Enterprise Architecture and TOGAF 9 Overview

Winton Huang
wintonjkt@gmail.com

Agenda

- **Part I**   Overview of Enterprise Architecture

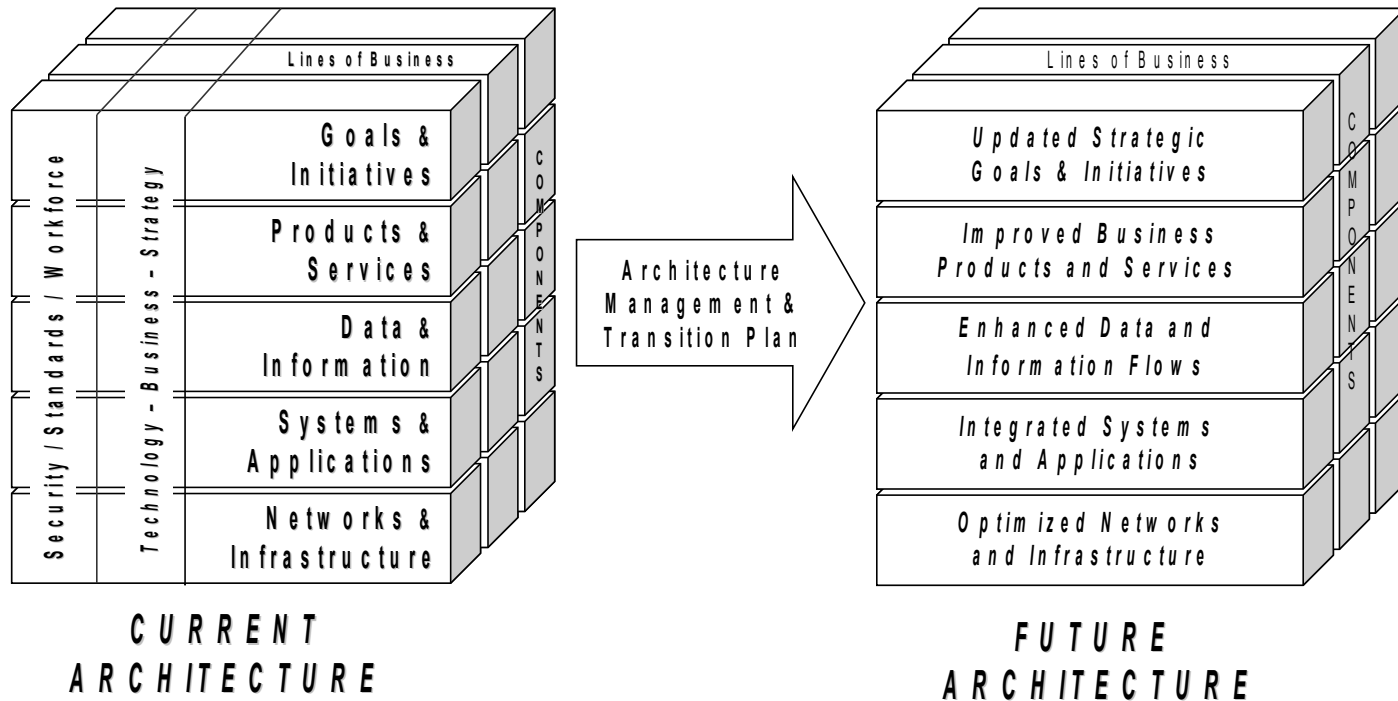- **Part II**   TOGAF Overview

Part I
Overview of Enterprise Architecture

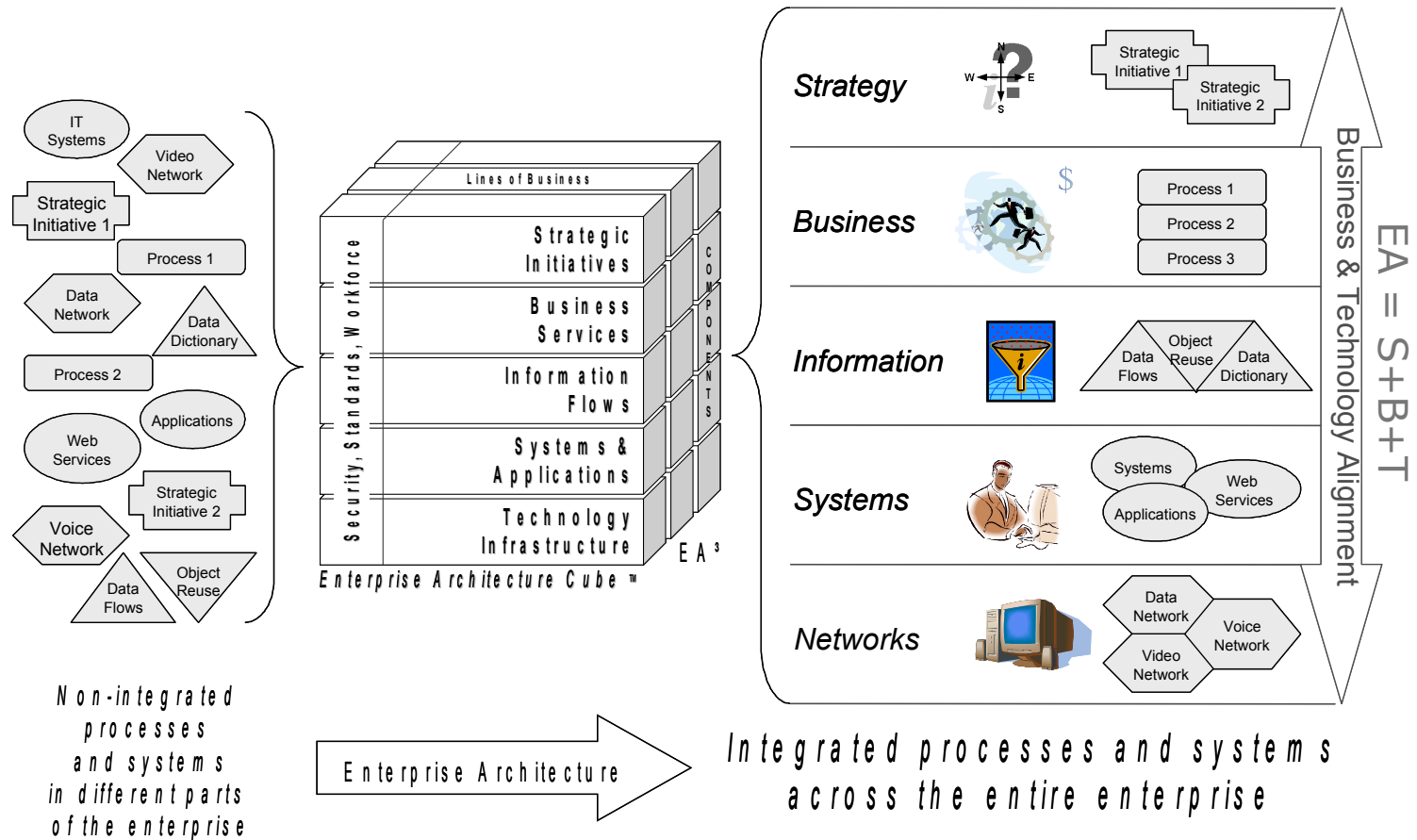# The Concept of Enterprise Architecture - Defined

Enterprise Architecture: The analysis and documentation of an enterprise in its current and future states from a strategy, business, and technology perspective. $EA = S + B + T$

An Introduction to Enterprise Architecture © 2005

CURRENT ARCHITECTURE

FUTURE ARCHITECTURE

Current Architecture labels:
- Lines of Business
- Security / Standards / Workforce
- Technology – Business – Strategy
- COMPONENTS
- Goals & Initiatives
- Products & Services
- Data & Information
- Systems & Applications
- Networks & Infrastructure

Architecture Management & Transition Plan

Future Architecture labels:
- Lines of Business
- COMPONENTS
- Updated Strategic Goals & Initiatives
- Improved Business Products and Services
- Enhanced Data and Information Flows
- Integrated Systems and Applications
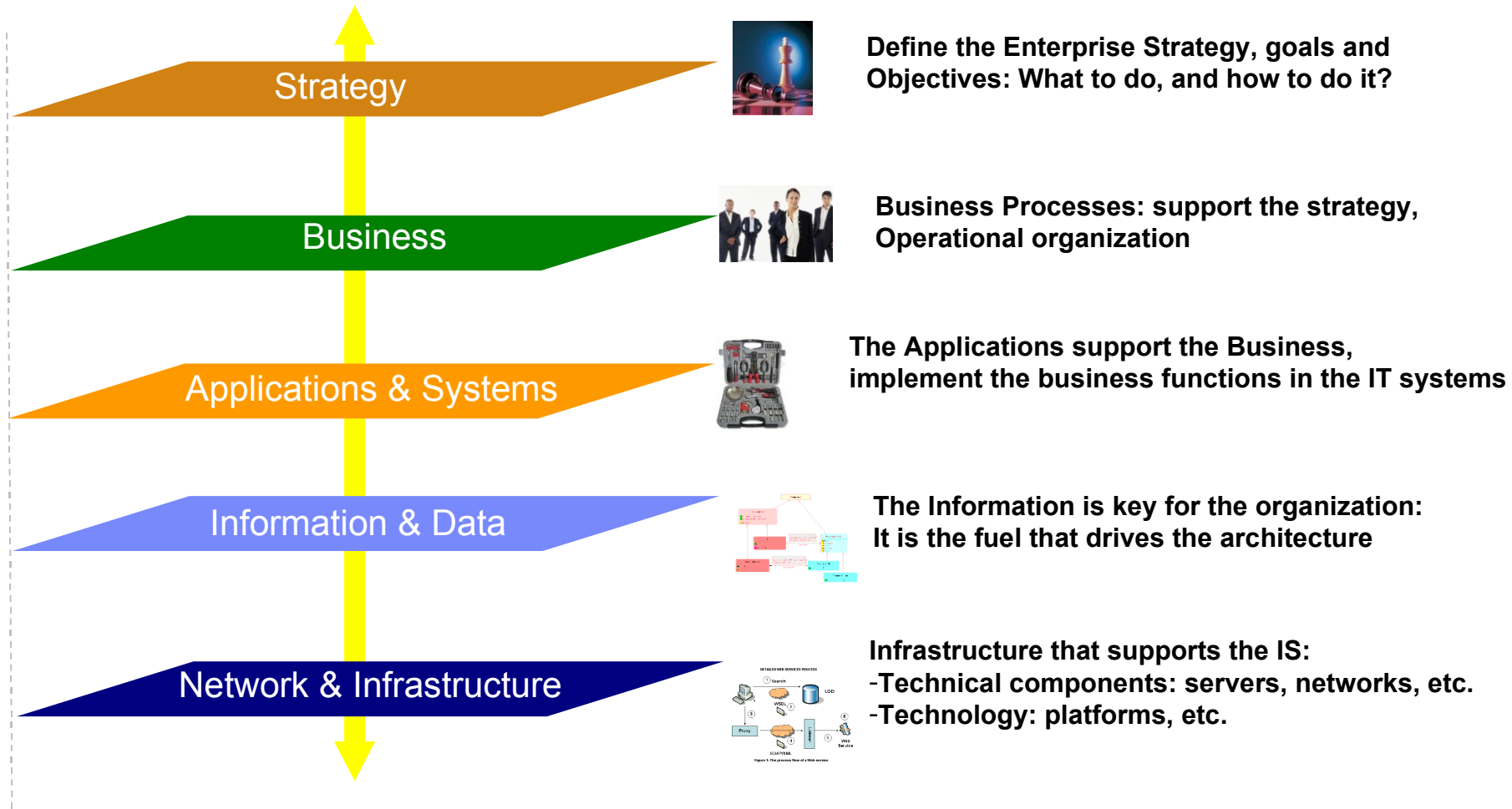- Optimized Networks and Infrastructure

The Concept of Enterprise Architecture – Overview

§ Enterprise Architecture helps to integrate and manage IT resources from a strategy and business-driven viewpoint
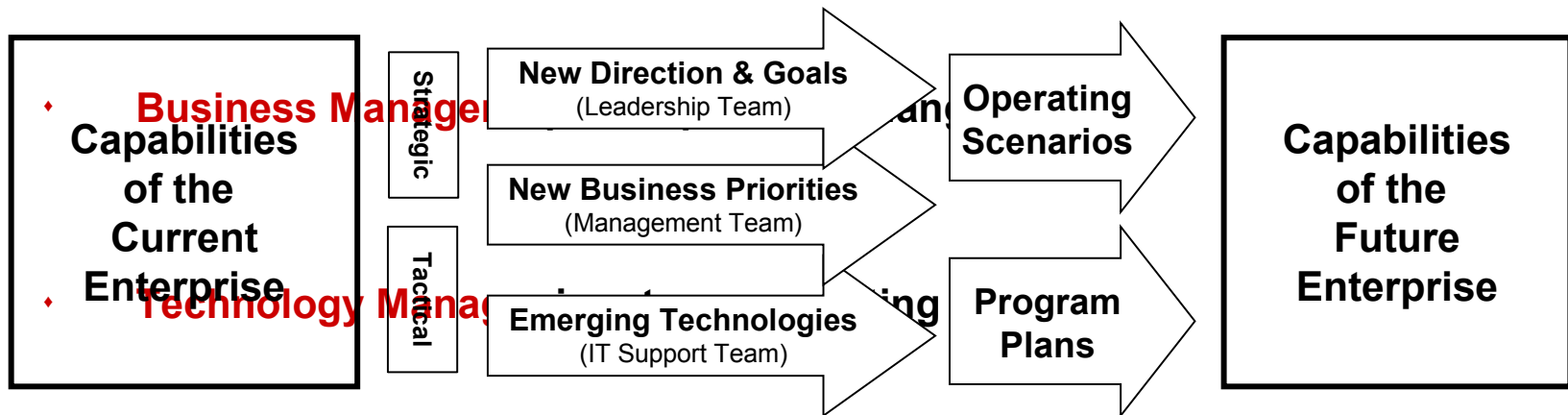
Enterprise Architecture Domain

Strategy
Define the Enterprise Strategy, goals and Objectives: What to do, and how to do it?

