

Boundaryless Information Flow

The Role of Architecture

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THE *Open* GROUP

Who we are

- ❑ You are architects and managers of architects
 - Technology architects
 - Information architects
 - Application architects
 - Business architects
 - Enterprise architects
- ❑ I am a decision making CEO who sees the value of using architecture to make decisions

Customer problem statement

- “I could run my business better if I could gain operational efficiencies improving
 - **the many different business processes of the enterprise**
 - both internal, and
 - spanning the key interactions with suppliers, customers, and partners using
 - **integrated information, and access to that information.”**

Source: “The Interoperable Enterprise”

<http://www.opengroup.org/cio/iop/index.htm>

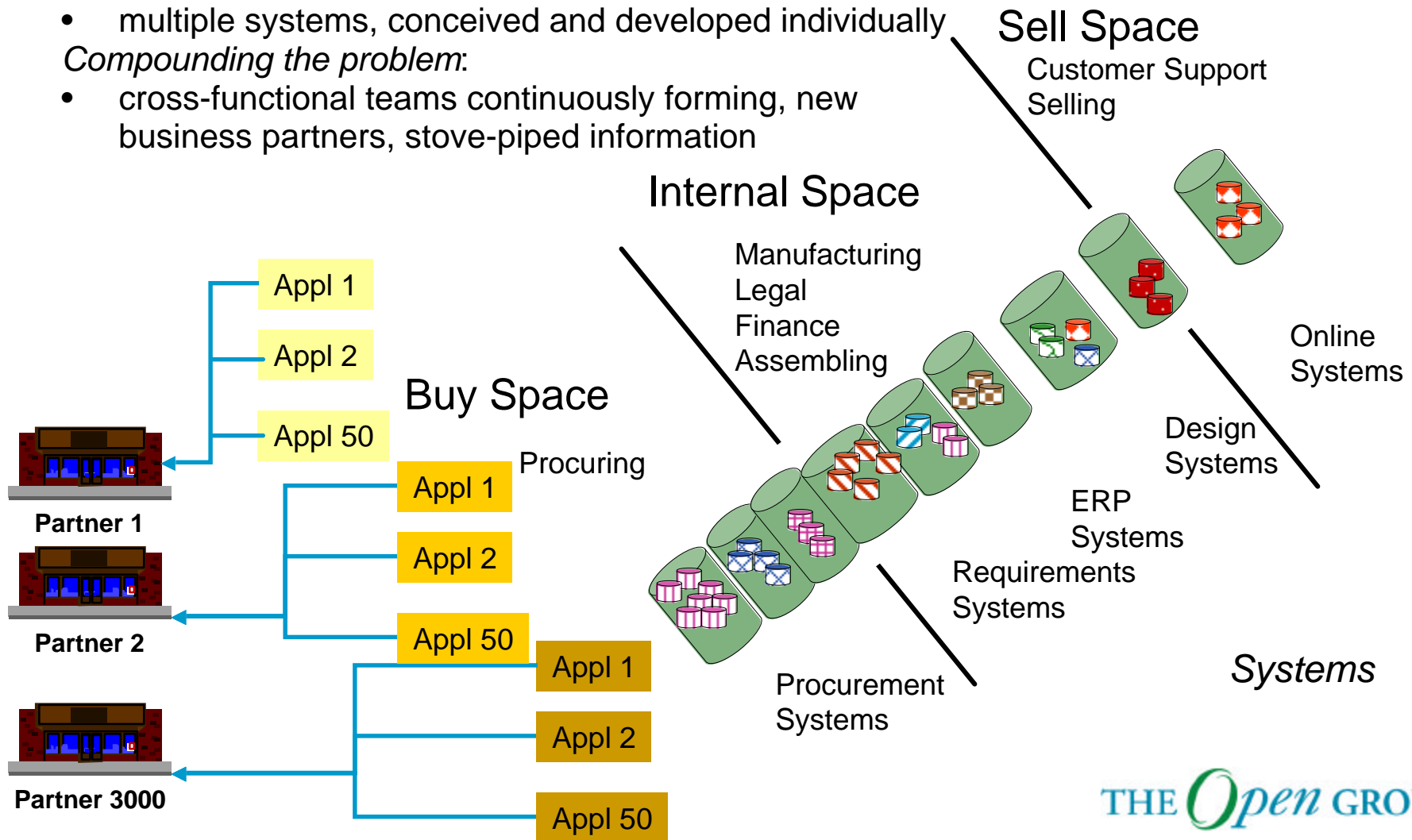
A common problem

The cause:

- multiple systems, conceived and developed individually

Compounding the problem:

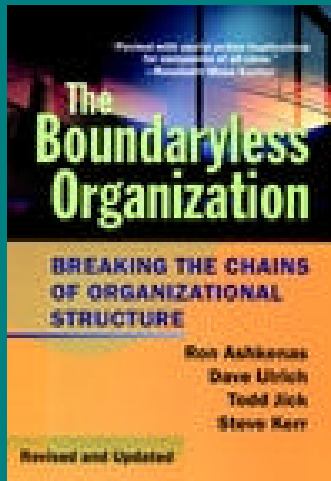
- cross-functional teams continuously forming, new business partners, stove-piped information



Vision

Boundaryless Information Flow

- ❑ achieved through **global interoperability**
- ❑ in a secure, reliable and timely manner

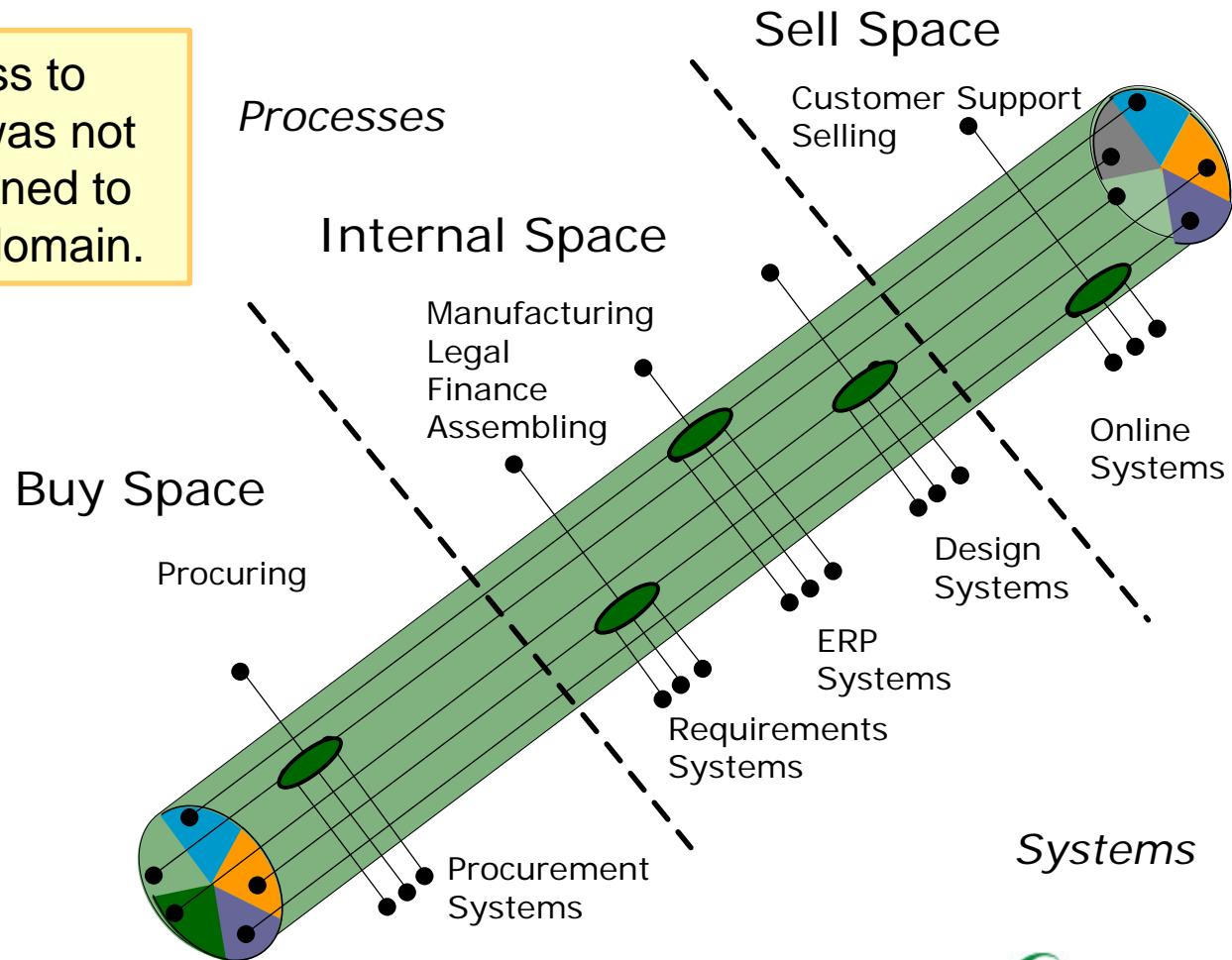


Boundaryless does not mean there are no boundaries – it means that boundaries are permeable to enable business.

