance with the formula below:

This procurement uses multiple sourcing and will be awarded to the most economically advantageous tenders, i.e. the tenders offering the best price-quality ratio determined in accordance with the formula below:

$$S_x = \left( \frac{CP}{PT_x} \right) * 30 + \left( \frac{TQS_x}{100} \right) * 70$$

where:

$S_x$  = score for tender  $x$

$CP$  = cheapest price

$PT_x$  = price of tender  $x$

$TQS_x$  = total quality score for all criteria of tender  $x$

Following the call for tenders for the EU Blockchain pre-commercial procurement, provided all thresholds are reached and within the available budget limits for phase 1 (see section 1.6), the European Commission will award multiple framework contracts and specific contracts for phase 1 after applying the above formula for phase 1 to the highest-ranked tenders which comply with the minimum requirements specified in the procurement documents and are submitted by tenderers with access to procurement, not in an exclusion situation and fulfilling with the selection criteria. The ranking will determine the sequence in which the contractors will be offered contracts. Contracts will first be offered to the (minimum 7, according to section 1.6) highest ranking tenders, and in case one of those does not accept the order, to the next tender ranking on the list.

$$S_x = \left( \frac{CP}{PT_x} \right) * 30 + \left( \frac{TQS_x}{100} \right) * 70$$

Following the request for tenders for phase 2, provided all thresholds are reached and within the available budget limits for phase 2 (see section 1.6), the European Commission will award specific contracts for phase 2 to the highest-ranked tenders that have successfully completed phase 1 (see section 1.4.6) after applying the above formula for phase 2. The ranking will determine the sequence in which the contractors will be offered contracts. Contracts will first be offered to the (minimum 4, according to section 1.6) highest ranking tenders, and in case one of those does not accept the order, to the next tender ranking on the list.

## 4. FORM AND CONTENT OF THE TENDER

### 4.1. Form of the tender: how to submit the tender?

Tenders are to be submitted via the e-Submission application according to the instructions laid down in the Invitation to tender letter and the [e-Submission Quick Guide](#).

👉 Make sure you prepare and submit your electronic tender in e-Submission early enough to ensure it is received within the deadline specified under Heading IV.2.2 of the contract notice.

### 4.2. Content of the tender: what documents to submit with the tender?

The documents to be submitted with the tender in e-Submission are listed in **Annex 1**.

The following requirements apply to the technical and financial offer (to be uploaded as Technical tender and Financial tender in e-Submission):

#### 4.2.1. Technical offer.

The technical offer must be submitted using the Technical Offer Form in **Annex 7** and shall be completed, duly signed and uploaded in e-Submission.

The technical offer must provide all the information needed to assess the compliance with Section 1.4 of these specifications and the award criteria. Tenders deviating from the minimum requirements or not covering all the requirements may be rejected on the basis of non-compliance and not evaluated further.

The technical offer must contain:

- a technical plan that outlines: 1. the tenderer's idea for addressing all the requirements given in the PCP challenge description, relating both to functionality and performance; and 2. technical details of how this would be implemented
- a draft business plan that explains the proposed approach to commercially exploit the results of the PCP and to bring a viable product or service onto the market
- a list of the pre-existing rights (*background*) relevant to the tenderer's proposed solution, in order to allow IPR dependencies to be assessed. This list, drawn up using the declaration of pre-existing rights in **Annex 8**, shall identify for each pre-existing right: the part of the solution that is affected by pre-existing material, the pre-existing material concerned, the rights to the pre-existing material and the rights holder. The list will

include, but is not limited to, a list of the software necessary for the operation of the prototypes and first products or services that will be developed during the PCP, specifying which software is closed source software.

- a risk assessment and risk mitigation strategy

The technical part must provide a *detailed* technical offer for phase 1 (*including an explanation of the methodology, a work plan and details of deliverables and milestones*), and must specify the plans for and objectives of the subsequent phases 2A and 2B and beyond (*including a plan for commercial exploitation of the results*).

The tender itself must not contain any classified information. However it is possible that the input to activities and/or the output of activities that are proposed in *the tender raises security issues or uses EU-classified information*. In this case the tenderer must ensure that these issues are being handled correctly. EU-classified information must be handled in compliance with Commission Decision 2015/444 of 13 March 2015 on the security rules for protecting EU classified information. In such a case, tenderers must examine any issues with the national authorities on the basis of a security risk analysis and ensure and provide evidence to the Contracting Authority of the adequate security clearances. If the tenderer identifies such a case at the tendering stage, the technical offer must include a draft security classification guide (SSG), indicating the affected project inputs or outputs that are expected to involve EU-classified information and the expected levels of security classification that are identified by the tenderer in line with Commission Decision 2015/444. In case the contract involves EU-classified information, the exchange of (advance copies of) deliverables as well as other non-formal communications shall take place via electronic mail with the attachments encrypted by the software FileCrypto. In that case, the software solution and the licence will be provided by the Commission.

#### 4.2.2. Financial offer.

A complete financial offer, including the breakdown of the price needs to be uploaded. For this purpose, the Financial offer Form in **Annex 6** shall be completed and uploaded in e-Submission.

The financial offer must specify:

- a **price schedule** with **binding unit prices for all foreseeable items** for the duration of the whole framework contract, i.e. for items needed for carrying out phase 1 and for items that are expected to be needed for phases 2A and 2B (see section 2 of Annex 6)
- a **fixed total price** for phase 1 (see section 3 of Annex 6), and the price breakdown showing unit prices (based on the binding unit prices in the above price schedule) and the number of each unit needed to carry out the phase (see section 4 of Annex 6)
- an **estimated total price** for phase 2A (see section 5 of Annex 6) and phase 2B (see section 6 of Annex 6) broken down to show unit prices (based on the binding unit prices in the price schedule) and the number of each unit needed to carry out the phase

The unit prices quoted for each category of items in the price schedule (*e.g. daily rates for junior and senior researchers, developers and testers*) remain binding for all phases of the pre-commercial procurement (*i.e. for the duration of the framework contract*). The price schedule will constitute the future contractual basis for the pricing for the specific contracts. The unit prices in the price schedule constitute the maximum unit prices per category of item

that can be offered for the specific contracts. In this regard, the price schedule will be integral part of the contractor's tender. Accordingly, Annex 6 which comprises the Financial offer Form must be completely filled in. Tenders which are not submitted using Annex 6 will be excluded from the evaluation procedure.

The price schedule shall define the unit prices for 'personnel costs' of the contractor and for personnel costs corresponding to 'subcontracting', as well as the unit costs for 'material and equipment' and 'other costs' (e.g. travel).

For what regards the unit prices for personnel costs, tenders shall specify in the price schedule the maximum daily rate for each professional profile that is needed to implement the contract. These rates must be flat rate and include all costs<sup>26</sup> relating both to overall management of the framework contract and to the implementation of specific contracts (salaries, social security, administrative costs / overheads, global and project management, quality control, support resources, insurance, etc.). The maximum daily rate(s) quoted shall be valid for any services offered under a specific contract and cannot be exceeded.

