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Market consultation

Open-source software development for a secure 'branch-register service', implementing the key service of the iSHARE trust framework for controlled federated data sharing (data space) in professional ecosystems.

Digitale Infrastructuur Logistiek / Data In Logistics

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Market Consultation

This document is to obtain a market consultation on the development of open source software for a secure ‘branch-register service’ (BRS), implementing the key service of the iSHARE trust framework for the Basic Data Infrastructure (BDI).

Reactions by parties:

- interested in bidding for the subsequent tender for development.
- interested in trust and security implementations in data spaces.
- interested in applying the BDI framework from an IT-perspective.
- interested in the iSHARE framework form an IT-perspective
- interested in IT-security

are welcomed.

The market consultation is issued by Stichting Connekt, (www.connekt.nl) acting on behalf of the Ministry of Infrastructure and Waterworks, in the context of the Data in Logistics (DIL) program

More information can be found on:

<https://topsectorlogistiek.nl/dil-faciliteert-informatie-uitwisseling-tussen-partners-in-de-logistieke-keten/> .

BDI

The BDI is an open, private-public framework for controlled federated data sharing (in a data space) in professional ecosystems, initiated by the Ministry of Infrastructure and Waterworks.

Many data spaces are focused on creating a controlled market place for data (data economy).

The BDI has a different focus, solving operational issues in professional ecosystems:

- Coordination between many parties involved in creating a result.
 - o For example in logistics, construction, engineering and contracting, military, large events
 - o B2B and B2G (customs and other authorities)
- Controlled access to information, resources and locations
 - o Need-to-know basis access to information.
 - o Automated verification of mandates and permissions between parties
 - o Prevention of criminal activities
- Contractual event automation
 - o In interactions between commercial parties, for example paperless transport

This focus leads to specific requirements and services for a BDI-ready data space.

- The iSHARE Trust Framework for Data Sharing is the foundation for federated Trust in the BDI
 - o Federation is a necessity in international ecosystems, spanning continents with different nation states/blocks and legal systems.
- Accessing “data at the source” permits autonomy of the Data Owner¹
- Fine-grained authorization with delegation is supported by decentralized Authorization Registers controlled by Data Owners

¹ Similar to PSD2 access of bank accounts

- Federated Mandate Registers of organizations to support controlled access to locations (persons)
- Publish and Subscribe of events to facilitate efficient coordination²

The Data in Logistics (DIL) program is one of the key engines for development, testing and hardening the BDI, in the context of international multimodal supply chains.

Trust and Security

Federated trust and excellent security, in an enterprise level implementation, are key requirements in the context of DIL.

In this document the following definitions are used:

- **Security** - The design and implementation of measures that create resistance against the detrimental effects of human error, weaknesses, or attacks by malicious actors (resilience). From IT security (development stack, libraries, code design) to Operational Security (employees cannot access databases), to logs, daemons and trigger warnings (detecting anomalous behavior).
- **Trust** - The design and implementation of measures that evaluate the chain of trust per presented credential by any party: the decision to accept a certain level of trust is dependent on the risk of making a mistake. From IT-credentials (certificates), to checking which organization has certified the subject, and against what scheme³, to following the trust chain to the Trust Anchor (for example checking if a verifiable credential has been revoked).

DIL has identified the need to create an open-source reference implementation of the **BRS**, one of the key components in the BDI framework, designed and built to the high standards required in this context.

Branch-Register Service

A Data Space consists of a federation of cooperating members, voluntarily adhering to a framework which brings value for the members. The federative aspect can be identified in:

- All members are sovereign in their decisions and investments and operations.
- The cooperation in adhering to a framework creates a value that is more than sum of the parts.

Any formal cooperation requires a nexus, a common entity to administer the cooperation. The iSHARE Trust Framework stipulates that this cooperation has a formal legal basis and an operational IT service that supports real-time authentication and trust assessment of members. Onboarded members can be authenticated real-time via an API to the service that registers Members and trusted guests. Contractual obligations for accessing and using data can be signed automatically via the support of the service.

A complex international data space will consist of many local cooperatives: the (current, to be finalized) naming convention is:

² Similar to Instant Payments

³ NL: Afsprakenstelsel

- “Branche” for a local cooperative with members
- “Chapter” for a group of cooperating “Branches”
- “Data Space” for a group of cooperating “Chapters”

The name “Branche Register Service” refers to this naming convention, and identifies the IT-service supporting the operational work of these entities.

A BRS needs to be able to authenticate members of other Branches in the data space, by accessing on-demand other BRS-es.

A BRS is a key component in the implementation of the iSHARE Trust Framework.

Development process

The process that has been started is:

- Define federated Trust and Security principles for this context.
- Define draft specifications for an implementation of the BRS.
- Formal security review of the draft specifications of the BRS
- **Market consultation on designing and building an open-source version of the BRS**
- Tendering the design and build of the BRS, version 1.
- Test the BRS in practice in DIL.
- Improve where necessary.
- Release the open-source version for the BDI-community and the iSHARE community

Most likely other components will undergo the same process at a later stage.

Market consultation on designing and building an open-source version of the BRS

The market consultation is focused on:

- Identifying how to optimize the specifications and security review in the balance between
 - o Clear and testable specifications
 - o Getting the desired result: hardened open source version in an acceptable timespan and within financial budgets
 - o Enough room in the specifications to let interested builders add their knowledge during development.
- Identifying innovations that may add value and could be incorporated in the specifications.
- Identifying which tender and contractual approach has the best fit to the market.
- Optimize the tender to attract qualified parties.

Process

1. Call for interest.

Interested parties can make their interest known by email to chelsea.room@datainlogistics.nl

Closing date 2023/12/10

Such parties will receive a draft version of selected parts of the documentation.

2. Explanation and Q&A

Interested parties that have identified themselves are invited to the Information Meeting where more details will be presented. A Q&A session is part of the meeting.

3. Open and confidential reactions

Interested parties may react in writing or in a private meeting. Submissions may be labelled “open” or “confidential”. Open submissions will be anonymized. Confidential submissions only will be used to assess the above questions and formulate generic observations and conclusions.

4. Integration and publication

All reactions will be converted into a public integrated report with generic observations and conclusions.

Planning

Information Meeting and Q&A: December 14, 2023. 10-12 hrs, Connekt, Delft

Communication

Interested parties can make their interest known by email to chelsea.room@datainlogistics.nl

Questions and submission can be directed to chelsea.room@datainlogistics.nl.