



# **Enterprise Architecture Development**

## **Methodology Overview**

**Prepared For:**

**Our Valued Clients**

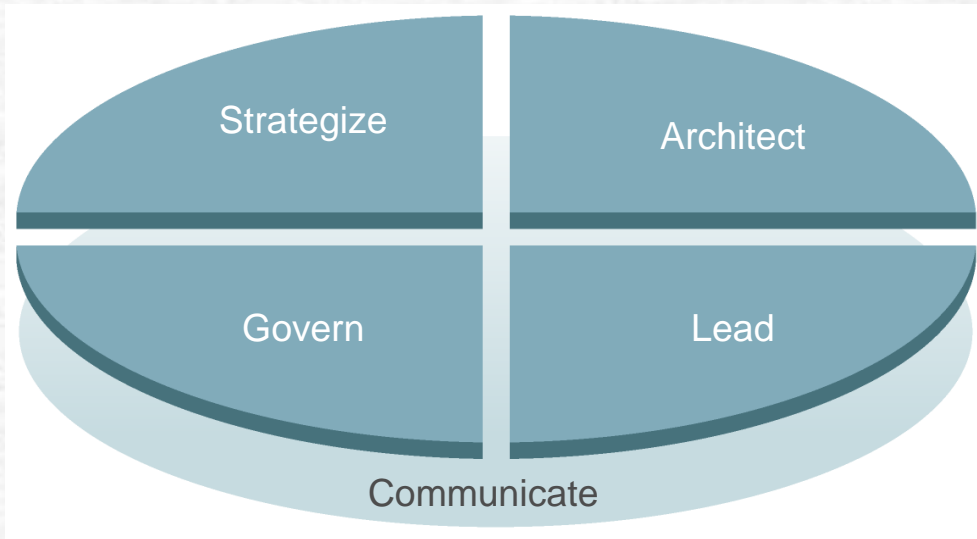


# Introduction

# Engagement Objectives

- ✔ Perform an assessment of the current Enterprise Architecture against
  - the short and long term IT and Business Strategic Plans
  - Prevailing industry best practices and market direction
  - Enterprise Architecture efforts at the State and Federal level
- ✔ Develop a strategic Target Enterprise Architecture,
- ✔ Identify key success metrics and performance indicators to monitor the realization of benefits of the target Enterprise Architecture
- ✔ Develop a high level roadmap of evolving the current Architecture towards the desired target Architecture.

# Enterprise Architecture Planning Lifecycle View



## Strategize

- Business strategic planning
- IT strategic planning
- Build the business context

## Architect

- Document current state
- Develop future state
- Develop gap analysis and road map

## Lead

- Evangelize, encourage and motivate
- Evolve architecture process
- Develop human capital

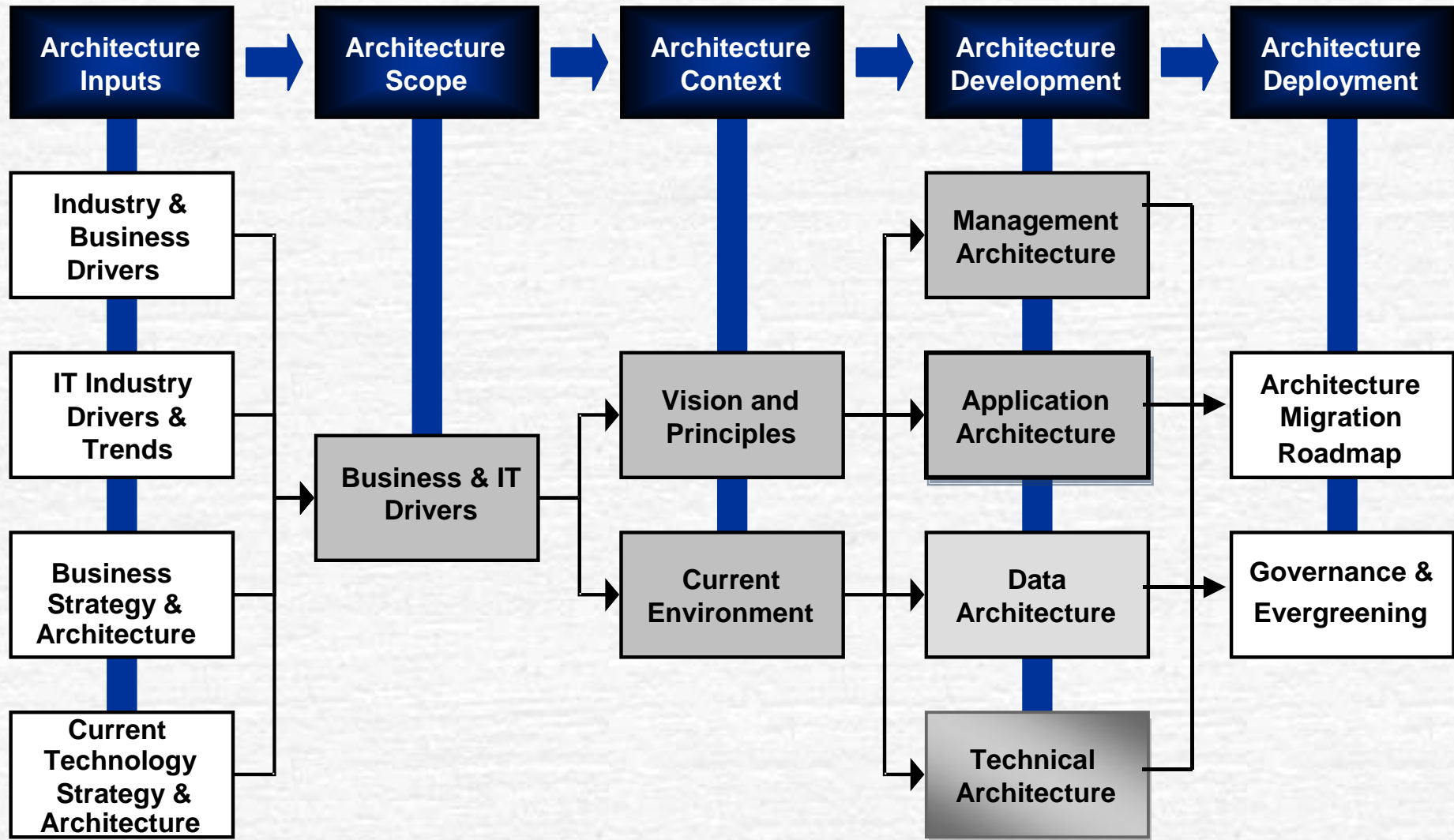
## Govern

- Establish decision processes
- Establish oversight
- Link to related disciplines
- Evaluate performance and adapt