A 'working day' is considered to be one working day for one contractor's member of personnel. For a given working day, the hours worked beyond normal daily work time shall not be payable. Normal work time is understood as respecting the law and regulations in force in the country where the services are to be performed.

For what regards the unit prices for materials and equipment and other costs, tenders shall specify in the price schedule what the costs consist of, what is the overall intended usage or application for such type of cost, and the corresponding type of unit.

The cost of preparing and submitting tenders must be borne exclusively by the contractor; the European Commission will not participate in any way in the expenditure incurred.

All (unit) prices shall be net, firm, not exceed the relevant amounts set out in the specific contracts, and be inclusive of all costs and expenses related to the performance of the framework contract, including all costs related to the delivery of the R&D Services.

In addition, the price breakdown in the financial section must show (see the corresponding columns in sections 4, 5 and 6 of Annex 6):

- the **price for R&D services** and the price for supplies of products (to demonstrate compliance with the minimum requirement 1 - R&D services definition)
- the **location / country** in which the different categories of activities are to be carried out (*e.g. x days of senior researchers working for the contract in country L at y euro/day; a days of junior developers working for the contract in country M at b euro/day*), which personnel profile corresponds to **principle R&D personnel** and which personnel profile is **working on security components** (to demonstrate compliance with the minimum requirement 2 - Place of performance)

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<sup>26</sup> For instance fixed percentages on top of the daily rates to cover administrative overheads will not be allowed.

**Prices in the financial offer must take into account that the IPR ownership on results that are generated by the contractor is allocated to the contractor**, which opens up commercial exploitation opportunities for the contractor. Prices in the financial offer are therefore normally expected to be lower than they would have been if IPR ownership were to be transferred to the contracting authority. In a fair market price, the financial compensation offered to the contracting authority for retaining IPR ownership takes into account the IPR related risks assumed by the contractor (e.g. the costs of maintaining the IPRs and bringing the products to the market) and the IPR related benefits enjoyed by the contractor (i.e. the commercialisation opportunity opened up by retaining IPR ownership). As each solution approach has its own specific risks and benefits, the financial compensation depends on the solution approach chosen by the tenderer to tackle the procurement challenge.

To demonstrate that a fair market price is offered, Tenders must state two prices in Annex 6:

- The “virtual” price that the tenderer would have quoted if (this procurement would have been organised differently and) the ownership of Intellectual Property Rights attached to the results of the PCP contract would be fully retained by the contracting authority and the contractor would not have the possibility to exploit the results; and
- The “actual” price (the price actually offered for this procurement) that takes into account the fact that the contractor keeps ownership of the Intellectual Property Rights attached to the results of the PCP contract, in accordance with the provisions of the Contracts, and that the contractor can exploit these results.

As it is the actual price that is really offered, it is the actual price for each specific contract that is used in the evaluation of the tenders and in the payments for each specific contract.

The total amount of the offer as indicated in cell E11 in sheet ‘Section 3’ of Annex 6X (Total price for phase 1 (in EURO, VAT EXCLUDED)) must be encoded in the field “Total amount excl. taxes” under the section “Tender data” in eSubmission. It is the responsibility of each tenderer to ensure that the total amount of the tender inserted in the e-Submission field “Total amount excl. taxes” corresponds to the amount indicated in the uploaded financial offer. In case of discrepancies, only the amount indicated in the financial offer will be taken into account.

The financial offer shall be:

- expressed in euros. Tenderers from countries outside the euro zone have to quote their prices in euro. The price quoted may not be revised in line with exchange rate movements. It is for the tenderer to bear the risks or the benefits deriving from any variation.
- quoted free of all duties, taxes and other charges, i.e. also free of VAT.

The eSubmission field “Total taxes amount” must indicate 0 (zero) EUR as the *Contracting authority* is exempt from taxation.

☞ The European Union Institutions are exempt from such charges in the EU under Articles 3 and 4 of the Protocol on the Privileges and Immunities of the European Union of 8 April 1965 annexed to the Treaty on the Functioning of the European Union. Exemption is granted to the Commission by the governments of the Member States, either through refunds upon presentation of documentary evidence or by direct exemption.

In case of doubt about the applicable VAT system, it is the tenderer's responsibility to contact his or her national authorities to clarify the way in which the European Union is exempt from VAT.

For each specific contract, tenderers will be requested to submit a price offer, which will include a total fixed price expressed in EUR and a price breakdown based on the binding unit prices in the price schedule.

In the request for tenders for the specific contract for phase 2, tenderers will be requested to submit a price offer for phase 2, which will include a total fixed price expressed in EUR and similar price breakdowns for phase 2A (see section 5 in Annex 6) and phase 2B (see section 6 in Annex 6).

More detailed information about the requirements for the phase 2 offers will be provided in the request for services for phase 2. The total price for phase 2 offers must be calculated based on the binding unit prices in the tender and the price conditions set out in the framework contract. The financial part of the offer for the framework already sets from the start of the pre-commercial procurement binding unit prices **for all foreseeable items** for the duration of the whole framework contract. Where new units/unit prices (e.g. for new tasks or equipment) need to be subsequently added (e.g. at the time of the phase 2 offers), they will become binding for the remaining duration of the framework contract. Any such modification of the list of units/unit prices will be implemented in accordance with article 172 of the FR.

The total fixed price indicated in the offer for each specific contract will be used to calculate the quality/price ratio in order to determine the economically most advantageous offer for each specific request for service.

#### **4.3. Signature policy: how can documents be signed?**

Where a document needs to be signed, the signature must be either hand-written, a qualified electronic signature as defined in [Regulation \(EU\) No 910/2014 on electronic identification and trust services for electronic transactions in the internal market \(the eIDAS Regulation\)](#).

For hand-written signatures see Section 1 of the Invitation to tender.

For electronic signatures see: <https://webgate.ec.europa.eu/fpfis/wikis/x/iwX4Dg>

All documents must be signed by the signatories (when they are individuals) or by their duly authorised representatives.

For the following documents, when signed by representatives, tenderers must provide evidence for the delegation of the authorisation to sign:

- The Tender report;
- The Declaration on Honour of the tenderer (in case of joint tender – the Declarations on Honour of all group members);
- (If applicable – in the case of joint tender) the power(s) of attorney drawn up using the model attached in **Annex 3**).

The delegation of the authorisation to sign on behalf of the signatories (including, in the case of proxy(-ies), the chain of authorisations) must be evidenced by appropriate written evidence

(copy of the notice of appointment of the persons authorised to represent the legal entity in signing contracts (together or alone), or a copy of the publication of such appointment if the legislation which applies to signatory requires such publication or a power of attorney). A document that the *Contracting authority* can access on a national database free of charge does not need to be submitted if the *Contracting authority* is provided with the exact internet link and, if applicable, the necessary identification data to retrieve the document.

