Model and Data Interchange at Object Management Group (OMG)

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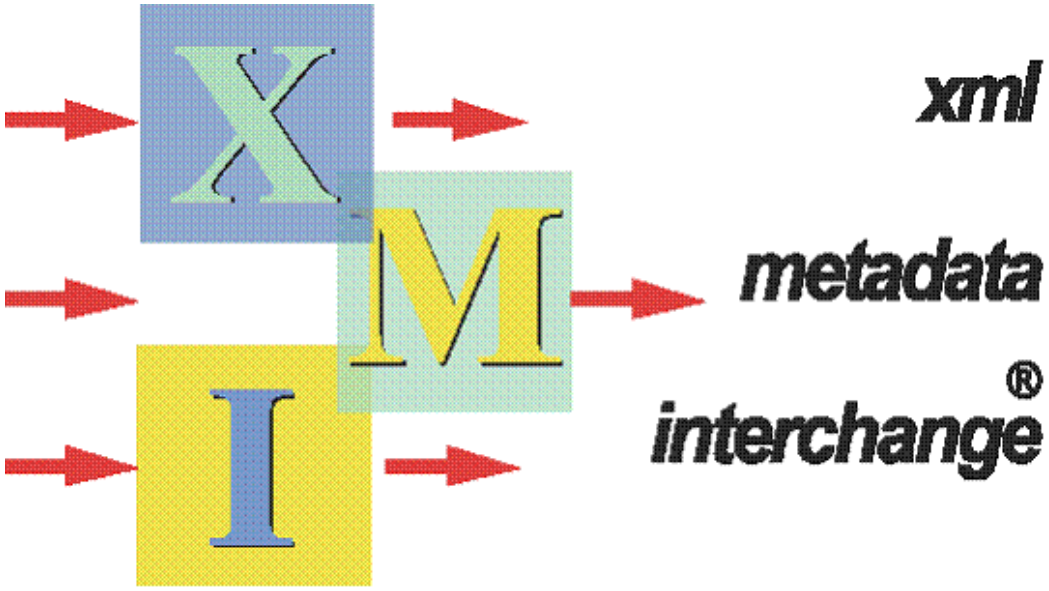
OMG's XML Metadata Interchange



OMG Specification Name	ISO/IEC Number
Unified Modeling Language (UML)	ISO/IEC 19501
Meta Object Facility (MOF)	ISO/IEC 19502
XML Metadata Interchange (XMI)	**ISO/IEC 19503**
Note: ISO/IEC standard may lag current OMG specification version	

"**XMI - XML Metadata Interchange** allows MOF-compliant metamodels (and therefore models, since a model is just a special case of a metamodel) to be exchanged as XML datasets."

Standards-like: DoDAF/MODAF.
Standards: UPDM, UML/SysML, MOF/XMI.

