



Model Portfolio Management (MPM) Guide: A Guide to Defining the Scope, Purpose, Tasks and Products of Model Portfolio Management

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MPM Guide Presentation Topics

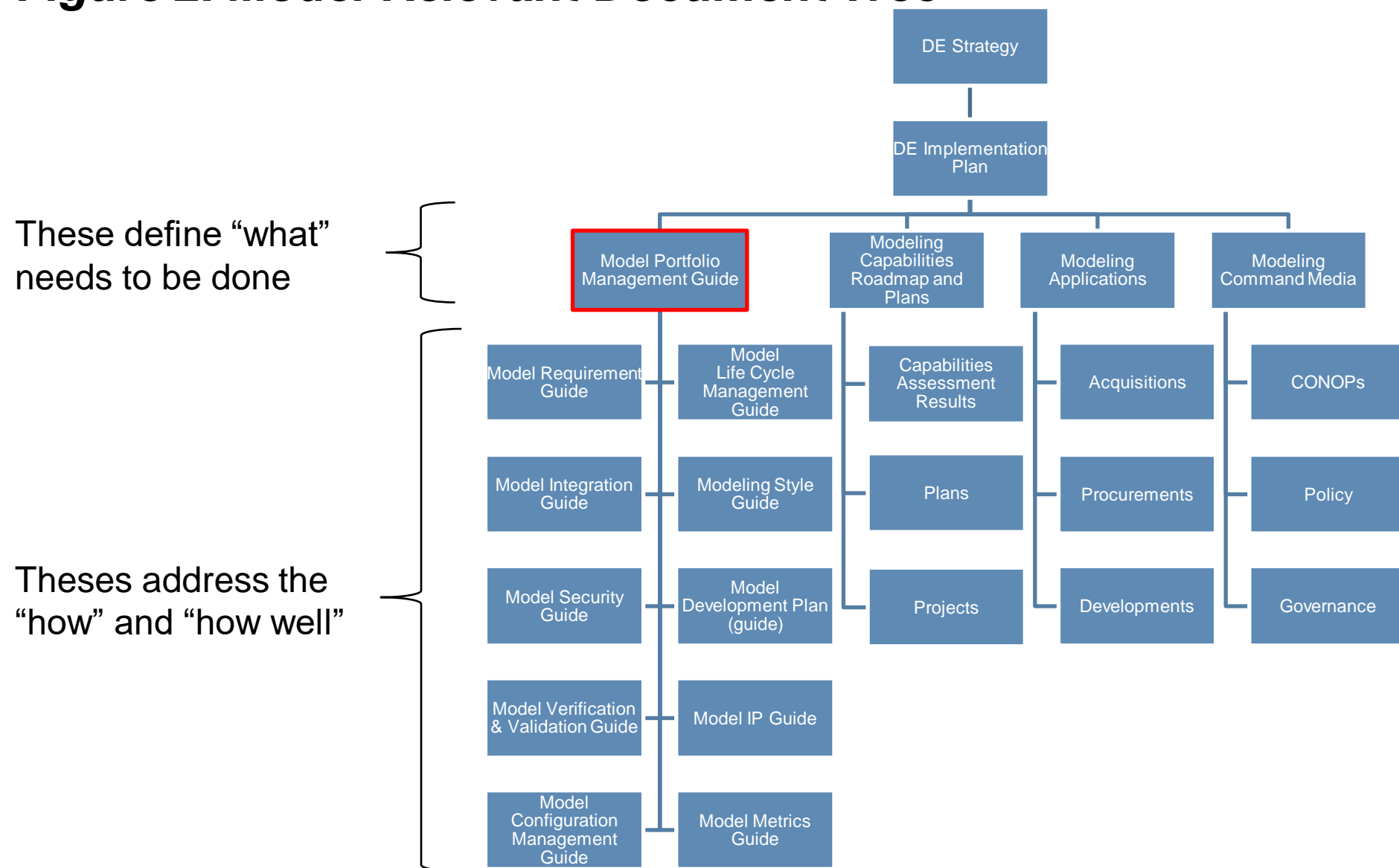
- Background
- Key Definitions
- Use Cases
- Roles and Responsibilities
- Model-Relevant Document Tree
- Life Cycle Goals, Work Products, and Activities
 - *Initiation*
 - *Planning*
 - *Execution*
 - *Monitoring and Control*

MPM Guide Adoption Bottom Line Up Front (BLUF) - Background



- The Need
 - *Currently there is no guide or standard that addresses managing a collection of models*
 - *Organizations score low on “Model Management” capabilities when assessed by the INCOSE Model-Based Capabilities Matrix*
 - *The SERC SE Survey cited “Model Management” as a significant area of improvement*
 - *Acquirers routinely ask for model management work and responding bidders have a range of responses*
- An interim solution
 - *The Aerospace Corporation wrote the “Model Portfolio Management (MPM) Guide” technical operating report TOR-202-01577, cleared for public release to serve organizations that would like to manage their collection of models and to serve as a solicitation reference document*
 - *The TOR was written using the INCOSE style guide for documents*
 - *The TOR is already been used as a reference for US government acquisitions*
- The proposed solution
 - *INCOSE to consider the MPM Guide TOR as the basis of an INCOSE guide*
 - *The draft INCOSE Technical Performance Plan provides an approach to develop the INCOSE guide*