Vision

Boundaryless Information Flow ...

... needs access to information that was not necessarily designed to leave its original domain.



Technologies create boundaries...

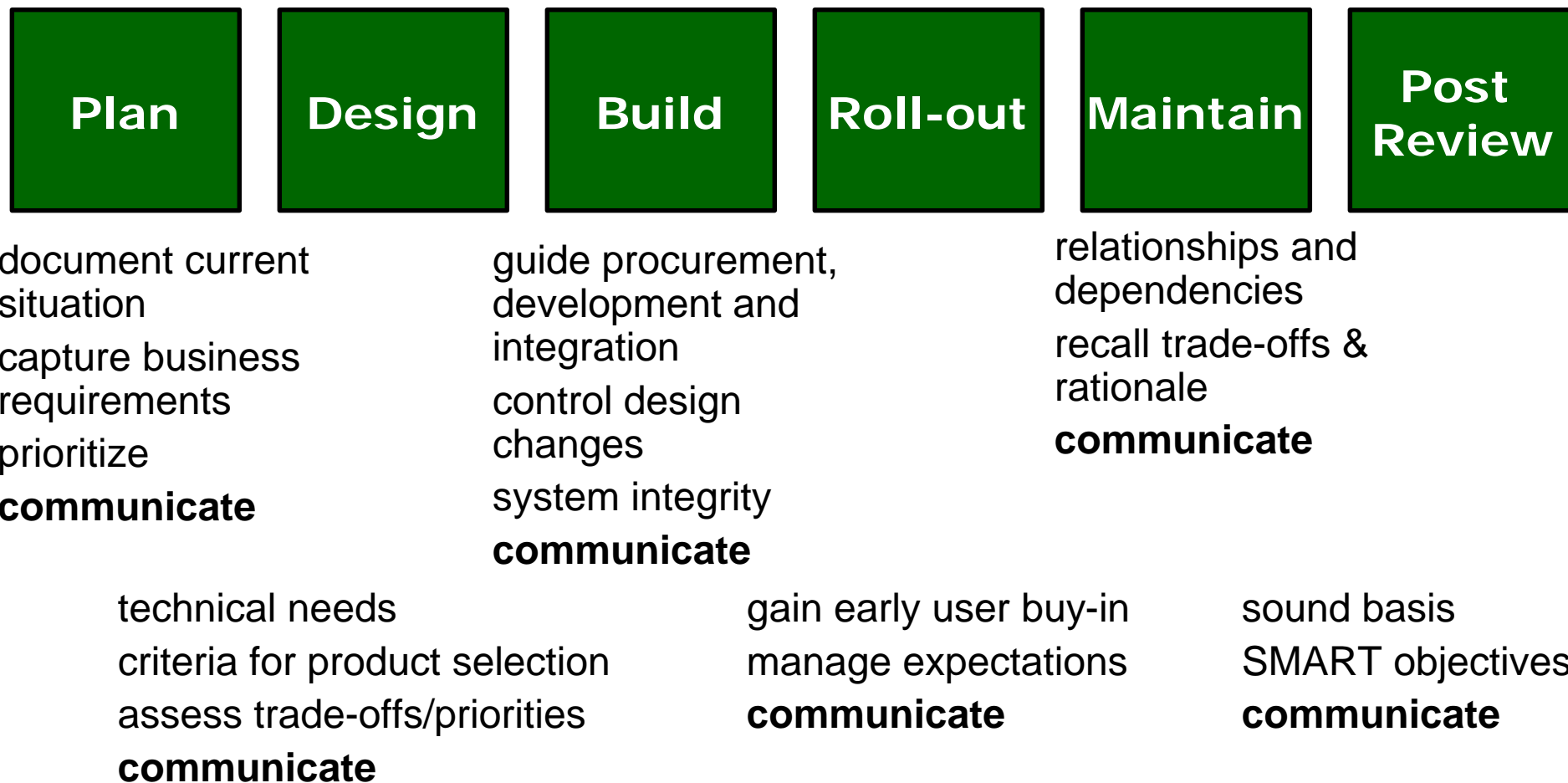
- ❑ Infrastructural
 - Organization of the interconnecting and underlying facilities
- ❑ Structural
 - System growth is limited by the “strength” or scalability of its structure
- ❑ **Architectural**
 - **Differently architected technologies often don’t “fit” with each other**
- ❑ Semantic
 - Different ways of representing the same thing

The role of architecture

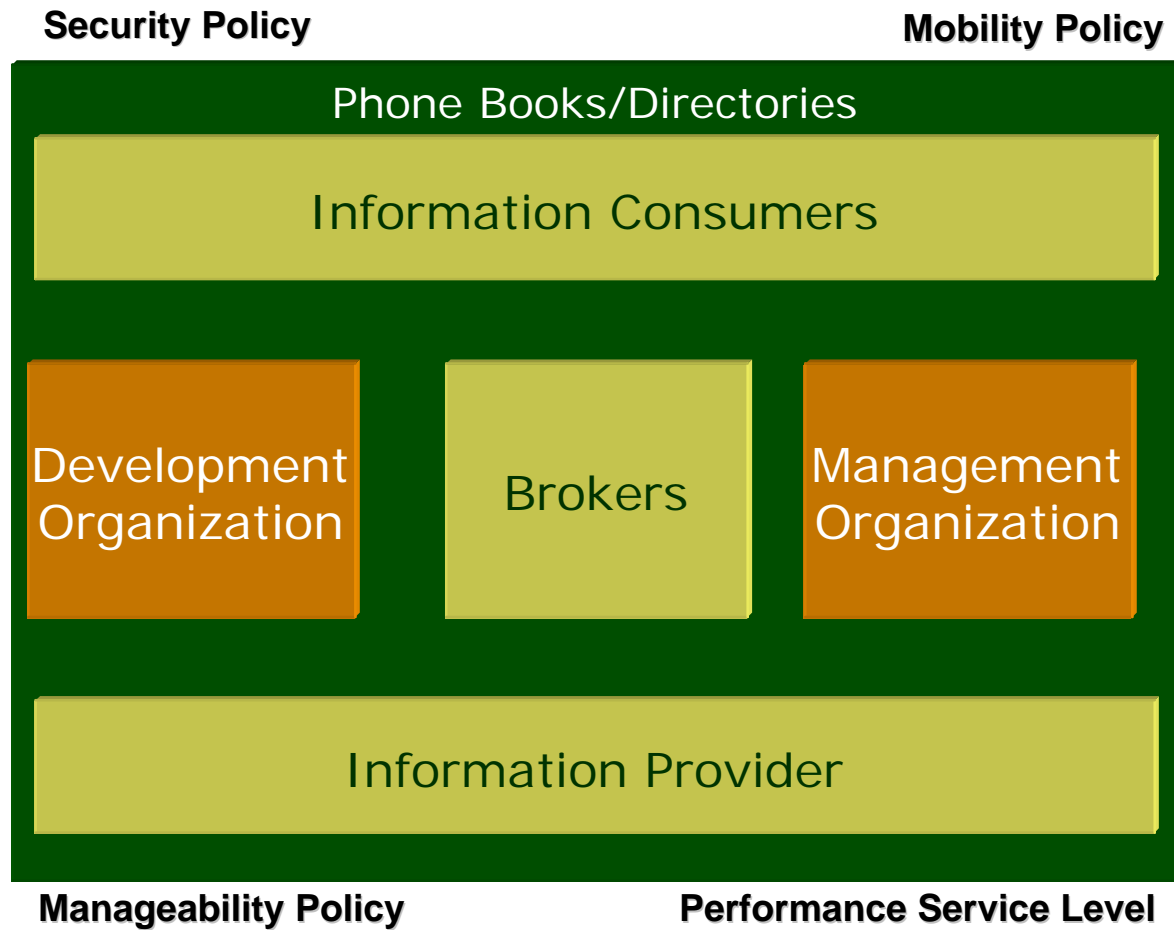
- ❑ “Architecture is fast becoming one of the main instruments for improving Business IT Alignment.”
- ❑ “It is time to broaden our view and build systems that last and that keep delivering value to the business. Business and IT Architecture play a pivotal role in achieving this goal..”

