

OMG Overview, Scope and Process

OMG EUROPE INFORMATION DAY – STANDARDS FOR INDUSTRIAL SYSTEMS

CLAMART, FRANCE – 15 MAY 2025

MIKE BENNETT, OMG SDO TECHNICAL DIRECTOR

About OMG



[Founded 1989](#)



[International standards
development organization](#)



[260+ specifications](#)



[220+ member organizations
worldwide](#)



[15 specifications adopted by ISO](#)

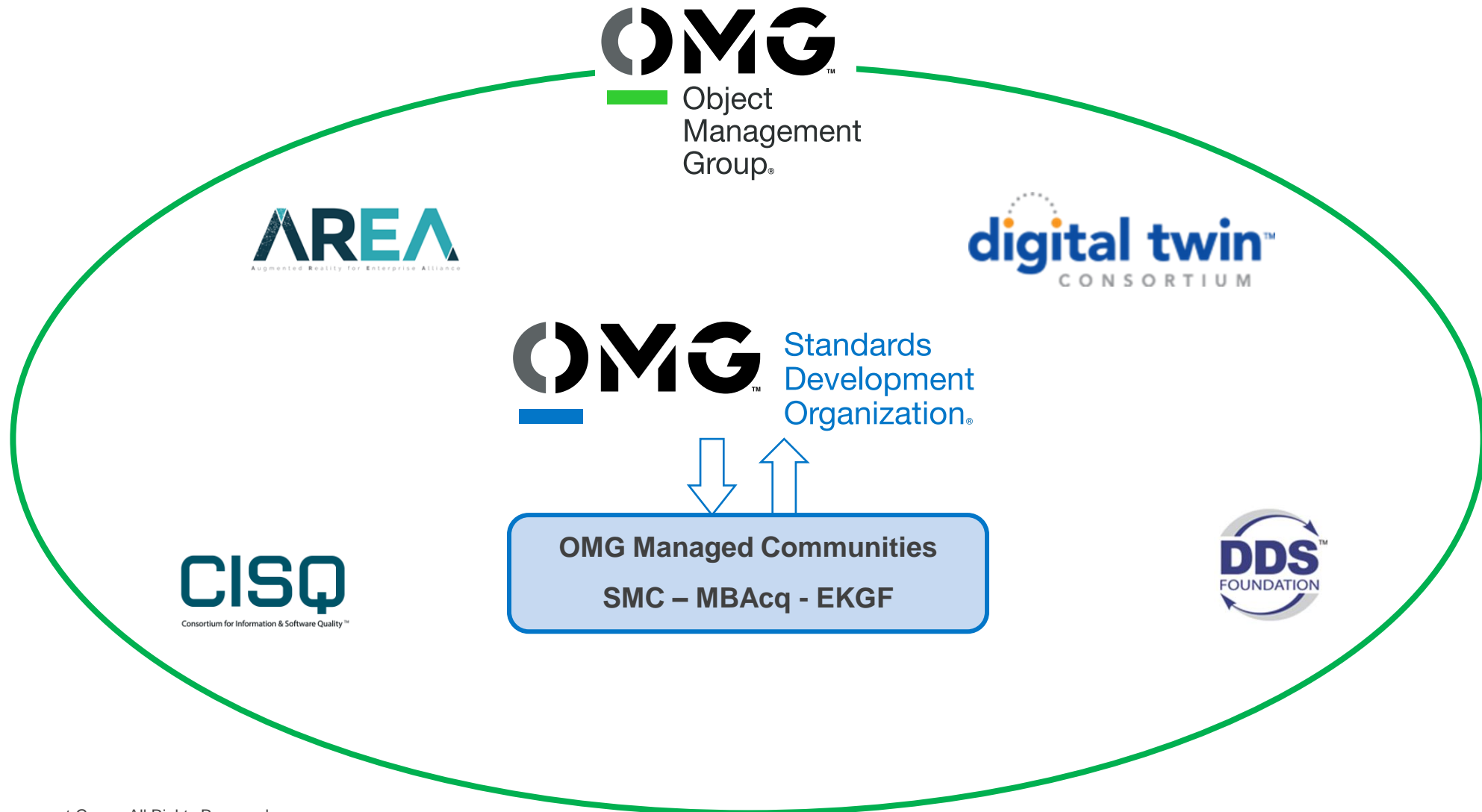
Mission

To generate technology standards that provide quantifiable real-world value to all vertical industries. That is why we are dedicated to bringing together our [international membership community](#) of end-users, researchers, and vendors in academia, government, and industry to develop and revise our standards as technologies change over time.

Vision

To provide a neutral forum where best practices from a wide range of fields can be discussed and standards can be generated that drive the adoption and innovation of cutting-edge technology spanning industries worldwide. Our [Standards Process](#) is fair, robust, transparent, and well-documented. Our one organization-one vote policy ensures that every member organization, despite size, has an effective voice in our voting process.

Object Management Group Inc. and Managed Programs



OMG Standards Work

The OMG Standards Development Organization (SDO) maintains and owns the standards for the benefit of industry, thanks in large part, to the passion of individual SDO members and the organizations that sponsor them.

Over the years, SDO has perfected a [time-tested formula](#) in which problems are identified and solutions are solicited, debated, revised and opened for comments. The process is repeated until the most technically and commercially sound ideas are ready to be integrated into products and systems.

The process has been successfully used to create and update technical specifications across virtually every industry domain to produce architecture, interoperability and modeling standards that make businesses more efficient and responsive in the marketplace at reduced cost.

**Standards in
Progress**

ISO Standards

OMG Standards

Our Most Popular Standards

As OMG continues to pioneer the development of technology standards, we invite passionate individuals and forward-thinking organizations to join us on this transformative journey. By actively participating in the standardization process, you contribute to a future where technological advancements are guided by a shared vision, collaborative effort, and a commitment to excellence.



[BPM+](#) *Business Process Management Plus*



[CORBA®](#) *Common Object Request Broker Architecture™*



[DDS™](#) *Data-Distribution Service for Real-Time Systems™*



[FIGI®](#) *Financial Instrument Global Identifier®*



[IEF™](#) *The Information Exchange Framework™*



[MOF™](#) *MetaObject Facility Specification™*



[SYSML®](#) *Systems Modeling Language™*



[UAF®](#) *Unified Architecture Framework®*



[UML®](#) *Unified Modeling Language™*



ISO PAS Relationship

www.omg.org/about/liaison.htm

Publicly-available Specification (PAS) liaison with ISO/IEC JTC1 allows some OMG standards to be elevated to full ISO/IEC standards.



The PAS relationship is renewed every 5 years. We renewed this in March 2025.

