The Open Group's Work in the SOA Field

Cape Town
13 March 2007

THE *Open* GROUP

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Agenda

- ❑ What is SOA?
  - ■ and why is it important to The Open Group?
- ❑ How does SOA relate to traditional Enterprise Architecture?
  - ■ TOGAF
- ❑ What is The Open Group doing about SOA?

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❑ **What is SOA?**

  ▪ and why is it important to The Open Group?

❑ How does SOA relate to traditional Enterprise Architecture?

  ▪ TOGAF

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SOA Is

An **architectural style** that supports **service orientation**

❑ **Service orientation**
A way of thinking in terms of services and service based development and the outcomes that services bring

❑ **Service**
A logical representation of a repeatable business activity that has a specified outcome (e.g., check customer credit; provide weather data, consolidate drilling reports), is self-contained and may be composed of other Services. It is a black box to consumers of the Service
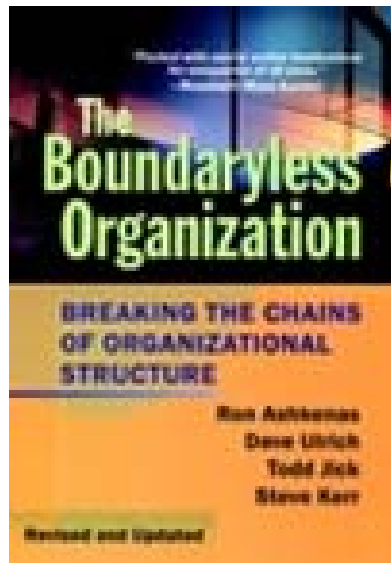
❑ **Architectural Style**
The combination of distinctive features in which Enterprise Architecture is done, or expressed

SOA's Distinctive Features

- Based on the design of the services comprising an enterprise's (or inter-enterprise) business processes. Services mirror real-world business activity

- Service representation utilizes business descriptions. Service representation requires providing its context (including business process, goal, rule, policy, service interface and service component) and service orchestration to implement service

- Has unique requirements on infrastructure. Implementations are recommended to use open standards, realize interoperability and location transparency.

- Implementations are environment specific, they are constrained or enabled by context and must be described within their context.

- Requires strong governance of service representation and implementation

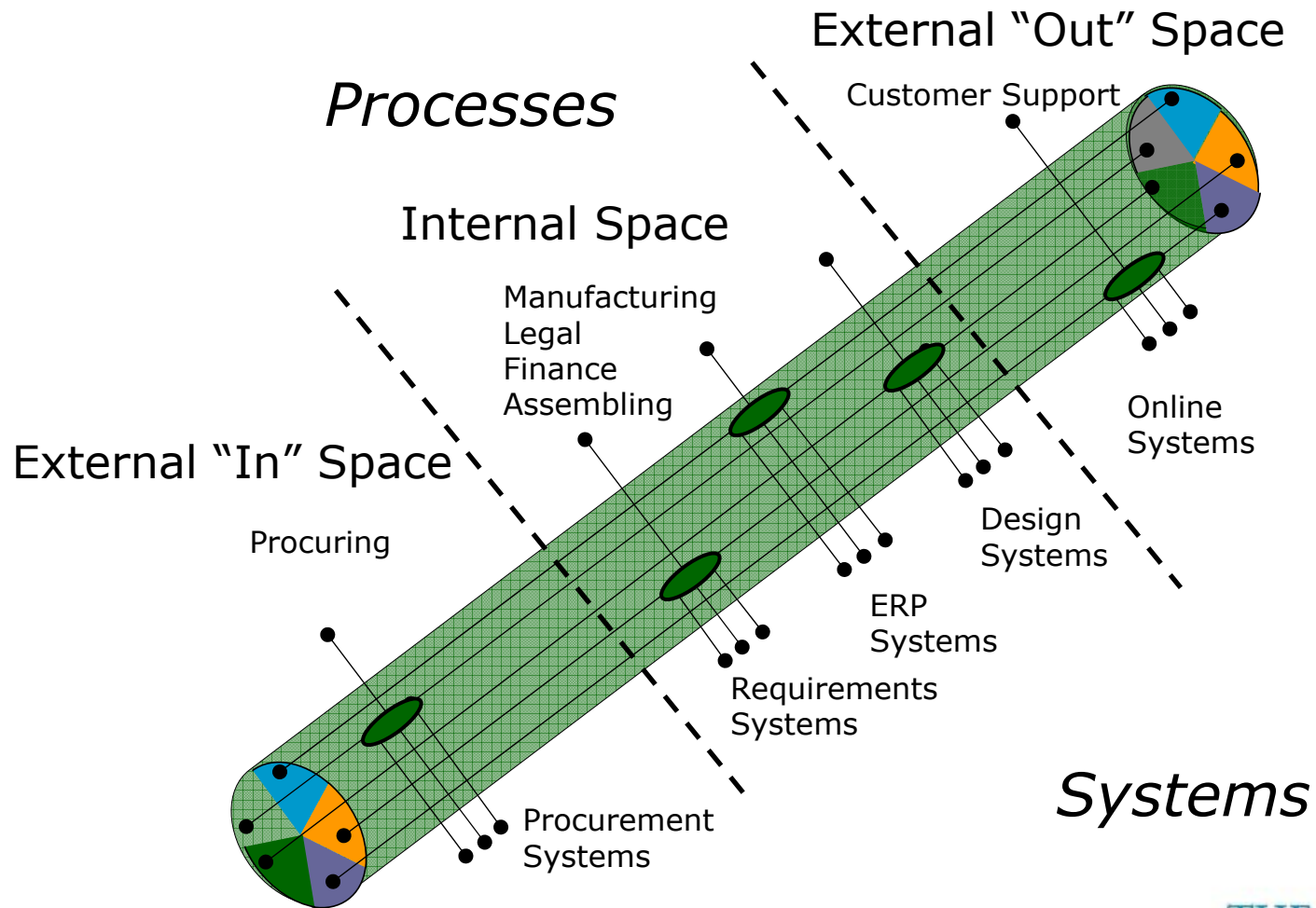- Requires a "Litmus Test", which determined a "good service"
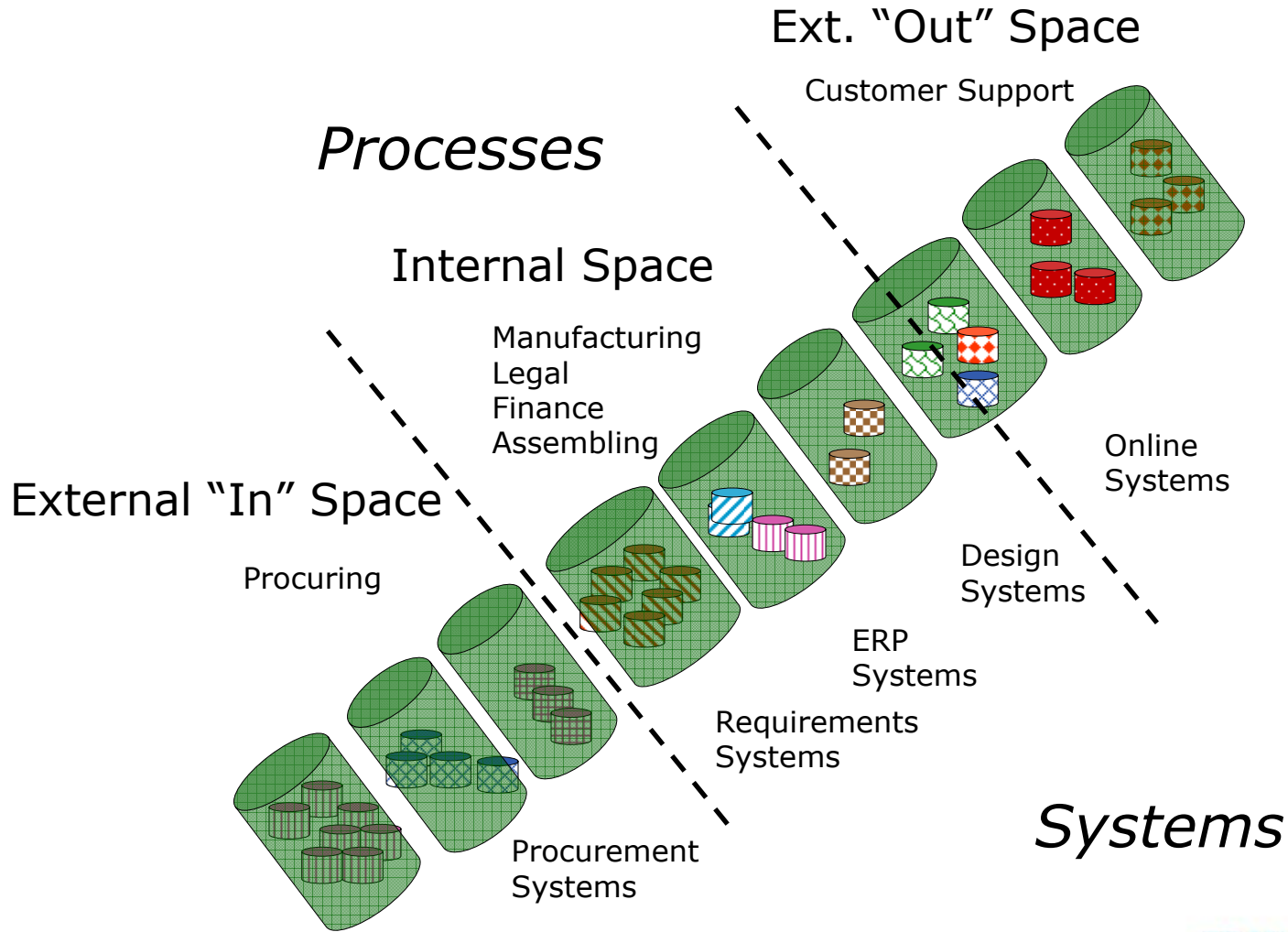
Boundaryless Information Flow