Figure 2. Model-Relevant Document Tree

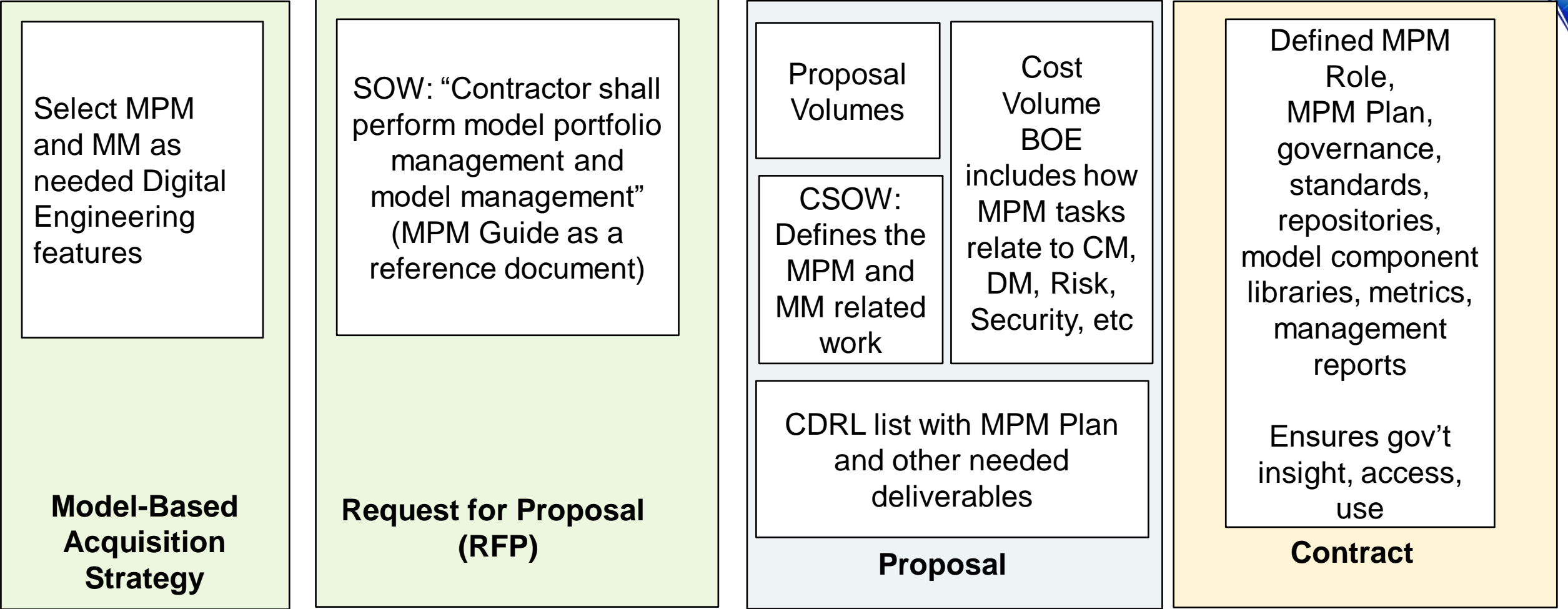


Explaining where this Portfolio Model Management Guide may fit with other guidance documents



