FA³ST Ecosystem

Motivation

The Asset Administration Shell (AAS) is the key to efficient management of digital twins. However, many companies face challenges: heterogeneous data sources, complex specifications and high implementation costs.

FA³ST Ecosystem - A holistic approach for AAS

The FA³ST Ecosystem is a modular, open platform that supports companies of all sizes in setting up and using AASs. Thanks to AI-supported technologies, the creation and management of AAS is not only simpler, but also smarter and more scalable. The standard-compliant architecture enables seamless integration into existing systems and significantly reduces the implementation effort.

Why the FA³ST Ecosystem?

With FA³ST, you can rely on a powerful, future-proof and AI-supported solution for managing your digital twins. Companies benefit from:

- **AI-supported automation:**
  Reduction of manual effort in the creation and optimization of AASs and DPPs from heterogeneous data sources.
- **Standard compliance & interoperability:**
  Full compliance with AAS specifications.
- **Simple integration:**
  Open interfaces and REST APIs for easy connection to your IT landscape.
- **Reduced costs & time:**
  Automation and validation minimize errors and save valuable resources.
- **High benefits for digital product passports and circular economy:**
  Efficient provision and management of product data.

Take the next step into the digital future with FA³ST!

Find out more:

www.iosb.fraunhofer.de/faaast-ecosystem-en

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FA³ST Ecosystem

AI-empowered AAS and DPP management

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The components of the FA³ST Ecosystem in detail

1. FA³ST CreAItor – AI-supported creation of AAS
The FA³ST CreAItor uses state-of-the-art Large Language Models (LLMs) to automatically generate AASs from documents, tables and other data sources.

- Automatic extraction of AAS information from PDFs, Excel and other sources
- AI-supported error detection and optimization
- Time savings through automated instantiation of AAS submodels

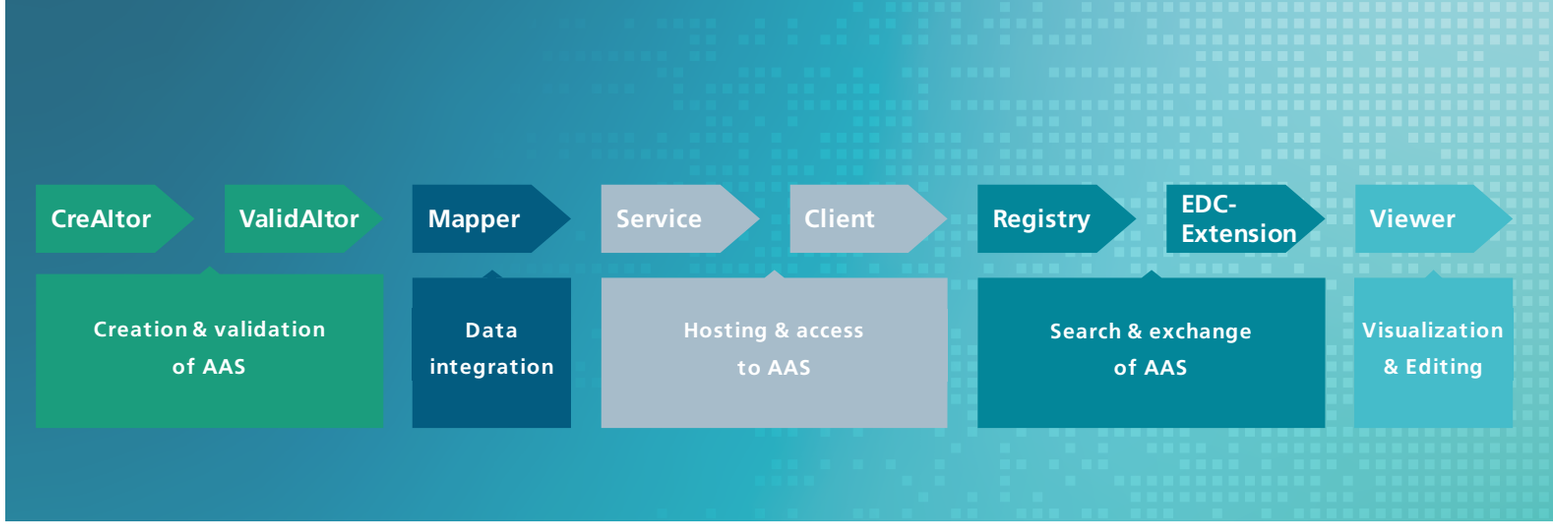
2. FA³ST ValidAItor – Quality assurance for AAS
The FA³ST ValidAItor ensures that your AASs comply with current standards. It analyzes, validates and identifies possible deviations that can be corrected directly.

- Automatic detection of deviations from submodel standards
- Visualization of errors and opportunities for improvement
- Direct correction suggestions

3. FA³ST Mapper – Efficient creation of asset connections
The FA³ST Mapper enables the simple and intuitive creation of mapping rules between assets (using OPC UA, MQTT, HTTP) and AAS submodels.

By visually representing both data structures, mappings can be efficiently created and exported as asset connections to ensure seamless synchronization between assets and AASs.

- Visual creation of mappings
- Simplified data integration
- Time savings through automated configuration of the asset connection



Components of the FA³ST Ecosystem.

4. FA³ST Service – Provision and hosting of AAS
The FA³ST Service is a standards-based server solution for managing and providing administration shells. Thanks to the REST API, it can be seamlessly integrated into existing IT systems and serves as the basis for exchanging digital product information.

- Provision of AAS as a web service
- REST API for easy connection of third-party systems

5. FA³ST Client –
Simple integration into company applications
The FA³ST Client enables simple communication with AAS servers and registries. The Java library supports the integration of administration shells into existing applications.

- Standardized API for interaction with AAS
- Seamless integration into Java-based applications

6. FA³ST Registry – Central administration of AAS
The FA³ST Registry serves as a centralized directory for AASs and submodels. It makes it easier to find and manage digital twins.

- Efficient management and findability of AAS
- Standardized interfaces

7. FA³ST EDC-Extension – Secure data space for AAS
The FA³ST EDC-Extension extends the Eclipse Dataspace Connector (EDC) and enables the secure exchange of AAS data between companies.

- Secure and standards-compliant data exchange
- High degree of data sovereignty
- Integration into existing EDC infrastructures

8. FA³ST Viewer – Intuitive visualization of AAS
The FA³ST Viewer enables the user-friendly and ergonomic visualization of an AAS, its submodels and properties so that end users can quickly grasp and understand the contents of an AAS.

- Intuitive visualization of AAS and submodels
- Simple and ergonomic user interface
- Real-time display of changes to the data