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Module 33
Architecture Maturity Models

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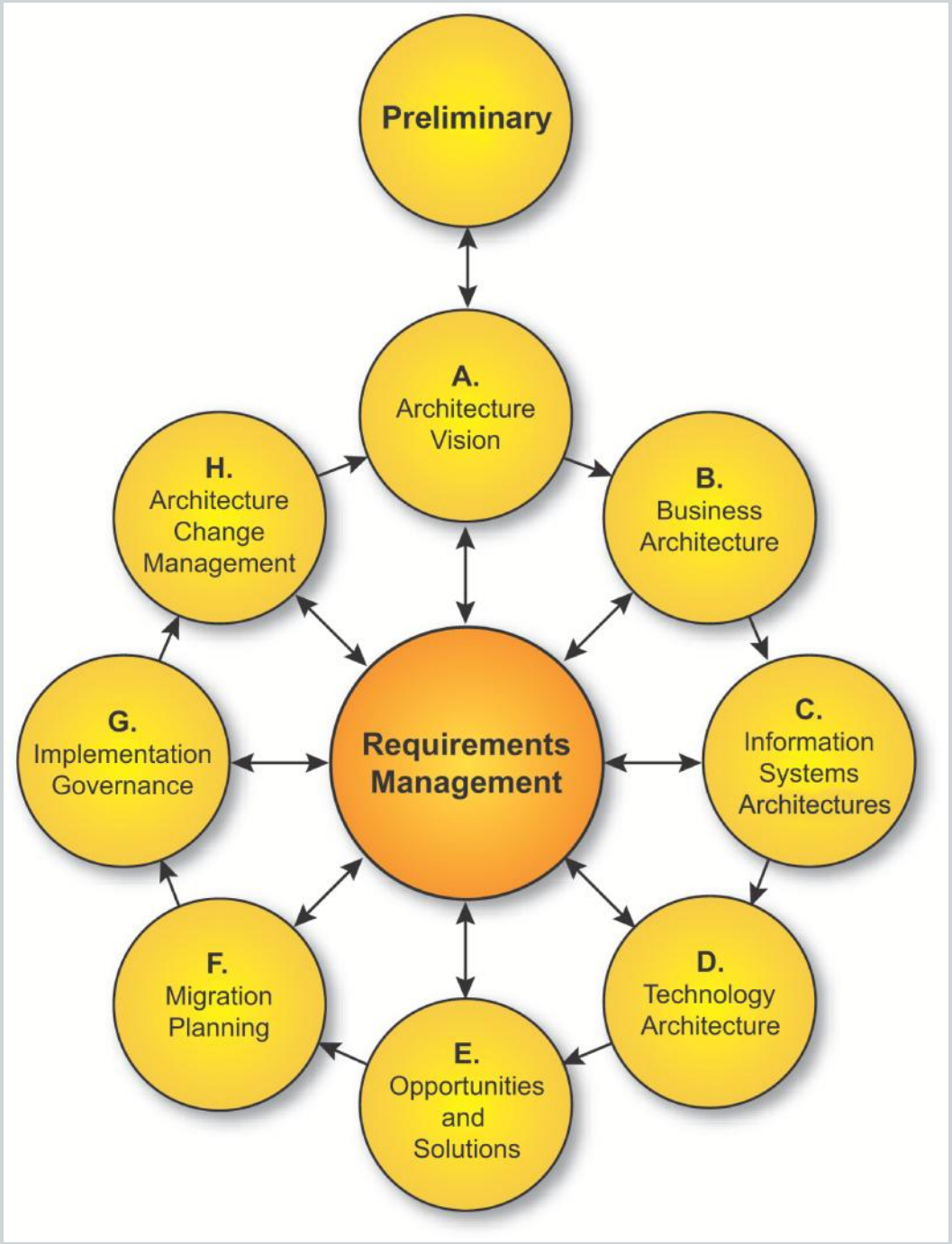

Architecture Maturity Models

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Roadmap

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Preface, Executive Overview, Core Concepts, Definitions and Release Notes
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Module Objectives

The objectives are to:

- Explain the role of a Capability Maturity Model
- Explain the CMMI process improvement approach development by CMU
- Describe the structure and levels of the ACMM developed by CMU for the US DoC
- Explain the role of Maturity Assessments in the ADM

Capability Maturity Models

- Capability Maturity Models (CMMs) provide an effective method for control and improvement of change processes
- Benefits of such models include:
  - They describe the practices that any organization must perform in order to improve its processes
  - They provide measures for improvement
  - They provide a framework for managing the improvement efforts
  - They organize the various practices into levels, each level representing an increased ability to control and manage the development environment

Capability Maturity Models

- An evaluation of the organization's practices against the model (an ‘‘assessment”) is performed to find the current level at which the organization currently stands
- This shows the organization's maturity and the areas to focus on for the greatest improvement and the highest ROI