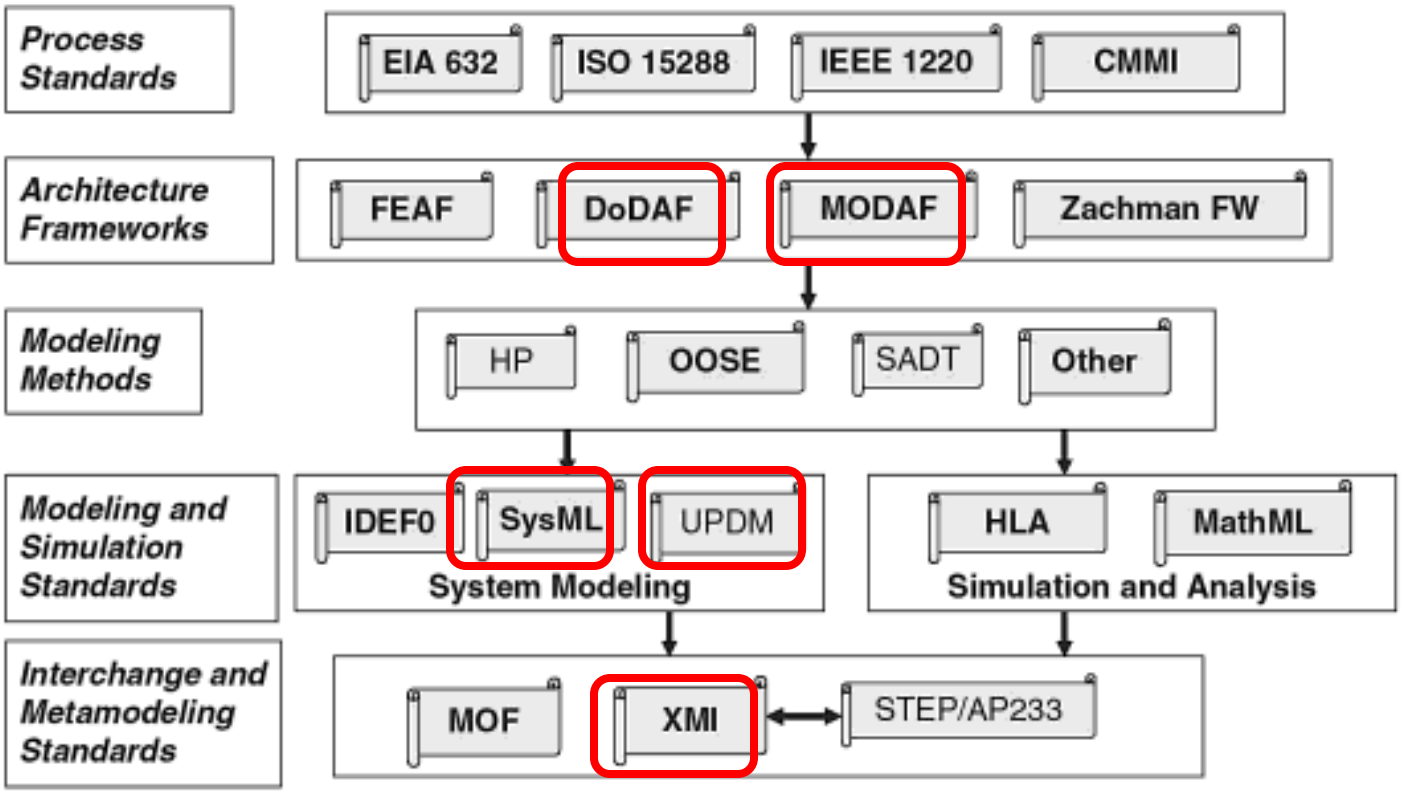
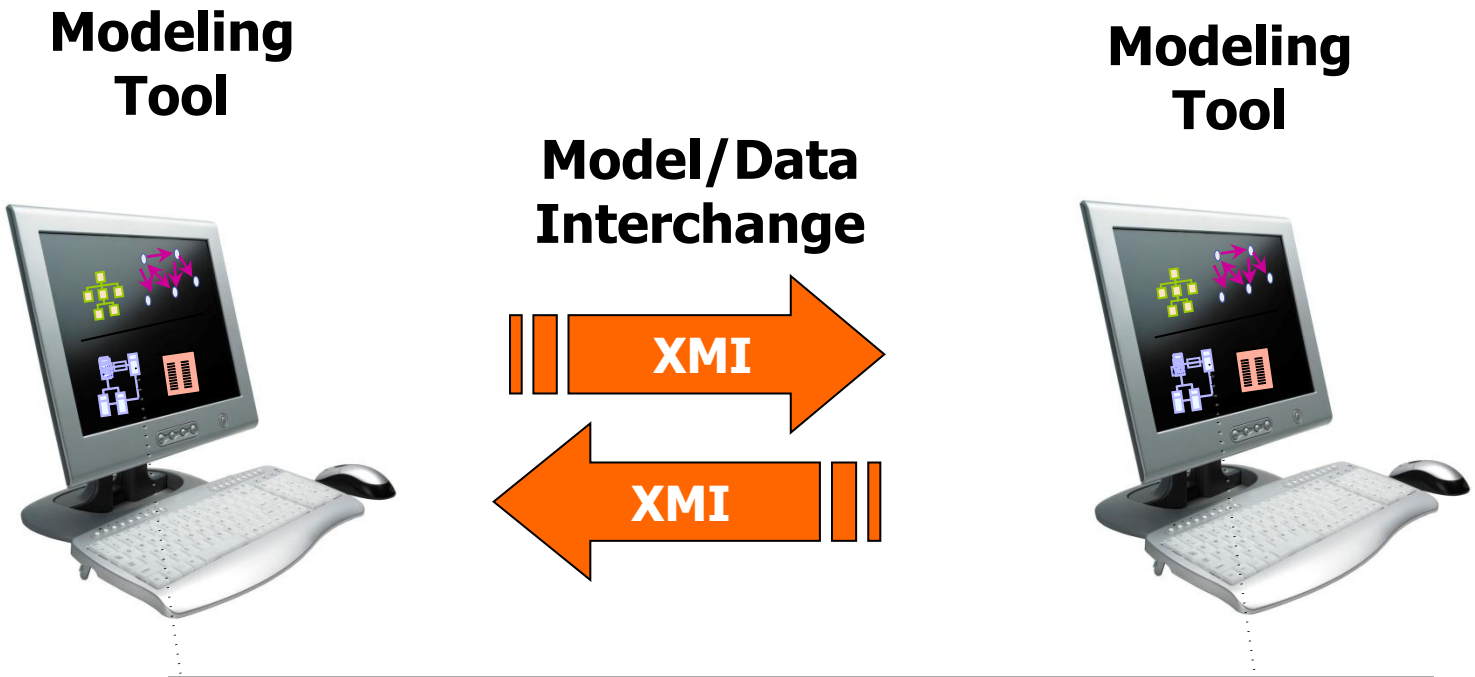


