Status and plans for ISO 23726 Part 1 - Overview and fundamental principles

First draft of ISO/PWI 23726-1 for review in the IDO core group
2025-09-15

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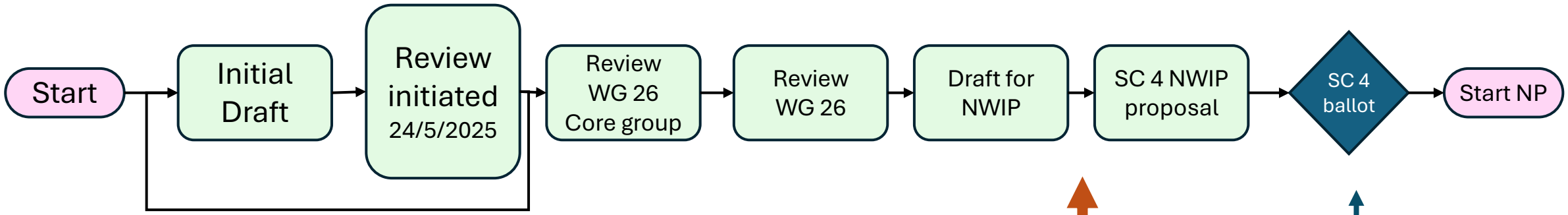
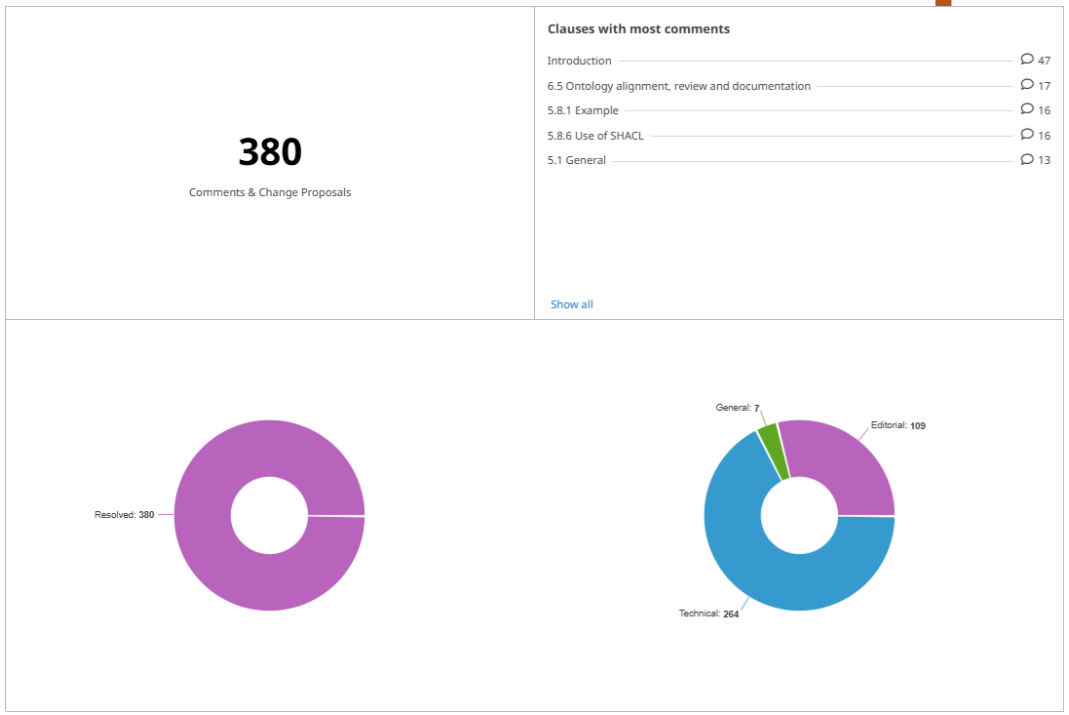
ISO/PWI 23726-1 schedule





ISO TC 184 SC4 90th Plenary in Nagasaki October 2025

29 comments are taken over as issues in GIT hub to be discussed deeper. They are resolved in OSD as noted.