Permeable boundaries between
- Nations
- Enterprises
- Organizational levels
- Departments

Deliver
- Productivity
- Agility

But traditional IT architectures hinder this!

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Enterprises Want This…

External "Out" Space

Processes

Customer Support

Internal Space

Manufacturing
Legal
Finance
Assembling

Online
Systems

External "In" Space

Procuring

Design
Systems

ERP
Systems

Systems

Requirements
Systems

Procurement
Systems

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But Have This

Ext. "Out" Space

Customer Support

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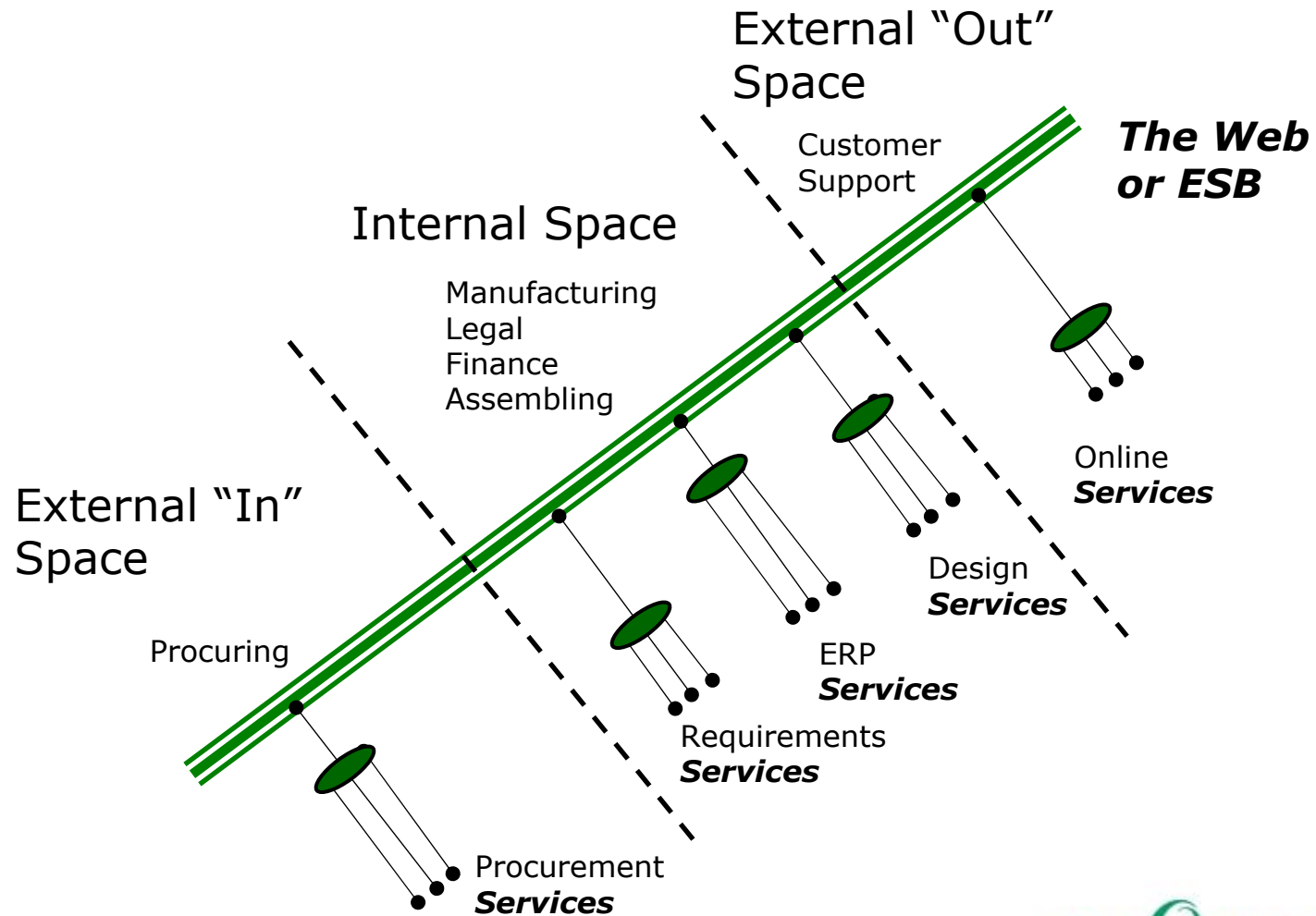*Systems*

Procurement
Systems

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SOA is an Architectural Style

❑ That re-structures applications as loosely-coupled, modular services

❑ And provides for data flow between them

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So Enterprises Can Have This

