

ISO/IEC JTC 1/SC 32 N 0690

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Rationale for the NWI

September, 2001

Japan National Body,
ISO/IEC JTC1 SC32

Title of the NWI :

*Framework for Registering
Business Objects*

Introduction

This NWI proposal is intending to initiate a new standardization activity within ISO/IEC JTC1 SC32, which focuses on the common view to metadata and metamodels for categorizing and structuring enterprise business objects, extending ISO/IEC 11179 and MOF (Meta object Facility) which will be proposed to ISO by OMG.

The enterprise objects which consist of both information elements and process elements, should be used, not only in the software development efforts of a particular organization, but also, in the interchanging and sharing them among different organizations by the means, such as Electronic Commerce (EC), Electronic Data Interchange (EDI), to materialize effective business collaborations.

Business Objects

Business Objects : (by MOU BO Summit Meeting, Nov. 2000)

The Summit accepted that business objects could be defined as:

- representing persons, places, things or concepts in a business domain
- packaging business procedures, policy and constraints around business data
- independent of applications
- sharable across industries
- reusable

Type of Business Object:

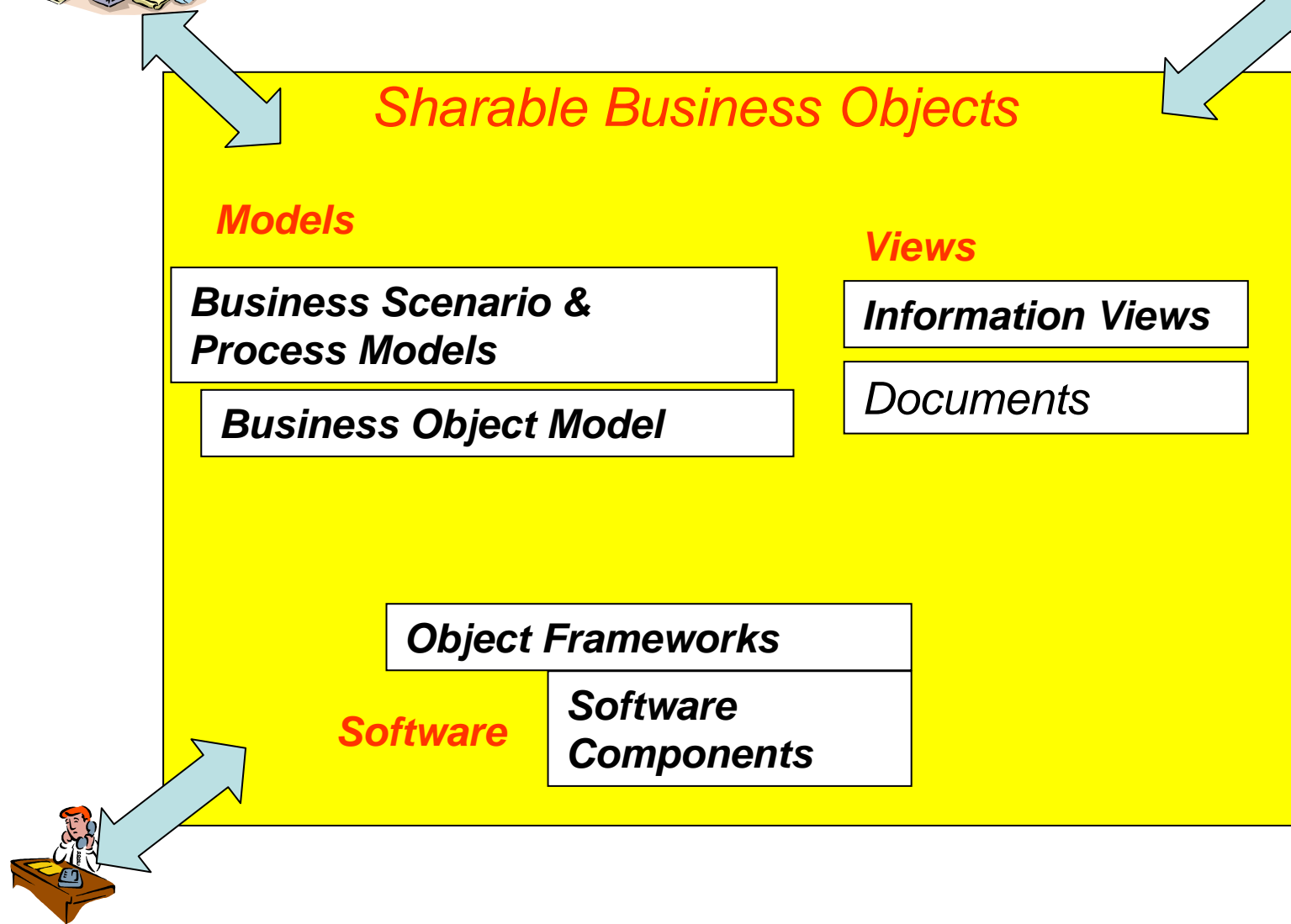
- Business Scenario
- Business Process Model
- Business Entity profile
- Business entity Relationship (Business Object Model)
- Business Information
- Software Components

Collaborations between Businesses

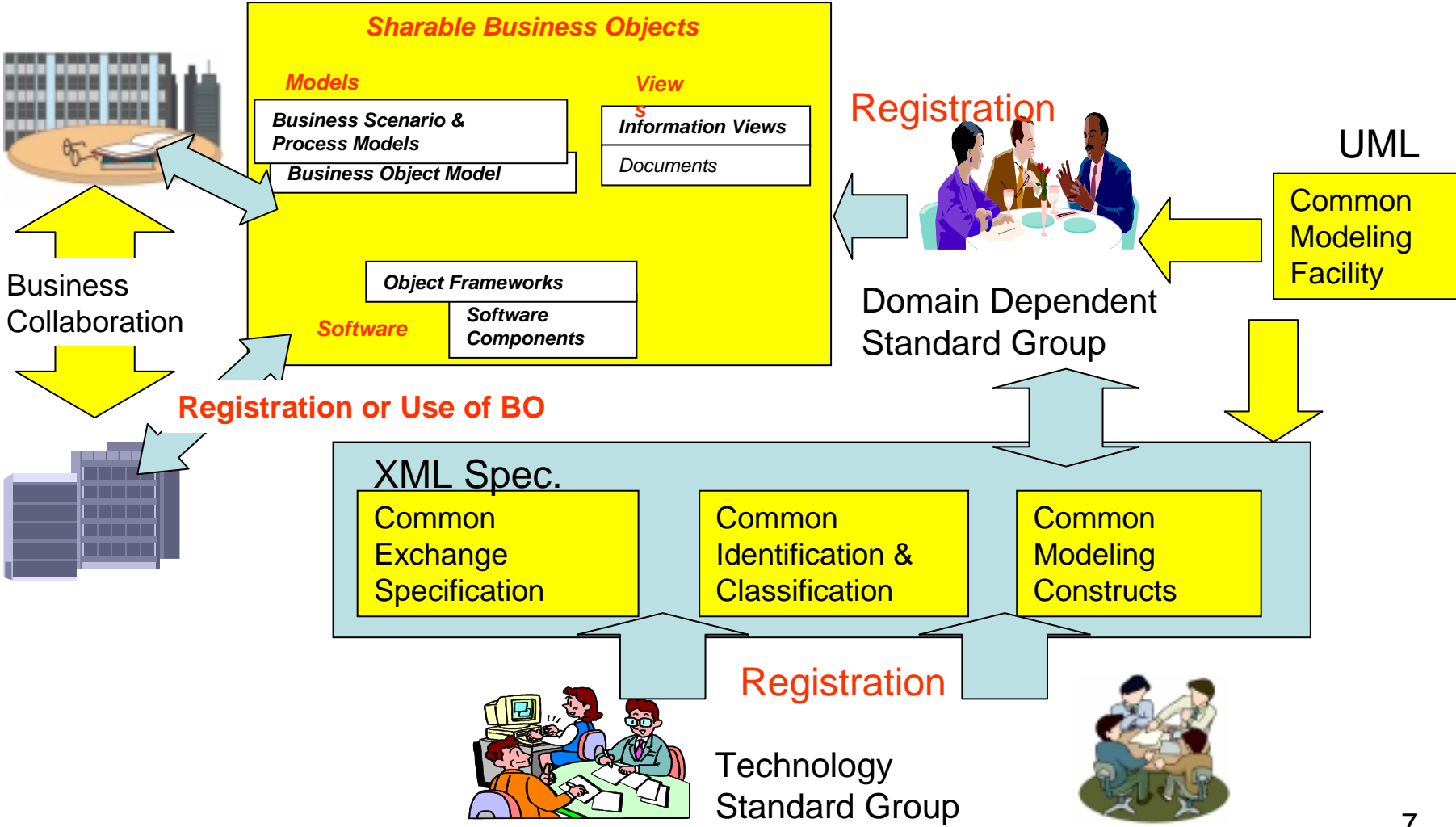
Due to the proliferation of Internet and E-business, following types of collaboration became indispensable to current vivid enterprises.

