

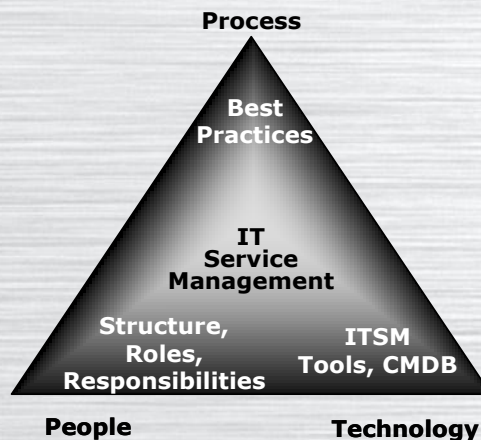


Ready for what's next.

An ITIL® Approach to Systems Engineering

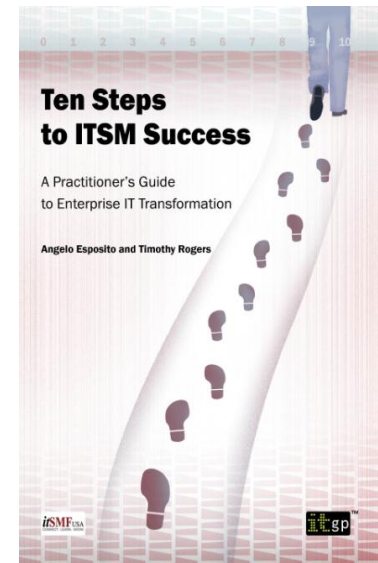
INCOSE San Diego

September 18, 2013



Booz | Allen | Hamilton

- Timothy Rogers, IT Service Management and Governance Expert at Booz Allen Hamilton
- Former CTO with 20 years' experience spanning high-tech start-ups, financial services, and Federal government sectors
- Holds Master's degree from UCSD, and certifications in ITIL (v3 Expert), CMMI, COBIT, and Lean Six Sigma
- Author of *"Ten Steps to ITSM Success: A Practitioner's Guide to Enterprise IT Transformation"*
- Speaker at itSMF USA/HDI Fusion and LEADit Australia
- ***Interesting fact:** Lived and worked in Hong Kong and speaks some Mandarin Chinese



- **PART I – Setting the Stage**

- What is ITSM? What is ITIL?
- The Driver: Enterprise IT Transformation
- Industry and Government Examples

- **PART II – Systems vs. Services Approach**

- IT Service Management (ITSM) and ITIL – “It’s all About the Services”
- Traditional Systems Engineering – “System of Systems Approach”
- Key Similarities and Differences

- **PART III – An ITIL Approach to Systems Engineering**

- Marrying ITIL and Systems Engineering
- How Can You Help Your Organization Make the Transition?
- Recommendations and Next Steps

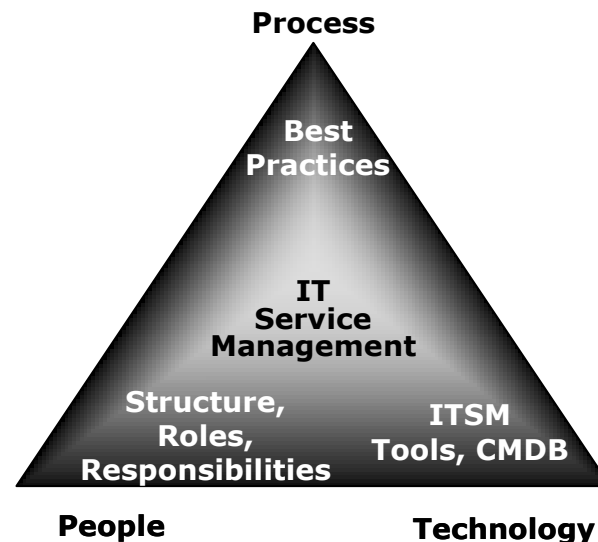
- **Question & Answer**

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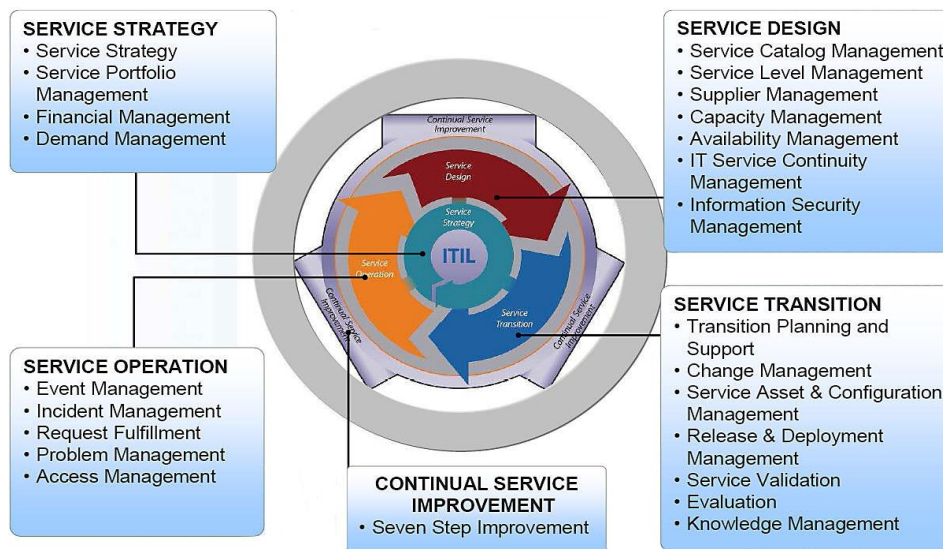
▼ Part I:

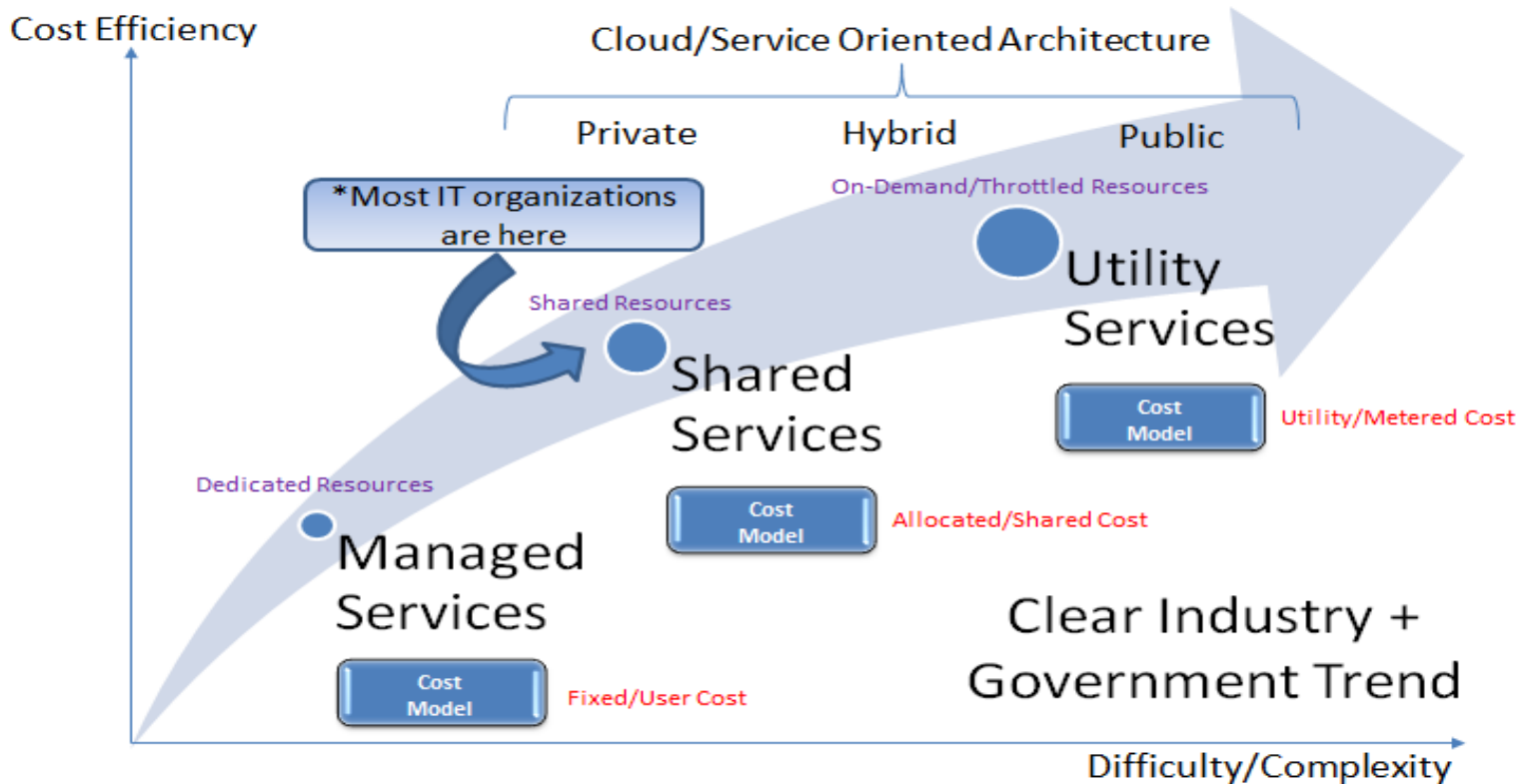
SETTING THE STAGE

- ITSM is the Industry Acronym for **Information Technology (IT) Service Management**
- Is the Set of People, Process and Technology Used to Provision IT Services and Manage IT Infrastructure in a Standardized, Repeatable, and Cost-Effective Manner
- ITSM is Practiced by All IT Service Provider Organizations, Whether Planned or Ad-Hoc
- Leading IT Organizations Differentiate Themselves by Demonstrating a High Level of Process Maturity and Continuous Improvement in the Delivery of Quality Services at Optimized Cost