FIGURE 1.9

A partial systems engineering standards taxonomy.

–Friedenthal, et al., *A Practical Guide to SysML* (2008)

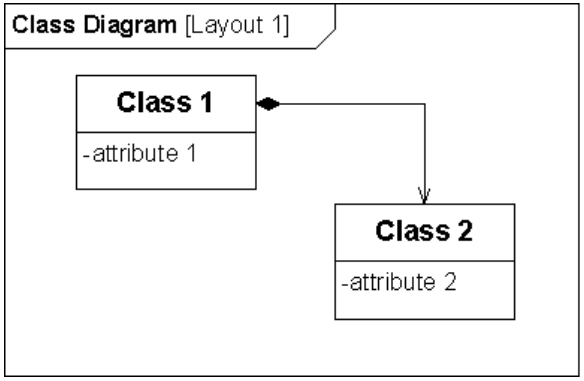
Model Interchange Via XMI

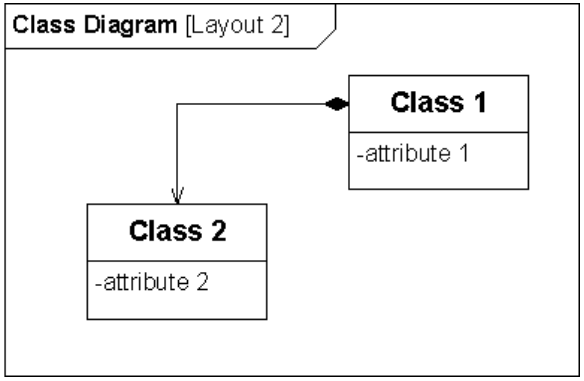


Note: For simplicity, we show exchange between two tools. MIWG testing at OMG has dealt with ½ dozen tools. Projects should deal with complexity of versioning among toolsets through their usual configuration management processes.

Model Interchange vs Diagram Interchange

- Model interchange with XMI exchanges model information (e.g., classes, associations, activities)
- XMI does not currently include diagram layout information
- OMG Adoption of Diagram Definition standard ***(expected Sep 2010)***
  - Most tools provide auto-layout capability to quickly generate the diagrams from the model information
  - Future OMG efforts will leverage XMI to also include exchange of diagram layout information





Model Interchange Working Group (MIWG) Objectives and Approach

- Objectives:
  - Enhance XMI Specification
  - Demonstrate interoperability of XMI-based tools
- Approach
  - Focus on model interchange among UML, SysML, and UPDM tools
  - Multiple vendors involved
  - Tests capabilities among vendor tools
  - Identify and resolve interchange issues
- Wiki Web Site:
  - http://www.omgwiki.org/model-interchange
- Interoperability Demonstrations at OMG Technical Meetings
  - December 2009 (completed)
  - December 2010 (upcoming)