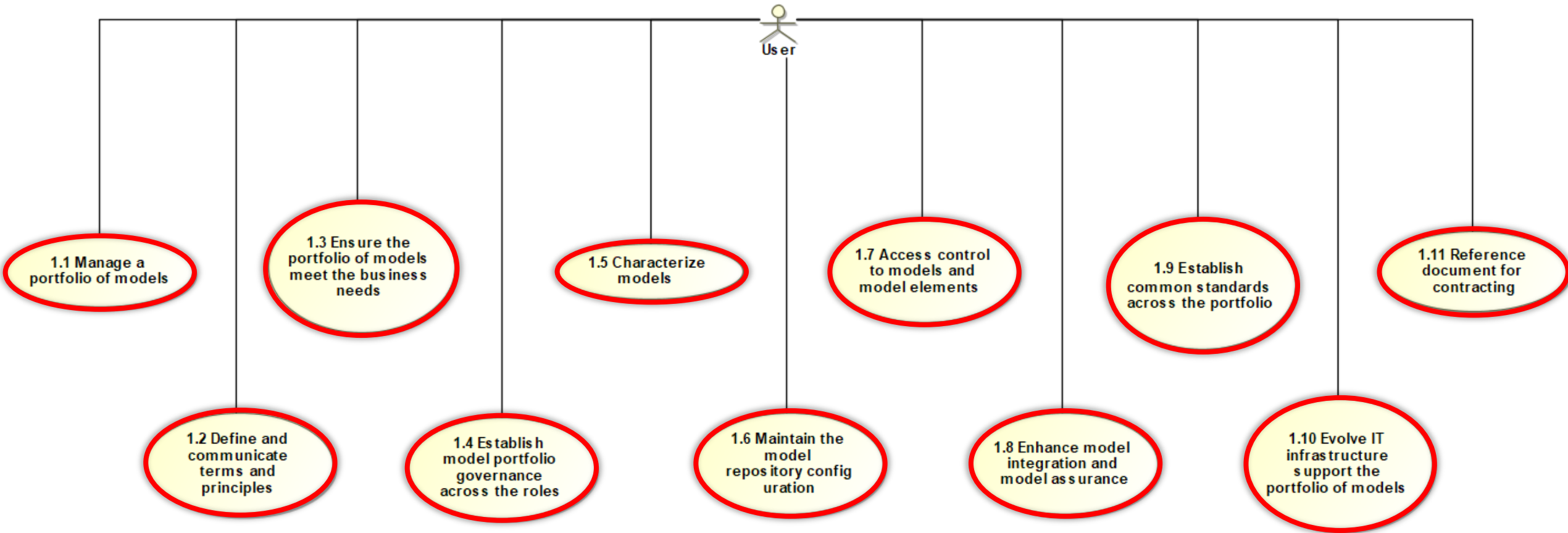
Proposed MPM Contracting Approach

MPM Guide TOR-2020-01577 as an RFP Reference Document



MPM addresses the problem where model management and model portfolio management were undefined

Use Cases for a Model Portfolio Management Guide



Key Definitions



Term	Definition
Portfolio	<i>A collection of projects or programs or other work grouped together to facilitate effective management of work to meet strategic business objectives. The projects or programs of the portfolio may not necessarily be interdependent or directly related. (Mathur, 2006)</i>
Model Portfolio (Portfolio of Models)	<i>A collection of models (whether descriptive or analytical, related or otherwise) that have been grouped together and where the evaluation of that collection has been identified as being critical to evaluating the organization's investment strategies.</i>
Model Portfolio Management (Manager)	<i>The administration or control of a collection of models, the purpose of which, is to achieve strategic objectives with particular attention to utilizing organizational resources in an efficient manner. (The person responsible for...)</i>
Model Portfolio Management Life Cycle	<i>A continuous set of activities that is recommended to be performed by Model Portfolio Managers for the Model Portfolio Management process to be successful.</i>
Program Management	<i>The administration or control of a set of products or services categorized by a common organizational goal or strategy with particular attention to timelines and optimization within the program.</i>
Project Management	<i>The administration or control of a product or service with particular attention to quality, development, and capture of knowledge.</i>

Source: “The Standard for Portfolio Management,” Project Management Institute (PMI)

