



# ASME Committee Activity Model-Based Enterprise

February 27, 2020

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# What is Model Based Enterprise?

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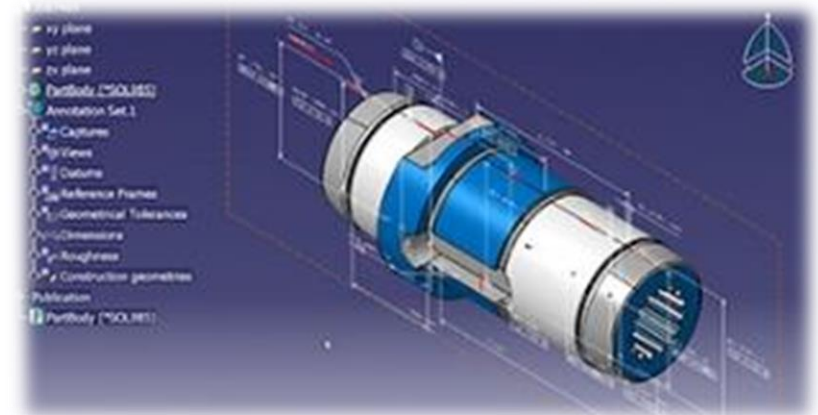
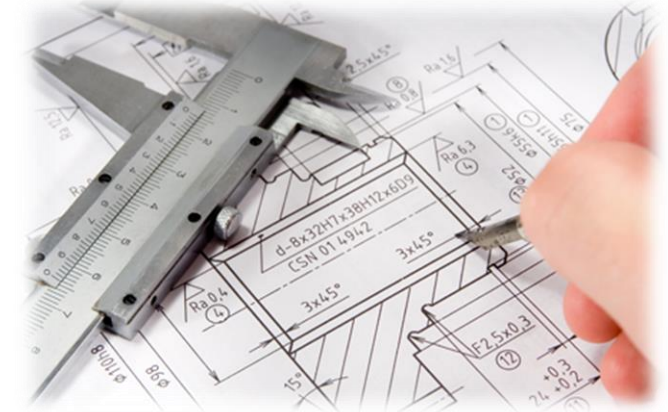
## “Starting Point” Definitions:

*Model Based Enterprise (MBE)* is an environment and methodology in that models are the data source, rather than documents, for all engineering activities throughout the product lifecycle.

*Model Based Definition (MBD)* is the method or practice of using digital model-data to represent a product and/or process.