External "Out"
Space

Customer
Support

***The Web
or ESB***

Internal Space

Manufacturing
Legal
Finance
Assembling

External "In"
Space

Online
Services

Procuring

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SOA Overview
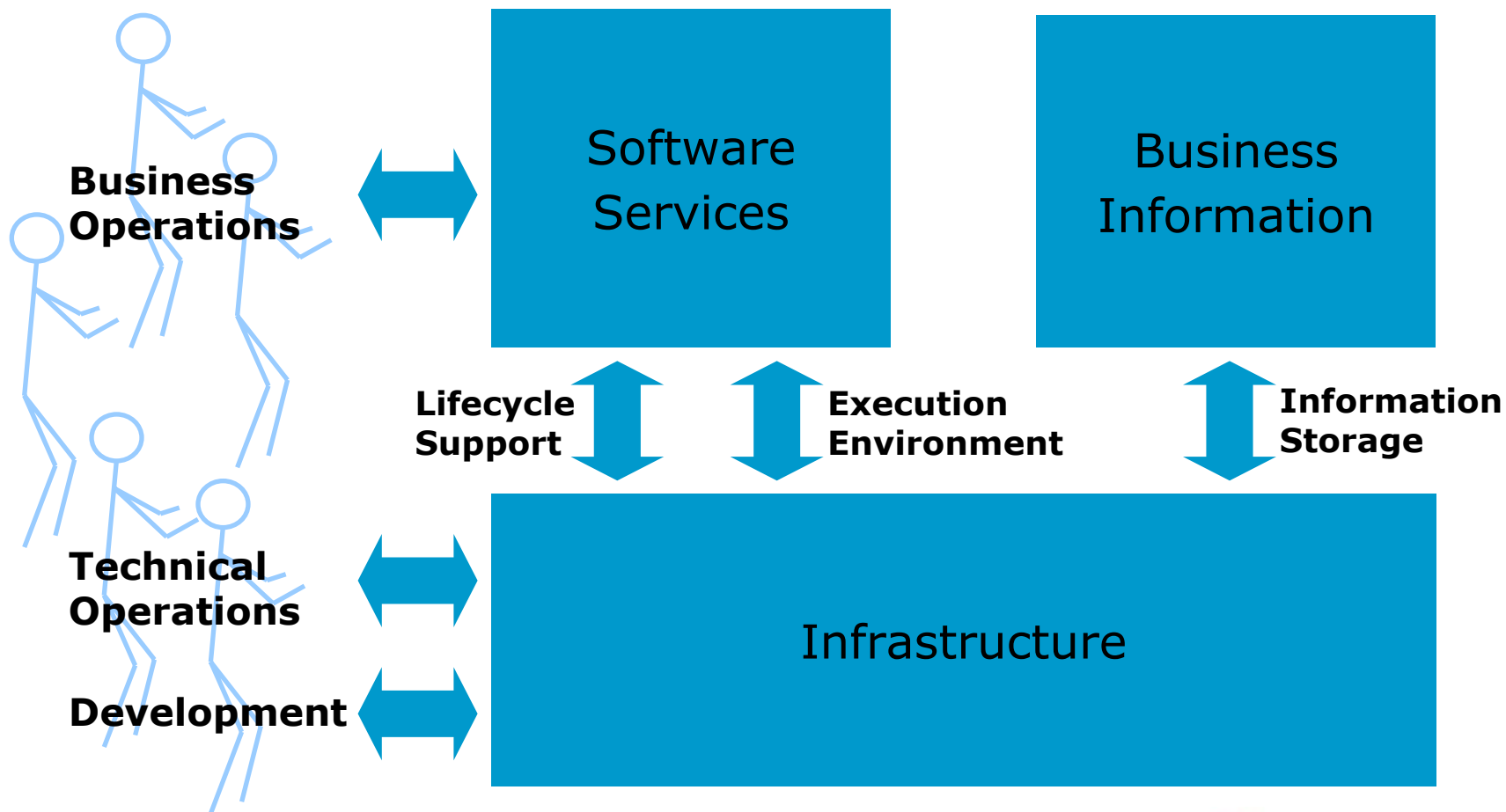
The Open Group Architecture Framework (TOGAF)

- **Enterprise Continuum**
  - Helps manage different levels of abstraction
  - Context for architecture assets
- **Resource Base**
  - Guidelines, templates, checklists etc.
- **Architecture Development Method (ADM**
  - The core of TOGAF.

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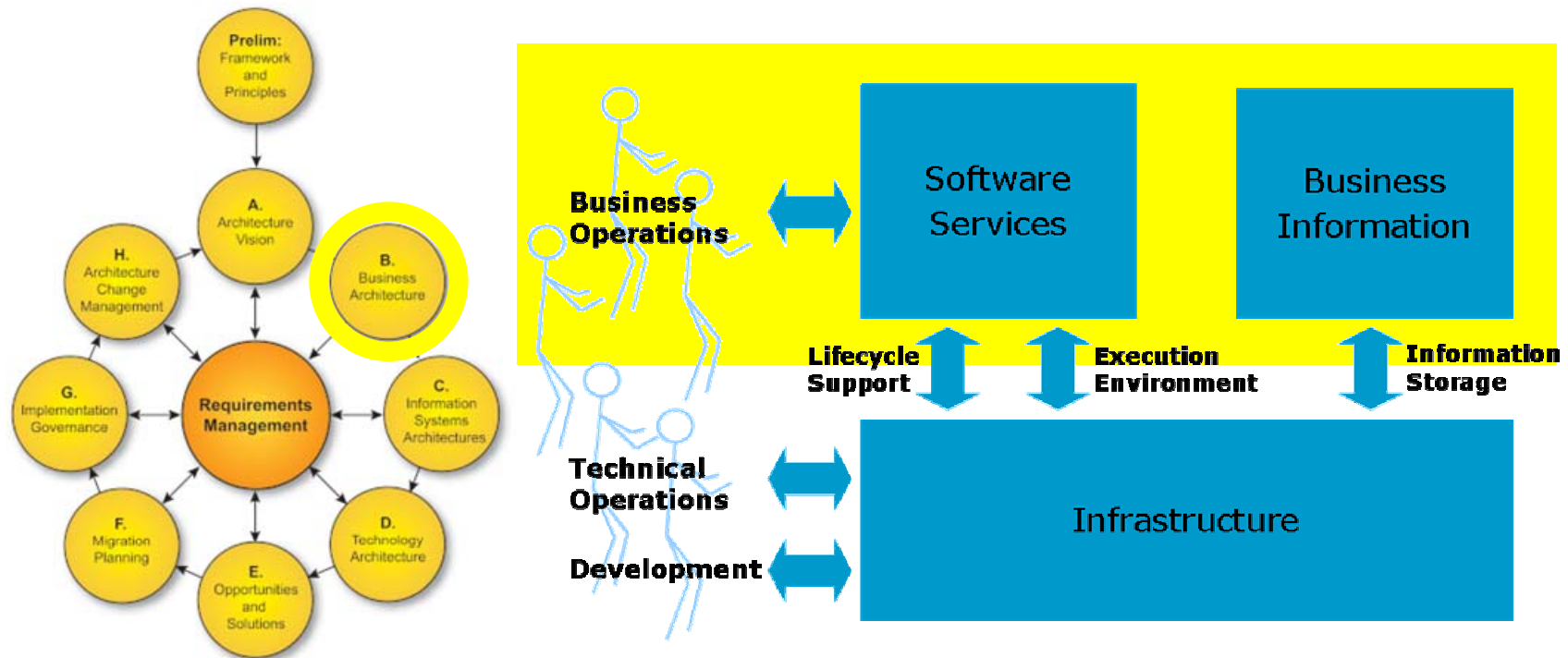*Making standards work*®