#### **4.4. Confidentiality of tenders: what information and under what conditions can be disclosed?**

Once the *Contracting authority* has opened a tender, it becomes its property and shall be treated confidentially, subject to the following:

- For the purposes of evaluating the tender and, if applicable, implementing the contract, performing audits, benchmarking, etc., the *Contracting authority* is entitled to make available (any part of) the tender to its staff and the staff of other Union institutions, agencies and bodies, as well to other persons and entities working for the *Contracting authority* or cooperating with it, including contractors or subcontractors and their staff provided that they are bound by an obligation of confidentiality.
- After the signature of the award decision tenderers whose tenders were received in accordance with the submission modalities, who have access to procurement, who are not found to be in an exclusion situation referred to in Article 136(1) of the FR, who are not rejected under Article 141 of the FR, whose tenders are not found to be incompliant with the procurement documents, and who make a request in writing will be notified of the name of the tenderer to whom the contract is awarded, the characteristics and relative advantages of the successful tender and the price of the offer and/or contract value. The *Contracting authority* may decide to withhold certain information that it assesses as being confidential, in particular where its release would prejudice the legitimate commercial interests of economic operators or might distort fair competition between them. Such information may include, without being limited to, confidential aspects of tenders such as unit prices included in the financial offer, technical or trade secrets<sup>27</sup>.
- The *Contracting authority* may disclose the submitted tender in the context of a request for public access to documents, or in other cases where the applicable law requires its disclosure. Unless there is an overriding public interest in disclosure<sup>28</sup>, the *Contracting authority* may refuse to provide full access to the submitted tender, redacting the parts (if any) that contain confidential information, the disclosure of which would undermine the protection of commercial interests of the tenderer, including intellectual property.

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<sup>27</sup> For the definition of trade secrets please see Article 2 (1) of DIRECTIVE (EU) 2016/943 on the protection of undisclosed know-how and business information (trade secrets) against their unlawful acquisition, use and disclosure.

<sup>28</sup> See Article 4 (2) of the REGULATION (EC) No 1049/2001 regarding public access to European Parliament, Council and Commission documents.

☞ The *Contracting authority* will disregard general statements that the whole tender or substantial parts of it contain confidential information. Tenderers need to mark clearly the information they consider confidential and explain why it may not be disclosed. The *Contracting authority* reserves the right to make its own assessment of the confidential nature of any information contained in the tender.

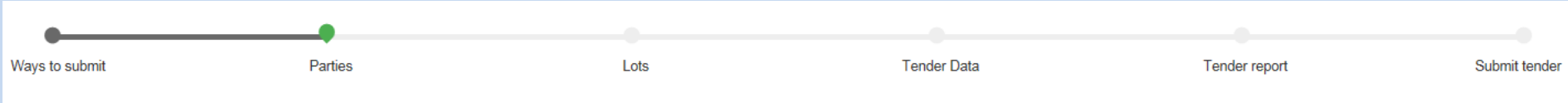
## **APPENDIX: LIST OF REFERENCES**

<b><i>Award criteria</i></b>	See Section 3.4
<b><i>Contracting authority</i></b>	See Section 1.1
<b><i>Entities on whose capacities the tenderer relies to fulfil the selection criteria</i></b>	See Section 2.4.3
<b><i>EU Validation services</i></b>	See Section 0 <a href="#">EU Grants and Tenders Rules on Legal Entity Validation, LEAR appointment and Financial Capacity assessment</a>
<b><i>Exclusion criteria</i></b>	See Section 3.1
<b><i>Financial Regulation</i></b>	<a href="#">Regulation (EU, Euratom) 2018/1046 of the European Parliament and of the Council of 18 July 2018 on the financial rules applicable to the general budget of the Union</a>
<b><i>Framework contract</i></b>	See Section 1.6
<b><i>Framework contract ceiling</i></b>	See Section 1.6
<b><i>Group leader</i></b>	See Section 2.4.1
<b><i>Identified subcontractors</i></b>	See Section 2.4.2
<b><i>Involved entities</i></b>	See Section 2.4
<b><i>Joint tender</i></b>	See Section 2.4.1
<b><i>Participating entities</i></b>	See Section 1.1
<b><i>Participant Register</i></b>	See Section 0 <a href="https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/participant-register">https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/participant-register</a>
<b><i>Selection criteria</i></b>	See Section 3.2
<b><i>Sole tenderer</i></b>	See Section 2.4
<b><i>Subcontracting/subcontractor</i></b>	See Section 2.4.2
<b><i>Treaties</i></b>	The EU Treaties: <a href="https://europa.eu/european-union/law/treaties_en">https://europa.eu/european-union/law/treaties_en</a>



# **ANNEXES**

## Annex 1. List of documents to be submitted with the tender or during the procedure

Description	Sole tenderer	Joint tender		Identified Subcontractor	Entity on whose capacity is being relied	When and where to submit the document?	Instructions for uploading in eSubmission (if applicable)	
		Group leader	Member of the group				How to name the file?	Where to upload?
1. Identification and information about the tenderer.								
<i>eSubmission view</i>								
								
<b>Declaration on Honour on Exclusion and Selection Criteria</b> (see Section 3.1)  model in Annex 2. Declaration on Honour on exclusion and selection criteria	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	With the tender in e-Submission	'Declaration on Honour'	With the concerned entity under 'Parties' →'Identification tenderer' →'Attachments'→'Declaration on Honour'.
<b>Evidence</b> that the person signing the documents is <b>an authorised</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			With the tender in e-Submission	'Authorisation to sign' documents'.	With the concerned entity under 'Parties' →'Identification tenderer'

<b>representative</b> of the entity <sup>29</sup>								→'Attachments'→'Other documents'.
<b>Power of attorney</b>  (see Section 2.4.1)  model in Annex 3. Power of attorney			☒			With the tender  in e-Submission	'Power of attorney'	In the Group leader's section under 'Parties' →'Identification tenderer' →'Attachments'→'Other documents'.
<b>Commitment letter</b>  (see Section 2.4.2 and 2.4.3)				☒  (model in Annex 5.1)	☒  (model in Annex 5.2)	With the tender  in e-Submission	'Commitment letter'	With the concerned entity under 'Parties' →'Identification tenderer' →'Attachments'→'Other documents'.
<b>Evidence of non-exclusion</b> (see Section 3.1)	☒	☒	☒	☒ <sup>30</sup>	☒ <sup>31</sup>	Only upon request by <i>the Contracting authority</i>  At any time during the procedure  In the Participant Register	n.a.	n.a.
<b>Evidence of legal and regulatory capacity L1</b> (see section 3.2.1)	☒	☒	☒			Only upon request by <i>the EU Validation services</i>  At any time during the procedure  In the Participant Register	n.a.	n.a.

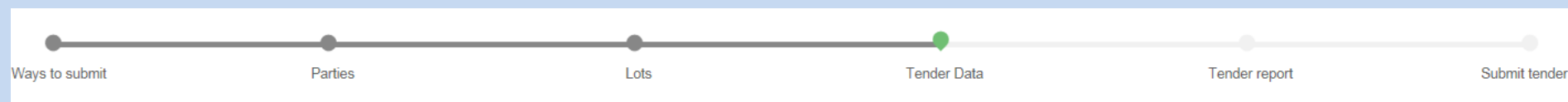
<sup>29</sup> A document that the Contracting authority can access on a national database free of charge does not need to be submitted if the Contracting authority is provided with the exact internet link and, if applicable, the necessary identification data to retrieve the document.