- *Efficient exchanging of information contents among different domains and different organizations across countries.*
- *Effective investigation mechanism of proprietary components in both software and information content, by asking for each components to declare their ingredients with specifying standard elements.*
- *Evaluating business performance of the enterprise.*
- *Effective investigation of a business model and its change which might cause information system changes.*

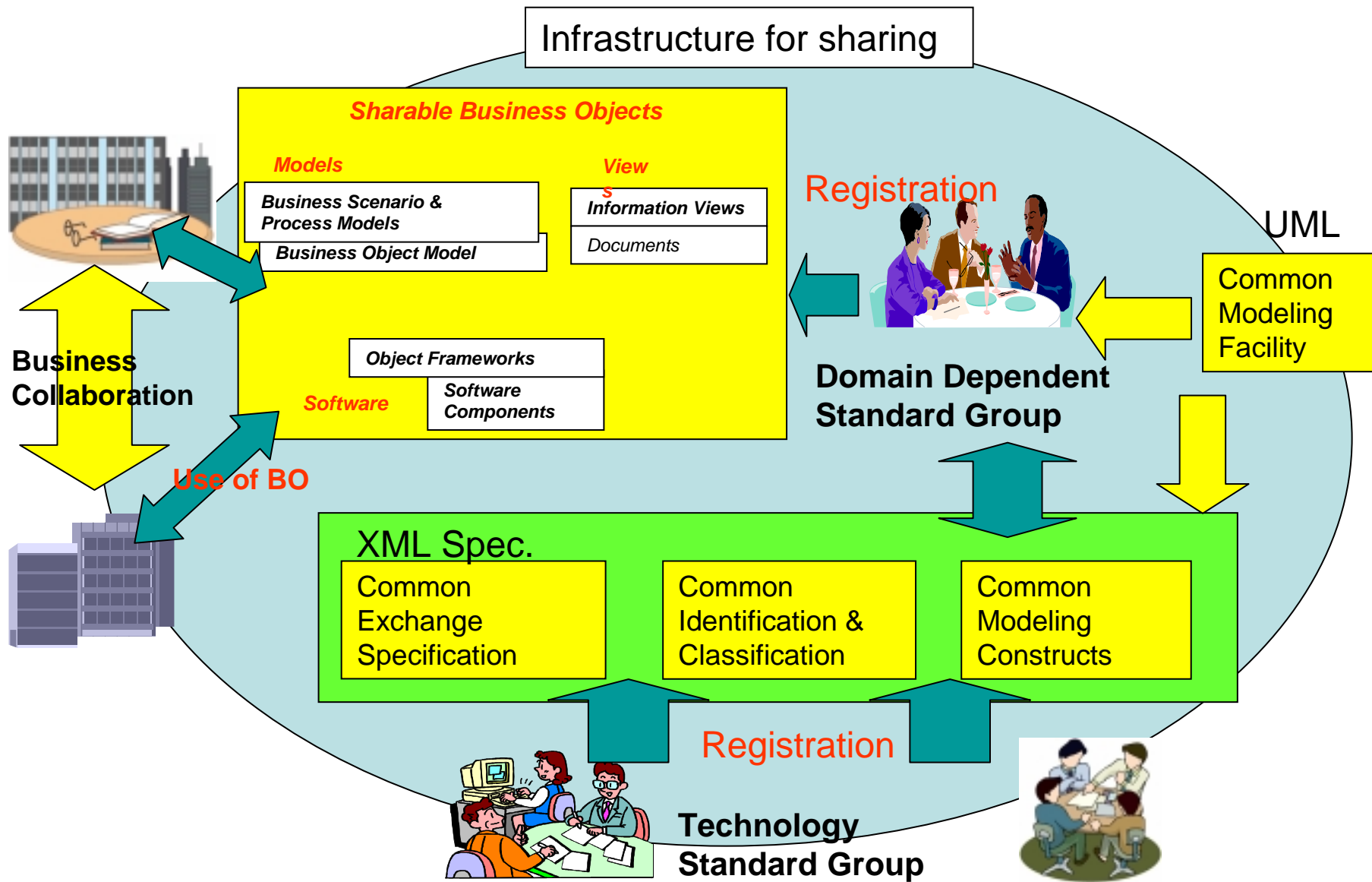
Sharable Business Objects



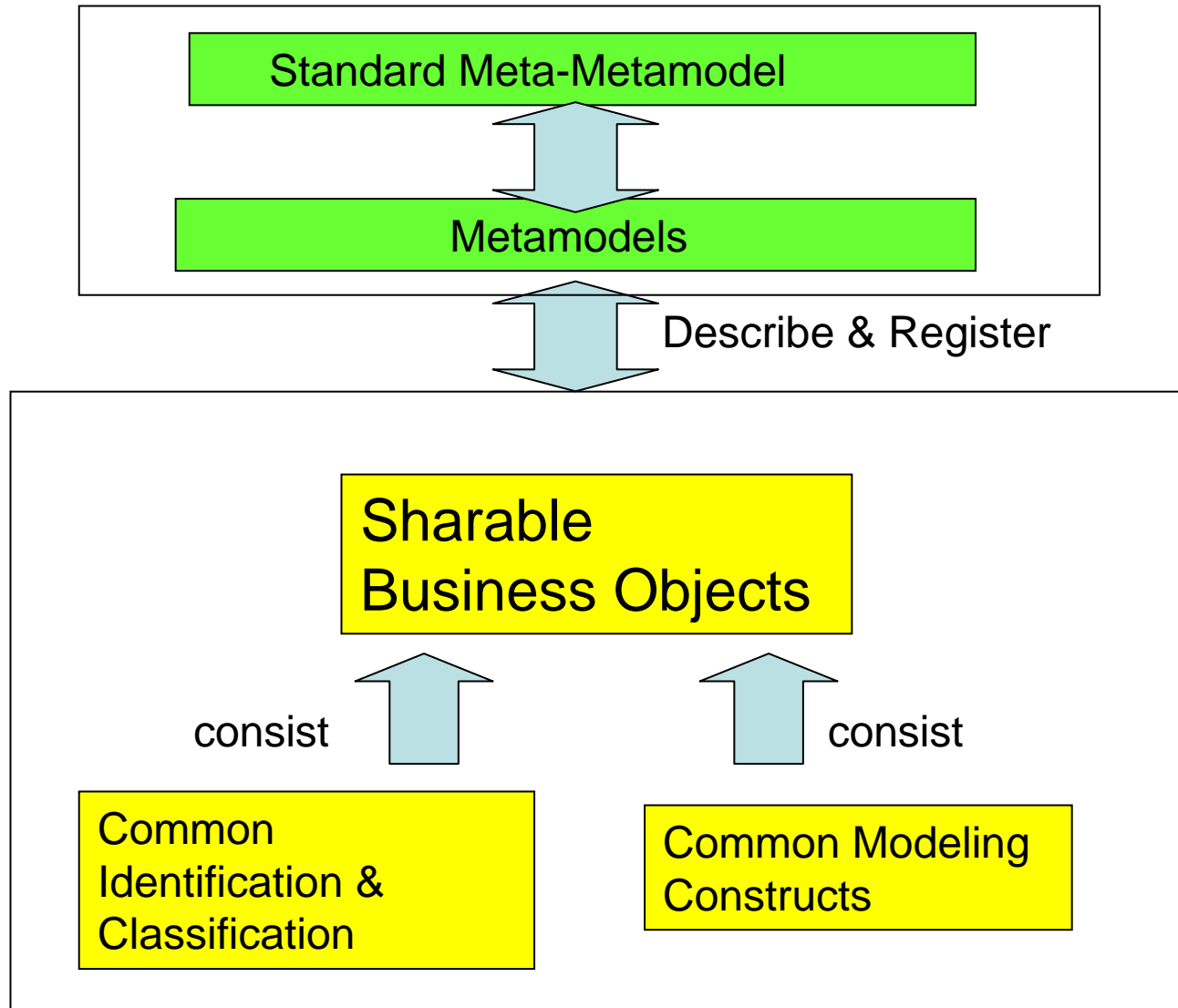
Sharing BO through the Registration



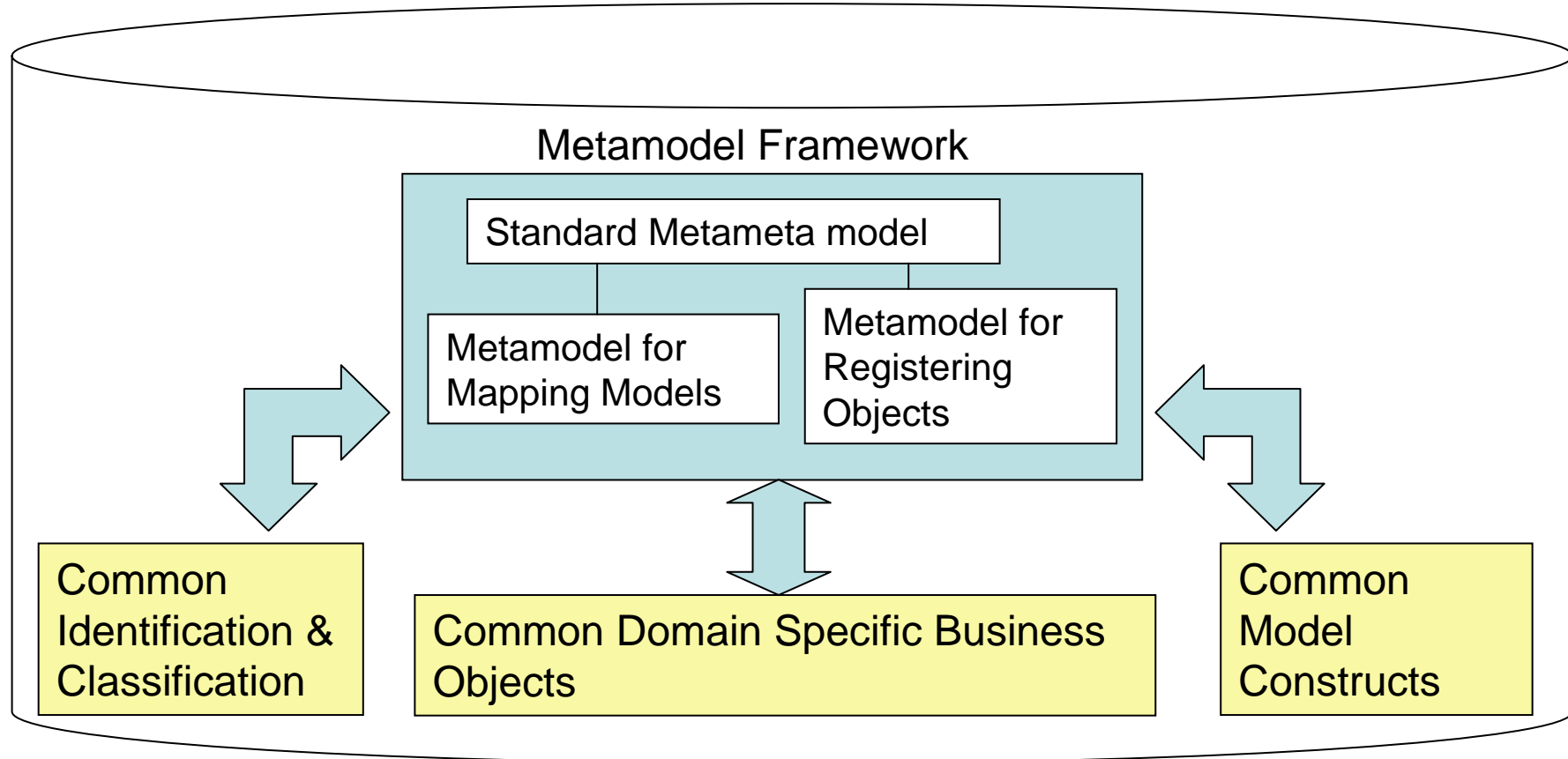
Needs for Standard Metamodel



Roles of Metamodel



Business Object Registry



What should be done for Metamodel Standardization

Cross domain sharing of the business objects

Today, a lot of industrial standard groups, such as, ebXML, UN/CEFACT, OASIS, EAN, CPFR, UCC, Rosetta-net, GCI, OMG etc. are in charge of the development of domain specific business models or model elements.

Not only in the retailing business, in the every business domain, such as manufacturing, medical, banking, etc, the sharing and the exchanging various types of business objects (business information, business scenario, business process model, business software components), are recognized as a key success factor to materialize effective business collaborations.

However, due to lack of the mechanism which enables the effective and efficient sharing and exchanging those domain specific business objects, there must be fudge duplications and inconsistencies of the business object specifications, and also unnecessary transformation or translation work to keep a cross industrial collaboration.

It must be urgent for both ISO and industrial domain specific consortia, to establish a common normative framework to keep the harmonization in the enterprise business modeling and the interchanges of business object specifications.

