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Version 9.1 Enterprise Edition
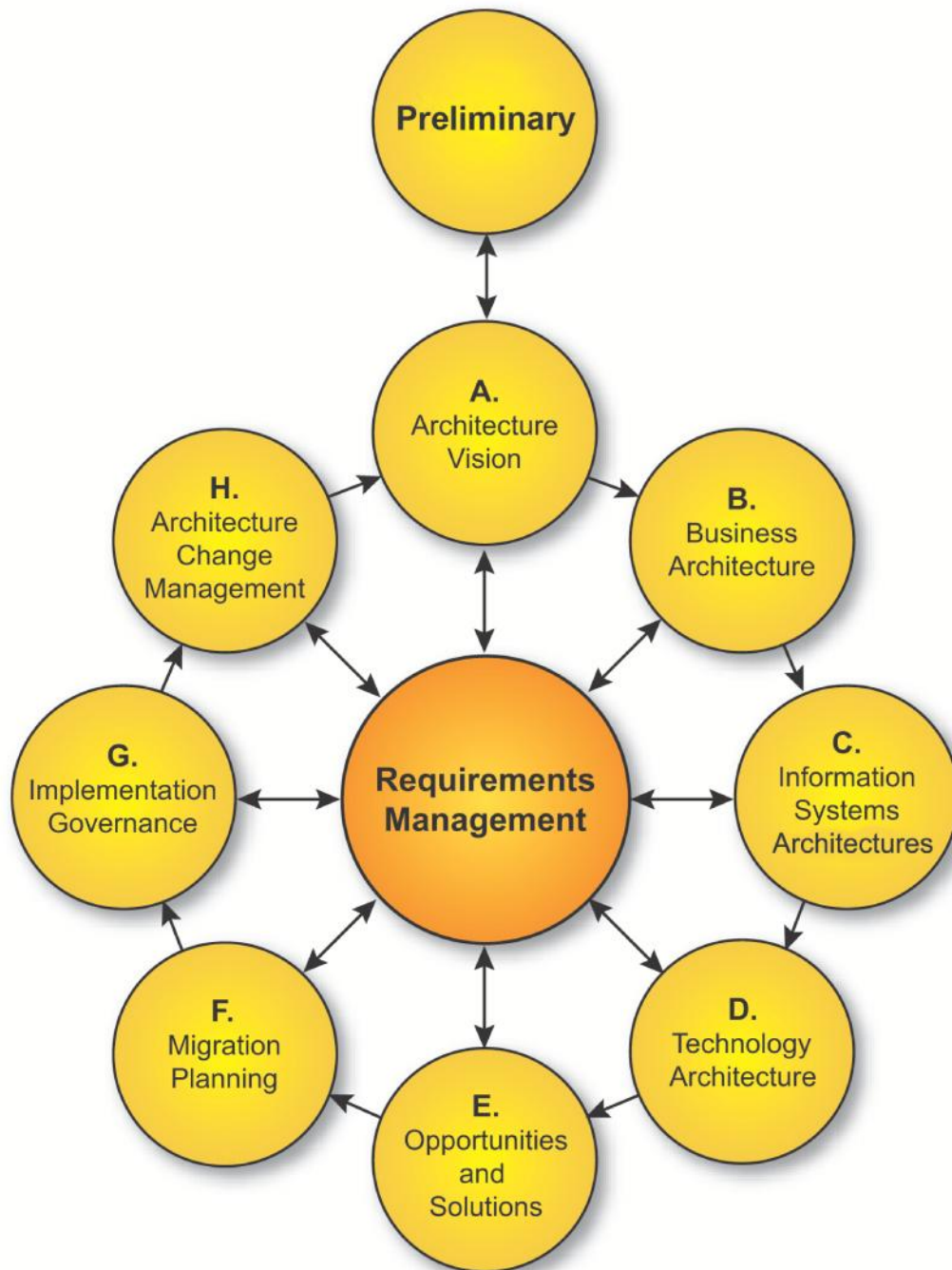
Module 14
Architecture
Implementation
Support Techniques

