Presentation to: Architecture Practitioners' Conference

Title: ***Integrating EA into the Full Information Systems Life Cycle***

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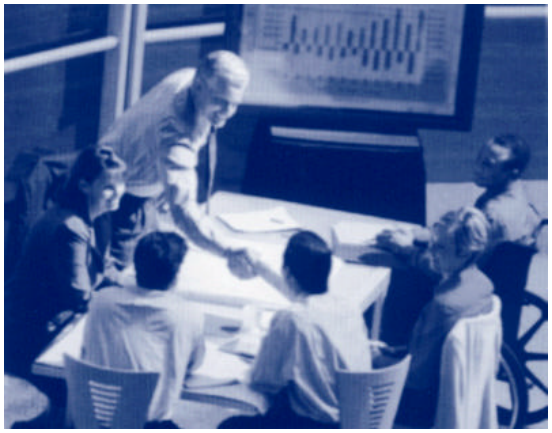
Agenda

- *Introduction*
- *The Role of Enterprise Architecture*
  - *Some of the Problems*
  - *Making The Change*
- *A Suggested Life Cycle Approach*



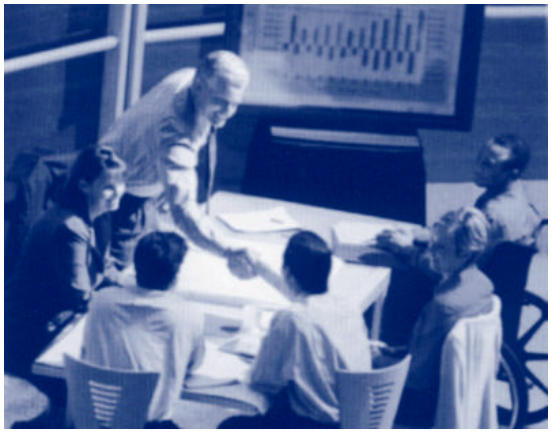
Introduction

LESSONS LEARNED FROM

- Multiple Client Engagements
- Exhibit 300 (Federal Government Business Case) Support
- International Best Practices
- Development of the TAFIM

WHAT'S THE PROBLEM?

- Too Many Definitions for Enterprise Architecture
- Too Much Focus on The Framework
- Inconsistent Goals for What an Enterprise Architecture is Supposed to Do
- Not Focusing on a Measurable End Outcome



Definitions

WHAT IS AN ENTERPRISE ARCHITECTURE?

» An IT architecture* provides a strategic context for the evolution of Information Technology within the enterprise, in response to the constantly changing needs of the business environment.

» An effective IT architecture also enables managed innovation within the enterprise, by enabling the right balance to be achieved between IT efficiency and business innovation. Individual business units can innovate safely in their pursuit of competitive advantage. At the same time, the needs of the organization for an integrated IT strategy are assured, permitting the closest possible synergy across the extended enterprise.

*According to the TOGAF

Legal Definition of an Information Technology Architecture**

The term "Information Technology Architecture"

means an integrated framework for evolving or maintaining existing information technology and

acquiring new information technology

to achieve the agency's strategic goals

and information resources management goals.

**Source: National Defense Authorization Act for Fiscal Year 1996

ANOTHER VIEW OF ARCHITECTURE*

The disciplined definition of the IT infrastructure required by an agency to attain its objectives and achieve its vision.

It is the structure given to information, applications, organizational and technological means -- the groupings of components, their interrelationships, the principles and guidelines governing their design, and their evolution over time.

*Source: Version 2.0, DoD Technical Architecture Framework for Information Management, Volume 4: Standards-Based Architecture Planning Guide, 30 June 1994

Federal Enterprise Architecture (FEA)

The FEA is a tool that enables the Federal Government to identify opportunities to leverage technology and alleviate redundancy, or to highlight where agency overlap limits the value of IT investments. The FEA will facilitate horizontal (cross-Federal) and vertical (Federal, State, and Local Governments) integration of IT resources, and establish the "line of sight" contribution of IT to mission and program performance. The outcome will be a more citizen-centered, customer focused government that maximizes technology investments to better achieve mission outcomes.

"As with any architecture effort, the development of an FEA is an iterative and continuous process….. will be modified periodically as conditions evolve and additional agency architecture information is provided. Changes to the FEA will continue to be verified through Federal Agencies and will be published to the FEAPMO Website."

Government Accounting Office

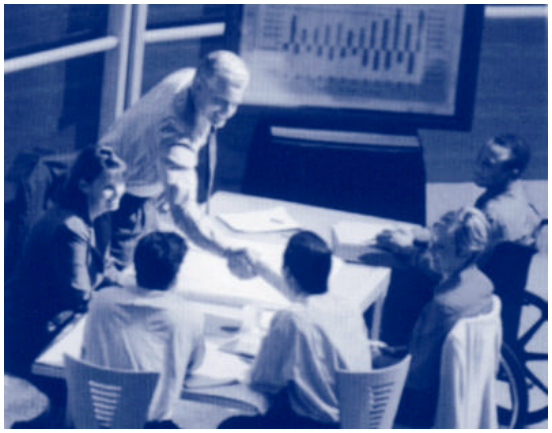
An enterprise architecture is to an organization's operations and systems as a set of blueprints is to a building. That is, building blueprints provide those who own, construct, and maintain the building with a clear and understandable picture of the building's uses, features, functions, and supporting systems, including relevant building standards. Further, the building blueprints capture the relationships among building components and govern the construction process. Enterprise architectures do nothing less, providing to people at all organizational levels an explicit, common, and meaningful structural frame of reference that allows an understanding of

- *(1) what the enterprise does;*
- *(2) when, where, how, and why it does it; and*
- *(3) what it uses to do it.*

GAO-03-584G A Framework for Assessing and Improving Enterprise Architecture Management (Version 1.1), April 2003

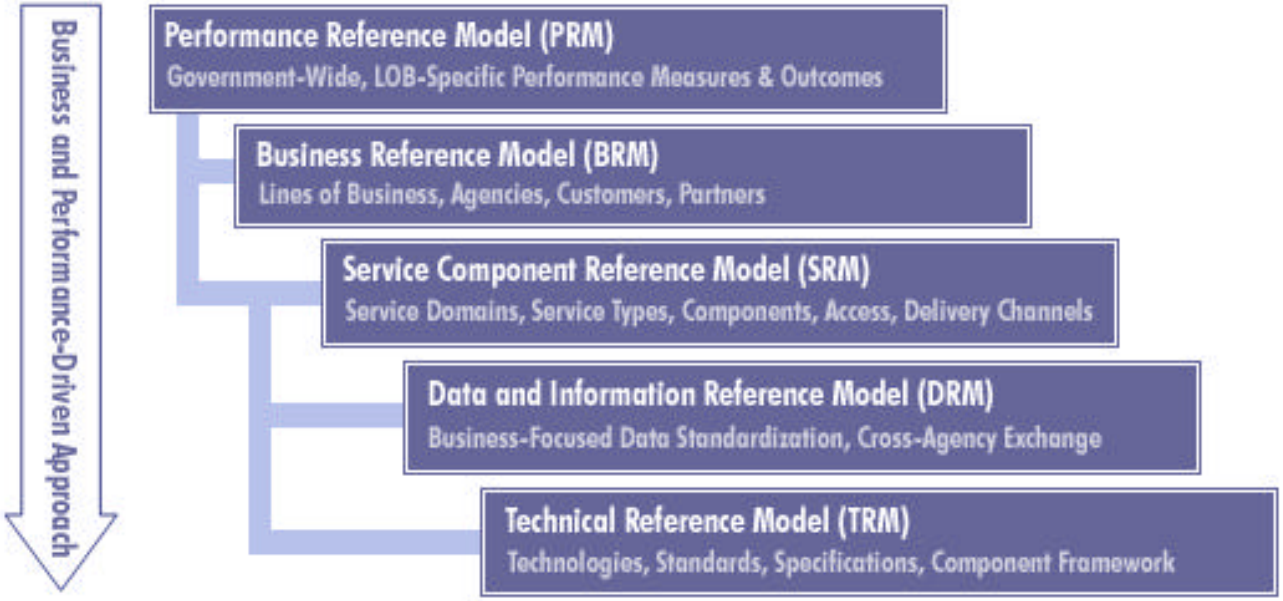
WHAT'S MISSING FROM MOST DEFINITION DISCUSSIONS?

- A Focus On The Delivery Of IT-Enabled Business Change As Opposed To Development of The Architecture
- A Strong Linkage Between What The Enterprise Architecture Promises To Provide And The Ability of The IT Organization and The IT Infrastructure to Support The Change When It Is Deployed.