<sup>30</sup> Only identified subcontractors whose capacity is necessary to fulfil the selection criteria

<sup>31</sup> Only identified entities whose capacity is necessary to fulfil the selection criteria

<b>Evidence of economic and financial capacity F1</b> (see Section 2.2)	<p><b>The documents must be provided</b></p> <p><b>only by the <i>involved entities</i></b></p> <p><b>who contribute to reaching the minimum capacity level</b></p> <p><b>for criterion F1</b></p>	<p>Only upon request by <i>the Contracting authority</i></p> <p>At any time during the procedure</p> <p>In the Participant Register</p>	n.a.	n.a.
<b>Evidence of technical and professional capacity T1</b> (see Section 0)	<p><b>The documents must be provided</b></p> <p><b>only by the <i>involved entities</i></b></p> <p><b>who contribute to reaching the minimum capacity level</b></p> <p><b>for criterion T1</b></p>	<p>With the tender</p> <p>in e-Submission</p>	<p>'Project_reference_No.1"</p> <p>'Project_reference_No.2"</p> <p>....</p>	<p>With the Group leader or the sole tenderer under 'Parties' → 'Identification tenderer' → 'Attachments' → 'Technical and professional capacity'.</p>
<b>Evidence of technical and professional capacity T2</b> (see Section 0)	<p><b>The documents must be provided</b></p> <p><b>only by the <i>involved entities</i></b></p> <p><b>who contribute to reaching the minimum capacity level</b></p> <p><b>for criterion T2</b></p>	<p>Only upon request by <i>the Contracting authority</i></p> <p>At any time during the procedure</p> <p>In the Participant Register</p>	n.a.	n.a.

## 2. Tender data.

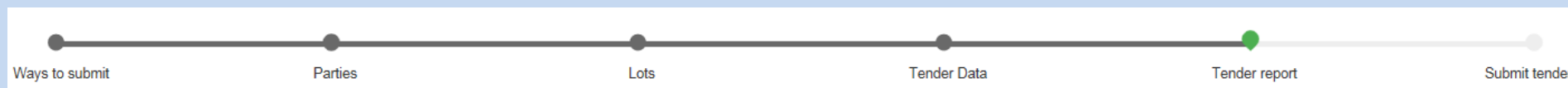


**Failure to upload the following documents in eSubmission will lead to rejection of the tender.**

<b>Technical offer</b> (see Section 4.2) Model in annex 7 Technical offer form	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				With the tender in e-Submission	'Technical tender'	Under section 'Tender Data' → 'Technical Tender'
<b>Financial offer</b> (see Section 4.2) Model in annex 6 Financial offer form	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				With the tender in e-Submission	'Financial tender'	Under 'Tender Data' → 'Financial Tender'
<b>Pre-existing rights</b> (see section 4.2) Model in annex 8 List of pre-existing rights	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				With the tender in e-Submission	'List of pre- existing rights'	Under section 'Tender Data' → 'List of pre-existing rights'
<b>Declaration of ownership and control</b> (see section 2.2) Model in annex 9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	With the tender in e-Submission	'Declaration of ownership and control'	With the concerned entity under 'Parties' → 'Identification tenderer' → 'Attachments' → 'Decla- ration of ownership and control'.

### 3. Tender report.

Once all information and documents have been encoded and uploaded in the e-Submission application and you consider that the tender is complete, the application will require you to download the Tender Report generated by the e-Submission application. It will have to be signed (hand signature or electronic signature) and uploaded, as explained in the [eSubmission Quick Guide](#).



<b>Tender report</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				With the tender in e-Submission	'Tender report'	Under section 'Tender report'
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## Annex 2. Declaration on Honour on exclusion and selection criteria

### Declaration on honour on exclusion criteria and selection criteria

The undersigned [*insert name of the signatory of this form*], representing:

<i>(only for natural persons)</i> himself or herself	<i>(only for legal persons)</i> the following legal person:
ID or passport number:  (‘the person’)	Full official name: Official legal form: Statutory registration number: Full official address: VAT registration number:  (‘the person’)

The person is not required to submit the declaration on exclusion criteria if the same declaration has already been submitted for the purposes of another award procedure of the same contracting authority<sup>32</sup>, provided the situation has not changed, and that the time that has elapsed since the issuing date of the declaration does not exceed one year.

In this case, the signatory declares that the person has already provided the same declaration on exclusion criteria for a previous procedure and confirms that there has been no change in its situation:

Date of the declaration	Full reference to previous procedure

#### I – SITUATION OF EXCLUSION CONCERNING THE PERSON

(1) declares that the above-mentioned person is in one of the following situations:	YES	NO
(a) it is bankrupt, subject to insolvency or winding-up procedures, its assets are being administered by a liquidator or by a court, it is in an arrangement with creditors, its business activities are suspended or it is in any analogous situation arising from a similar procedure provided for under Union or national law;	<input type="checkbox"/>	<input type="checkbox"/>
(b) it has been established by a final judgement or a final administrative decision that the person is in breach of its obligations relating to the payment of taxes or social security contributions in accordance with the applicable law;	<input type="checkbox"/>	<input type="checkbox"/>

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<sup>32</sup> The same EU institution, agency, body or office.

(c) it has been established by a final judgement or a final administrative decision that the person is guilty of grave professional misconduct by having violated applicable laws or regulations or ethical standards of the profession to which the person belongs, or by having engaged in any wrongful conduct which has an impact on its professional credibility where such conduct denotes wrongful intent or gross negligence, including, in particular, any of the following:		
(i) fraudulently or negligently misrepresenting information required for the verification of the absence of grounds for exclusion or the fulfilment of eligibility or selection criteria or in the performance of a contract or an agreement;	<input type="checkbox"/>	<input type="checkbox"/>
(ii) entering into agreement with other persons with the aim of distorting competition;	<input type="checkbox"/>	<input type="checkbox"/>
(iii) violating intellectual property rights;	<input type="checkbox"/>	<input type="checkbox"/>
(iv) attempting to influence the decision-making process of the contracting authority during the award procedure;	<input type="checkbox"/>	<input type="checkbox"/>
(v) attempting to obtain confidential information that may confer upon it undue advantages in the award procedure;	<input type="checkbox"/>	<input type="checkbox"/>
(d) it has been established by a final judgement that the person is guilty of any of the following:		
(i) fraud, within the meaning of Article 3 of Directive (EU) 2017/1371 and Article 1 of the Convention on the protection of the European Communities' financial interests, drawn up by the Council Act of 26 July 1995;	<input type="checkbox"/>	<input type="checkbox"/>
(ii) corruption, as defined in Article 4(2) of Directive (EU) 2017/1371 or active corruption within the meaning of Article 3 of the Convention on the fight against corruption involving officials of the European Communities or officials of Member States of the European Union, drawn up by the Council Act of 26 May 1997, or conduct referred to in Article 2(1) of Council Framework Decision 2003/568/JHA, as well as corruption as defined in other applicable laws;	<input type="checkbox"/>	<input type="checkbox"/>
(iii) conduct related to a criminal organisation, as referred to in Article 2 of Council Framework Decision 2008/841/JHA;	<input type="checkbox"/>	<input type="checkbox"/>
(iv) money laundering or terrorist financing, within the meaning of Article 1(3), (4) and (5) of Directive (EU) 2015/849 of the European Parliament and of the Council;	<input type="checkbox"/>	<input type="checkbox"/>
(v) terrorist offences or offences linked to terrorist activities, as defined in Articles 1 and 3 of Council Framework Decision 2002/475/JHA, respectively, or inciting, aiding, abetting or attempting to commit such offences, as referred to in Article 4 of that Decision;	<input type="checkbox"/>	<input type="checkbox"/>
(vi) child labour or other offences concerning trafficking in human beings as referred to in Article 2 of Directive 2011/36/EU of the European Parliament and of the Council;	<input type="checkbox"/>	<input type="checkbox"/>
(e) it has shown significant deficiencies in complying with the main obligations in the performance of a contract or an agreement financed by the Union's budget,	<input type="checkbox"/>	<input type="checkbox"/>



