

Model-Based Enterprise Standards Committee

Overview Presentation

San Antonio, Texas

13 NOV 2019

ASME MBE PLENARY SESSION AGENDA 13 November 2019

Location:
Holiday Inn Riverwalk
(210) 224-2500
217 North St. Mary's Street,
San Antonio, Texas 78205-2303

Time	Subject
09:00 a.m.	Welcome and introductions Name, Affiliation, Location Sign in: google doc
09:15 a.m.	MBE Standards Committee Purpose How to keep informed How to get involved Work Groups Overview Terms Use Case & Model Based Standards Development MBE Framework Near Term Strategy
9:50 a.m.	Q & A / break
10:00 a.m.	Technical Presentations Related to the MBE Standards Activity
10:00 a.m.	Review a Structured Process for Defining Terminology Presenter: Jeffrey Winter (NNSA, DOE)
10:30 a.m.	Transforming legacy, static engineering documents into smart, connected, and change-aware assets Presenter: Tatyana Vidrevich (XSB)
11:00 a.m.	Using Model-Based and Agile Development Processes to Develop STEP Standards Presenter: Brandon Sapp (Boeing)
11:30 a.m.	Dismiss to Lunch Reconvene at 1:00 p.m. WG of your choice.

Digital Sign-In Form:

<https://forms.gle/i5HzGFR7Nfec27A67>



MBE Standards Committee Members

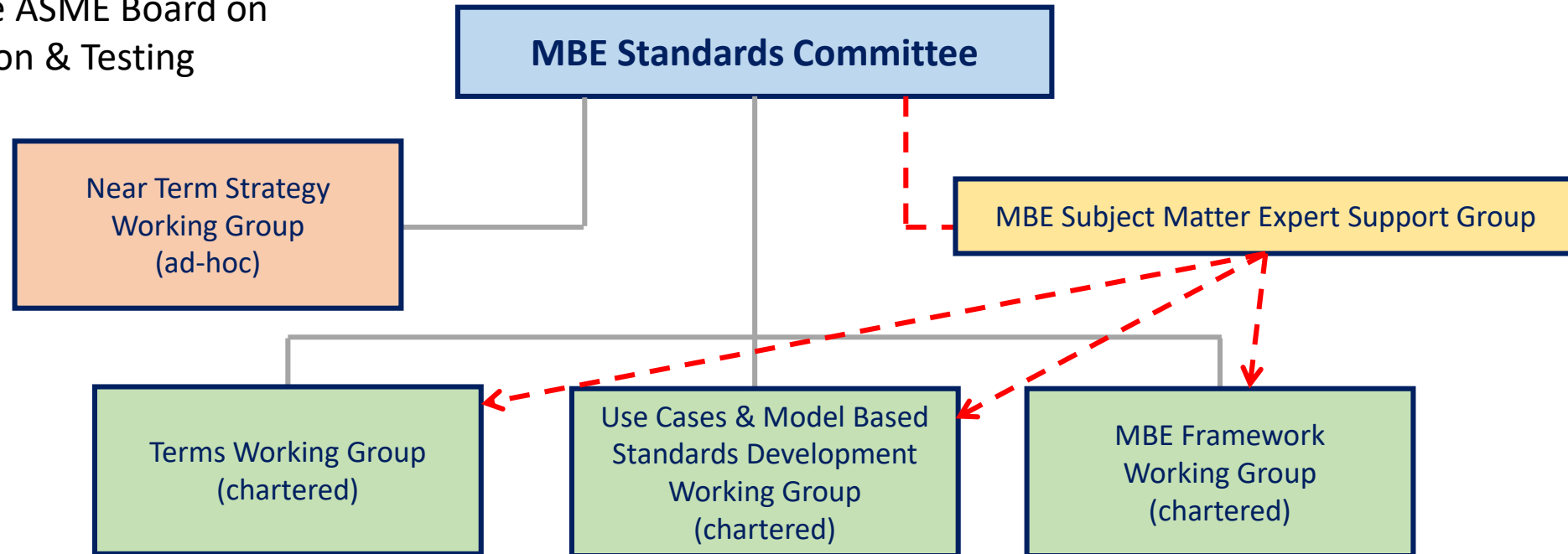
- Thomas Hedberg, *National Institute of Standards and Technology (Chair)*
- Jennifer Herron, *Action Engineering (Vice-Chair)*
- Roy Whittenburg, *Lam Research (Vice-Chair)*
- Lawrence Bergquist, *John Deere (Technical Secretary)*
- Fredric J. Constantino, *ASME (Staff Secretary)*
- Curtis Brown, *Honeywell FM&T*
- William Cockrell, *Raytheon Company*
- Bryan Fischer, *TDP360 LLC*
- Nate Hartman, *Purdue University*
- William Sobel, *Vimana*