Raymond Slot M.Sc, MBA, Principal Consultant and Enterprise Architect
for Cap Gemini Ernst & Young

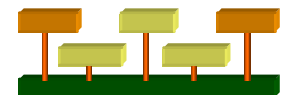
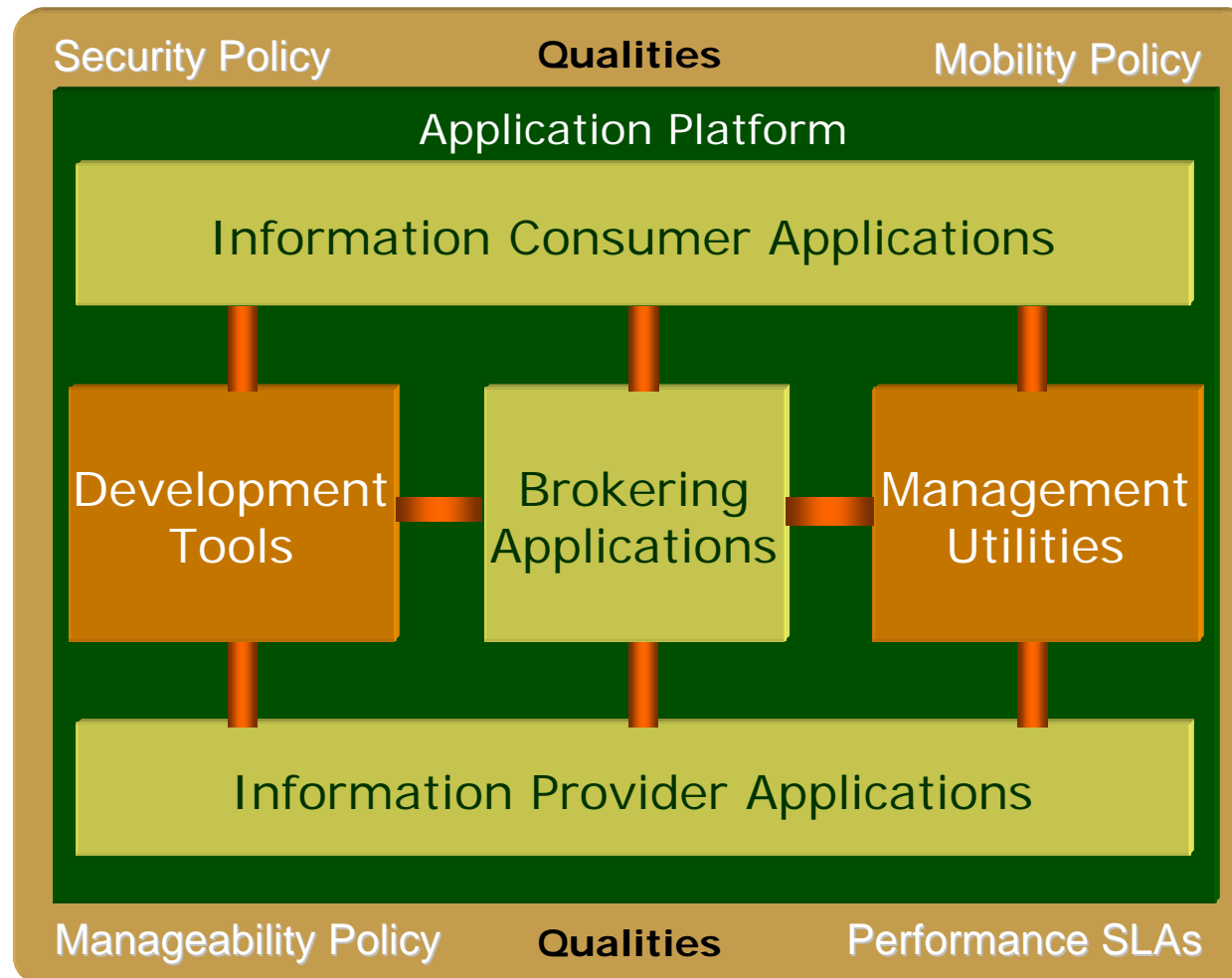
Architecture role in the life-cycle



Boundaryless Information Flow - Business Taxonomy



Boundaryless Information Flow - Technical Taxonomy

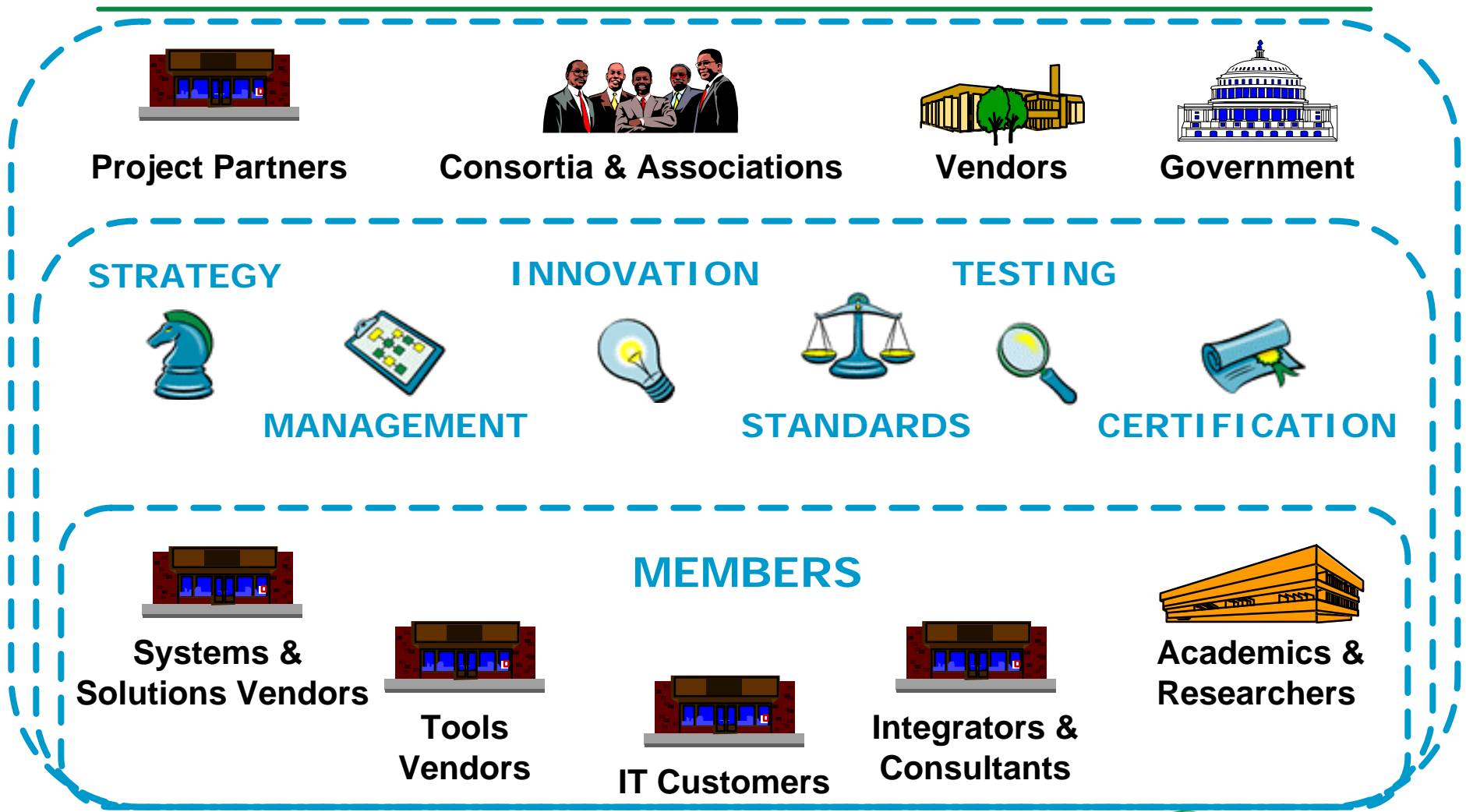


Classes of Interfaces - formats and protocols ...