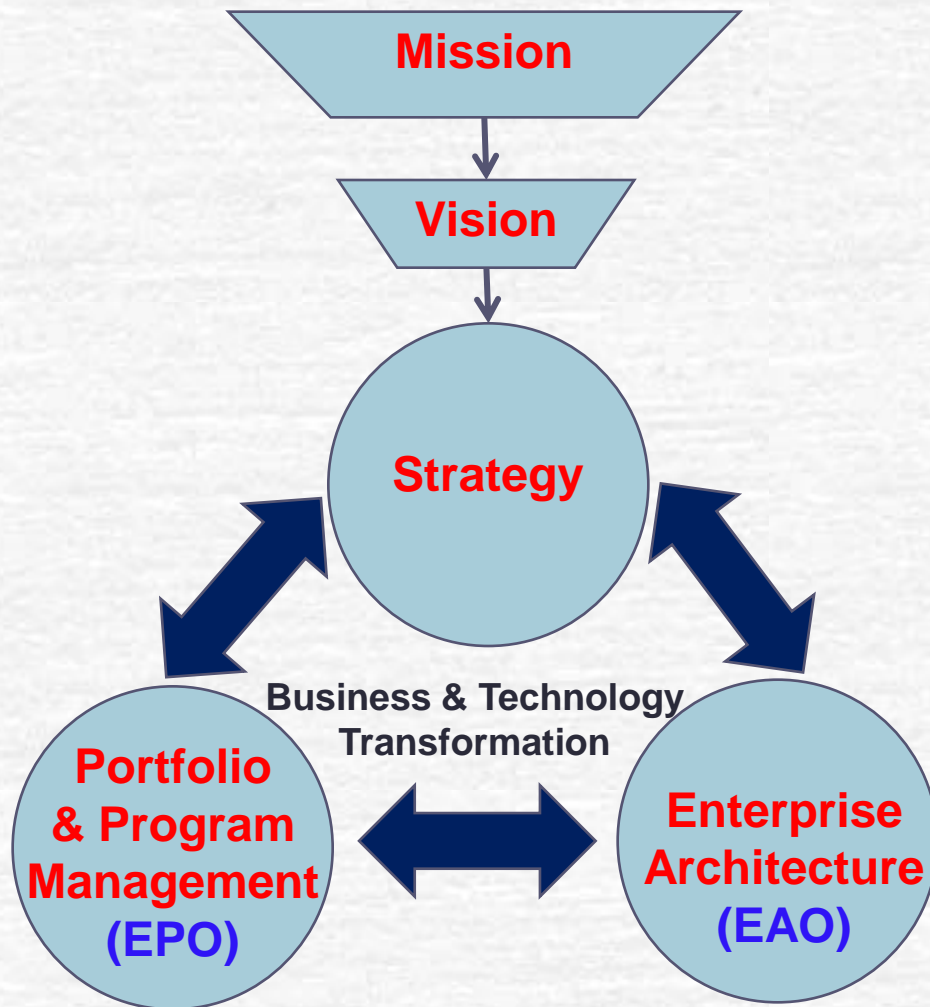
## Communicate

- Craft communications
- Deliver communications
- Analyze feedback

# Enterprise Architecture Development Framework



# Enterprise Architecture Value

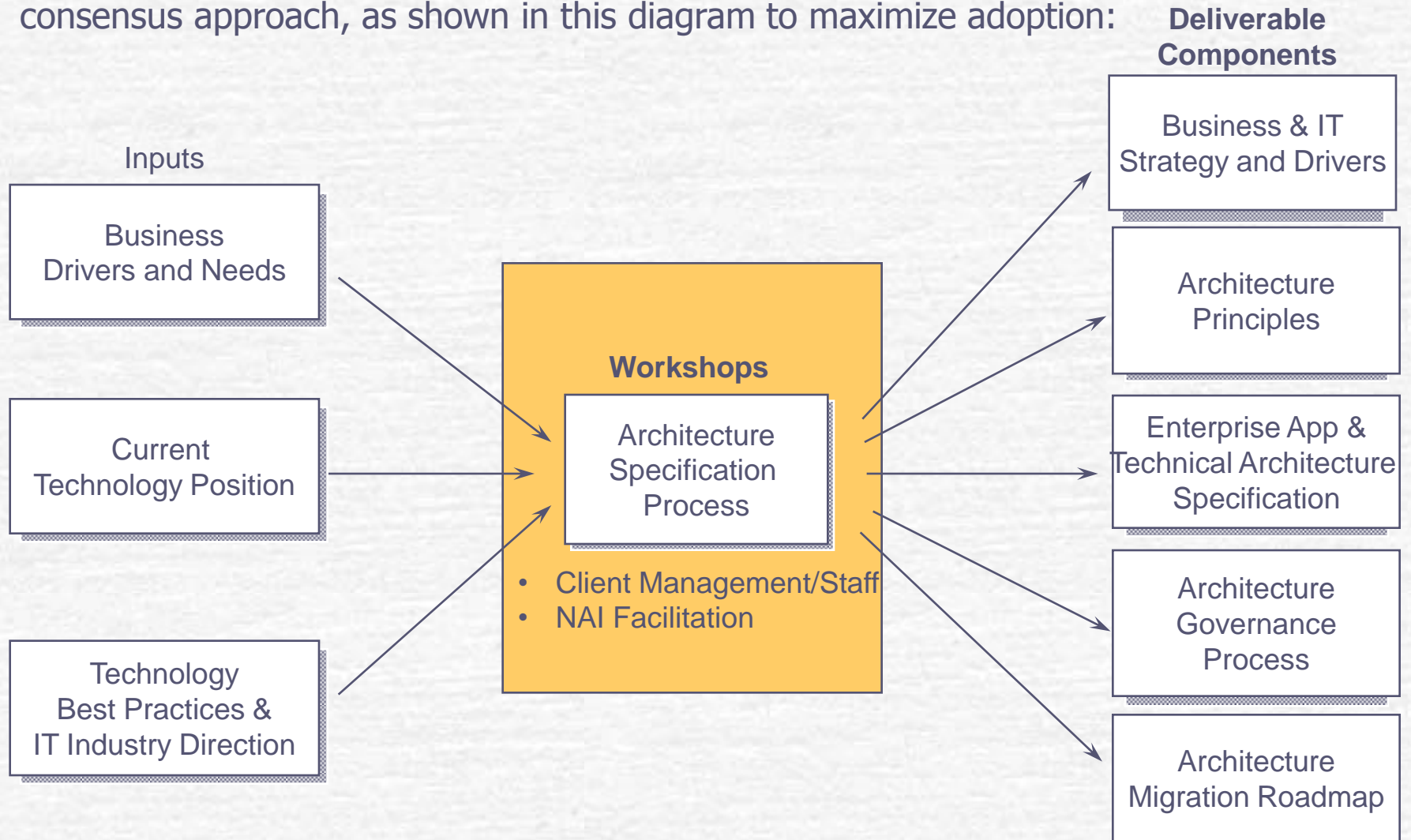


Source: Institute for Enterprise Architecture Development

1. Improved alignment between IT investments and strategic business requirements (*what should we architect?*)
  - The Enterprise Architecture process provides a tightly focused 'stream of logic', which links the business drivers and strategic requirements directly to an IT investment portfolio designed to support those strategies and respond to threats and opportunities.
2. More efficient, cost effective and flexible engineering solutions (*how we should develop adaptive systems?*)
  - The EA discipline highlights the value of creating adaptive, modular, loosely coupled, business-event driven distributed systems based on reusable components, which emphasize the use of well-defined component interfaces. The ability to re-engineer older systems in response to new business requirements is the strongest allure of an adaptive Enterprise Architecture

# Engagement Approach

Our Architecture planning methodology and process is based on a workshop / consensus approach, as shown in this diagram to maximize adoption:





# Enterprise Architecture Framework

## Conceptual Models and Domains



# Definitions

- **Architecture:** A design of components and their defined interfaces in a system
- **Architectural Model:** A graphical (two- or three-dimensional) representation of an architecture.
- **Domains:** Topics or subject areas of architecture (such as governance, application, data, infrastructure and security).