MBE Standards Committee History



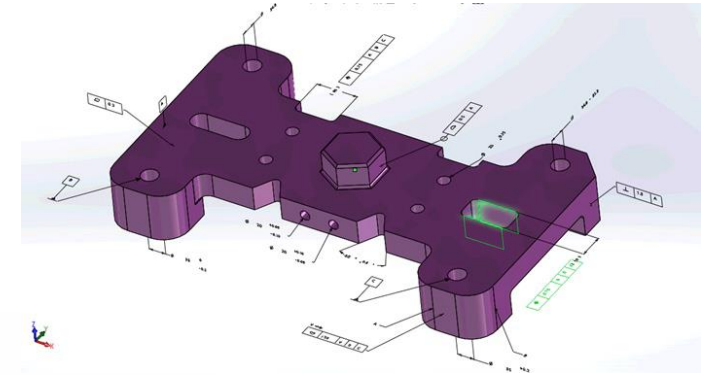
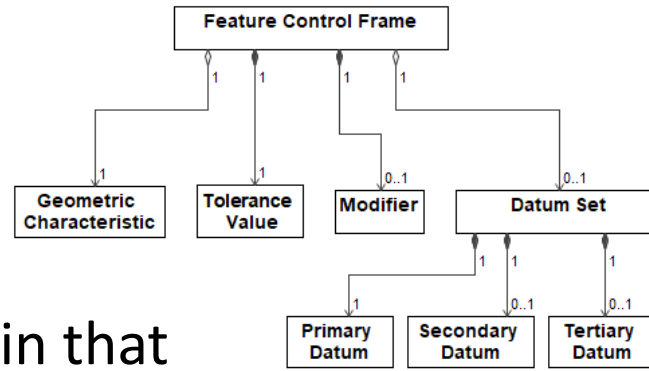
MBE Committee – Current Structure

The MBE Standards Committee reports to the ASME Board on Standardization & Testing



What is MBE?

- A “Starting-Point” Definition
 - An environment and methodology in that models are the data source, rather than documents, for all engineering activities throughout the product lifecycle.