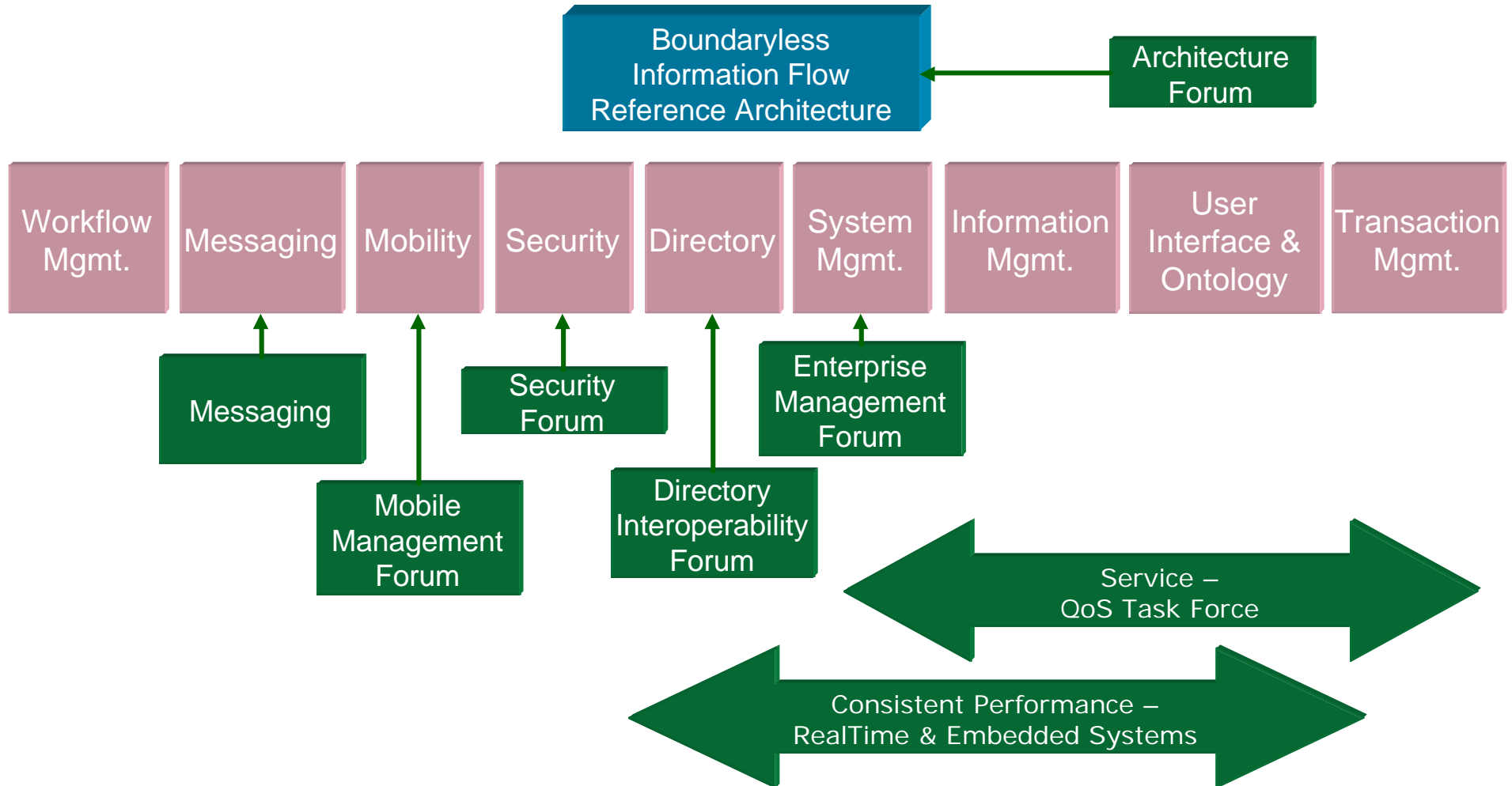
A Level 2 Model



The Open Group Environment



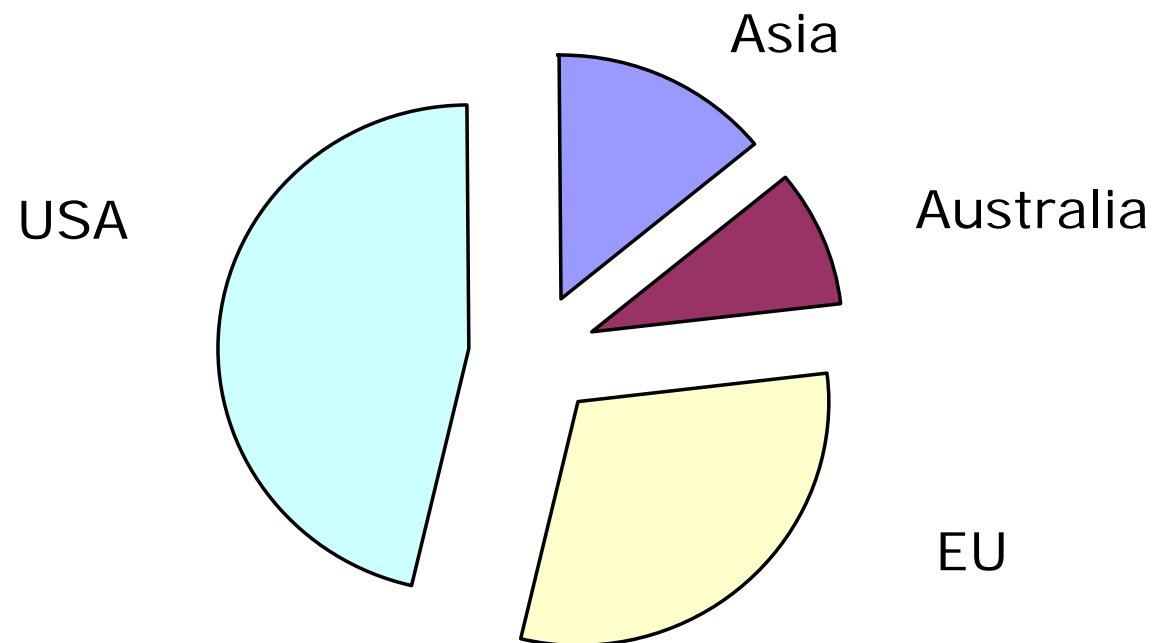
Member work areas



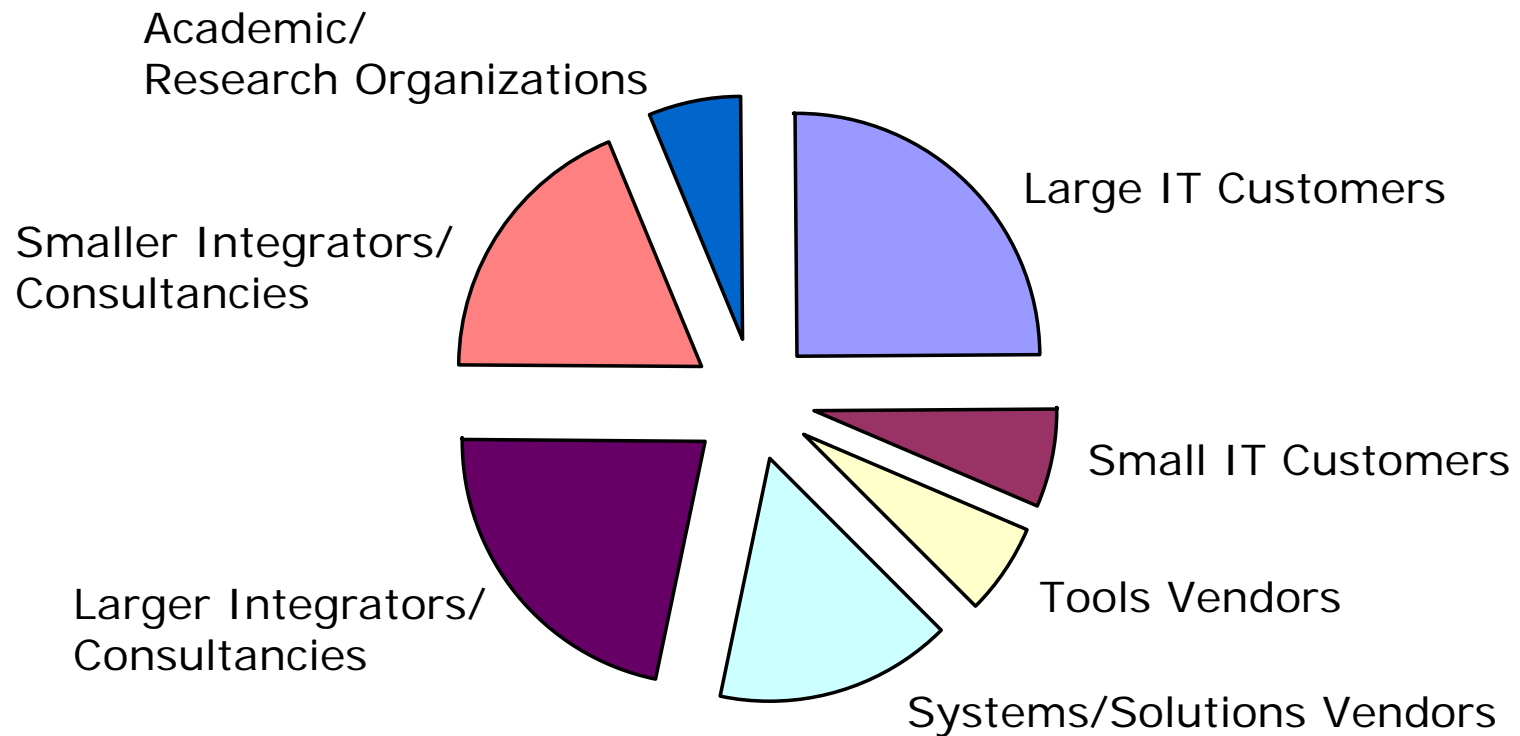
Architecture forum membership

Architecting-the Enterprise Limited (UK)	Hewlett-Packard (US)	POSC (US)
BMC Software Inc. (US)	Hitachi (Japan)	Predictive Systems AG (Ger)
Booz Allen & Hamilton (US)	IBM (US)	Primeur (Italy)
Boeing Corporation (US)	Innenministerium NordRhein-Westfalen (Ger)	ReGIS (Japan)
Brandeis University (US)	Jet Propulsion Labs (US)	QA Consulting (UK)
C and C Technology (UK)	Lockheed Martin (US)	SCO (US)
Capital Health Authority (Canada)	MEGA International (Fra)	Sun Microsystems (US)
CC and C Solutions ((Australia)	Ministry of Defence (UK)	Teamcall (Bel)
Centre For Open Systems (Aus)	MITRE Corporation (US)	Telemangement Forum (US)
ChiSurf (Hong Kong)	Monash University (Australia)	Tivoli (US)
Computacenter (UK)	NASA Goddard Space Flight Center (US)	Toyota InfoTechnology Center (Japan)
Computas (Nor)	National Computerization Agency (Korea)	US Army Weapon Systems Technical Working Group (WSTAWG)
Computer Associates (US)	NATO C3 Agency (Bel)	Veriserve Corporation (US)
Conclusive Logic (US)	NEC (Japan)	Westpac Banking Corporation (Australia)
Department of Defense / DISA (US)	NEMMCO (Australia)	TRON Association (Japan)
Department of Works and Pensions (UK)	NeTraverse, Inc. (US)	University of Plymouth (UK)
Desktop Management Task Force (US)	Nexor, Inc. (US)	University of Reading (UK)
Frietuna Consultants (UK)	Open GIS Consortium, Inc. (US)	Visa International (US)
Fujitsu (Japan)	PASS Network Consulting (Ger)	Weblayers, Inc. (US)
	Popkin Software & Systems, Inc. (UK)	

Architects of The Open Group



Architects of The Open Group



Architecture Forum

- ❑ The mission of the Forum's members is to:
 - Advance the cause of IT Architecture - in order to
 - Improve the quality of information systems
 - To move IT Architecture from a cottage industry to a profession
- ❑ Original (and continuing) focus: (TOGAF)
 - Industry consensus framework and method for IT architecture
 - Tool- and technology-neutral
- ❑ Extended focus
 - Architecture Tools
 - IT Architect Certification

What is an Architectural Framework?

