



Standards
Development
Organization®



WHY STANDARDS MATTER

Why Do Standards Matter?

Only 10% of an iceberg is visible above the waterline. The same can be said for software.

Today, machines converge with devices and both converge with intelligent data. The rise of interconnected devices and machines with smart analytics increases the complexity of software.

Just as a huge block of underwater ice supports the tip of the iceberg, the software beneath the surface of an application supports many layers: data storage, data access, frameworks, business logic and APIs. And each layer requires a different protocol to interact with the other layers.

And since users refuse to buy all of their devices from one manufacturer, the issue of multiple layers and protocols interoperating and communicating with each other can impede the progress of IIoT.

So, what can expedite the kind of interoperability that will maximize the potential of new technologies? Standards

Technology Standards

The Object Management Group® (OMG®) is a recognized, global leader in the creation of technology standards that influence and transform how businesses, governments, and people live, work and communicate. OMG members volunteer their expertise and, most importantly—commitment and support—to shepherd some of the most important standards used in virtually every technology and industry sector. Cell phones, battleships, robots, banking systems, medical devices, IoT applications, satellite ground stations, sensor systems, intelligence applications, software-defined radios, laser printers, every distributed Java application, Navy surface programs and high-speed stock trading are just a few examples where OMG standards are deployed.

Founded in 1989, the Object Management Group is an international, open membership, not-for-profit technology standards consortium with representation from more than 300 vendors, end-users, government, and academia members around the world. Its standard development process has been used more than one thousand times to develop more than 225 specifications.

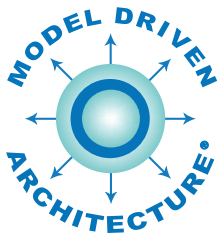
Standards Development Organizations

Joining a technology standards organization invites exclusive entrée to work alongside the best minds in industry, government, and academia who will shape the next generation of technology products. Members share their expertise to develop high-quality technical standards, providing the foundation for vigorous, competitive markets that benefit vendors, customers, and end-users alike. Getting involved in a standards group affords an insider's look into where the industry is heading, simplifies product development to accelerate ROI, and provides a jump start on the use of the standard long before it becomes public.

Popular Object Management Group Standards



BPMN Business Process Modeling Notation has become the de-facto standard for business processes diagrams. It is intended to be used directly by the stakeholders who design, manage and realize business processes, but at the same time be precise enough to allow BPMN diagrams to be translated into software process components. BPMN has an easy-to-use flowchart-like notation that's independent of any particular implementation environment.



Model Driven Architecture® (MDA®) is the practice and set of standards for deriving actionable value from models and system architecture. MDA enables the production of business and technology assets and capabilities from models. Models in this sense may include Enterprise Architectures, Service Oriented Architectures, Ontologies, Business Processes, Data Models, Object Models, and more.



Unified Modeling Language™ (UML®) is used to specify, visualize, and document models of software systems, including structure and design. A large number of UML-based tools are on the market to analyze application requirements and design solutions. Modeling is essential to the success of large software projects. A model plays the analogous role in software development that blueprints play in the building of a skyscraper. Models let us work at a higher level of abstraction.



Systems Modeling Language™ (SysML®) is a general-purpose graphical modeling language for specifying, analyzing, designing, and verifying complex systems that may include hardware, software, information, personnel, procedures, and facilities. SysML enables the Model Based Systems Engineering (MBSE) approach to improve productivity, quality, and reduce risk for complex systems development.



Data Distribution Service™ (DDS™) is a middleware protocol and API standard for data-centric connectivity. It integrates the components of a system, providing low-latency data connectivity, extreme reliability, and a scalable architecture that business and mission-critical Internet of Things (IoT) applications need. DDS was the first open international middleware standard directly addressing publish-subscribe communications for real-time and embedded systems.



Common Object Requirements Broker Architecture™ (CORBA®) is perhaps the most well-known OMG standard and running live in more than five billion settings right now: CORBA is in every single mobile phone, JTRS radio, robot, banking system, etc. Computer systems, networks and cell phones all use CORBA as the architecture of choice. CORBA is a vendor-independent architecture and infrastructure that computer applications use to work together over networks with the standard protocol IIOP.

Benefits of Standards



Standards prevent vendor lock-in, maximizing negotiating power in contracts and prices.



Standards spur innovation, allowing users to swiftly and efficiently respond to new business needs or to access new markets.



Customers purchase from companies that anticipate and drive market needs, knowing their products will be continuously refreshed with standards-based upgrades, thereby extending the lifetime of their IT investments.



Vendors who are involved in the standard development process get standard-compliant products to market faster.

When companies become OMG members, they contribute to a like-minded community of thought leaders and experts. OMG members have pioneered modeling standards enabling powerful visual design, execution and software maintenance felt in the growth of horizontal disciplines and sectors such as finance, government, healthcare, insurance, security, space and the Industrial Internet of Things.

OMG offers multiple membership levels depending on the organization's business strategy. The OMG "One Organization, One Vote policy" levels the playing field so that members from both large and small companies have an equal voice from issuing requirements for a standard to voting for its adoption. And the OMG Anti-Shelfware policy guarantees its standards actually result in real-world applications.

OMG and ISO

Users can be confident that OMG standards have a global presence. The OMG technology adoption process is recognized by international standards bodies. Long-term ties to ISO and IEC help fast track many OMG standards as approved International Standards within two years. That way, end users know they're securing technology from multinational companies that are deploying some of the most important standards in today's international software industry.

There is no difference in the technical specifications. The specifications you can download for free at OMG.org are the same that you can purchase through ISO.org.

OMG Specification	Acronym	Version	ISO Documents
Business Process Modeling Notation	BPMN™	2.0.1	19510:2013
Common Object Request Broker Architecture	CORBA®	3.1.1	• Interfaces 19500-1:2012 • Interoperability 19500-2:2012 • Components 19500-3:2012
Knowledge Discovery Metamodel	KDM	1.3	19506:2012
Meta Object Facility	MOF™	2.4.2	19508:2014
Object Constraint Language	OCL™	2.3.1	19507:2012
OMG System Modeling Language	SysML®	1.4	19514:2017
Unified Modeling Language	UML®	2.4.1	• Infrastructure 19505-1:2012 • Superstructure 19505-2:2012
XML Metadata Interchange	XMI®	2.4.2	19509:2014

About OMG

The Object Management Group® (OMG®) is an international, open membership, not-for-profit computer industry standards consortium. OMG Task Forces develop enterprise integration standards for a wide range of technologies and an even wider range of industries. OMG's modeling standards enable powerful visual design, execution and maintenance of software and other processes. Visit www.omg.org for more information.