- **Enterprise Architecture (EA):** An IT architecture that focuses upon only those computing requirements that are critical to the mission of the enterprise.
- **Technical Architecture (TA):** An IT architecture that focuses upon the common technologies of an organization.

# Enterprise IT Architecture

## Definition

- **An enterprise IT architecture defines:**
  - ❑ How systems are structured
  - ❑ How various components/layers interact
  - ❑ Which protocols and interfaces are used for communications between applications, infrastructure and data.

## Objectives

- **The objectives of an Enterprise IT Architecture is to promote:**
  - ❑ Interoperability between dissimilar systems
  - ❑ Application, data and infrastructure connectivity among and between new and legacy systems
  - ❑ The ability to manage change
  - ❑ Re-use and avoid duplicative expense

## Utility

- **An Enterprise IT Architecture is used by the enterprise to enable its strategies:**
  - ❑ Agility
  - ❑ Integration
  - ❑ Optimization
- **and IT asset:**
  - ❑ Standardization
  - ❑ Simplification
  - ❑ Acquisition
  - ❑ Development
  - ❑ Deployment
  - ❑ Operation
  - ❑ Retirement

# Gartner's 2006 Definition of Enterprise Architecture

## Enterprise architecture is

- the process
- of translating business vision and strategy
- into effective enterprise change
- by creating, communicating and improving the key principles and models that describe the enterprise's future state and enable its evolution.

## The scope of the enterprise architecture includes

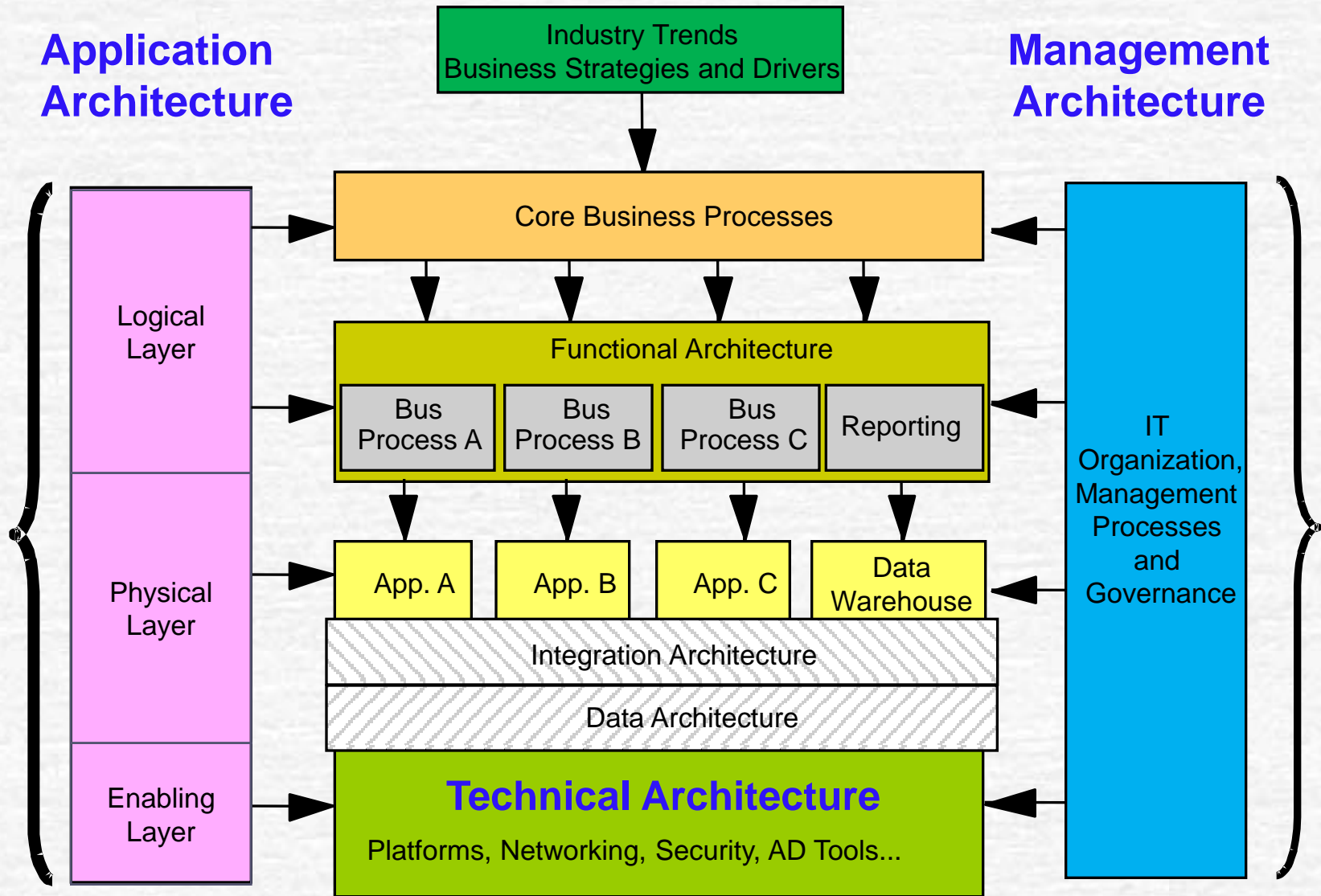
- the people, processes, information and technology of the enterprise,
- and their relationships to one another and to the external environment.