- ❑ Architecture design is a complex process
- ❑ An architectural framework is a tool for:
 - Designing a broad range of architectures
 - Assisting the evaluation of different architectures
 - Selecting and building the right architecture for an organization
- ❑ It embodies best practice and acknowledged wisdom
- ❑ It presents a set of services, standards, design concepts, components and configurations
- ❑ It guides the development of specific architectures

Developing an IT Architecture

- ❑ It is not possible for you to specify a single, universal architecture suitable for:
 - All purposes
 - At all times
- ❑ An architecture must be suited to its specific business purpose
- ❑ That purpose may change with time

What is an Architectural Framework?

- Use of a framework leads to:
 - The use of common principles, assumptions and terminology
 - The development of information systems with better integration and interoperability, especially with respect to issues that affect the whole enterprise

- **WARNING!**
 - A framework does not make architectural design an automatic process
 - It is a valuable aid to experienced and knowledgeable IT Architects

Examples of Architectural Frameworks

- ❑ Zachman Framework
- ❑ DoD Architecture Framework – DoDAF
- ❑ Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance – C4ISR
- ❑ Federal Enterprise Architecture Framework - FEAF
- ❑ Treasury Enterprise Architecture Framework - TEAF

These frameworks are all complementary to The Open Group Architecture Framework - TOGAF

TOGAF can be used in conjunction with these frameworks

What is TOGAF?

- ❑ An architectural framework, not an architecture
- ❑ Vendor-neutral – developed by user consensus
- ❑ It covers development of four types of architecture:

- Business architecture
- Data or information architecture
- Application architecture
- Technology architecture

**TOGAF 8
Enterprise Edition**

TOGAF 7 Technical Edition

- ❑ All these are related

TOGAF - Certification

- ❑ TOGAF 7 is the vendor-neutral, global basis of Certification to impose standards within our profession



Architecture tools which support TOGAF 7



Training courses which instruct in TOGAF 7

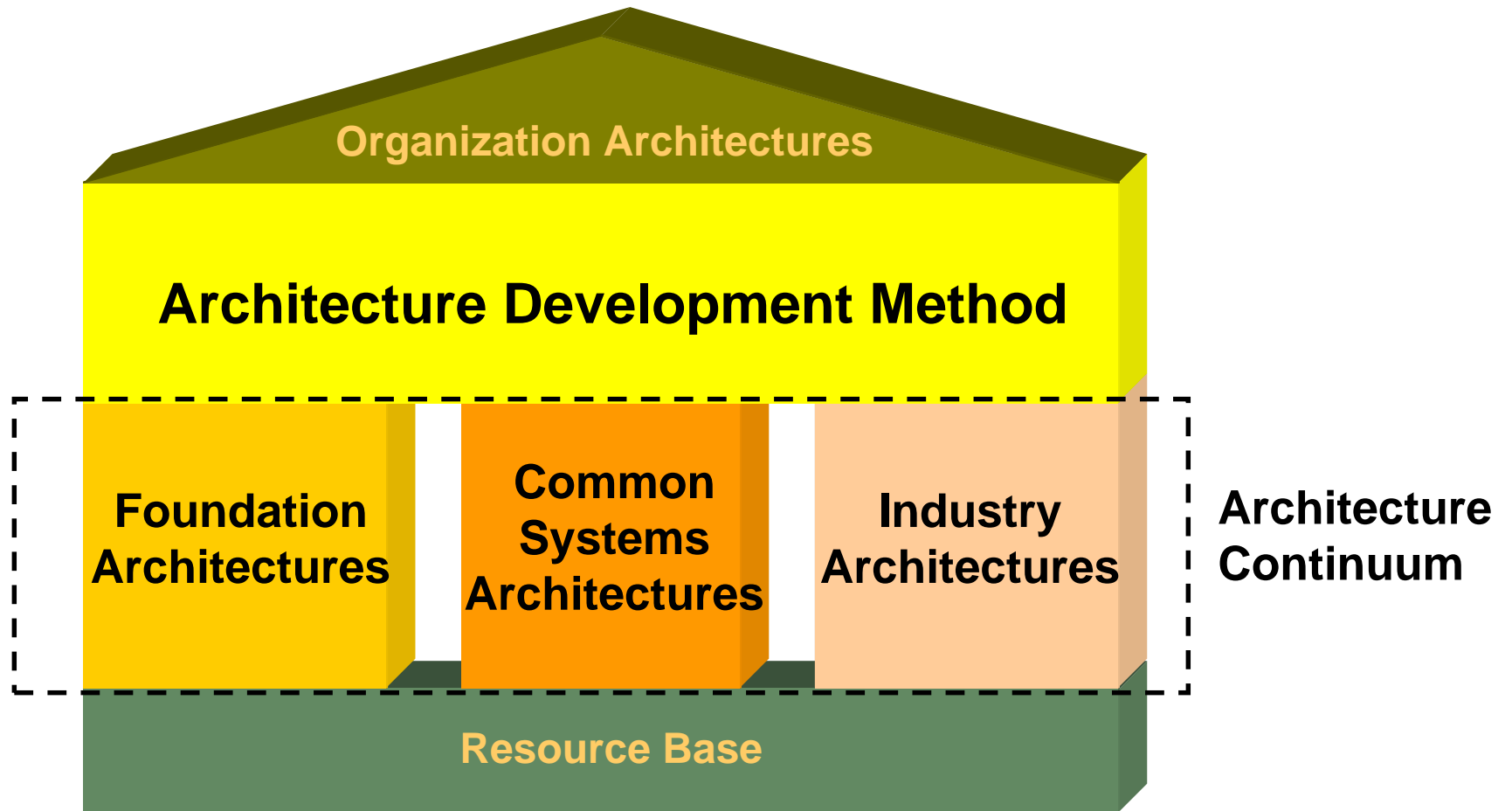


Architects trained in the use of TOGAF 7



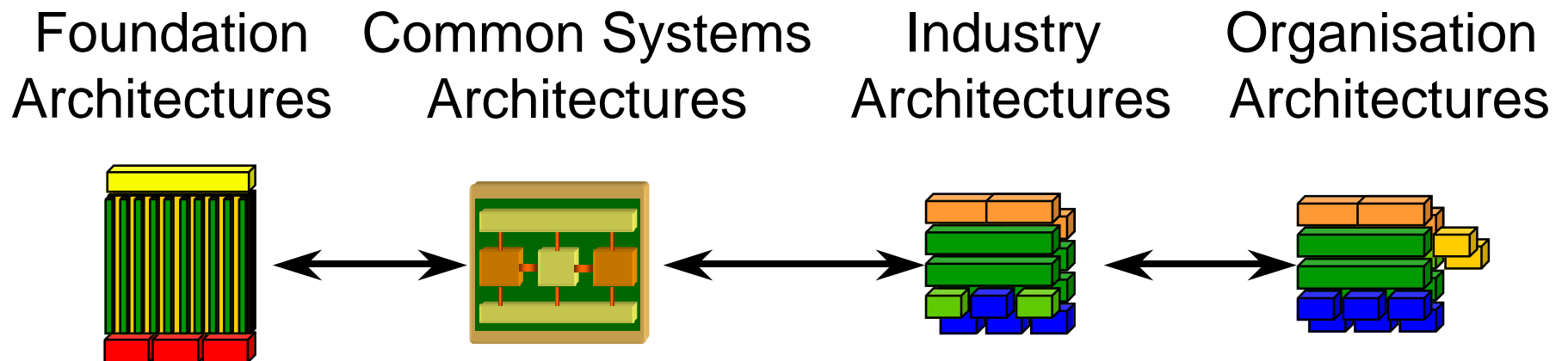
Professional services offered to support TOGAF 7