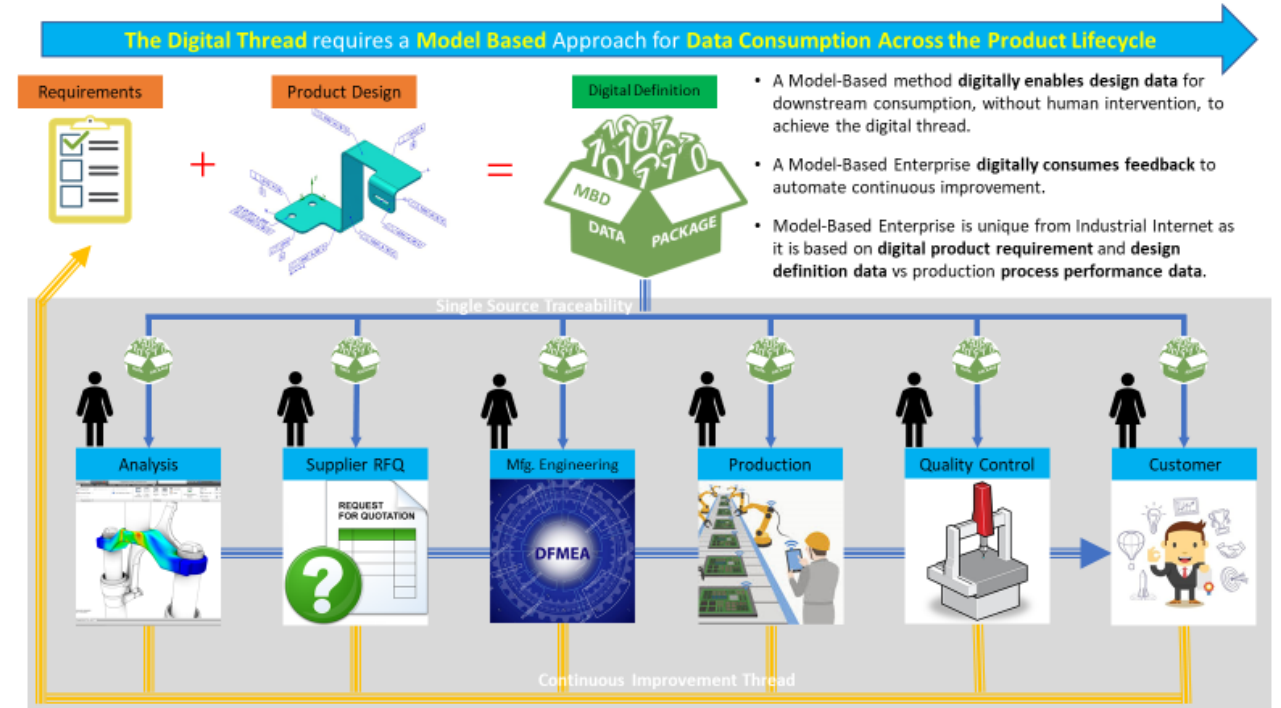
# Industry Challenges and Need for MBE

- Detailed or 2-Dimensional (2D) drawings have historically been used to communicate technical information about a product (e.g., an aircraft). However, the same drawing may be interpreted differently within each part of the product supply chain.
- Organizations have transitioned from 2D drawing to 3D computer-aided design (CAD) tools. As a result, there is a drive to leverage MBD in order to carry specific information about a product from its initial concept to its retirement.
  - Examples of existing MBD Standards:
    - ASME Y14.41 Digital Product Definition Data Practices
    - ASME Y14.47 Model Organization Practices
- A movement has been initiated to go beyond using MBD (e.g., CAD) and presentation of technical information. Advanced techniques for better product representation and lifecycle management are in demand, and industry needs guidance to increase understanding of these MBE techniques.



# Goal: Enable the True Digital Thread

The objective is to use an accepted authoritative data source (technical data package, 3D CAD model) to obtain an integrated information flow that connects all phases of the product lifecycle. Each product lifecycle phase (e.g., computational analysis, manufacturing, quality assurance) provides unique requirements.



# ASME MBE Standards Committee

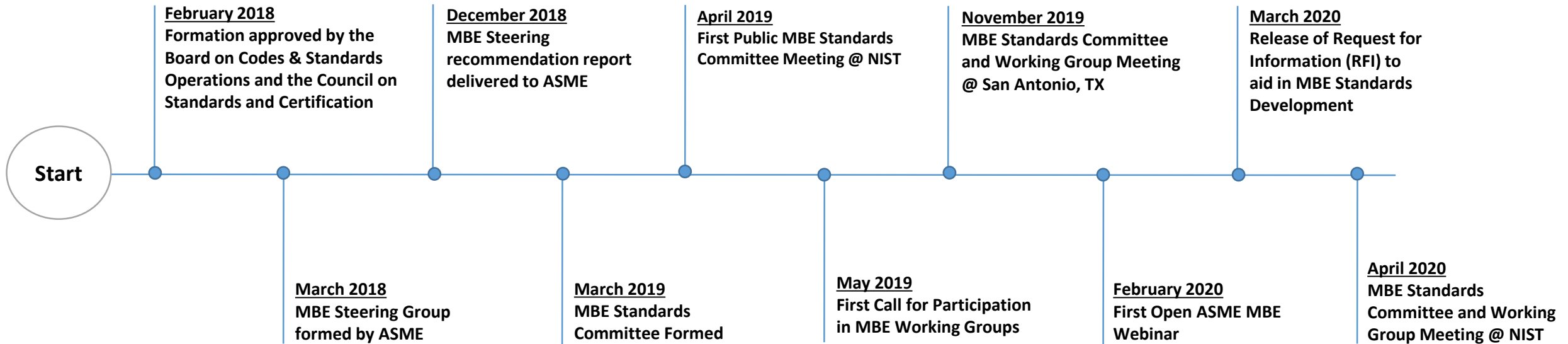
*Charter: Develop standards or related products that provide rules, guidance, and examples for the creation, use and reuse of model-based datasets, data models, and related topics within a Model-Based Enterprise.*

