ONTO COMMONS
ONTOLOGY-DRIVEN DATA DOCUMENTATION FOR INDUSTRY COMMONS

An industrial demonstrator

FAIRness at OAS

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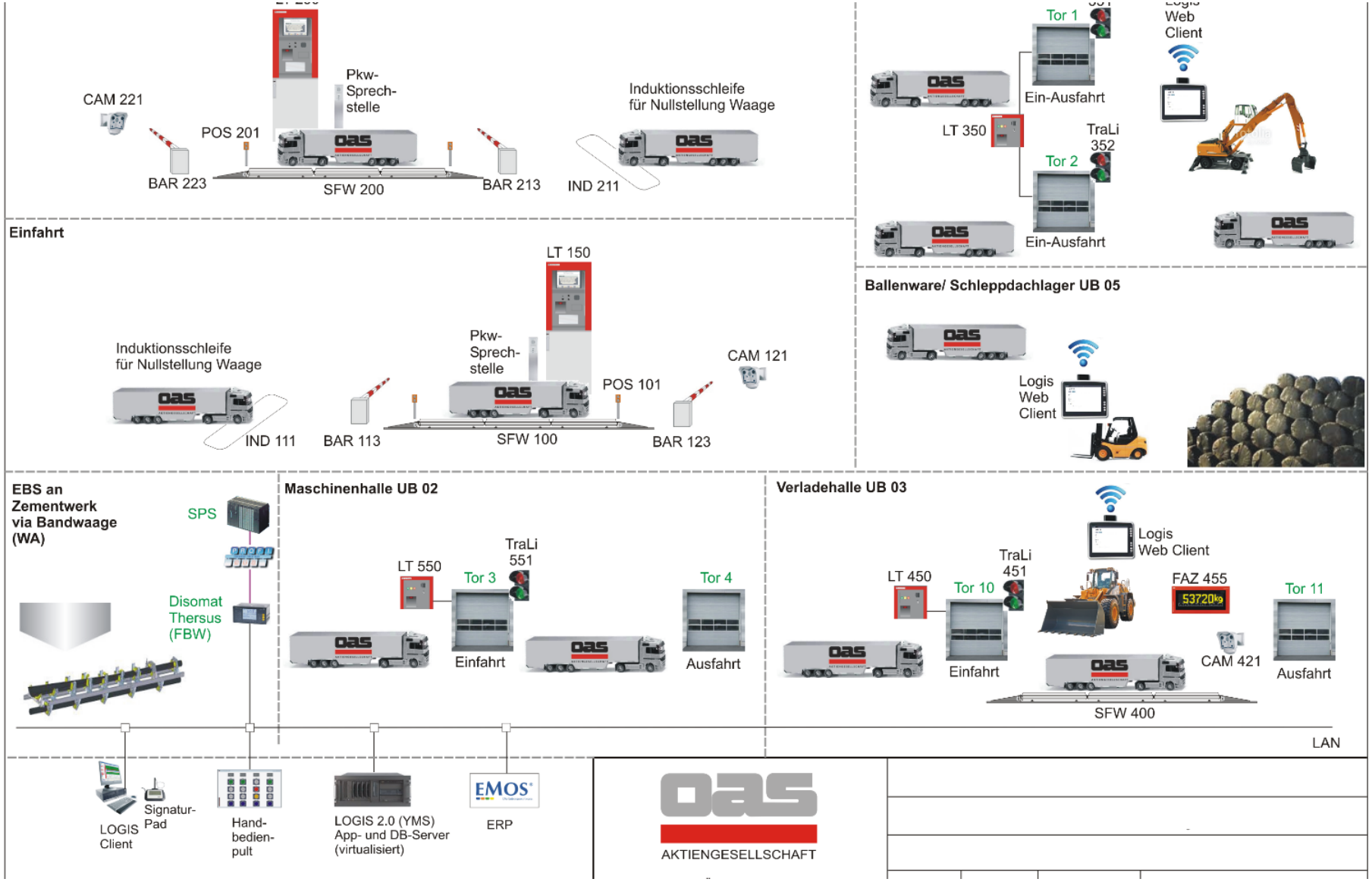
FAIRness of the OAS demonstrator

