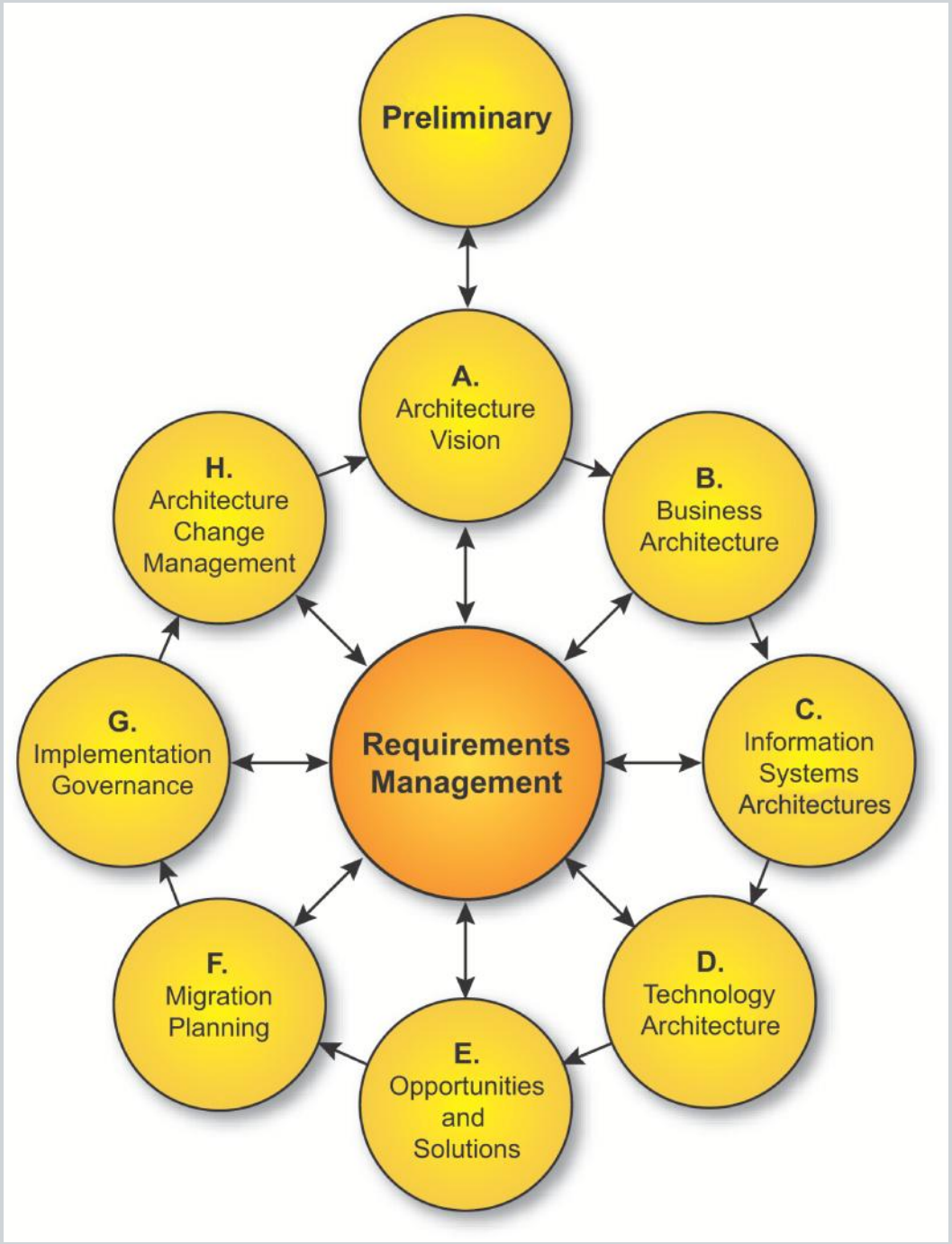
TOGAF®

Version 9.1 Enterprise Edition

Module 13
Building Blocks

THE Open GROUP

Published by The Open Group, 2011



Building Blocks

TOGAF®

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 and Techniques
Guidelines for Adapting the ADM Process
Techniques for Architecture Development
Part IV – Architecture Content Framework
Content Metamodel
Architectural Artifacts
Architecture Deliverables
Building Blocks
Part V – Enterprise Continuum and 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 IV, Architecture Content Framework, Chapter 37