which has led to its early termination or to the application of liquidated damages or other contractual penalties, or which has been discovered following checks, audits or investigations by a contracting authority, the European Anti-Fraud Office (OLAF) or the Court of Auditors;		
(f) it has been established by a final judgment or final administrative decision that the person has committed an irregularity within the meaning of Article 1(2) of Council Regulation (EC, Euratom) No 2988/95;	<input type="checkbox"/>	<input type="checkbox"/>
(g) it has been established by a final judgment or final administrative decision that the person has created an entity under a different jurisdiction with the intent to circumvent fiscal, social or any other legal obligations in the jurisdiction of its registered office, central administration or principal place of business.	<input type="checkbox"/>	<input type="checkbox"/>
(h) ( <i>only for legal persons</i> ) it has been established by a final judgment or final administrative decision that the person has been created with the intent provided for in point (g).	<input type="checkbox"/>	<input type="checkbox"/>
(i) for the situations referred to in points (c) to (h) above the person is subject to: i.facts established in the context of audits or investigations carried out by the European Public Prosecutor's Office after its establishment, the Court of Auditors, the European Anti-Fraud Office (OLAF) or the internal auditor, or any other check, audit or control performed under the responsibility of an authorising officer of an EU institution, of a European office or of an EU agency or body; ii.non-final judgments or non-final administrative decisions which may include disciplinary measures taken by the competent supervisory body responsible for the verification of the application of standards of professional ethics; iii. facts referred to in decisions of entities or persons being entrusted with EU budget implementation tasks; iv.information transmitted by Member States implementing Union funds; v.decisions of the Commission relating to the infringement of Union competition law or of a national competent authority relating to the infringement of Union or national competition law; or vi. decisions of exclusion by an authorising officer of an EU institution, of a European office or of an EU agency or body.	<input type="checkbox"/>	<input type="checkbox"/>

## II – SITUATIONS OF EXCLUSION CONCERNING NATURAL OR LEGAL PERSONS WITH POWER OF REPRESENTATION, DECISION-MAKING OR CONTROL OVER THE LEGAL PERSON AND BENEFICIAL OWNERS

### *Not applicable to natural persons, Member States and local authorities*

(2) declares that a natural or legal person who is a member of the administrative, management or supervisory body of the above-mentioned legal person, or who has powers of representation, decision or control with regard to the above-mentioned legal person (this covers e.g. company directors, members of management or supervisory bodies, and cases where one natural or legal person holds a majority of shares), or a beneficial owner of the person (as referred to in point 6 of article 3 of	YES	NO	N/A
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Directive (EU) No 2015/849) is in one of the following situations:			
Situation (c) above (grave professional misconduct)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Situation (d) above (fraud, corruption or other criminal offence)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Situation (e) above (significant deficiencies in performance of a contract )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Situation (f) above (irregularity)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Situation (g) above (creation of an entity with the intent to circumvent legal obligations)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Situation (h) above (person created with the intent to circumvent legal obligations)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Situation (i) above	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### **III – SITUATIONS OF EXCLUSION CONCERNING NATURAL OR LEGAL PERSONS ASSUMING UNLIMITED LIABILITY FOR THE DEBTS OF THE LEGAL PERSON**

(3) declares that a natural or legal person that assumes unlimited liability for the debts of the above-mentioned legal person is in one of the following situations:	YES	NO	N/A
Situation (a) above (bankruptcy)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Situation (b) above (breach in payment of taxes or social security contributions)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### **IV – GROUNDS FOR REJECTION FROM THIS PROCEDURE**

(4) declares that the above-mentioned person:	YES	NO
Was previously involved in the preparation of the procurement documents used in this award procedure, where this entailed a breach of the principle of equality of treatment including distortion of competition that cannot be remedied otherwise.	<input type="checkbox"/>	<input type="checkbox"/>

### **V – REMEDIAL MEASURES**

If the person declares one of the situations of exclusion listed above, it must indicate measures it has taken to remedy the exclusion situation, thus demonstrating its reliability. This may include e.g. technical, organisational and personnel measures to prevent further occurrence, compensation of damage or payment of fines or of any taxes or social security contributions. The relevant documentary evidence which illustrates the remedial measures taken must be provided

in annex to this declaration. This does not apply for situations referred in point (d) of this declaration.

## VI – EVIDENCE UPON REQUEST

Upon request and within the time limit set by the contracting authority the person must provide information on natural or legal persons that are members of the administrative, management or supervisory body or that have powers of representation, decision or control, including legal and natural persons within the ownership and control structure and beneficial owners.

It must also provide the following evidence concerning the person itself and the natural or legal persons on whose capacity the person intends to rely, or a subcontractor and concerning the natural or legal persons which assume unlimited liability for the debts of the person:

For situations described in (a), (c), (d), (f), (g) and (h), production of a recent extract from the judicial record is required or, failing that, an equivalent document recently issued by a judicial or administrative authority in the country of establishment of the person showing that those requirements are satisfied.

For the situation described in point (b), production of recent certificates issued by the competent authorities of the State concerned are required. These documents must provide evidence covering all taxes and social security contributions for which the person is liable, including for example, VAT, income tax (natural persons only), company tax (legal persons only) and social security contributions. Where any document described above is not issued in the country concerned, it may be replaced by a sworn statement made before a judicial authority or notary or, failing that, a solemn statement made before an administrative authority or a qualified professional body in its country of establishment.

The person is not required to submit the evidence if it has already been submitted for another award procedure of the same contracting authority<sup>33</sup>. The documents must have been issued no more than one year before the date of their request by the contracting authority and must still be valid at that date.

The signatory declares that the person has already provided the documentary evidence for a previous procedure and confirms that there has been no change in its situation:

Document	Full reference to previous procedure
<i>Insert as many lines as necessary.</i>	

## VII – SELECTION CRITERIA

(1) declares that the above-mentioned person complies with the selection criteria applicable to it individually as provided in the tender specifications:	YES	NO	N/A
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<sup>33</sup> The same institution or agency.