ISO/IEC JTC1 PAS

Some examples:

BPMN is ISO/IEC
19510:2013

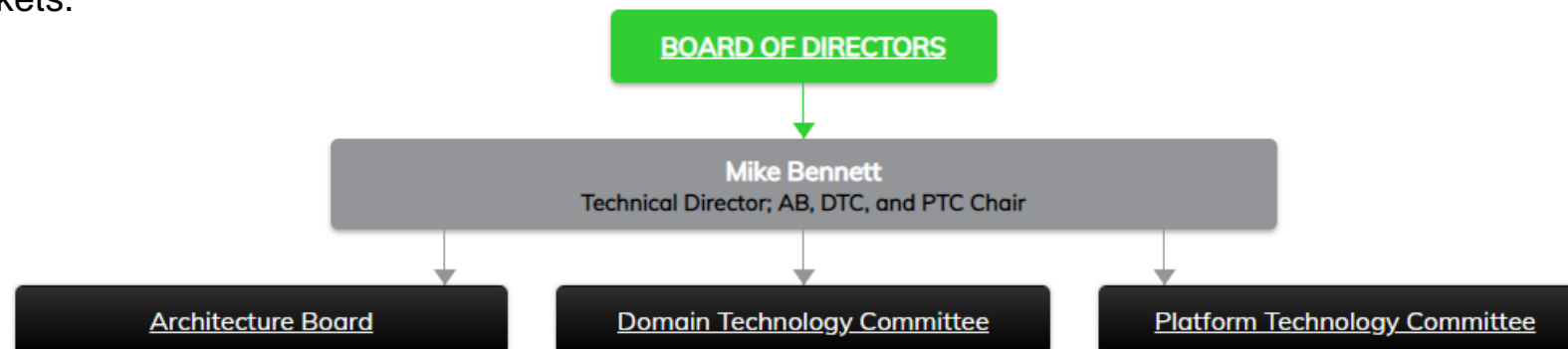
SysML is ISO 19514

CORBA is ISO 19500

UAF is ISO 19540-1 and 2

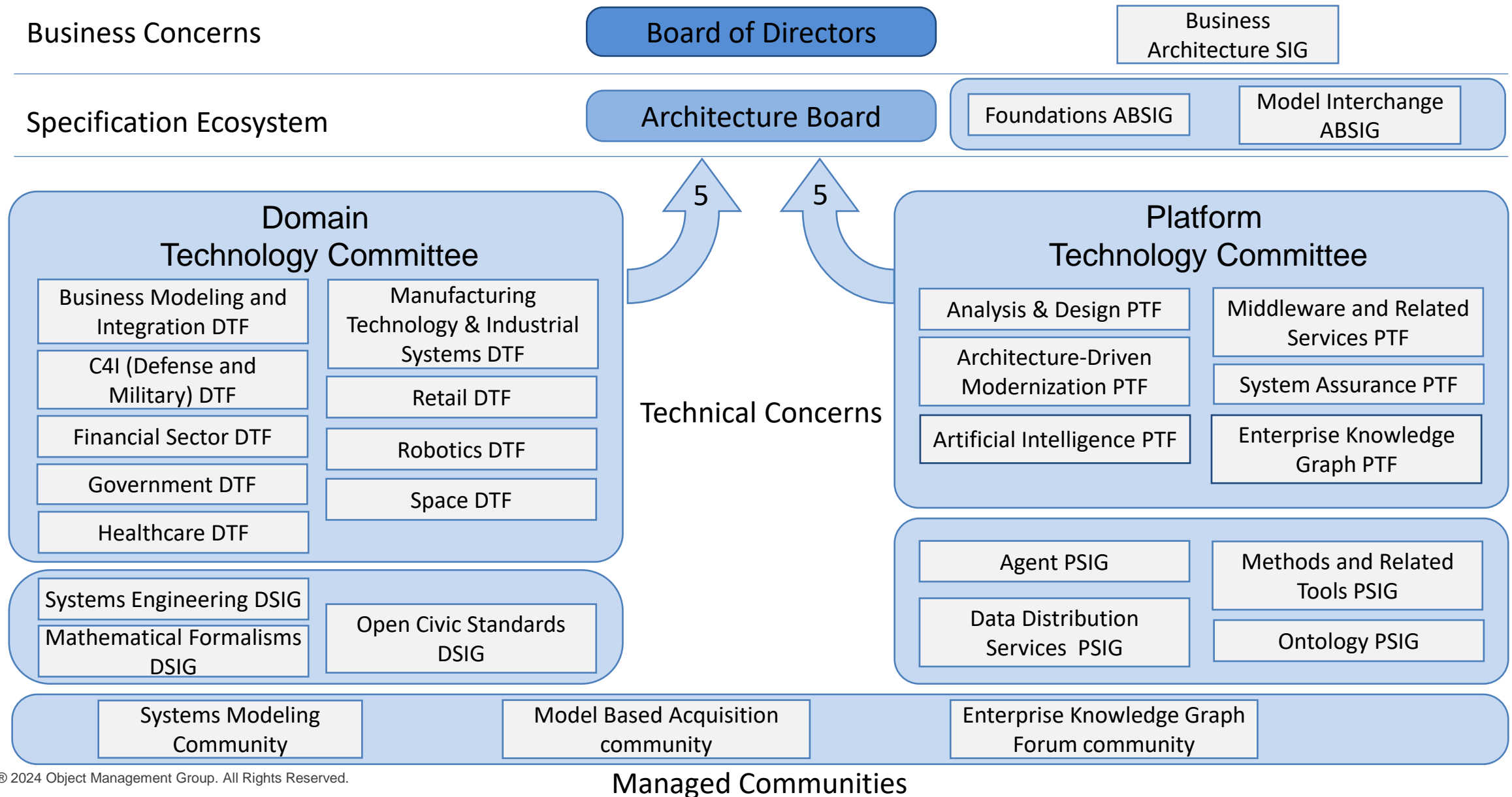
OMG SDO Organization

- **Architecture Board (AB):** Of the eleven AB seats, five are elected by the OMG's Domain Technology Committee, five by the Platform Technology Committee, and one is held by the independent chair (an OMG employee). Five seats are elected each year, and each elected seat has a term of two years.
The AB can make changes to the published architectural documents of the OMG and it approves RFP issuances and technology adoptions. To perform these duties the AB has a set of less formal procedures that facilitate the flow of actions between and during OMG meetings. It also occasionally issues documents about what it expects in RFPs and submissions.
- **Platform Technology Committee (PTC):** Purpose is to solicit, propose, review, recommend modifications to, recommend adoption of and maintain specifications of technology in pursuit of the goals stated in the OMG by-laws. The principal foci of PTC activity is the specification of OMG's Model Driven Architecture (MDA®); the Common Object Request Broker Architecture (CORBA®) applied at the enterprise and embedded systems levels; and the Unified Modeling Language (UML®), Meta Object Facility (MOF) and Common Warehouse Metamodel (CWM®) modeling technologies, Systems Modeling Language (SysML).
- **Domain Technology Committee (DTC):** Purpose is to solicit, propose, review, recommend modifications to, recommend adoption of and maintain specifications of technology in pursuit of the goals stated in the OMG by-laws. The principal foci of DTC activity is the specification of OMG's Model Driven Architecture (MDA®) and application of modeling and middleware technology to specific vertical markets.