TOGAF®

Module Objectives

- To understand the concepts of Building Blocks within TOGAF
  - Architecture Building Blocks
  - Solution Building Blocks
- To understand their role within application of the ADM
- A comparison with Architecture Patterns

Building Block Characteristics

- A package of functionality defined to meet the business needs across an organization
- A building block has published interfaces to access functionality
- A building block may interoperate with other, inter-dependent building blocks

A Good Building Block

- Considers implementation and usage and evolves to exploit technology and standards
- May be assembled from or a subassembly of other building blocks
- Is reusable and replaceable

Building Blocks

- The way in which functionality, products and custom developments are assembled into building blocks varies widely
- Every organization must decide for itself the arrangement
- A good choice can lead to improvements in system integration, interoperability and flexibility

Continued

Building Blocks

- Systems are built from collections of building blocks
- They can be defined at many levels of detail
  - Groupings at the functional such as a customer database are known as Architecture Building Blocks
  - Real products or specific custom developments are known as Solutions Building Blocks

Architecture Building Blocks (ABBs)

- Architecture documentation and models from the enterprise's Architecture Continuum.
- They are defined or selected during application of the ADM
  - Mainly in Phases A, B, C and D
- The characteristics are as follows
  - They define what functionality will be implemented
  - They capture business and technical requirements
  - They are technology-aware
  - They direct and guide the development of Solution Building Blocks

ABB Specifications

- Fundamental functionality and attributes: semantics, unambiguous, including security capability and manageability
- Interfaces: chosen set, supplied (APIs, data formats, protocols, hardware interfaces, standards)
- Dependent building blocks with required functionality and named interfaces
- Map to business/organizations entities and policies

Solution Building Blocks (SBBs)

- Solutions Building Blocks relate to the Solutions Continuum
- They can either be procured or developed
- The characteristics are as follows:
  - They define what products and components will implement the functionality
  - They define the implementation
  - They fulfil business requirements
  - They are product or vendor-aware

SBB Specifications

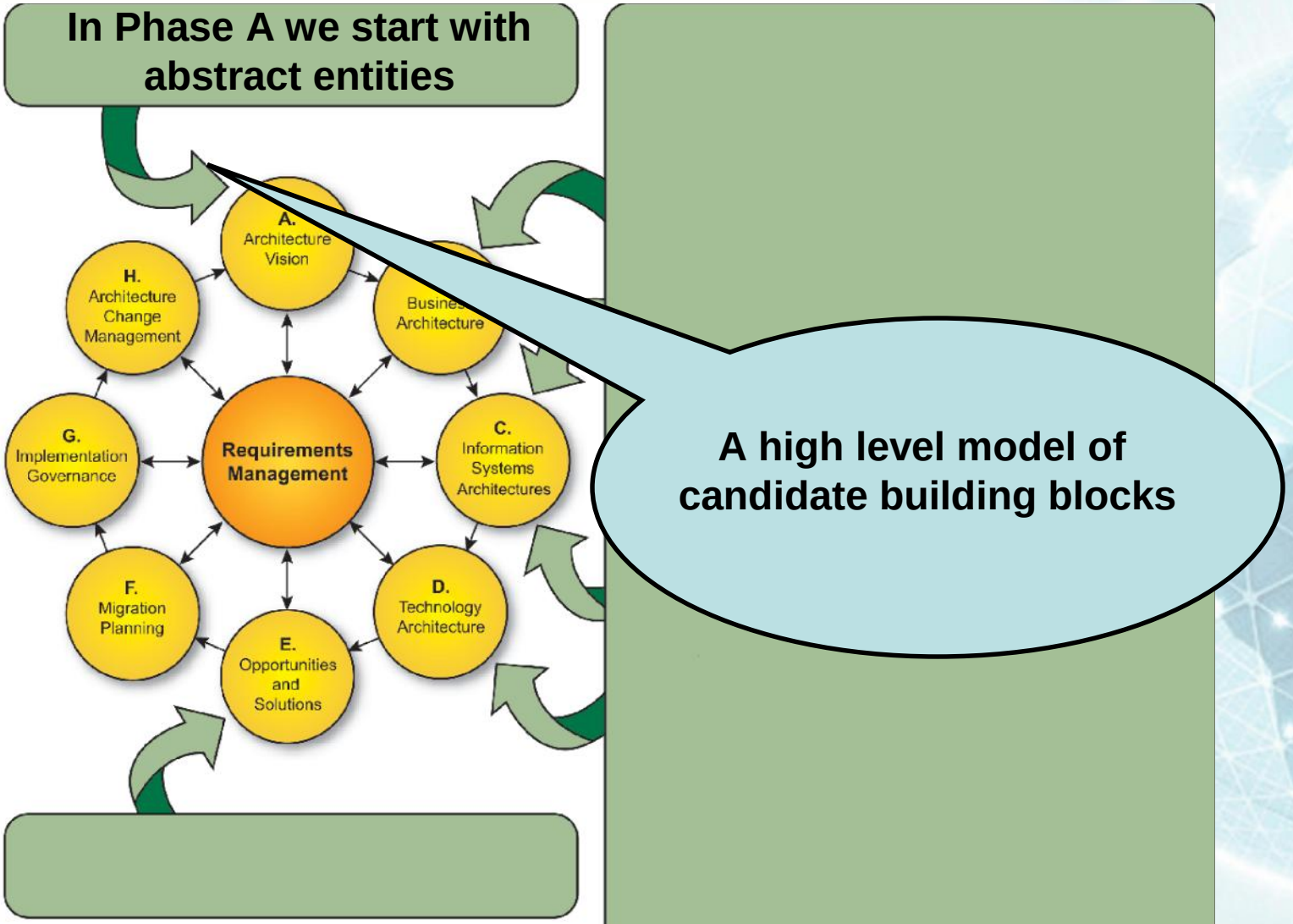
- Specific functionality and attributes
- Interfaces: the implemented set
- Required SBBs used with required functionality and names of interfaces used
- Mapping from the SBBs to the IT topology and operational policies
- Specifications of attributes shared such as security, manageability, scalability
- Performance, configurability
- Design drivers and constraints including physical architecture
- Relationships between the SBBs and ABBs