Capability Maturity Models

- The original CMM was developed in the early 1990s by CMU and is still widely used today.
- CMMs have also been developed for other areas such as:
  - People: the P-CMM (People Capability Maturity Model), and the IDEAL Life Cycle Model for Improvement
  - Systems Engineering: the SE-CMM (Systems Engineering Capability Maturity Model)
  - Software Acquisition: the SA-CMM (Software Acquisition Capability Maturity Model)
  - CMMI: Capability Maturity Model Integration

Capability Maturity Models

There are templates available to assess:

- The state of the IT architecture process
- The IT architecture
- The organization's buy-in to both

CMM models can also be used to assess a wide range of domains:

- e-Commerce maturity
- Process implementation and audit
- Quality measurements
- People competencies
- Investment management

The CMMI

- CMMI stands for Capability Maturity Model Integration.
- CMMI is a framework used to manage the complexity of multiple different models:
  - IPD-CMM (Integrated Product Development Capability Maturity Model)
  - P-CMM (People Capability Maturity Model)
  - SA-CMM (Software Acquisition Capability Maturity Model)
  - SE-CMM (Systems Engineering Capability Maturity Model)
  - SW-CMM (Capability Maturity Model for Software)

The CMMI

According to the SEI, the use of the CMMI models improves on best practices by enabling organizations to:

- Explicitly link management and engineering activities to business objectives
- Expand the scope of and visibility into the product lifecycle and engineering activities
- Incorporate lessons learned from additional areas of best practice (e.g., measurement, risk management etc.)
- Implement more robust high-maturity practices
- Address additional organizational functions
- Comply with ISO standards

CMMI is being adopted worldwide.

The CMMI

SCAMPI, the Standard CMMI Appraisal Method for Process Improvement, is used to identify strengths, weaknesses, and ratings relative to CMMI reference models.

It incorporates best practice and is based on the features of several appraisal methods.

It is applicable to a wide range of appraisal usage modes, including both internal process improvement and external capability determinations.

US Department of Commerce ACMM

The enterprise Architecture Capability Maturity Model (ACMM) was developed for conducting internal assessments. It is a framework that represents the key components of a productive EA process. The goal is to identify weak areas and provide a way to improve the overall architecture process.

The ACMM has 3 sections:

- The enterprise architecture maturity model
- EA characteristics of processes at different maturity levels
- The EA CMM scorecard

ACMM Maturity Levels

- The DoC ACMM consists of
  - 6 maturity levels
  - 9 architecture elements

ACMM Enterprise Architecture Elements

1. Architecture process:
   - *Is there an established Enterprise Architecture process?*
2. Architecture development:
   - *To what extent is the development and progression of the Operating Units' Enterprise Architecture documented?*
3. Business linkage:
   - *To what extent is the Enterprise Architecture linked to business strategies or drivers?*
4. Senior management involvement:
   - *To what extent are the senior managers of the Operating Unit involved in the establishment and ongoing development of an IT Architecture?*
5. Operating unit participation
   - *To what extent is the Enterprise Architecture process accepted by the Operating Unit?*
   - *To what extent is the Enterprise Architecture process an effort representative of the whole organization?*

ACMM Enterprise Architecture Elements

6. Architecture communication
   - *To what extent are the decisions of Enterprise Architecture practice documented?*
   - *To what extent is the content of the Enterprise Architecture made available electronically to everybody in the organization?*
   - *To what extent is architecture education done across the business on the Enterprise Architecture process and contents?*
7. IT security
   - *To what extent is IT Security integrated with the Enterprise Architecture?*
8. Architecture governance
   - *To what extent is an Enterprise Architecture governance (governing body) process in place and accepted by senior management ?*
9. IT investment and acquisition strategy
   - *To what extent does the Enterprise Architecture influence the IT Investment and Acquisition Strategy?*

Example: ACMM Scoring Criteria

Score	Element 1. Architecture Process	
0	**No EA**	Not established or does not exist.
1	**Initial**	Exists in ad-hoc or localized form or early draft form may exist. Some Enterprise Architecture processes are defined. There is no unified architecture process across technologies or business processes. Success depends on individual efforts.
2	**Developing**	Being actively developed. Basic Enterprise Architecture Process program is documented based on OMB Circular A-130 and Department of Commerce Enterprise Architecture Guidance. The architecture process has developed clear roles and responsibilities.
3	**Defined**	The architecture is well defined and communicated to IT staff and business management with Operating Unit IT responsibilities. The process is largely followed.
4	**Managed**	Enterprise Architecture process is part of the culture, with strong linkages to other core IT and business processes. Quality metrics associated with the architecture process are captured. These metrics include the cycle times necessary to generate Enterprise Architecture revisions, technical environment stability, and time to implement a new or upgraded application or system.
5	**Optimizing**	Concerted efforts to optimize and continuously improve architecture process.