Organizations for domain specific business objects & metamodel standard

Domain	Organization		
E-Commerce	ISO TC154	UN/CEFACT, OASIS ebXML, OMG	
Retailing		GCI, EAN, UCC, VICS	
Manufacturing	ISO TC184	OMG Manufacturing DTF ISA	
Banking / Finance	TC68	SWIFT, XBRL, OMG	
Medical	ISO TC250	HL7, OMG	
Education	ISO JTC1 SC36	IEEE	
Transportation		OMG	

Standard Organizations and their Concerns

Organization Issue	ISO SC3 2	ISO TC 68	ISO TC 154	ISO TC 184	A R T S	E b X M L	Ro set ta Ne t	CP FR	S C O R	UN/ CEF ACT (TM WG)	E A N	O M G	G C I	XB R L
Business Identification	X	X											X	
codes	X	X												
Information Elements	X		X	X	X	X		X					X	X
Interchange format			X	X		X	X						X	
Domain Models				X	X	X	X	X			X	X	X	
Business Protocols			X			X	X	X			X		X	
Best Practices				X		X		X	X				X	
Metamodel	X					X				X		X	X	
Methodology										X		X		
Information View														X

What are Needed

In the Markets:

- ***An Unified Metamodel Framework which enables Interchange & Sharing of the various types of enterprise business objects, in E-Commerce, E-Business, EDI, and the business collaborations, such as SCM, e-CRM, etc..***

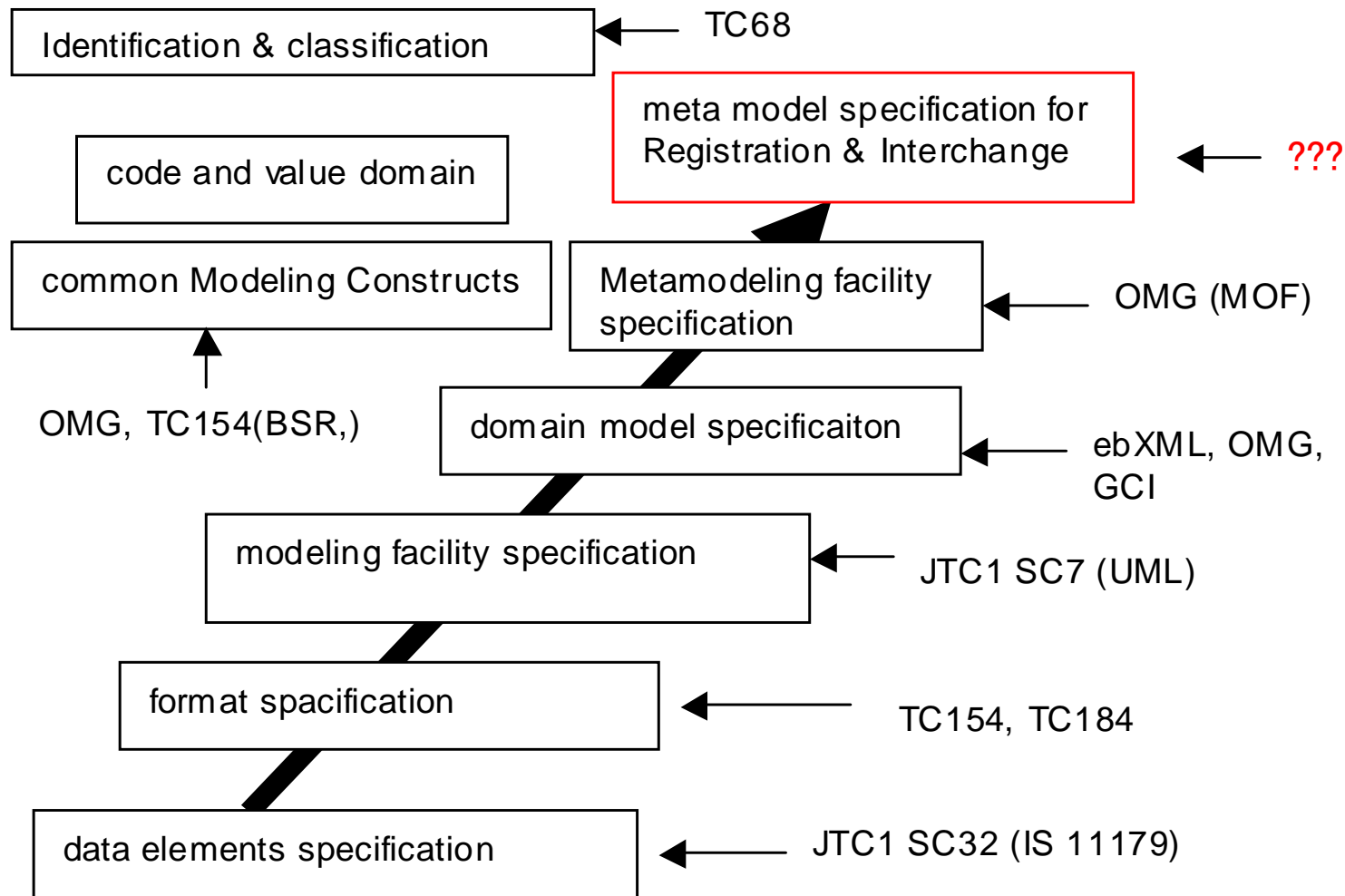
In the Vender or Exchanger Folks:

- ***An Unified Registering Scheme which allows the those who want to develop sharable enterprise business objects and those who want to access appropriate normative models, modeling constructs and objects in the development of the “easy to collaborate business systems”.***

In the Standardizations:

- ***An Unified Metamodel Framework which establishes the harmonization of the different views to the modeling and the Interchanging of the enterprise business object, which were proposed by the individual domains of the standardization***
- ***A Normative Scheme which enables the appropriate reference and access to pre-existing business object standards, to help new standard development activities, which were been taken place within ISO or outside of ISO.***