Building Blocks and the ADM

- An architecture is a set of building blocks
  - Depicted in an architectural model
  - A specification of how those building blocks are connected to meet the overall requirements of an information system
- The various building blocks in an architecture specify the services required in an enterprise specific system
- The following general principles should apply:
  - An architecture need only contain building blocks to implement those services it requires
  - Building blocks may implement one, more than one, or only part of a service identified in the architecture
  - Building blocks should conform to standards

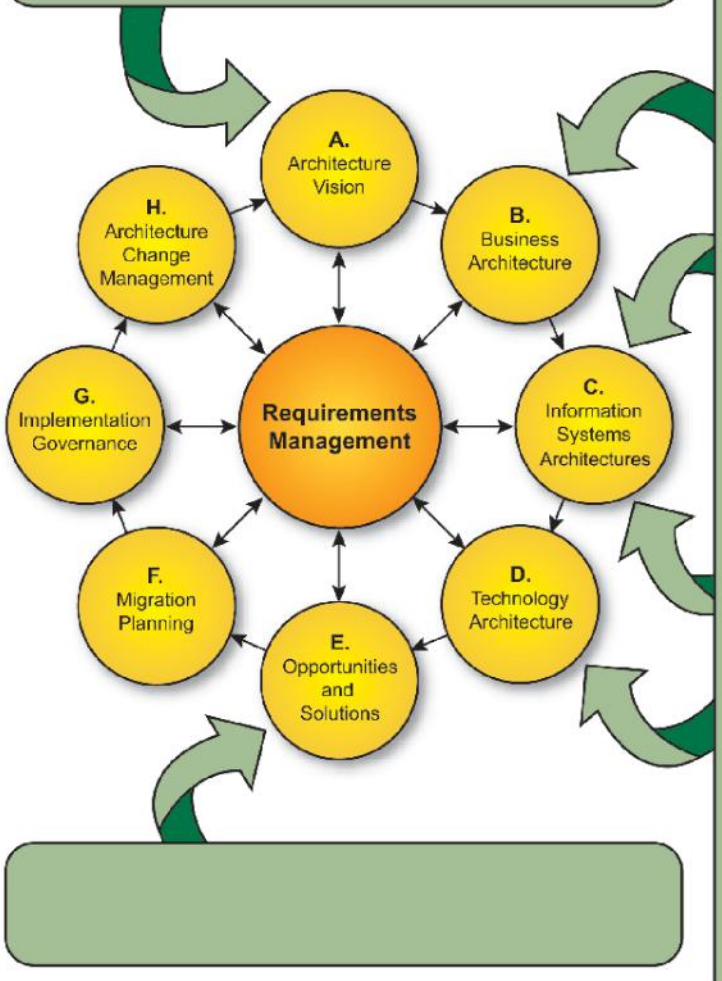
Building Block Design

- The process of identifying building blocks includes looking for collections of functions which require integration
- Consider three classes of building blocks:
  1. Re-usable building blocks such as legacy items
  2. Building blocks to be developed (new applications)
  3. Building blocks to be purchased (COTS applications)
- Use the desired level of integration to decide how to bind functions into building blocks