(a) It has the legal and regulatory capacity to pursue the professional activity needed for performing the contract as required in section [insert] of the tender specifications;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) It fulfills the applicable economic and financial criteria indicated in section [insert] of the tender specifications;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) It fulfills the applicable technical and professional criteria indicated in section [insert] of the tender specifications.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(2) if the above-mentioned person is the <b>sole tenderer</b> or the <b>leader in case of joint tender</b> , declares that:	YES	NO	N/A
(d) the tenderer, including all members of the group in case of joint tender and including subcontractors if applicable, complies with all the selection criteria for which a consolidated assessment will be made as provided in the tender specifications.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### VIII – EVIDENCE FOR SELECTION

The signatory declares that the above-mentioned person is able to provide the necessary supporting documents listed in the relevant sections of the tender specifications and which are not available electronically upon request and without delay.

The person is not required to submit the evidence if it has already been submitted for another procurement procedure of the same contracting authority<sup>34</sup>. The documents must have been issued no more than one year before the date of their request by the contracting authority and must still be valid at that date.

The signatory declares that the person has already provided the documentary evidence for a previous procedure and confirms that there has been no change in its situation:

Document	Full reference to previous procedure
<i>Insert as many lines as necessary.</i>	

***The above-mentioned person must immediately inform the contracting authority of any changes in the situations as declared.***

***The above-mentioned person may be subject to rejection from this procedure and to administrative sanctions (exclusion or financial penalty) if any of the declarations or information provided as a condition for participating in this procedure prove to be false.***

Full name

\_\_\_\_\_

Date

Signature

<sup>34</sup> The same institution of agency.

### Annex 3. Power of attorney

Call for tenders CNECT/2020/OP/0055- EU Blockchain pre-commercial procurement

#### POWER OF ATTORNEY

The undersigned:

– Signatory (Name, Function, Company, Registered address, VAT Number)

having the legal capacity required to act on behalf of his/her company,

HEREBY AGREES TO THE FOLLOWING:

- 1) To submit a joint tender as a member of a group of tenderers (the Group), constituted by Company 1, Company 2, Company N (Group members), and led by Company 1 (Group leader), in accordance with the conditions specified in the Tender specifications and the terms specified in the tender to which this Power of attorney is attached.
- 2) If the Contracting authority awards the contract resulting from this call for tenders to the *Group* on the basis of the joint tender to which this power of attorney is attached, all *Group members* shall be considered parties to the contract in accordance with the following conditions:
  - (a) All *Group members* shall be jointly and severally liable towards the Contracting authority for the performance of the contract.
  - (b) All *Group members* shall comply with the terms and conditions of the contract and ensure the proper delivery of their respective share of the services and/or supplies subject to the contract.
- 3) Payments by the Contracting authority related to the services and/or supplies subject to the Contract shall be made through the bank account of the *Group leader*: [Provide details on bank, address, account number].
- 4) The *Group members* grant to the *Group leader* all the necessary powers to act on their behalf in the submission of the tender and the conclusion of the contract, including:
  - (a) The *Group leader* shall submit the tender on behalf of all *Group members* and indicate in the "Tender Contact Info" section in e-Submission the name and e-mail address of an individual - single point of contact authorised to communicate officially with the Contracting authority in connection with the submitted tender on behalf of all *Group members*, including in connection with all relevant questions, clarification requests, notifications, etc., that may be received during the evaluation, award and until the contract signature.
  - (b) The *Group leader* shall sign any contractual documents — including the contract, and amendments thereto — and issue any invoices related to the performance of the contract on behalf of all *Group members*.
  - (c) The *Group leader* shall act as a single contact point with the Contracting authority in the

delivery of the services and/or supplies subject to the contract. It shall co-ordinate the delivery of the services and/or supplies by the *Group* to the Contracting authority, and shall see to a proper administration of the contract.

Any modification to the present Power of attorney shall be subject to the Contracting authority's express approval. This Power of attorney shall expire when all the contractual obligations of the *Group* have ceased to exist. The parties cannot terminate it before that date without the Contracting authority's consent.

Place and date:

Name (in capital letters), function, company and signature:

#### Annex 4. List of identified subcontractors

Identification details	Roles/tasks during contract execution	Proportion of subcontracting (% of contract volume)
<i>[Full official name Registered address Statutory registration number VAT registration number]</i>		
<i>[Full official name Registered address Statutory registration number VAT registration number]</i>		
<i>[REPEAT AS MANY TIMES AS THE NUMBER OF IDENTIFIED SUBCONTRACTORS]</i>		
<b>Other subcontractors that do not need to be identified under Section 2.4.2</b>		
	<b>TOTAL % of subcontracting</b>	0,00%

## Annex 5.1. Commitment letter by an identified subcontractor

[Letterhead, if any]

EUROPEAN COMMISSION

Call for tenders Ref. CNECT/2020/OP/0055

Attn:

*[Insert date]*

### **Commitment letter by identified subcontractor**

I, the undersigned,

Name:

Function:

Company:

Registered address:

VAT Number:

having the legal capacity required to act on behalf of the company *[insert name of the entity]* hereby confirm that our company agrees to participate as subcontractor in the offer of *[insert name of the tenderer]* for the Call for Tenders CNECT/2020/OP/0055-EU Blockchain pre-commercial procurement-Lot 1.

In the event that the tender of the aforementioned tenderer is successful, *[insert name of the subcontractor]* commits itself to make available the resources necessary for performance of the contract as a subcontractor and to carry out the services that will be subcontracted to it in compliance with the terms of the contract. It further declares that it is not subject to conflicting interests which may negatively affect the contract performance and that it accepts the general conditions attached to the Tender Specifications for the above call for tender, in particular the contractual provisions related to checks and audits.

Done at:

Name:

Position:

Signature:



## Annex 5.2. Commitment letter by an entity on whose capacities is being relied

[Letterhead, if any]

EUROPEAN COMMISSION

Call for tenders Ref. CNECT/2020/OP/0055

Attn:

*[Insert date]*

### **Commitment letter by an entity on whose capacity is being relied**

I, the undersigned,

Name:

Function:

Company:

Registered address:

VAT Number:

having the legal capacity required to act on behalf of the company *[insert name of the entity]* hereby confirm that our company **authorises the *[insert name of the tenderer]* to rely on its financial and economic capacity in order to meet the minimum levels** required for the Call for Tenders CNECT/2020/OP/0055- \$ {LOT\_NUMBER}.

In the event that the tender of the aforementioned tenderer is successful, *[insert name of the entity]* commits itself to make available the resources necessary for performance of the contract. It further declares that it is not subject to conflicting interests which may negatively affect the contract performance, and that it accepts the general conditions attached to the Tender Specifications for the above call for tender, in particular the contractual provisions related to checks and audits.

Done at:

Name:

Position:

Signature:

## **Annex 6. Financial offer form**

See dedicated excel form

## Annex 7. Technical offer form

This technical offer form is structured around the award criteria that will be used to evaluate the quality of the offers. It also refers to related annexes specified in the Tender Specifications. The Tender Specifications provide more information about the Technical offer (section 4.2.1), the award criteria (section 3.4) and the PCP challenge objectives and its must-have and nice-to-have requirements (sections 1.4.2). The technical offer form is expected to contain a *detailed* technical offer for phase 1 and the *vision/objectives and plans* for phase 2A and Phase 2B. The technical offer must be submitted using this technical offer form. However, the tenderer is free to add additional annexes to this technical offer form that are already in another format (e.g. brochures of solution roadmaps etc.).