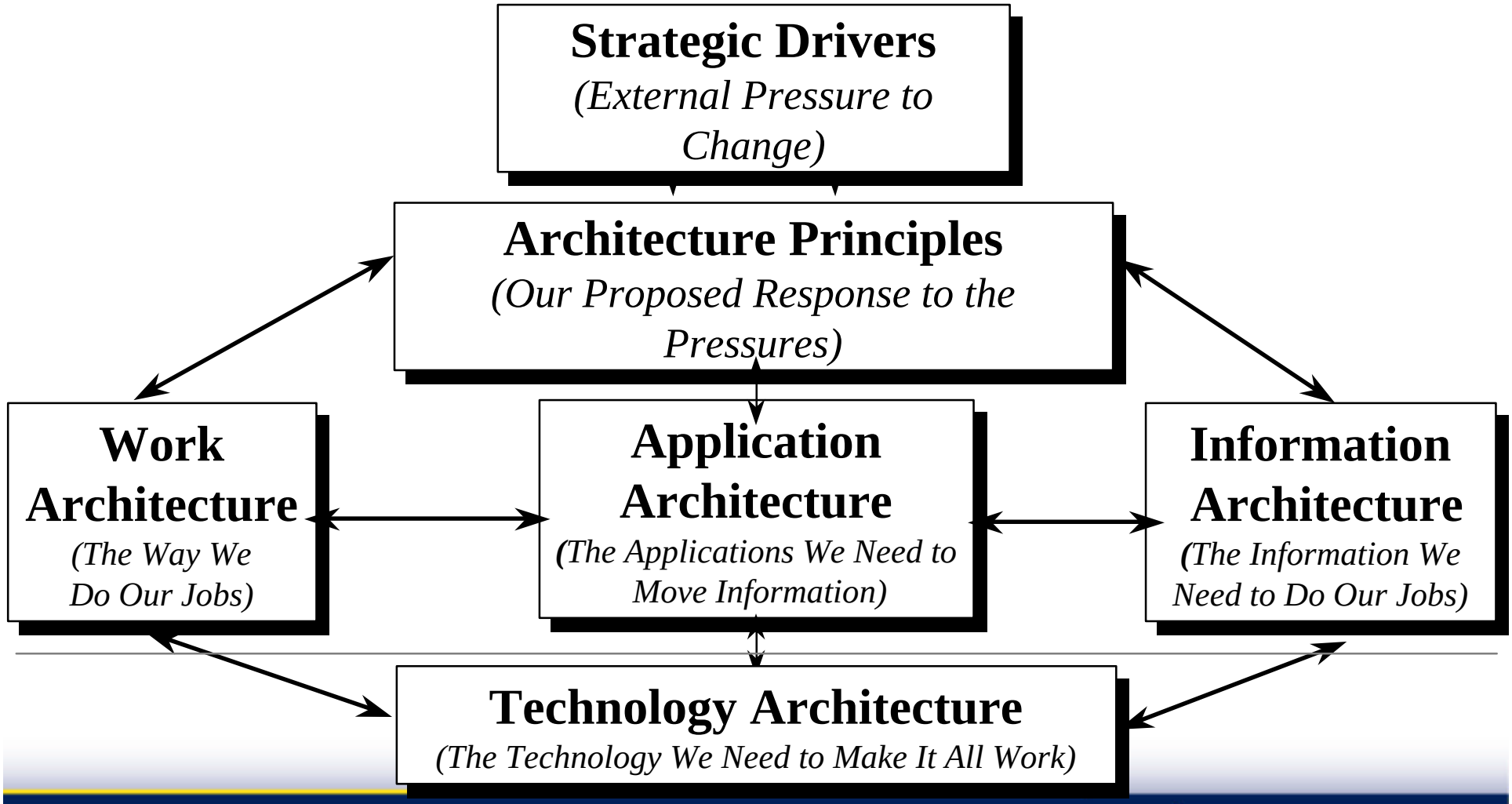


Frameworks

Reference Models

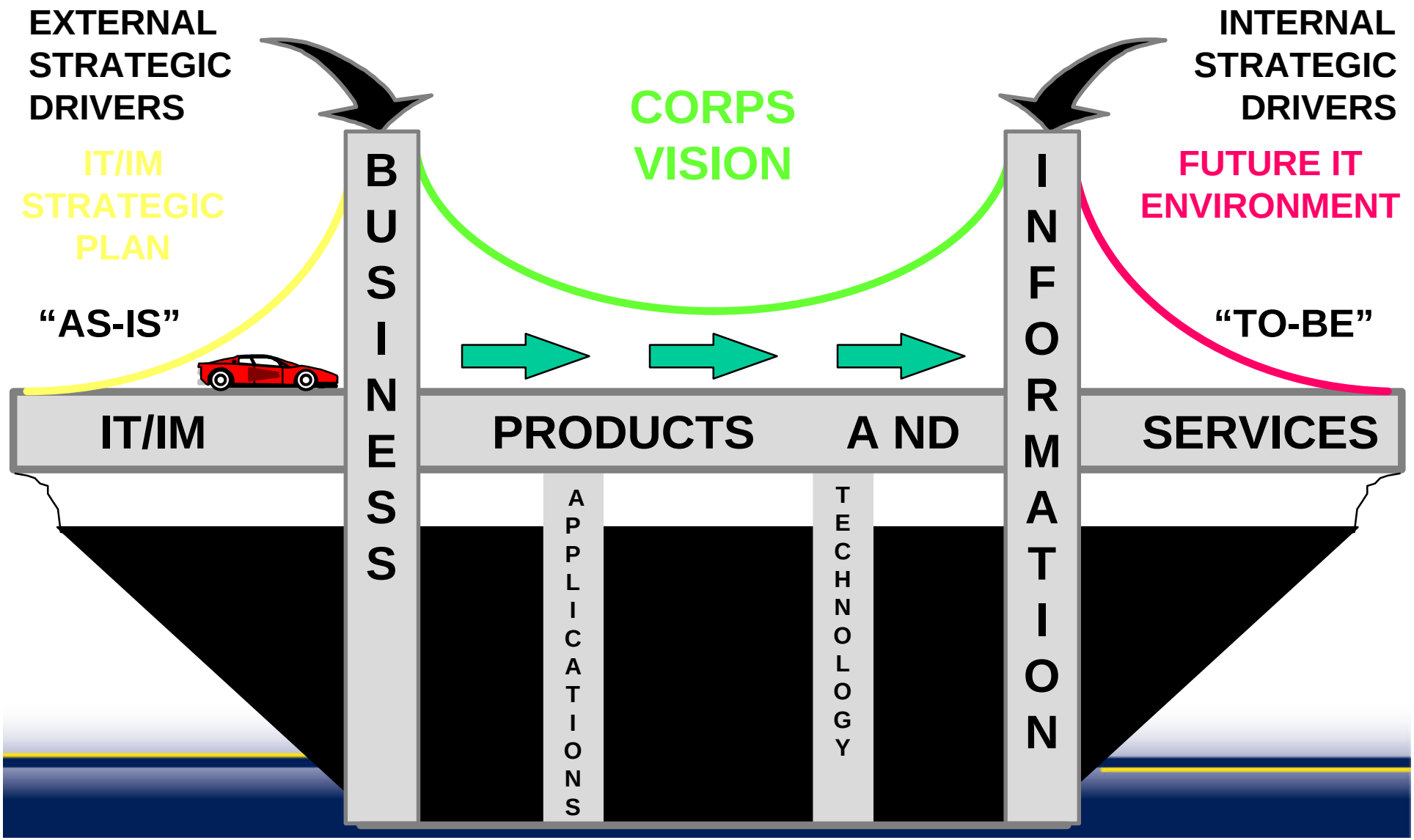


THE TAFIM FRAMEWORK*

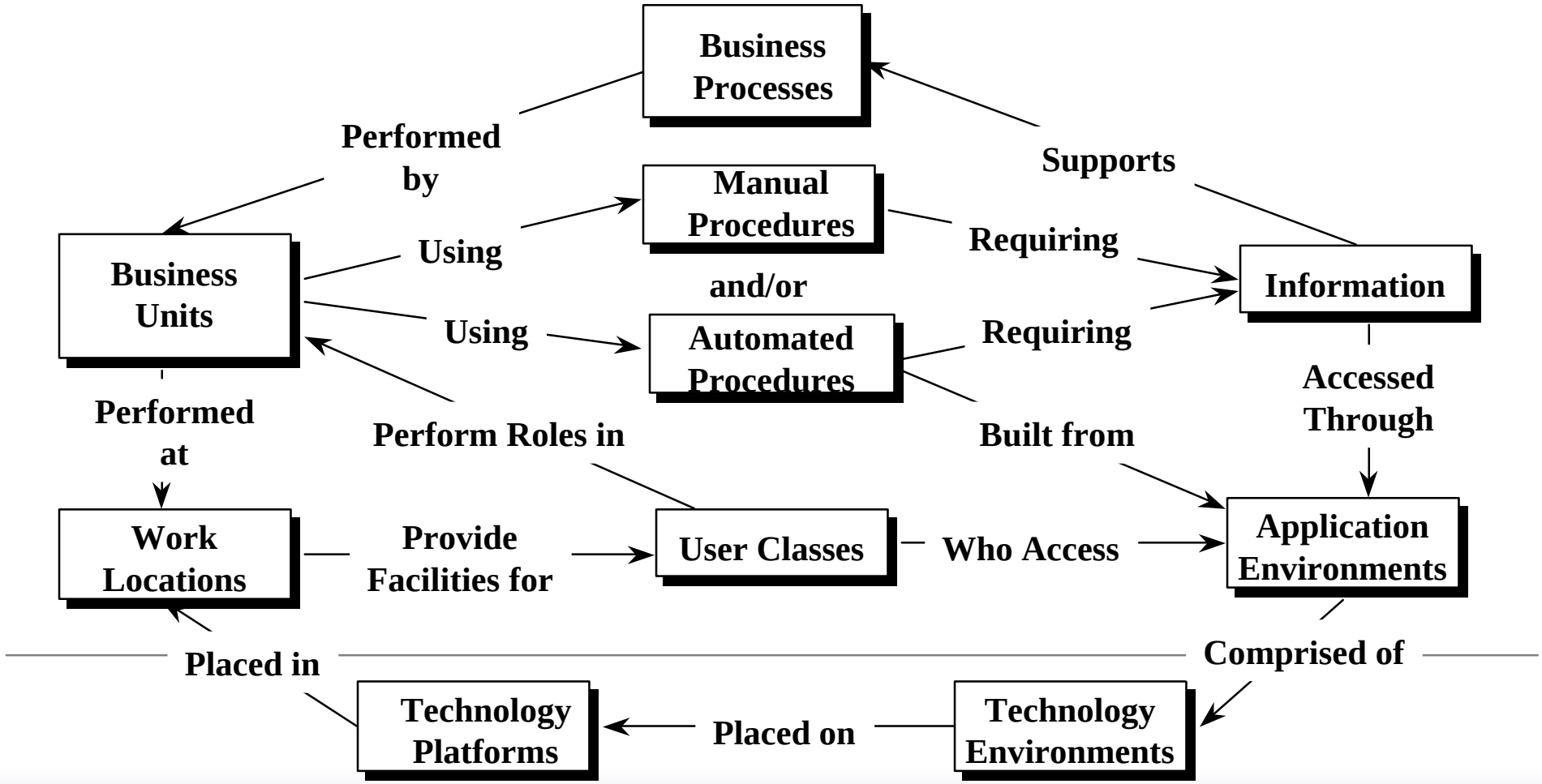


* DoD Standards-Based Architecture Planning Guide, Version 2.0, 30 June 1994

INFORMATION ARCHITECTURE FRAMEWORK



HERE'S YET ANOTHER WAY TO LOOK AT IT.



WHAT'S THE PROBLEM?

SELECTED FRAMEWORK PROBLEMS

- The Impression That A Top-Down Focus Will Work In The Real World
  - Most Fail To Some Degree
- Denying IT Infrastructure Investments Until The Enterprise Architecture is “Complete”
- Attempting To Control Or Dictate Real-World Operations Through EA Modeling Tools
  - A Model is a Representation of Reality
  - “All Models Have Flaws, Some Are Just Worse Than Others”