The TOGAF ADM
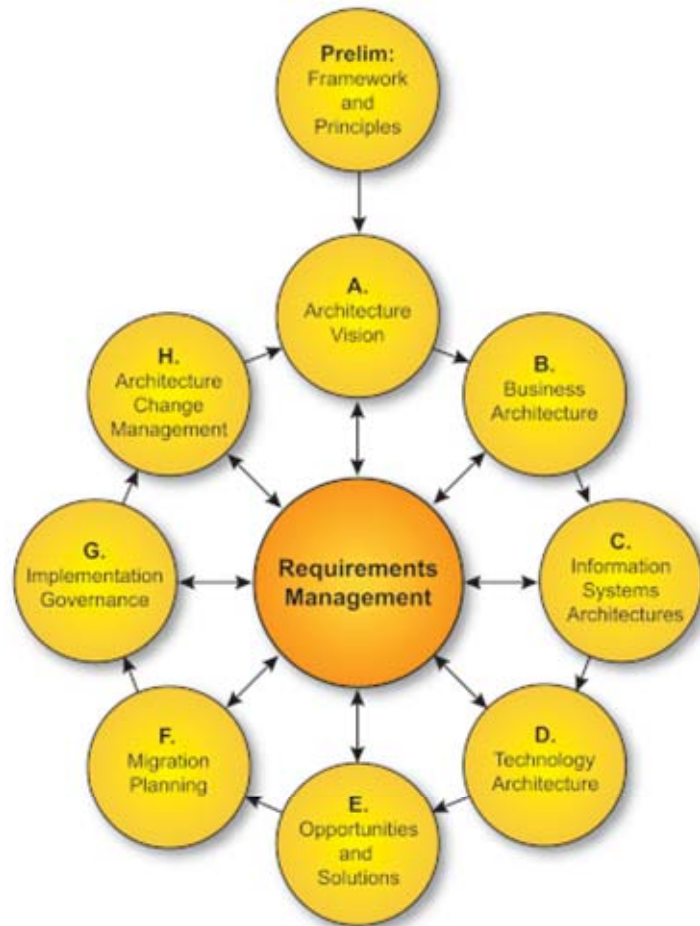
Architecture Vision
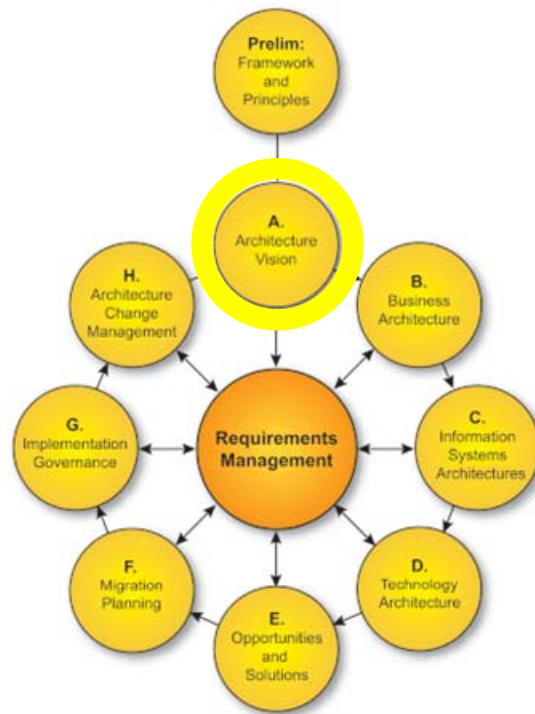
- ❑ What kind of SOA – how "mature"?
- ❑ What scope within the enterprise?

Summary of the architecture and what it should achieve, for communication throughout the enterprise (and to obtain approval and funding).

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Business Architecture

The product/service strategy, and the organizational, functional, process, information, and geographic aspects of the business environment.

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Information Systems Architectures – Data Architecture
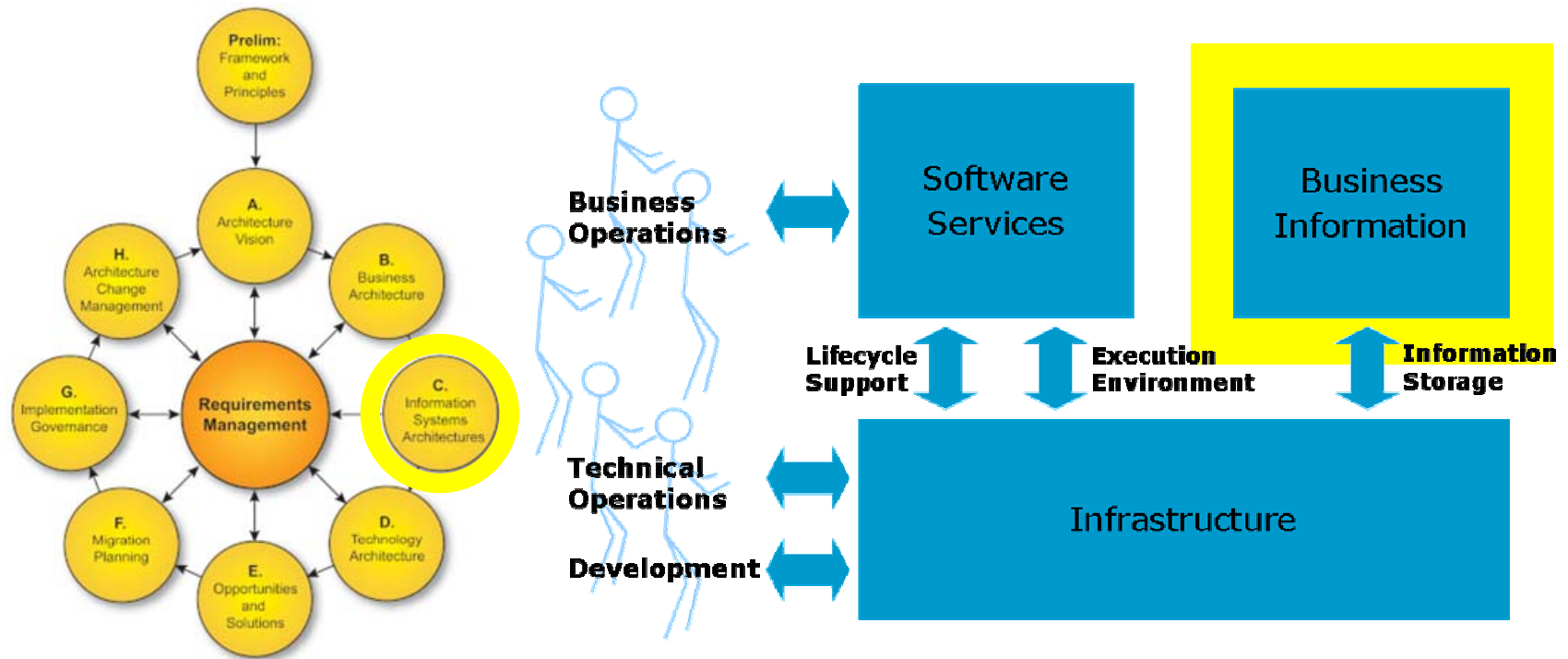
The major types and sources of data necessary to support the business.