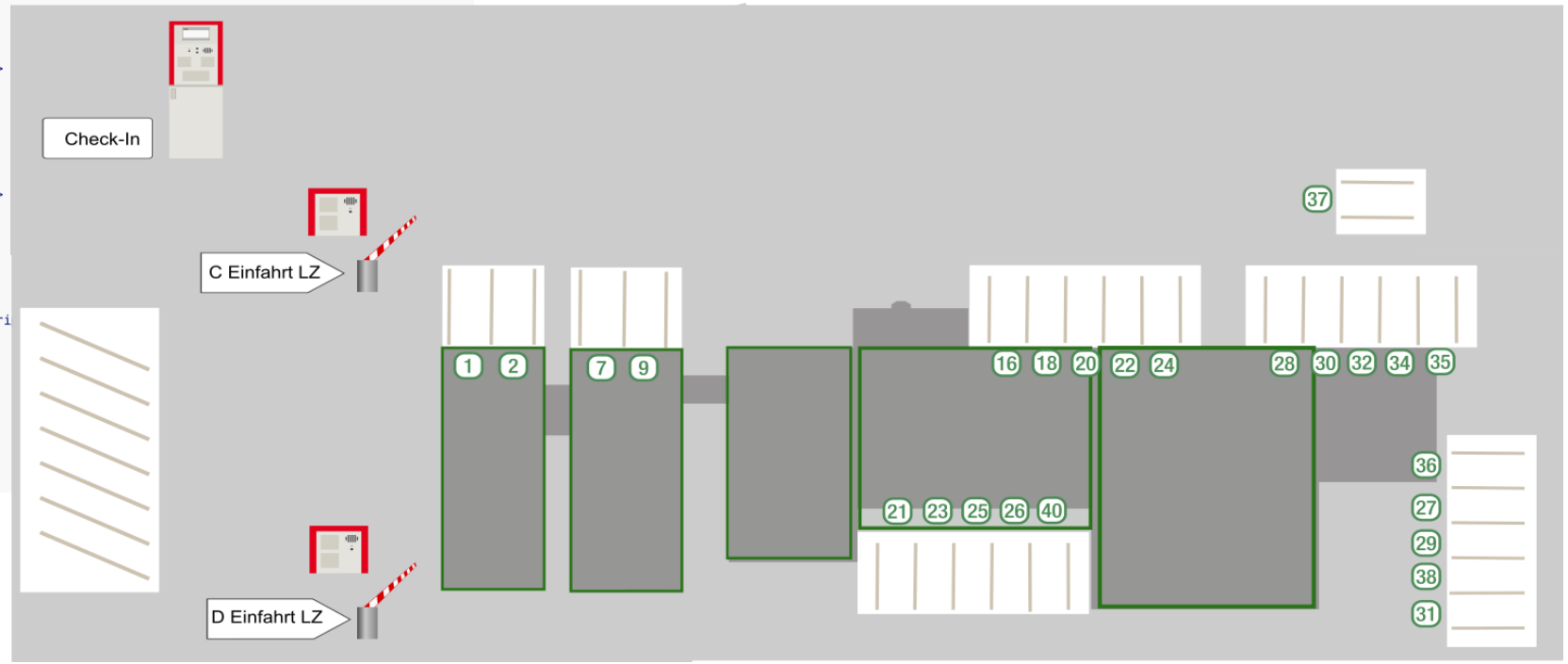
- OAS is a company specialized in
  - Weighing systems
  - Plant construction
  - Process control technologies
  - **Yard Management**
- The demonstrator within OntoCommons aims at improving effectiveness and responsiveness of decision-making in logistics control systems based on data sharing built around big volume data streams semantically described by dedicated PSS ontologies
- Data analysed: Yard Management – Site Definition - Site.xml