## Enterprise architects compose

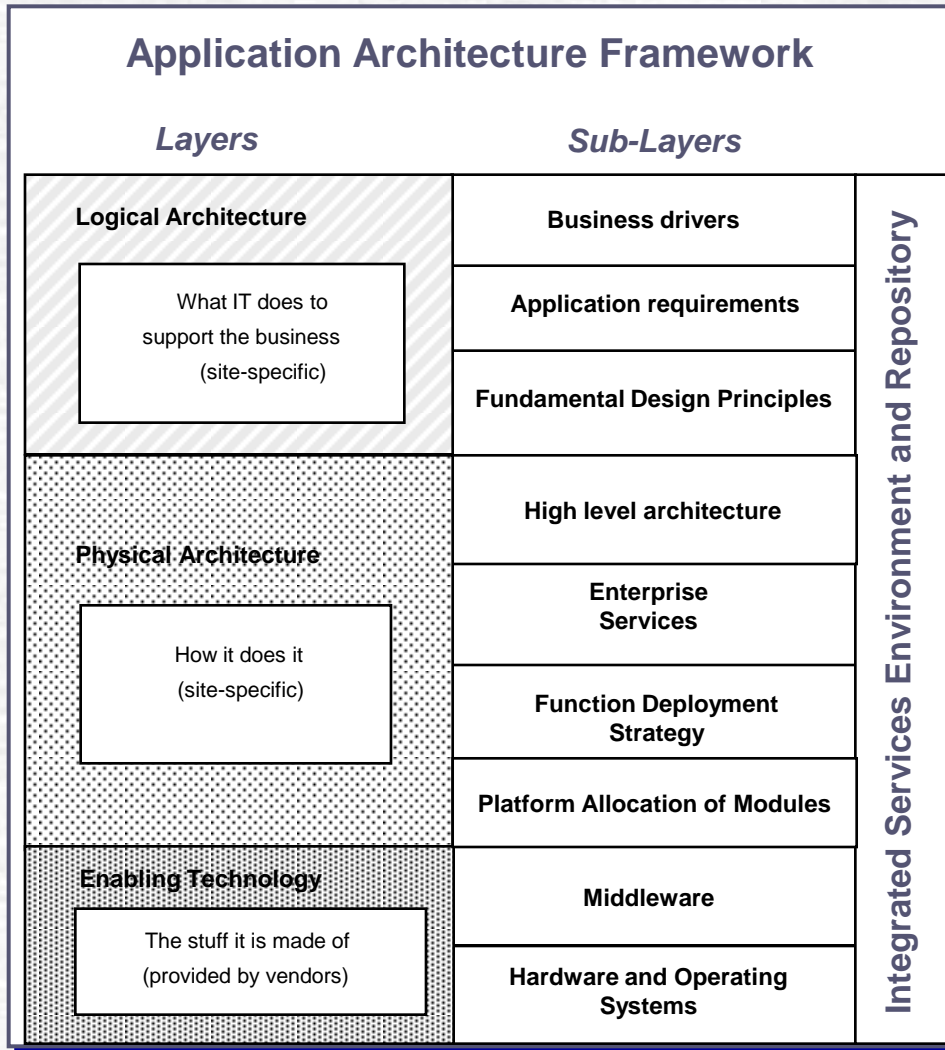
- holistic solutions
- that address the business challenges of the enterprise,
- and support the governance needed to implement them.

**Enterprise architecture means ... architecting the enterprise to enable change.**

# Enterprise Architecture Conceptual Layers



# Application Architecture Domains



## Logical Layer

- Business drivers identified
- Methods/ tools for gathering and storing application requirements
- A description of both existing and planned applications

## Physical Layer

- HL physical models documented for databases and integration
- Definition of shared business services
- A set of guidelines for Service partitioning (platform allocation)

## Enabling Layer

- A classification of enabling software (Portal, ESB, DBMS linkages, etc.) by application type and target audience
- AD Infrastructure
- Hardware and Software platforms for each tier.

# Enterprise Architecture Principles Defined

## Definition:

- Established rules that guide technology decision-making. Principles provide the foundation upon which architectural designs are built and to which appeal can be made in the event of differing views on particulars.

## Criteria for Architectural Principles

- Understandable
  - » To people throughout the Enterprise
  - » Clear interpretation of concept and intent
- Complete and Consistent
  - » No major omissions
  - » No duplication, overlap, or contractions
- Long lasting
  - » Interpretation will change with the times, but not the words
  - » Independent of technology, who, where, when, policies & procedures

## Types of Architectural Principles

- Management Architecture Principles
- Application Architecture Principles
- Data Architecture Principles
- Technical Architecture Principles
- Security Architecture Principles

# Management Architecture Principles Examples

## ✔ Simplification and Standardization

- Application Portfolio
- Technical Infrastructure

## ✔ Agility and Flexibility

- Responsive to changes in business requirements
- Incremental enhancements
- User directed and executed (where possible) business process and rule changes

## ✔ Warranty of Quality of Service

- Define and negotiate service level expectations
- Establish and document Service Level Agreements
- Deploy end-to-end IT Service monitoring capability
- Monitor, measure, report and review performance with business customer

## ✔ Optimize Total Cost of Ownership

- Establish IT Financial Management process and capability (Budgeting, Accounting and Charging)
- Measure and report performance against targets
- Leverage existing and emerging technology to optimize IT resource usage

# Application Architecture Design Principles Example

**Successful modern IT architectures leverage the appropriate use of the following fundamental design principles:**

***Modularity:*** Systems are made up of replaceable units that can be added together to make the system larger or modify its capabilities as required by changing business needs.

***Encapsulation:*** Data and operations of business services are “hidden” within the environment, but access to the service is provided through each service interface.

***Reuse:*** Application components and functions are cataloged and made available so that they may be incorporated into other applications.

***Partitioning:*** Applications are broken into three logical parts—presentation, logic and data—to facilitate execution of each logical piece on a different machine in order to maximize scalability and ease system maintenance.