OMG SDO Structure

<https://www.omg.org/homepages/index.htm>



Technology Process Overview

What makes a Standard? The Six Principles

1. Transparency
2. Openness
3. Impartiality and consensus
4. Effectiveness and relevance
5. Coherence
6. A commitment to participation by low- and middle-income countries

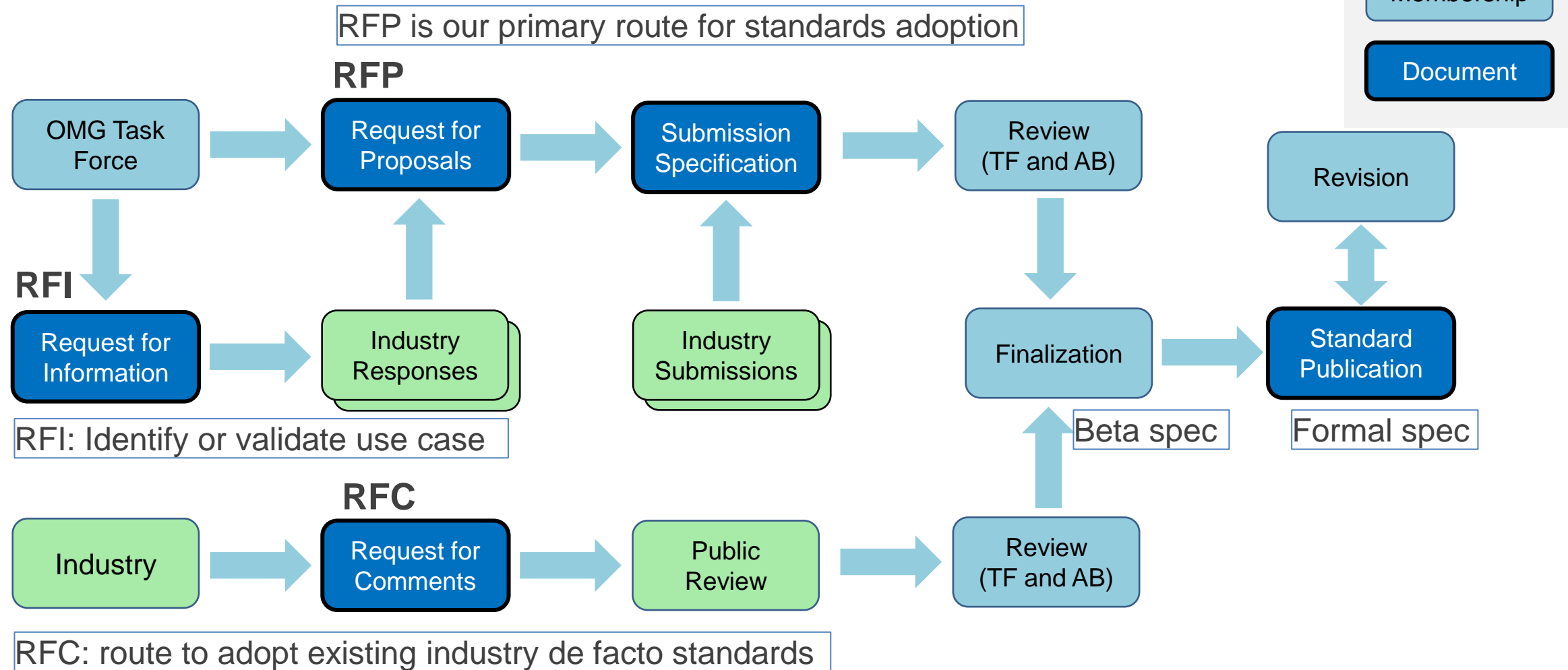
Source: United States Government National Standards Strategy For Critical and Emerging Technology (May 2023). Formerly at: www.whitehouse.gov/wp-content/uploads/2023/05/US-Gov-National-Standards-Strategy-2023.pdf

Now archived at: <https://bidenwhitehouse.archives.gov/wp-content/uploads/2023/05/US-Gov-National-Standards-Strategy-2023.pdf>

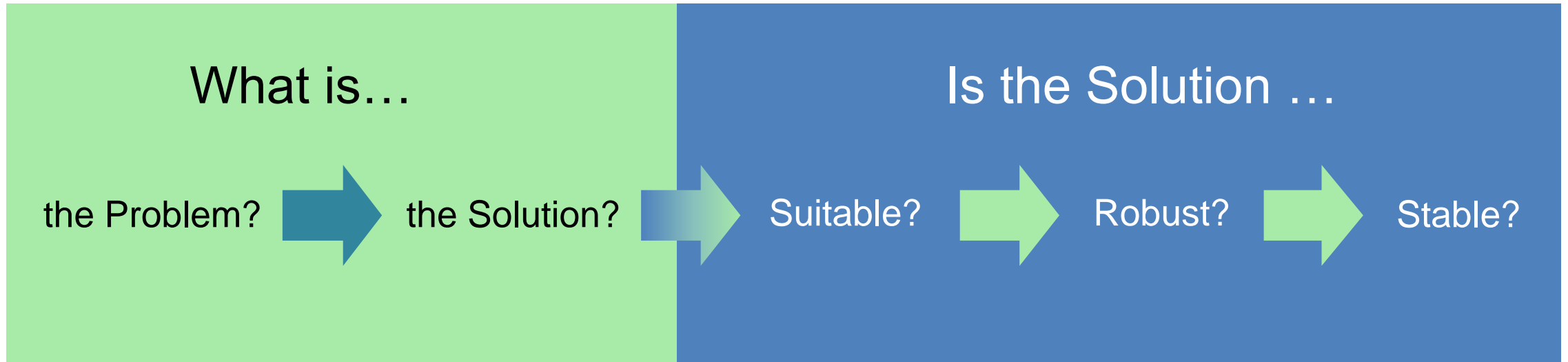
OMG Standards Development Organization (SDO)

- Mature and disciplined
- Established formal process over 35 years
- Open
 - We actively seek and welcome input from non-members in the marketplace/industry
- Member driven
 - Members collaborate on RFI, RFP and Submissions
- Fair
 - One member one vote
- Built upon industry best practices
- Timely and relevant
 - Does NOT produce shelfware
- Transparent
 - Specifications are freely available
 - Once approved for publication anyone can access and use the specs for no charge
- Evolutionary, not stagnant
 - Ongoing revision process

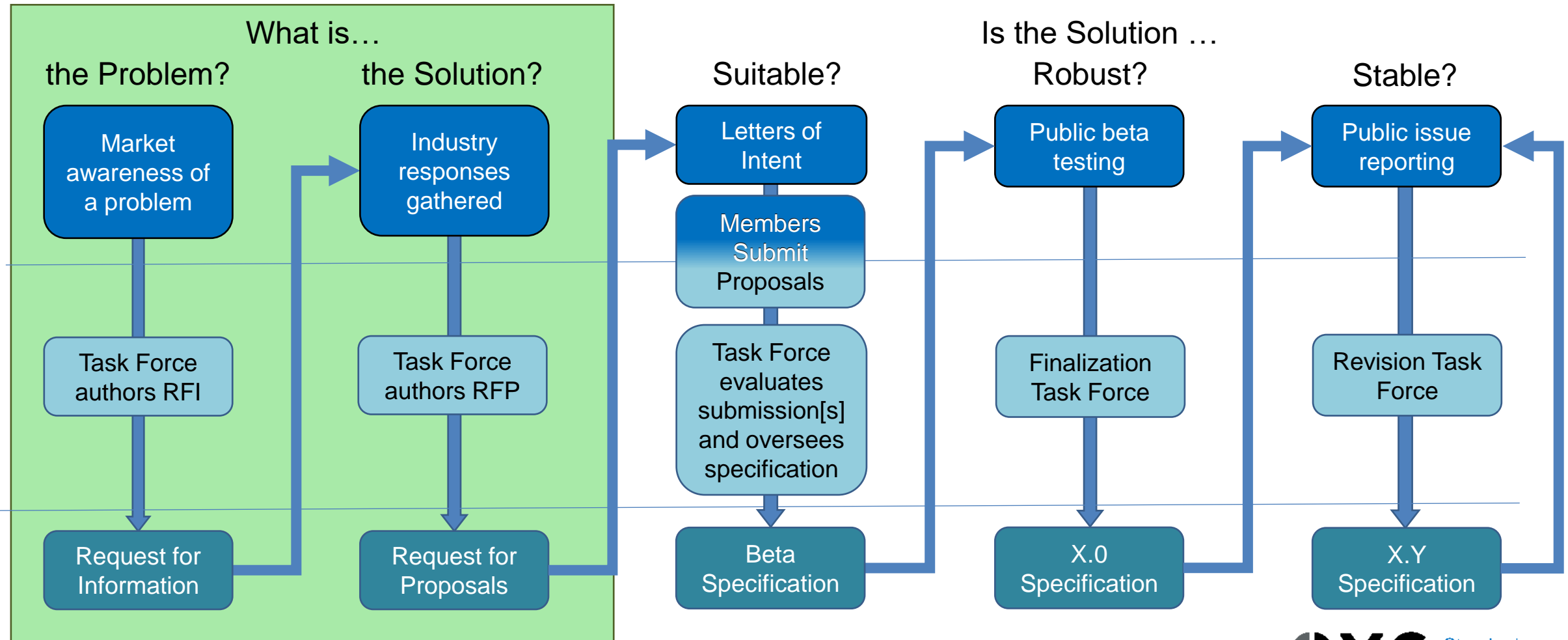
Paths to Standardization: RFI, RFP and RFC (Simplified)