- Example Classes of Models
 - System
 - Product
 - Process

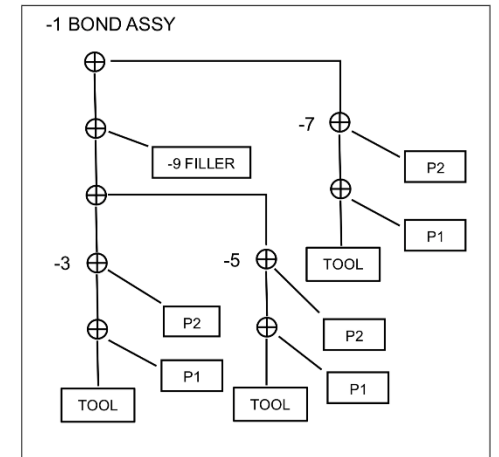
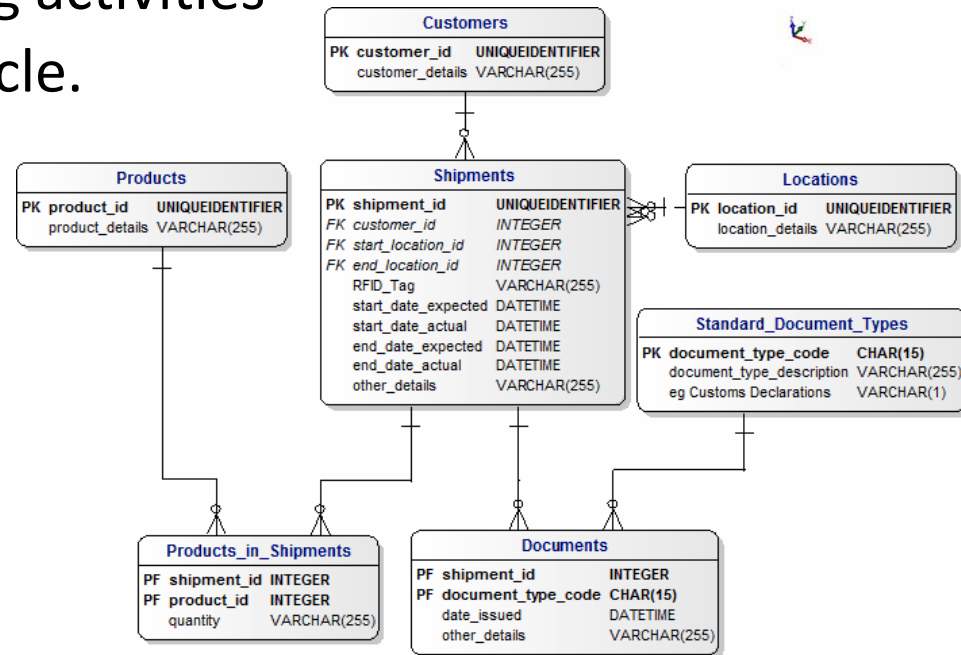


Fig. 9 A CCG tree for the -1 BOND ASSY in Fig. 6.