Updated 25/9/15

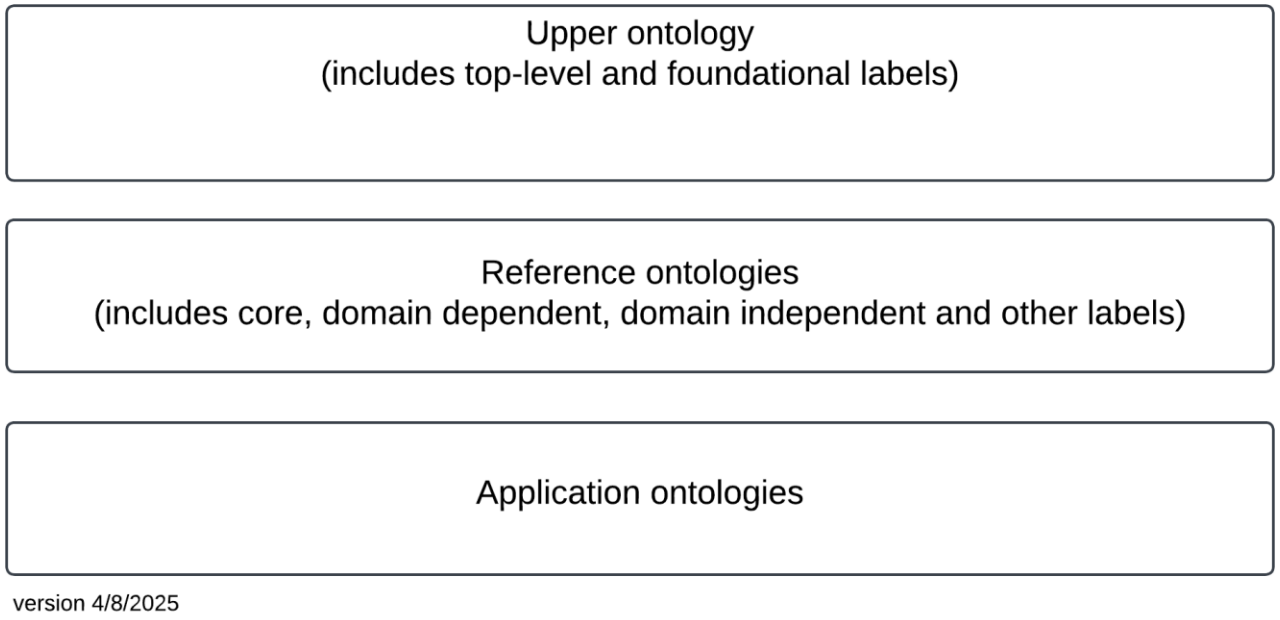
Content of *ISO/PWI 23726-1 Overview and fundamental principles*

- Foreword
- Introduction
- Scope
- Normative references
- Terms and definitions
- Parts in the OBI series
    1. Overview and fundamental principles
    2. Vocabulary
    3. Industrial Data Ontology
    4. Schedule Data Ontology
- OBI ecosystem
    1. General
    2. Stakeholders in the OBI ecosystem
    3. Reference ontologies
    4. Ontology alignment
    5. Reference data libraries
    6. Relationship to Semantic Web technologies
    7. RDF vocabularies
    8. Modelling templates, patterns and data quality rules
- Fundamental principles
    1. Direct Semantics consistent
    2. Resource description framework (RDF and RDFS)
    3. Digital resource
    4. Axioms, rules and constraints
    5. Annotation
    6. Ontology alignment, review and documentation
    7. Versioning and storage of artefacts
    8. Ontology modularization and re-use
    9. Ontology evaluation
    10. Ontology maintenance agencies and process