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Information Systems Architectures – Applications Systems Architecture
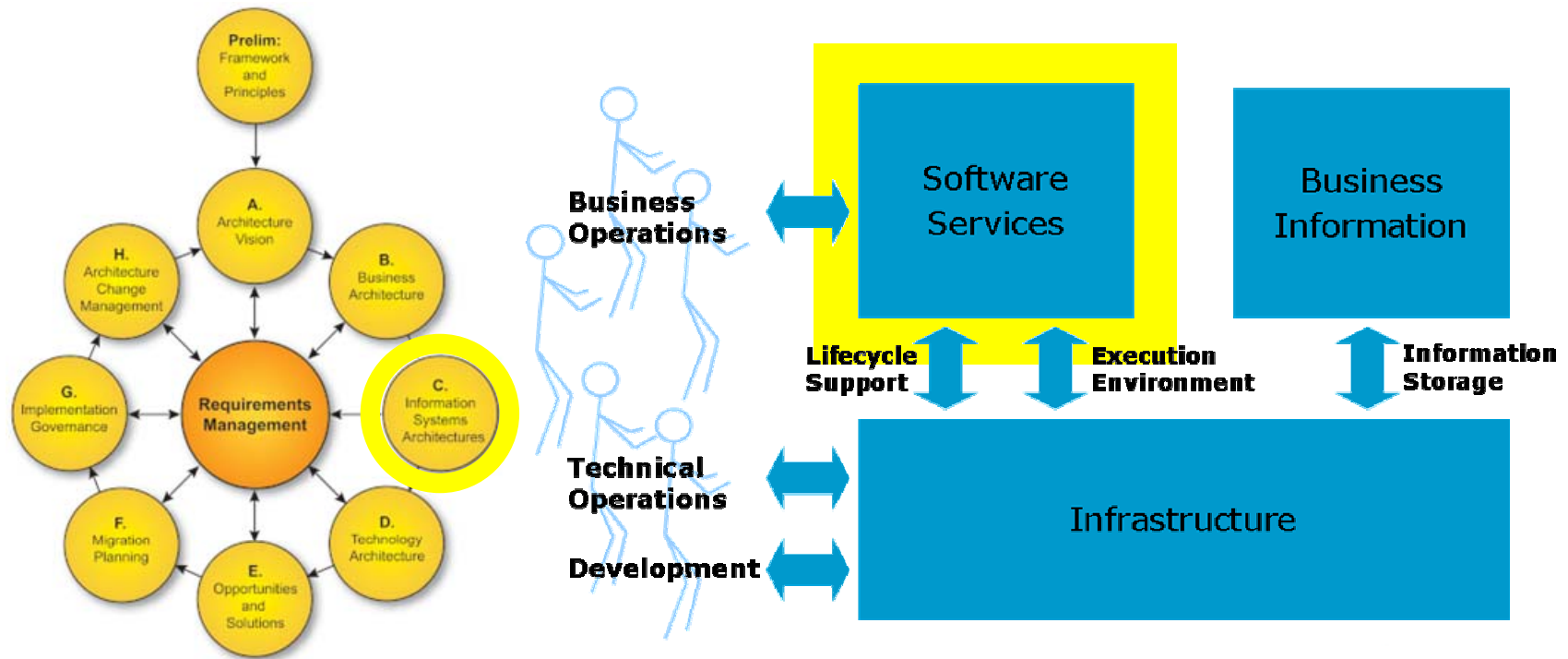
The major kinds of application system necessary to process the data and support the business.
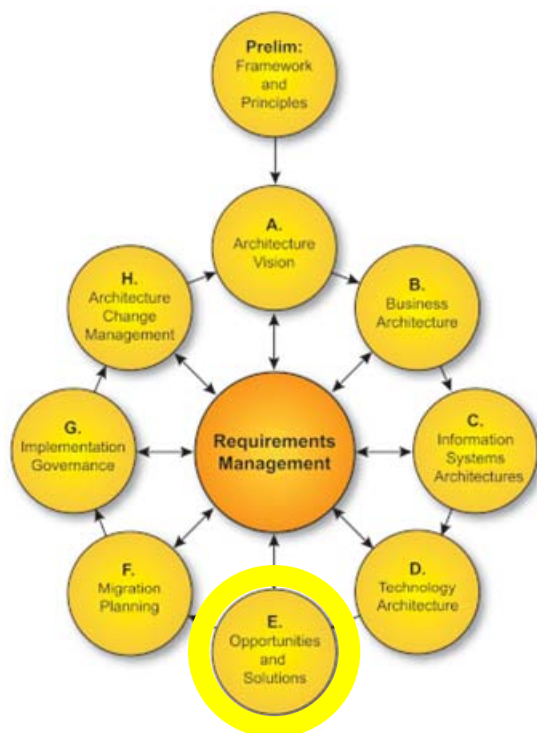
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Technology Architecture
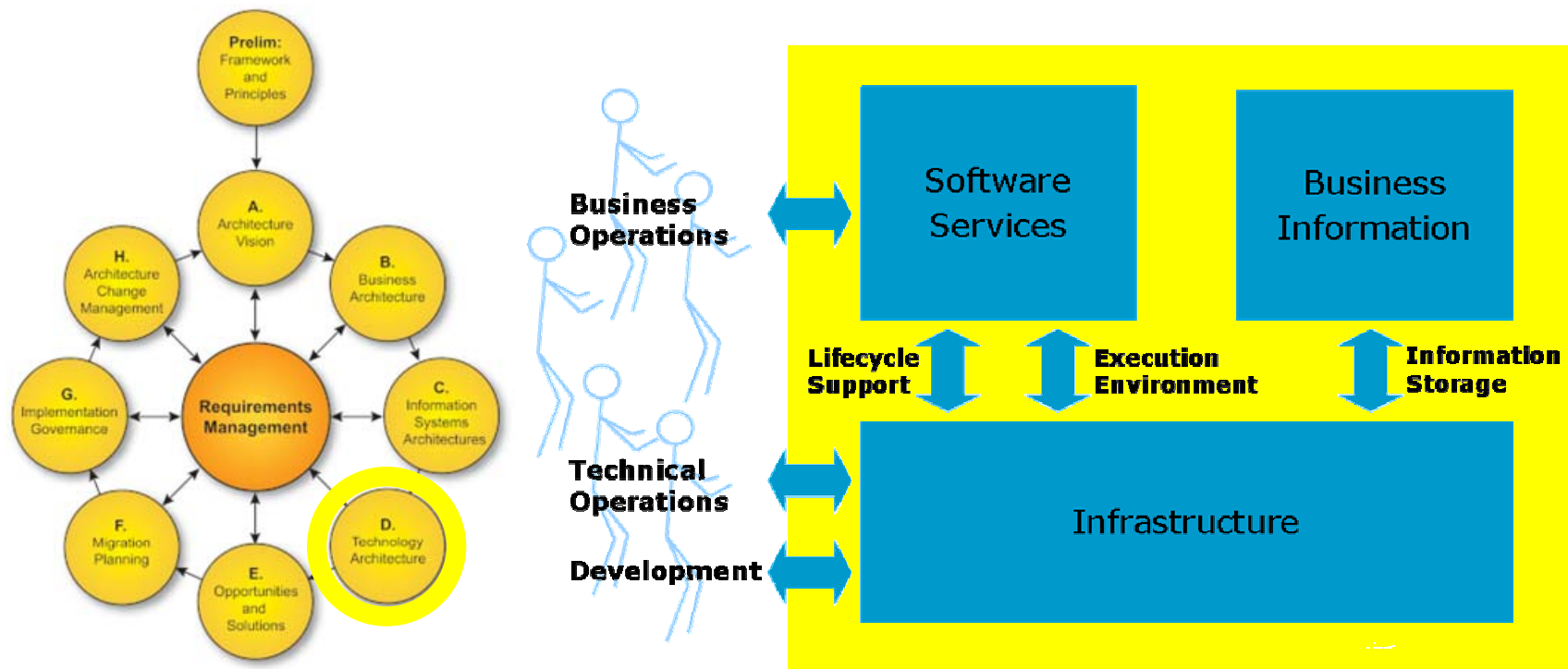
The technical solution at the level necessary to support implementation.

Opportunities and Solutions

❑ No special issues for SOA
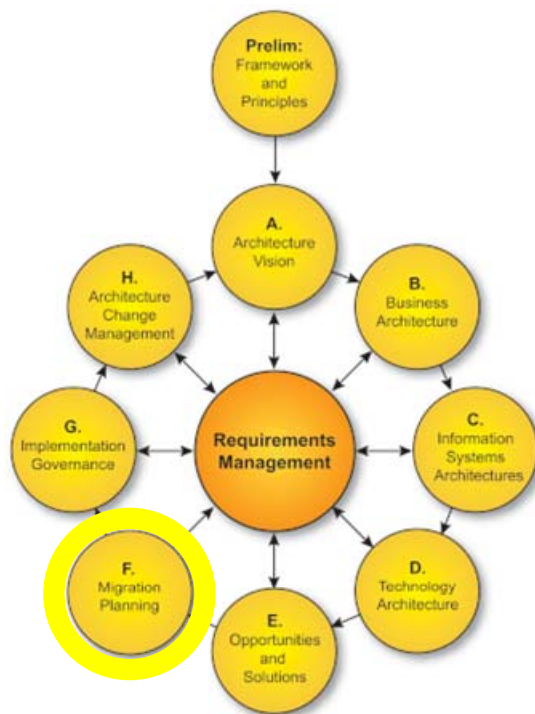
Overall implementation and migration strategy: evaluating implementation options, identifying parameters for change, and assessing dependencies, costs, and benefits.

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Migration Planning

❑ No special issues for SOA

Detailed Implementation Plan and Migration Plan with projects in priority order.