Business
Business Processes: support the strategy, Operational organization

Applications & Systems
The Applications support the Business, implement the business functions in the IT systems

Information & Data
The Information is key for the organization: It is the fuel that drives the architecture

Network & Infrastructure
Infrastructure that supports the IS:
- Technical components: servers, networks, etc.
- Technology: platforms, etc.

The Concept of Enterprise Architecture - Drivers

- **Executive** input on strategic direction and priority

- **Business Management** ...

Capabilities of the Current Enterprise

Strategic

New Direction & Goals (Leadership Team)

Operating Scenarios

New Business Priorities (Management Team)

Tactical

- **Technology Management** ...

Emerging Technologies (IT Support Team)

Program Plans

Capabilities of the Future Enterprise

Enterprise Architecture

A spectrum of goals, scopes, and entry points

Cost Reduction

- What do we have?

- Need all of it?

- Consolidate to reduce costs?

- Desire for impact analysis

Standardization

- Develop standards and recommended best practices (e.g. technology stacks, server platforms)

- Seeking repeatability

- Encourage IT evolution

- Focusing on IT scope only

Broaden Scope

- Meet business needs by linking IT to business

- Managing architectures outside IT

- Increasing focus on business architecture and business processes

Actionable EA

- Develop business strategy

- Value propositions, capabilities, resources?

- Refine into to-be

- Compare to as-is

- Create transition plan

- Execute

Enabling Organizations to Turn Change into a Competitive Advantage

Value of Enterprise Architecture

- Provides a clear view of how the business and technology resources will support and achieve an organization's business goals and initiatives.

- Understand the strategy, the business, the systems and the infrastructure and how they interrelate.

- Moving *"need to know"* information to those that *"know they need"* upstream and down stream and in both directions.

- Helps us prioritize and decide which things to do and in what order.
  - ▸ *"Doing the Right Things"*

- Governs the change and building of things.
  - ▸ *"Doing the Things Right"*

Result of Implementing Enterprise Architecture

- **Achieve strategic goals** that depend on IT resources

- **Improve business performance** by maximizing IT efficiency

- Strategic priorities/business requirements drive IT solutions

Part II
TOGAF
Overview

Definition of TOGAF

- The Open Group Architecture Framework (TOGAF) is a framework and detailed method for building, maintaining, and gaining value from an enterprise architecture for an organization.

- TOGAF 9 is the latest evolution of the framework, and its accompanying Architecture Development Method (ADM)

- The TOGAF specification is an open standard that has been created and is maintained by The Open Group (www.opengroup.org).

Types of Architectures in TOGAF

- Business Architecture -- addresses the needs of users, planners, and business management,

- Data/Information Architecture -- addresses the needs of database designers, database administrators, and system engineers,

- Application (Systems) Architecture -- addresses the needs of system and software engineers, and

- Information Technology (IT) Architecture -- addresses the needs of acquirers, operators, administrators, and managers.

Architecture Deliverables
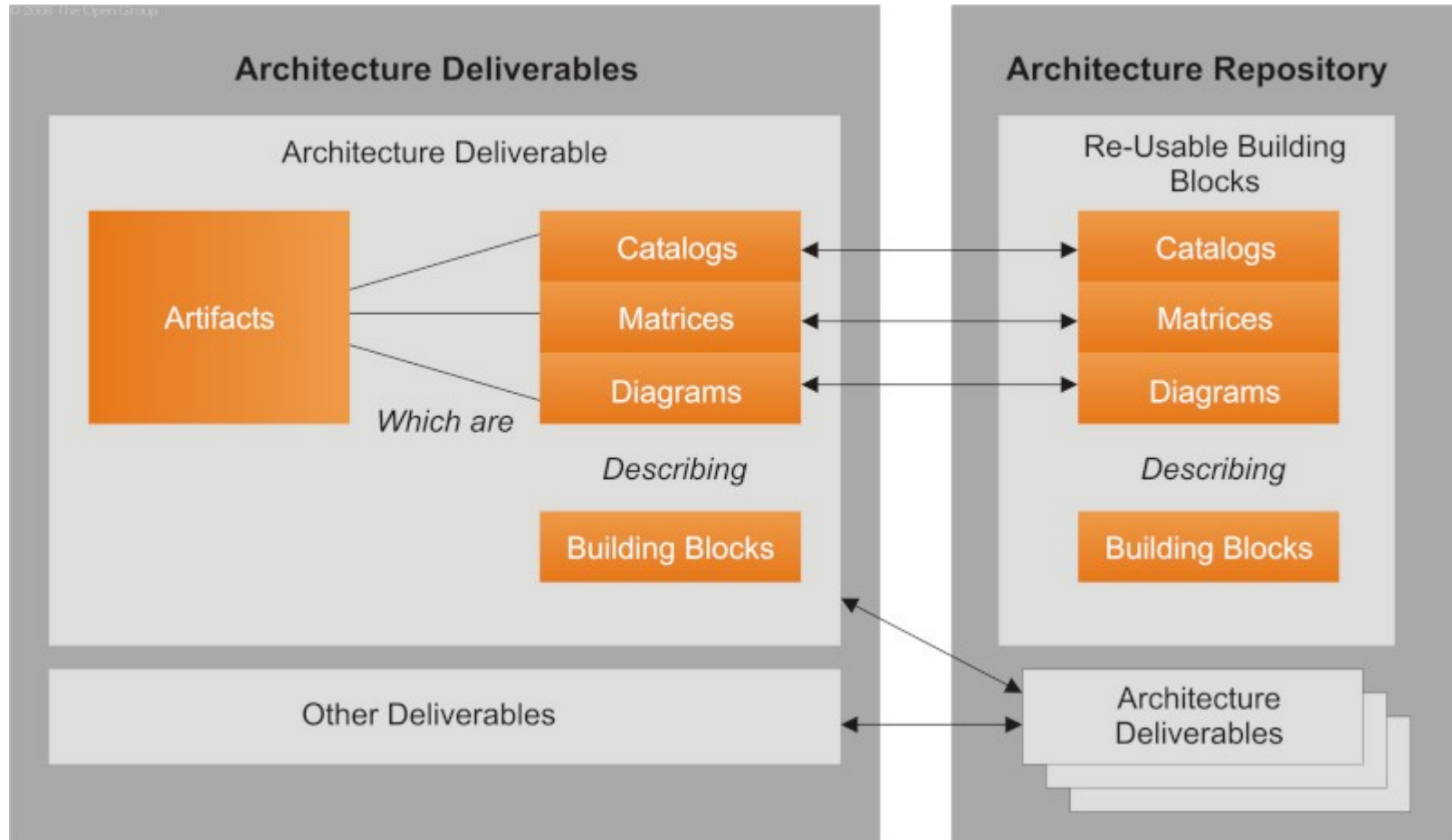
- **Deliverable** is a work product that is contractually specified and in turn formally reviewed, agreed, and signed off by the stakeholders. Deliverables represent the output of projects and those deliverables that are in documentation form will typically be archived at completion of a project, or transitioned into an Architecture Repository as a reference model, standard, or snapshot of the Architecture Landscape at a point in time.

- **Artifact** is a more granular architectural work product that describes an architecture from a specific viewpoint. Examples include a network diagram, a server specification, a use-case specification, a list of architectural requirements, and a business interaction matrix. Artifacts are generally classified as catalogs (lists of things), matrices (showing relationships between things), and diagrams (pictures of things). An architectural deliverable may contain many artifacts and artifacts will form the content of the Architecture Repository.

- **Building block** represents a (potentially re-usable) component of business, IT, or architectural capability that can be combined with other building blocks to deliver architectures and solutions.

Architecture Repository
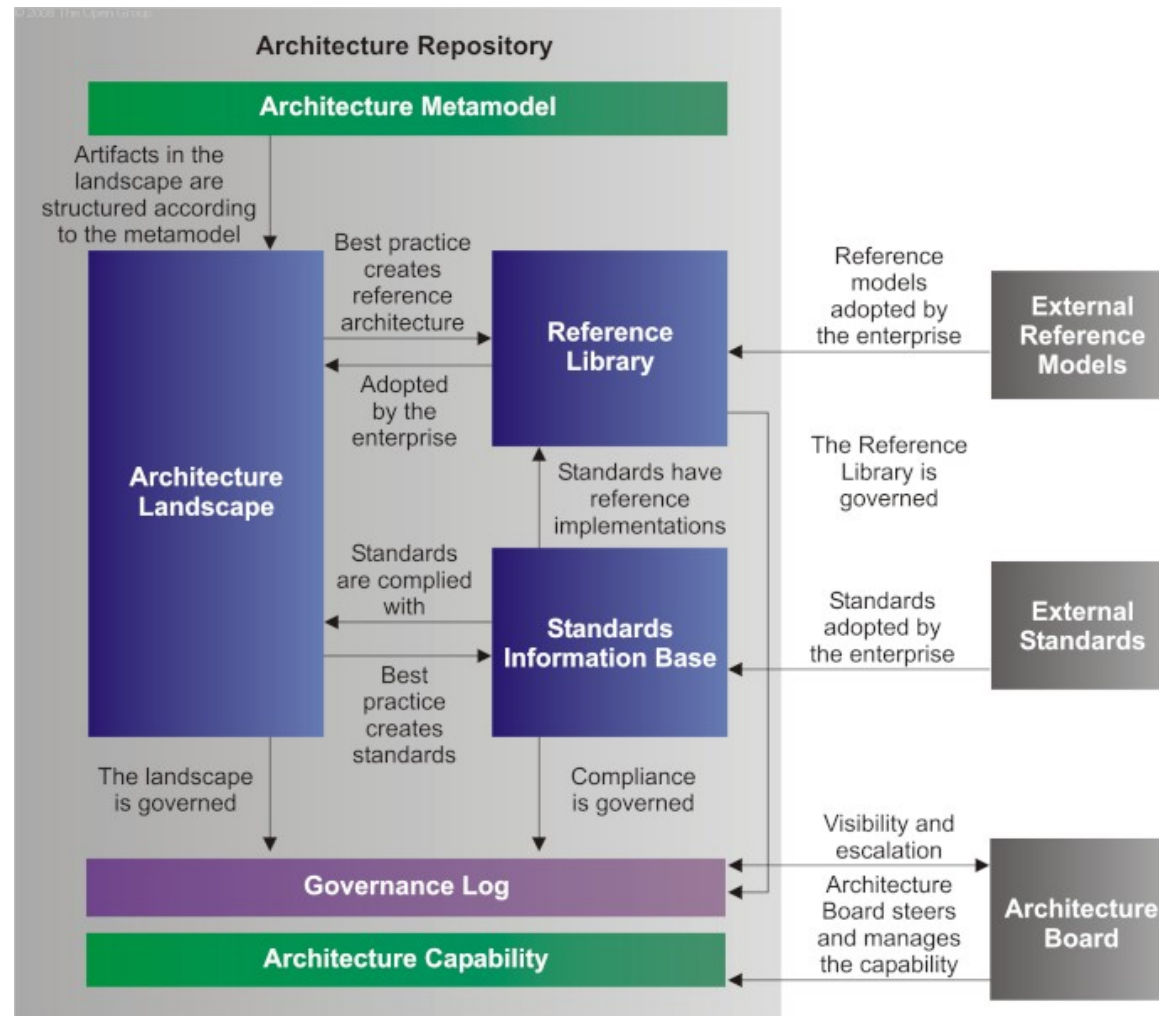
Architecture Repository

- The **Architecture Metamodel** describes the organizationally tailored application of an architecture framework, including a metamodel for architecture content.