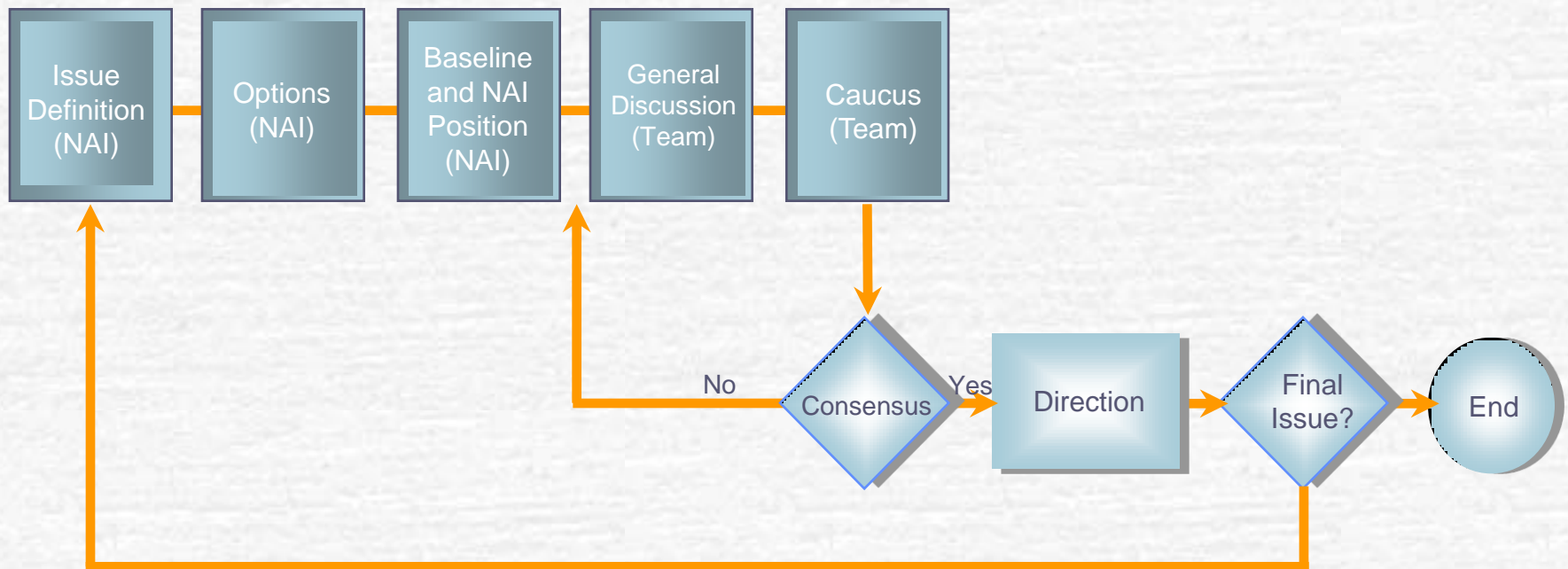
***Server-Centric Processing:*** Application processing is centralized to minimize software distribution problems and to maximize code reuse.

***Incremental Adoption:*** Changes to application design styles or middleware are made incrementally, rather than massive “big bang” adoption of new technology or styles.



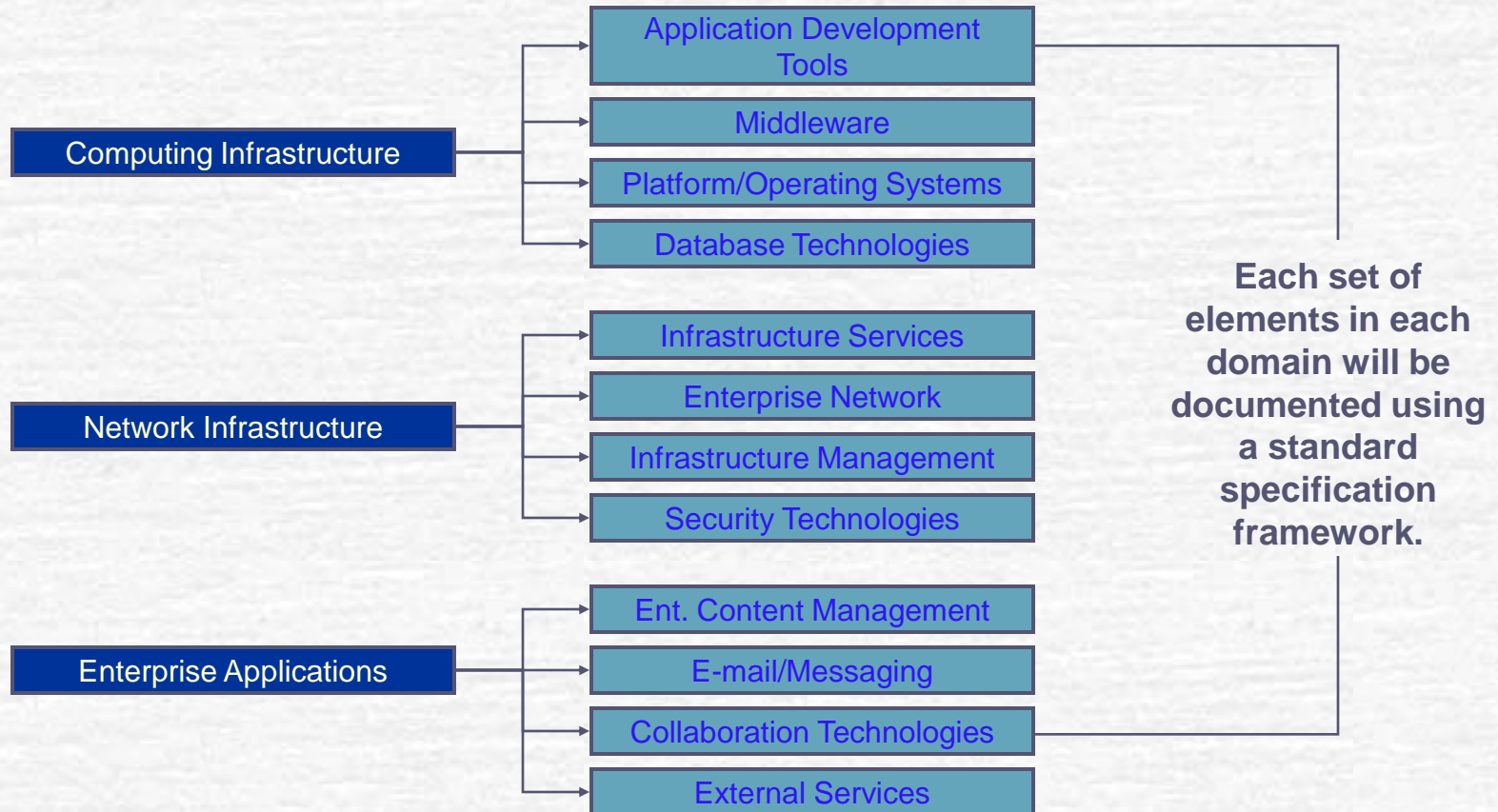
# Architecture Specification Process

The general process that was used in the workshops is diagrammed below. This process was followed for each element and strategic issue in the Architecture Framework as appropriate.