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Implementation Governance
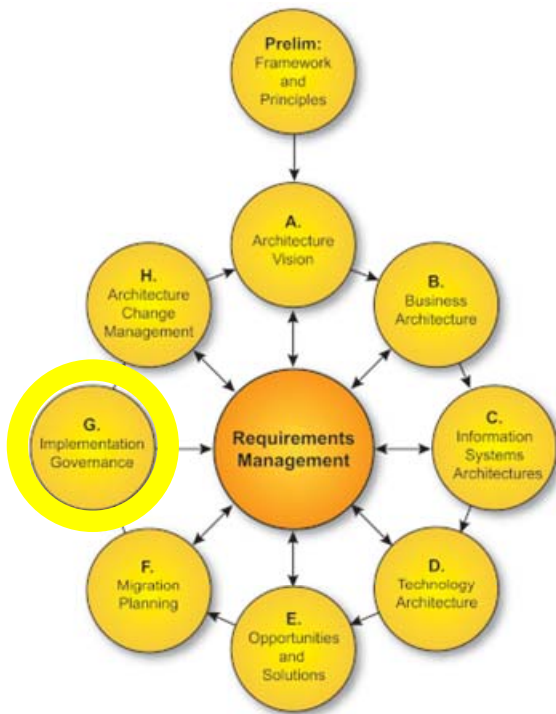
- ❑ Service lifecycle
- ❑ Service infrastructure
- ❑ Architecture conformance
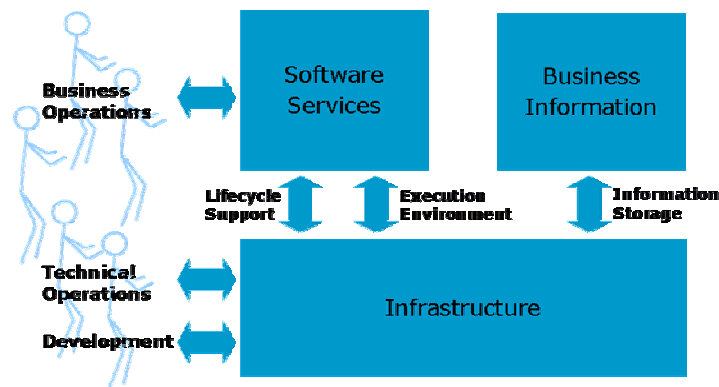
Process to ensure conformance with the defined architecture by implementation projects.

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Architecture Change Management

❑ Evolution of the service oriented architecture of the organization
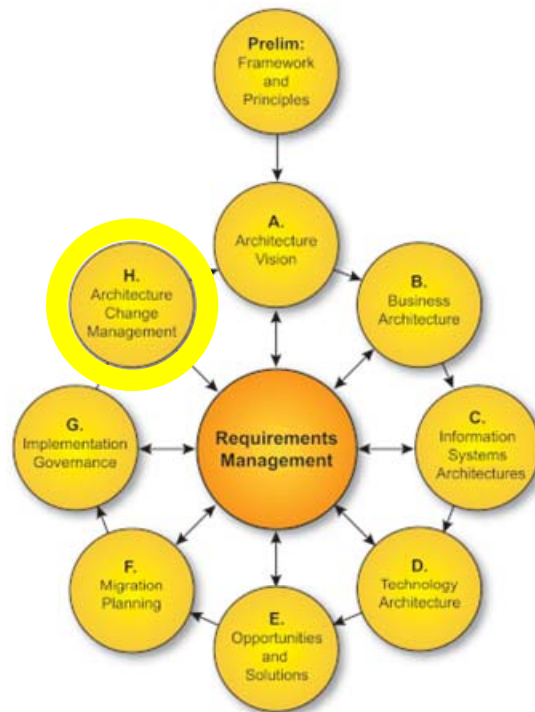
Process for the evolution of the new enterprise architecture in the light of developments in technology and changes in the business environment.

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SOA and Traditional Enterprise Architecture

- SOA is an **evolution** of enterprise architecture
  - Important changes to the way that the architecture process is applied
  - No change to the process itself
- With **revolutionary** effects
  - Enterprise agility
  - Boundaryless Information Flow

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The SOA Working Group

- The mission of The Open Group SOA Working Group is to develop and foster common understanding of Service-Oriented Architecture in order to facilitate alignment between the business and information technology communities.

- It does this by conducting a work program which will produce definitions, analyses, recommendations, reference models, and standards to assist business and information technology professionals within and outside of the Open Group to understand and adopt SOA.

www.opengroup.org/projects/soa

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SOA WG Membership & Leadership

- Open to all Open Group Supplier and Customer Council members (Platinum members, Forum Buyout members, and Silver members)
- 215 participants from 55 companies

- Forum Director
  - Dr Chris Harding, The Open Group
    - c.harding@opengroup.org
- Steering Committee
  - Chris Greenslade, Clars, Co-Chair
    - ChrisG@clars-global.com
  - Tony Carrato, IBM, Co-Chair
    - acarrato@au1.ibm.com
  - Jorge Diaz, IBM
    - jldiaz@us.ibm.com

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Initial Work Program

- Formed in October 2005
- Three initial deliverables:
  - Definition of SOA
  - SOA Case Studies
  - Value that The Open Group can Add

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Initial Work Program - Status

❑ Formed in October 2005

❑ Three initial deliverables:

- Definition of SOA - Completed

- SOA Case Studies – Ongoing

- Value that The Open Group can Add - Completed

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How the Work Program Develops

- Any Working Group member can propose a project
- A proposed project must
    - Be within the Working Group's scope
    - Be achievable with Working Group resources
- Project proposals are approved by vote of the Working Group
- Several project proposals have been approved and others are being developed, based on "Value" team recommendations

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Completed Projects

- ❑ Definition of SOA
- ❑ Value that The Open Group Can Add

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Definition of SOA

An **architectural style** that supports **service orientation**

- **Service orientation**
  A way of thinking in terms of services and service based development and the outcomes that services bring
- **Service**
  A logical representation of a repeatable business activity that has a specified outcome (e.g., check customer credit; provide weather data, consolidate drilling reports), is self-contained and may be composed of other Services. It is a black box to consumers of the Service
- **Architectural Style**
  The combination of distinctive features in which Enterprise Architecture is done, or expressed
- The SOA Architectural style's **distinctive features**:
  - Based on the design of the services comprising an enterprise's (or inter-enterprise) business processes. Services mirror real-world business activity
  - Service representation utilizes business descriptions. Service representation requires providing its context (including business process, goal, rule, policy, service interface and service component) and service orchestration to implement service
  - Has unique requirements on infrastructure. Implementations are recommended to use open standards, realize interoperability and location transparency.
  - Implementations are environment specific, they are constrained or enabled by context and must be described within their context.
  - Requires strong governance of service representation and implementation
  - Requires a "Litmus Test", which determined a "good services"

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Value that The Open Group can Add

❑ The main goal of the subgroup was to establish a set of areas which the Open Group could benefit the industry in the context of SOA.