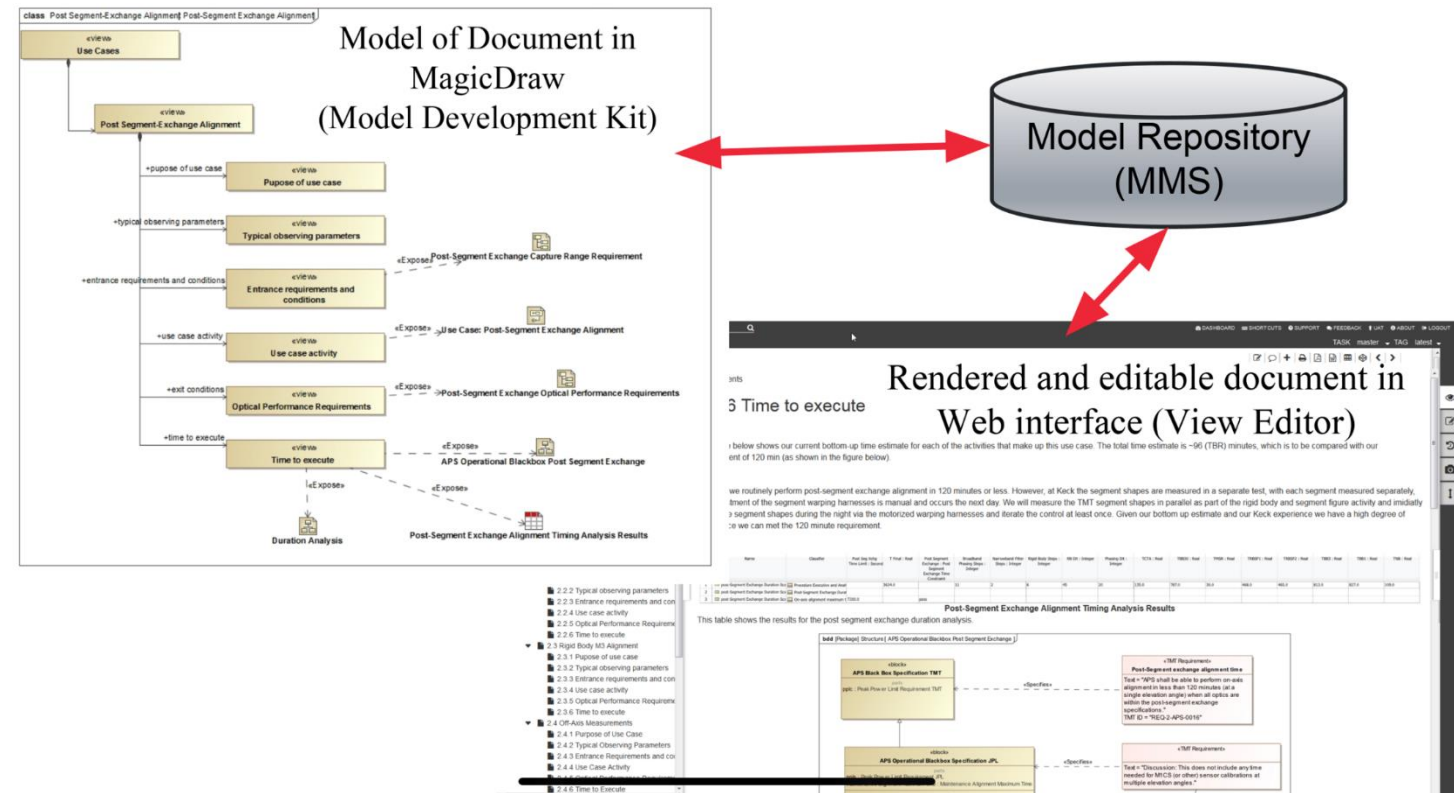
MBE Standards Committee's Current Focus

- Provide rules and structure that facilitate creation and exchange of digital-product definition (DPD) and associated data for reuse in downstream datasets, such as, analytical datasets and process-definition datasets
- Facilitate creation and exchange of model-based DPD in upstream and downstream operations
- Facilitate data exchange, sharing, and reuse between design, analysis, manufacturing, inspection, assembly, and all other lifecycle activities

How will we develop MBE standards?

Core Integration of MMS, MDK, and VE

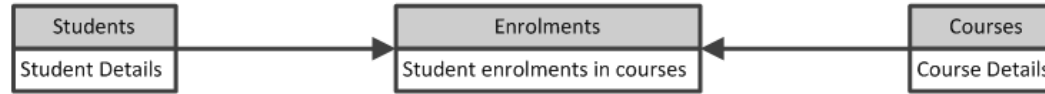
- Model-based standards development methodology
 - Standards development policy
 - Modeling languages
 - Verification and validation (V&V)
 - Configuration management
 - Standard delivery
 - Normative sources
 - Informative documentation
 - Supportive resources



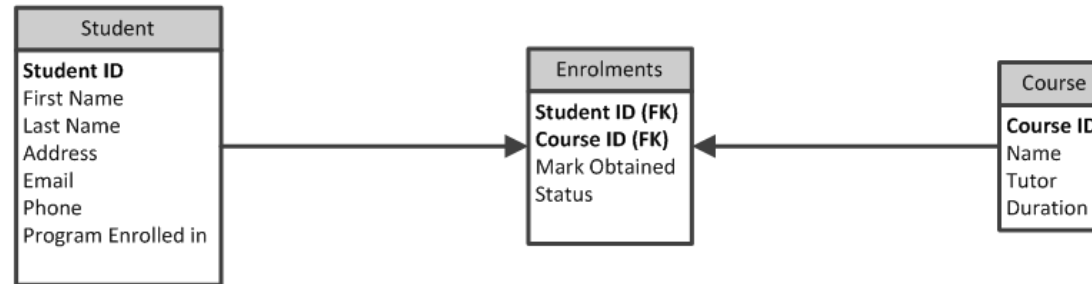
Examples of Model Abstractions

ASME MBE?