In Phase A we start with abstract entities
A. Architecture Vision
H. Architecture Change Management
Busines Architecture
G. Implementation Governance
Requirements Management
C. Information Systems Architectures
F. Migration Planning
D. Technology Architecture
E. Opportunities and Solutions
A high level model of candidate building blocks

TOGAF®

In Phase A we start with abstract entities



In Phases B, C and D:

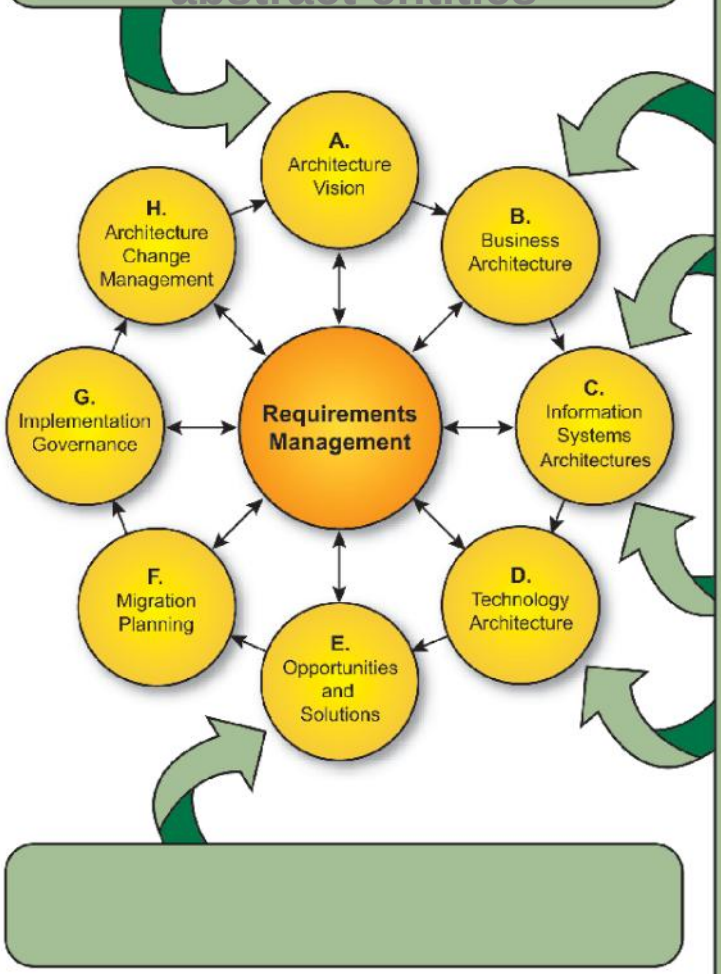
Building blocks within the Business, Data, Applications and Technology Architectures are evolved to a common pattern of steps