Long Term Trends on the Data Interchange Standardization



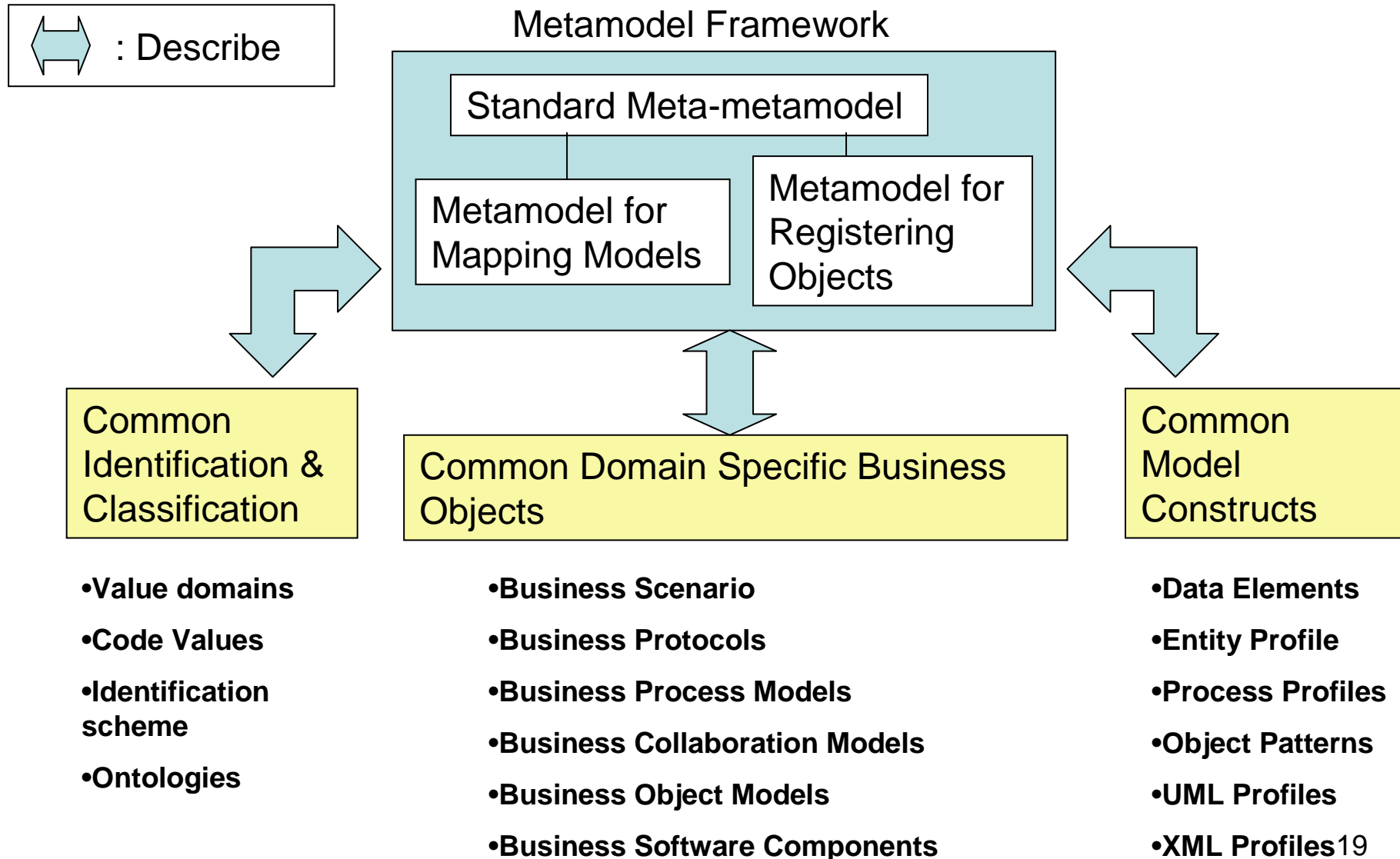
Purpose of the NWI

Objectives of the NWI

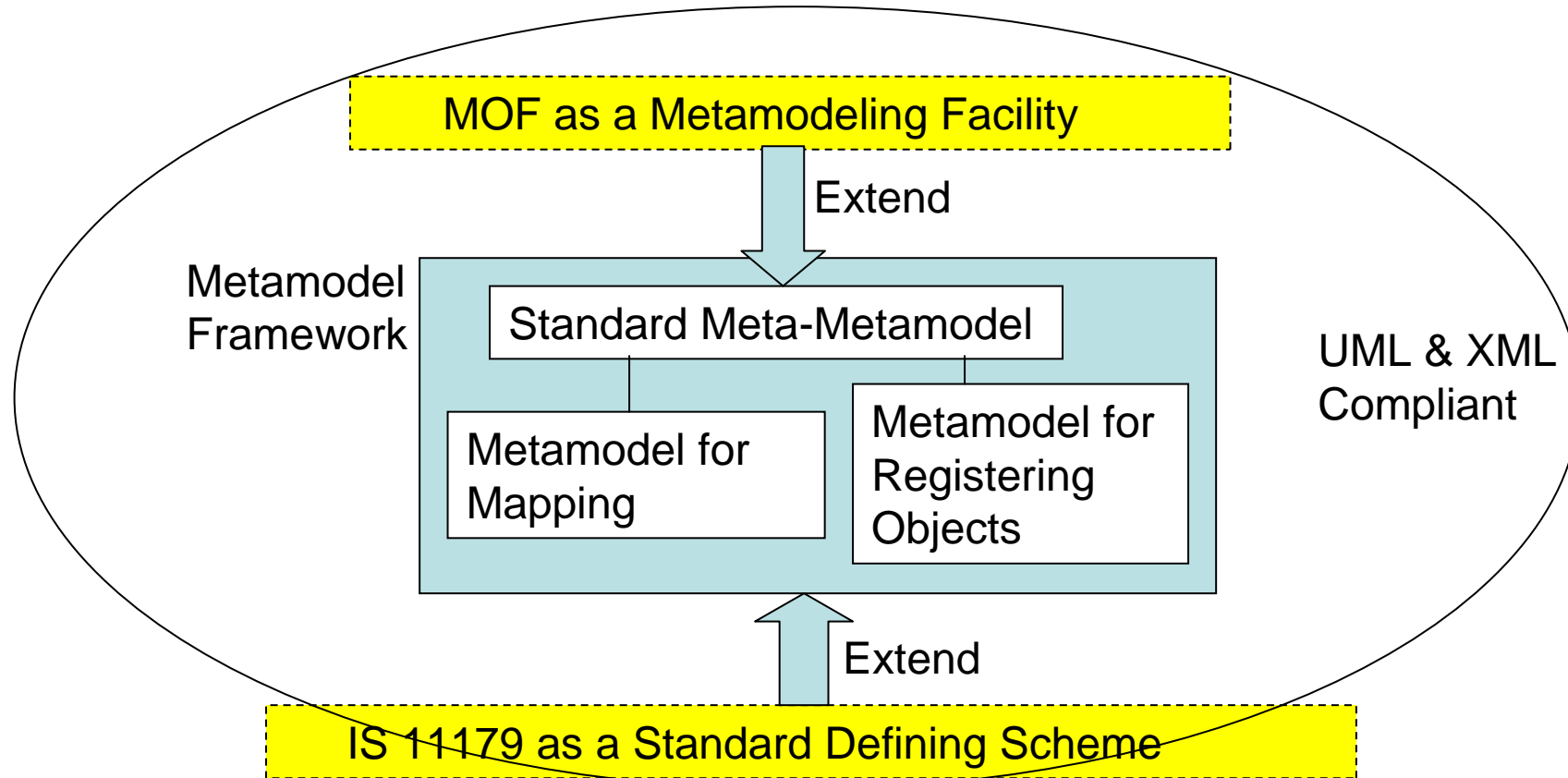
Establish a common Metamodel Framework for registering and sharing of business objects

- Establish a consensus on the common generic metamodel framework to enable registering various types of business objects.
 - ✓ Extending Current IS11179 series standards to enable the representation of complicate business objects
 - ✓ Extending MOF to represent a generic meta-metamodel and metamodels
- Provide a generic mapping mechanism to enable the exchanging of models which are defined by different facilities or concepts.