TOGAF 8



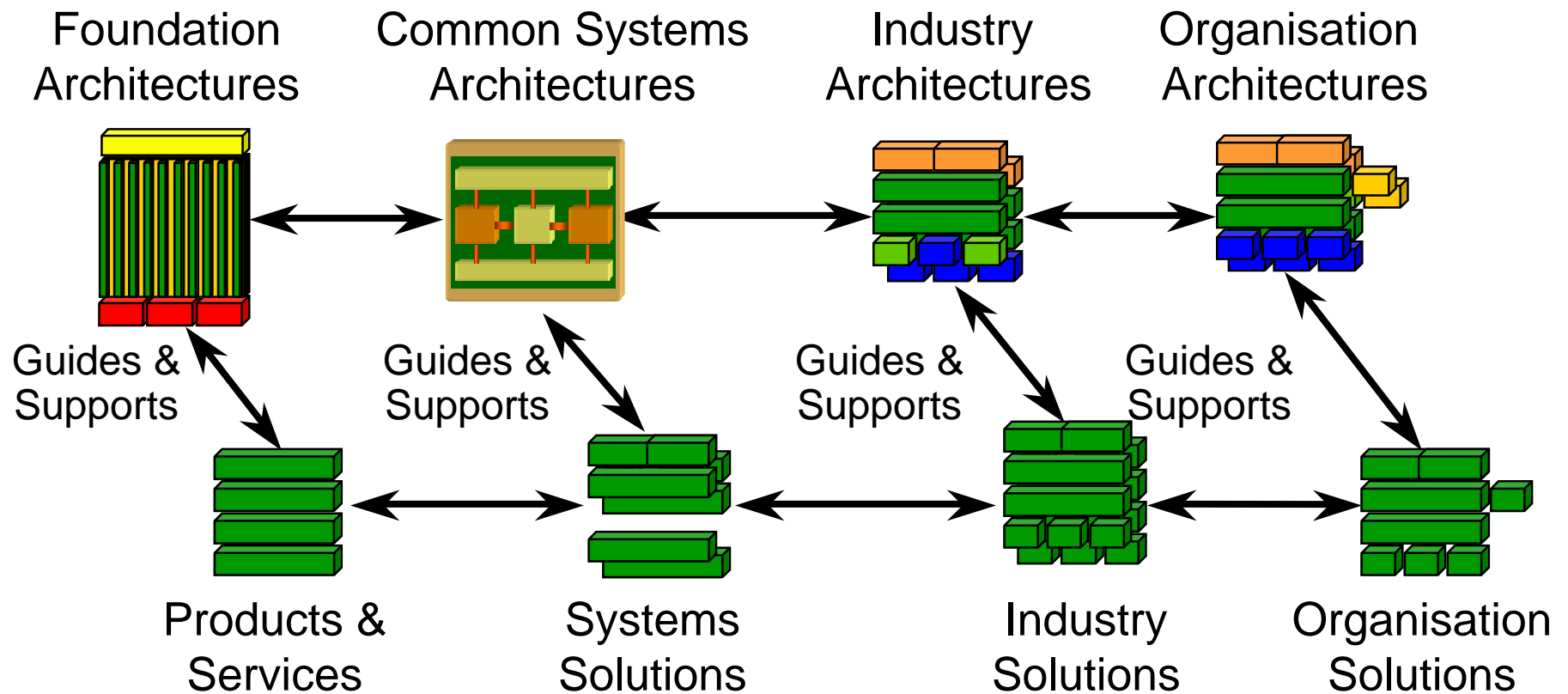
Architecture Continuum

- Progressing toward your organizations enterprise architecture



The Enterprise Continuum

Architecture Continuum



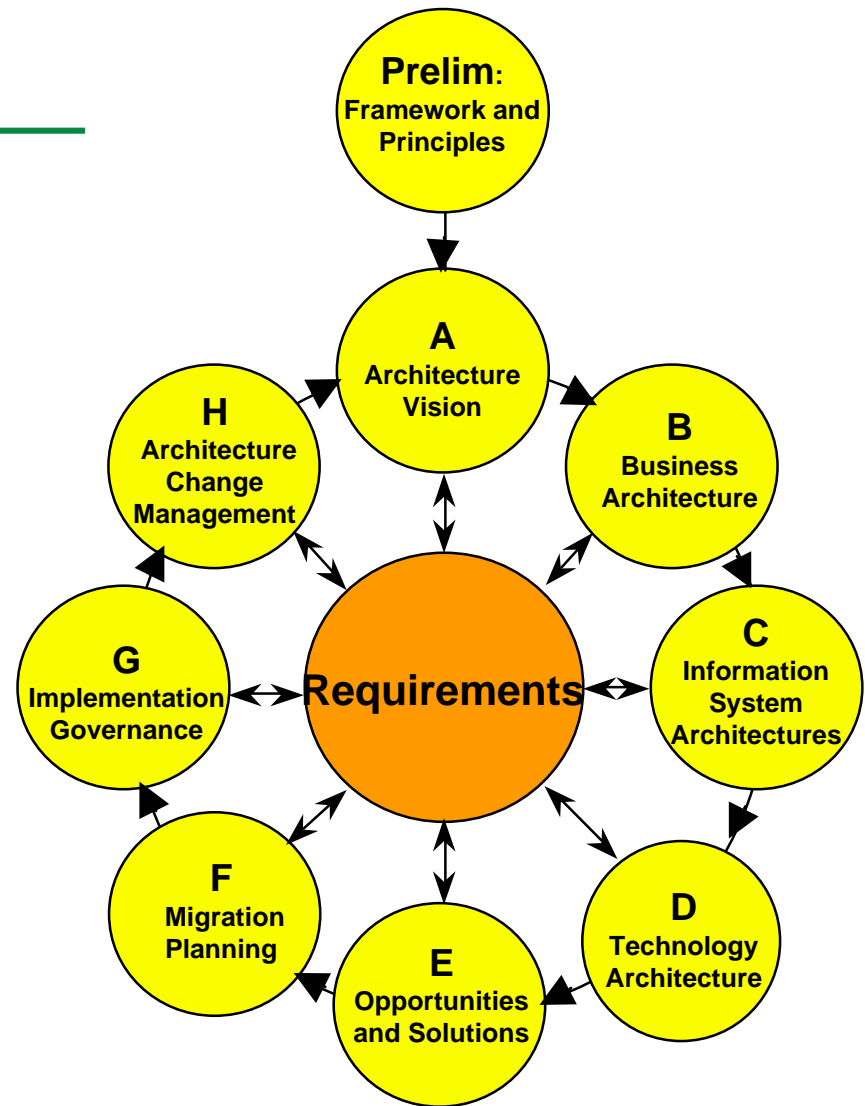
Solutions Continuum

Introduction to the TOGAF ADM

- ❑ Guides an architect on how to:
 - Use reference models
 - Build an architecture or set of architectures
- ❑ Adaptable to specific needs of a project
- ❑ Iterative process - converges on an architecture responsive to the needs of the business
- ❑ Enables the derived architecture to be frequently validated against the original motivation

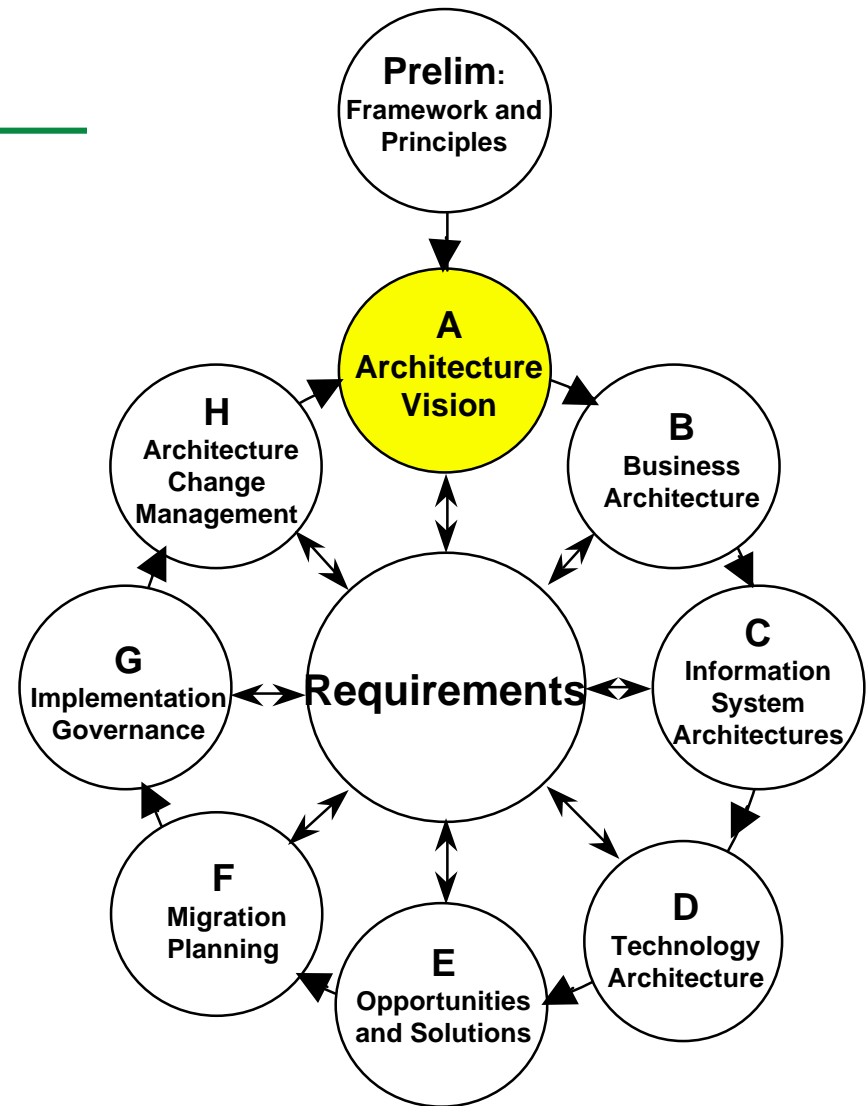
TOGAF 8 ADM

- ❑ Follow the phases of the ADM
- ❑ Results in
 - an organization-specific architecture
 - more reusable building block assets in the Architecture Continuum
- ❑ Each iteration becomes easier and has more reusable building blocks to use