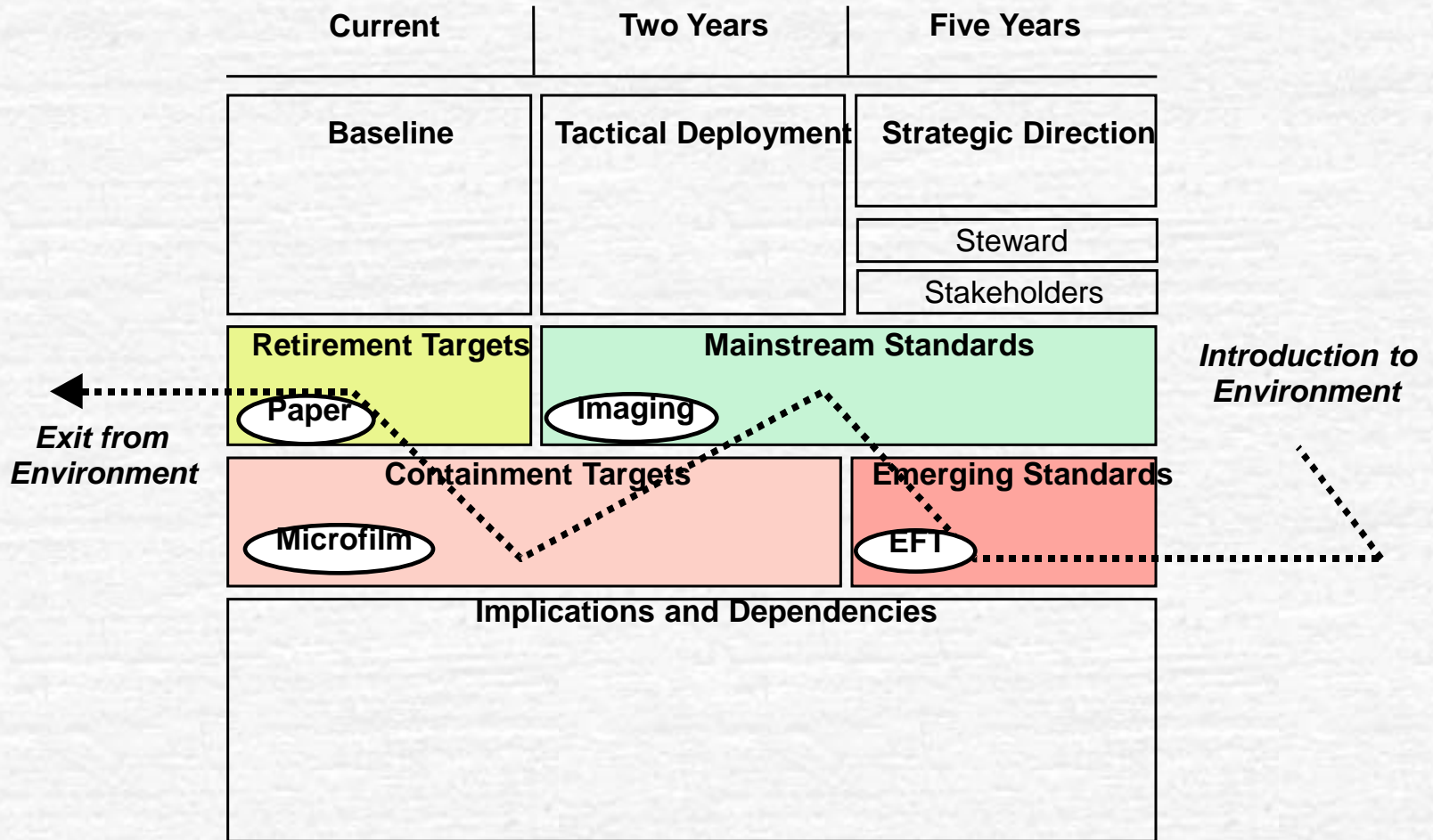
# Enterprise IT Architecture Domains

The Technical and Application Architecture definition will be based on the framework of architecture domains as shown below.