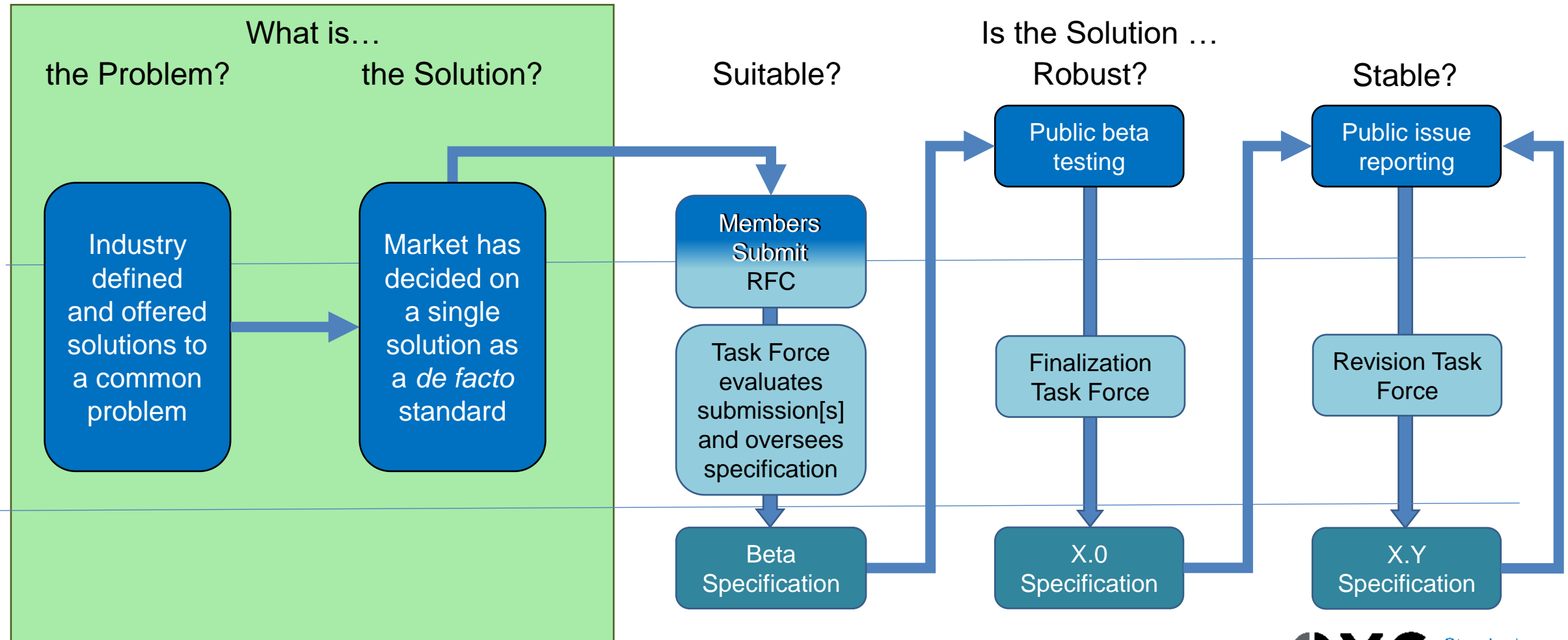
OMG Standardization – The Making of a Standard



Evolution of a Specification – Request for Proposals (RFP)



Evolution of a Specification – Request for Comments (RFC)



OMG Standards and Architecture

What is a Standard?

Historically there are standards for all kinds of things

Usually you don't have to think about it e.g. Which way to turn a screw

Anything you can define normatively (“You shall do this”) can be a standard

- Sizes, shapes etc. e.g. railway gauge
- Measures e.g. Système Internationale (SI)
- Meanings and definitions (ontology and vocabulary standards)
- Business processes (normative sets of steps to follow)
- Standards for the languages in which to say other things (that may or may not also be standards)

Formal and de facto standards

Often there are de facto standards in use

Formal standards have been through a formal SDO adoption process such as that of the OMG

Kinds of OMG Standards

Historically OMG architecture has focused on 2 main types of specification

Middleware e.g. DDS/CORBA

Model Based e.g. UML, BPMN, SysML;

- Some defined in MOF
- Some extend UML

Other kinds of OMG Standards include:

Ontology Standards

Domain standards

Bills of Material Standards

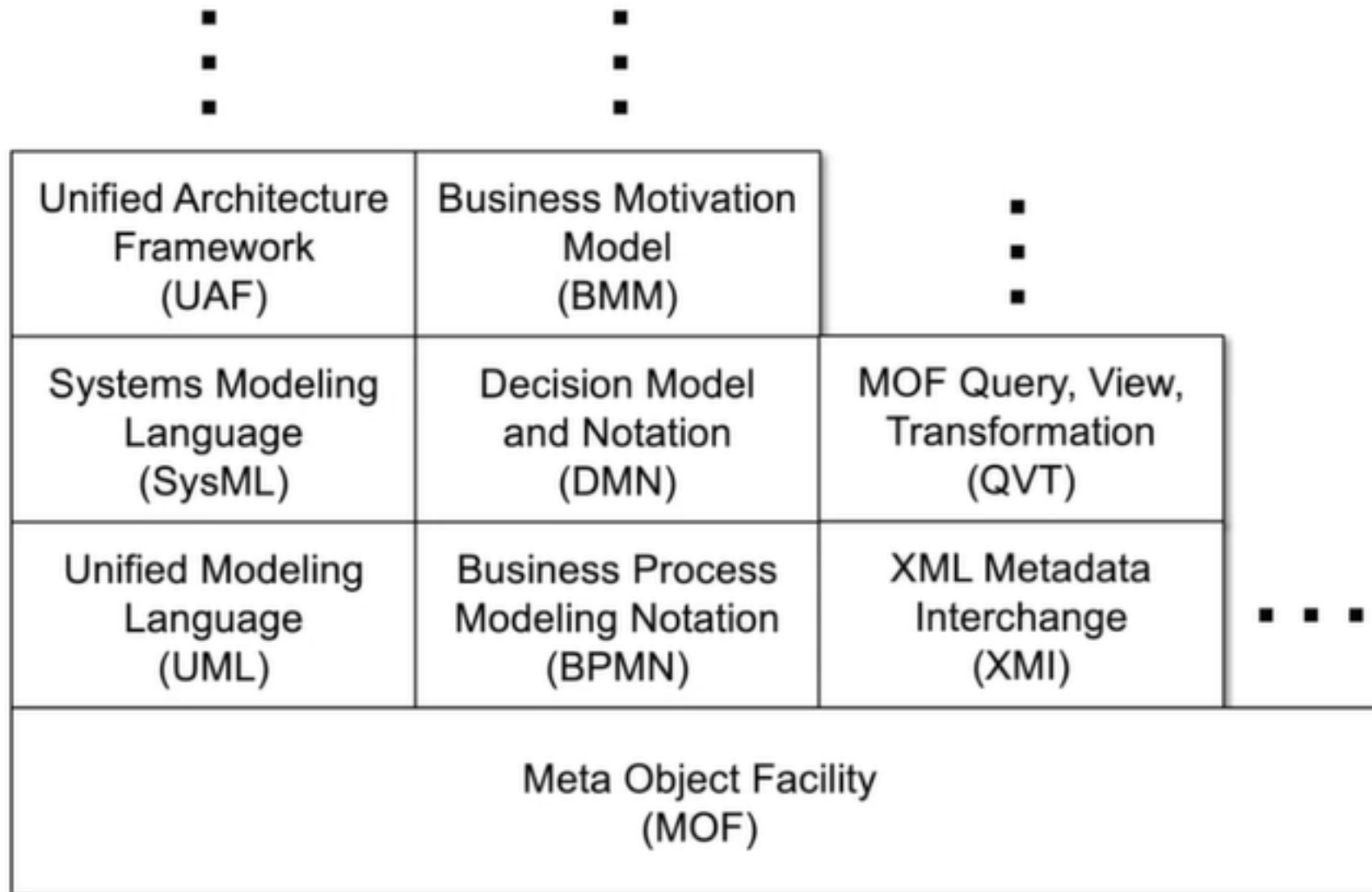
- Software
- System

Identifier Standards

Standard Libraries

Reference architectures

OMG Architecture Implementation



OMG Architecture History

Pre 1996 – CORBA, DDS (Middleware / OMA)

Model Driven Architecture (MDA) adopted 1996 - 2001

MOF and UML

Unites with Middleware (OMA)

MDA Formally adopted in 2004:

The basis on MOF was made official in August, 2004, when OMG's Object and Reference Model Subcommittee (ORMSC) unanimously adopted the definition of MDA that is being used to revise the official MDA Guide.

Model Driven Architecture (MDA)

Model Driven: separation of concerns

Computationally Independent Model (CIM) = Conceptual

Platform Independent Model (PIM) = Logical

Platform Specific Model (PSM) = Physical

Defines meta-levels (M0, M1, M2, M3)

Specifications: use of one or other of
MOF

UML (as profile)

Serialization via XMI

Transformations (supported, not mandated)