WHAT PEOPLE EXPECT (1)

WHAT PEOPLE EXPECT (2)

WHAT PEOPLE EXPECT (3)

Linking the Framework

Highlights

Typical Lead

Vision

IT/IM Strategic Plan

Top-Down Driven

Executives

Feedback At ALL Levels

Business Pillar

Information Pillar

Application Pillar

Functionals

Technology Insertion Essential

Technology Pillar

Technical Reference Model

Products & Services Roadbed

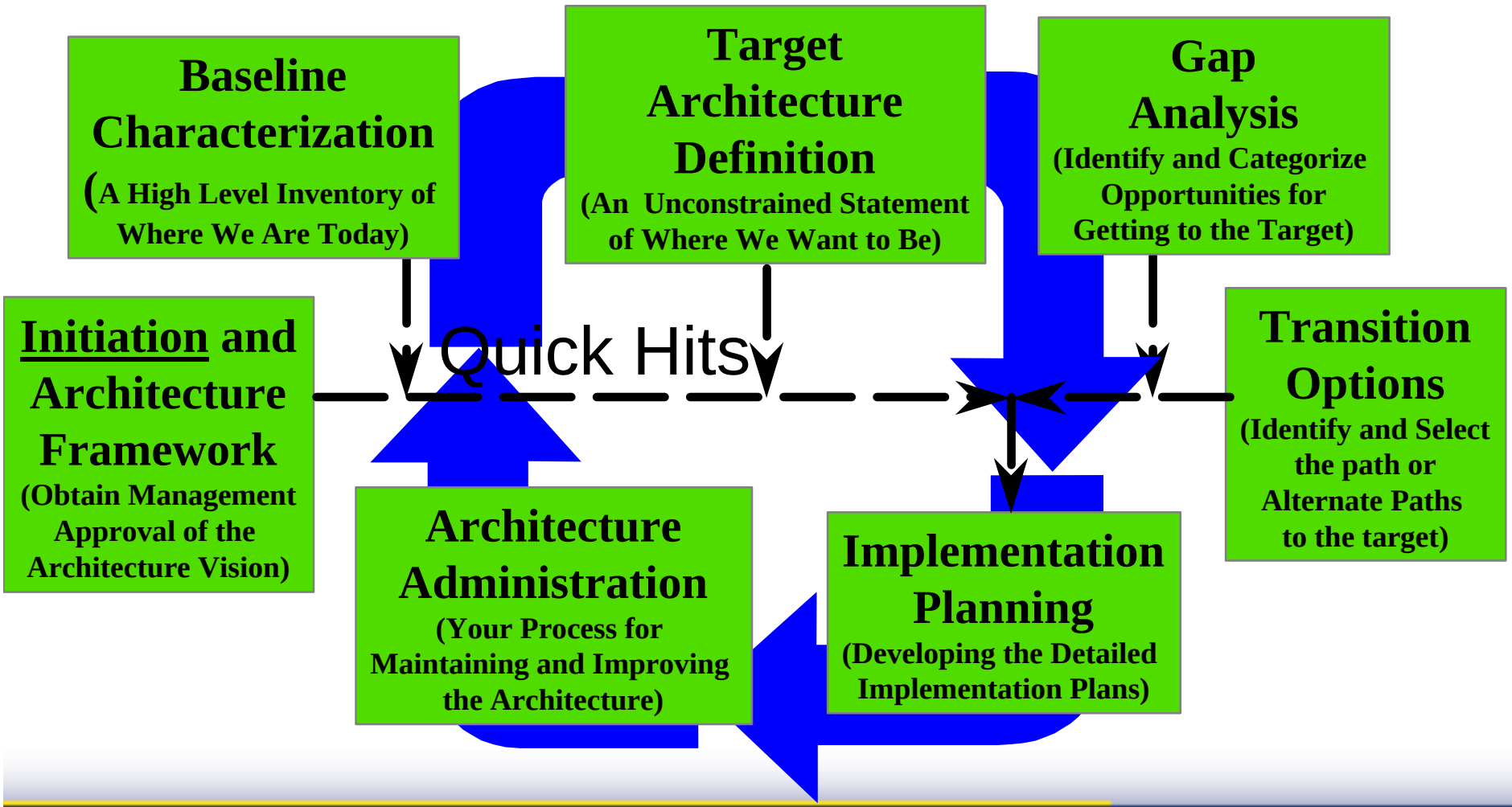
IT Professionals

Fixing the Problem (1)

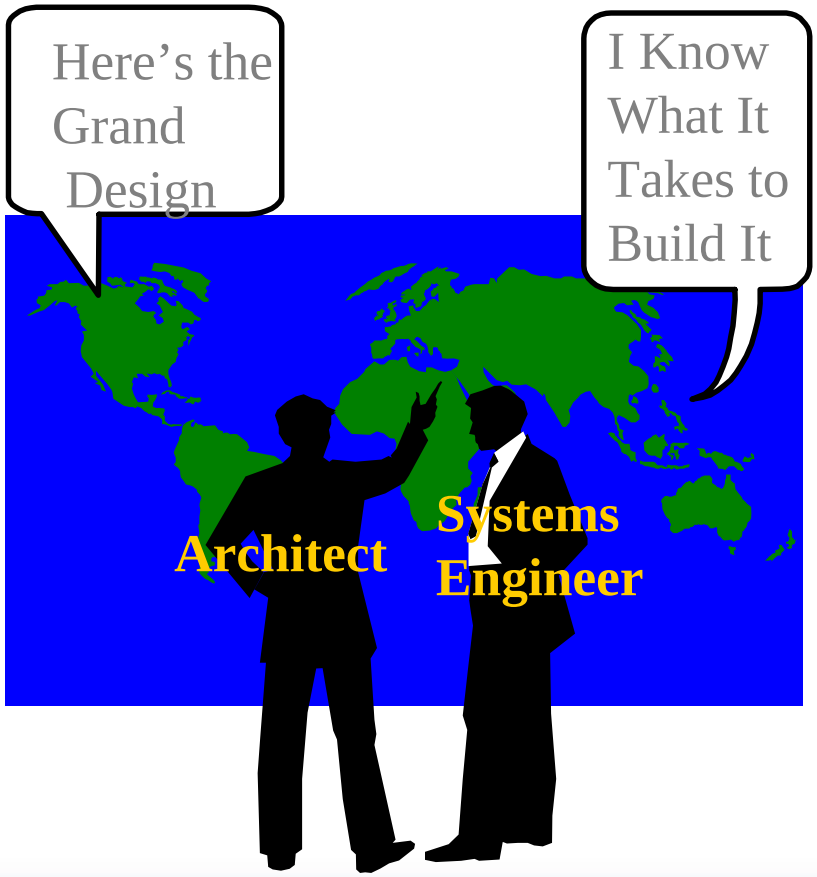
Strategies for Open Systems Conclusion

- Architecture is a Process, NOT a Solution
- Successful Implementation of a Disciplined, Repetitive Approach is the Key
- For delivery of solutions, an Enterprise Architecture is Necessary but NOT Sufficient