- The **Architecture Capability** defines the parameters, structures, and processes that support governance of the Architecture Repository.

- The **Architecture Landscape** shows an architectural view of the building blocks that are in use within the organization today (e.g., a list of the live applications). The landscape is likely to exist at multiple levels of abstraction to suit different architecture objectives.

- The **Standards Information Base (SIB)** captures the standards with which new architectures must comply, which may include industry standards, selected products and services from suppliers, or shared services already deployed within the organization.

- The **Reference Library** provides guidelines, templates, patterns, and other forms of reference material that can be leveraged in order to accelerate the creation of new architectures for the enterprise.

- The **Governance Log** provides a record of governance activity across the enterprise

TOGAF Architecture Capability
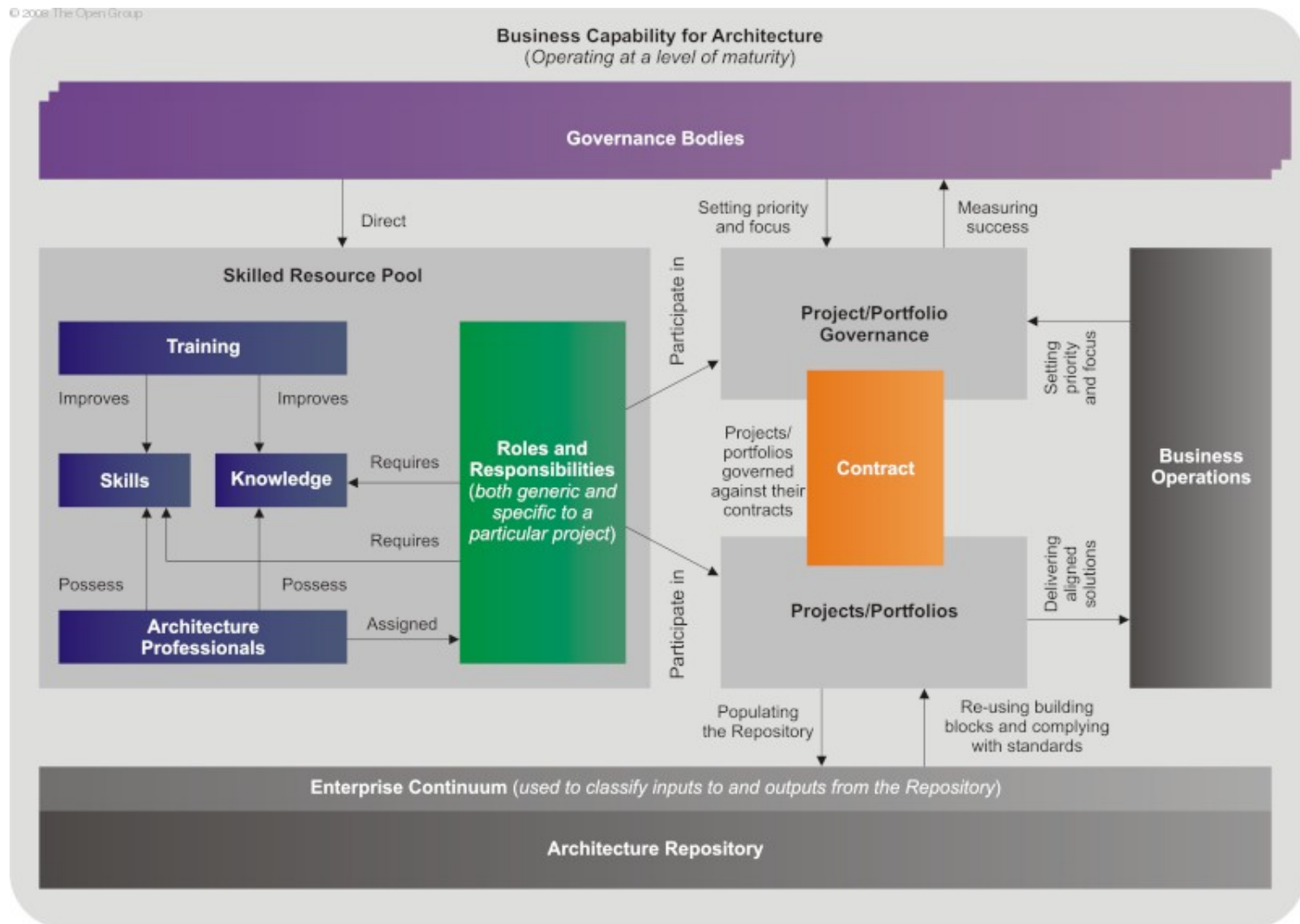
The Framework of TOGAF 9

- The TOGAF framework provides the core phases of the Architecture Development Method (ADM), presented as circles surrounding requirements.

- Bidirectional lines are drawn from each of the outer ADM circles to the center Requirements circle. This represents how requirements drive the creation of the architecture, and how the architecture is created to satisfy requirements.
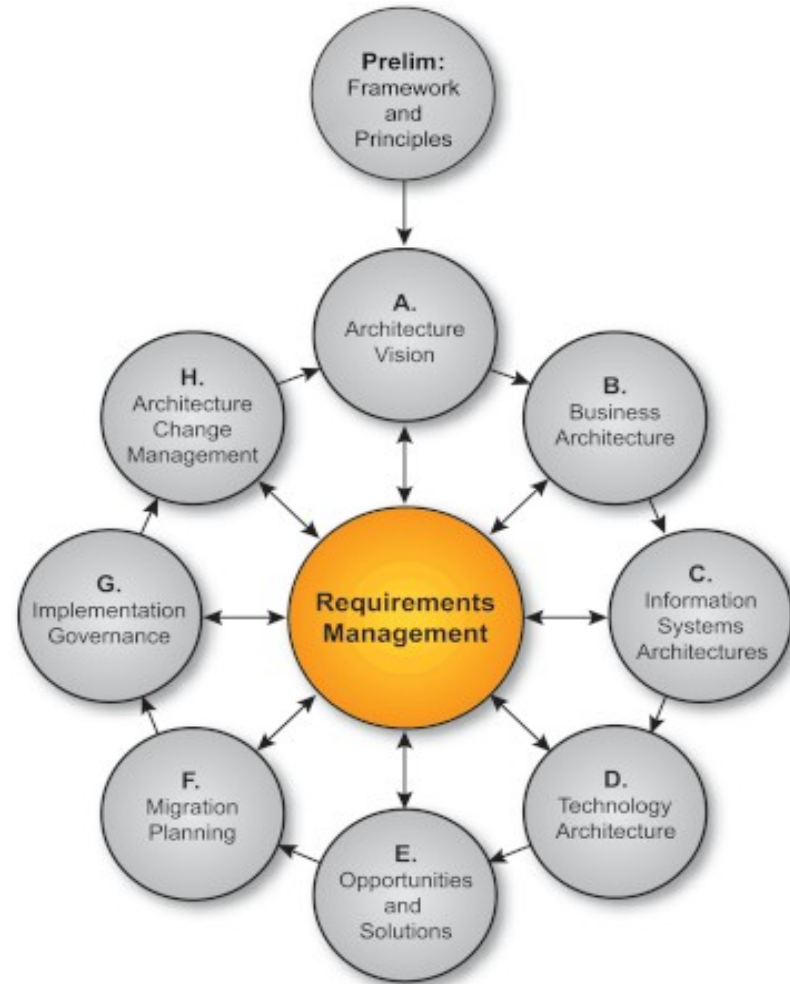
Overview of TOGAF Phases

- **A. Define Architectural Vision**

- B. Business Architecture

- C. Information Systems Architecture

- D. Technology Architecture

- E. Assess Opportunity and Solution Alternatives

Architectural Vision

- In Phase A of the TOGAF Architecture Development Method (ADM) you establish the scope of the architecture effort, get buy in from senior management and line management, and develop the vision of the architecture effort.

- The phase starts with a Request for Architecture Work, delivered from the sponsoring organization to the architecture organization, and results in a Statement of Architecture Work.

Objectives

- Understand and learn how to define the enterprise's strategic context
  - ▸ La raison d'entre of the enterprise, it's motivation and direction
  - ▸ It's scope and constraints
  - ▸ How it is going to achieve it's goals

Value Statement

- ▸ Guides the development and direction of the enterprise and it's architecture

- ▸ Forms the basis and scope of all subsequent work and usage of the architecture
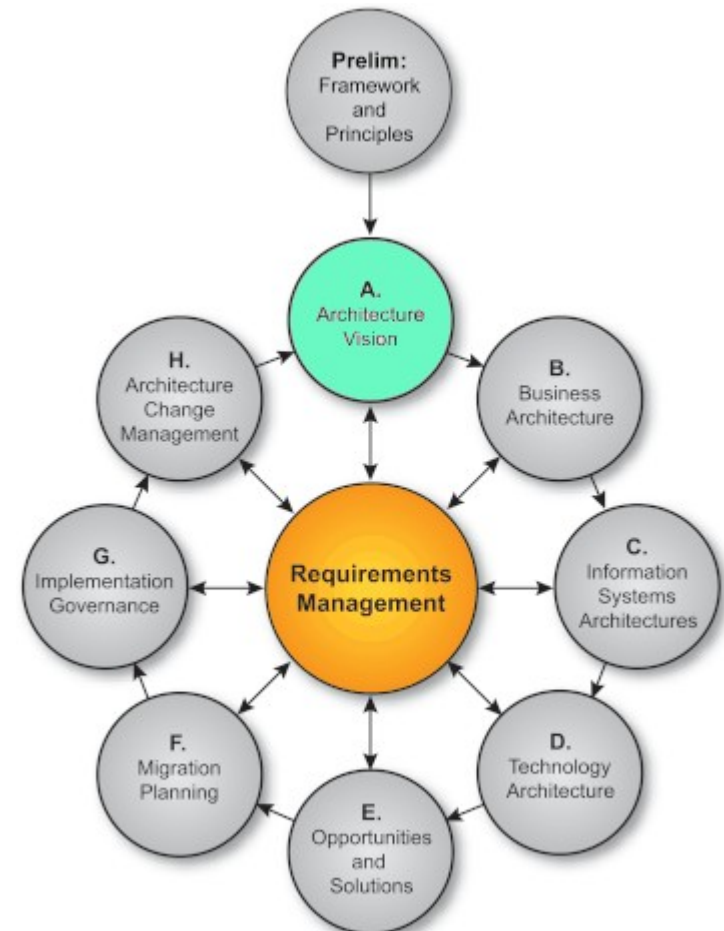
Define Architectural Vision

- Enterprise Direction Diagram
  - ‣ provides the statements of business motivation, business goals, strategies, and tactic.
  - ‣ It shows the end we want to achieve and the means of how to get there.
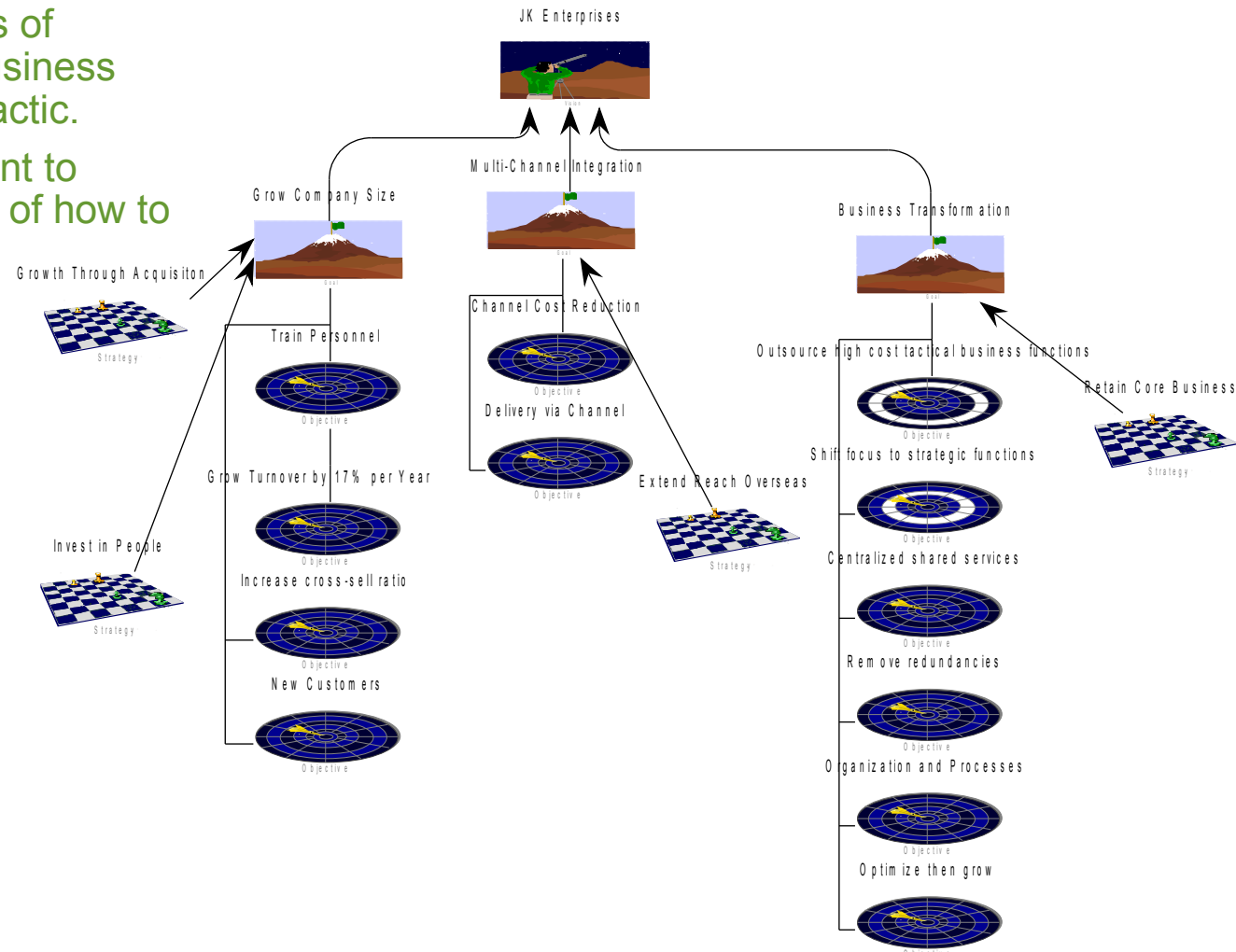
Define Architectural Vision