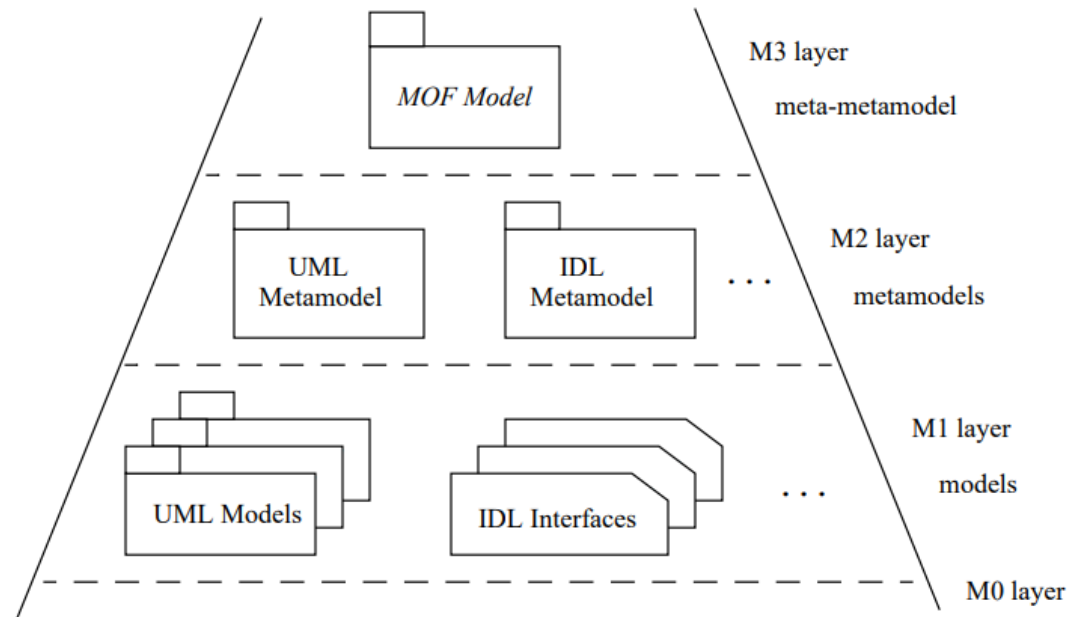
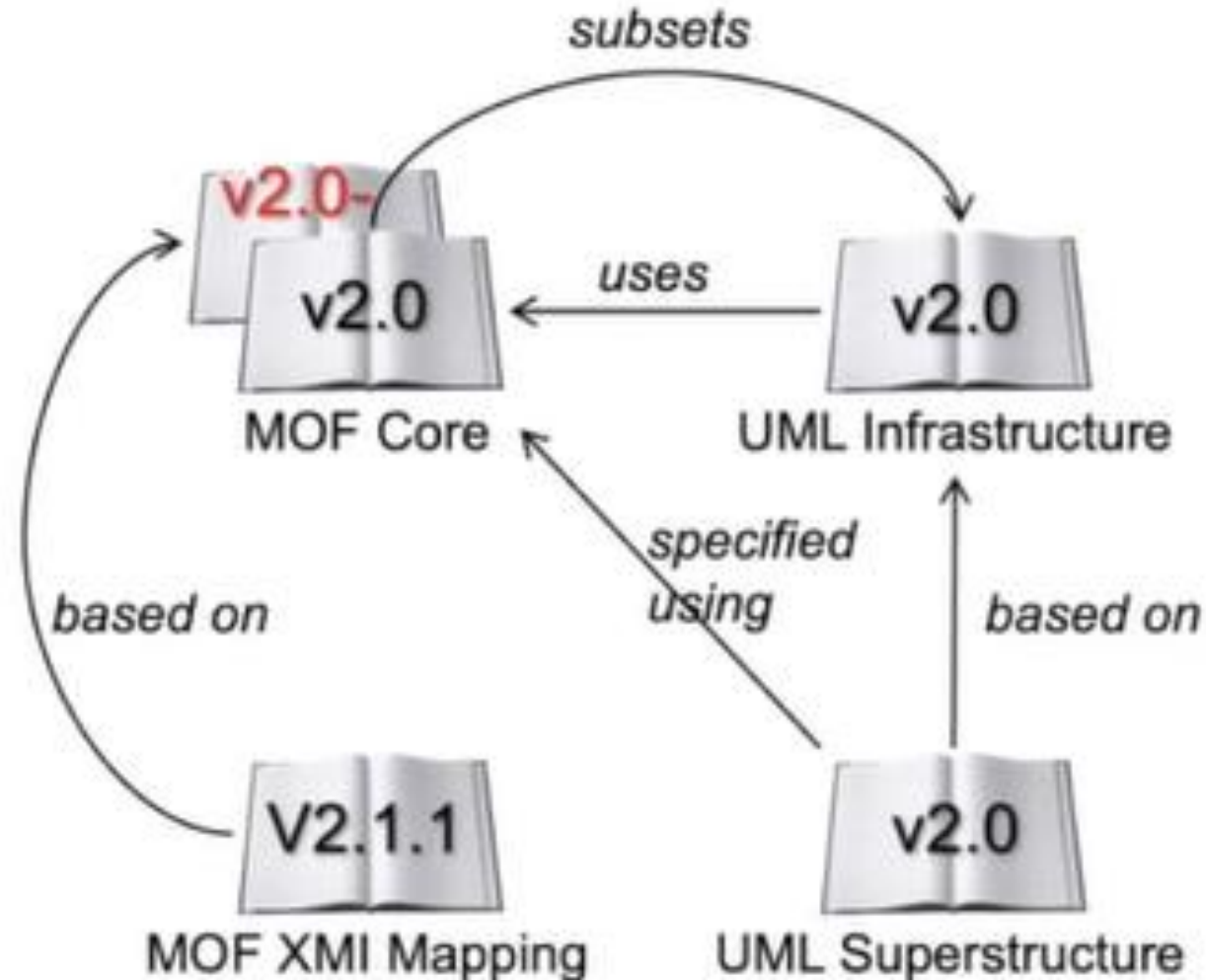
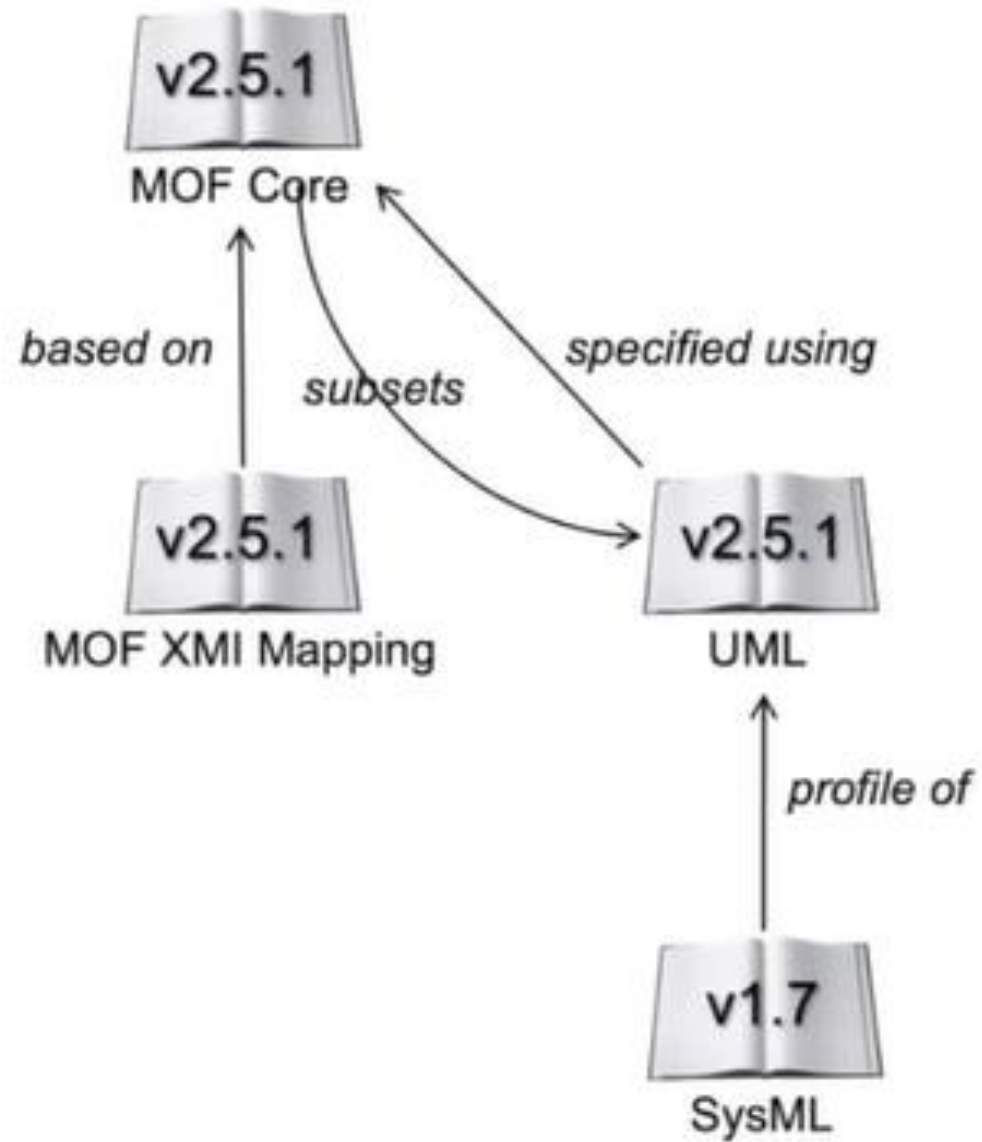