MIWG Participants
(as of Aug 2010)

Participating Tools		
Tool	**Vendor - Organization**	**Point of Contact**
Metadata Manager	Adaptive	Pete Rivett
Artisan® Studio	Atego	Ralph Hains Hedley Apperly
RSx	IBM	Maged Elaasar
IBM Rhapsody	IBM/Sodius	Eldad Palachi/ Tom Cappelle
Validator	NIST	Peter Denno
MagicDraw	NoMagic	Nerijus Jankevicius
Modelio	SOFTEAM	Philippe Desfray
Enterprise Architect	Sparx Systems	Sam Mancarella

Mickael Albert	Sodius
Hedley Apperly	Atego
Roy Bell	Raytheon
Etienne Brosse	SOFTEAM
Roger Burkhart	John Deere
Tom Capelle	Sodius
Steve Cook	Microsoft
Fatma Dandashi	Mitre
Peter Denno	NIST
Sandy Friedenthal	Lockheed Martin
Maged Elaasar	IBM
Ralph Hains	Atego
Nerijus Jankevicius	NoMagic
Len Levine	DoD/OSD
Sam Mancarella	Sparx
Simon Moore	Atego
Eldad Palachi	IBM
Nicolas Rouquette	JPL
Pete Rivett	Adaptive
Ed Seidewitz	Model Driven Solutions
Andrew Watson	OMG

Backup

DoDAF/UPDM, example of interlocking disciplines in an integrated system development environment