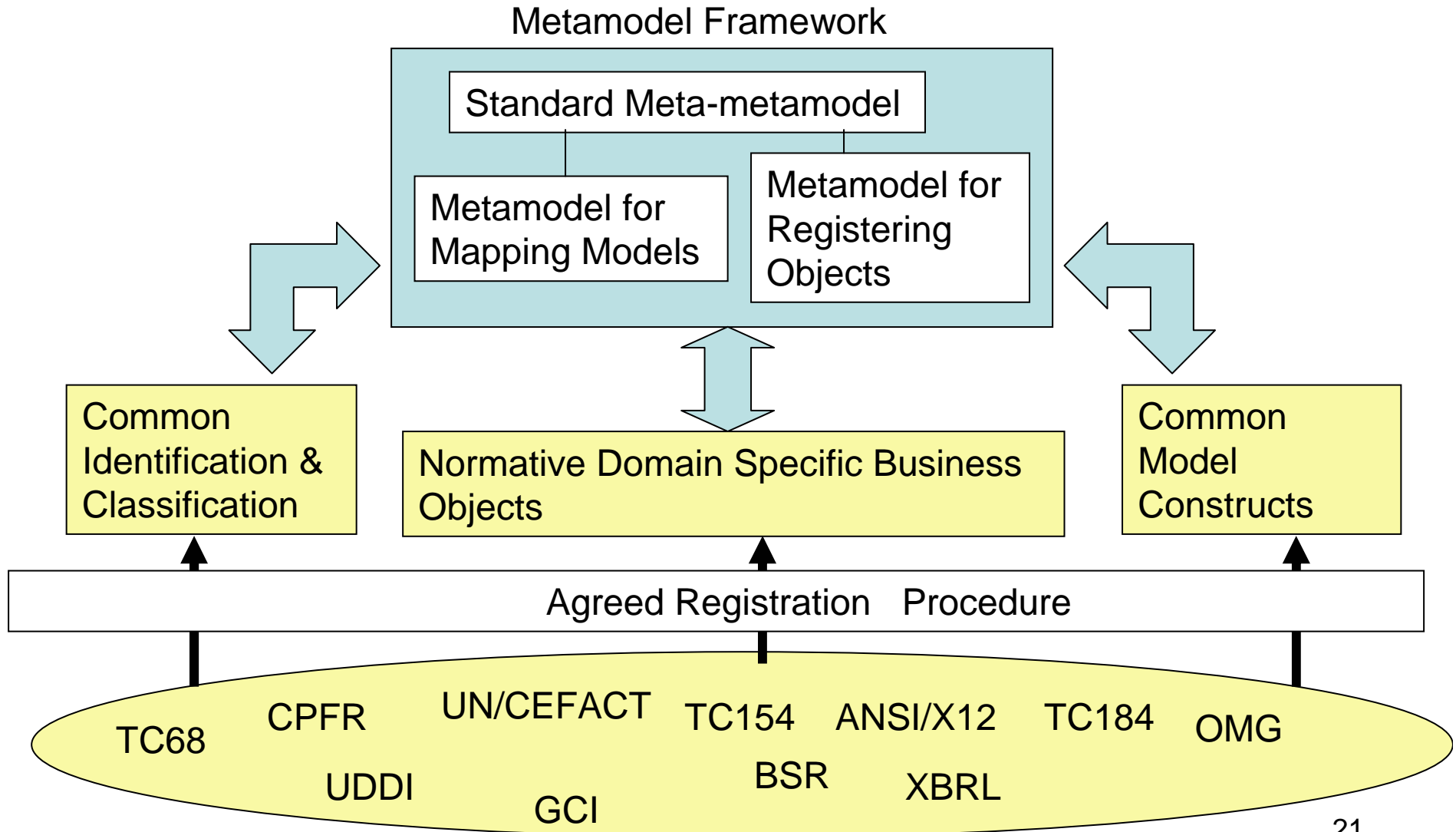
Application of the MM Framework



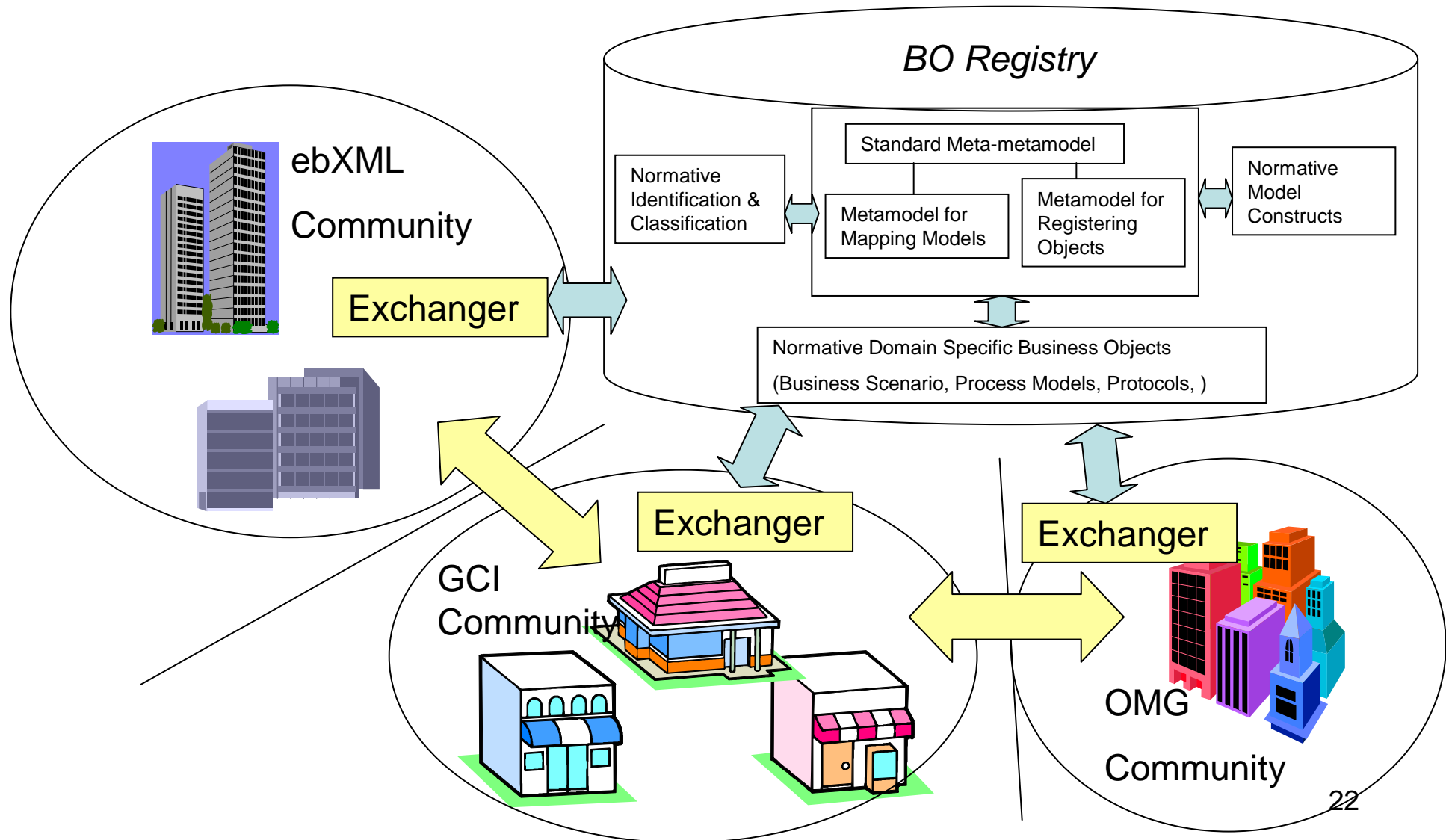
Scope of the NWI



Potential Registers

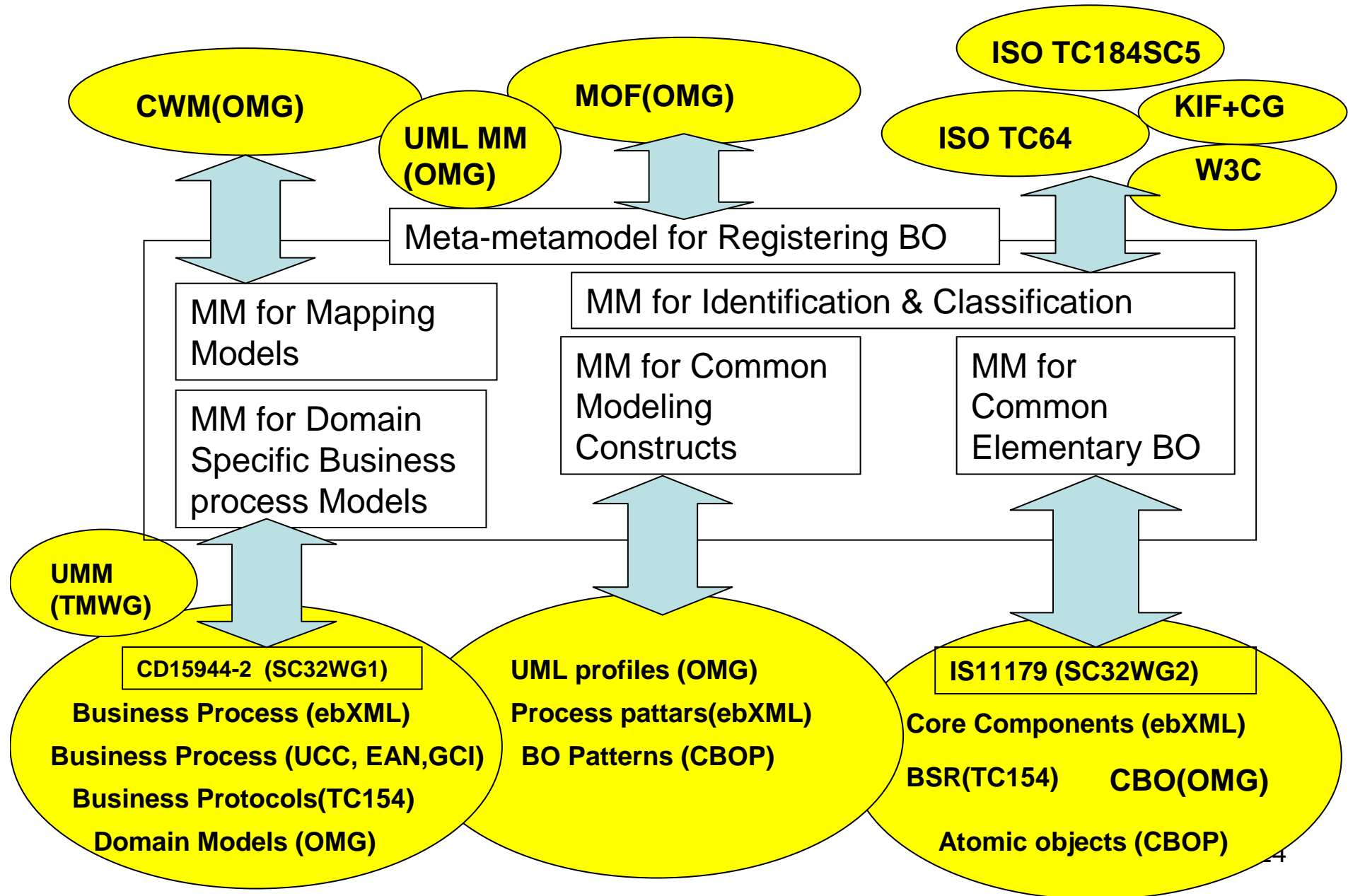


Potential End Users

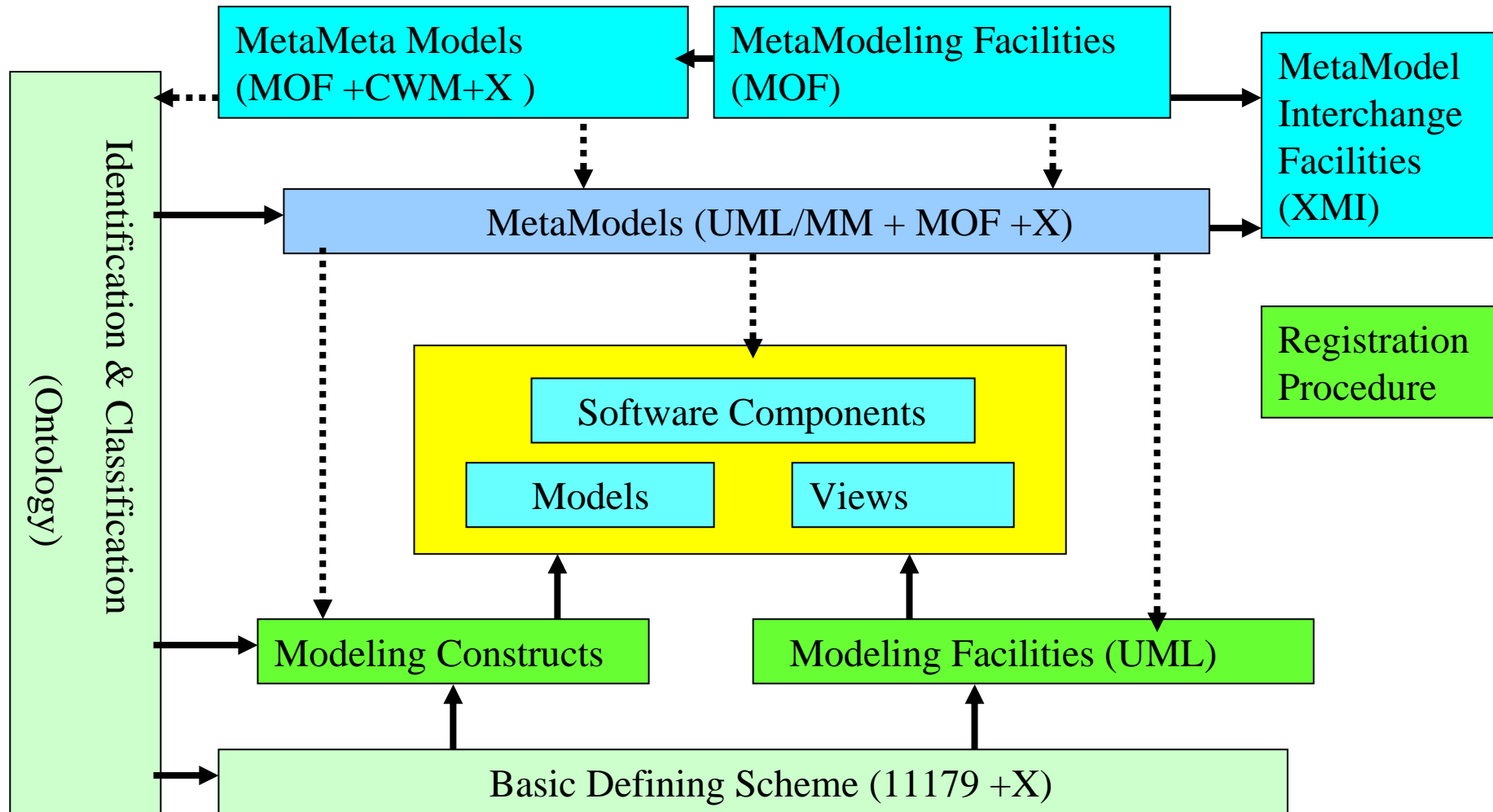


How to Proceed NWI

Candidates Standards to be referred



Scheme for Sharing Objects



: Based On
 : Describe

MOF-based metamodel and UML profile

- Using a restricted subset of the UML notation
- Providing common style of describing metamodel
- A metamodel at M2 level is as an abstract syntax of models at M1level
- A model at M1level is an expression of the metamodel
- UML profile (stereotype, tagged values etc.) is as additional constraints for metamodel
- Mapping between the metamodel and the UML profile is needed as a basis for the development of tools
- Enable exchanging metamodel/model/data between tools