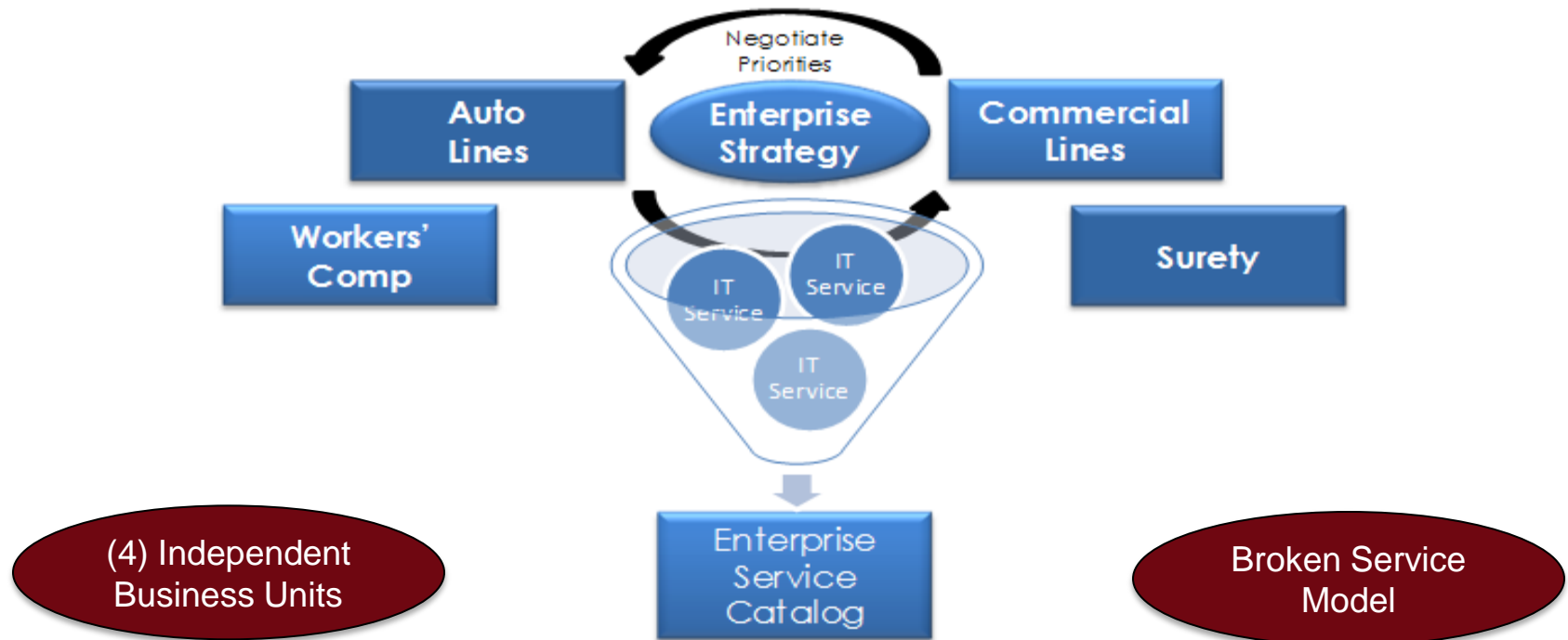
- ITIL is the Industry Acronym for the **Information Technology (IT) Infrastructure Library**
- Predominant Global Standard for Managing and Improving Enterprise IT Performance
- Proven Framework of Best Practices that has Been Successfully Applied by Organizations of All Sizes Across Industries (e.g. Company and Industry Agnostic)
- Adaptable to Each Organization Based on Strategic Needs and IT Process Maturity





- DoN to reduce total IT spend 25% over 5 years via enterprise IT efficiencies
- Strategy – Shift from owning assets (CAPEX) to managing services (OPEX)
- How? – Enterprise data center consolidation, shared services, processes, etc...

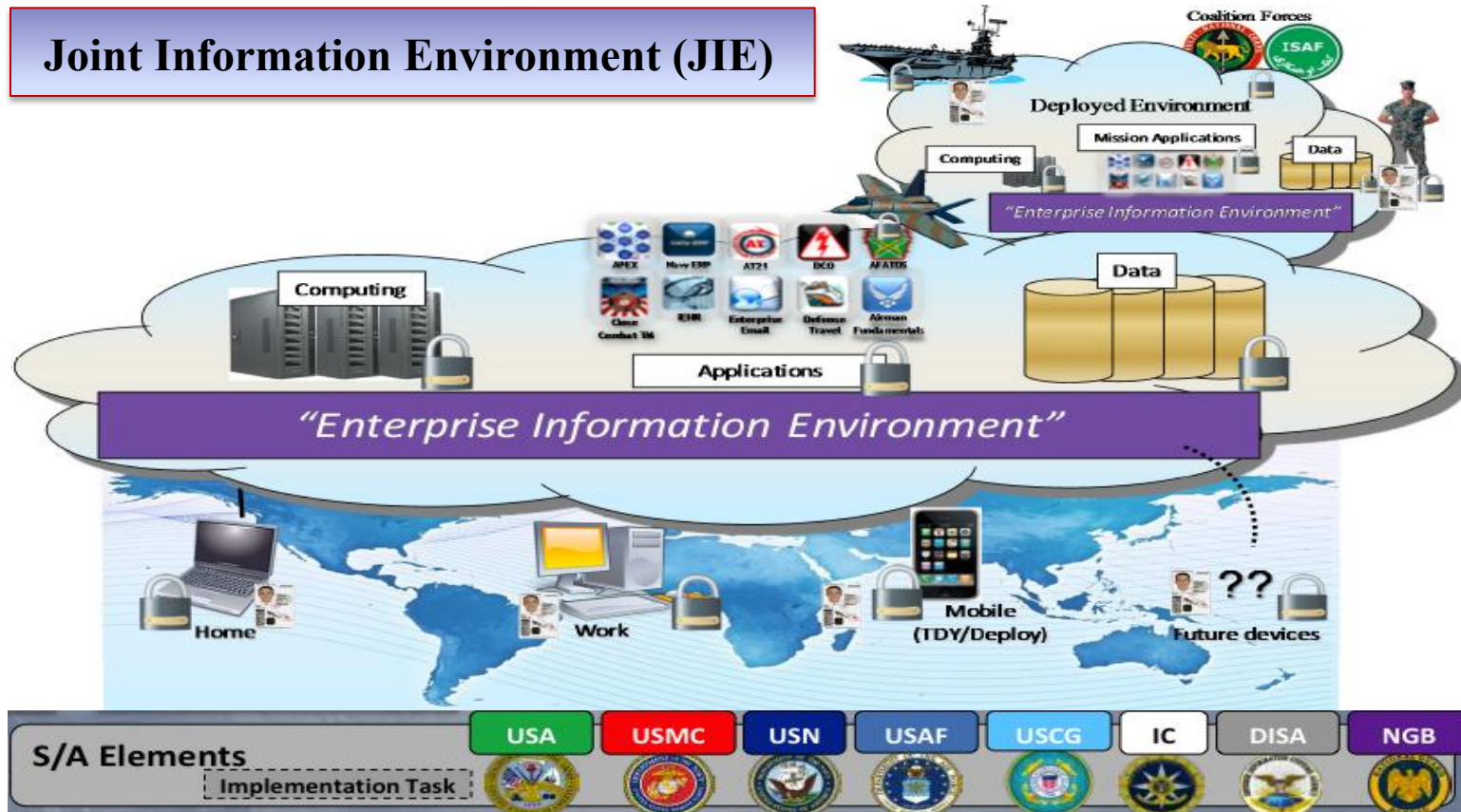
Transformation Objective: “Provision high-quality IT services at optimal cost to business Users via a Single Enterprise Catalog.”