Figure 2-2 MOF Metadata Architecture

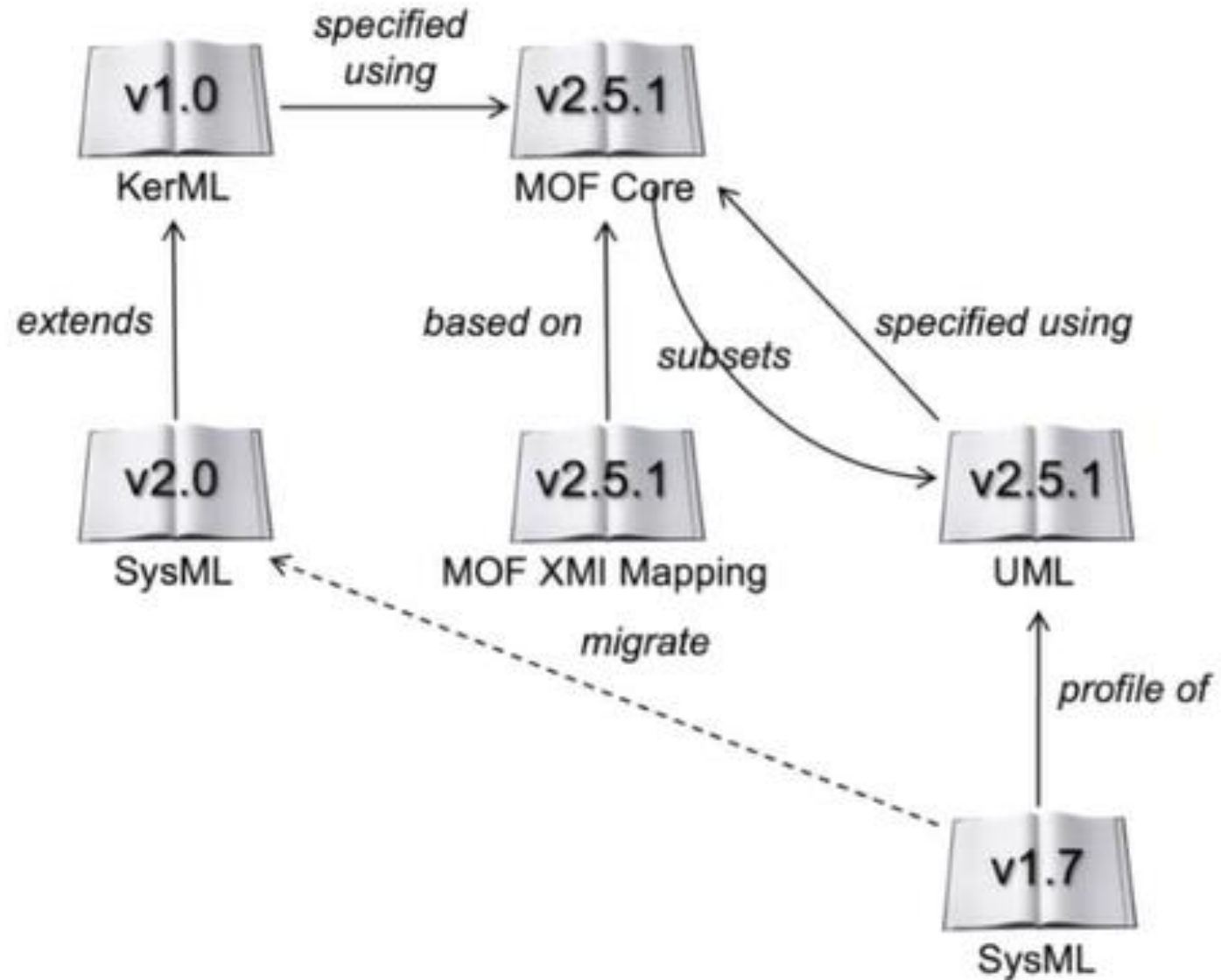
MDA Evolution: UML and MOF



MDA Evolution: SysML v1



MDA Evolution: SysML V2



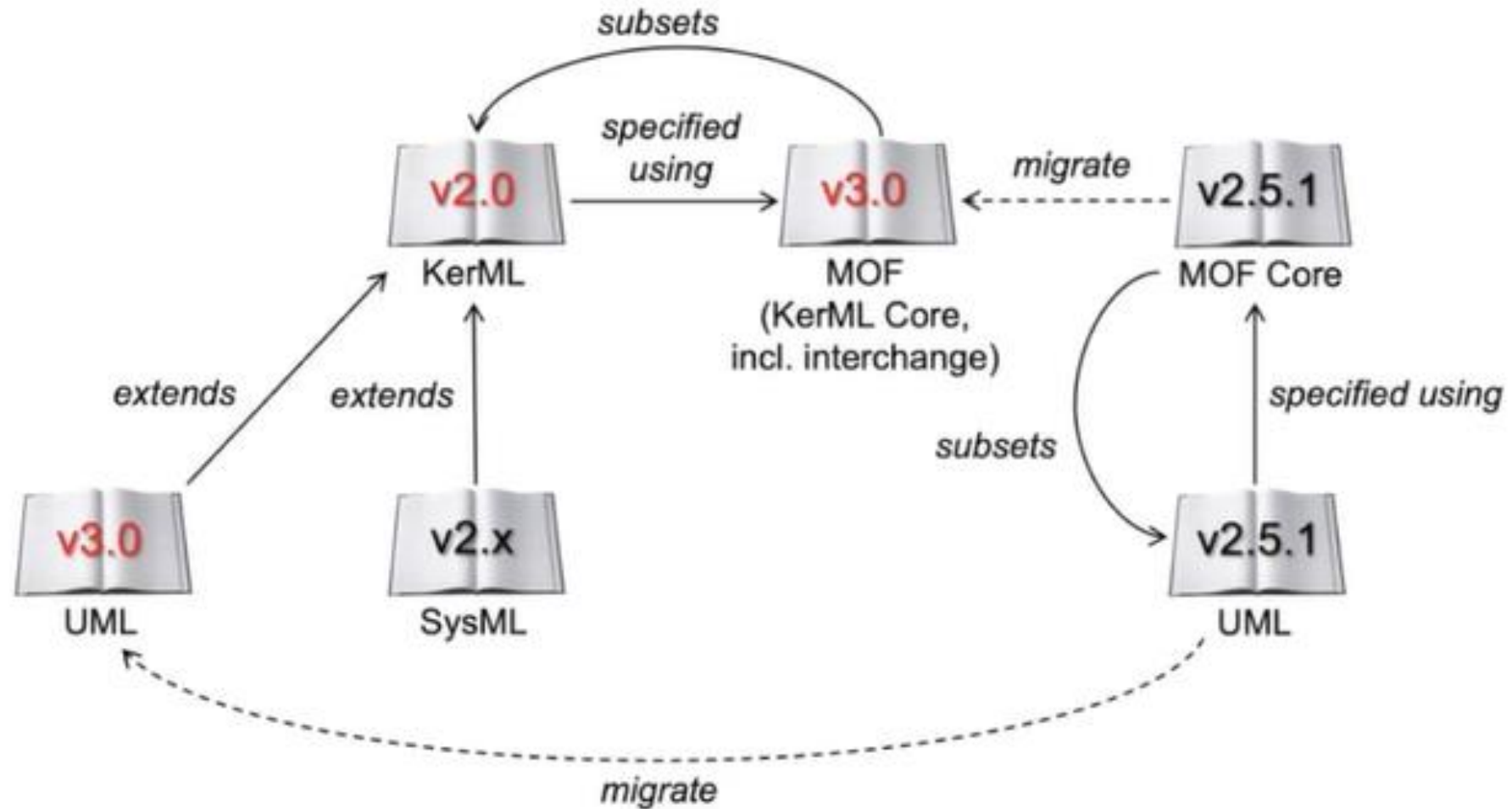
MDA Evolution: Future Plans

Break the “loop” between UML, MOF, UML

Future OMG specifications may be founded in KerML or in MOF

Both will exist for some time into the future

MDA Evolution: End Point (Proposed)



SysML V2 Standards Update

KerML – the Kernel Modeling Language

SysML V2 – new evolution of SysML, built on KerML

SysML V2 API and Services – complementary SysML API standard

All 3 have just completed the “Finalization” process and are undergoing formal Technical Committee vote

Beta versions are available for reference and use

Final “Formal” version to follow after Board approval

Metamodels and Semantics

Two kinds of foundation for a modeling language:

Metamodel: defines the language constructs

Semantics: how models may represent what is modeled

MOF defines Metamodel

KerML also has a Kernel architecture

Metamodel: replicates and incorporates what was in MOF

Semantics: has KerML 4D semantics

UAF also has a Kernel architecture

Metamodel = MOF

Semantics = BORO (IDEAS) 4D Ontology framework (simplified)

OMG Standards: Other architectures

Ontology Standards

Ontology represents or reflects something in some reality

Uses logical connectives to assert or transmit meaning (e.g. First Order Logic, Description Logic)

OMG ontology standards reflect the OMG DOL standard

OMG Commons: Data-friendly OWL ontologies for reasoning and querying applications

Meanwhile KerML also has formal semantics at its root

Others include

- Domain specific standards (Space, robotics, finance, manufacturing etc.)
- Software quality metrics
- Bills of Materials
- Domain libraries and reference architectures

Useful Links

All published OMG Specifications can be found on the “Catalog” page:

<https://www.omg.org/spec>

Specifications still going through the OMG process are on the “Work in Process” page:

https://www.omg.org/public_schedule/



Getting Involved

- **Request for Information (RFI):**
Anyone can respond to an RFI – no membership required
- **Request for Proposal (RFP):**
Authoring of the requirements for a specification is performed by OMG members
- **Letter of Intent (LOI):**
Anyone – members and nonmembers – can submit an LOI, which is not legally binding
- **Submission of Specification:**
All LOI submitters must be members at the right level by the first submission deadline to submit a response and remain on the voting list
- **Filing of Issues:**
Anyone in the world may file an issue at any time against any OMG specification
- **Handling of Issues:**
Fixes and enhancements are proposed, voted on, and woven into specification by OMG members

Who can participate?

info@omg.org

OMG Technical Meetings

OMG Technical Meetings provide a neutral forum for analysts, architects, consultants, developers, engineers, executives, experts, vendors, and end-users alike to influence, develop, and submit standards that enable technological interoperability across industries. Contribute to ongoing initiatives, inspire new ones, and network with industry experts.

