Ontology Based Metadata Overview

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Related Area of Work:

- Metamodels for registration of various types of information artifacts
  - ISO/IEC 11179 Metadata Registries (MDR)
  - ISO/IEC 19763 Metamodel Framework for Interoperability (MFI)
  - Both rely on Ontologies for anchoring the meaning of metamodel objects
Basic Attributes of SC32 WG2 Registered Metamodel Objects

- Attribute Categories:
  - Identifying
  - Definitional
  - Relational
  - Representational

- Mandatory
  - Identifier, Version, Name, Definition
  - A few object specific attributes

- Optional
  - Classifications, related references, additional names and definitions

- Conditional
  - Defined by business rules
From the Perspective
Domain Specific Ontology

- Who
  - Actor
  - Role
  - Organization
  - Personal Goal
  - Role Goal
  - Nonfunctional Goal
  - Functional Goal

- Why
  - Goal
  - Composite Process
  - Atomic Process

- What
  - Process
  - Composite Service
  - Atomic Service

- How
  - Service
  - Information Model
  - Conceptual Meaning
  - Representation

- Data
  - Domain Ontologies
  - Entity Ontology
  - Operation Ontology
  - Context Ontology
From the Perspective
Domain Specific Ontology

- Actor ➔ Role ➔ Organization
- Personal Goal ➔ Role Goal
- Nonfunctional Goal ➔ Functional Goal
- Atomic Process ➔ Composite Process
- Atomic Service ➔ Composite Service
- Conceptual Meaning ➔ Representation

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19763-8
19763-5
19763-7
19763-12
11179-3

19763-3

Entity Ontology
Operation Ontology
Context Ontology

Domain Ontologies
ISO JTC1 SC32 standards related to Use of Ontology

• ISO/IEC 11179 MDR

**ISO/IEC 11179, Information Technology -- Metadata registries (MDR)**

The 11179 standard is a multipart standard that includes the following parts:

- **Part 1**: Framework
- **Part 2**: Classification
- **Part 3**: Registry metamodel and basic attributes
- **Part 4**: Formulation of data definition
- **Part 5**: Naming and identification principles
- **Part 6**: Registration
ISO/IEC standards related to Use of Ontology

• Building on 11179...
Links

- 11179 is freely available
- 19763 has been requested to be made freely available
- Development information is available from [WG2 web site](http://metadata-standards.org/11179/):
  - [http://metadata-standards.org/11179/](http://metadata-standards.org/11179/)
- INCITS
  - ANSI's Technical Advisory Group for ISO/IEC Joint Technical Committee 1. JTC 1
  - DM32.8 is the US working group participating in WG2
  - [https://standards.incits.org/a/public/groups](https://standards.incits.org/a/public/groups)