Architecture Implementation Support Techniques

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Roadmap

Part I - Introduction
Preface, Executive Overview, Core Concepts, Definitions and Release Notes
Part II – Architecture Development Method
Introduction to ADM
ADM Phase Narratives
Part III – ADM Guidelines & Techniques
Guidelines for Adapting the ADM Process
Techniques for Architecture Development
Part IV – Architecture Content Framework
Content Metamode
Architectural Artifacts
Architecture Deliverables
Building Blocks
Part V – Enterprise Continuum & Tools
Enterprise Continuum
Architecture Partitioning
Architecture Repository
Tools for Architecture Development
Part VI – Reference Models
Foundation Architecture: Technical Reference Model
Integrated Information Infrastructure Reference Model
Part VII – Architecture Capability Framework
Architecture Board
Architecture Compliance
Architecture Contracts
Architecture Governance
Architecture Maturity Models
Architecture Skills Framework

- **Part III, ADM Guidelines and Techniques**
- **Chapters 29, 30, 31 and 32**

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Module Objectives

The objectives are to:

- Obtain an understanding of the following techniques provided by TOGAF to assist in Architecture Development

    – Managing Interoperability Requirements

    – Business Transformation

    – Risk Assessment

    – Capability Planning

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Interoperability

- Interoperability is "*the ability to share information and services*".

- TOGAF provides techniques for
  - Defining interoperability
  - Refining interoperability
  - Determining interoperability requirements

- The determination of interoperability occurs throughout the ADM cycle

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Interoperability and the ADM

The determination of interoperability occurs throughout the ADM:

- Architecture Vision: the nature and security considerations of information and service exchanges are found using business scenarios.
- Business Architecture: information and service exchanges are defined in business terms.
- Data Architecture: the content of information exchanges is detailed using the corporate data and/or information exchange model.
- Application Architecture: the way applications are to share information and services is specified.
- Technology Architecture: appropriate technical mechanisms to permit information and service exchanges are specified.
- Opportunities & Solutions: actual solutions are selected.
  Migration Planning: interoperability is implemented logically.

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Examples

Phase B: Inter-stakeholder Information Interoperability Requirements (Using degrees of information interoperability)

Stakeholders	A	B	C	D	E	F	G
A		2	3	2	3	3	3
B	2		3	2	3	2	2
C	3	3		2	2	2	3
D	2	2	2		3	3	3
E	4	4	2	3		3	3
F	4	4	2	3	3		2
G	2	2	3	3	3	3	

Phase C: Inter-system Interoperability Requirements

	System A	System B	System C	System D	System E	System F	System G
System A		2A	3D	2B	3A	3A	3B
System B	2E		3F	2C	3A	2B	2C
System C	3E	3F		2B	2A	2A	3B
System D	2B	2B	2B		3A	3A	3B
System E	4A	4B	2B	3A		3B	3B
System F	4A	4A	2B	3B	3A		2D
System G	2B	2B	3A	3A	3B	3B	

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Interoperability requirements and solutions

The architect must ensure that there are no interoperability conflicts, especially if re-using existing SBBs or using COTS which have their own business processes and information architectures.

Changes to the business processes will be the most difficult.

The workflow between the various systems must also be taken into account.

The enterprise architect must also ensure that any change to the business interoperability requirements is agreed by the business architects and sponsors in a revised Statement of Architecture Work.

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Interoperability requirements and solutions

To find interoperability constraints consider:

- the Architecture Vision

- the Target Architecture

- the Implementation Factor Assessment and Deduction matrix

- the Consolidated Gaps, Solutions, and Dependencies matrix

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Business Transformation Readiness Assessment

- Enterprise architecture often involves considerable change.
- Understanding the readiness of an organization to accept change, identifying the issues, and dealing with them in the Implementation and Migration Plans is key to successful architecture transformation in Phases E and F. An initial assessment is carried out in Phase A.
- This is a joint effort between corporate (especially human resources) staff, lines of business and IT planners.