❑ There were 10 recommendations selected.
- Definition of SOA (existing project)
- SOA Case Studies (existing project)
- SOA Maturity Model
- SOA Reference Model
- SOA Relation to EA (TOGAF)
- Business-Driven SOA
- Legacy Evolution to SOA
- SOA Governance
- Ontologies for SOA
- SOA Key Performance Indicators

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Current Work Program

- ❑ SOA Case Studies
- ❑ Ontologies for SOA
- ❑ SOA Governance
- ❑ SOA/TOGAF Practical Guide

SOA Case Studies

- Now in "maintenance mode".
- Framework for publishing studies in place
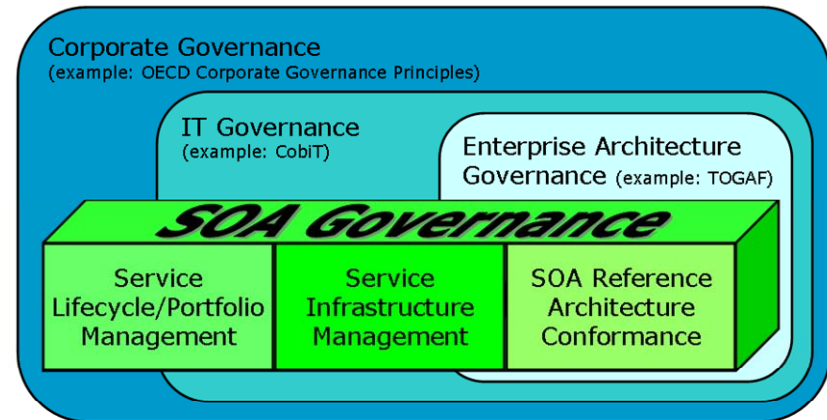- Additions will be made as and when new studies are submitted
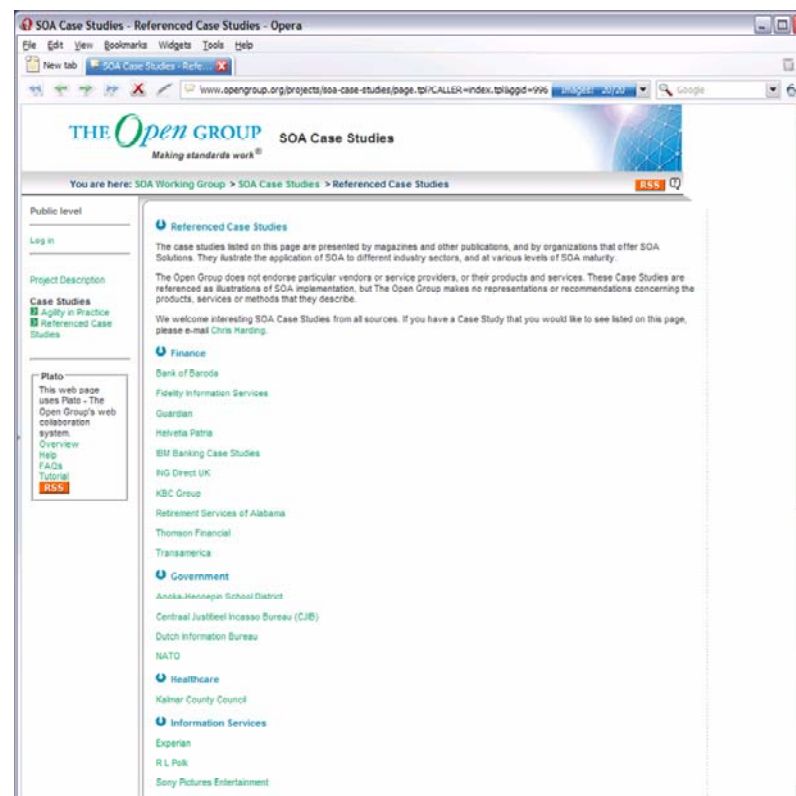
www.opengroup.org/projects/soa-case-studies

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Ontologies for SOA

- ❑ Objectives
  - ▪ Improve Understanding
  - ▪ Basis for Model-Driven Implementation
- ❑ Current State
  - ▪ Draft base ontology developed
  - ▪ "Socialised" by presentations to OMG and SICoP/SOACoP, and exposure to OASIS and W3C
- ❑ Target for Delivery
  - ▪ Version 1 published in Q2 of 2007

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SOA Governance

- Governance widely recognized as crucial for SOA
- The project aims to:
  - Develop a common definition of SOA Governance, including distinguishing between overall IT Governance and SOA Governance
  - Define reusable processes and structures for SOA Governance
  - Describe the relationship between IT to business governance and technical IT governance
  - Define a SOA Governance Reference Model

Corporate Governance
(example: OECD Corporate Governance Principles)

IT Governance
(example: CobiT)

Enterprise Architecture Governance (example: TOGAF)

SOA Governance

Service Lifecycle/Portfolio Management

Service Infrastructure Management

SOA Reference Architecture Conformance

- Project team met for 2.5 days before San Diego conference
- Plans to produce drafts of key materials by Austin conference (July 2007)

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SOA/TOGAF Practical Guide

- ❑ Relation of SOA to EA/TOGAF perceived as highest value the WG can add for SOA

- ❑ Joint project of SOA WG and Architecture Forum

- ❑ Has concluded that TOGAF Architecture Development Method is valid for SOA

- ❑ Now working on resources and practical detail to assist the architect

- ❑ Aiming for drafts by Austin conference

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New Project Proposals

- SOA Reference Architecture
- Business-Driven SOA
- SOA and Security
- Service-Oriented Infrastructure

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Board-Level Project: SOA Maturity Model (OSIMM)

	Silo	Integrated	Componentized	Services	Composite Services	Virtualized Services	Dynamically Re-Configurable Services
Business	Isolated Business Line Driven	Business Process Integration	Componentized Business	Componentized Business offers Services	Processes through service composition	Geo-graphical Independent Service centers	Mix and match business and context-aware capabilities
Organization	Ad hoc LOB IT Strategy &Governance	Ad hoc Enterprise IT Strategy & Governance	Common Governance processes	Emerging SOA Governance	SOA and IT Governance Alignment	SOA and IT infrastructure Governance Alignment	Governance through Policy
Methods	Structured Analysis & Design	Object Oriented Modeling	Component Based Development	Service Oriented Modeling	Service Oriented Modeling	Service Oriented Modeling for Infra (CDSP)	Business Grammar Oriented Modeling
Applications	Modules	Objects	Components	Services	Process Integration via Services	Process Integration via Services	Dynamic Assembly; context-aware invocation
Architecture	Monolithic Architecture	Layered Architecture	Component Architecture	Emerging SOA	SOA	Grid Enabled SOA	Dynamically Re-Configurable Architecture
Information	Application Specific	LOB or Enterprise Specific	Canonical Models	Information As a Service	Enterprise Business Data Dictionary and repository	Virtualized Data Services	Semantic Data Vocabularies
Infrastructure	LOB Platform Specific	Enterprise standards	Common Reusable Infrastructure	Project-based SOA Environment	Common SOA Environment	Virtual SOA Environment; S&R	Dynamic Sense, Decide & Respond
	Level 1	**Level 2**	**Level 3**	**Level 4**	**Level 5**	**Level 6**	**Level 7**

Board-level project with Working Group support

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SOA WG focus areas in 2007

- Move SOA Case Studies project to *"maintenance mode"*
  - Continue to accept case studies
- Continue focus on
  - SOA Governance
  - Ontologies for SOA
- Put more emphasis on the SOA/TOGAF Practical Guide
  - EA/SOA relationship
- Kick off work on
  - OSIMM
  - SOA Reference Architecture
  - Service-Oriented Infrastructure
- Explore how to work with the Security Forum