Yard Management



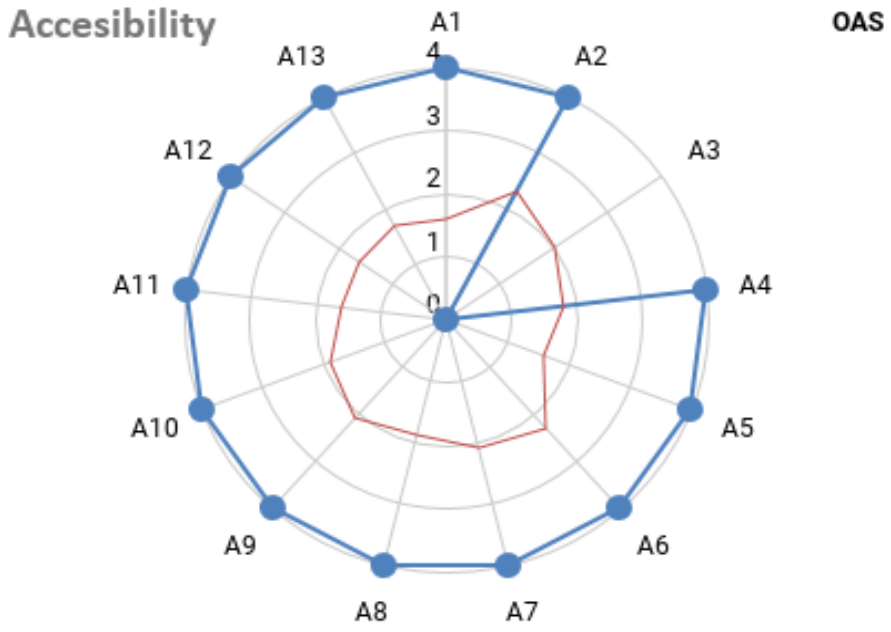
Example of a Site Definition

```xml
<?xml version="1.0" encoding="utf-8"?>
<Site xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <Name>ReferenceSite</Name>
    <Version>1</Version>
    <CurrentSiteEnvironment>DefaultEnvironment</CurrentSiteEnvironment>
    <Modified>2020-05-22T12:34:56.7899999Z</Modified>
    <ModifiedBy>Pylod</ModifiedBy>
    <Location>Reference Site Location</Location>
    <Description>Reference Site - can be used to create developer-specific sites for local testing</Description>
    <Objects>
        <Object>
            <Bmk>WB02</Bmk>
            <Name>Waage Ausfahrt</Name>
            <TypeId>SCALES</TypeId>
            <Description>Ausgangswaage</Description>
            <Version>1.0.0.0</Version>
        </Object>
        <Object>
            <Bmk>WB04</Bmk>
            <Name>Waage Einfahrt</Name>
            <TypeId>SCALES</TypeId>
            <Description>Eingangswaage</Description>
            <Version>1.0.0.0</Version>
        </Object>
        <Object>
            <Bmk>PA001</Bmk>
            <Name>Parkbereich Check-In</Name>
            <TypeId>PARKAREA</TypeId>
            <Description>Parkbereich Check-In</Descri
            <Version>1.0.0.0</Version>
        </Object>
    </Objects>
    <ObjectLinks>
        <ObjectLink>
            <Name>WaagenLink</Name>
            <From>WB02</From>
            <To>WB04</To>
            <Type>Correlated</Type>
```