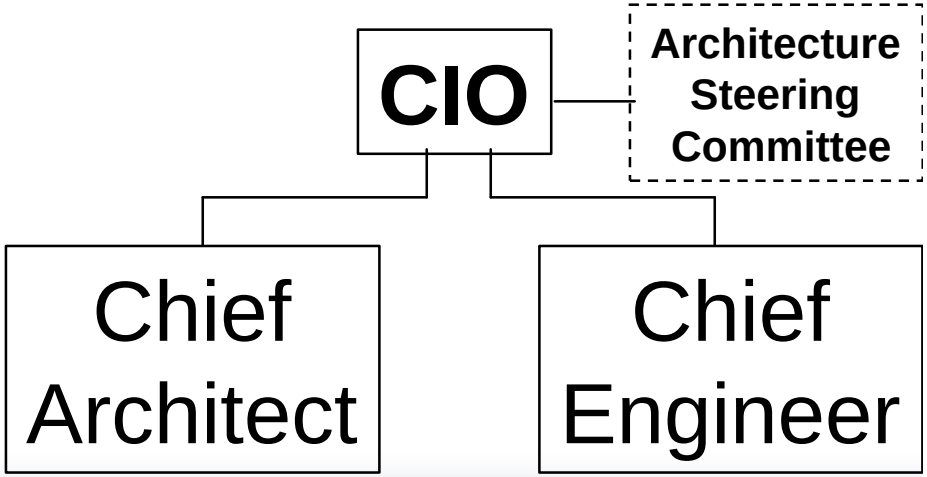
ARCHITECTURE PROCESS



What Do We Need To Make It Work?



- A Team of Architects and Engineers
- A Mechanism for Providing User Input
- Clear Division of Responsibilities



*U.S. National Research Council Report on Tax System Modernization, 1992

SUGGESTED ROLES AND RESPONSIBILITIES FOR INTERNAL CIO ORGANIZATION

- **Responsibilities of the Architect**

- Defining USER Requirements
- Bounding the Requirements Set
- Setting the General Direction for the Systems Engineer
- Validating the General "Correctness" of the Systems Engineer's Recommendations

- **Responsibilities of the Systems Engineer**

- Translating User Requirements into Design
- Conducting Trade-Off Analyses Between Competing Technologies
- Delivering a Workable Solution to the Eventual System Operator

GAO 2003 RECOMMENDATIONS

- Through our research of best IT management practices and our evaluations of agency IT management performance, we have identified a set of essential and complementary management disciplines. These include:
  - IT investment management,
  - software/system development and acquisition management,
  - IT services acquisition management,
  - IT human capital management,
  - information security management, and
  - enterprise architecture management.

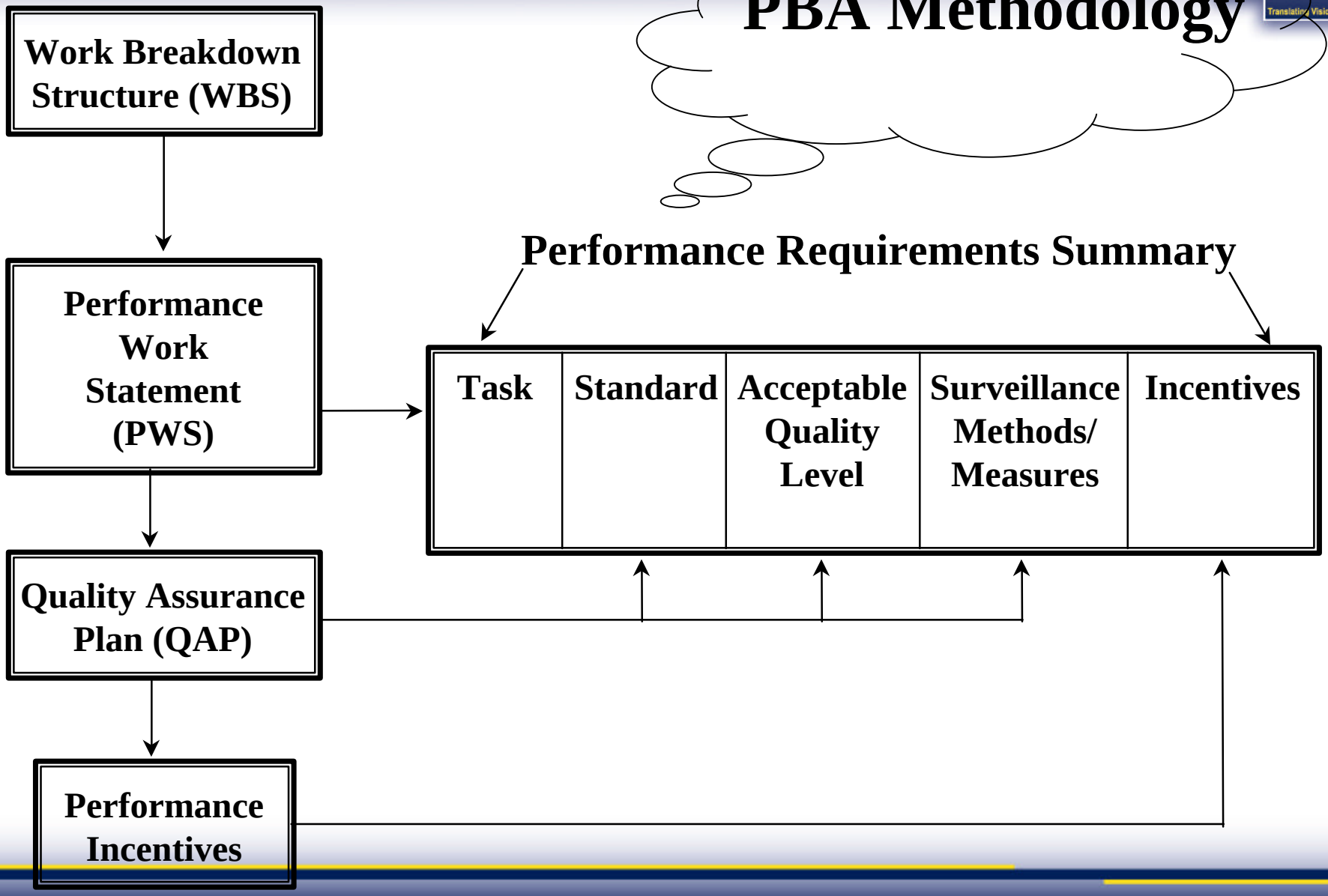
Exhibit 53

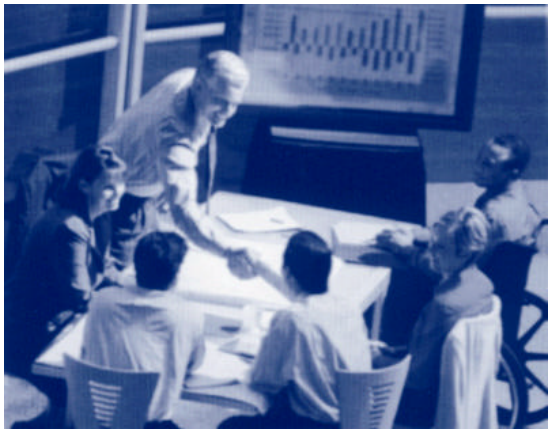
- The governance processes required as attendant documents to this section (IRM Plan, documented CPIC process, and the EA) are used in connection with the business cases (Exhibit 300) and this "Agency IT Investment Portfolio" (Exhibit 53) to demonstrate the agency management of IT investments and how these governance processes are used to make decisions about IT investments within the agency.