We hold regional and sometimes international quarterly technical meetings each year during:

- Q1 March
- Q2 June
- Q3 September
- Q4 December

**Upcoming
Events**



OMG Technical Meeting Schedule 2025

Mark Your Calendar and Plan Your Travel

June 9-13, 2025 – Q2 OMG Technical Committee Meeting - Denver, CO USA

Co-Located: DTC Member Meeting: June 10-12

September 15-19, 2025 – Q3 OMG Technical Committee Meeting - Leeds, UK

Co-Located: DTC Member Meeting: September 16-18

December 8-12, 2025 – Q4 OMG Technical Committee Meeting - San Francisco, CA USA

Co-Located: DTC Member Meeting: December 9-11

<https://www.omg.org/events/index.htm>

Managed Communities

Our experts are at the forefront of the industry, working on projects that are shaping the future of global technologies. By joining OMG managed communities, you'll gain access to a wealth of cutting-edge insights that can transform your career.



**The Enterprise
Knowledge Graph
Forum**



**Model-Based
Acquisition User
Group**



Systems Modeling

**Membership
(Free for all OMG
SDO Members)**

OMG Inc. Managed Programs (Consortia)

When tech organizations, government, and academia need to solve discrete pieces of a technology puzzle or discuss matters of common interest—they often look to join or form a consortium.

Since 1989, we have created and nurtured a productive community with common technology interests and problems to resolve. We are global, not-for-profit, and vendor neutral.

Here's what diligent work, innovation, and intelligence are delivering today:



Established 1989

A forum where vendors and end users across industries work together to generate specifications and standards that drive the adoption of innovative technologies.



Established 2010 Develops standards to automate software quality measurement and promote secure, reliable, and trustworthy software.



Established 2014 Dedicated to helping accelerate the adoption of Enterprise Augmented Reality by supporting the growth of a comprehensive ecosystem.



Established 2020 Drives the awareness, adoption, interoperability, and development of digital twin technology through collaborative partnerships with industry, academia, and government.



Established 2022 Ensures that your IT organization is a responsible contributor and advocate for the planet's sustainable development goals.

OMG Certifications

Gain recognition of your competency, prove you are committed to your profession, and motivate other colleagues to enhance their skills. Become certified through OMG® and proudly display your qualifications by including the OMG Certification logo on your business cards, on your resume and online in our Certified Professionals Directory!



OMG certification programs are created by subject matter experts with extensive industry and best practice experience.

Our certification programs are designed for business analysts, business architects, software developers, software engineers, systems architects, systems engineers, etc. looking to advance their careers by becoming qualified to contribute to a project team and instill a verifiable sense of confidence in their peers

– Contact Terrance Milligan milligan@omg.org

<https://www.omg.org/omg-certifications/index.htm>

JOINT AI WORKING GROUP

<https://www.objectmanagementgroup.org/joint-ai-working-group/>



Open to member representatives from all OMG Consortia:
SDO, DTC, AREA



Contact [Harriet Costa](#) for assistance or questions

Select the subgroups where you plan to participate; options are:

1. Standardization and Semantics
2. Responsible AI
3. Interoperability and Intelligent Automation
4. Extended Reality: AR/VR/MR



Ontologies
Semantics



Interoperability
Intelligent Automation



Mixed Reality
(XR/AR/VR)



Responsible AI/Ethics
Data Provenance



JOURNAL OF INNOVATION

<https://www.objectmanagementgroup.org/journal-of-innovation/>

Contribute your expertise, thought leadership, and innovative ideas for publication.

Summer Edition:
Call for Abstracts -
Harnessing Generative AI
for Innovation, Resilience,
and Efficiency in Industries

The Journal of Innovation highlights the innovative ideas, approaches, products, and services emerging across the information technology and digital transformation landscapes

With the Journal of Innovation, experts and thought leaders in OMG communities showcase their leadership in technology. Our consortia deliver standards and best practices that ensure digital transformation across industries. We are furthering the adoption of critical technologies such as augmented reality and digital twins. And we help IT organizations contribute to our planet's sustainability goals. Visit the Journal of Innovation [archives](#).

CONTRIBUTE TO THE NEXT JOI ISSUE



SHAPING THE FUTURE IN A DATA-CENTRIC CONNECTED WORLD



PIONEERING INNOVATIONS IN AVIATION AND AEROSPACE



BRINGING CREATIVITY, AGILITY, AND EFFICIENCY WITH GENERATIVE AI IN INDUSTRIES



THE ROLE OF IOT IN SHAPING THE FUTURE OF SUPPLY CHAIN

OMG Staff

Member Services



Mike Bennett
Technical Director

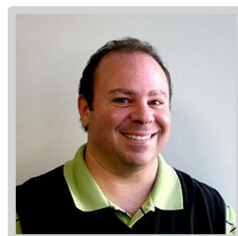


Juergen Boldt
VP Member Services

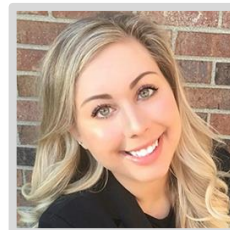


Diane Ebranjan
Director, Member Engagement

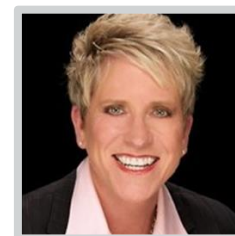
Events & Marketing



Mike Narducci
Director, Meetings & Events

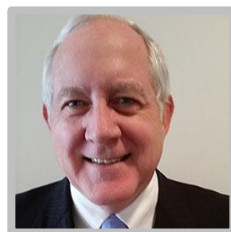


Kate Hart
Director of Marketing



Nancy Zukowski
Vice President of Marketing

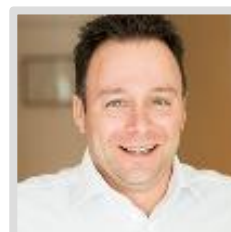
Business Development



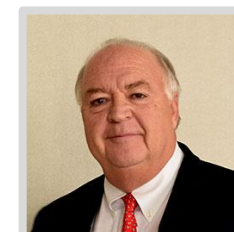
Steven A. MacLaird
Senior Vice President



Steve Gillis
Senior Account Executive



Chris Corso
Account Executive



Bill Hoffman
CEO & Chairman

help@omg.org

events@omg.org
marketing@omg.org

info@omg.org
[+1-781-444-0404](tel:+17814440404)





Standards
Development
Organization®

Thank You!