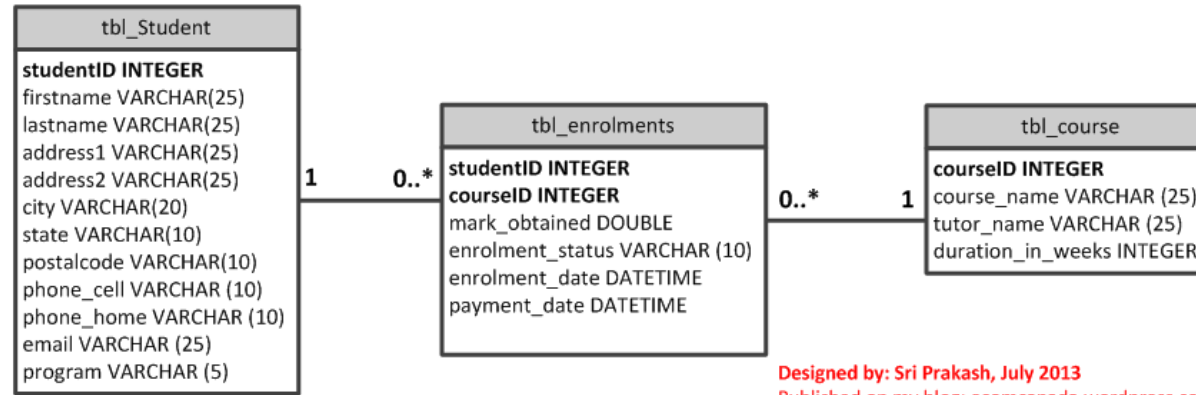
Conceptual Model



Logical Model



Physical Model



Designed by: Sri Prakash, July 2013
Published on my blog: ecomcanada.wordpress.com

Other SDOs?

e.g.:

- ISO TC184/SC4
- ANSI/DMSC
- ANSI/MTConnect

Terms Working Group

Leader: Curtis Brown, cbrown@kcnsd.doe.gov

- Purpose
 - The Terms Working Group's focus is to begin collecting and defining terms, acronyms, and abbreviations for use in ASME MBE Standards.
- Outcomes
 - Support consistent definition and application of terms across all ASME MBE Standards using a model-based lexicon and approaches

Objective

- The ASME MBE Lexicon's terms, acronyms, and definitions will enable MBE practitioners to collaborate with precision (i.e., remove ambiguity) and ease (i.e., understanding) by providing preferred terminology and consistent definitions across all ASME MBE Standards.
- Furthermore, the MBE Lexicon will provide a foundation to more confidently, rapidly, and collaboratively progress MBE.



First Deliverable: Top Core MBE Terms

- Acronym
- Term
- Definition
- Synonym
- Specialization w/Citation



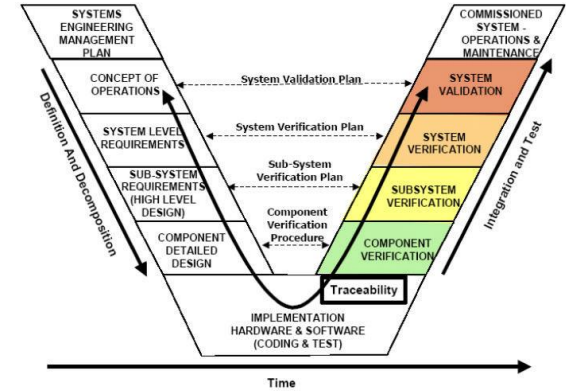
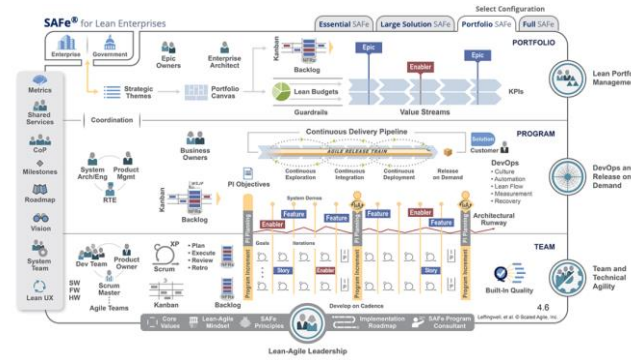
Use Cases and Model Based Standards Development (MBSD) Methodology Working Group