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The Business Transformation Readiness Assessment

Recommended activities when assessing readiness for business transformation are:

1. Determine the readiness factors
2. Present the readiness factors using maturity models
3. Assess the readiness factors, and determine the readiness factor ratings
4. Assess the risks for each readiness factor and identify mitigating actions
5. Work these actions into Phase E and F Implementation and Migration Plan

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Readiness Factors

Typical factors that may affect the business transformation include:

- Vision - the ability to clearly define and communicate what is to be achieved.
- Desire, Willingness, and Resolve
- Need
- Business Case
- Funding
- Sponsorship and Leadership
- Governance
- Accountability
- Workable Approach and Execution Model
- IT Capacity to Execute
- Enterprise Capacity to Execute
- Enterprise Ability to Implement and Operate

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Assess the Readiness Factors

Business Transformation Readiness Assessment - Maturity Model						
Factor 2: Need for Enterprise Information Architecture			**Class**		Organizational Context	
			BTEP Readiness Factor		YES	
Definition	There is recognition by the organization that information is a strategic corporate asset requiring stewardship. There is also recognition that the data is not universally understandable, of requisite quality, and accessible.					
Maturity Model Levels						
0 **Not defined**	**1** **Ad Hoc**	**2** **Repeatable**	**3** **Defined**	**4** **Managed**	**5** **Optimized**	
Information is not recognized as an asset. There is no clear stewardship of data.	Data Management (DM) concepts are intuitively understood and practiced on an *ad hoc* basis. Stewardship of the data is informal. Data is recognized by certain internal experts and senior management as being of strategic importance to the organization. Focus is primarily on technically managing redundant data at the applications level.	Many parts of the organization value information/data as a strategic asset. Internal DM experts maintain clear lines of responsibility and stewardship of the data, organized along lines of business and at all senior levels. Staff put into practice DM principles and standards in their daily activities.	Data is recognized as a strategic asset in most parts of the organization, and throughout most levels from operations to senior management. Resources are committed to ensuring strong stewardship of data at the lower management and information expert levels.	Data is recognized as a strategic asset in all parts of the organization, and throughout most levels from operations to senior management. Resources are committed to ensuring strong stewardship of data at the senior management and information expert levels.	Data is treated in all levels throughout the organization as a strategic asset to be exploited and re-used. Data products and services are strongly integrated with the management practice of the organization. All staff are empowered and equipped to take stewardship of information, and are seen as "knowledge workers".	
				Recommended Target State		

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Readiness Factor Rating

Business Factor Assessment Summary				
Ser	Readiness Factor	Urgency	Readiness Status	Degree of Difficulty to Fix
1	Vision			
2	Desire/willingness/resolve			
3	Need			
4	Business case			
5	Funding			
6	Sponsorship and leadership			
7	Governance			
8	Accountability			
9	Workable approach and execution model			
10	IT capacity to execute			
11	Departmental capacity to execute			
12	Ability to implement and operate			

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Readiness Factor Risks & Actions

- Assess each factor using Risk Management techniques
- Identify a series of improvement actions
- Incorporate into the Implementation and Migration Plan

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Risk Management

- A technique used to mitigate risk when implementing an architecture project.

- It is important to identify, classify, and mitigate these risks before starting so that they can be tracked throughout the transformation effort.

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Risk Management in the ADM

There are two levels of risk that should be considered:

1. **Initial Level of Risk**: Risk categorization prior to determining and implementing mitigating actions.

2. **Residual Level of Risk**: Risk categorization after implementation of mitigating actions

The process for risk management is:

- Risk classification
- Risk identification
- Initial risk assessment
- Risk mitigation and residual risk assessment
- Risk monitoring

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Risk Management in the ADM

Risks are identified in Phase A as part of the initial Business Transformation Readiness Assessment

The risk identification and mitigation assessment worksheets are maintained as governance artifacts and are kept up-to-date in Phase G (Implementation Governance) where risk monitoring is conducted.

Implementation governance can identify critical risks that are not being mitigated and might require another full or partial ADM cycle.

Initial risk assessment

The initial risk assessment is done by classifying risks with respect to effect and frequency.

Effect can be assessed as:

- **Catastrophic:** critical financial loss that could result in bankruptcy.