Current draft has 36 pages

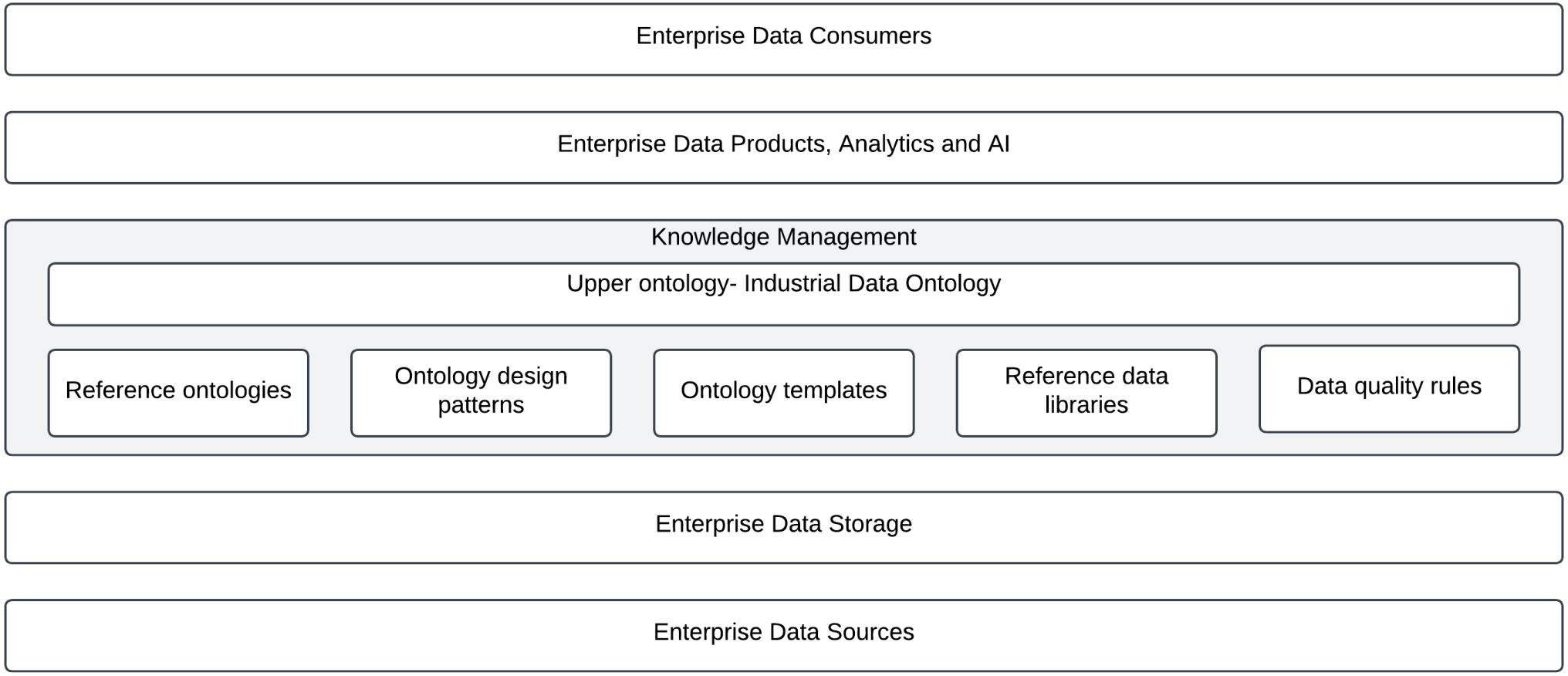
- Grounding in mathematical logic
- Ontology namespace, formatting and annotation guidelines
    1. General
    2. Namespace
    3. Sub-directory structure
    4. Prefixes
    5. Class names
    6. Object property names
    7. Data property names
- Annotation properties
    1. General
    2. Required annotation properties
    3. Annotation properties for additional metadata
    4. Annotation properties for formal and semi-formal definition
    5. Annotation properties for provenance and versioning
    6. Annotation properties for representing resource evolution

Terms used in ISO 23726 to describe different types of ontologies



- A reference ontology is a domain-specific ontology that models key concepts in a domain so that other more specialized ontologies or applications can reuse or extend it.
- A trusted reference ontology can be used across multiple applications. A reference ontology does not necessarily aim to model everything in the domain.
- There is no agreement in the literature as to a naming convention for ontologies between the top-level and an application ontology. Various names such as Core, Domain, Domain-independent, Domain-dependent are used but not clearly defined. Reference ontologies is used here as a label for all of these. Many application ontologies will import a number of reference ontologies.