Step 1: Select Reference Models, Viewpoints and Tools

TOGAF provides example catalogs, matrices and diagrams for use

TOGAF®

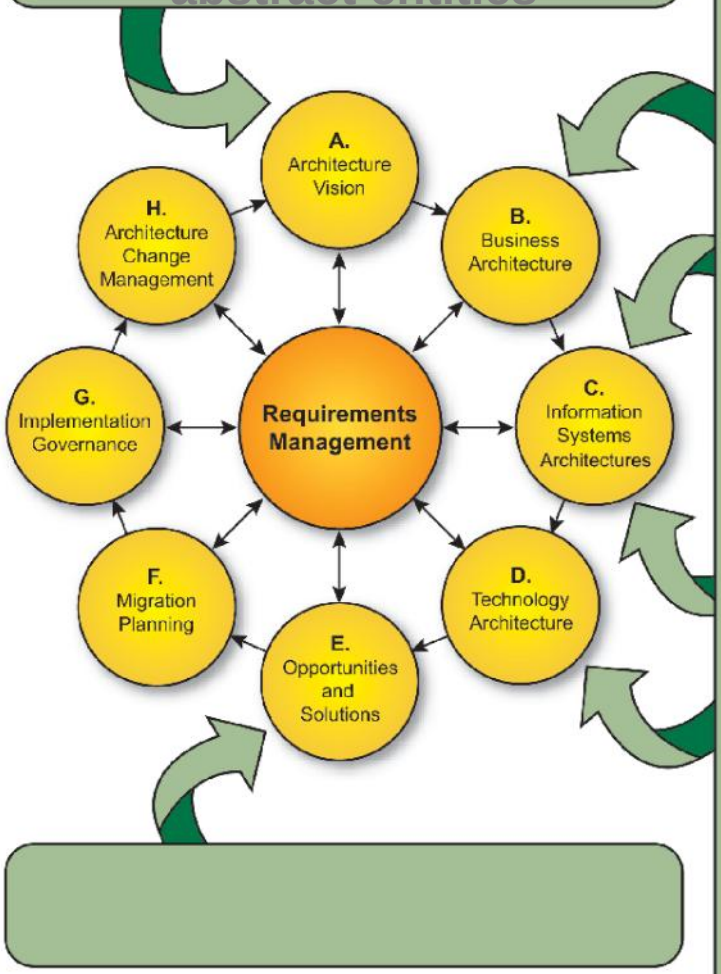
In Phase A we start with abstract entities



Step 2: Develop Baseline Architecture Description

Develop a high-level model of existing building blocks, re-using definitions from the Architecture Repository where they are available

In Phase A we start with abstract entities



Step 3: Develop Target Architecture Description

Develop view of required building blocks through the creation of catalogs, matrices and diagrams

Fully document each building block

Document rationale for building block decisions

Identify the impacted building blocks within the Architecture Repository, re-using where appropriate

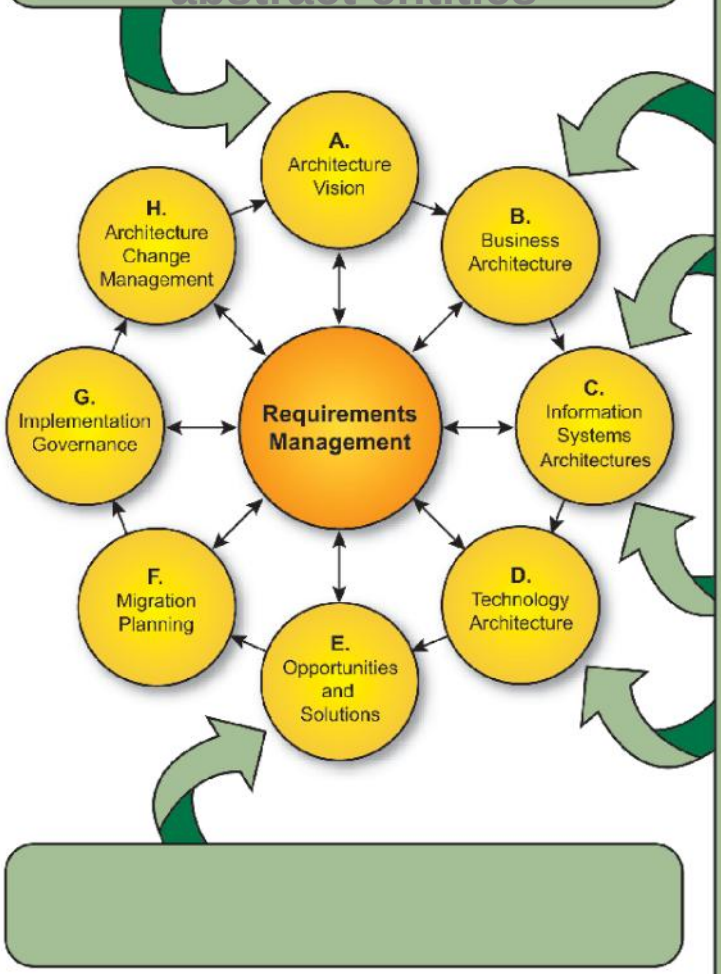
Where necessary, define new building blocks

Select standards for each building block

Document mapping of building blocks to Architecture Landscape

Identify building blocks for re-use, publish as either standards or reference models