# Architecture Standard Specification Illustration

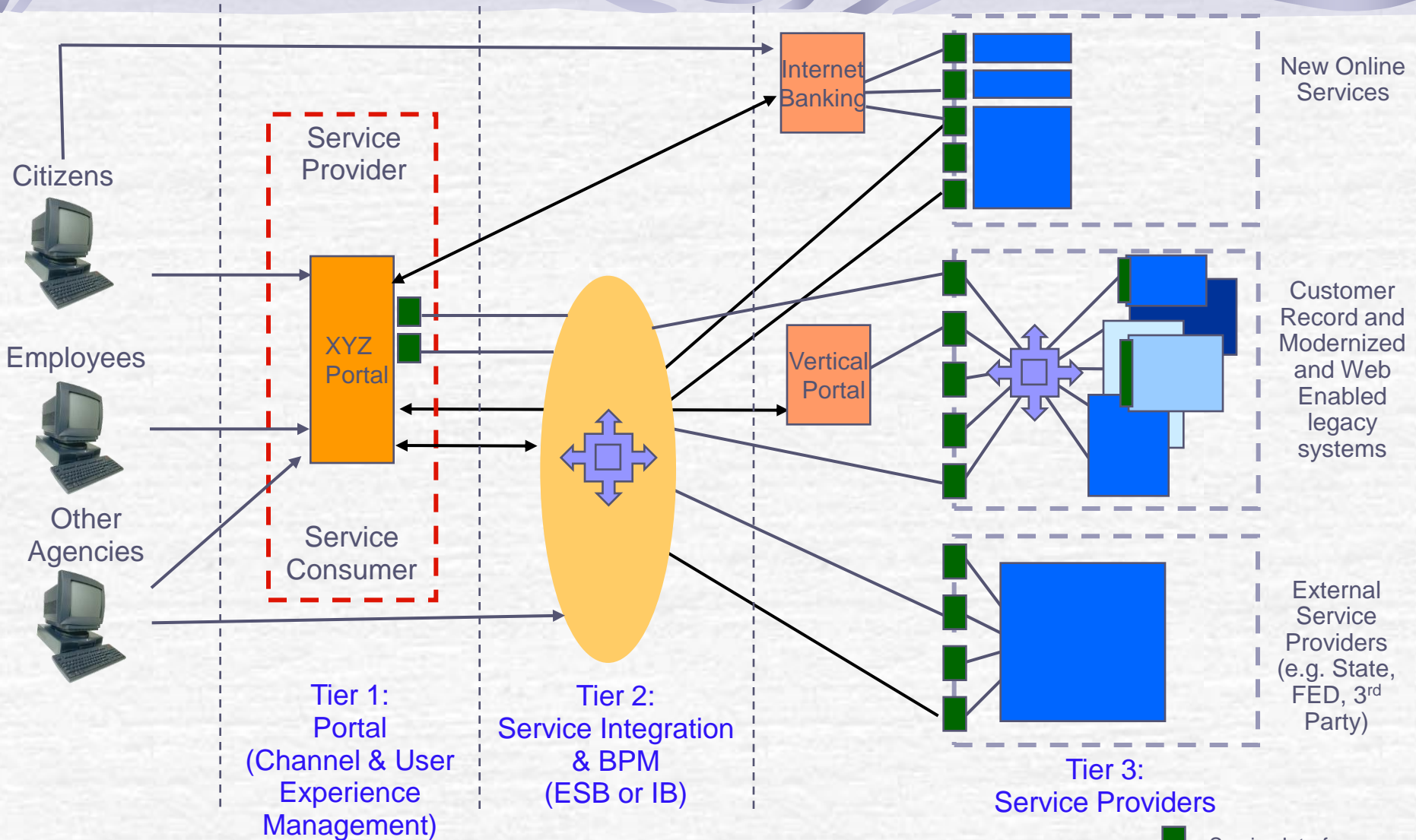
The Architecture Specifications are defined and are periodically re-visited, emerging technologies may be defined "mainstream" and become part of the current environment. Others may be re-defined as "retirement targets" and will exit the environment over time.





# Enterprise Architecture Sample Deliverables

# XYZ Target Architecture Model (High-Level View)



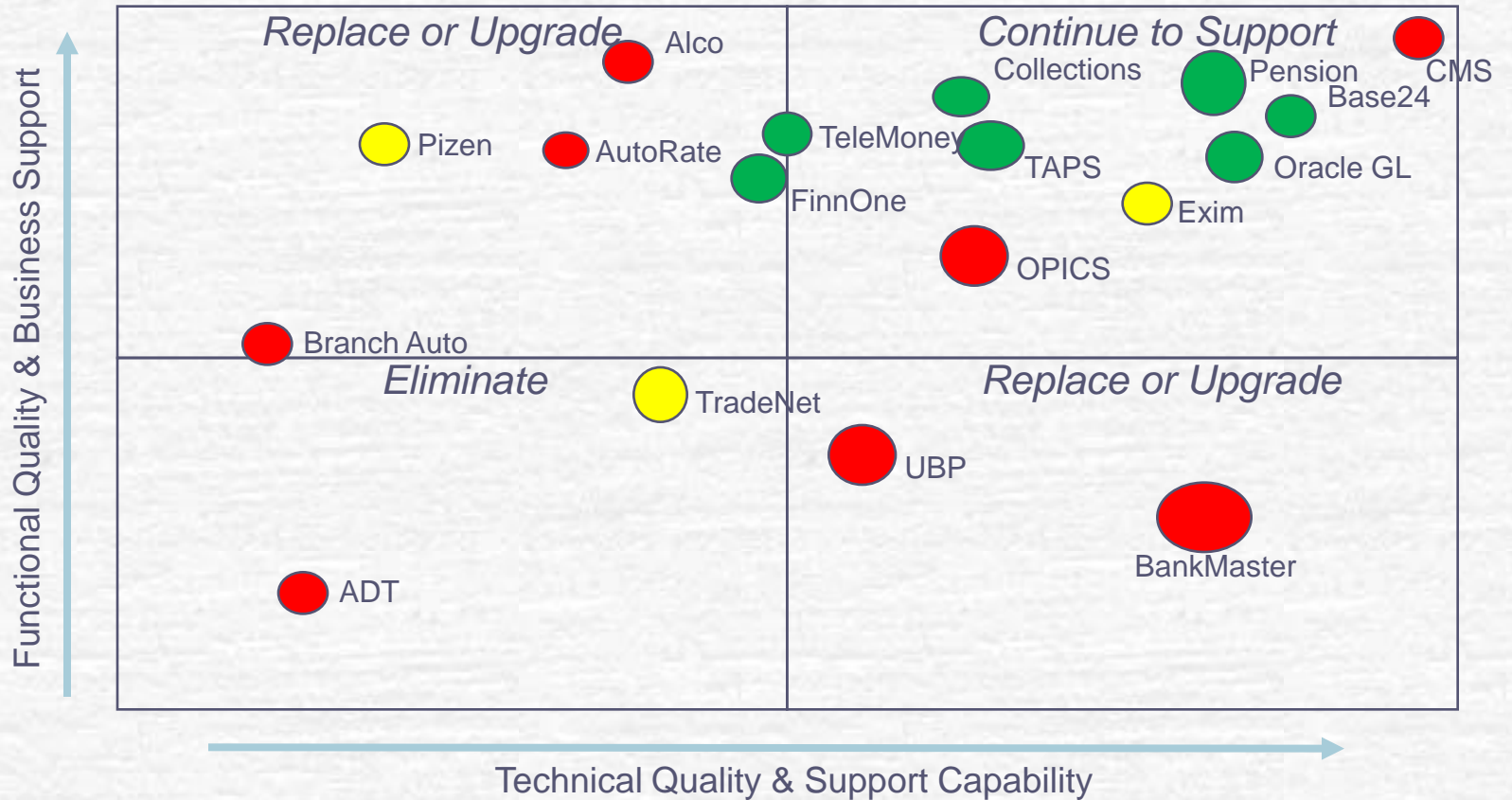
ESB = Enterprise Service Bus, IB = Integration Broker, BPM = Business Process Management)