- Strategy Map Diagram
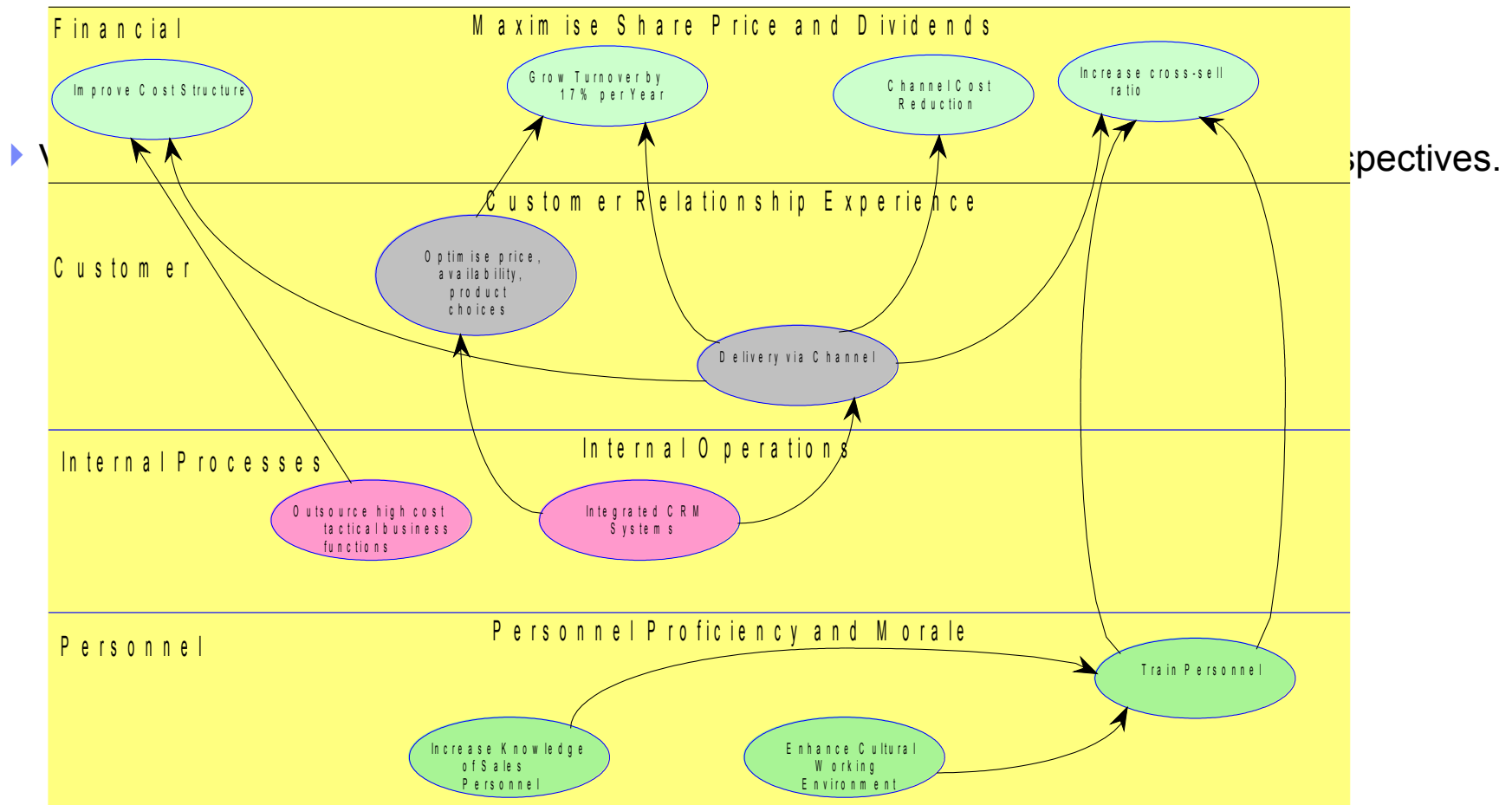
Define Architectural Vision

- Requirements

  ▸ These define what capabilities the enterprise must support or provide in its operations.

  ▸ They are central to, define, and continuously drive the enterprise's architecture.

  ▸ Applicable to any and all phases of the lifecycle.
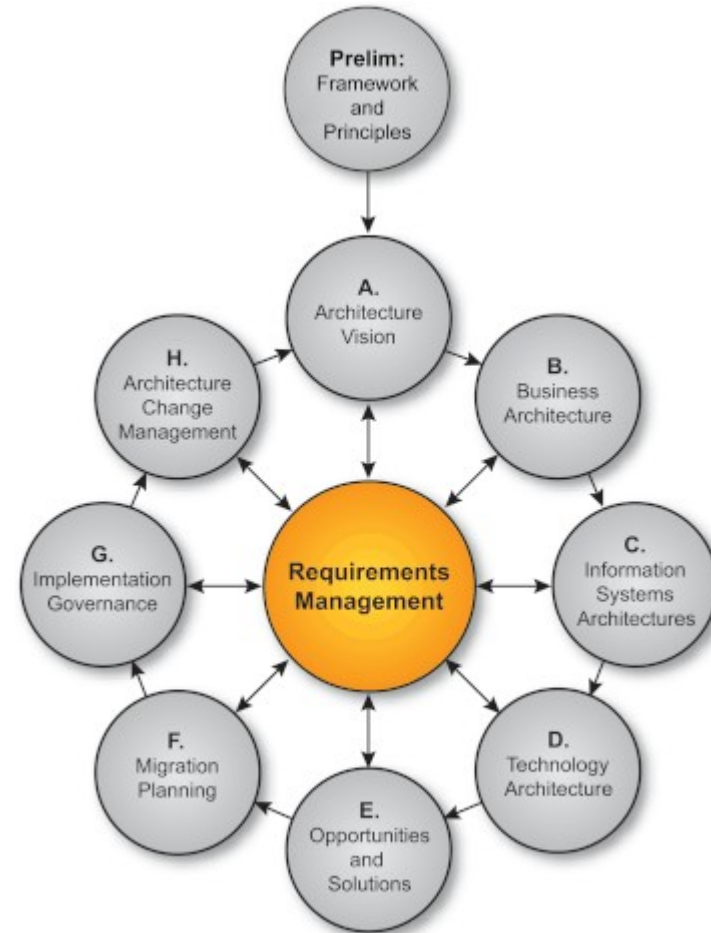
Define Architectural Vision

- Requirements

  These exist in many guises, ones that are explicitly defined and are clearly catered for include

  ▸ Business Goals and Objectives

  ▸ Business Constraint

  ▸ Critical Success Factors

  ▸ Customer Needs Summary

  ▸ Customer Requirement

  ▸ Issue

  ▸ Policy

Overview of TOGAF Phases

- A. Define Architectural Vision
- **B. Business Architecture**
- C. Information Systems Architecture
- D. Technology Architecture
- E. Assess Opportunity and Solution Alternatives
- Plus: Plan, Govern and Execute Solutions
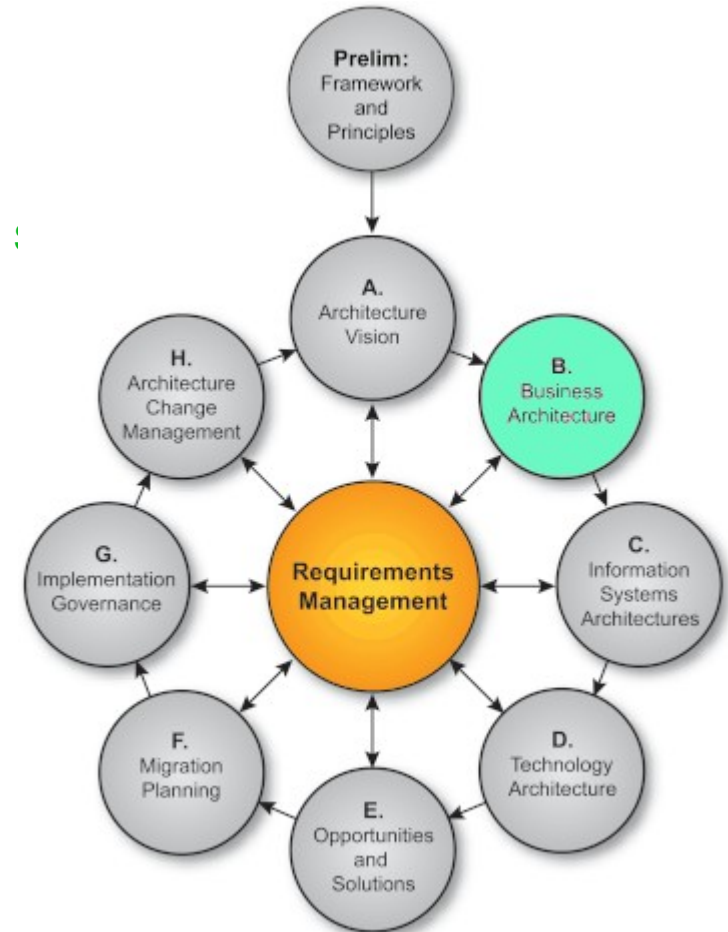
Definition of Business Architecture

- In Phase B of the TOGAF Architecture Development Method (ADM) you establish the Business Architecture of the organization

- The objectives of building the business architecture are to understand, describe, and model the current (or baseline, or 'as is') business architecture, and then develop target, or to-be business architectures. In System Architect, you may use Workspaces to enable baseline and target architectures

Objectives of Business

- We intend to compare two businesses which:
  - Do similar things In different ways with different resources
- We will produce a conceptual model that is common to both businesses in terms of
  - Business
  - Information
  - Application
  - Technology Infrastructure

Value Statement

- Provide a framework in order to compare similar resources
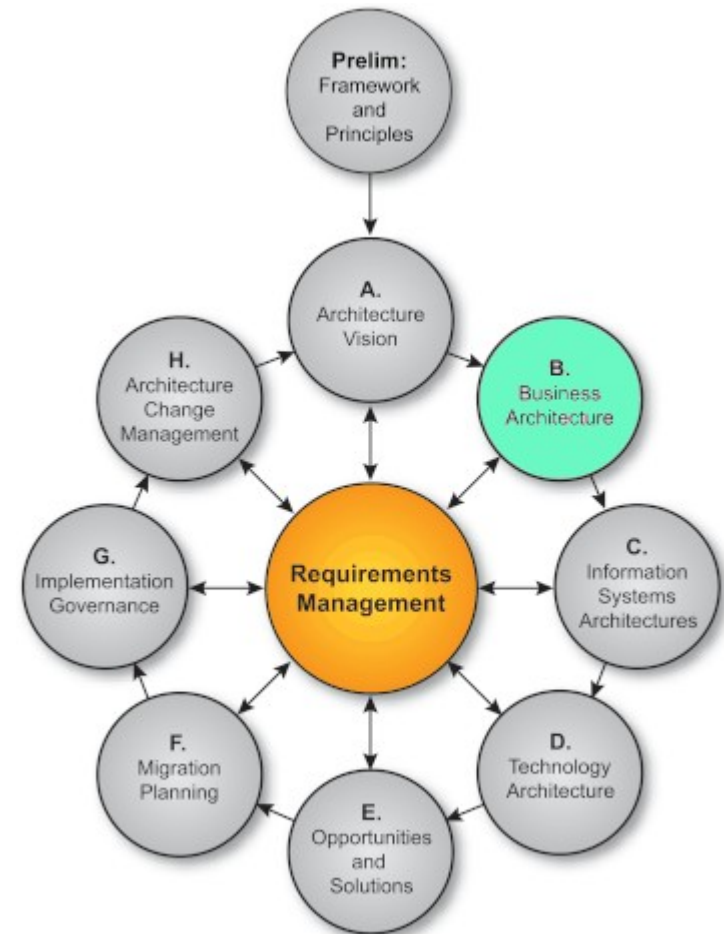
Topics