- **Critical:** serious financial loss in more than one line of business leading to a loss in productivity and no ROI

- **Marginal:** minor financial loss in a line of business and a reduced ROI on the IT investment.

- **Negligible:** minimal impact on services and/or products.

Continued…

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Initial risk assessment

Frequency can be assessed as:

- **Frequent**: Likely to occur very often and/or continuously.

- **Likely**: Occurs several times over the course of a transformation cycle.

- **Occasional**: Occurs sporadically.

- **Seldom**: Remotely possible and would probably occur not more than once in the course of a transformation cycle.

- **Unlikely**: Will probably not occur during the course of a transformation cycle.

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Initial risk assessment

The assessments of effect and frequency can then be combined:

- **Extremely High Risk (E)**: The transformation will most likely fail with severe consequences.

- **High Risk (H)**: Significant failure of parts of the transformation resulting in certain goals not being achieved.

- **Moderate Risk (M)**: Noticeable failure of parts of the transformation, threatening the success of some goals.

- **Low Risk (L)**: Some goals will not be wholly successful.

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Risk Classification Scheme

Corporate Risk Impact Assessment					
	Frequency				
Effect	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

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Risk Identification and Mitigation Worksheet

Risk ID	Risk	Preliminary Risk			Mitigation	Residual Risk		
		Effect	Frequency	Impact		Effect	Frequency	Impact

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Capability based planning

Capability-based planning is a technique that focuses on the planning, engineering and delivery of strategic business capabilities.

It frames all phases of the architecture development in the context of business outcomes, clearly linking the IT vision, architectures (ABBs and SBBs), and the Implementation and Migration Plans with the corporate strategic, business, and line of business plans.

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Capabilities

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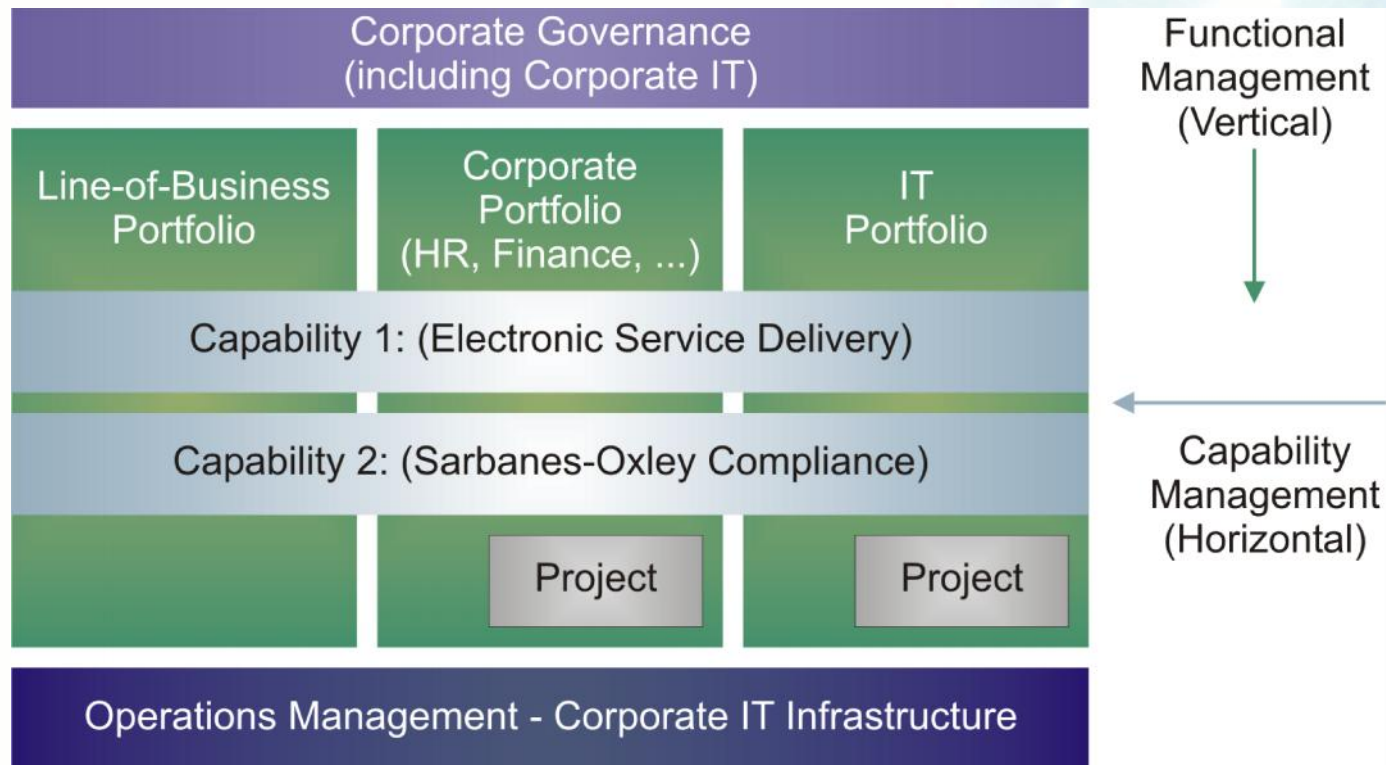
Capability based planning