A high-level architecture for ISO 23726 ontology-based interoperability is proposed



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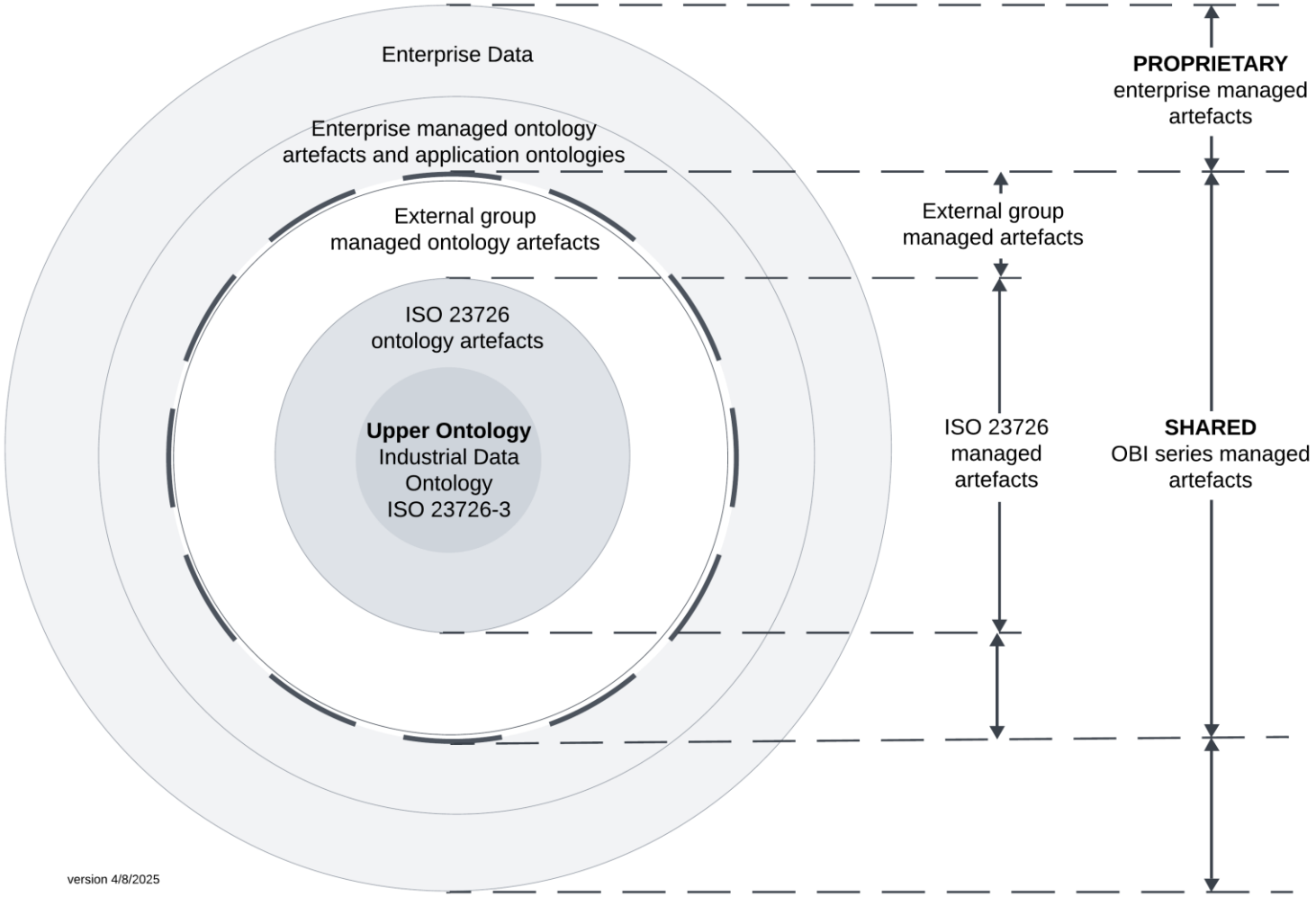
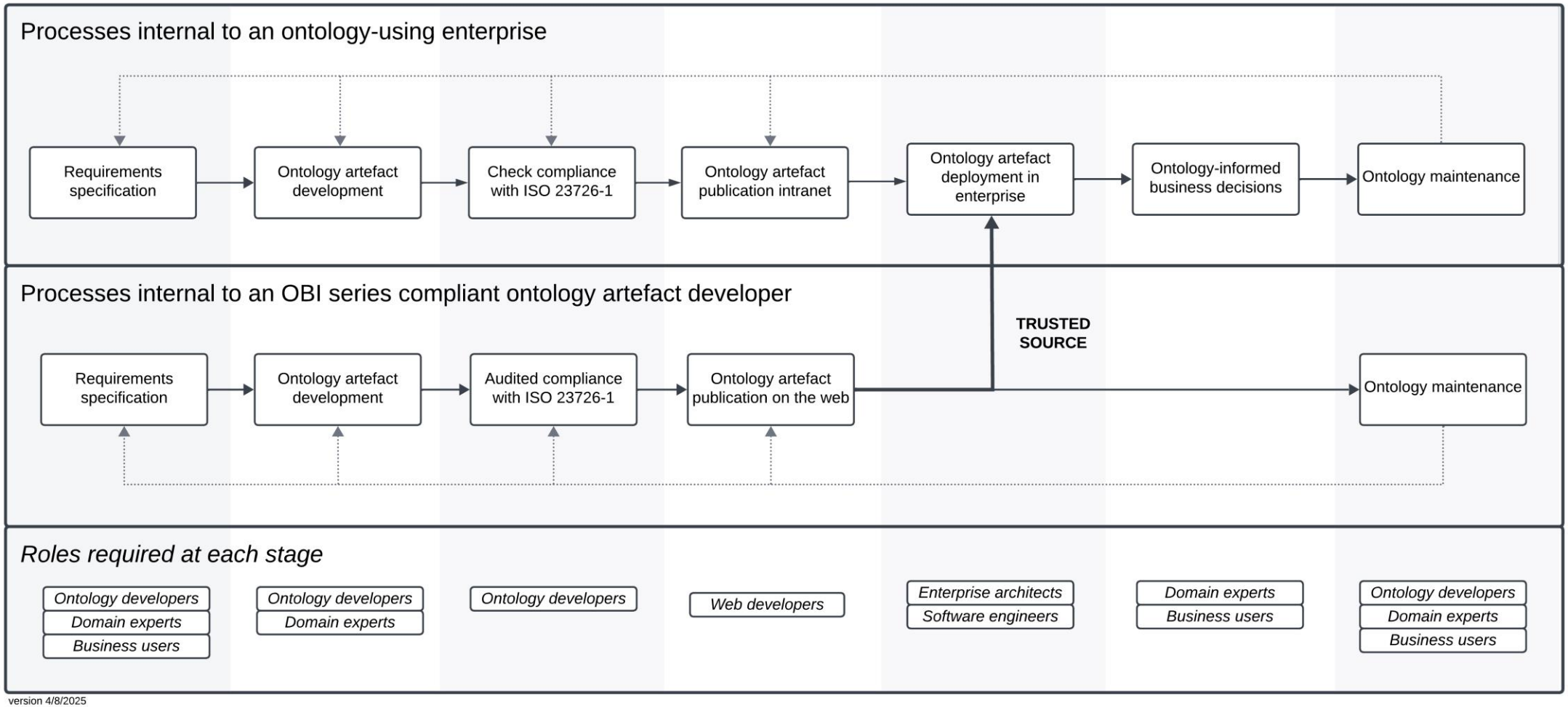
Artefacts in the OBI ecosystem