EXHIBIT 300 ELEMENTS

1. Strategic Fit
2. Options/Alternatives Appraisal and Affordability
3. Enterprise Architecture, Privacy, Records Management and Security
4. Acquisition Strategy
5. Project Management
   - Project Organization, Plan and Milestones
   - Assumptions
   - Performance Measures
   - Risk Analysis and Mitigation
6. Project Progress
   - Earned Value
   - Operational Analysis

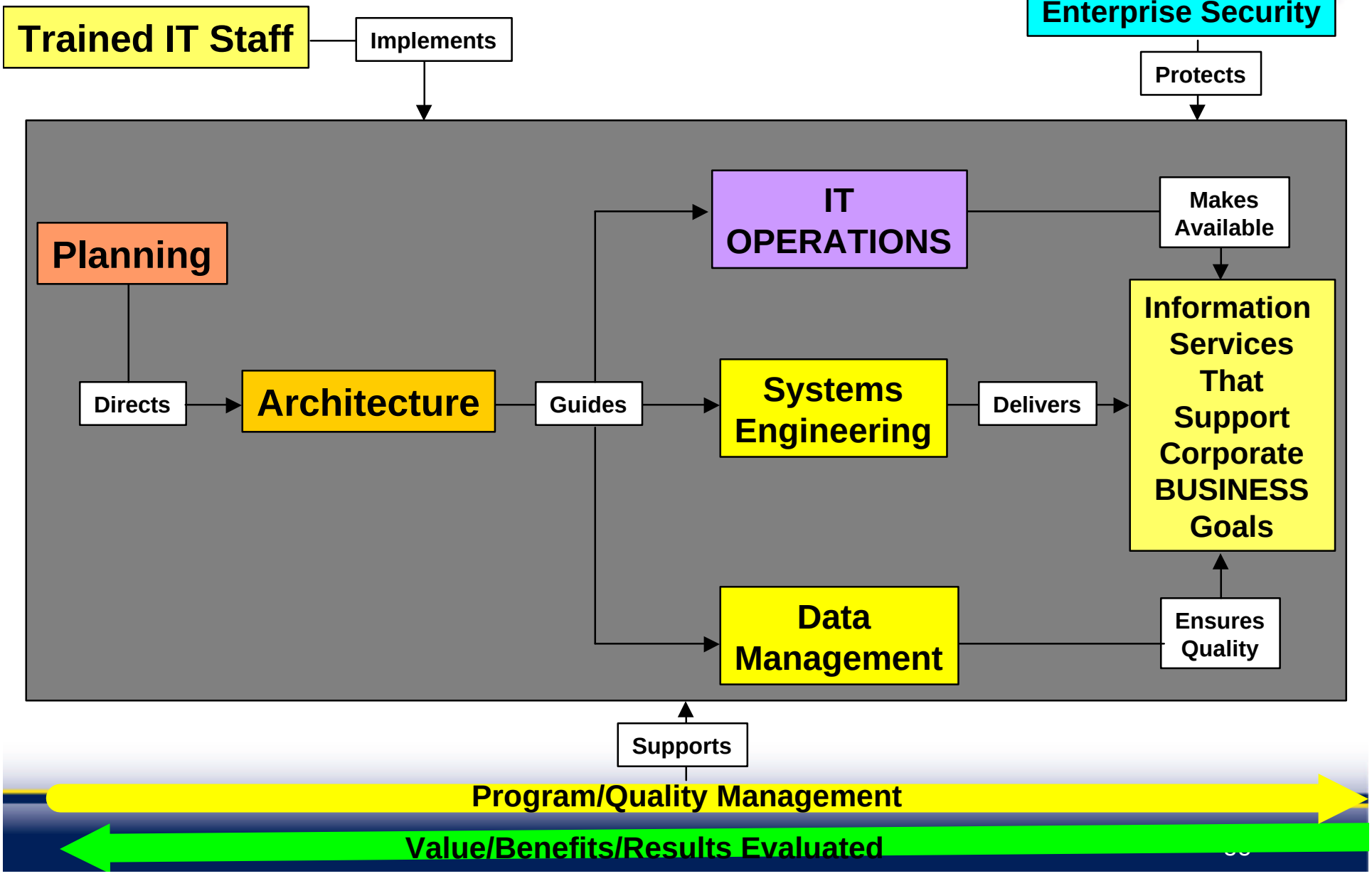
PBA Methodology



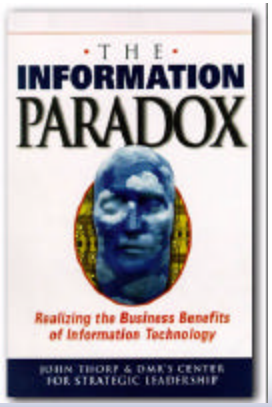


LIFE CYCLE APPROACHES

IDENTIFY THE COMPLETE PACKAGE



THE PORTFOLIO MANAGEMENT APPROACH*



Are We Getting The Desired Benefits? (Portfolio Management)

Are We Doing The Right Things? (Strategy)

Are We Doing Things The Right Way? (Architecture)

Are We Getting Them Done? (Project Management)

* The Information Paradox

PROJECT MANAGEMENT ROLE

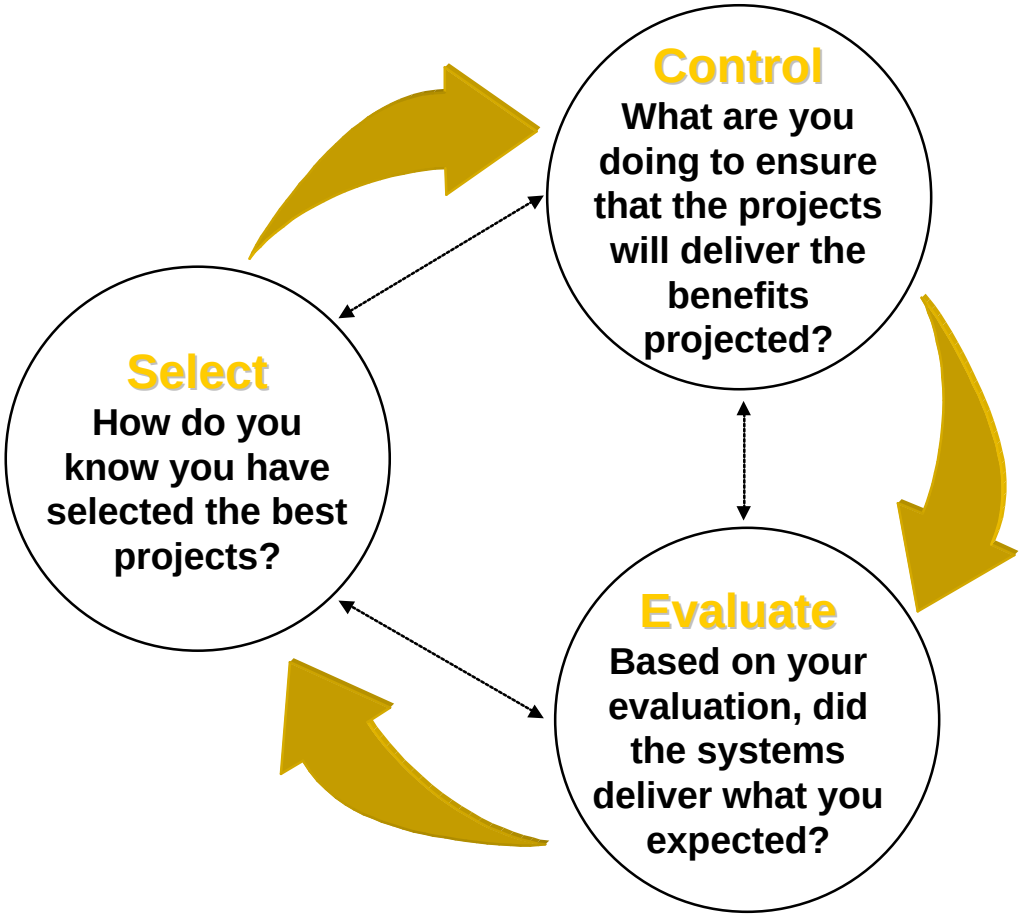
"Project Management is ABSOLUTELY ESSENTIAL for Portfolio Management to Succeed."

- Initiate the Project
- Plan the Project
- Execute the Project
- Control the Project
- Close the Project