Maturity Assessments in the ADM

- Maturity Assessments are referred to in the Preliminary Phase, Phase A, and Phase E of the ADM
- The approach to the Preliminary Phase recommends their use as part of developing the Organizational Model for Enterprise Architecture
- In Phase A, a maturity assessment is part of the Capability Assessment used to determine the baseline and target capability of the enterprise
- This Capability Assessment is also revisited in Phase E, when preparing the Implementation and Migration Plan

Maturity Assessments in the ADM (Cont'd)

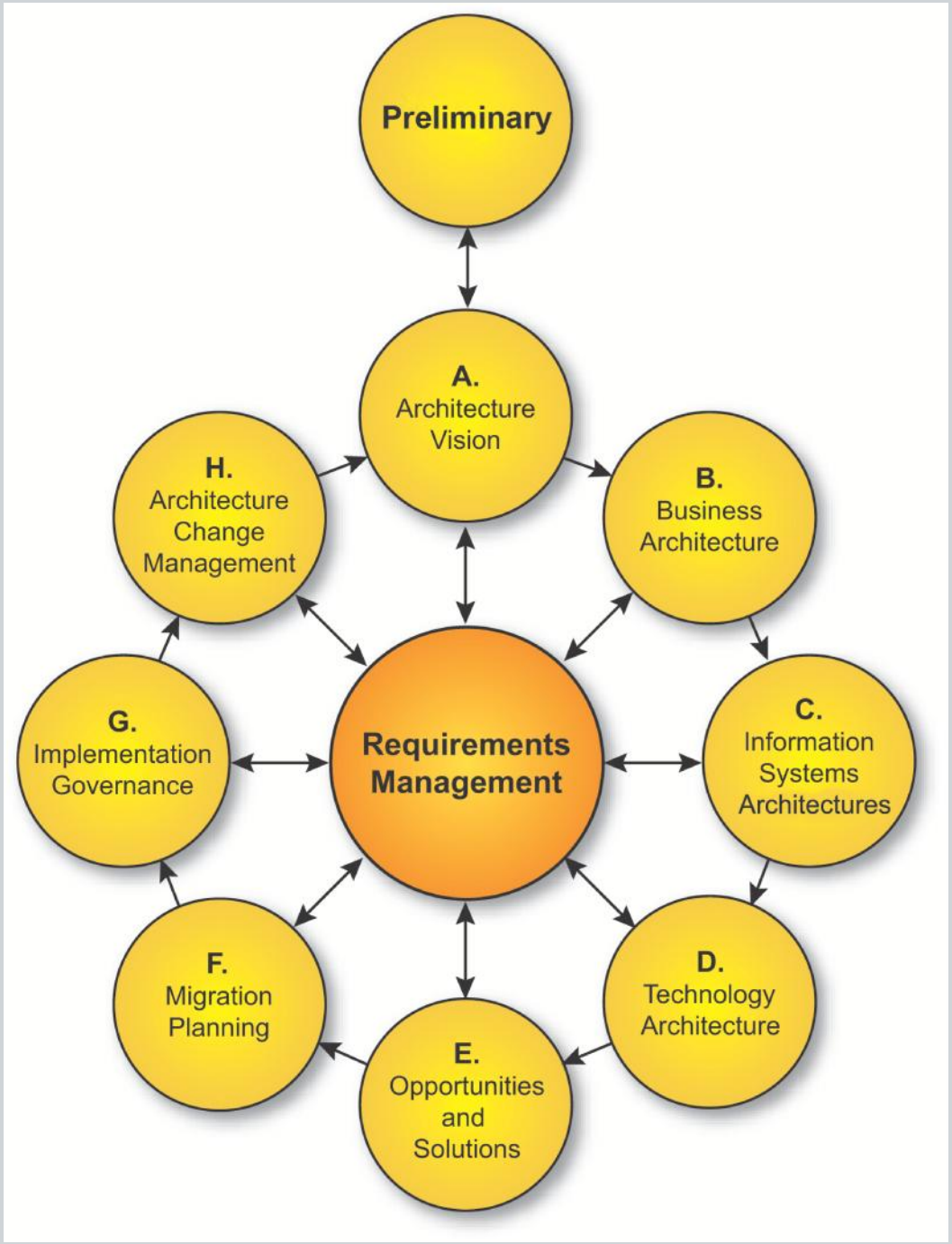
- When using CMMs with the ADM, it is recommended that they be customized and discussed in workshops involving the major stakeholders within the organization
- The actual levels of maturity can provide a strategic measure of the organization's ability to change, as well as a series of sequential steps to improve that ability

Summary

- This module has explained the role of Architecture Capability Maturity Models in enabling an enterprise to determine the state of its Enterprise Architecture process and to evaluate risks and options during the development of the Enterprise Architecture
- Performing a maturity assessment may involve the use of a number of models. The assessment focuses on measuring business benefits and return on investment

Exercise

- Provide an assessment of your own company's EA process maturity, on a scale from Level 0 to Level 5 using the templates provided with the DoC ACMM 1.2 document (provided as a handout)



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