Roles and Responsibilities

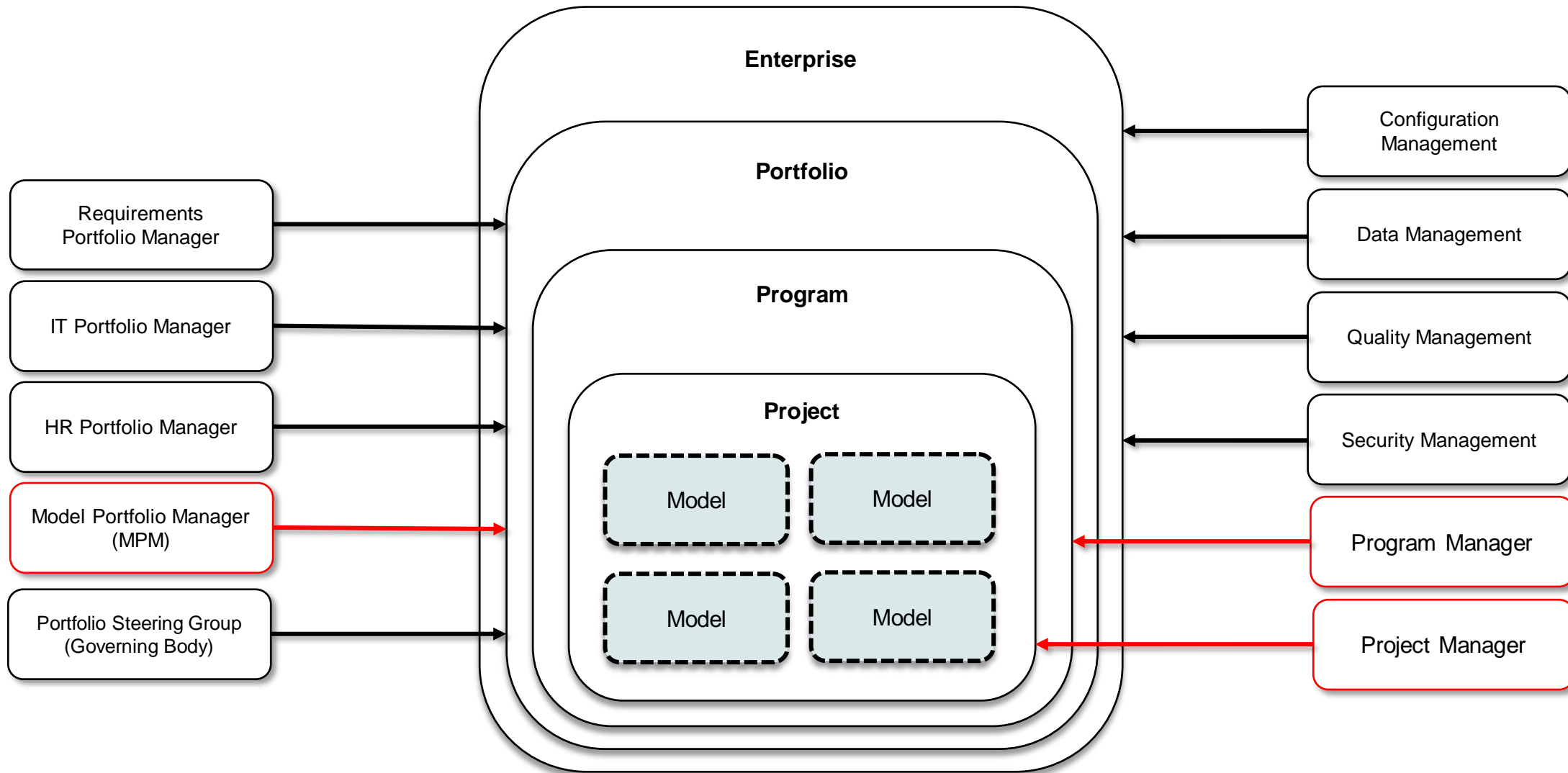


Figure 5. Responsibilities of Portfolio CM