- Capturing Key Business Concepts
- Conceptual Business Architecture
  - ‣ Conceptual Capability Model
  - ‣ Building the Business Activity Model
- Conceptual Information Architecture
- Conceptual Application Architecture
- Conceptual Technology Architecture

```
┌─────────────────────┐
│     Take order      │
└─────────────────────┘
```

We do it this way	We do it that way
JKE Enterprises	ABC Enterprises
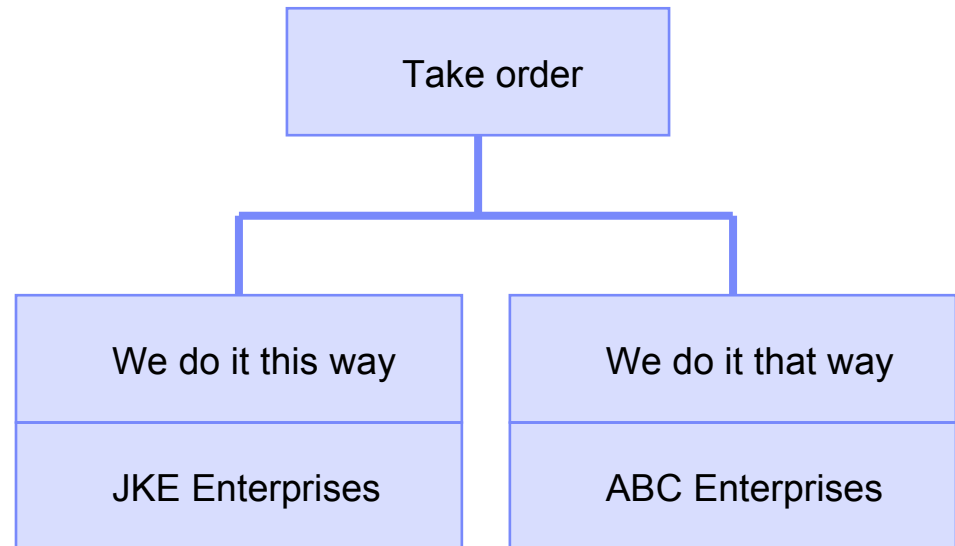
Capturing Key Business Concepts

- Some loose concepts important to support our understanding
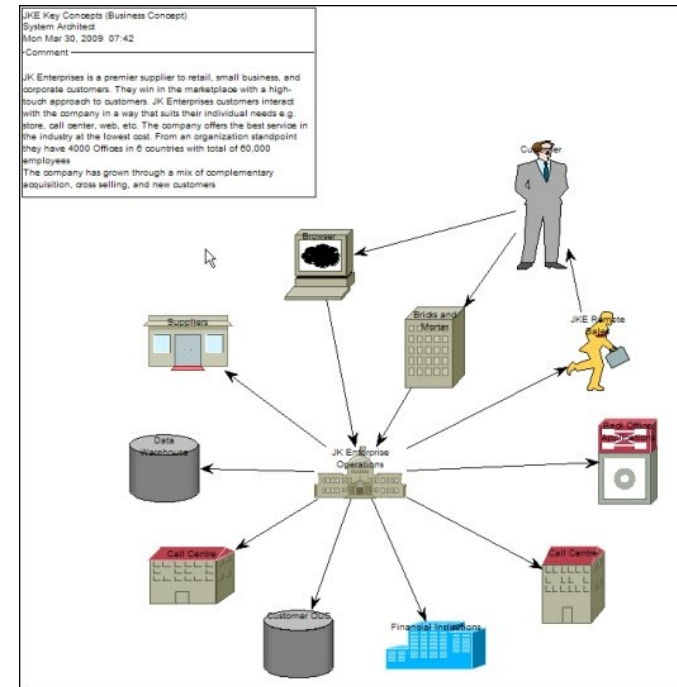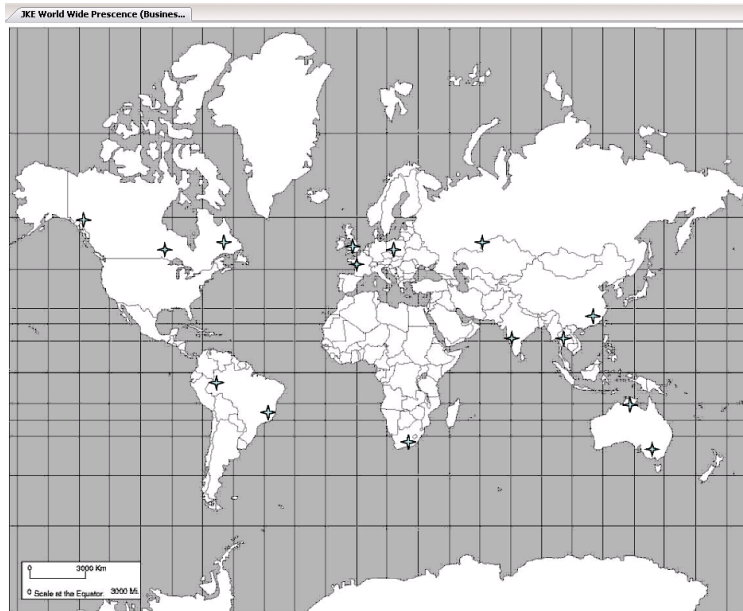
Conceptual Business Architecture

- Eventually we want to understand
  - ▸ Business Capabilities
  - ▸ Processes
  - ▸ People
- At the Conceptual level we are only interested in high level
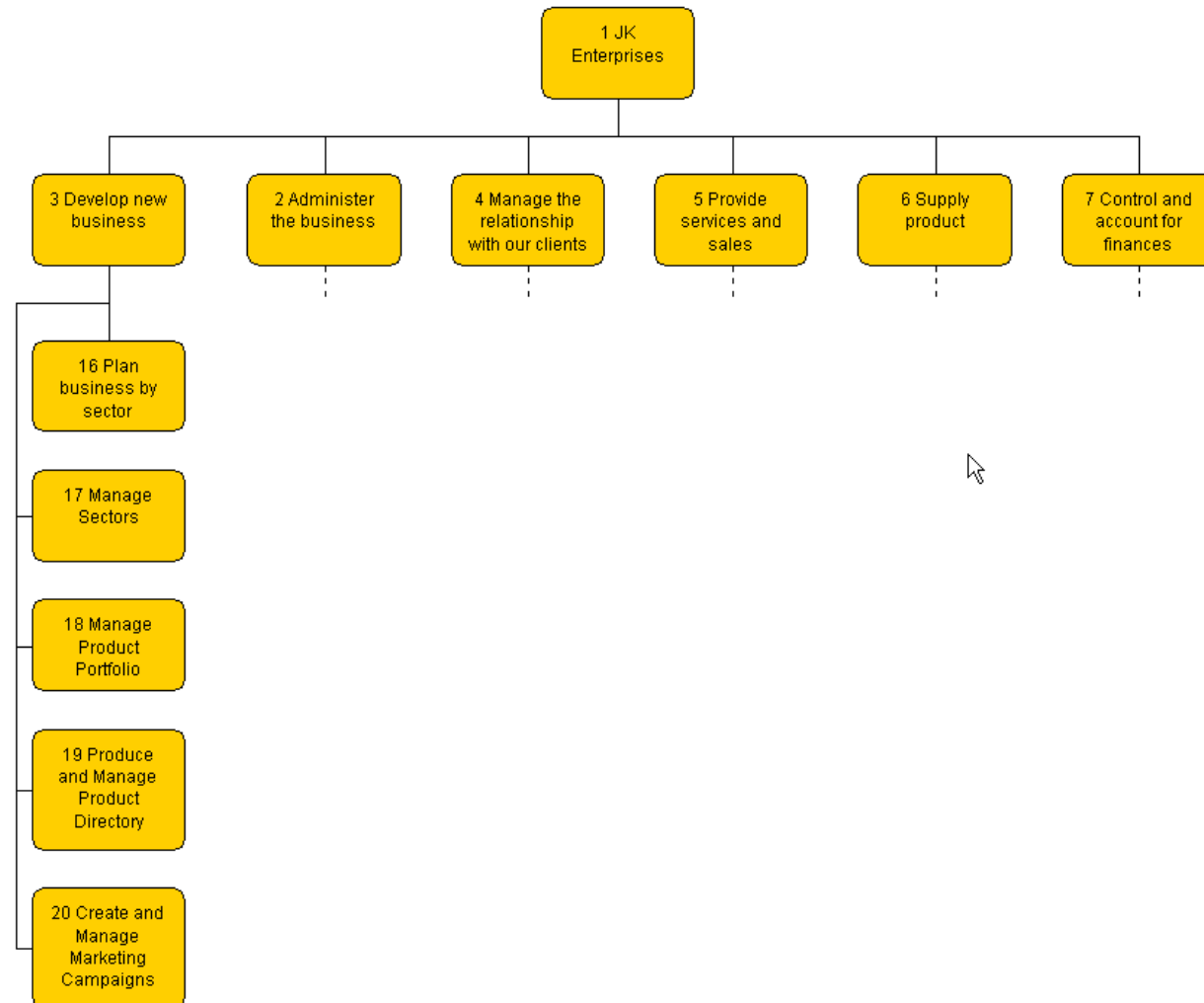 - ▸ Business Capabilities
  - ▸ Processes

Business Capability

- What does the business do?
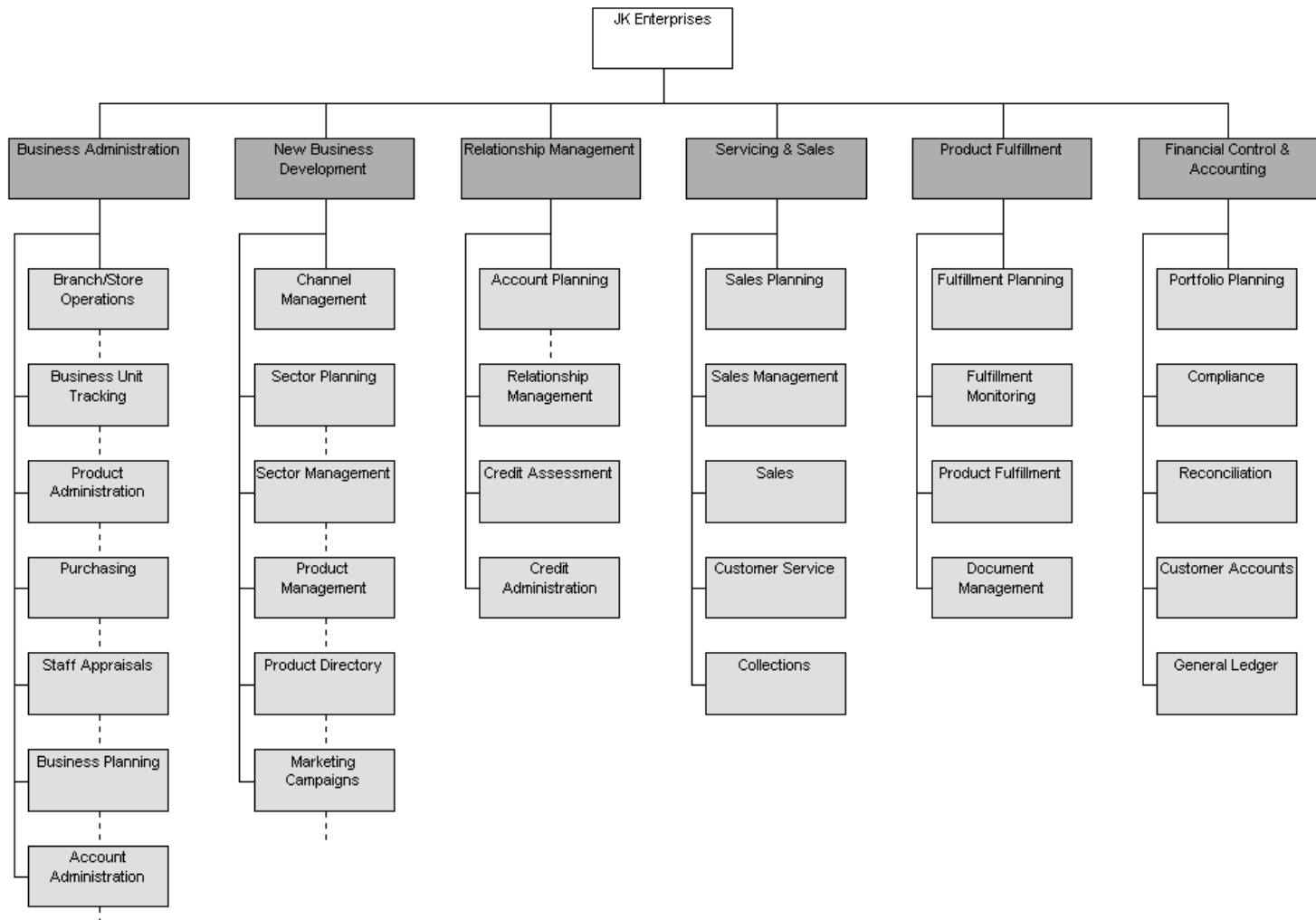
Business Activities

- How does the business do these things?