## Areas of Concentration

- Types of models and their intended uses
- Rules for representing requirements and constraints
- Types of features and data elements for model-based datasets
- Schemas for datasets
- Management of links between product definition and process definition
- Rules governing data quality
- Creation, management, and use of product definition and process definition data
- Management of discrepancies between existing standards affecting MBE and MBD



# ASME MBE Standards Committee Timeline



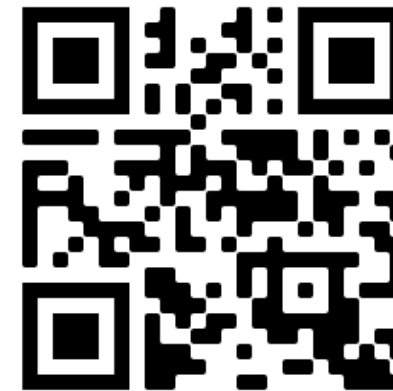
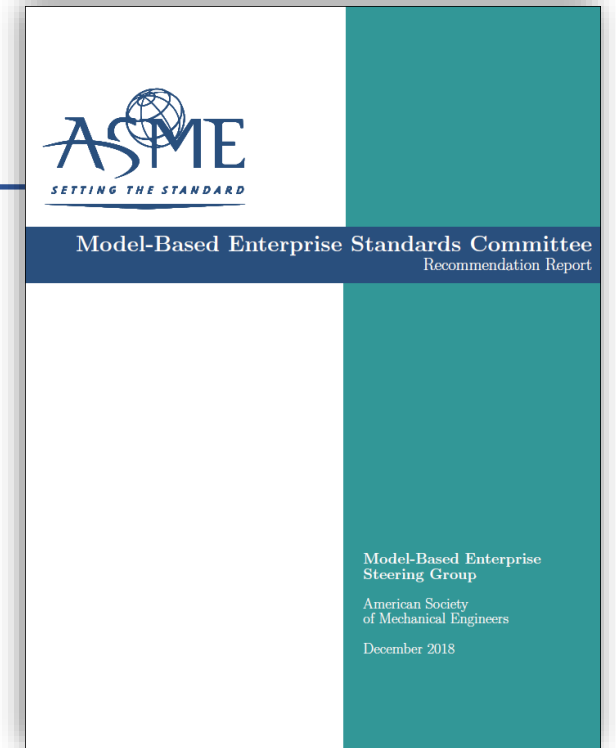


# ASME MBE Recommendation Report

- *A Starting Point for MBE Standards Activities*

- Developed by the ASME MBE Steering Group, which consisted of 8 existing ASME volunteers and 2 new members
- Establishes direction, activities, priorities, and organizational structure of the ASME MBE Standards Committee and its subcommittees
- Presents background and motivation for MBE
- Provides methodology for developing MBE standards using a model-based approach
- Outlines a roadmap for the MBE standards development process
- Describes a marketing and adoption strategy for MBE

*“MBE will transform industry by increasing productivity, quality, profitability, and types of products, and by reducing wasted effort, wasted time, non-value-added work, lost information, missed opportunities, and time to market.”*

