Status Report of the Study Group on MDR/MFI Implementations

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Intro. to WG 2 Standards: Key Families

ISO/IEC 20943
Procedures for Achieving MDR Content Consistency

ISO/IEC 11179
Metadata Registries

ISO/IEC 19763
Metamodel Framework for Interoperability

ISO/IEC 20944
MDR Interoperability & Bindings
Intro. to WG 2 Standards: MDR Family

- **Objective**
  - Addresses the *semantics of data*, the *representation of data*, and the *registration* of the descriptions of that data
  - Accurate *understanding of the semantics* and a *useful depiction of the data*

- **Scope**
  - Standard description of data
  - Common understanding of data across organizational elements and between organizations
  - Re-use and standardization of data over time, space, and applications
  - Harmonization and standardization of data within an organization and across organizations
  - Management of the components of data
  - Re-use of the components of data
Intro. to WG 2 Standards: MDR Family (cnt.)

❖ Current Status

✓ 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
Objective

- Enable effective information sharing in both private and public sectors.

Scope

- Sharing of the information that is used by different communities through the interoperability of systems is a registry, or a network of interconnected registries.
- Provides for the discovery and sharing of meta-information, such as metadata or models.
- The Metamodel Framework for Interoperability (MFI) provides the specifications for such registries.
Intro. to WG 2 Standards: MFI Family (cnt.)

❖ Current Status

✓ Part 1: Reference model
✓ Part 3: Metamodel for ontology registration
✓ Part 5: Metamodel for process model registration
  – Current status: Edition 1 CD6 (2013.7.17)
✓ Part 6: Registry Summary
  – Current status: Edition 1 CD3 (2013.10.18)
✓ Part 7: Metamodel for service registration
✓ Part 8: Metamodel for role and goal registration
✓ Part 9: On Demand Model Selection (ODMS)
✓ Part 10: Core model and basic mapping
  – Current status: Edition 1 CD3 (2013.7.14)
✓ Part 12: Metamodel for information model registration
  – Current status: Edition 1 CD3 (2013.7.14)
✓ Part 13: Metamodel for forms registration
  – Current status: Edition 1 CD (2013.8.1)
Objective

- Standard is a **multipart technical report** for standard specifies the structure of a registry in the form of a conceptual model (11179-3)
- Procedures for achieving **metadata registry (MDR) content consistency**

Scope

- Data elements
- XML structured data
- Value domains
- Overview
- Metadata mapping procedure
- Framework for generating
Intro. to WG 2 Standards: 20943 (cnt.)

- **Parts and Current status**
  - Part1 : Data Elements
  - Part2 : XML Structured Data
    - Current status : Project on hold (2003.9.3 / hold pending revisions to ISO/IEC 11179-3 in Edition 3)
  - Part3 : Value Domains
    - Current status : International Standard (2003.3.1)
  - Part4 : Overview
    - Current status : On hold (Temporarily on hold while resource work on other project)
  - Part5 : Metadata Mapping Procedure
    - Current status : TR (2013.10.30)
  - Part6 : Framework for generating ontology
    - Current status : TR (2013.10.30)
Intro. to WG 2 Standards: 20944

Objective

✓ Provides the bindings and their interoperability for metadata registries, such as those specified in the ISO/IEC 11179 series of standards

Scope

✓ Treating data (and metadata) interoperability as a series of layered technical specifications (e.g., standards), from application-independent layers to application-specific layer(s).

✓ The simplification of interoperability specializations, also known as bindings

✓ The use of rule-based bindings to simplify the normative wording of the standards.

✓ Involving the harmonization of bindings within a category
Parts and Current status

- Part 1: Framework, common vocabulary and common provisions for conformance
  - International Standard (published at 2013.1.8)
- Part 2: Coding Bindings
  - International Standard (published at 2013.1.8)
- Part 3: API Bindings
  - International Standard (published at 2013.1.8)
- Part 4: Protocol Bindings
  - International Standard (published at 2013.1.8)
- Part 5: Profiles
  - International Standard (published at 2013.1.8)
Key Issues & Problems

- **No Overall Reference Model**
  - No guideline for using all/part of the WG 2 standards together
  - It’s not easy to understand the standards and relationships between them
  - It’s a barrier for encouragement of using the standards

- **No Implementation Model**
  - Most of standards developed from WG 2 are conceptualized and abstracted, and only metamodels are provided
  - Developers suffer from designing and implementing the standards
  - We cannot validate and verify implementations, i.e., we cannot guarantee the implementations are strictly follow the standards
    - Various implementations have been/will be developed, and thus it makes another Heterogeneity (Inconsistency) Issue
  - It requires much cost to develop implementations of the standards
Key Issues & Problems (cnt.)

- **Little Standardized Interfaces (Bridges) between Them**
  - No guideline of protocols to share and exchange information between the standards as well as outer services
  - We can just leave the interfaces to developers OR provide normalized (standardized) interfaces to them
    - Which is a best direction?
  - It’s a barrier for encouragement of using the standards
  - Developers can suffer from designing and implementing interfaces, and it also requires much cost to develop their interfaces
Key Issues & Problems (cnt.)

- No Reference Model
- Only Metamodels
- No Bridges
- Hard to Understand
- Hard to Use
- Much Time & Money
- Not Used
- Not Useful
- Standards? Meaningful?
Requirements? What Should We Do?

❖ There might be Many Questions
  ✓ How to provide easy understanding about the standards and their relationships?
  ✓ How to validate and verify the metamodels?
  ✓ How to make it easy to implement the standards?
  ✓ How to provide interfaces between the standards or with other services
  ✓ How to guide for establishing a concrete framework with all/a part of the standards?

❖ In a Word,
  How to make WG2 Standards to be Used in an Easy and Right Way and to facilitate their Usage
Requirements? What Should We Do? (cnt.)

- Develop Reference Model
- Make it Easy
- Encourage Standard Usage
- Provide Validation & Verification
- Prohibit Unnecessary Inconsistency
- Make them Meaningful
- Developing Implementation Models
- Building Bridges

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How to Achieve: Overall Model

ISO/IEC 20943
ISO/IEC 11179

Bridges (interfaces)

ISO/IEC 20944
ISO/IEC 19763

Interfacing (Bridging) Method

ISO/IEC 11179
ISO/IEC 20943

Outer Services

Metamodels

implemented
standardized
implemented

Implementation Models
How to Achieve: 11179-3 & 20943-6

- Implementation models and interfaces should be provided

![Diagram showing the relationship between ISO/IEC 11179-3 3rd Ed., Bridge (Interface), ISO/IEC 20943-6 FGO, and implementation models.]

- ISO/IEC 11179-3 3rd Ed.: implemented
- Bridge (Interface): standardized
- ISO/IEC 20943-6 FGO: implemented
- ISO/IEC 11179-3 Impl. Model
- Interfacing (Bridging) Method
- ISO/IEC 20943-6 Impl. Model
Conclusion and Discussion

❖ Consequently, WG 2 should try:
  ✓ to help users’ understanding
  ✓ to encourage the WG 2 standards usability in an easy and right way.

❖ To Achieve the goal, WG 2 should basically develop:
  ✓ Reference Model
  ✓ Implementation Models
  ✓ Bridges (Interfaces)

❖ Discussion
  ✓ Development Schedule and Order
  ✓ Organizing Study Groups
  ✓ Additional Requirements
Thank you for attention!

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