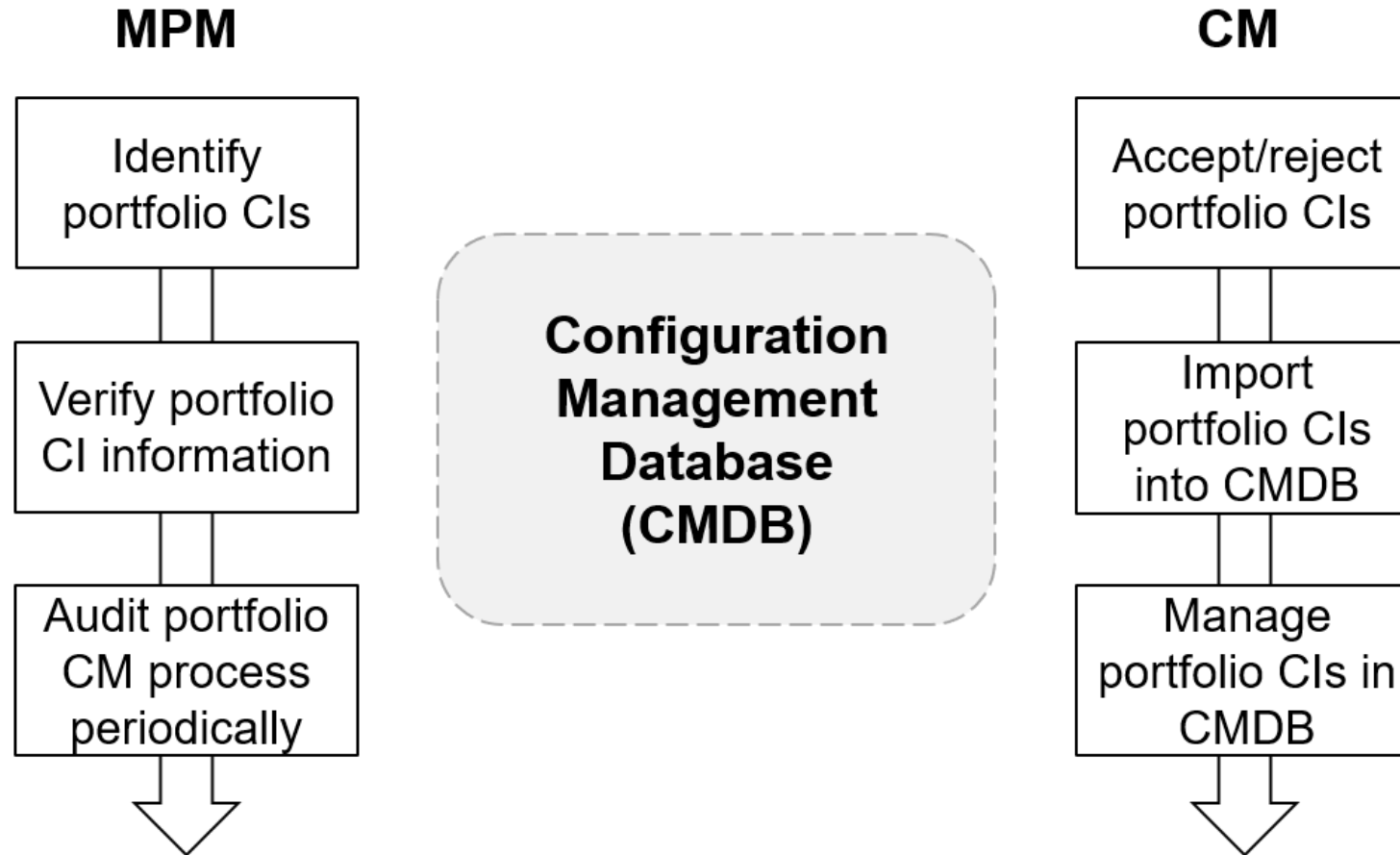
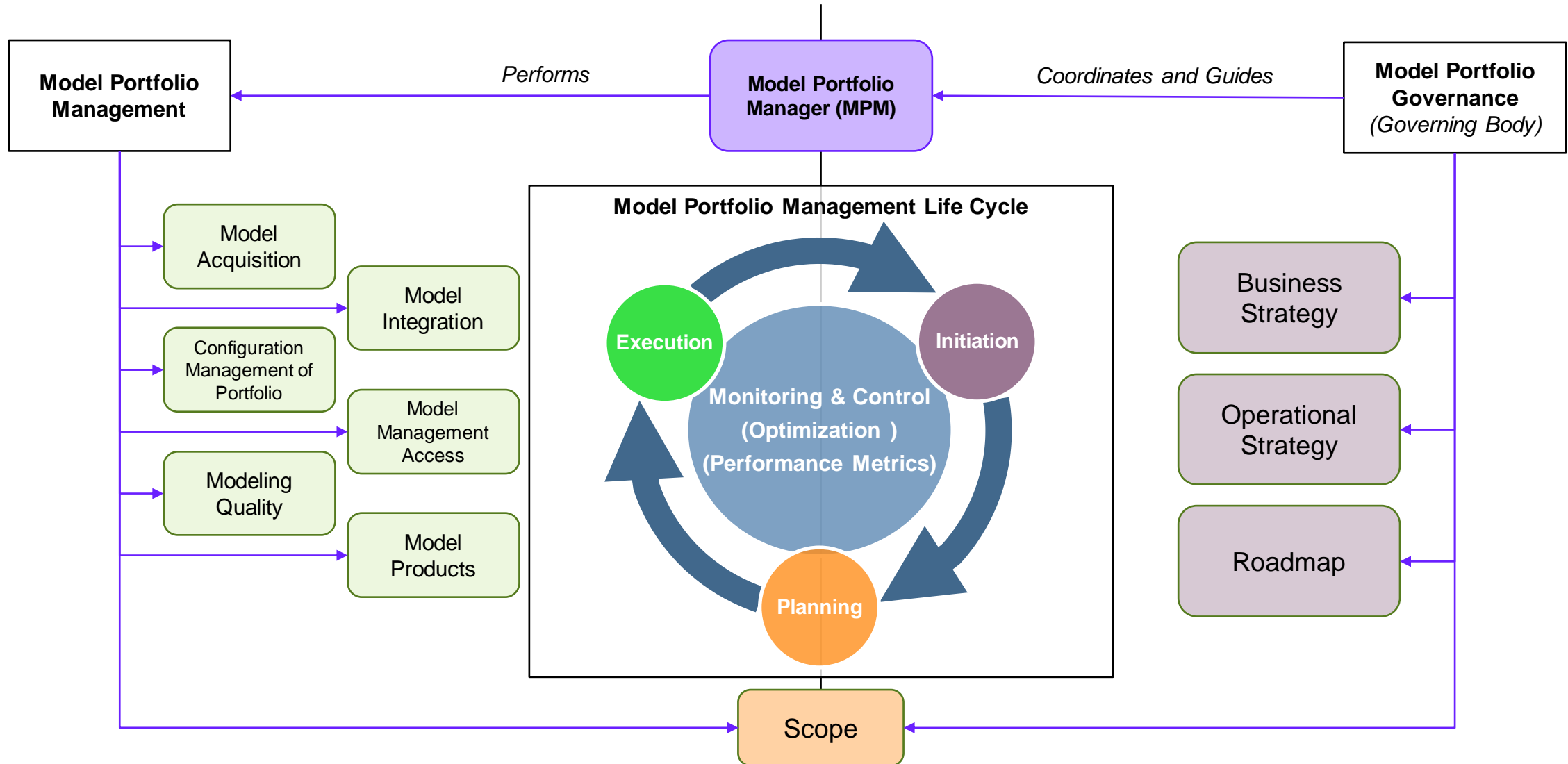