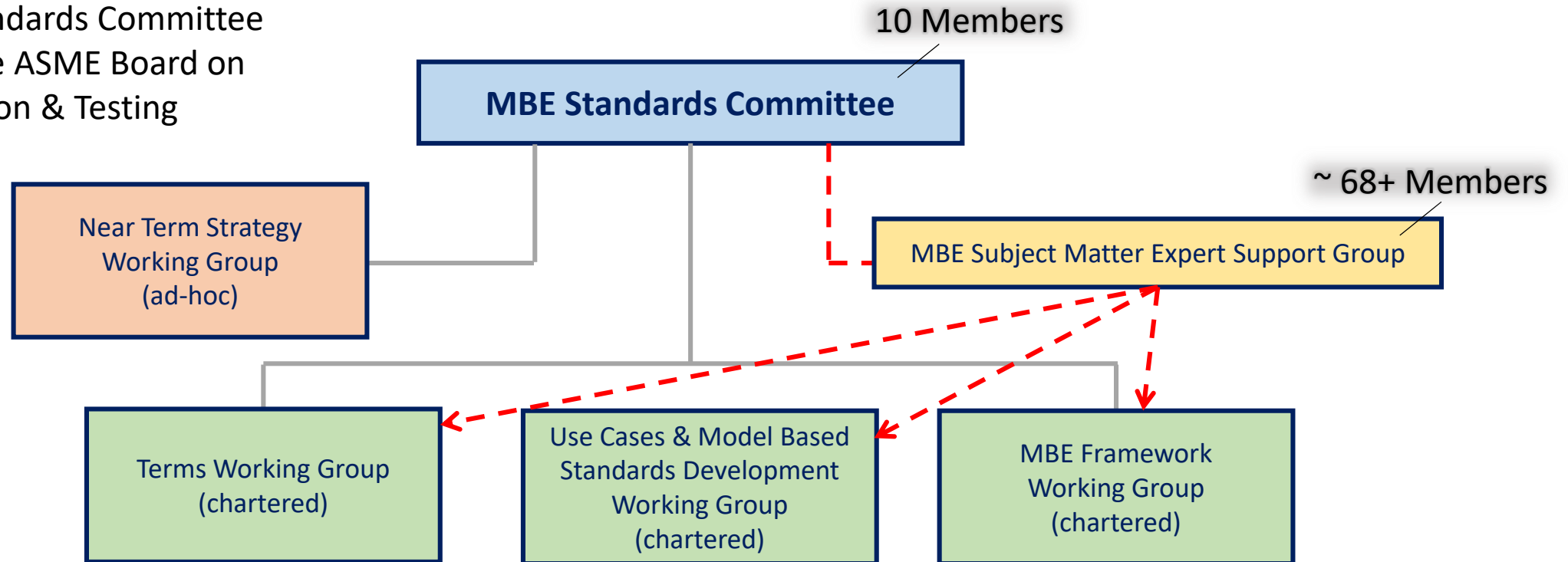


Download:  
[go.asme.org/MBEreport](https://go.asme.org/MBEreport)



# ASME MBE Standards Activities - Structure

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





# ASME MBE Working Groups

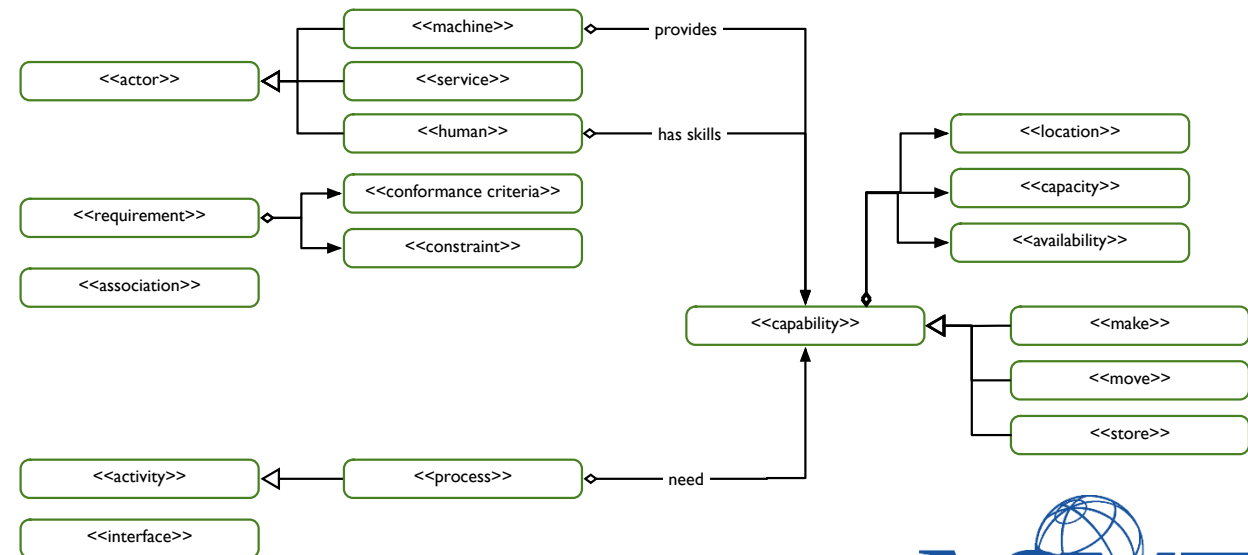
## Terms Working Group

- Focus is to begin collecting and defining terms, acronyms, and abbreviations for use in ASME MBE Standards



## Use Cases & Model Based Standards Development (MBSD) Working Group

- Focus is to define the methods that the MBE Standards Committee will use to develop use cases and model-based standards



# Terms Working Group

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Leader: Curtis Brown, [cbrown@kcnsd.doe.gov](mailto:cbrown@kcnsd.doe.gov)