***Multi-line Insurance Company Example**





“The biggest technology transformation the Department’s ever done.”

DoD CIO Principal Deputy Robert Carey






▼ Part II:

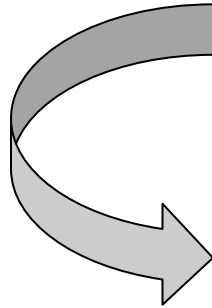
SYSTEMS VS. SERVICES APPROACH

IT Management Frameworks	Framework Definition	Predominant (de facto) Framework
IT Governance Frameworks	Frameworks that help organizations define and manage leadership and organizational structures and processes to ensure that the organization's IT sustains and extends the organization's strategies and objectives.	
IT Service Management (ITSM) Frameworks	Frameworks that help organizations develop and manage the capabilities (people, process, information tools) required to provision high quality IT services in a standardized, repeatable, and cost effective manner.	
Information Security Management (ISM) Frameworks	Frameworks that offer best practice recommendations on information security management, risks, and control within the context of an overall information security management system (ISMS) that defines a set of policies related to IT security and risks.	
IT Project Management (PM) Frameworks	Frameworks that provide standardized methodology, guidelines, rules, and characteristics for IT project management.	

Ref: "Information Technology Management Frameworks: An Overview and Research Directions."

To be published by Dr. Bala, H. and Dr. Ramesh V. Indiana University

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- Planning
- Execution
- Innovation



Enterprise Architecture (EA)

- Principles, Policies & Guidelines
- Interoperability, Agility, Reuse



Systems Engineering

- "System of Systems" Methodology
- Systems Engineering "V-Model"

Project Management

Business Relationship Management



System



INCOSE Definition:

A combination of interacting elements organized to achieve one or more stated purposes.

An integrated set of elements, subsystems, or assemblies that can accomplish a defined objective. These elements include products (hardware, software, firmware), processes, people, information, techniques, facilities, services and other support elements.

Examples: Aircraft control system, server farm, operating system

Service



ITIL Definition:

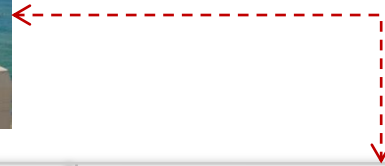
A means of delivering value to Customers by facilitating Outcomes Customers want to achieve without the ownership of specific Costs and Risks.

Examples: Flight from A to B, E-mail, online banking

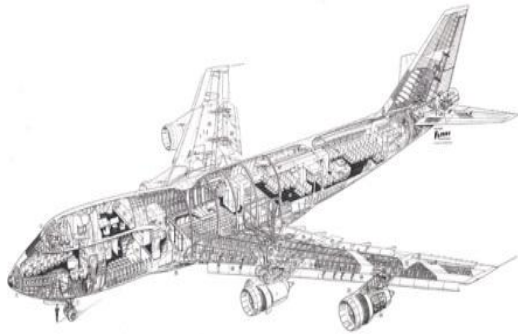
Delighted Customer!



Direct Link



System (in Design)