Capabilities are directly derived from the corporate strategic plan. They must satisfy the enterprise goals, objectives, and strategies. Most organizations will also have an annual business plan.

- All of the architectures will be expressed in terms of business outcomes and value.

- Phase A: the corporate strategic direction must drive this

- Phases B, C, and D: specific capabilities must be targeted for completion.

- Phase E: the capability increments must drive this.
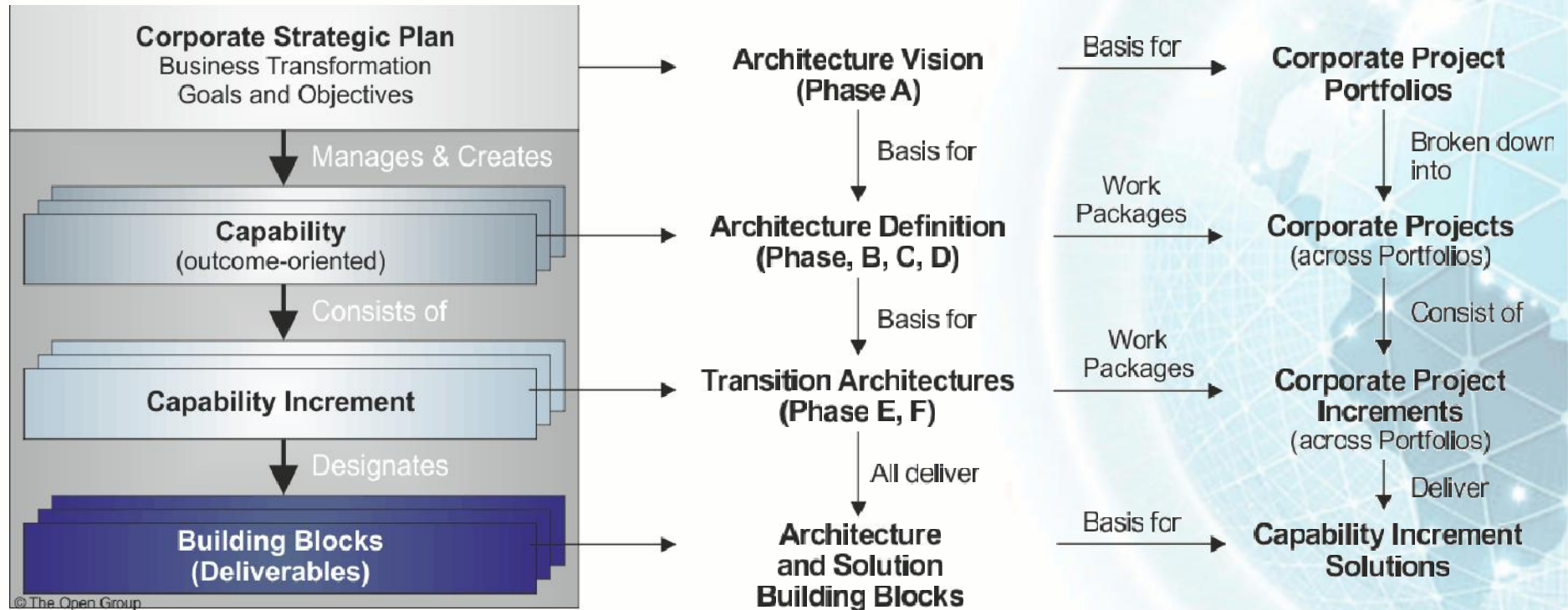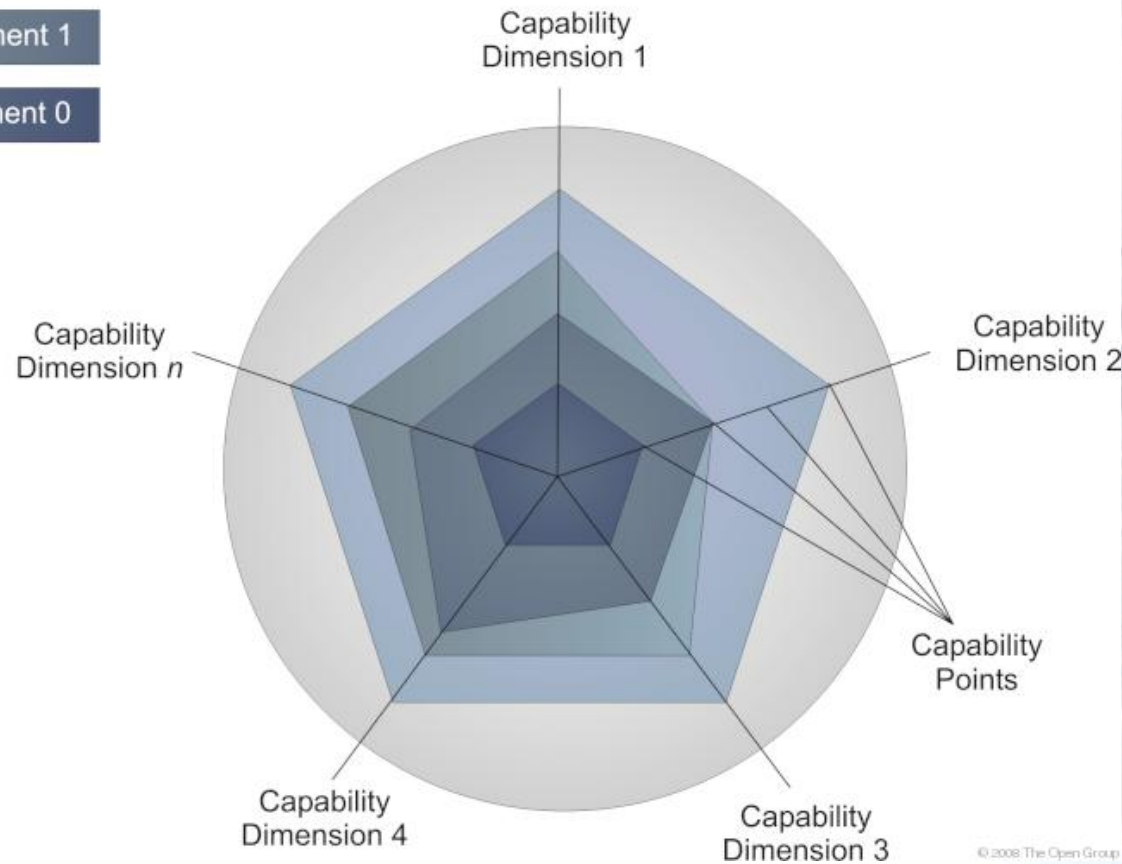
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Capability based planning

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Capability Increment Radar Diagram