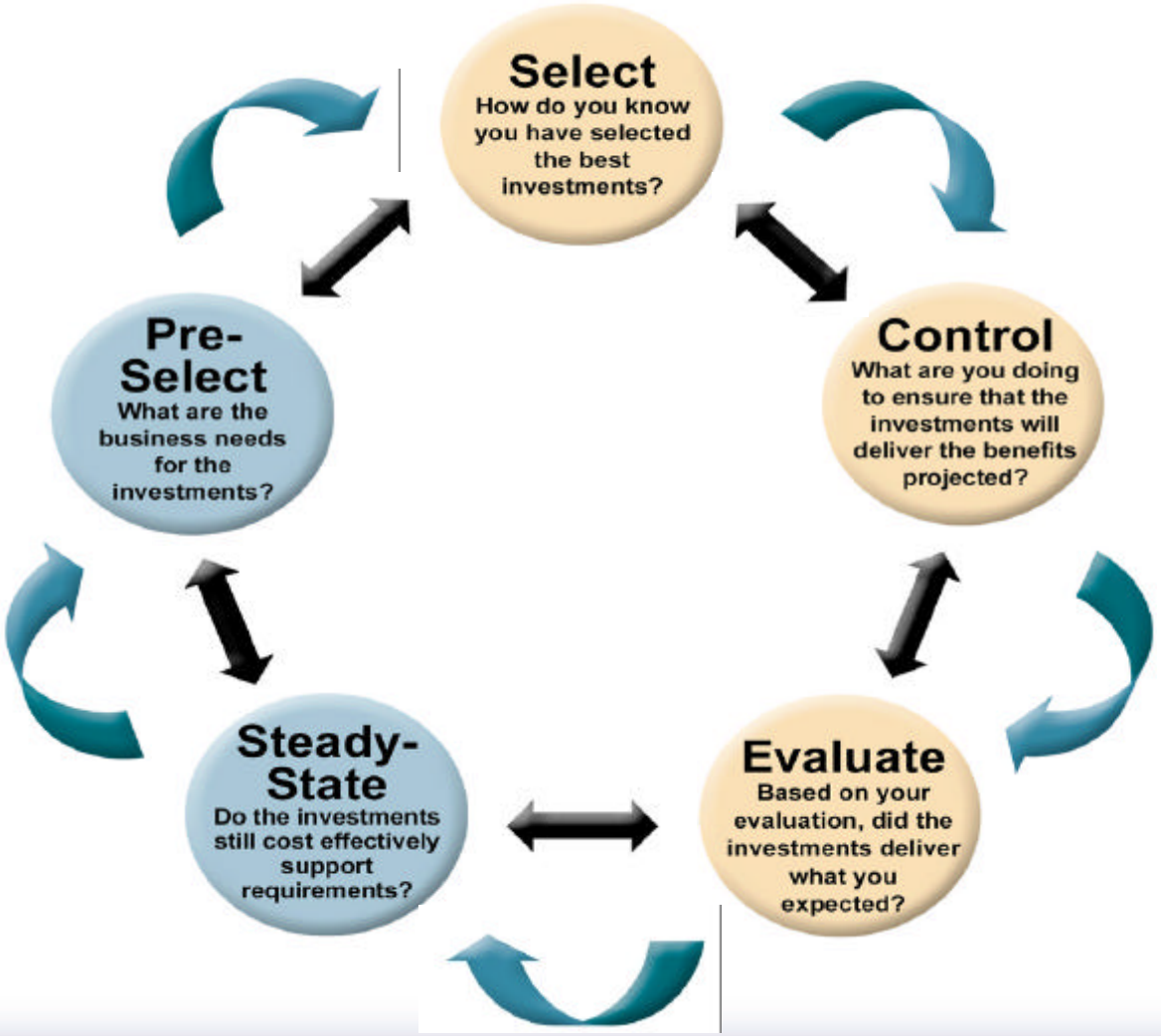
WHAT'S MISSING?

Portfolio Management/Strategy/
Enterprise Architecture/Project Management
Only Gets You to Delivering the Solution,
Not Keeping It Up and Running and Delivering Services.

FUNDAMENTAL PHASES IN THE IT INVESTMENT MANAGEMENT PROCESS



A MORE SOPHISTICATED, FIVE-PHASED APPROACH



WHAT'S MISSING?

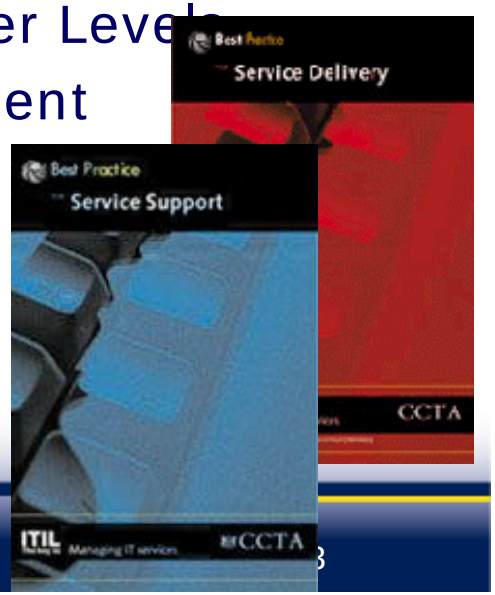
IT Investment Management
Does Not Yet Address,
In Sufficient Detail,
The Measures for Keeping A System Up and Running
and Delivering Services.

A More Complete Approach

WHAT *IS* ITIL?

- ITIL stands for the **IT I**nfrastructure **L**ibrary
- Begun by the Office of Government Commerce (OGC), a UK Govt. agency, in 1989 …..
- ITIL is:
  - Comprehensive, consistent & coherent set of best practices – NOT a methodology
  - Aligns IT services with business requirements
  - Promotes a quality management approach
  - Certification at Foundation, Practice and Master Levels
  - Vendor (tool) independent, platform independent
  - World-wide de facto standard for ITSM

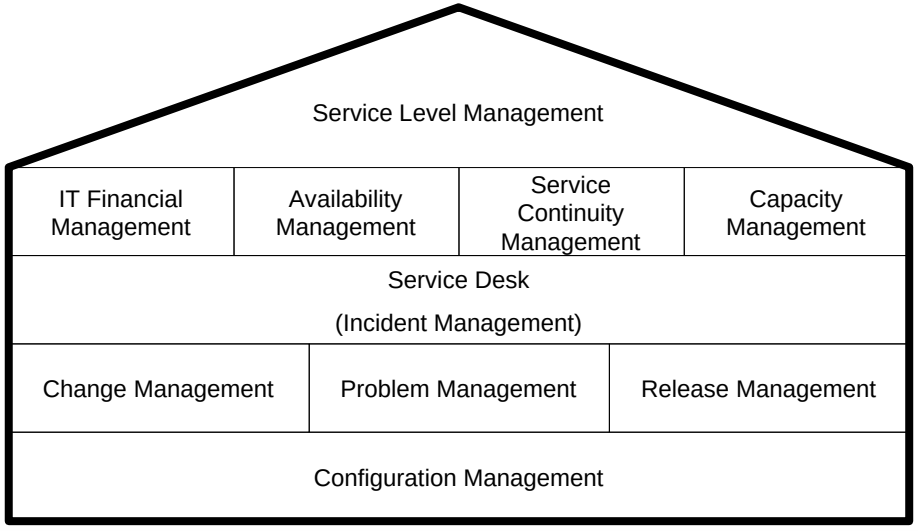
- **Now a formal British standard: BS15000**



IT SERVICE MANAGEMENT

- The aim of ITSM is to Implement ITIL by:
  - Aligning IT services with the ever changing needs of the business
  - Improving the quality of IT services
  - Reducing the cost of providing service

It's about increasing the efficiency and effectiveness of IT Operations



Management Disciplines

MANAGING IT ACQUISITION

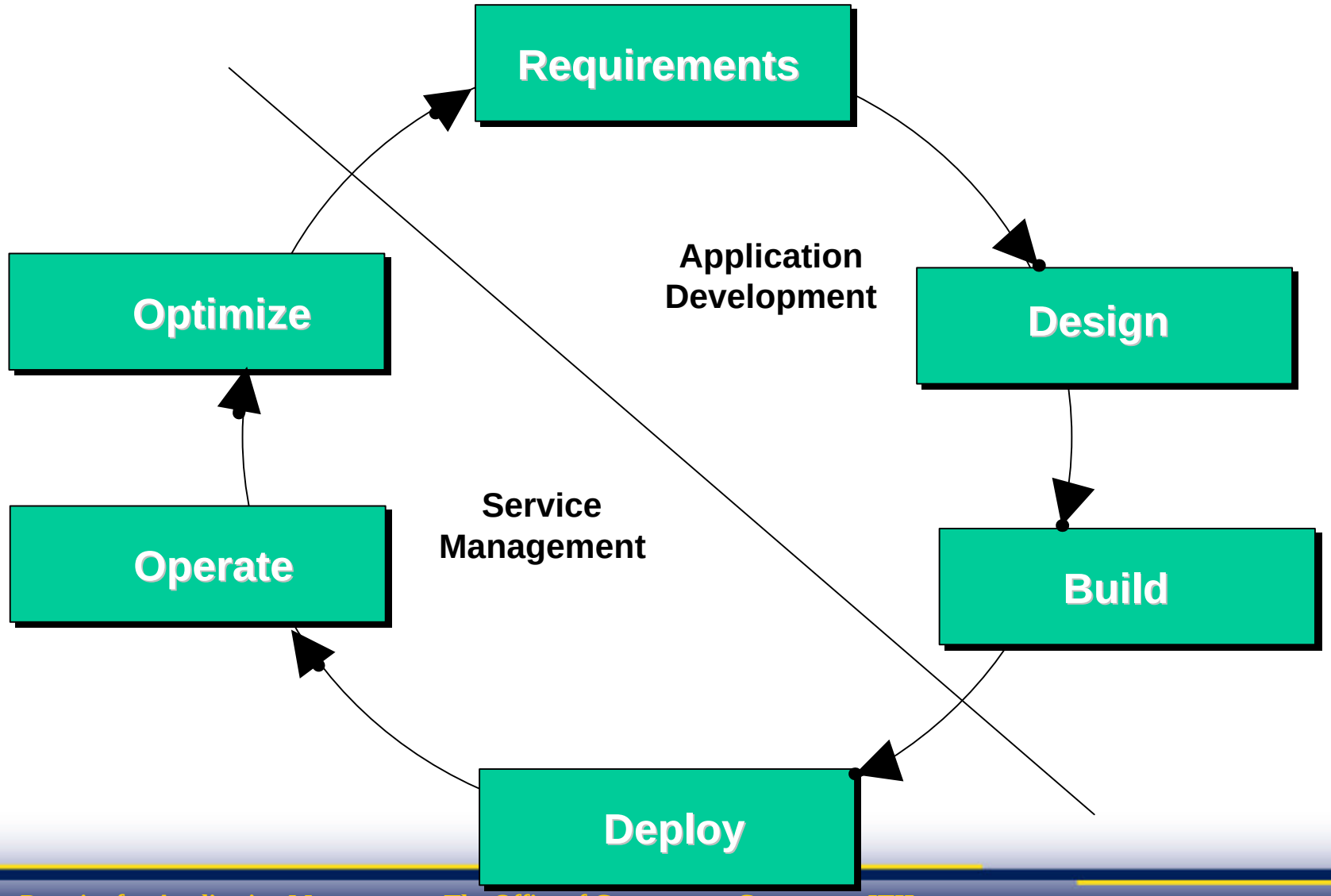
The Office of Government OGCC Suggests that Vendors be asked to demonstrate compliance with standards-based:

- **Project Management Methodology**
- **Software Development Methodology**
- **IT Service Management**

Internal IT should be certified in same disciplines as well

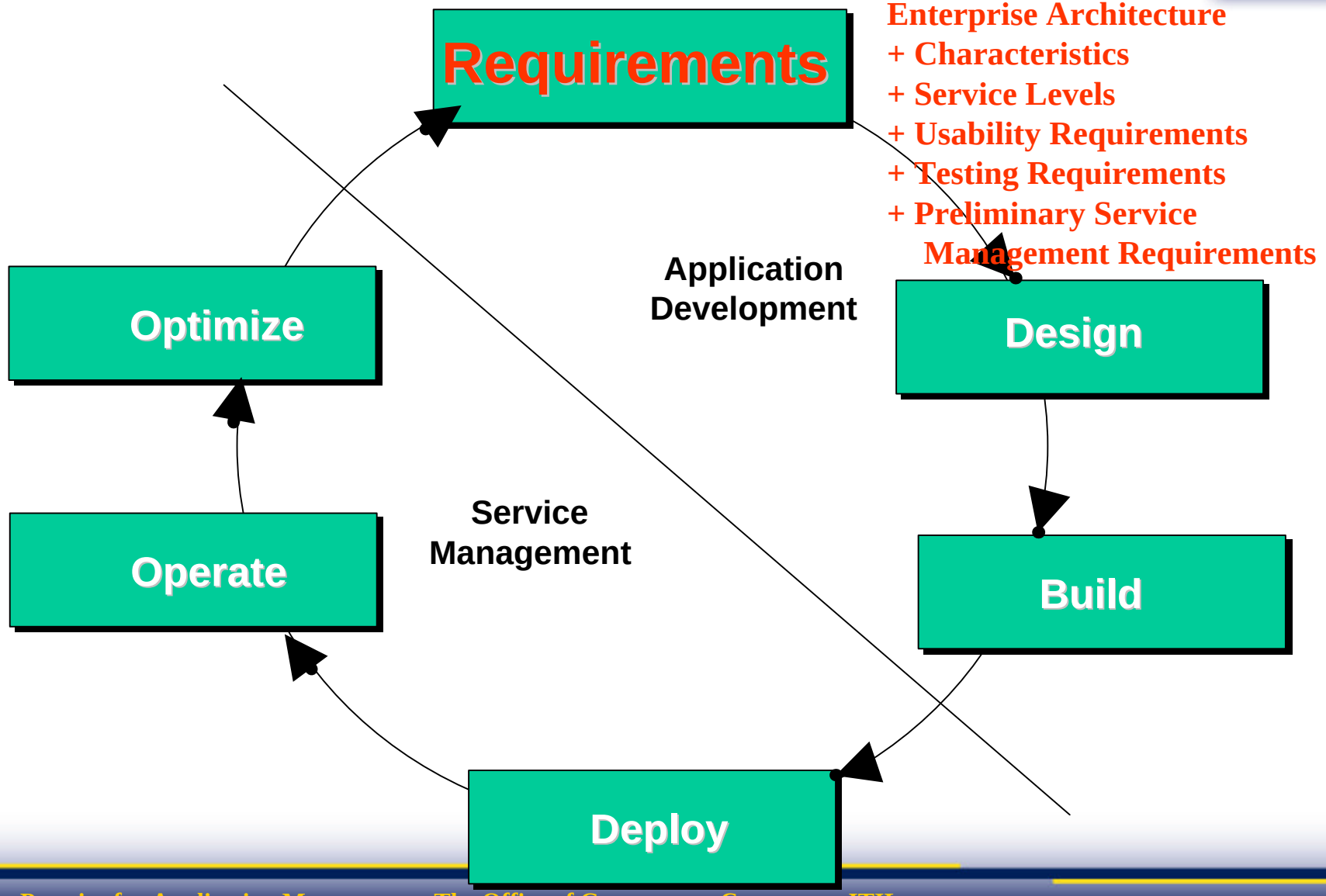
- **Promotes common language between both sides**
- **Identifies Measurable Standards**

THE APPLICATION MANAGEMENT LIFE CYCLE*



*Best Practice for Application Management, The Office of Government Commerce, ITIL

THE APPLICATION MANAGEMENT LIFE CYCLE*



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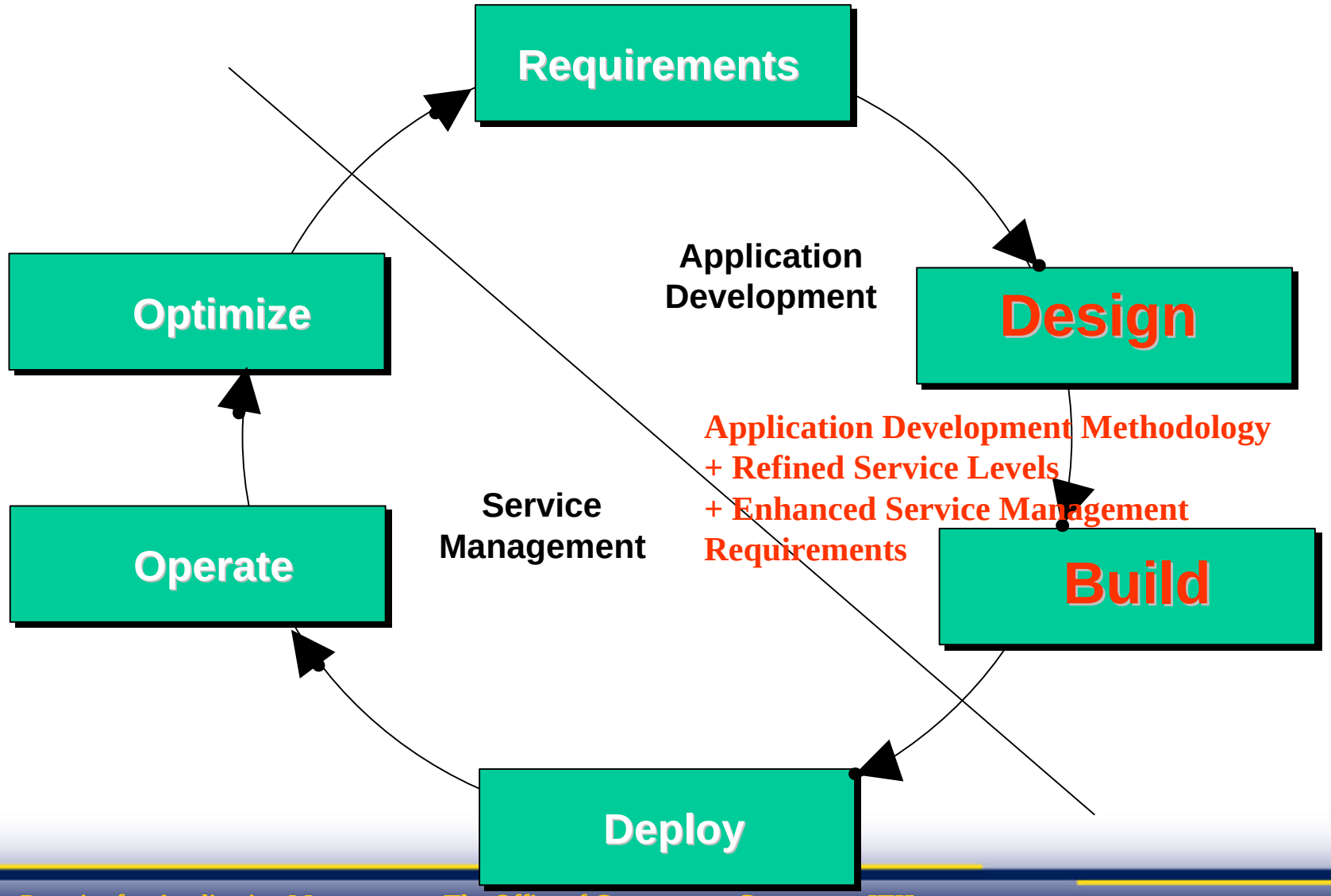
THE APPLICATION MANAGEMENT LIFE CYCLE*