Conceptual Information Architecture

- What are the key pieces of information
  the business needs?

Enterprise Data Model (Entity Relation Subject
Area)
System Architect
Mon Mar 30, 2009 11:53
──────── Comment ────────
Subject Areas organised by business functionality

○ ● ○
Inventory Management

Item & Price Maintenance

○ ● ○
**Customer Relationship
Management**

○ ● ○
Ordering

Store Administration

Workforce Management

Merchandise Flow Management

○ ● ○
Point of Sale Processing

Tender Control

Sales & Productivity

Conceptual Application Architecture

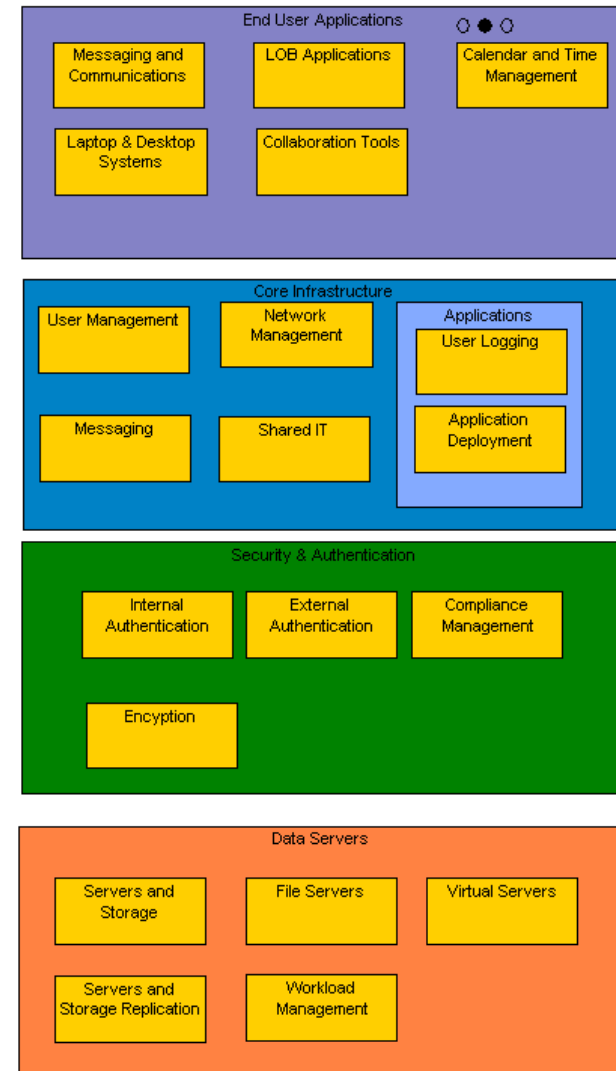- What are the key functions our applications must provide?
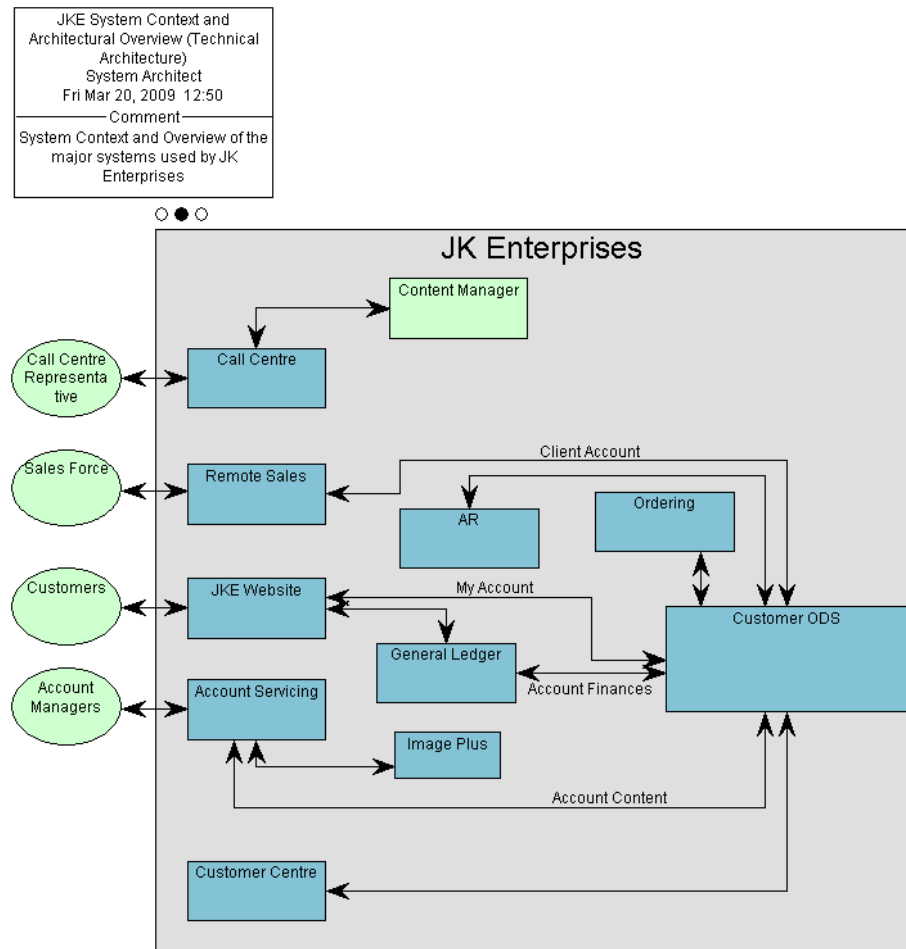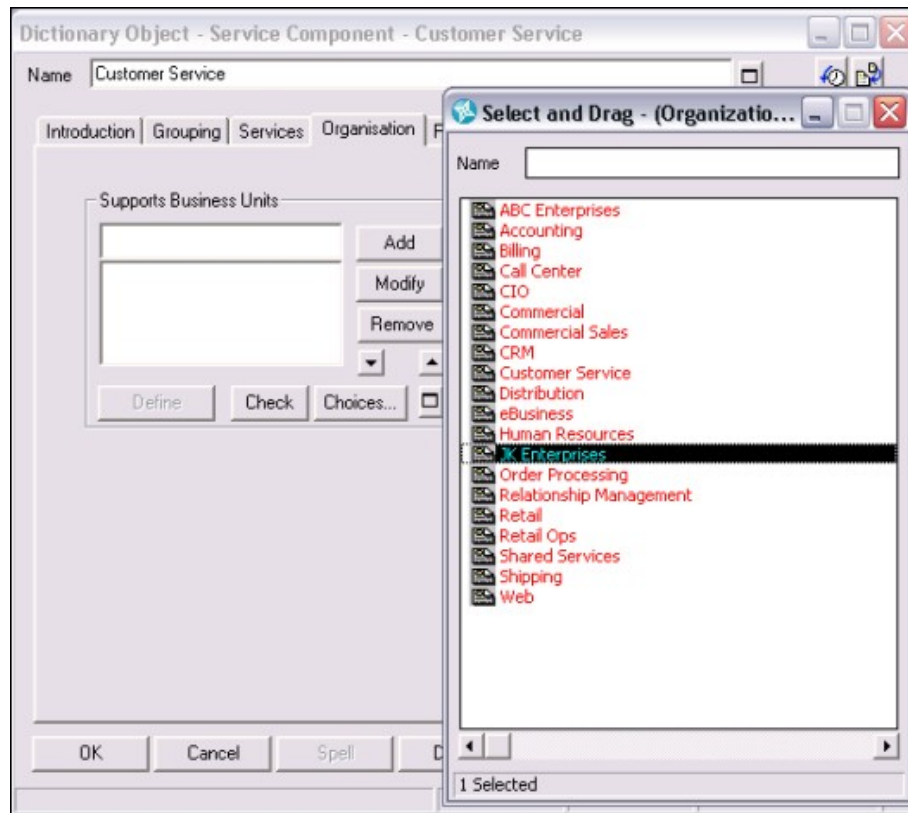
Conceptual Technology Architecture

- What are the key technologies our applications and business need?

JKE Technical Reference Model (Technical Architecture)
System Architect
Wed Mar 18, 2009 11:35
— Comment —
Architecture of generic services and functions that provides a foundation on which more specific architectures and architectural components are built.

End User Applications
- Messaging and Communications
- LOB Applications
- Calendar and Time Management
- Laptop & Desktop Systems
- Collaboration Tools

Core Infrastructure
- User Management
- Network Management
- Applications
  - User Logging
  - Application Deployment
- Messaging
- Shared IT

Security & Authentication
- Internal Authentication
- External Authentication
- Compliance Management
- Encryption

Data Servers
- Servers and Storage
- File Servers
- Virtual Servers
- Servers and Storage Replication
- Workload Management

Detailing the Service Component

Specifying business unit that uses the Service Component

Specifying Services that the Service Component provides
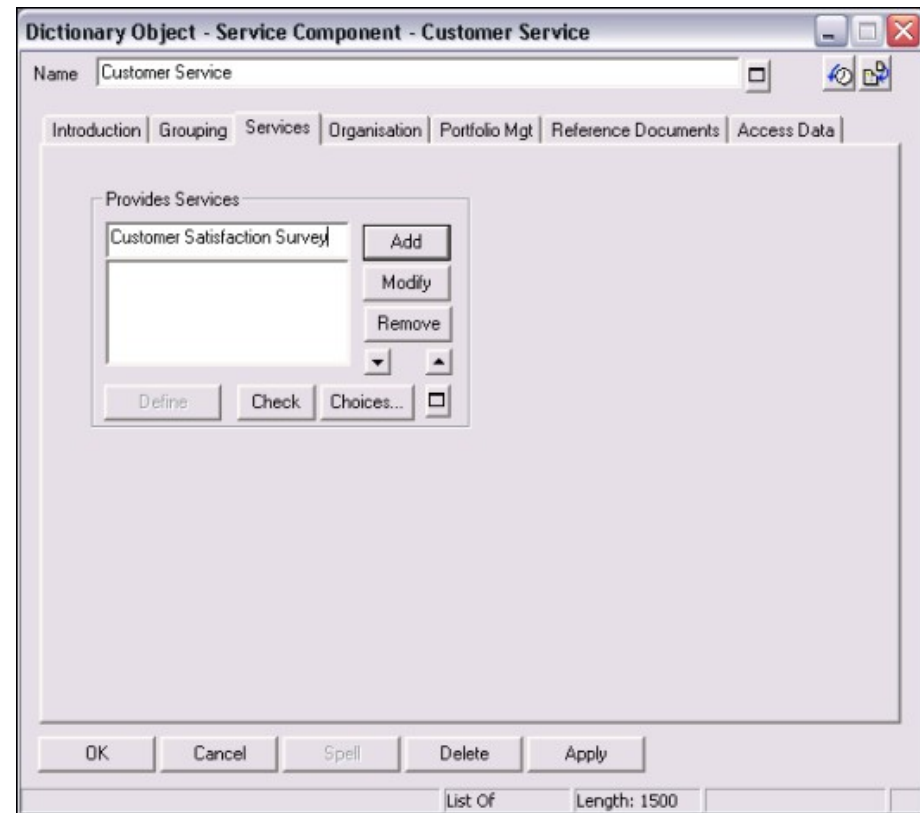
Overview of TOGAF Phases

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- **C. Information Systems Architecture**
- D. Technology Architecture
- E. Assess Opportunity and Solution Alternatives
- Plus: Plan, Govern and Execute Solutions

Information Architecture

- In Phase C of the TOGAF Architecture Development Method (ADM) you model the Information System Architectures of the organization.