■ = Service Interfaces

# Application Portfolio Analysis Summary

Replacement target ●  
 Containment target ●  
 Mainstream platform ●

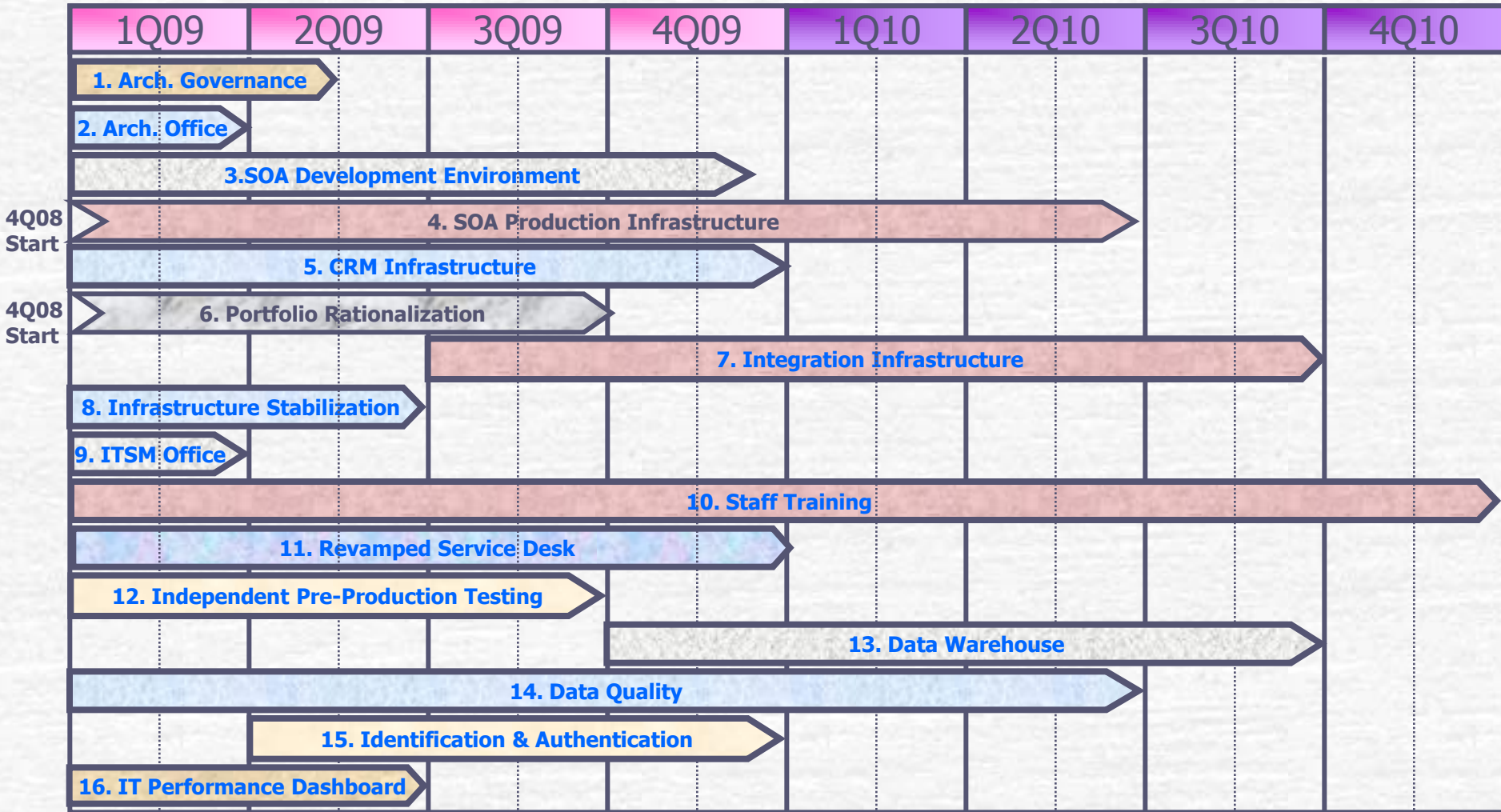
Note: Size of oval is reflective of the application footprint.



# Architecture Standard Specifications (cont'd)

REF#	Category	Domain	Element	Strategic Direction	Mainstream Standards	Containment Targets	Retirement Targets
<b>Computing Infrastructure</b>							
<i>Middleware &amp; Integration</i>							
9			Web Server	IBM WebSphere, Apache	Apache, MS IIS		
10			Application Server	Top Tier Infrastructure Vendor (J2EE)	IBM WebSphere App Server	Oracle Fusion, Microsoft App Platform, Tomcat	
11			Enterprise Service Bus / Integration Broker	IBM WebSphere ESB	IBM WebSphere ESB	Microsoft BizTalk, BEA Tuxedo	
12			Enterprise Portal	Top Tier Infrastructure Vendor (J2EE)	Evaluate IBM WebSphere Portal		
<i>Platforms / Operating Systems</i>							
13			Web Server OS	HP/UX, Windows, Linux	HP/UX 11i, Windows 2003	IBM AIX	
14			Application Server OS	HP/UX	HP/UX 11i, Windows 2003	IBM AIX, HP Non-Stop Guardian	
15			Database Server OS	HP/UX	HP/UX 11i, Windows 2003	IBM AIX, HP Non-Stop Guardian	
16			Client OS (Laptop/Desktop)	MS Windows	MS Windows XP, Vista	MS Windows 2000	
17			App/DB Server Hardware	HP	HP Superdome		

# Architecture Migration Roadmap (Illustration)





# About NAI

- Founded in 2001, NAI is a specialist provider of Consulting, Training and On-Demand solutions in the area of IT management and control best practices using globally accepted best practices standards and frameworks such as ISO 20000, ITIL, CMMI, PMBOK, TOGAF and COBIT.
- We focus in four key practice areas:
  - 1) *IT Strategic Planning and Governance*
  - 2) *Enterprise Architecture Planning*
  - 3) *Business and IT Service Management (BSM and ITSM)*
  - 4) *Strategic Sourcing*
- Within our Service Management practice, we help our clients:
  - Define and manage their Service Management Program and goals
  - Train and certify the internal team to become self-sufficient
  - Define and optimize processes and operations
  - Measure and benchmark business and IT improvements
  - Close automation gaps in their Service Management portfolio with affordable On-Demand solutions (monthly, based on actual use).

**NAI Contact:**

Stephanie Piche

Telephone: 1 (415) 267-7650

Facsimile: 1 (415) 267-7677

Email: [stephanie.piche@nouriassociates.com](mailto:stephanie.piche@nouriassociates.com)

**NAI Contact:**

Hamid Nouri

Telephone: 1 (415) 267-7612

Facsimile: 1 (415) 267-6127

Email: [hamid.nouri@nouriassociates.com](mailto:hamid.nouri@nouriassociates.com)