## Status

- Held first in-person meeting at San Antonio MBE SC meeting in November 2019
- Gathered initial list of related terms from several sources (e.g., ASME Y14, NSE)
- Holding bi-weekly teleconferences to ensure progress
- Identified 32 terms of interest for the WG
- Working with the SC to develop a configuration-management method for releasing and updating terms

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

Leader: Will Sobel, [will@govimana.com](mailto:will@govimana.com)

## Status

- Held first in-person meeting at San Antonio MBE SC meeting in November 2019
- Captured several use cases / activities for MBSD
- Began trying to define a CONOPS for MBSD
- Holding bi-weekly teleconferences to ensure progress
- Developing a Request for Information survey to solicit input from stakeholders

# ASME MBE Working Groups

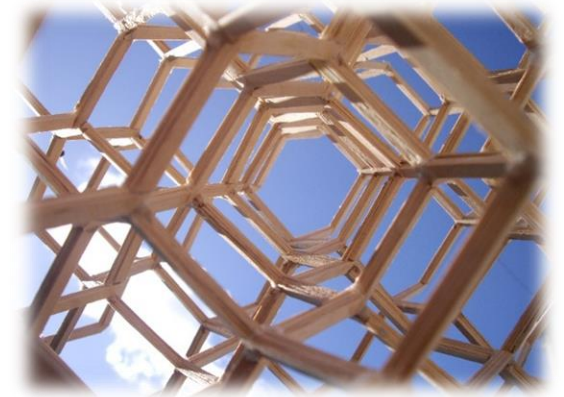
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## Framework Working Group

- Focus is to define the concept of a model-based enterprise by providing a high-level structural definition

## Near Term Strategy Working Group

- Focus is to establish near-term strategies by developing proposals for priorities, activities, documents, standards, products, etc. needed by industry in the short term



# MBE Framework Working Group

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Leader: Roy Whittenburg, [rdwhittenburg@mbd360.com](mailto:rdwhittenburg@mbd360.com)

## Status

- Gathered initial list of interested participants
- An open kick-off teleconference to be scheduled for the second week of March
- Initial effort will be a survey of current “CONOPS, frameworks, taxonomies, etc.

# Near Term Strategy Working Group

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Leader: Bryan Fischer, [brfischer@tdp360.com](mailto:brfischer@tdp360.com)

## Status

- Focused on two-year timeframe
- Submitted proposal for near-term activities to ASME MBE SC this week
- Committee to decide if proposals are acceptable, select activities, or request additional work
- WG members will transition to working on selected activities based on their interest and availability







# ASME MBE Current Initiatives and Events

- Distribution of a bi-monthly MBE newsletter
- Development of a Request for Information (RFI) to gain an understanding of stakeholder concerns that should be addressed when creating MBE standards
- Collaboration with related organizations
  - Japan Electronics and Information Technology Association (JEITA)
  - International Council on Systems Engineering (INCOSE)
  - The Aerospace Corporation
- ASME Model Based Enterprise In-Person Meeting
  - Thursday, April 2, 2020 @ 1:00 PM to 5:30 PM EST
  - Friday, April 3, 2020 @ 8:30 PM to 3:30 PM EST
  - NIST Headquarters, Gaithersburg MD
    - Free MBE Summit **Registration Required:**
      - <https://www.nist.gov/news-events/events/2020/03/model-based-enterprise-summit-2020>



# Get Involved

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- Complete the PAF and PF-1 forms. Send them to the ASME Staff Secretary, Fred Constantino ([constantinof@asme.org](mailto: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

# Want to Learn More?

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- Fredric Constantino - MBE Standards Committee Staff Secretary
  - ASME S&C Project Engineering Advisor
  - Phone: 212-591-8684
  - E-mail: [ConstantinoF@asme.org](mailto:ConstantinoF@asme.org)
- Michelle Pagano – MBE Staff Support
  - ASME S&C Engineer
  - Phone: 212-591-8399
  - E-mail: [PaganoM@asme.org](mailto:PaganoM@asme.org)
- ASME MBE Standards Committee C&S Connect Page
  - <https://cstools.asme.org/csconnect/CommitteePages.cfm?Committee=102216151>
- ASME MBE Redmine Collaboration Site
  - <https://projects.mbe.institute/projects/asme-mbe-public-page>



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