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Summary

This module has explained how to apply different techniques to help with the implementation of the architectures defined in the ADM phases, including:
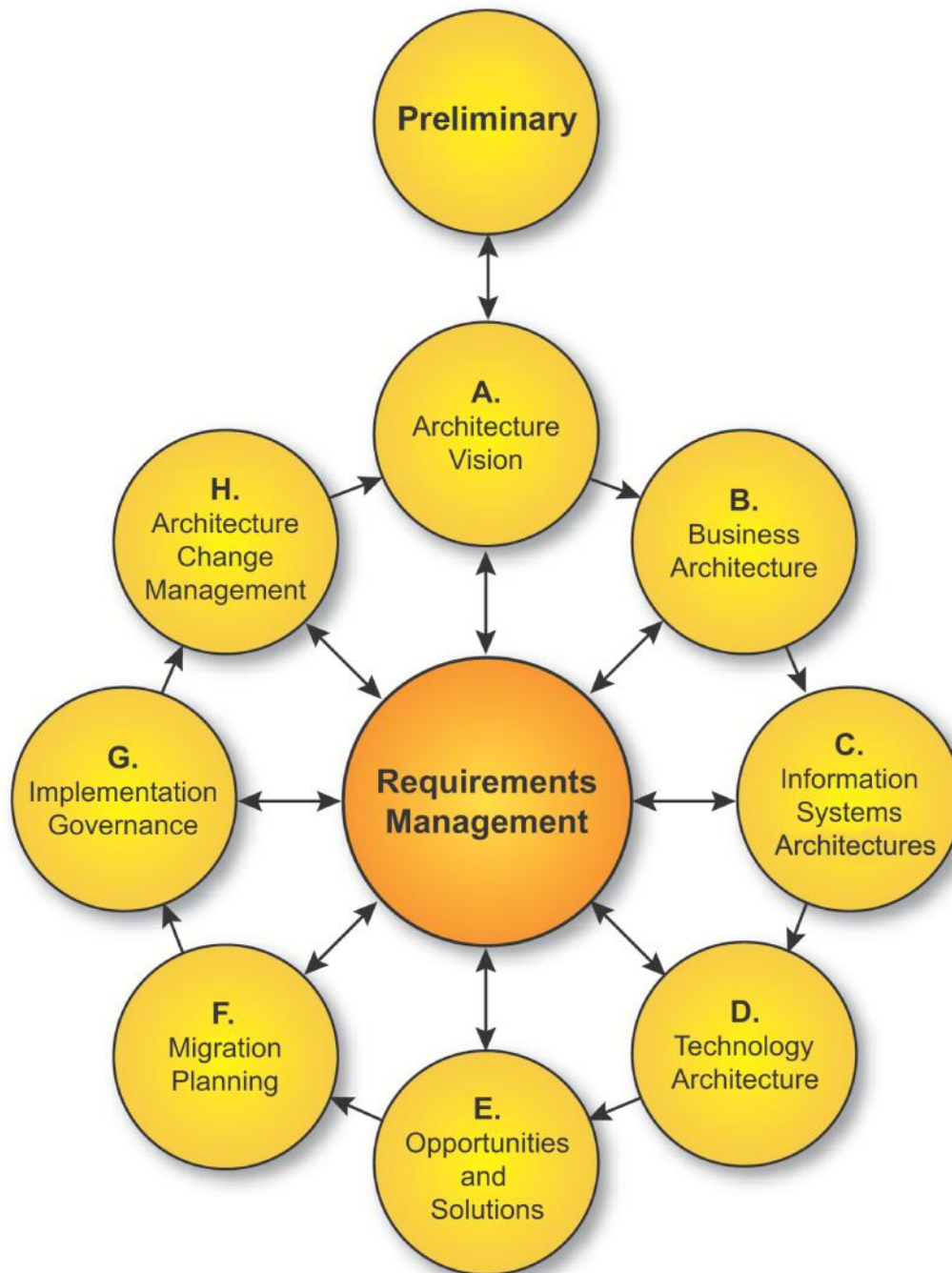
- Interoperability requirements
- The factors that influence business transformation readiness
- How to perform an initial risk assessment
- How capability based planning can be applied

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Exercise

- Draw a capability increment radar diagram to communicate the current capability of an enterprise which has reached capability increment 2 and has obtained the following scores for 5 capability dimensions:

Professional Development	70%
Business processes	80%
Research & development	60%
Information management	70%
Equipment	60%

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Architecture Implementation Support Techniques

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