Leader: Will Sobel, will@govimana.com

- Purpose
 - The Use Cases & MBSD Working Group defines the methods the MBE Standards Committee will use to develop use cases and model-based standards.
- Outcomes
 - The working group is the author and maintainer of the model-based methods for generating use cases and standards for MBE to ensure consistent definition of use cases and standards released by the MBE Standards Committee.

Use Cases & MBSD Working Group Strategy

- Standards must be readable and *understood* by computational systems
- Industry will not wait 5 years for next release
- Collect business requirements for model-based standards
- Evaluate tools and techniques for best practices from other standards and domains



Use Cases & MBSD Working Group

First Deliverable: Whitepaper

- Requirements and objectives
- Survey of existing tools and methodologies
- Pros and cons
- Proposal back to standards committee



MBE Framework Working Group

Leader: Roy Whittenburg, rdwhittenburg@mbd360.com

- Purpose
 - The MBE Framework Working Group defines the concept of a model-based enterprise by providing a high-level structural definition.
- Outcomes
 - Support consistent definition, organization, and relationships for high-level components of a model-based enterprise to facilitate integrating, information sharing, and exploiting of requirements defined in the MBE standards.

ASME MBE SC Near Term Strategy Working Group

Leader: Bryan Fischer, brfischer@tdp360.com

- **Purpose**

1. Develop proposals for priorities, activities, documents, standards, products, etc. needed by industry in the short term
 2. Identify and mitigate barriers in MBD and MBE understanding and implementation
 - C. Consider entire product lifecycle –
Initial focus may be heavier on front end, as most work has been done in the product definition space
- Help people now...



ASME MBE SC Near Term Strategy Working Group

- **Issues**

1. Much of what is needed today is outside or on the boundary of the ASME MBE SC
 2. Current product definition standards are heavily biased toward presentation and manual methods
 - C. Joint work most likely needed between traditional product definition standards and MBE
 - e.g. PMI best practices may be joint ASME MBE / Y14 activity
- Essential that near-term proposals flow into future ASME MBE SC work



ASME MBE SC Near Term Strategy Working Group

- **Deliverables**

1. Roadmap of near-term activity for ASME MBE SC

Two-year timeframe

2. Propose next steps to ASME MBE SC

- C. Recommendations for initial liaison relationships



How to Keep Informed

- Get on the mailing list... The MBE Standards Committee sends a monthly newsletter
- Collaboration Site:
<https://projects.mbe.institute>
- C&S Connect: <https://bit.ly/2K2mgXL>



Scan Me: Collaboration Site

Get Involved

- Complete the PAF and PF-1 forms. Send them the ASME Staff Secretary, Fred Constantino (constantinof@asme.org).
- Then you will:
 - become a member of the MBE Subject Matter Expert Support Group;
 - be granted access to C&S Connect and the MBE Collaboration Site; and
 - be able to participate with Working Group once the above is complete. Contact the Working Group Leader to start contributing.



Join an ASME Standards & Certification Committee

Questions?



Thank you for your kind attention!

Thomas Hedberg (MBE SC Chair)

thomas.hedberg@nist.gov

Fred Constantino (ASME Staff Secretary)

constantinof@asme.org