1. Methodology, Project Plan and Schedule (Quality criterion 1)
<b>1. Feasibility of the project methodology</b>
<ol style="list-style-type: none"><li>1. Describe the proposed approach and methodology for development, testing, and implementation, and more specifically for Phase 1 of the PCP. Describe the new proposed solution (and its components) to be developed, where new R&amp;D is focused, and why this approach is chosen compared to alternatives.</li><li>2. Make a separate description for the proposed approach and methodology for Phase 2A of the PCP. Include in particular your vision and plan for Phase 2A prototyping and lab testing.</li><li>3. Make a separate description for the proposed approach and methodology for Phase 2B of the PCP. Include in particular your vision and plan for Phase 2B final solution development and field testing.</li><li>4. Describe the use cases that the tenderer proposes to develop and/or put at the disposal of the PCP for testing purposes and indicate any datasets that the tenderer can make available for testing.</li><li>5. Describe the proposed methods for risk management and quality assurance.</li></ol>
<b>2. Feasibility of the project plan and time schedule</b>
<ol style="list-style-type: none"><li>1. Describe the proposed work plan and time schedule. Detail and demonstrate the consistency of the work plan and time schedule for the execution of the PCP, split into Phases 1-2A-2B. Include deliverables and milestones as detailed in the Tender Specification.</li><li>2. Describe the configuration of the tenderer (e.g. Consortium) and the role, activities and responsibilities of each entity (e.g. group leader, other consortium members and subcontractors, if any) in performing the contract. Include a list of personnel working on the contract (incl. for subcontractors), indicating clearly their role in performing the contract.</li><li>3. Demonstrate the appropriate allocation of resources (personnel + any materials, equipment, other expenses required to perform the PCP) to the tasks and deliverables.</li><li>4. Describe the proposed methods for project management and ensuring continuity and coordination within the project team.</li><li>5. Elaborate on your approach for selecting and managing your subcontractors, if applicable.</li></ol>
<b>2. Impact on Challenge (Quality criteria 2 to 6)</b>
Please describe your approach to ensure that the EU Blockchain PCP Objectives will be accomplished:
<b>Objective 1. Scalability</b>
<ol style="list-style-type: none"><li>1. Describe how your proposed solution will achieve the must-have requirements</li><li>2. Describe how your proposed solution will achieve the nice-to-have requirements</li><li>3. Describe how your proposed solution will be innovative in this domain</li></ol>
<b>Objective 2. Sustainability - environmental impact</b>
<ol style="list-style-type: none"><li>1. Describe how your proposed solution will achieve the must-have requirements</li><li>2. Describe how your proposed solution will achieve the nice-to-have requirements</li><li>3. Describe how your proposed solution will be innovative in this domain</li></ol>

<b>Objective 3. Security and privacy</b>	
1. Describe how your proposed solution will achieve the must-have requirements	
2. Describe how your proposed solution will achieve the nice-to-have requirements	
3. Describe how your proposed solution will be innovative in this domain	
<b>Objective 4. Object identification and data processing</b>	
1. Describe how your proposed solution will achieve the must-have requirements	
2. Describe how your proposed solution will achieve the nice-to-have requirements	
3. Describe how your proposed solution will be innovative in this domain	
<b>Objective 5. Robustness and technical maturity</b>	
1. Describe how your proposed solution will achieve the must-have requirements	
2. Describe how your proposed solution will achieve the nice-to-have requirements	
3. Describe how your proposed solution will be innovative in this domain	
<b>3. Commercial Viability (Quality criterion 7)</b>	
<b>1. Adequacy of the market analysis, viability of the business plan and appropriateness of the approach to handle potential commercialisation barriers</b>	
1. Submit a preliminary* business and commercialization plan that explains the proposed approach to commercially exploit the PCP Results and to bring a viable solution to market.	
2. Include your initial analysis of the market potential of the PCP Results on European and global scale. Identify potential barriers to wide scale deployment and how they are proposed to be tackled.	
3. Estimate the time to market for the PCP Results. Explain the underlying reasoning and major steps to reach wide scale deployment.	
<b>2. Feasibility of the proposed approach for protection, licensing, pricing and distribution of results</b>	
1. Explain the proposed approach regarding the protection of the Results of the PCP.	
2. Explain the proposed approach for licensing, pricing, and distribution of the PCP Results	
*More elaborated commercialisation plans shall be submitted for Phase 2.	
<b>4. Declaration of pre-existing rights (IPR)</b>	
Use <b>Annex 8</b> to provide a list of the pre-existing rights (Background) relevant to the Tenderer's proposed solution, in order to allow IPR dependencies to be assessed. A final list will have to be provided and will be agreed on within 2 weeks following the awarding of the Framework Agreement, see deliverable D1.1.	
<b>5. Declaration of potential security issues</b>	
Does this Tender involve activities or results that may raise security issues and/or EU-classified information as background or results? If YES, explain how these issues will be addressed and provide, in case EU-classified information is involved, a draft Security Classification Guide (SSG) that indicates the expected levels of security classification that are identified by the tenderer.	YES / NO

	I, the undersigned, being the authorised signatory of the Tenderer*, hereby declare to have provided accurate information in this Technical Offer Form and attached Annexes
Name of Tenderer*	
Name of Authorised Signatory	
Function	
Signature	
Date	
Stamp, if available	

*\*in case of a Joint Tender, this tender form should be signed by the Group Leader*

## Annex 8. List of pre-existing rights

I, [insert name of the authorised representative of the tenderer] representing [insert name of the tenderer] ('the tenderer') declare that the following list contains all the pre-existing rights of the tenderer as whole (including all members of the group in a joint tender, subcontractors and third parties on which the tenderer relies to fulfil some selection criteria) that are attached to the proposed solution or parts of the proposed solution in my technical offer for this call for tender.

Please fill in the table – one line per pre-existing right

<b>Part / aspect of the proposed solution concerned</b>	<b>Pre-existing material concerned</b>	<b>Rights to pre-existing material</b>	<b>Identification of rights' holder</b>

Date, place, signature

## Annex 9. Declaration of ownership and control

### Entity

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Legal name	
Place of establishment (full address)	

### Headquarters

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Location of global headquarters/head office (full address)	
Place of establishment of the Executive Management Structure <sup>35</sup>	

### Listed company, subsidiary or controlled company

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The entity is listed on a stock exchange	[yes/no]
The entity is a subsidiary of a listed company	[yes/no]
The entity is controlled by a listed company	[yes/no]

If the reply is yes to any of these three questions, please:

1. Provide:

Legal name of the listed company	
Share of the float in the total outstanding shares	

1. Attach the report/minutes of the last three (3) shareholders meetings.

### Ownership structure and specific rights (i.e. shareholder rights)<sup>36</sup>

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The following ultimate owners:

1. ultimately detain, directly or indirectly, at least 5% in the capital or at least 5% of the voting rights in the entity including through any content, understanding, relationship<sup>37</sup> or intermediary;
2. have one or more of the following specific rights in relation to their ownership:

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<sup>35</sup> Executive management structure means a body of an undertaking appointed in accordance with national law, and, where applicable, reporting to the chief executive officer, which is empowered to establish the undertaking's strategy, objectives and overall direction, and who oversees and monitors management decision-making.