- This includes the Data Architecture and the Applications Architecture.

Objectives

- Understand how to develop a high level Information architecture
  - ‣ Define Subject Areas
  - ‣ Drill down to next specification level

Value Statement

‣ Define the data reference architecture

‣ Communicate the information within the organization
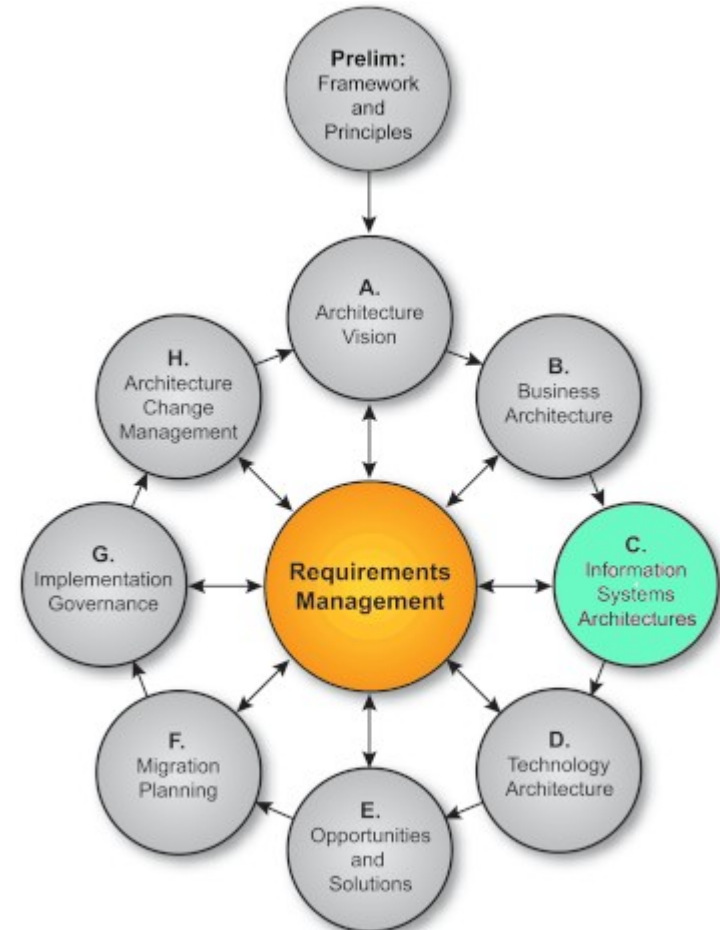
Enterprise Data Model

- Entity Relationship Diagram
  - Define the key information subject areas based upon output from the business architecture phase
  - Provide business descriptions for each entity

- Forms an information reference architecture

| Inventory Management | Item & Price Maintenance | Customer Relationship Management |

| Workforce Management | Merchandise Flow Management | Point of Sale Processing |

| Ordering | Store Administration |

| Tender Control | Sales & Productivity |
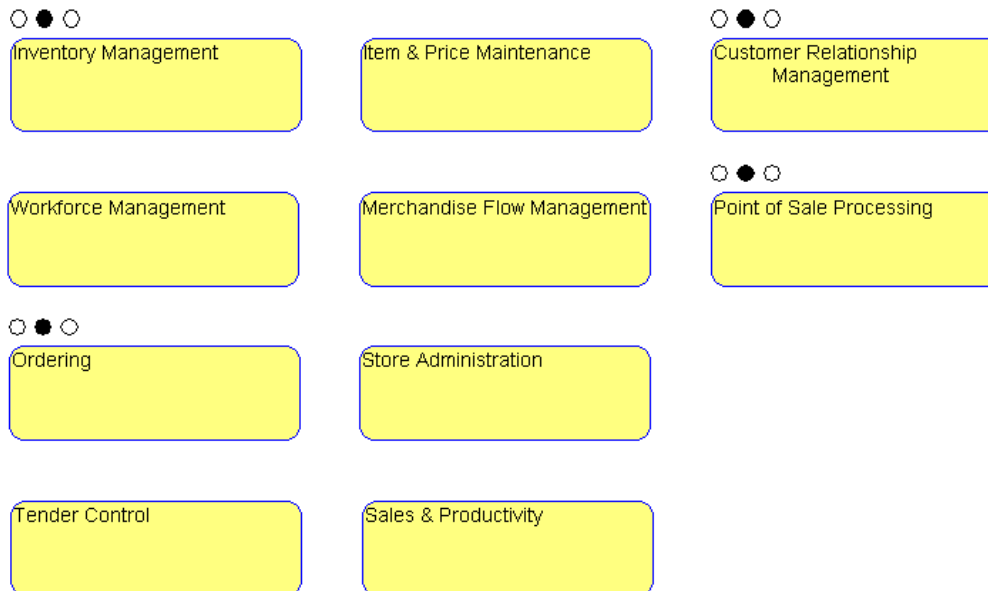
Inventory Management (Entity)...

- Identity
- Attributes
  - Attribute List
- Entity Info.
  - Table Name
  - Column Prefix
  - Volume
  - Create Trailer
  - Business Owner
  - Business Description — All inventory held in store
  - Purpose
  - Comments
- Access Paths
  - Access Paths (Indexes)
- Source Info.
- Reference Documents
  - Reference Documents

Business Description
<no help text>

Type: Text
Length: 750
Value: All inventory held in stores, warehouses, and reginla distribution centres

Refined Data Model

- Drill Down from each subject area into first level refinement

  ‣ Create a child diagram for each EA data entity to represent the next level of abstraction

  ‣ Provides the capability to navigate the levels of abstraction

Consolidate Reference Model

- Consolidate refined model

  ▸ Consolidate models belonging to the same viewpoint

  ▸ Provides comparative reference architecture views for Baseline and Target models

- Automatically updated when models are changed
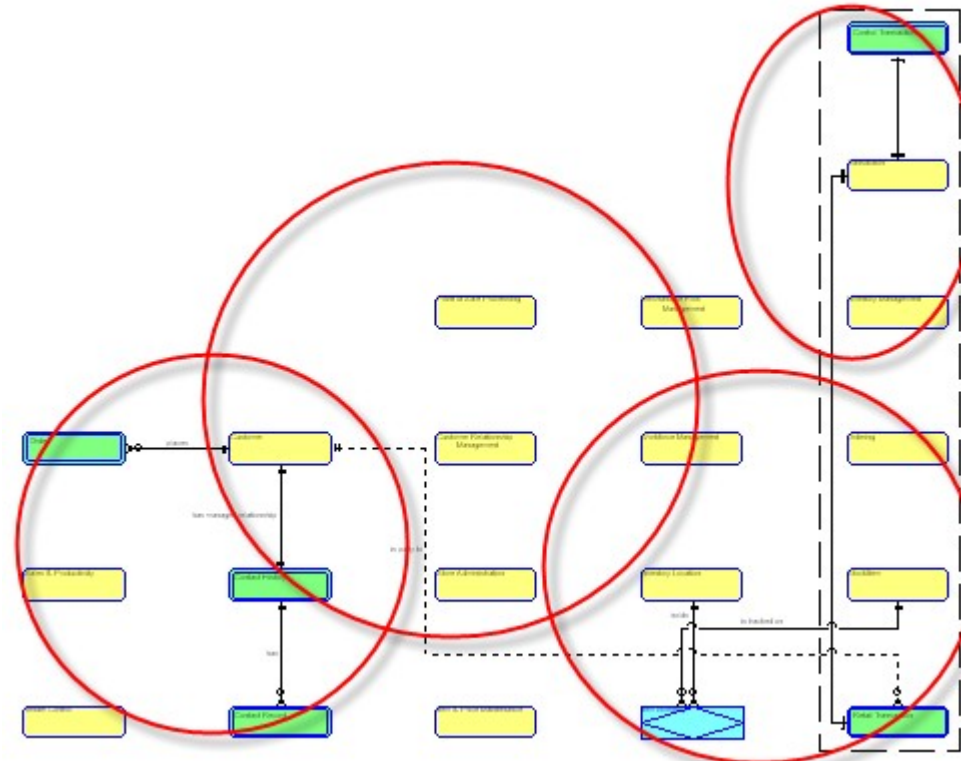
Objectives

- Understand and learn how to describe the major types of applications systems required to support the enterprise
  - ▸ How to use the Technical Architecture diagram to capture the required system capabilities
  - ▸ Describe high level information flows
  - ▸ How to elaborate and expand the Technical Architecture model

Value Statement

- ▸ Define and detail the major application systems as capabilities independent of the supporting technologies

- ▸ Used to perform gap, migration, and integration analyses
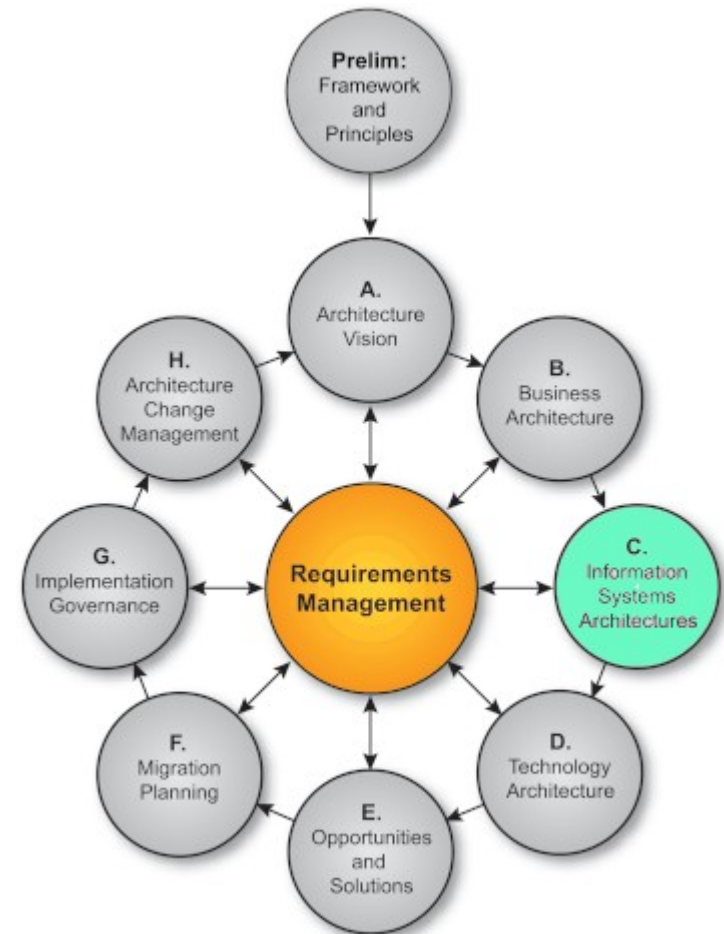
Refine Application Architecture

- Technical Architecture Diagram shows

  ‣ System context

  ‣ Participants engaged in interacting with the business systems
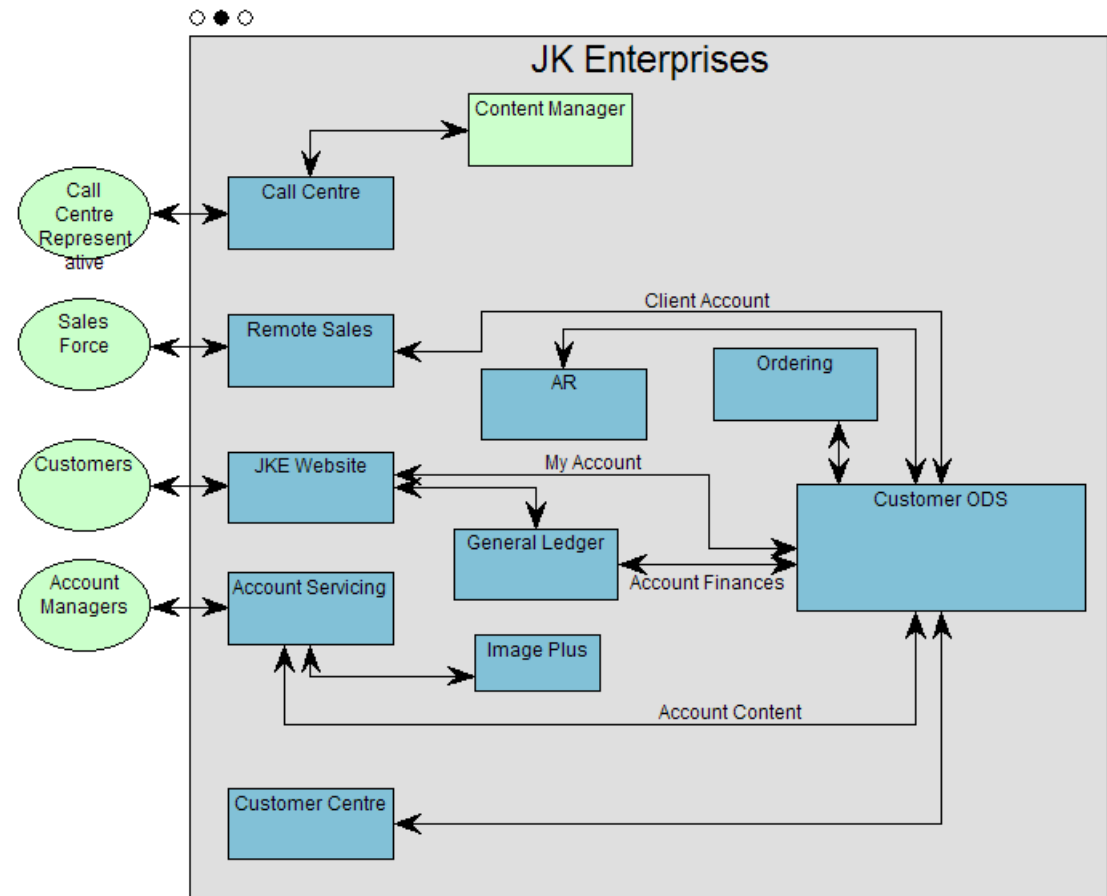
  ‣ Functional capabilities of the applications as Architecture Building Blocks