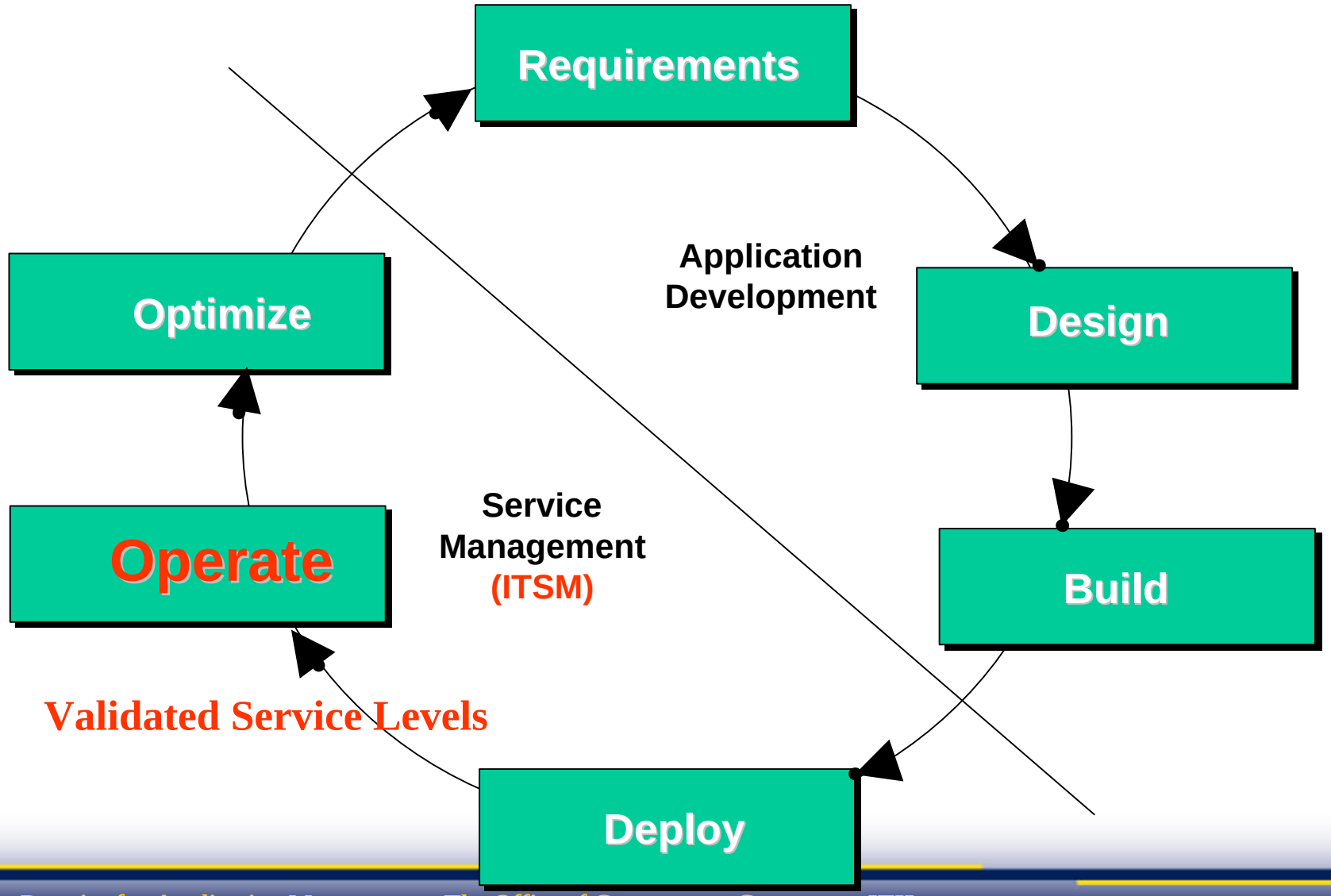


*Best Practice for Application Management, The Office of Government Commerce, ITIL

Marketplace Trends

- "Methodware" Vendors Offering Integrated Tool Set with Supporting Methodologies that Map EA Requirements Through the Design and Development Steps
- SW-CMM Tools Being Converted to Project Management Methodology Tools

THE APPLICATION MANAGEMENT LIFE CYCLE*



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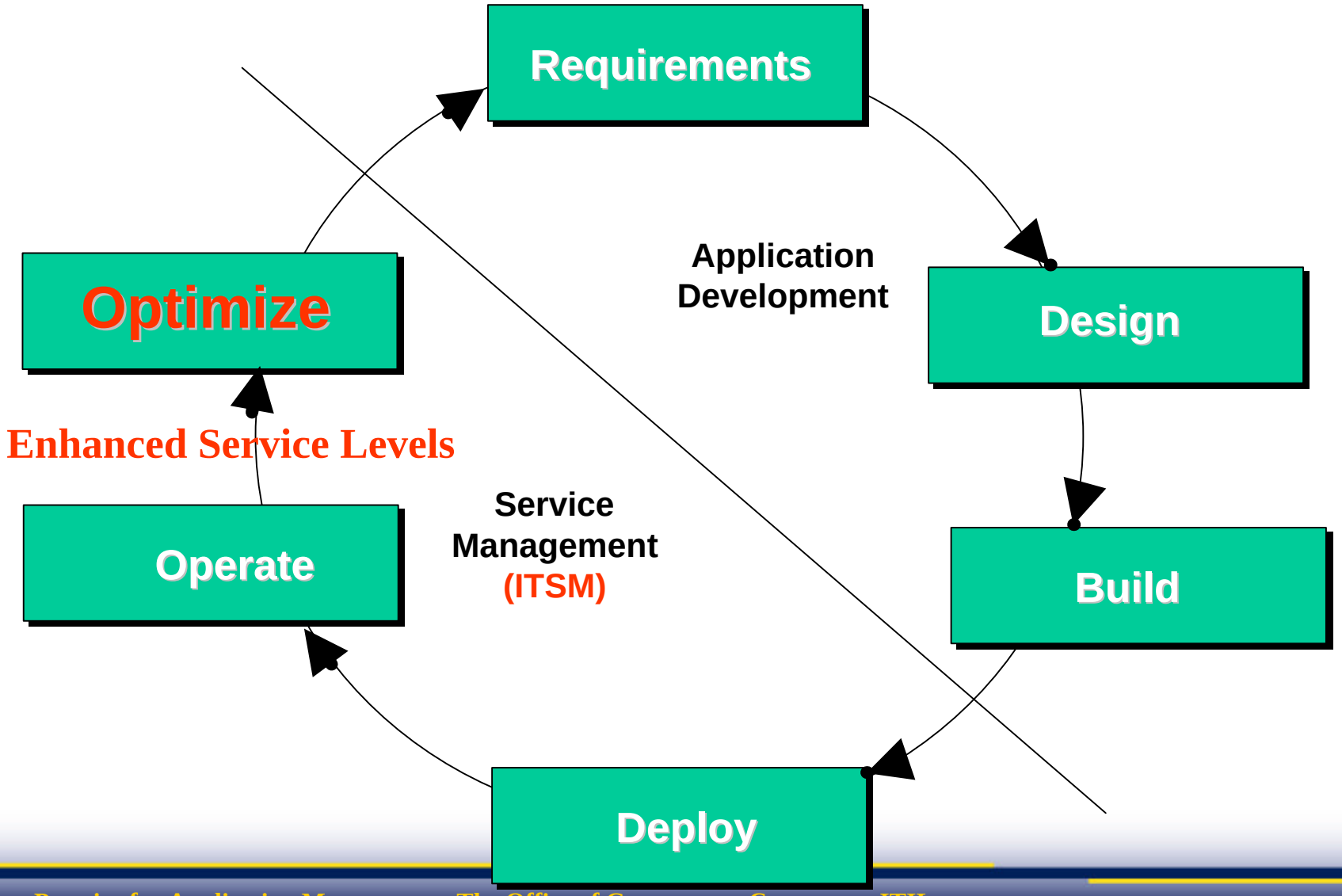
THE APPLICATION MANAGEMENT LIFE CYCLE*



*Best Practice for Application Management, The Office of Government Commerce, ITIL

ADDITIONAL OBSERVATION

The Suggested Life Cycle is Actually Embedded in Exhibit 300.....

But most submitters do not realize it.

WHAT'S APPARENT?

An Enterprise Architecture is the
BEGINNING
of a Journey,
Not a Destination.
(No Matter How Far You Have Traveled,
It's Never Too Late to Ask Directions
Or Turn Back
If You Find You Took the Wrong Road.)

WHAT'S ALSO APPARENT?

The Goal of An Enterprise Architecture is the DELIVERY of Information Services That Satisfy Corporate BUSINESS Goals.

(Information Systems Are Mechanisms That Focus on The Delivery of Services to Customers.)

FINAL RECOMMENDATIONS

- To Transition From Architecture to Delivery and Operation You Need to Adapt a Software Development Methodology with an Embedded Project Management Methodology.
- Buy, Read and Implement ITIL.

ITIL

MELE Associates, Inc.
Translating Vision into Reality

I'm Ready For Any Questions