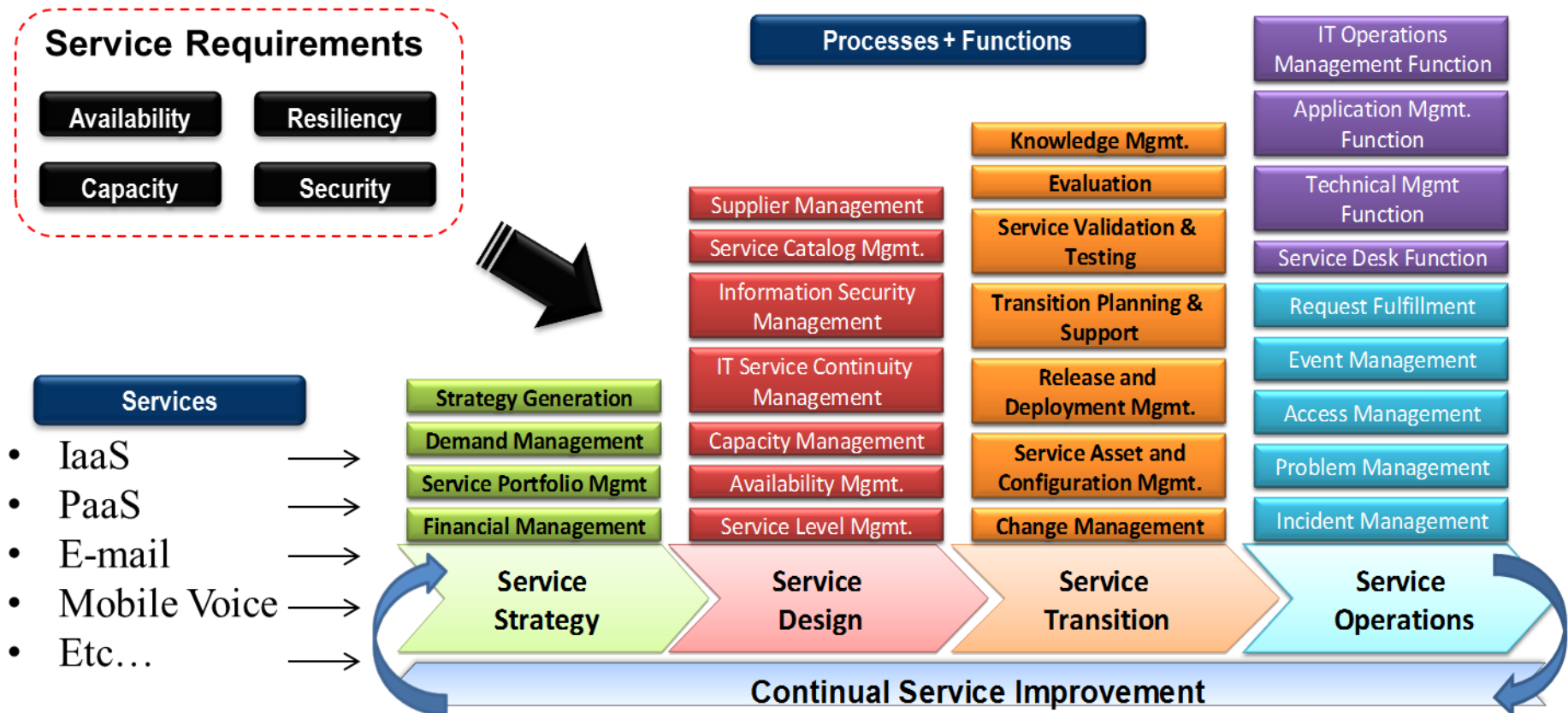
Product (System in Operation)



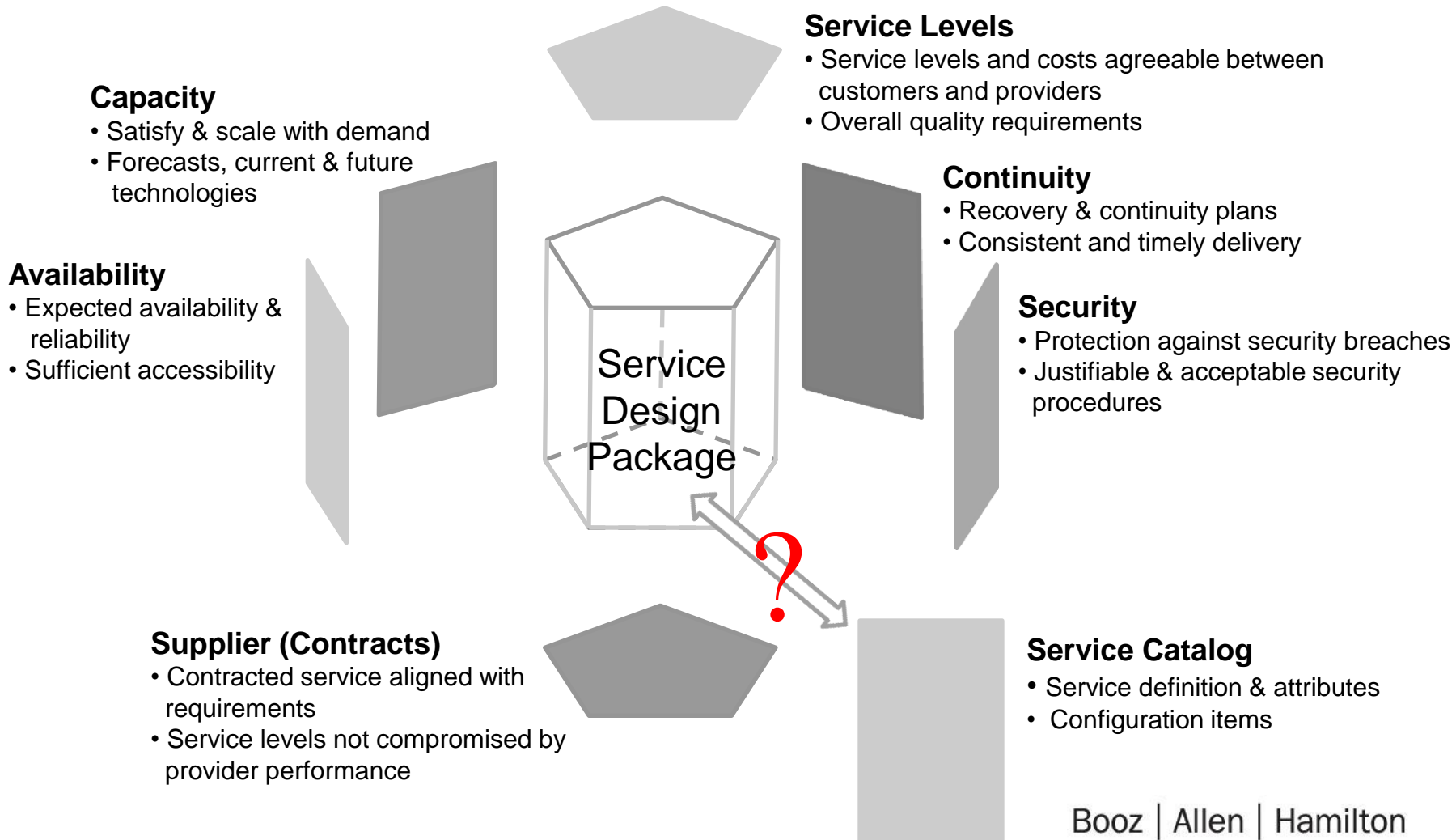
Service



ITIL v3 Provides a Comprehensive Framework for Defining and Managing Services throughout the entire Lifecycle:



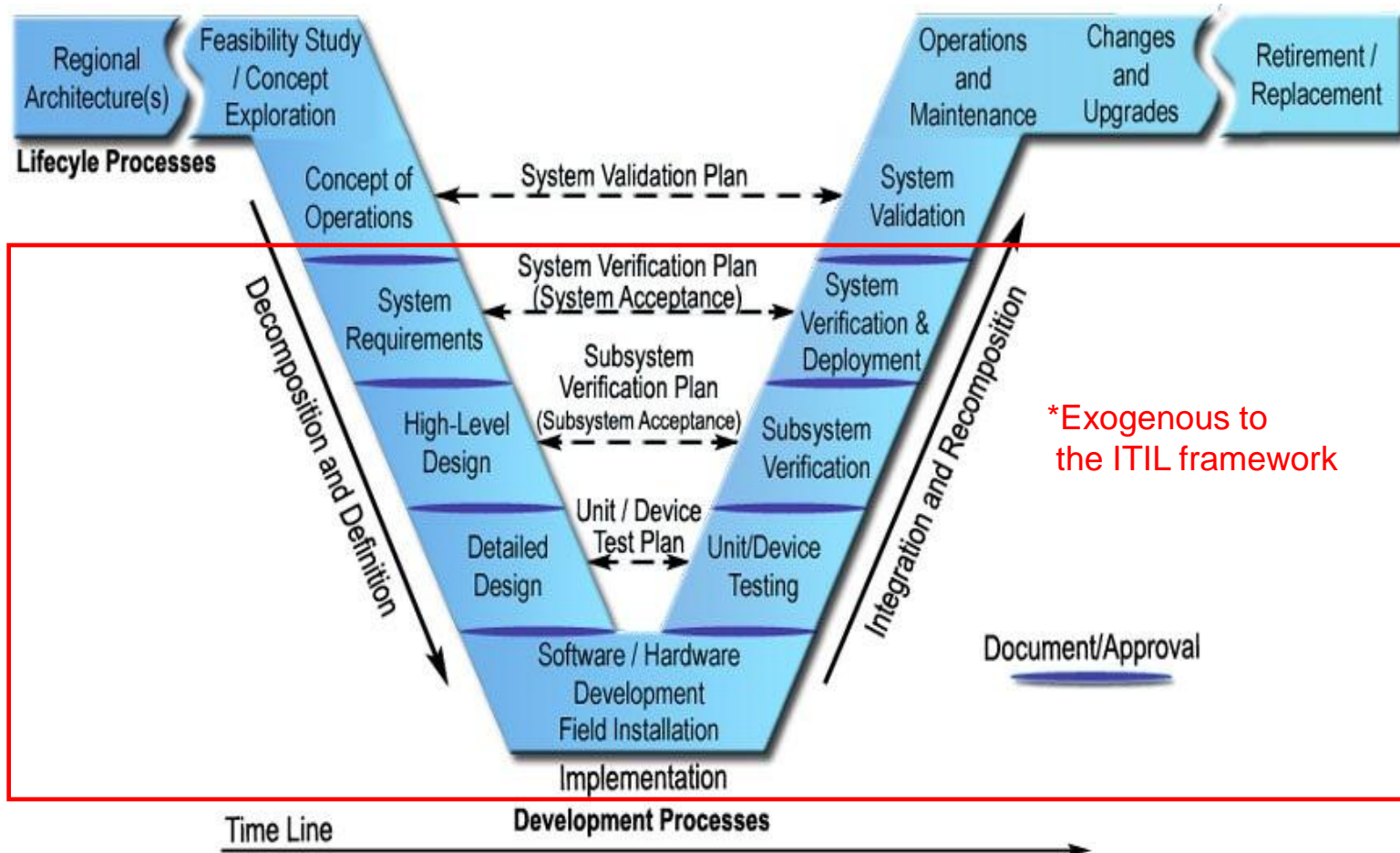
ITIL focuses on *Service Design*, Not *Solution Development*. . .