Table 1. Stakeholder Roles, Interest and Expectations

Stakeholder	Roles	Interests	Expectations
Sponsor or Organizational Executive	Provide funding and resources	Alignment with goals	Informed regularly of key portfolio decisions and milestones
Model Portfolio Manager	Provides the management of the portfolio of models needed by the organization	Portfolio of models meets the organizational goals and objectives	At the sponsor's request, performs portfolio model management with the Portfolio Governing Body and model managers
Portfolio Governing Body	Oversees the portfolio priorities, manages spending, and manages timely delivery of benefits	Portfolio level risks and issues that require key decision and change management	Informed regularly of developments, change needs, and progress
Model Managers	Ensures model life cycle management	Mitigates portfolio level risks and issues impacting their model	Adheres to MPM agreements and is informed of portfolio changes, risks and issues

Life Cycle



MPM roles of Management and Governance across the MPM Life Cycle

Source: "The Standard for Portfolio Management," Project Management Institute (PMI)

MPM Initiation

GOALS:

- Validating business and operational strategy
- Identifying the portfolio components included in the scope
- Defining a long-term roadmap with:
 - Financial goals
 - Performance metrics
 - Communication
 - Governance
 - Stakeholders' definition and roles
- Ongoing management plans for the portfolio and its components.

WORK PRODUCTS/ACTIVITIES:

- Develop MPM Strategy
- Model Management CONOPS
- Governance Framework

- Prioritization Criteria
- Portfolio Governing Body
- Stakeholder's Definition and Roles
- Communications Planning
- Model Portfolio Manager
- MPM Roadmap of models to organizational modeling goals
 - *Define Portfolio Components*
 - *Identify Security Requirements*
 - *Identify Model Intellectual Property Rights*
 - *Identify Modeling Guidelines*
 - *Identify Analytical and Descriptive Models*
 - *Identify Plug-ins and Scripts*
 - *Identify Model Libraries*
 - *Identify Supplementary Components*
 - *Information Technology (IT) Infrastructure*
 - *Portfolio Performance Metrics*
 - *Portfolio Risk Management*

Initiation



Figure 3. Portfolio Components

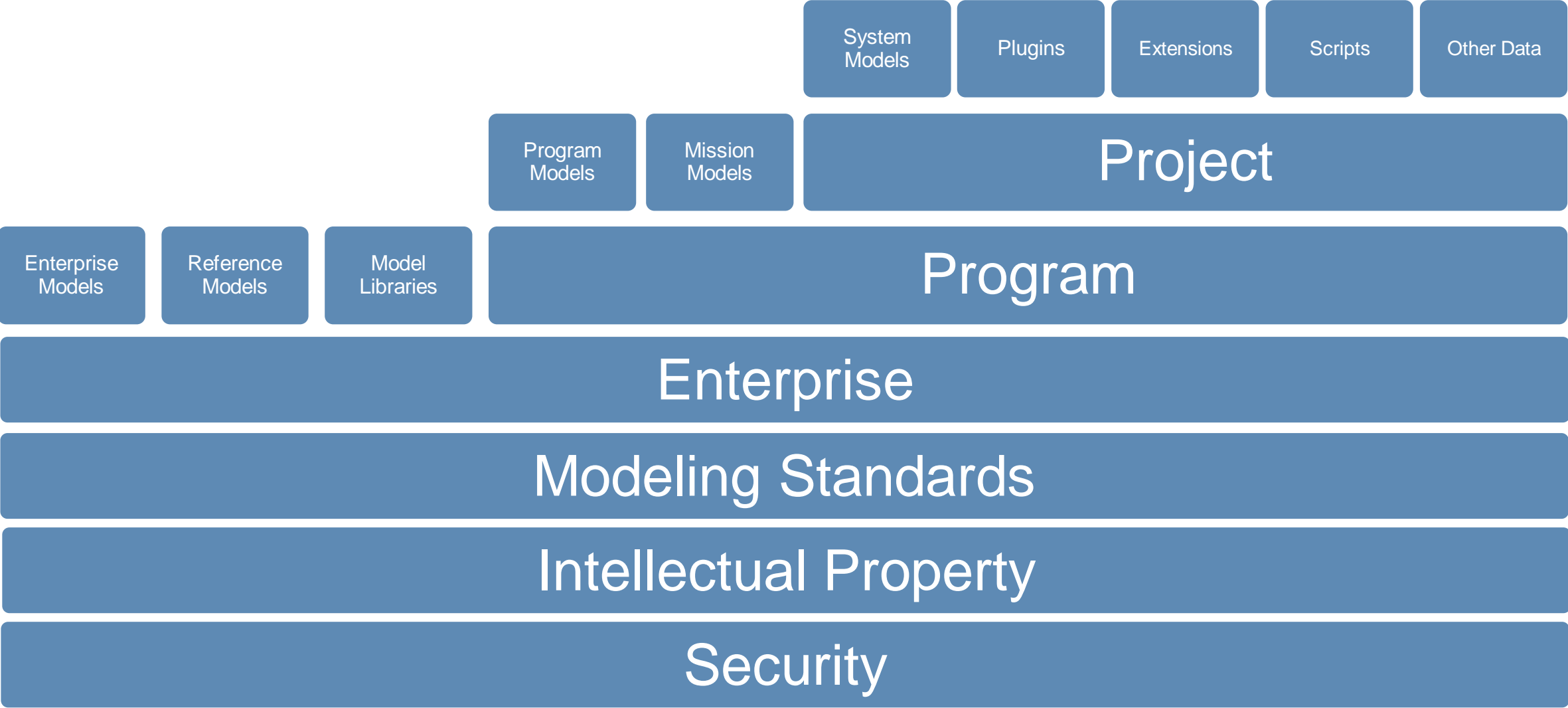
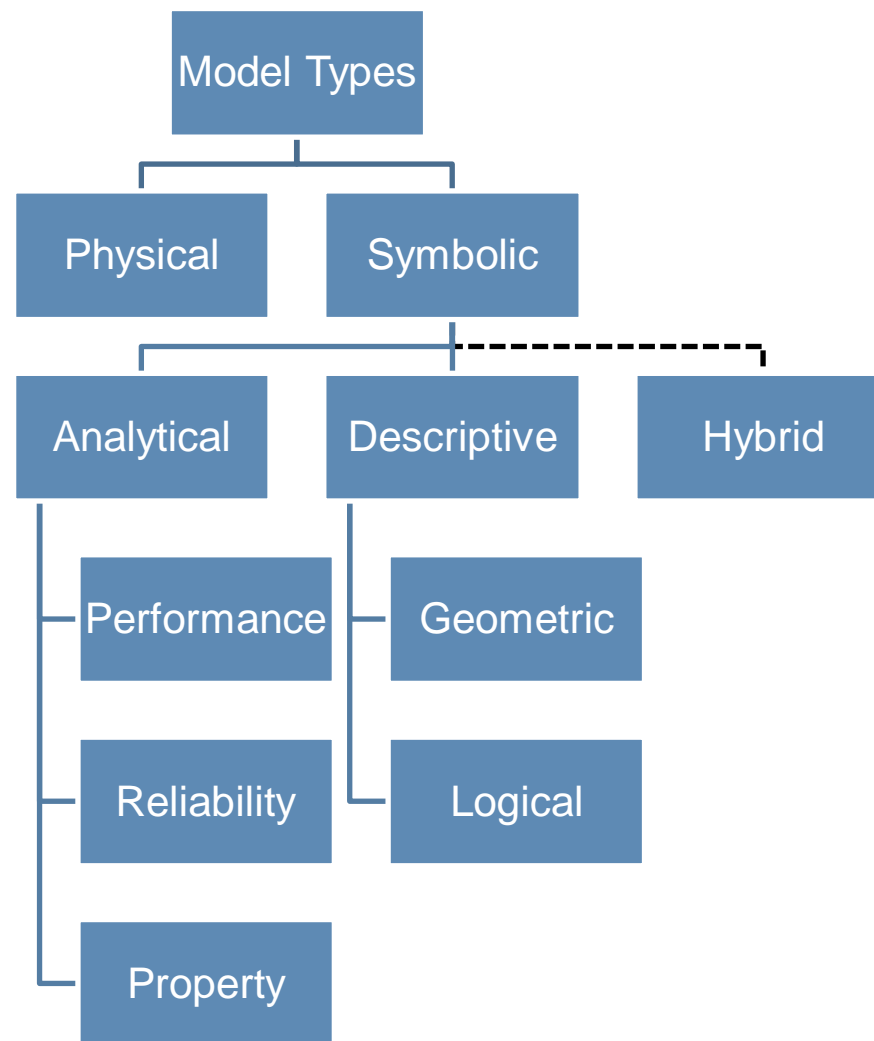