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SOA WG Website

www.opengroup.org/projects/soa
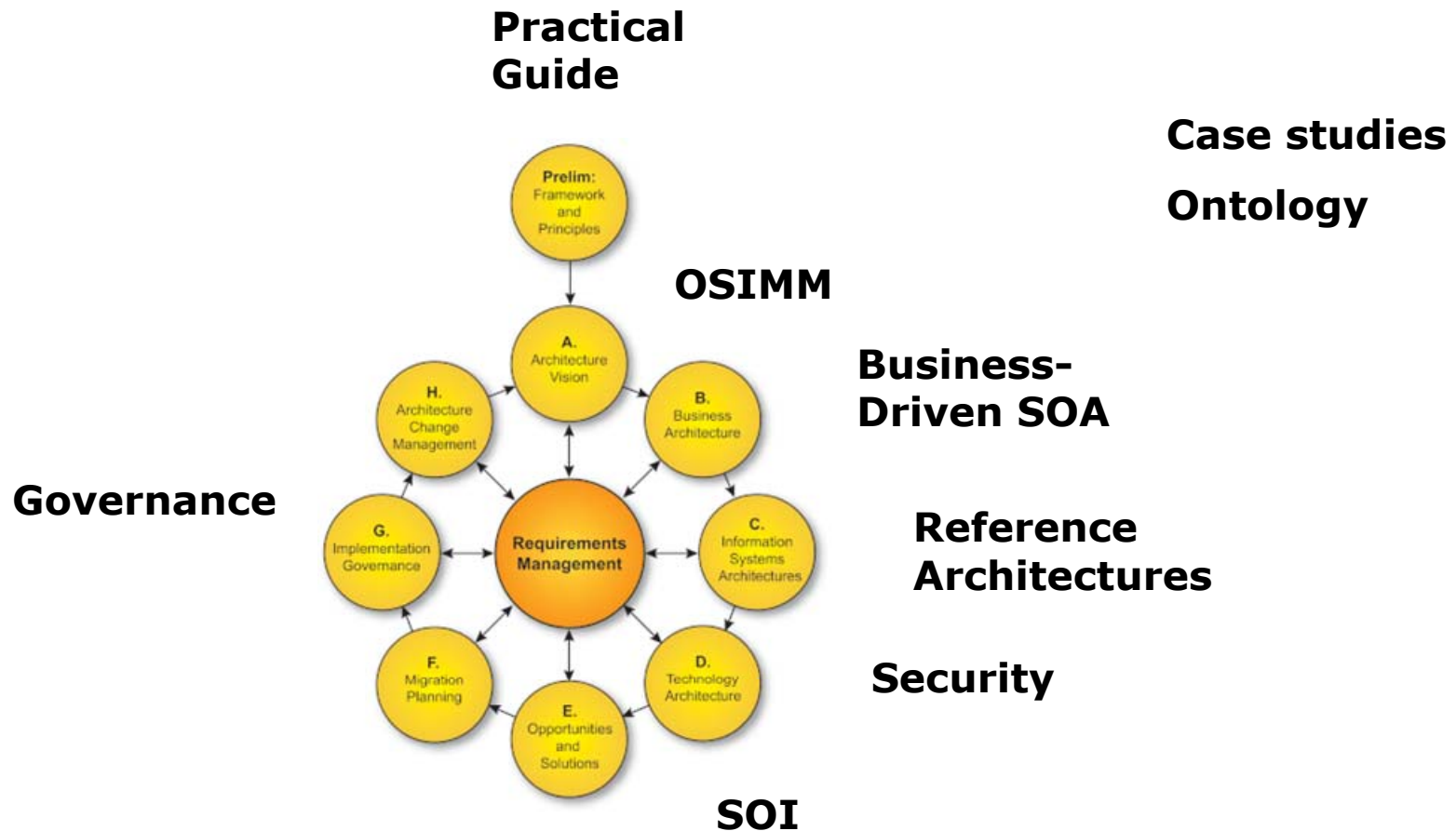
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Conclusions

- SOA is an architectural style that supports service orientation, delivering
  - Enterprise agility, and
  - Boundaryless information flow
- SOA is an evolution of traditional Enterprise Architecture
  - That maps to the TOGAF ADM
- The Open Group's SOA Working Group develops
  - Definitions, analyses, recommendations, reference models, and standards to assist business and information technology professionals within and outside of the Open Group to understand and adopt SOA.
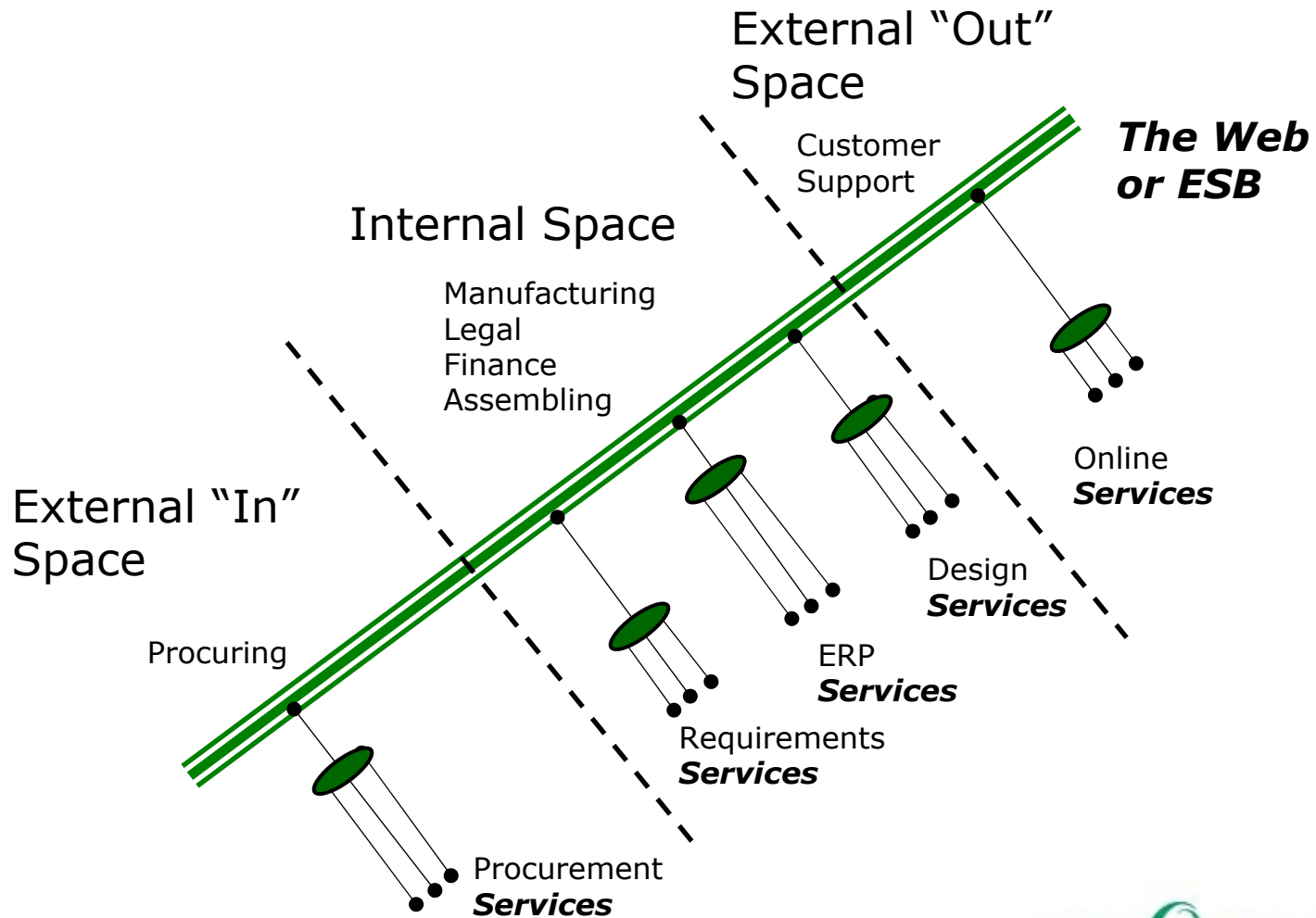
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SOA – an Evolution of Enterprise Architecture

- Software architecture
  - Modules are loosely-coupled services that can be combined dynamically, as opposed to subroutines, scripts, or other forms of program that invoke each other directly.
- Increased emphasis on development
  - The enterprise architect has always been concerned with evolution of the architecture components over time.
  - With SOA, this extends to the specification of particular development tools and methods, and their incorporation in the infrastructure to provide software service lifecycle support.
- Governance
  - Allowing rapid development and modification of services
  - In support of the business operations.

SOA WG Projects and Proposed Projects

Practical Guide

Case studies

Ontology

OSIMM

Business-Driven SOA

Governance

Reference Architectures

Security

SOI

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So That Enterprises Can Have Boundaryless Information Flow

External "Out" Space

The Web or ESB

Customer Support

Internal Space

Manufacturing
Legal
Finance
Assembling

Online Services

External "In" Space

Design Services

Procuring

ERP Services

Requirements Services

Procurement Services

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The Open Group's Work in the SOA Field

Thank you!