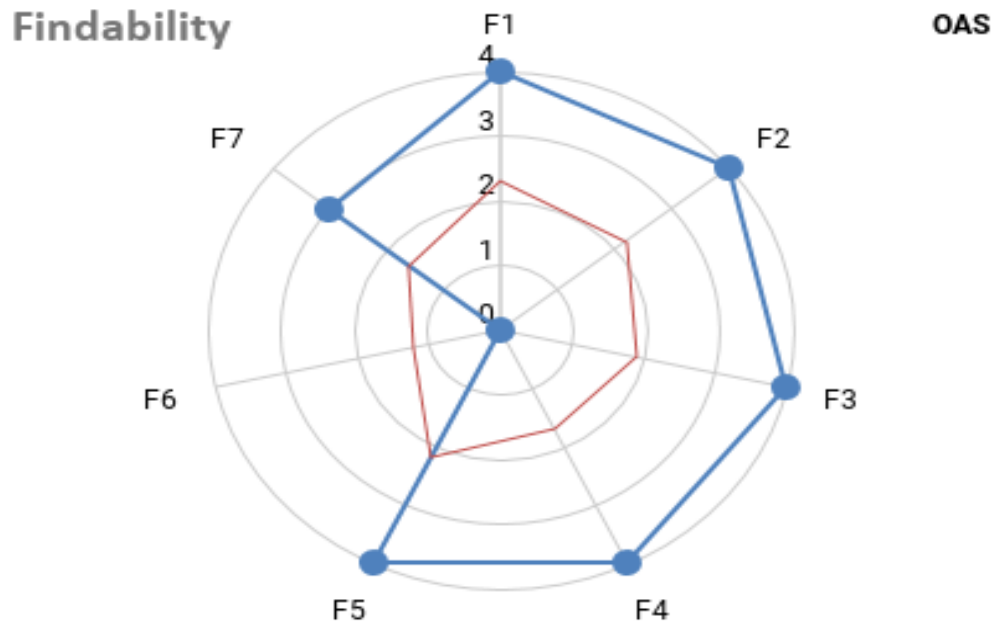


Assessibility (some answers)

- Fully implemented:
  - Metadata contains information to enable the user to get access to the data and can be accessed manually
  - Metadata identifier resolves to a metadata record & Data identifier resolves to a digital object
  - Metadata and Data are accessed through a standardised (free access) protocol & can be accessed automatically
- Being implemented:
  - Metadata is offered in such a way that it can be harvested and indexed

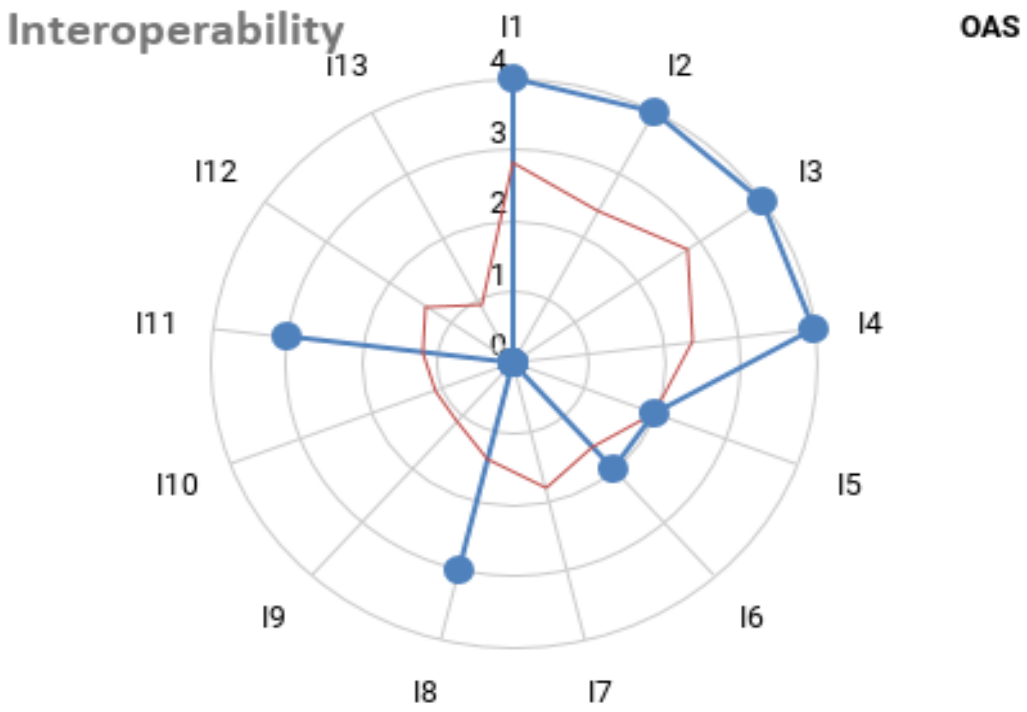


Findability (some answers)