Figure 4. Model Types



MPM Planning

GOALS:

- Develop the MPM Plan
- Reach agreement on the management of portfolio components in scope
- Budgeting required to successfully execute components
- Identification of interdependencies between portfolio components
- Identification of risks and issues
- Resourcing requirements
- Prioritization of portfolio components
- Confirmation of governance body/sponsor and stakeholder accountability
- Portfolio metrics to measure success
- Scope of components within the portfolio
- Product and/or services requirements and specification

WORK PRODUCTS/ACTIVITIES:

- Define MPM Scope
- Establish MPM Plan
 - *MPM Within Technical Management Processes*
 - *Model and Data Registry*
 - *Model Views Accession List (MVAL)*
 - *Model Data Accession List (MDAL)*
 - *Model Management Roles, Responsibilities, and Permissions*
- Modeling Resources
 - *Modeling Software*
 - *Plug-ins and Scripts*
 - *Model Libraries*

Planning

MPM Execution



Execution

GOALS:

- Lead the delivery of all components within the portfolio
- Actively manage and resolve risks and issues across and within the portfolio and its components
- Facilitate portfolio and component communication
- Monitor benefits realization potential based on component delivery
- Manage portfolio assets and resources limited to the portfolio

WORK PRODUCTS/ACTIVITIES:

- Establish Model Repository (physical and logical)
 - *Establish Model Registry*
 - *Establish Model Accession list (MoAL)*
- Identify and Consolidate Model Views
 - *Recognizing Digital Artifacts and Views*
 - *Create Model View Identifiers and Description*
 - *Utilizing Frameworks*
 - *Consolidating Custom Views*

- Model Acquisition
 - *Model Quality Assessments*
 - *Modeling Assurance Levels (MALs)*
 - *Modeling Metrics*
- Preparing for Model Integration
 - *Model Integration Criteria*
 - *Creating Model Integration Resources*
 - *Integrating Models at Multiple Security Levels*
 - *Model Data Integration*
 - *Preparing an Environment and Roadmap for Integrated Models*
 - *Portfolio Risk Identification*
- CM of models in the model registry
 - *Model Configuration Items*
- Model Management Access
 - *Roles*
 - *Permissions*
 - *Competencies*

MPM Monitoring and Control

GOALS:

- Assess portfolio performance
- Recommend changes to the portfolio to meet organization modeling needs
- Ensure compliance with standards