Objective of MOF+

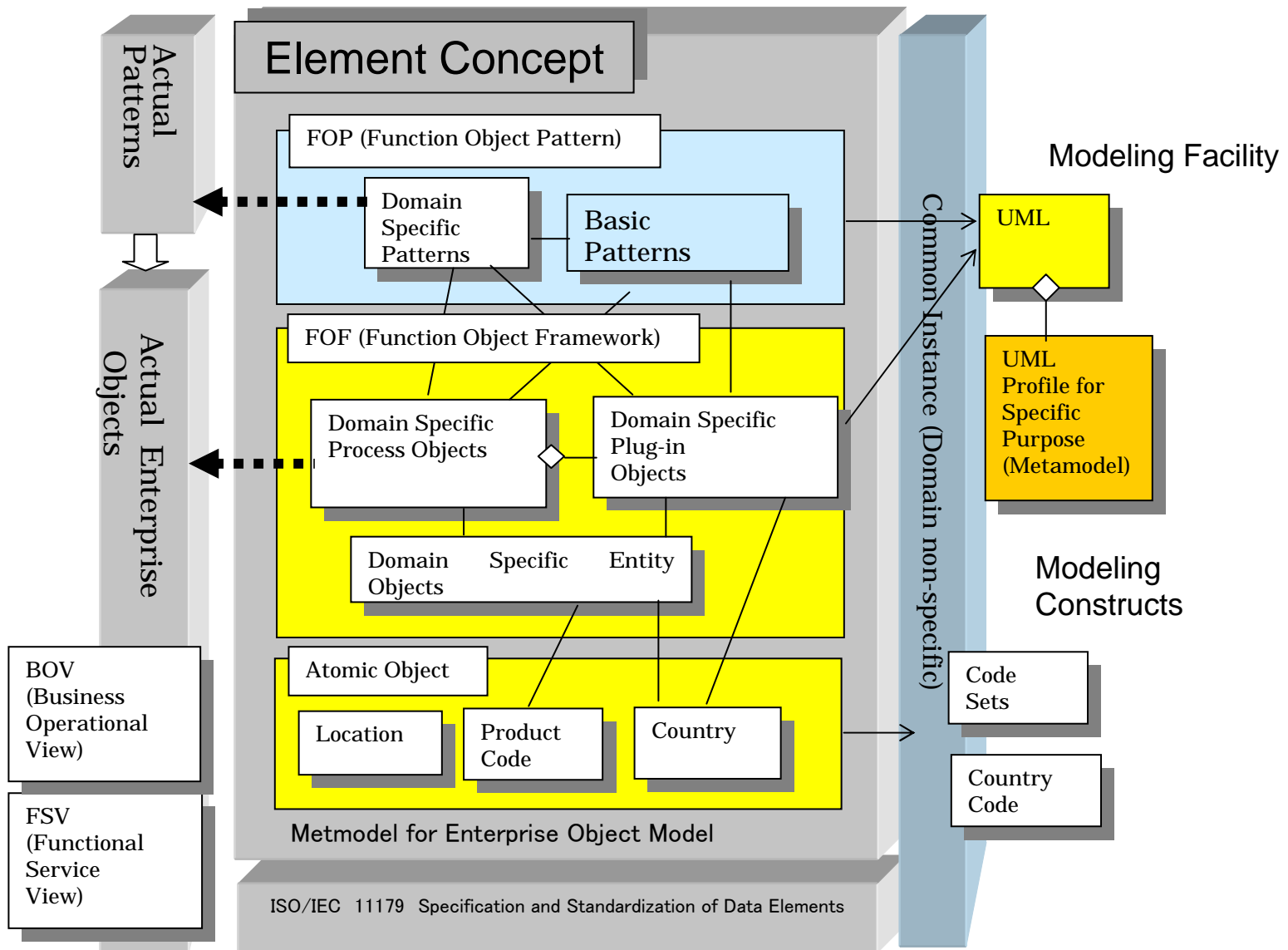
- Preserving MOF
- Enhancing the facilities:
 - specifying relationships
 - among MOF-based metamodels (of each standard)
 - between M2 level and M1 level
 - classifying and registering (based on ISO/IEC 11179-3 rev.)
 - namespaces of each metamodel and UML profile
 - patterns as a model instance
 - defining mapping between MOF-based metamodels
 - a part of metamodel at M2 level
 - a part of model or data at M1 level

Required Extension for MOF and 11179-3

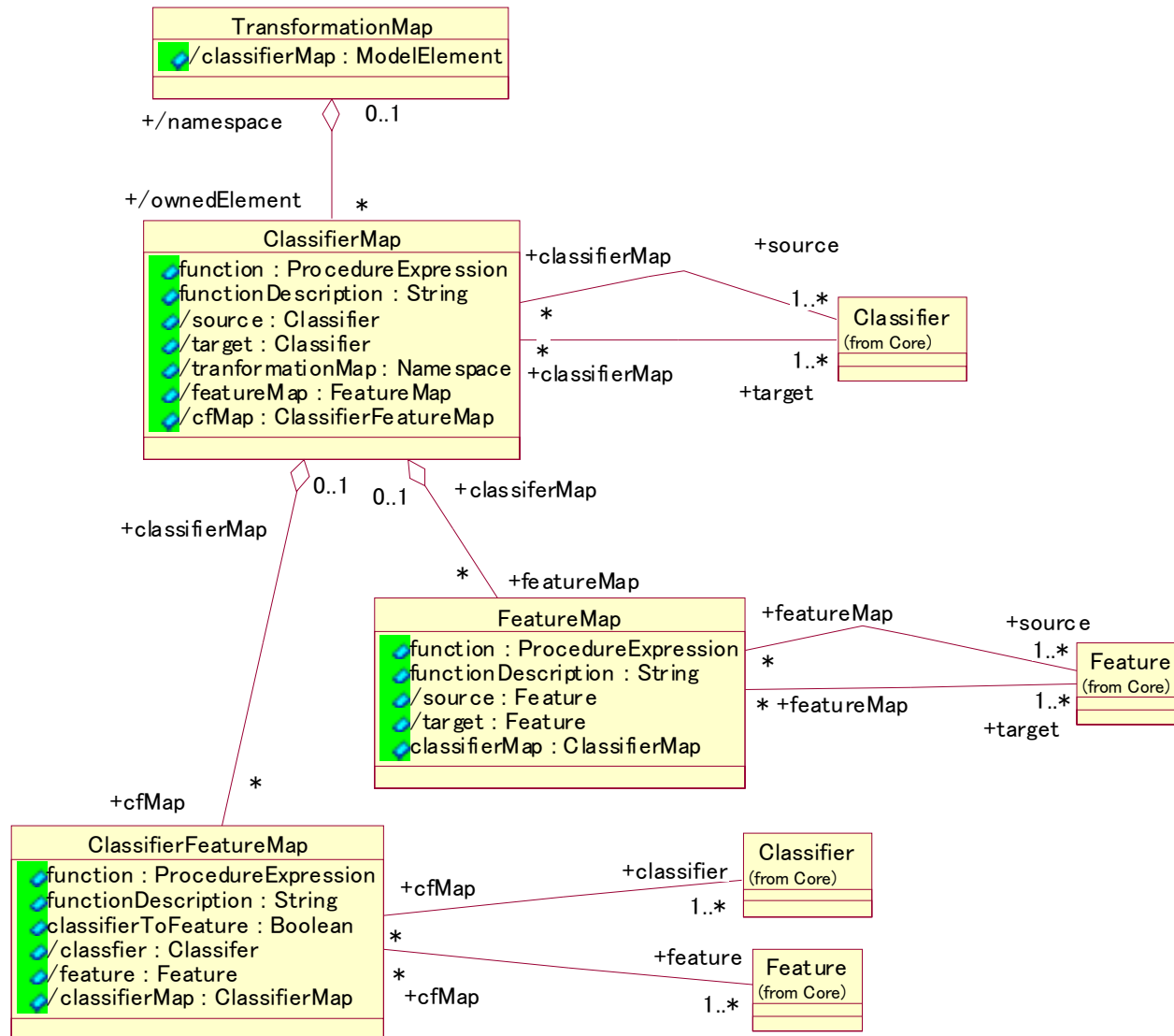
- Extension for Composite Object Support
 - Data Element Concept = **Namespace**:
 - Name of ModelElement to be classified, e.g. Stereotype name, pattern name, component name etc.
 - Conceptual Domain = **TypedModelElement**:
 - Specification of Typed ModelElement, e.g. metamodel, profile, standard etc.
 - Value Domain = **ModelInstance**:
 - Represented Model Instance of Typed Model Element, e.g. pattern, stereotyped element, etc.
 - Data Element = **ModelElement**:
 - Concrete ModelElement provided with specific Model Instance.

Metamodel Framework

Metamodel of Enterprise Business Object



Metamodel for Metamodel Mapping (OMG CWM)



Sub projects for NWI

Framework for Registering Business Object Project

MOF/XMI PAS Editing

Metamodel Architecture

*Extension of Defining Facility & Modeling Facility
(11179, MOF, XMI)*

MM for Identification & Classification scheme

MM for Normative Modeling Constructs

Registration Procedure