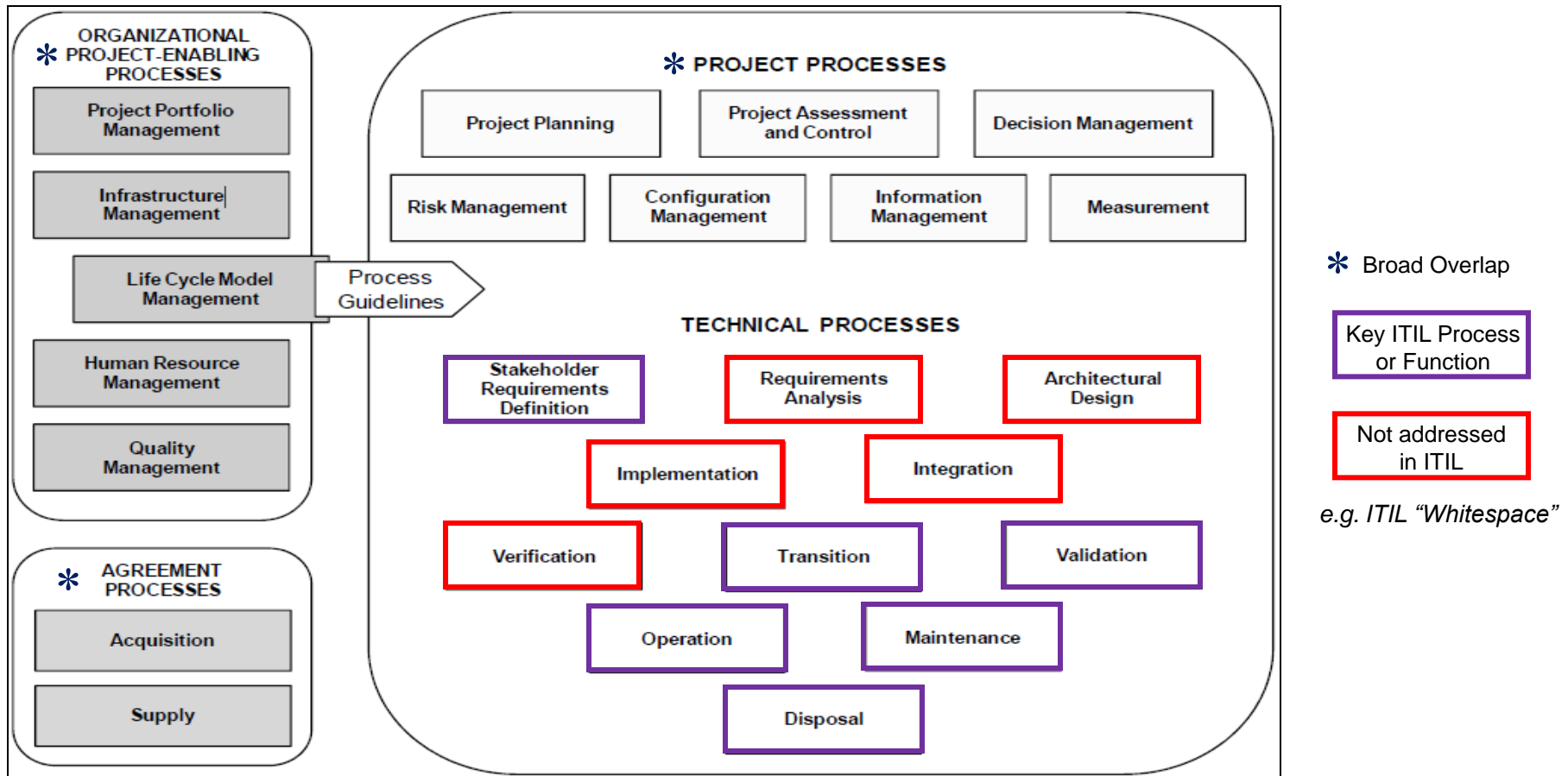
Ready for what's next.

Systems Engineering in Practice: The Systems Lifecycle

While there is some overlap, the majority of core System Engineering activities are not addressed in ITIL. . .



While there is some process overlap, several of the Systems Engineering “Technical Processes” address areas ITIL does not. . .



▼ Part III:

AN ITIL APPROACH TO SYSTEMS ENGINEERING

ITIL views everything in IT through a *services* lens (customer view)

(2) Key ITIL Roles:



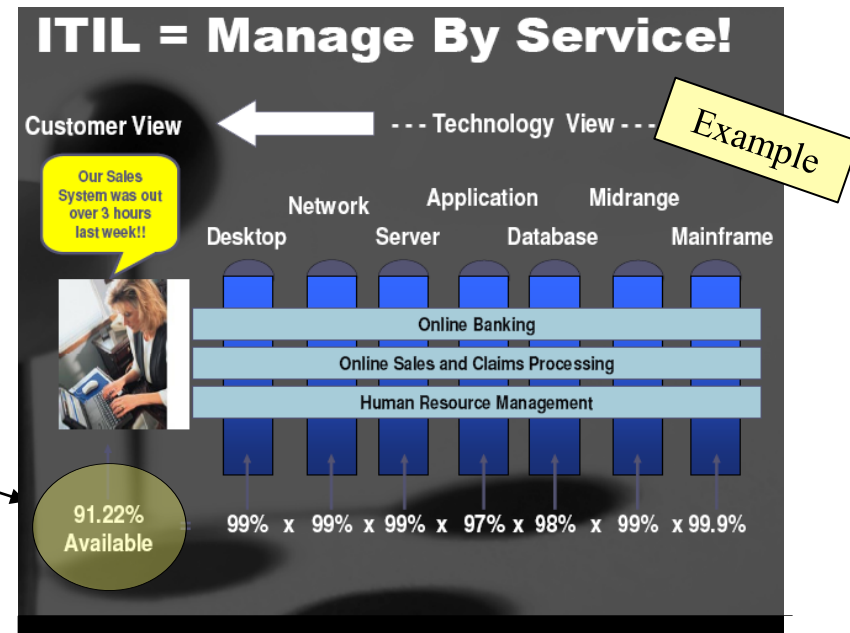
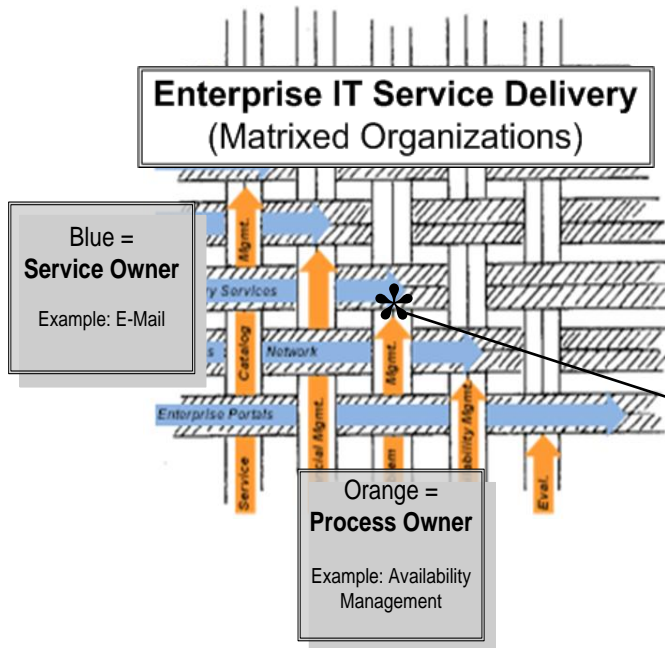
Service Owner

