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FRAUNHOFER INSTITUTE FOR INTELLIGENT
ANALYSIS AND INFORMATION SYSTEMS IAIS

ENTERPRISE DATA MARKET



SOLID SOLUTIONS FOR DATA EXCHANGE

SEMANTIC TECHNOLOGY FOR DATA SHARING

SHARING AND MONETIZING DATA ASSETS

Data is a key asset for enterprises, providing for a powerful source of competitive advantage. Companies stand to make profit selling data as well as data-driven services, whereas other businesses benefit from buying or renting the required data. The demand for both Data-as-a-Service (DaaS) and Software-as-a-Service (SaaS) has increased with time.

Data Exchange between enterprises needs a solid solution to cover the diverse issues behind it, including the infrastructure, semantic linking, pricing, security and access control. Our expertise lies in establishing an “Enterprise Data Market” based on the principles of on-demand data sharing, lightweight semantics and secure roles. Applying this solution brings enterprises closer to participating in a globalized data market.



Interactions between vendors and customers through the Enterprise Data Market

Secure apps, authorized access, different pricing models

The Enterprise Data Market models enable data sharing through direct means or the use of secure apps based on authorized access and pricing models. Different kinds of apps can be designed, whose function ranges from simple data querying to more complex data processing, analyzing and forecasting based on the retrieved data.

A catalog of apps is part of the solution for a collaborative platform supporting the Software-as-a-Service model. Data consumers can browse and purchase useful datasets and search for needed applications in the Data Market. Purchased apps can be remotely executed on the desired dataset, which is retained at source, in order to obtain the relevant results. In this manner, data owners retain full control on their data. Apps can also handle data from multiple sources, and multiple data owners.

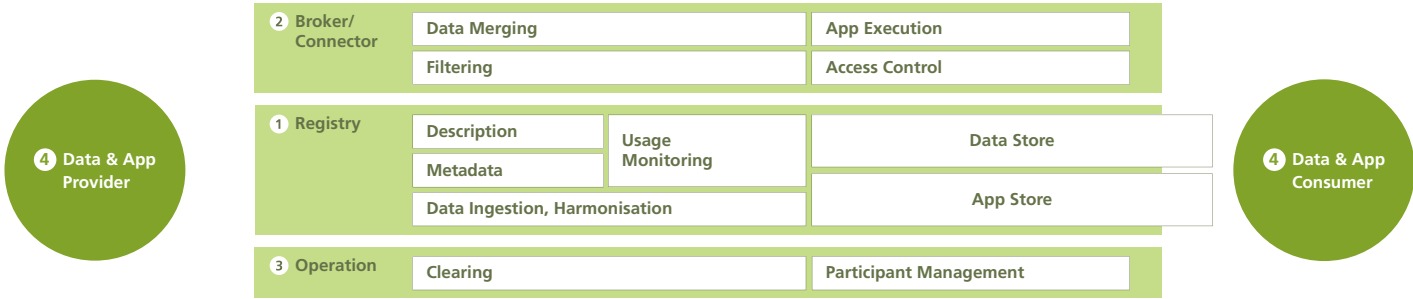
THE ARCHITECTURAL & FUNCTIONAL CONCEPT: SYSTEM COMPONENTS

The basic Enterprise Data Market solution consists of three main conceptual layers and two participant roles. The architecture is flexible and comprises four layers of functionality:

- 1 **The Registry** serves as an entry point to datasets made available by participating data owners, and is responsible for storing:
 - A. data, or secure links to remote data that is retained at source
 - B. applications, which range from simple apps providing secure access to data to more complex apps offering operations on data (e.g. analysis, stream and batch processing)The registry provides a harmonized access interface to the diverse native data formats, using an internal unified data model. It allows the registration of cleared apps which authorized users can apply to over specified data sources to return data in a secure fashion. Usage monitoring can serve

as the basis for updating the cost model for specific data sources, based on demand.

- 2 **The Broker** (alt. called **Connector**) has a trusted central role to handle data operations, i.e. connecting data owners and end-users by establishing interoperation between them. It facilitates the purchasing of DaaS, SaaS and the execution of purchased apps, combining and returning results to the consumers.
- 3 **The Operation** layer provides the foundation to run business processes on the Data Market. These would involve, among others, clearing transactions or ensuring participant identities and authorization.
- 4 **Participants** include **Data & App Providers** and **Consumers**. Further roles can be supported, including an administrative operator, a certification authority for apps and participants, or auditors to oversee financial transactions.



WE OFFER

- Customized infrastructure and software framework for exchanging data and applications.
- Enable vendors to offer DaaS and SaaS services and to define their own access model.
- Setup secure, reliable and customized Data Access Endpoint for the Data and the Apps.
- Support different pricing models: by volume, usage or data type.
- Provide access control to semantically related federated data.
- Provide guide for developers to implement their apps and the infrastructure components.
- Data integration of heterogeneous data to provide additional business value.
- Dashboard with statistics, facts and figures about the Enterprise Data Market usage.

About Fraunhofer IAIS

Fraunhofer IAIS is a leading scientific institute specializing in applied research into intelligent data and knowledge analysis. Approximately 200 data scientists and IT experts support companies and organizations putting intelligent information management into practice. There is a particular focus on the analysis, access and targeted use of Big Data, new media technologies and solutions for innovative business and security processes. Artificial Intelligence and Deep Learning methods open up new possibilities for linking knowledge and for developing new data-driven business models.

Industrial Data Space

Fraunhofer IAIS has a long track record in supporting the industry to realize large infrastructure projects for Big Data. It is one of the founding members of the “Industrial Data Space” project, where an ecosystem is being developed to drive an industrial data market. This initiative aims at creating a secure data space that supports enterprises of different industries and sovereign sizes in the autonomous management of data.

www.industrialdataspace.org/en/

Reference Architecture Model



Read Whitepaper



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