Refine Application Architecture

- Technical Architecture Diagram decomposes to a System Architecture model, elaborates Application Systems

  ▸ Participants defined that are engaged in interacting with the business systems

  ▸ Architecture Building Blocks decompose into Application Components
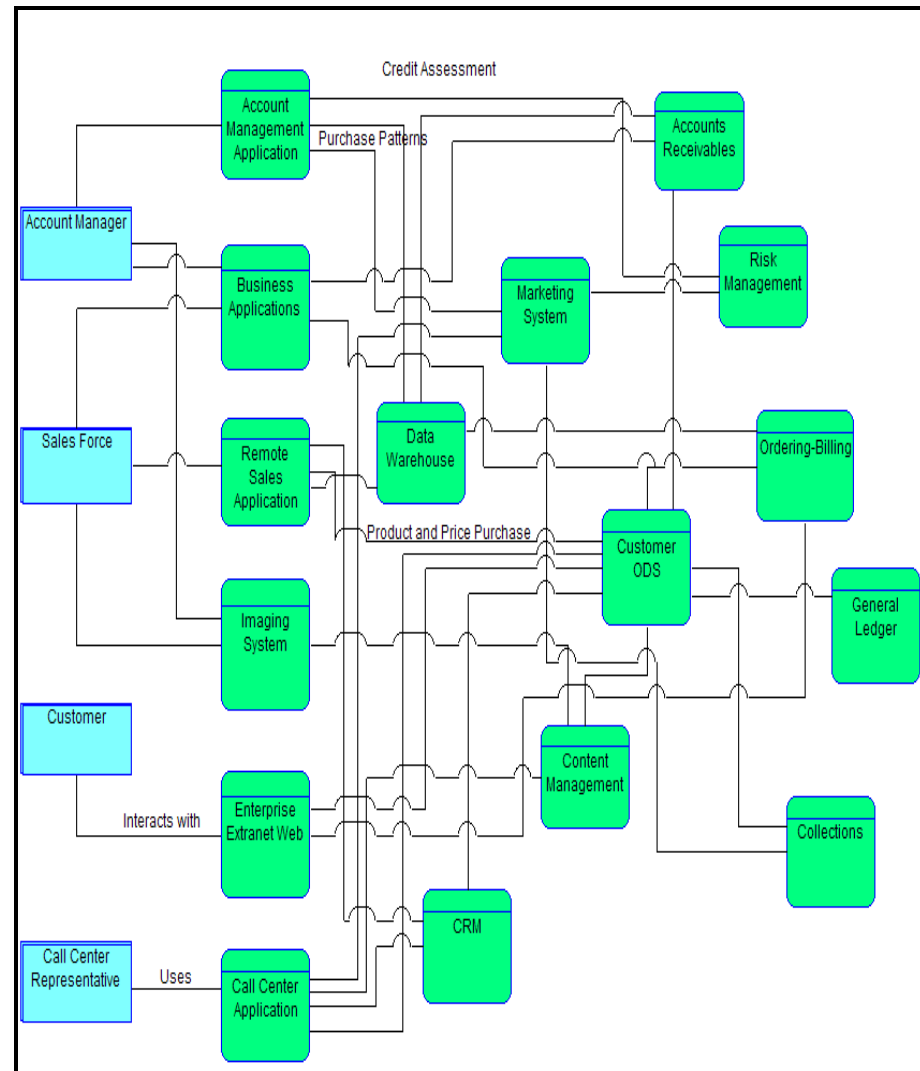
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Technology Architecture

- The Technology Architecture phase seeks to map application components defined in the Application Architecture phase into a set of technology components, which represent software and hardware components, available from the market or configured within the organization into technology platforms.

- As Technology Architecture defines the physical realization of an architectural solution, it has strong links to implementation and migration planning.

- Technology Architecture will define baseline (i.e., current) and target views of the technology portfolio, detailing the roadmap towards the Target Architecture, and to identify key work packages in the roadmap. Technology Architecture completes the set of architectural information and therefore supports cost assessment for particular migration scenarios

Objectives

- Relevance and use of the Technical Reference Model

  ‣ Understand and learn how to refine technical architecture

Value Statement

‣ Provides a single taxonomy that defines terminology and provides a coherent description of the components and conceptual structure of the technical architecture

‣ Forms the basis and scope of all logical and physical implementations
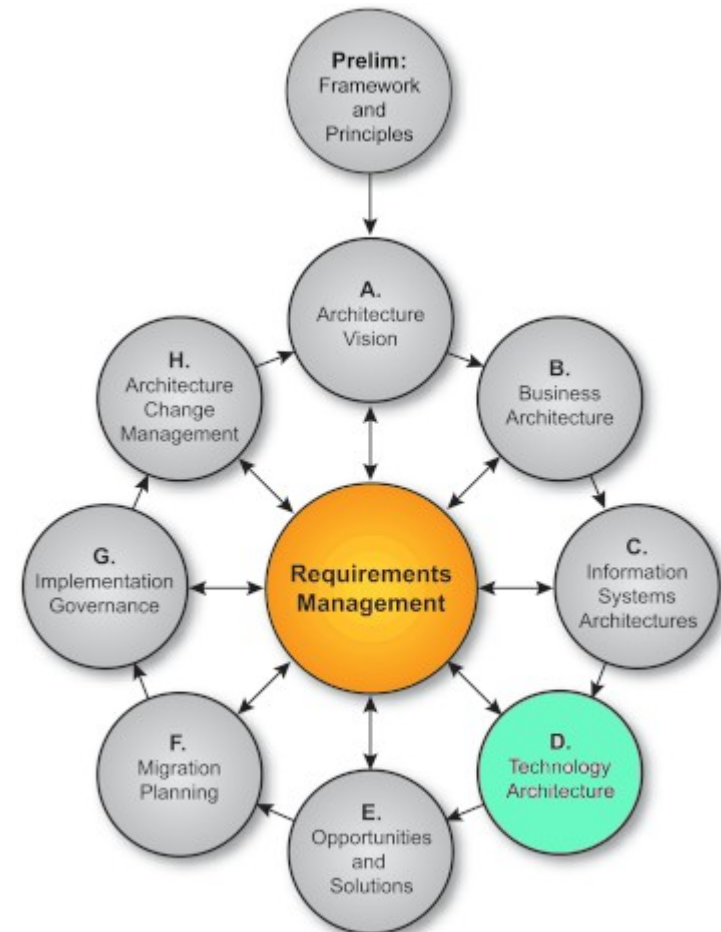
Refine Technical Architecture
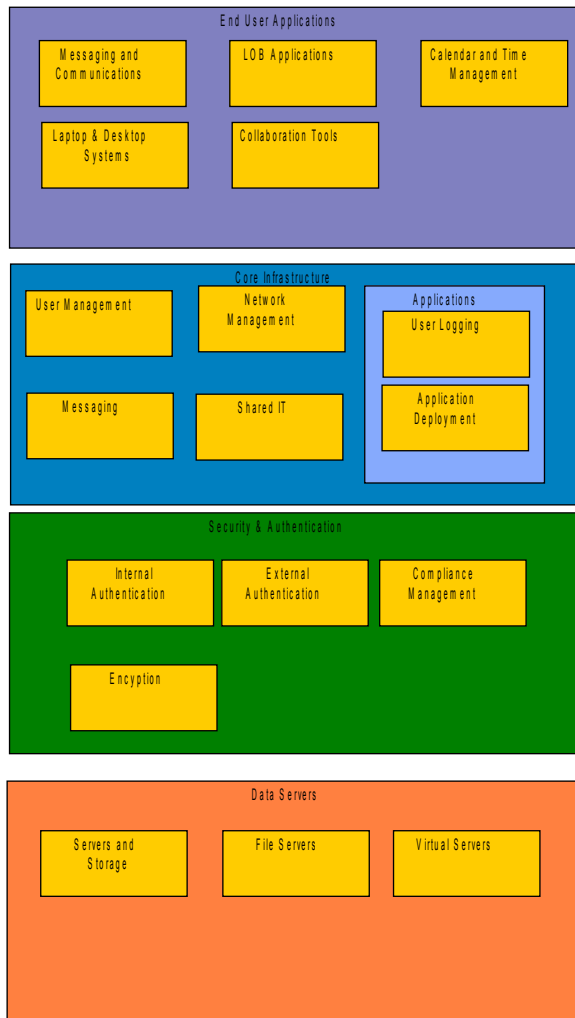
- Technical Reference Model

  - Is an architecture of generic services and functions that provides a foundation on which
  - Modeled as a Technical Architecture diagram more specific architectures and architectural components are built and detailed in the Business Architecture diagram

Compare Architectures

Diagram Name
ABC Enterprises

Opacity
0.8

- ▶ Differences between technical architectures of the two enterprises shown by comparing and overlaying.

- ▶ Differences highlighted between the architectures must be addressed.

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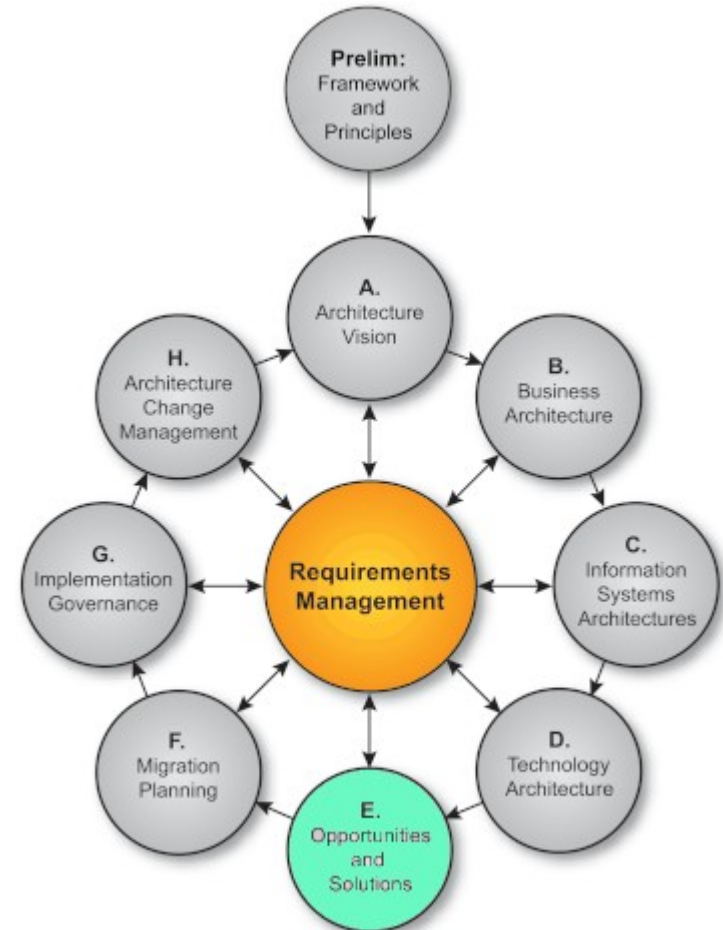- **E. Assess Opportunity and Solution Alternatives**

Objectives

- Enterprise Architecture used for knowledge capture; learn how to apply enterprise architecture to support
  - ‣ Analysis and decision making
  - ‣ Gap analysis and migration planning
  - ‣ Risk evaluation and mitigation

Value Statement

- ‣ Understand impact of changes

- ‣ Consolidate

  - ▪ Application portfolios

The end --- thank you and questions welcome or email me at wintonjkt@gmail.com