<sup>36</sup> 'Control' can be granted to non-EEA country shareholders through extensive rights attached to their shares, such as right to veto a transfer of shares, pre-emption rights (right given to an existing shareholder to be the first option in case other shareholders want to sell their shares), right of the third-country shareholder to sell its shares (depending on the applicable conditions), right to purchase additional shares or conditions for the investment in the company imposed by the non-EEA country shareholder.

<sup>37</sup> This namely includes voting agreements between shareholders that would together have more than 5% of the voting rights or 5% of the capital.

- right to veto a transfer of shares
- pre-emption rights
- right to purchase additional shares or investment subject to conditions
- right to sell shares *[only for owners are not established in the European Union and other EEA countries (i.e. company) or do not have the nationality of one of the EU Member States or other EEA countries (i.e. individual) and holding more than 5% of the voting rights]*

Company or individual name	Country of registration (company) or nationality (individual)	How is the ownership held or control detained		Specific rights attached to shares detained
		By share [%]	By voting right [%]	

## Corporate Governance<sup>38</sup>

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The following individuals from third countries that are not EEA countries and the following companies owned by third countries that are not EEA countries or by entities registered in third countries that are not EEA countries, exercise decisive influence over the corporate governance of the entity:

Company or individual name	Country of registration (company) or nationality (individual)	Channel of decisive influence	Type of decisive influence

If there are such individuals or companies, please describe briefly in the table (and/or include detailed reference(s) to the sections/paragraphs of the relevant corporate documentation), through which channel they are able to exercise decisive influence:

1. The decision-making bodies in the company and their composition;
2. The relevant rules regarding election, appointment, nomination or tenure of members of the decision-making bodies or other management positions;
3. The decision-making procedures, including information regarding the required majority and/or quorum needed for decisions.

Describe also briefly in the table what type of decisive influence they are able to exercise (e.g. rights to take specific actions, veto rights, abstention rights etc.) on strategic business

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<sup>38</sup> Decisive influence over corporate governance refers to decisive influence over strategic business decisions such as appointment and removal of senior management, budget, investment plans, market-specific decisions



decisions such as appointment and removal of senior management, budget, investment plans, market-specific decisions.

### **Commercial or financial links conferring control<sup>39</sup>**

The following individuals from third countries that are not EEA countries and/or the following companies owned by third countries that are not EEA countries or by entities registered in third countries that are not EEA countries, have an important contractual commercial relationship with the entity<sup>40 41</sup>:

Company or individual name	Country of registration (company) or nationality (individual)	Contract type <sup>42</sup>	Indicative amount

The following shareholders/owners and companies directly or indirectly controlled by the same shareholders/owners, provide financing to the entity:

Company or individual name	Country of registration (company) or nationality (individual)	Financing type <sup>43</sup>	Indicative amount

### **Other sources of control<sup>44</sup>**

Please indicate in the box if there is any other mean, process or link ultimately conferring control to a third country that is not an EEA country or an entity of individual from a third country that is not an EEA country.

<sup>39</sup> 'Commercial dependence' may consist in a cooperation between two entities, or may take the form of a joint venture, or purchase and sale of goods between a shareholder from a non-EEA country and the entity. To the extent that the entity is dependent on such cooperation with the non-EEA country shareholders, the latter could gain strategic influence over the former. A customer or supplier from a non-EEA country might exercise the same dependence, even if it is not a shareholder, in cases of long-term supply or buy agreements that allow it to decide on the commercial strategy.

'Financial dependence' could be exercised when the entity is financially dependent on the contribution from non-EEA country shareholder. Due to this financial dependence, the non-EEA country shareholder is in a position to obtain concessions in strategic areas. To assess the degree of financial dependence, it needs to be assessed whether the non-EEA country shareholder contributed to the financing of the entity in a proportion higher to its shareholding. All modes of financing should be taken into account, such as capital increase, loans, guarantees, debt waivers bails and grants.

<sup>40</sup> The contractual relationship must (1) lead to a similar control of the management and the resources of the entity as in the case of ownership of shares or assets and (2) be characterised by a very long duration.

<sup>41</sup> Examples also include very important long-term supply agreements or credits provided by suppliers/customers, coupled with structural links.

<sup>42</sup> Supplier, customer...

<sup>43</sup> This includes loans, guaranties, bond subscriptions, conversion of debt into capital or other form of financing.

<sup>44</sup> This refers to other sources of 'control' that might exists and are specific to each case.

## Attestation

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I, the undersigned, confirm for [myself]/[the entity I represent] that at the date of signature:

- the present declaration is true and sincere;
- all the information provided regarding ownership and control is accurate and reliable;
- to the best of my knowledge, there are no other arrangements or coordination between shareholders not established in the European Union or other EEA<sup>45</sup> countries (i.e. company) or not having the nationality of one of its Member States or other EEA countries (i.e. individual) that would together exercise control;
- to the best of my knowledge, there are no other financial or commercial links with non-EEA third countries or non-EEA third-country entities conferring control;
- [I am]/[my entity is] not subject to control by a non-EEA third country or by a non-EEA third-country entity;
- I am aware that any false declaration will be considered at least as a serious irregularity leading to the cancellation of the grant agreement. Furthermore, the applicant's organisation may be subject to an exclusion up a maximum duration of 3 years under the provisions of Article 136(1) point c) and 139(1) point b) of the Financial Regulation and/or to a financial penalty of up to 10% of the procurement contract allocated to the applicant's organisation. Such exclusion and/or financial penalty may be published on the internet website of the Commission.

[Date] \_\_\_\_\_

[Name & Position] \_\_\_\_\_

[Signature] \_\_\_\_\_

### Confidentiality Clause

*Please note that Article 339 of TFEU requires the Commission, their officials and other servants, even after their duties have ceased, not to disclose information of the kind covered by the obligation of professional secrecy, in particular information about undertakings, their business relations or their components. Further, this information may only be used for the purposes of the evaluation of tenders for this EU Blockchain pre-commercial procurement. If you believe that your interests would be harmed if any of the information you are asked to supply were to be disclosed, please submit this information clearly marked 'Confidential'<sup>46</sup> or 'Business Secrets'. You should also give reasons why this information should be covered by the obligation of professional secrecy.*

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<sup>45</sup> The EEA consists of all EU Member States, Norway, Liechtenstein and Iceland: [https://eeas.europa.eu/diplomatic-network/european-economic-area-eea\\_en](https://eeas.europa.eu/diplomatic-network/european-economic-area-eea_en)

<sup>46</sup> For the purpose of this declaration, the term 'confidential' shall not be read as the security classification marking 'confidential' referred to in Commission Decision (EU, Euratom) 2015/444 of 13 March 2015 on the security rules for protecting EU classified information, OJ L 72 of 17.3.2015, p. 53.