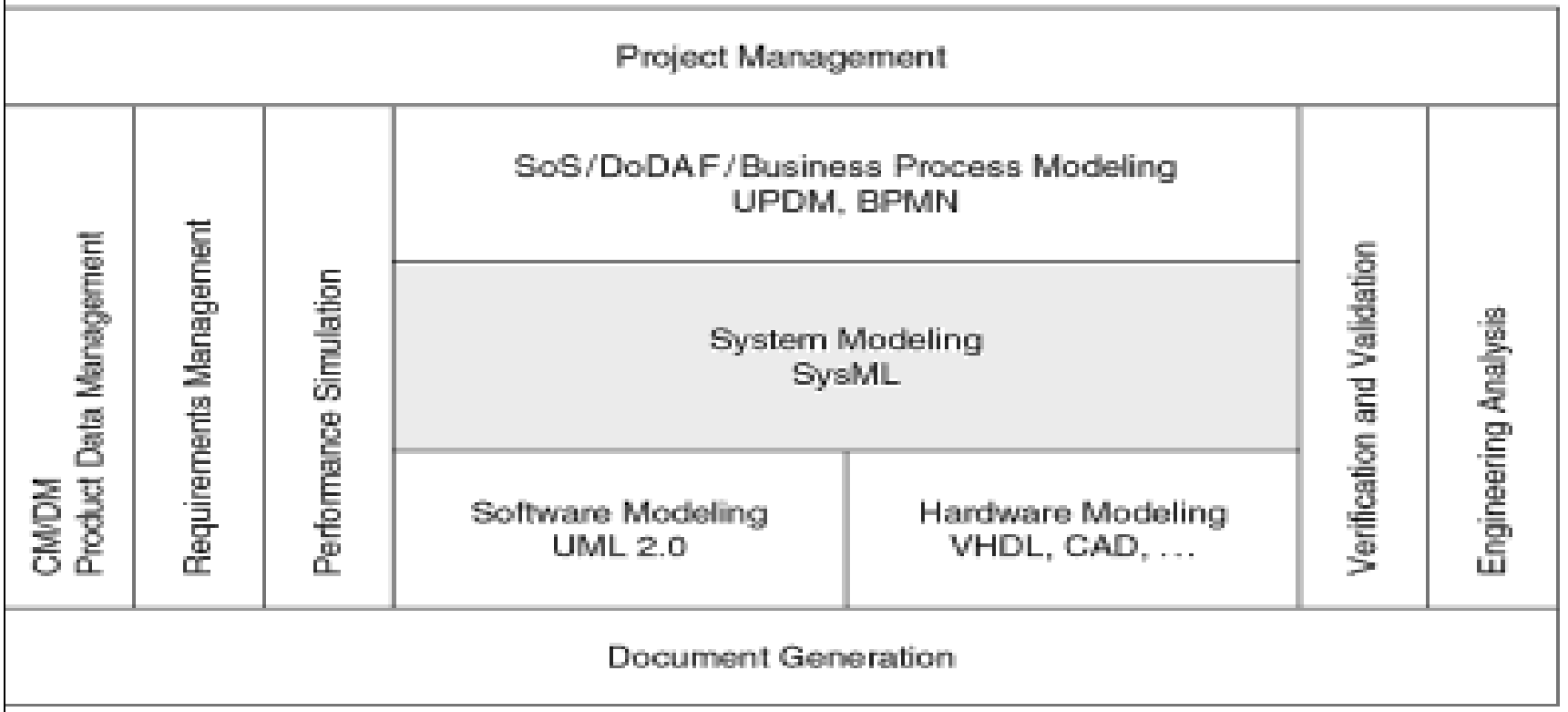


FIGURE 17.2

Interlocking disciplines in an integrated system development environment.

–Friedenthal, et al., *A Practical Guide to SysML* (2008)

Incremental Test Cases: Progress

- Completed Test Cases 1-10 (Jun 10):
  - Class Modeling, Profile Definition, Activity, Composite Structure, State Machine, Use Case, Interactions, & SysML blocks (simple)
- Upcoming Test Cases 11-17 (Jul – Dec 10):
  - More SysML, Requirements, Swimlanes, Parametrics, Allocations…
- **2011:UPDM**
  - NOTE: MIWG & UPDM GROUP will use the latest specification or standard that has been implemented by at least 3 commercial vendors at the time of the testing
- Participants (Dec 09)
  - Atego (participating tool), IBM (participating tools), SOFTEAM (participating tool) , No Magic (participating tool), Sparx Systems (participating tool) , Adaptive (Test case construction, validation and support) , MDS (Test case support and version control), NIST (Independent test case validation), Lockheed Martin (Chair), Raytheon (co-chair)

UPDM Group

- And Last but Not Least, we come to a standard in Defense Architectures
- The Unified Profile for DoDAF (US) and MODAF (UK) (UPDM) Group
  - Established under & supervised by the OMG C4I Domain Task Force
    - The C4I DTF is a Domain Task Force of the Object Management Group (OMG) that operates under the Domain Technical Committee and is focused on systems that support crisis response, Search and Rescue (SAR), and military operations.
- http://c4i.omg.org/index.htm & http://www.updm.com/

UPDM Group

PRESS RELEASE • Pressemitteilung
• Communiqué de Presse • Comunicato Stampa

London, UK and Washington DC, USA – 19th May 2008.

"New, independent industry group sets sights on fast-tracking a standard specification for defense architecture modeling"

Established to build on previous efforts within the Object Management Group (OMG) to develop a modeling standard that supports both

- the US Department of Defense Architecture Framework (DoDAF) and
- the UK's Ministry of Defence Architecture Framework (MODAF).
- ***Note***:
  - *UPDM 1.0 was issued* by OMG in December 2009 and UPDM 1.1 is being readied this summer for release to ISO this Fall 2010.
  - UPDM Group is working on UPDM 2.0 with Final Submission also this Fall to the OMG C4I DTF and Architecture Board. After anticipate revision, OMG release is expected Spring 2010. UPDM 2.1 will follow and will be submitted to ISO.
- http://www.updm.com/press/UPDM001.pdf

UPDM – Unified Profile for DoDAF/MODAF

Matthew Hause
UPDM Co-Chair

UPDM Group

Adaptive	Mitre
Artisan Software	Northrop Grumman
ASMG	L3 Comms
BAE Systems	MOD
DoD	NoMagic
DND	Raytheon
embeddedPlus	Rolls Royce
Generic	Sparx Systems
General Dynamics	VisumPoint
IBM	Selex SI
Lockheed Martin Co	Thales
Mega	Unisys

June, 2010

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