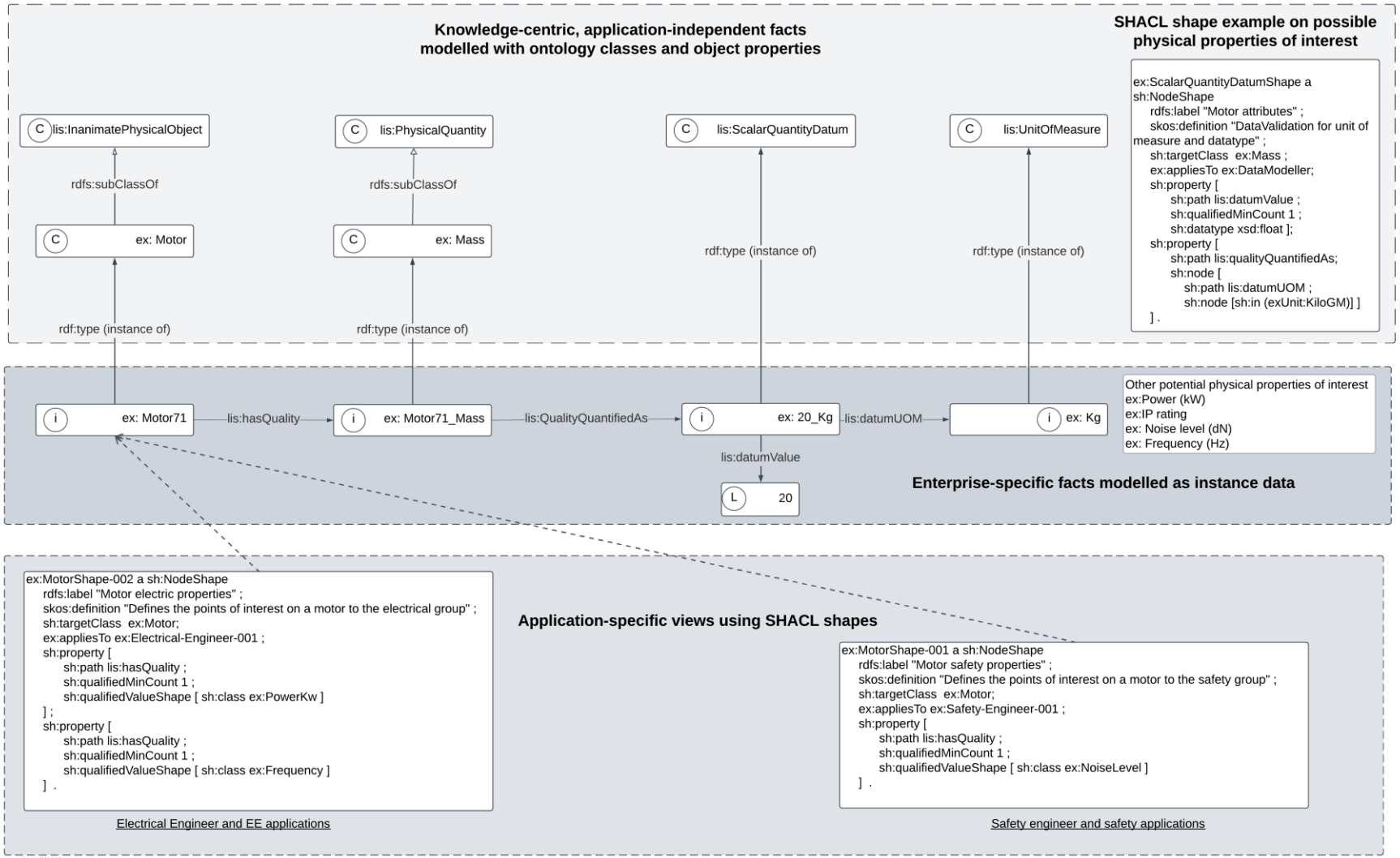


- Artefacts and data outside the black dashed line are private and managed by the enterprise (or groups of enterprises).
- Artefacts inside the black dashed line are shared resources.
- A shared ecosystem requires ontological alignment to ensure new entrants to the ecosystem are aligned to ISO 23726-3 and do not add concepts that are already defined in other ontology artefacts in the OBI ecosystem.

Stakeholders in the OBI ecosystem



Modelling templates, patterns and data quality rules



Example how patterns could be used:

- Upper ontology
- Application-independent Domain Ontology with data quality rules implemented as SHACL shapes
- Application-independent Enterprise Semantic Knowledge Graph (SKG) containing instances following the data quality rules
- Application-specific views which are reusing the data from the Application-independent Enterprise SKG

Possibility to contribute / discuss

- An extract with the main parts is publicly accessible here.
- The goal of releasing this document is to provide guidance to industry users and the semantic data modelling community about
  1. the vision for the ISO 23726 Ontology-based Interoperability (OBI) series and
  2. a set of principles which resources will have to comply with in order to be considered `compliant' with IDO and the ISO 23726 series. The Industrial Data Ontology (IDO) is the upper ontology in the ISO 23726 series. IDO is currently inside the ISO process and due to be published as an ISO standard in 2026.
- More information is accessible here.
- Hint: be aware of the **License**!

Thank you!