In Phase A we start with abstract entities



Step 4: Perform Gap Analysis

Identify building blocks carried over

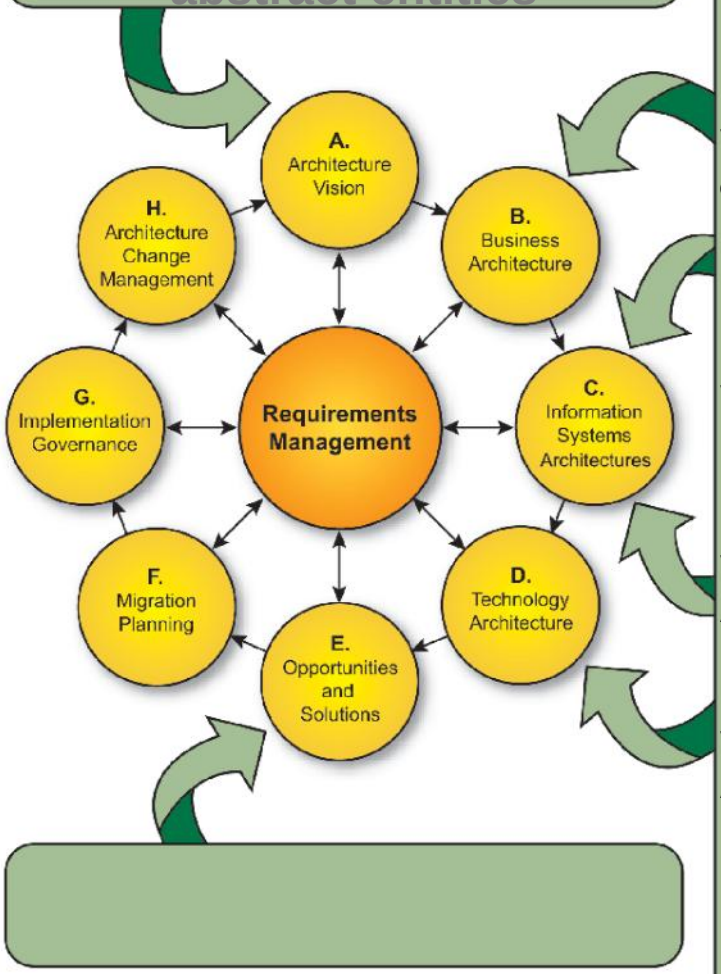
Identify eliminated building blocks

Identify new building blocks

Identify gaps and determine realization approach

TOGAF®

In Phase A we start with abstract entities



Step 5: Define Candidate Roadmap Components

Step 6: Resolve Impacts across the Architecture Landscape

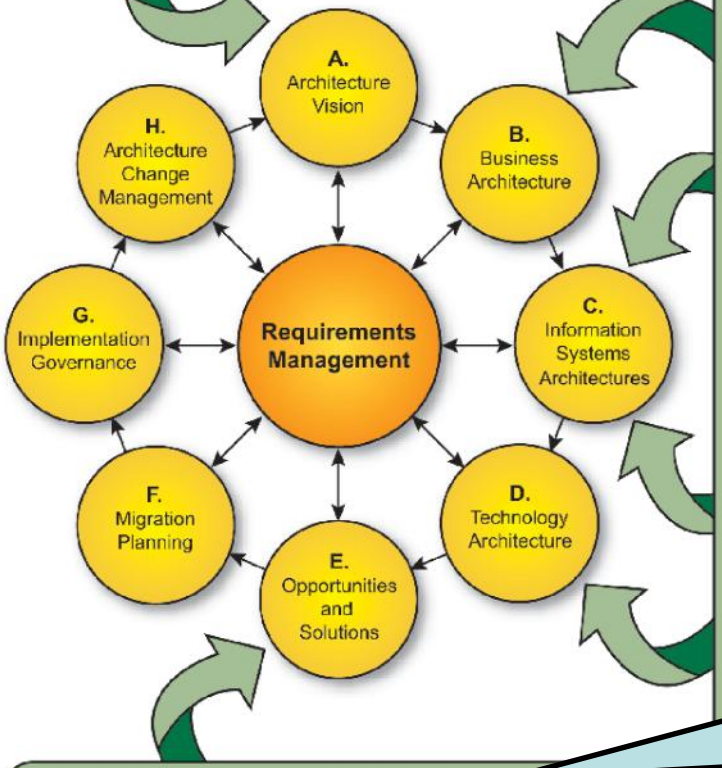
Step 7: Formal Stakeholder Review

Step 8: Finalize the Architecture

Step 9: Create the Architecture Definition Document

TOGAF®

In Phase A we start with abstract entities



In Phases B, C and D:

Building blocks within the Business, Data, Applications and Technology Architectures are evolved to a common pattern of steps

Building Block architecture in ABB and SBB forms

Associate building blocks with work packages that will address the gaps

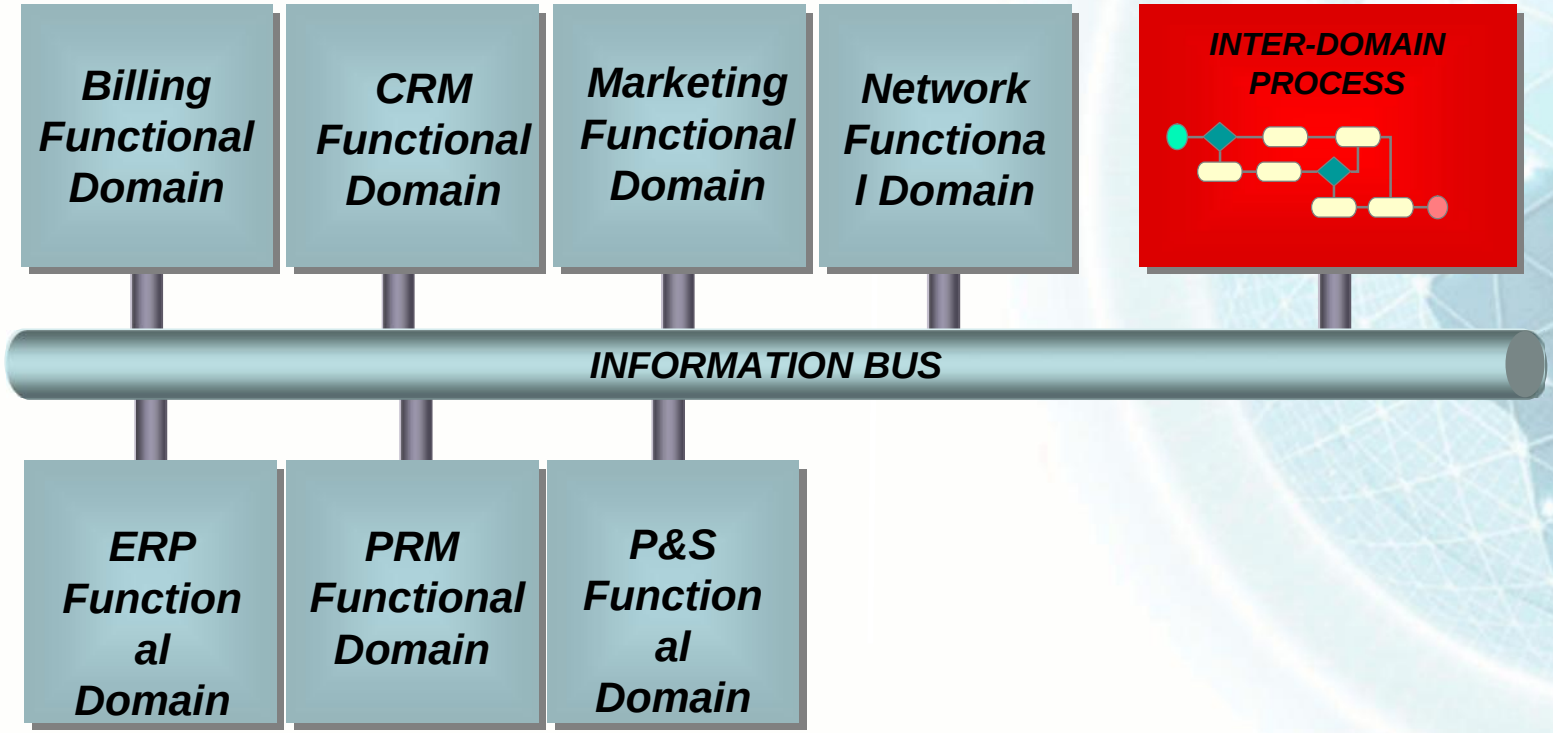
TOGAF®

Architecture Patterns

- Pattern: defined as "*an idea that has been useful in one practical context and will probably be useful in others*"
- In TOGAF, patterns are considered to be a way of putting building blocks into context; for example, to describe a re-usable solution to a problem.
- Building blocks are what you use: patterns can tell you how you use them, when, why, and what trade-offs you have to make in doing so.