The TOGAF ADM - Architecture Vision

- ❑ Use Business Scenarios
- ❑ Understand how scenarios map to IT
- ❑ Define relevant business requirements
- ❑ Build consensus with business partners
- ❑ Plan and get commitment to IT Governance



Business Scenarios

- ❑ A complete description of the business problem in business and architectural terms
- ❑ It ensures:
 - The architecture is based on a complete set of requirements
 - The business value of solving the problem is clear
 - The relevance of potential solutions is clear
- ❑ Aids the buy-in by business stakeholders
- ❑ Clarifies communication with vendors
- ❑ Needs to be SMART

A SMART Business Scenario

- ❑ **S**pecific - defines what needs to be done in the business
- ❑ **M**easurable - clear metrics for success
- ❑ **A**ctionable - it clearly segments the problem and provides the basis for determining elements and plans for the solution
- ❑ **R**ealistic - the problem can be solved within the bounds of physical reality, time and cost constraints
- ❑ **T**ime-bound - there is a clear understanding of when the solution opportunity expires

Contents of a Business Scenario

- ❑ Business Scenario problem description
 - Purpose of the Business Scenario
- ❑ Detailed objectives
- ❑ Environment and process models
 - Process description
 - Process steps mapped to environment
 - Process steps mapped to people
 - Information flow

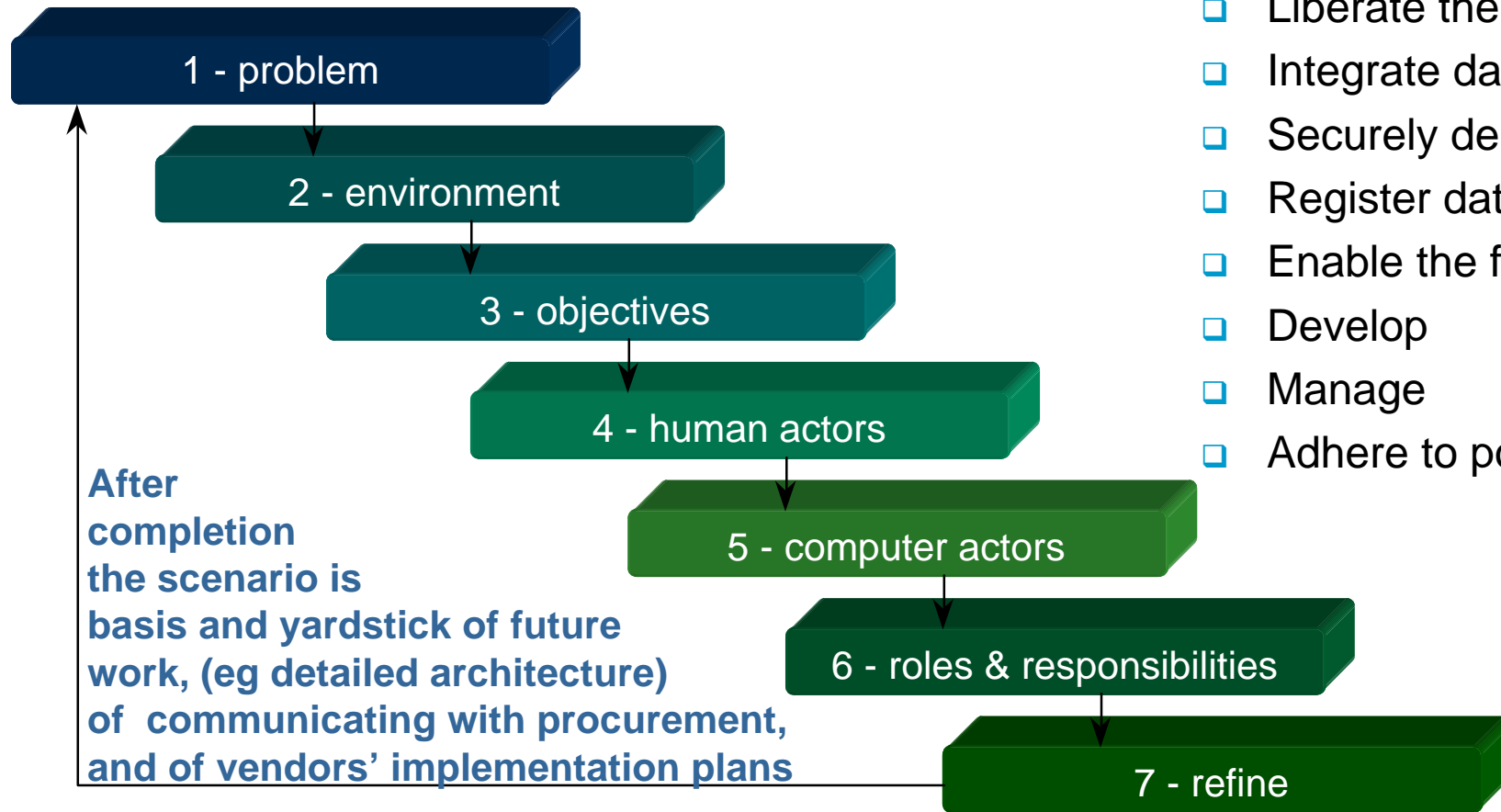
Contents of a Business Scenario

- Actors and their roles and responsibilities
 - Human actors and roles
 - Computer actors and roles
 - Requirements
- Resulting technology architecture model
 - Constraints
 - IT principles
 - Technology architecture supporting the process
 - Requirements mapped to technology architecture

Phases used in a Business Scenario development

- ❑ Gather information
 - Workshops are a great way to gather information through questions
 - Additional information such as strategies, plans, facts are solicited
- ❑ Analyze and process information
 - Information is usually processed offline
 - Use a small team, your architects
- ❑ Document information
 - Create models of your findings, both business and technical views
 - Augment models with detailed documentation
- ❑ Review
 - Vet the models and documentation back to suppliers
 - Have a controlled review, allocate specific review sections to specific reviewers
 - Only a few reviewers needed to review the complete Business Scenario

How? TOGAF Business Scenario Method



After completion the scenario is basis and yardstick of future work, (eg detailed architecture) of communicating with procurement, and of vendors' implementation plans

Boundaryless

- ❑ Liberate the data
- ❑ Integrate data
- ❑ Securely deliver data
- ❑ Register data
- ❑ Enable the flow of data
- ❑ Develop
- ❑ Manage
- ❑ Adhere to policies