- Fully implemented:
  - Metadata and Data are fully identifed by a persistent identifier
  - Metadata and Data are identified by a globally unique identifier
  - Rich metadata is provided to allow discovery
- Being implemented:
  - Metadata to be offered in such a way that it can be harvested and indexed

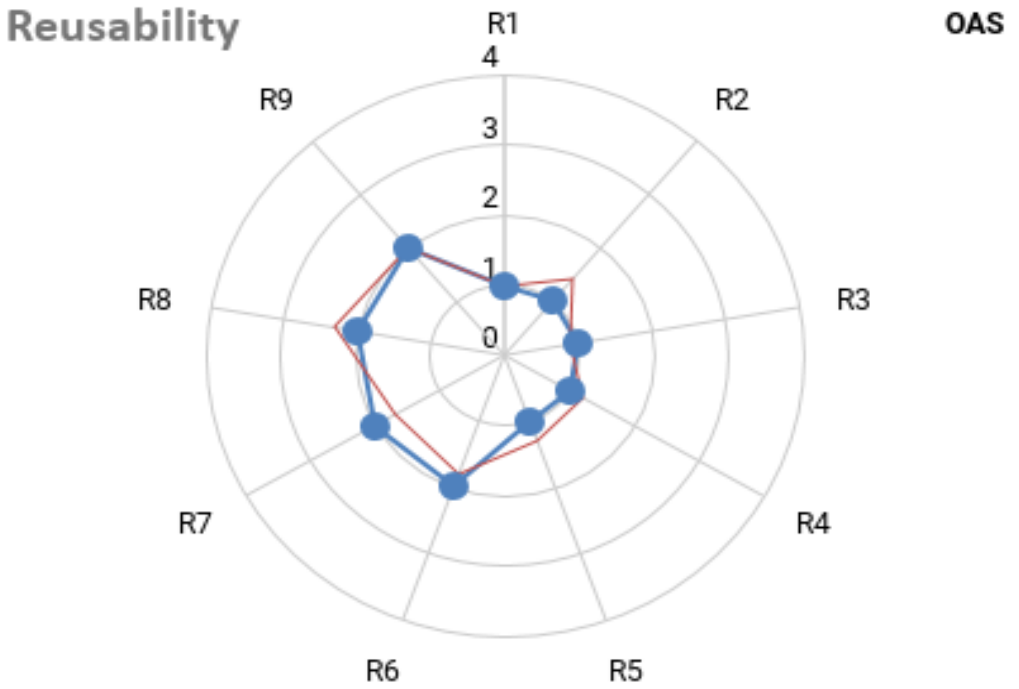
Interoperability (some answers)



- Fully implemented:
  - Metadata and Data uses knowledge representation expressed in standardised format
  - Metadata and Data uses machine-understandable knowledge representation
- Being implemented:
  - Data includes references to other data
- Under consideration / planning
  - Metadata and Data uses FAIR-compliant vocabularies

Reusability (some answers)

- In the planning phase
  - Metadata and Data complies with a community standard
  - Metadata and Data is expressed in compliance with a machine-understandable community standard (e.g. an ontology)



FAIRness of the OAS demonstrator - Challenges

- The OAS use case in terms of “FAIRness”:
  - In accessibility and findability dimension, most applicable principles already in a fully implemented stage
    - OAS uses the Yard Definition in current SW development and in their products
  - There is room for improvement regarding Interoperability and especially Reusability dimensions
    - Yard Definition is only used internally up to now and grew over time without a defined plan with respect to interoperability & reusability
- Challenges
  - How to improve Interoperability of data outside of OAS Ecosystem
  - How to improve Reusability of data outside of OAS Ecosystem

FAIRness of the OAS demonstrator - Opportunities

- Use OntoCommons best practices to achieve a higher FAIRness level
  - Using OntoCommons LOT methodology and OntoCommons tools to build domain ontologies that will form the metadata basis of the Yard Management ecosystem data
  - Using ontologies to facilitate both
    - interoperability (by using qualified references to other metadata) and
    - reusability (by expressing metadata and data with community standards)

ONTO COMMONS

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