An Example of an Architecture Pattern

Business Oriented Integration



TOGAF®

Test Yourself Question

Q. Which of the following statements describe generic building blocks?

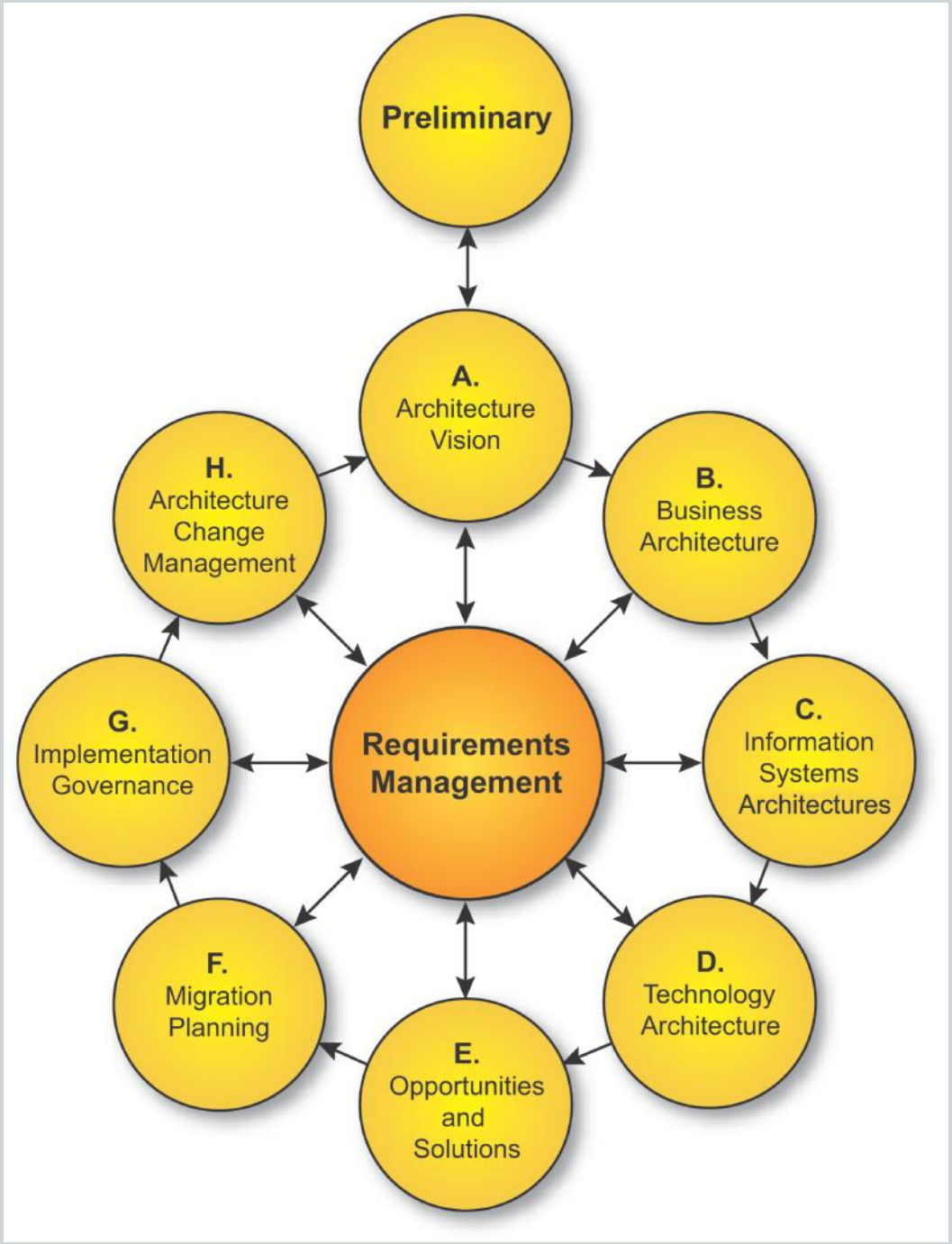
A. A building block is a package of functionality defined to meet the business needs.

B. A building block has published interfaces to access the functionality.

C. A building block may be assembled from other building blocks.

D. A building block may have multiple implementations.

E. All of these



Building Blocks

TOGAF®