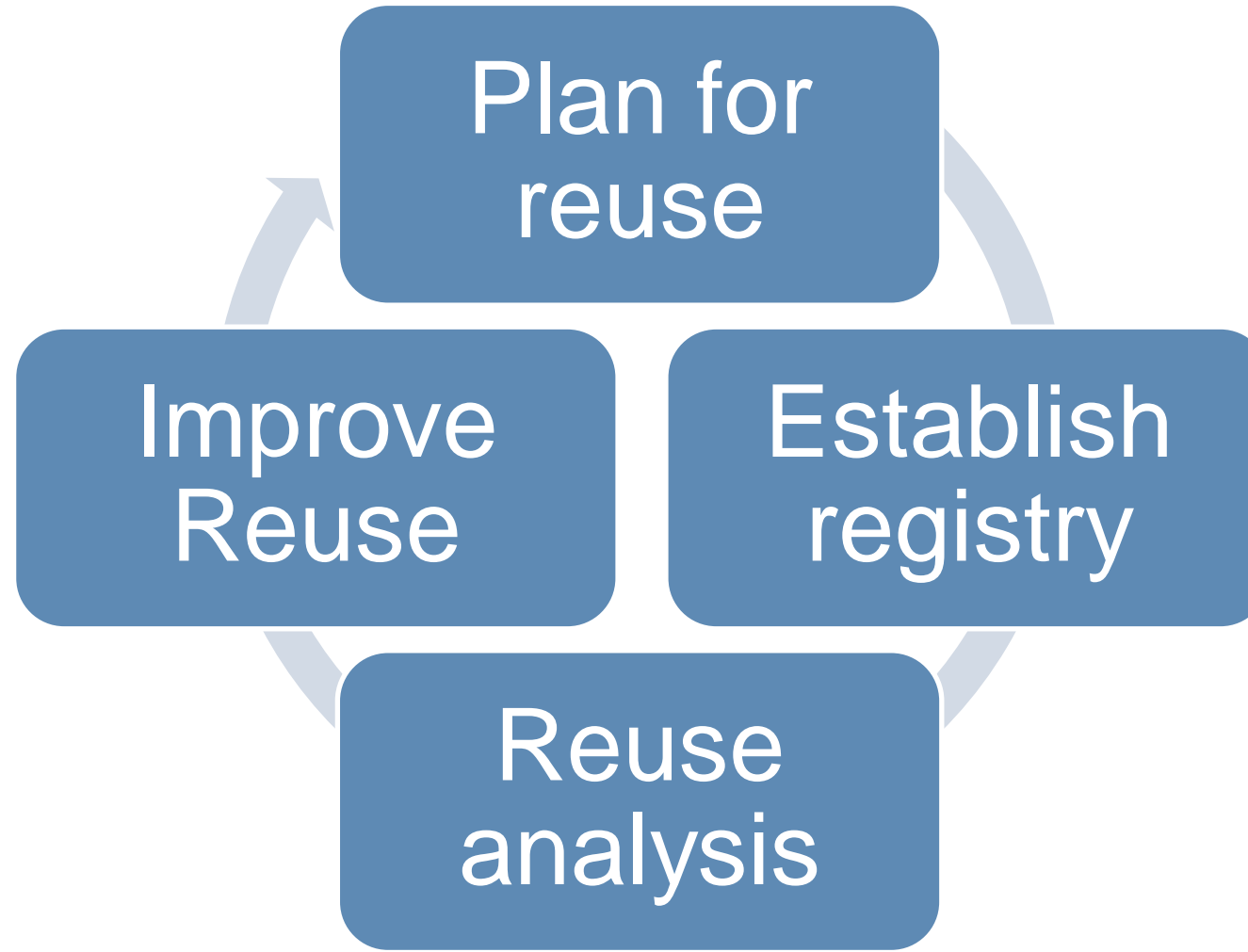
WORK PRODUCTS/ACTIVITIES:

- MPM Metrics
- Portfolio Risk Monitoring
- Portfolio Optimization
- Maintenance of models
 - *Monitoring and Updating Model Views*
 - *Recognize Model Data Management Needs*
 - *Model Data Consistency*
 - *Adjusting Model Libraries*
 - *Model Configuration Management*
 - *Model Reuse*
 - *Model Retirement and/or Archive*

Monitoring
& Control



Figure 6. Model Portfolio Reuse



Major MPM Deliverables

Deliverables from Contractors



Name	Description
Model accession list (MoAL)	The Model Accession List (MoAL) is an index of working models made readily available for review by model integrators. Specifically, the MoAL provides users a view of active efforts to integrate models before they are practically usable to support transparency and coordination for the success of the portfolio.
Model data accession list (MDAL)	For models in the model registry, working data items are accessible to relevant stakeholders who request to review model data, with the understanding that this data may not yet be deliverable.
Model view accession list (MVAL)	For models in the model registry, a digital view is accessible to relevant stakeholders who request to review model views, with the understanding that they may not yet be deliverable
Risk registry	A portfolio risk registry, which is a collection of risks to be managed with respect to impact on the portfolio, should be planned and established here.
MPM plan	The MPM plan defines the key components in the MPM Life Cycle and authorizes the allocation of resources. The plan provides the structure of the portfolio, which includes the hierarchy and organization of the models, programs, and projects within the portfolio. The plan also identifies the key enabling processes for portfolio execution. The contents of the MPM plan can be contained within a single document or several documents.
Governance plan	The governance plan may be a stand-alone view (documented or modeled) or may be a subsidiary to the MPM Plan.



Adoption and Contract Tailoring

- **Adoption**

- *Organization adopts MPM guide*
- *Performs a gap assessment*
- *Develops an implementation plan*

- **Contract Tailoring**

- *Reference document on a contract*
- *Identify changes by tailoring sections that are not needed*
- *Deliverables need to be identified as CDRL, DID*

Summary



- The Model Portfolio Management Guide TOR fills a hole on what “Model Management” is for a collection of models
- The guide is tailorable to choose what is most important to an organization
- The guide may be applied to an organization or used as a contract reference document to enable RFP language for the contractor to manage a collection of models
- The guide is already in use
- The guide is cleared for public release
- The guide is being worked by INCOSE for potential adoption