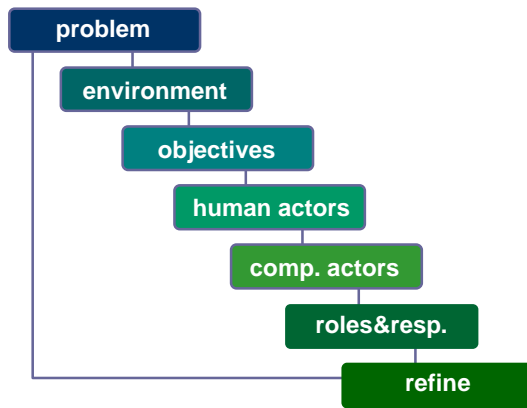
A complete picture



Priorities



Trade-offs



Management Support



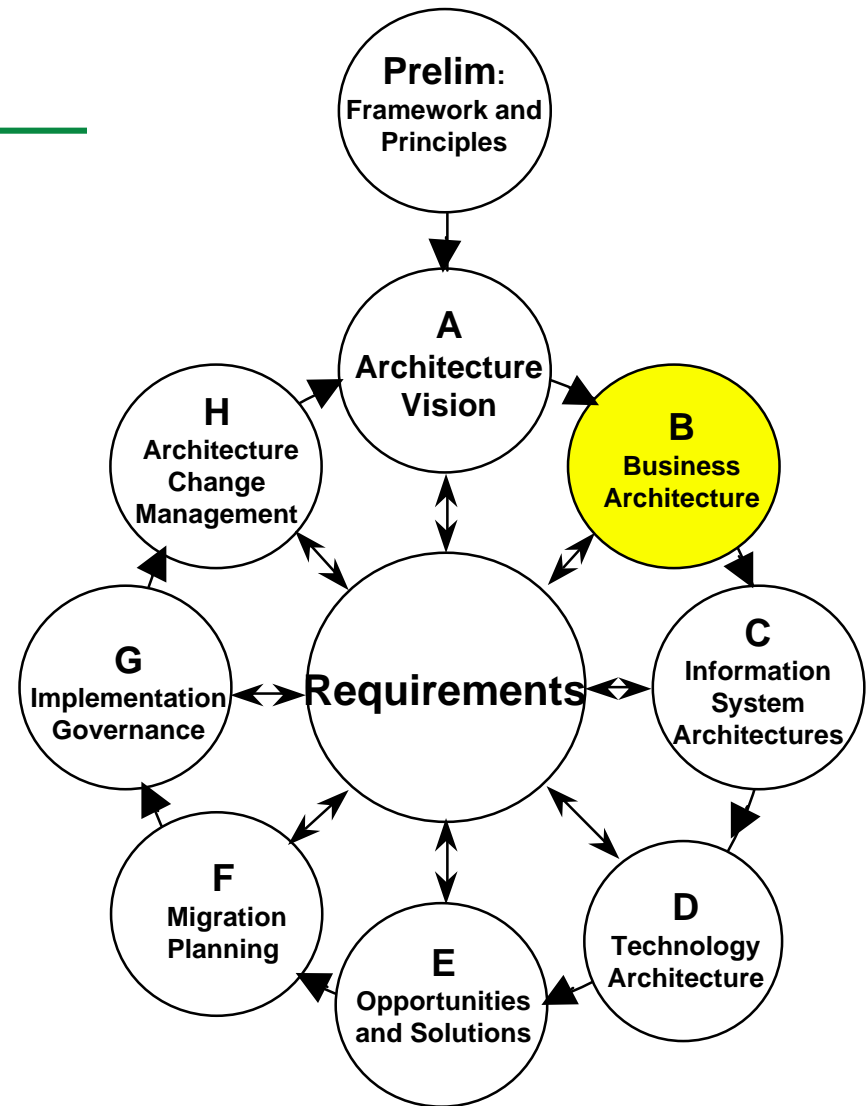
Stakeholder Buy-in



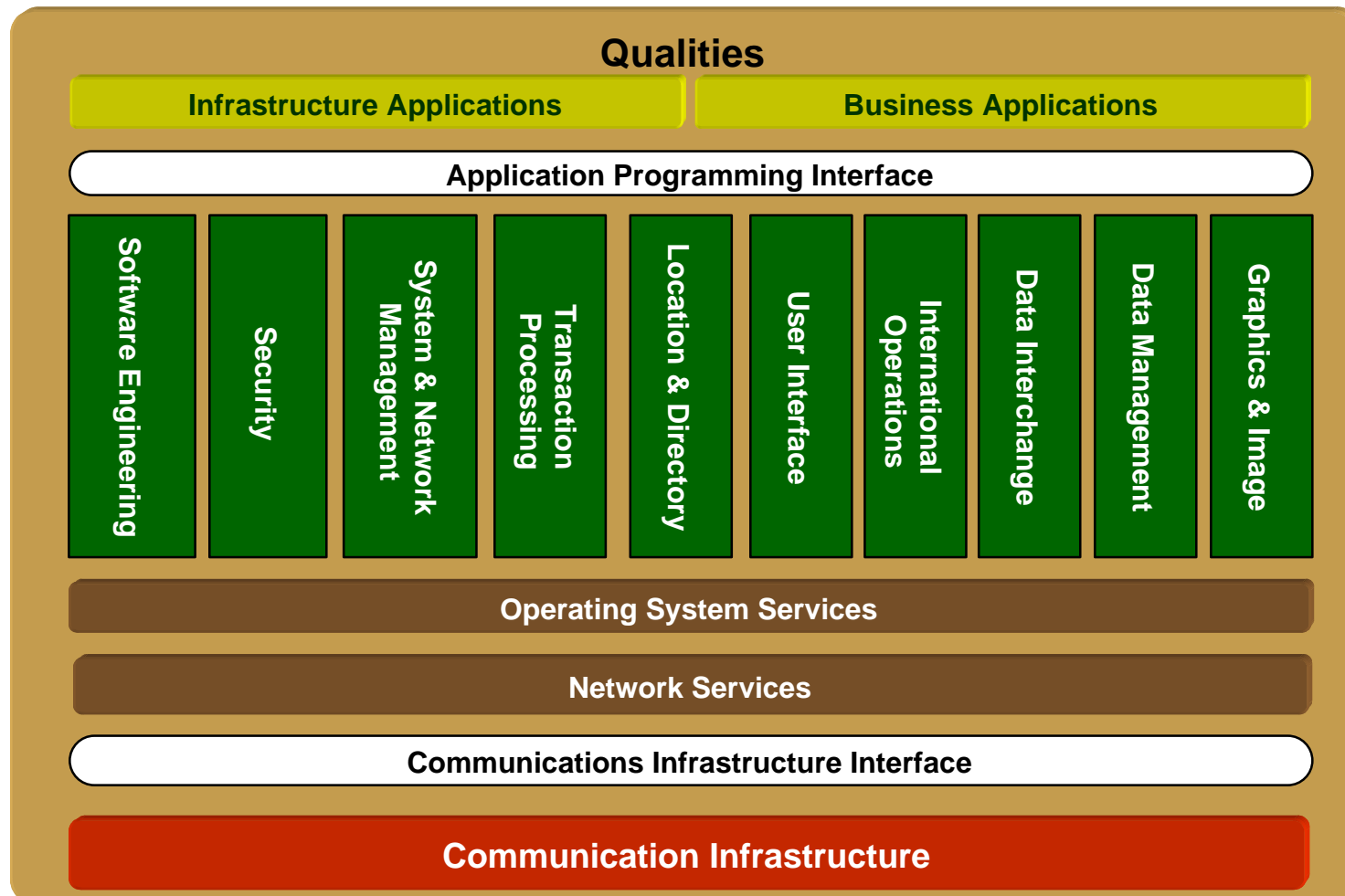
Vendor Understanding

The TOGAF ADM - Business Architecture

- ❑ Create business baseline
- ❑ Inventory of re-usable IT building blocks
- ❑ Create target business architecture
 - Business View
 - Functional view
 - Platforms in place
 - Complete yet fit for purpose
- ❑ Conduct gap analysis
- ❑ Multiple views



TRM of Services and Qualities



What's in a TRM?

Operating System Services

Operating system services are responsible for the management of platform resources, including the processor, memory, files, and input and output. They generally shield applications from the implementation details of the machine. Operating system services include:

- **Kernel operations** provide low-level services necessary to:

- create and manage processes and threads of execution
- execute programs
- define and communicate asynchronous events

- ...

- **Command interpreter and utility services** include mechanisms for services at the operator level, such as:

- comparing, printing, and displaying file contents
- editing files
- searching patterns
- evaluating expressions

-

- **Batch processing** services support the capability to queue work (jobs) and manage the sequencing of processing based on job control commands and lists of data. These services also include support for the management of the output of batch processing, which frequently includes updated files or databases and information products such as printed reports or electronic documents. Batch processing is performed asynchronously from the user requesting the job.

- **File and directory synchronization** services allow local and remote copies of files and directories to be made identical. Synchronization services are usually used to update files after periods of off line working on a portable system.

Operating System Services

Communication Infrastructure

ons

Data Management

Graphics & Image

Standards Information Base (SIB)

- ❑ A database of open industry standards with links to conformant products
- ❑ Publicly available
 - At <http://www.opengroup.org/sib>
 - With user guide
 - Search or full listing
- ❑ Can be used to:
 - Define particular services
 - Define properties of components
 - Be the basis of procurement procedures
- ❑ Keeps the architecture up to date with the latest IT industry consensus

What architects have said about TOGAF

- Shared best practice
 - Cuts up-front costs - eliminates re-invention of wheel
 - Corporate memory of previous successes and failures
 - Access to accumulated best practice wisdom
- Comprehensive
 - Business requirements to solutions
 - Facilitates team communication
 - Refined and honed checklists at all levels
- An open professional approach developed by professionals
 - The result of 8 years of global development
 - Vendor and technology neutral

Next steps

- ❑ Download the TOGAF documentation
 - <http://www.opengroup.org/architecture/togaf7/index7.htm>
 - <http://www.opengroup.org/architecture/togaf8/index8.htm>
- ❑ Use Business Scenarios
 - The Interoperable Enterprise
 - The Executive on the Move
 - Identity Management
- ❑ Run your own a 1 day Business Scenario workshop with your stakeholders

Summary

- ❑ Boundaryless Information Flow is critical in today's business environment
- ❑ Good professional architecture is a key enabler of Boundaryless Information Flow
- ❑ TOGAF is an enabler of good professional architecture and is free for own use
- ❑ Business Scenarios give a complete picture of the requirements
- ❑ The Architecture Development Method provides a rigorous process and can be used with other frameworks

Final thoughts

- ❑ Senior management buy-in is critical
- ❑ TOGAF can be used to communicate with senior management about solving their Boundaryless Information Flow problem
- ❑ Try it!

Contact Information

- Thank you very much



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