Accountable and responsible for end-to-end service performance across the enterprise



Process Owner

Accountable and responsible for end-to-end process performance across the enterprise



- Systems and their components are viewed in aggregate as “the Infrastructure”, which exists solely to support and enable service provisioning
- Infrastructure may be in-house, 3rd party, or shared (e.g. public cloud) and in all cases is viewed as elastic, not fixed or static. . .

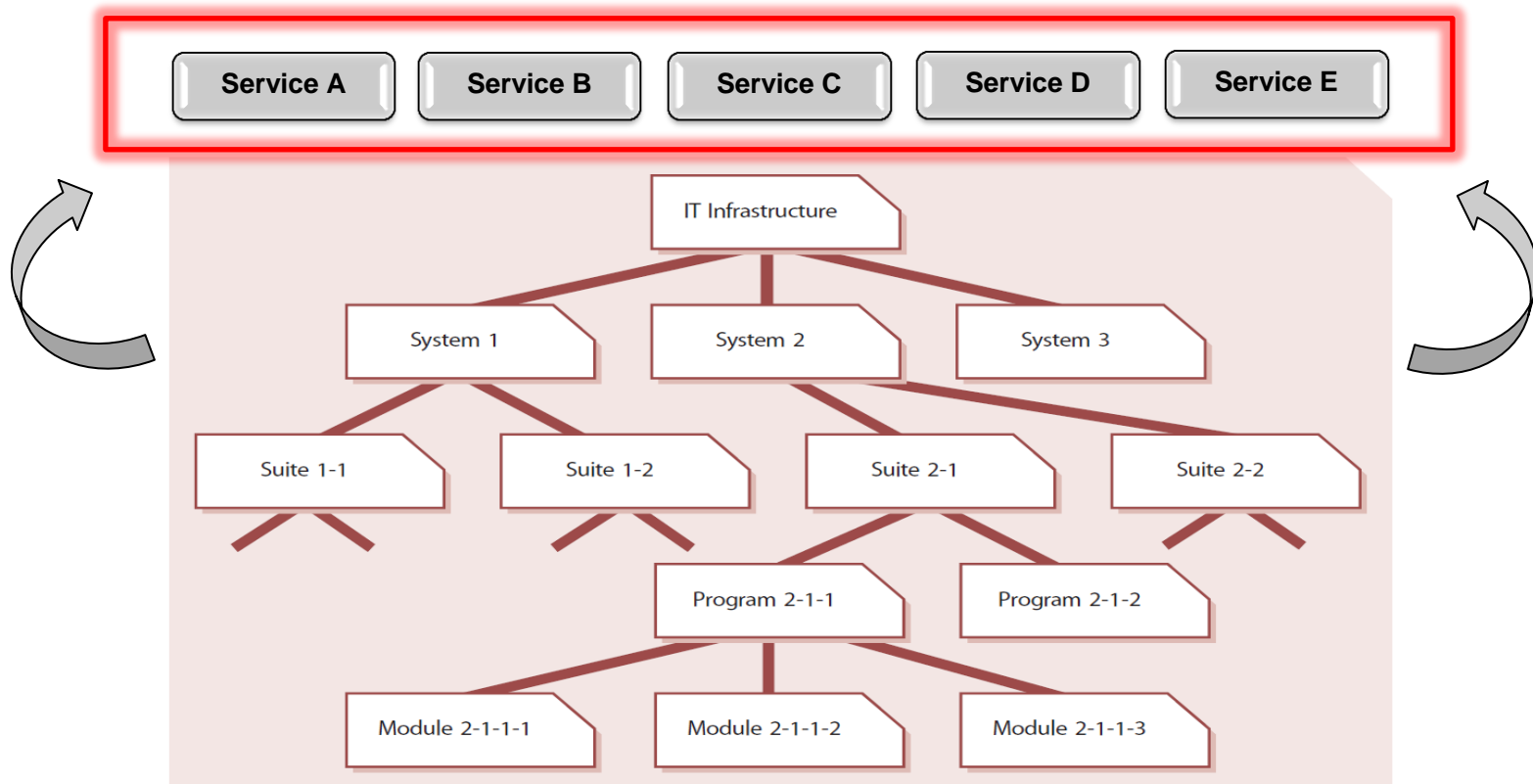


Figure 4.13 Simplified example of an IT infrastructure

Source: ITIL® Service Transition, Office of Government Commerce, 2007, p.78.

ITIL defines a “Services” V-Model as part of Configuration Mgmt. . .

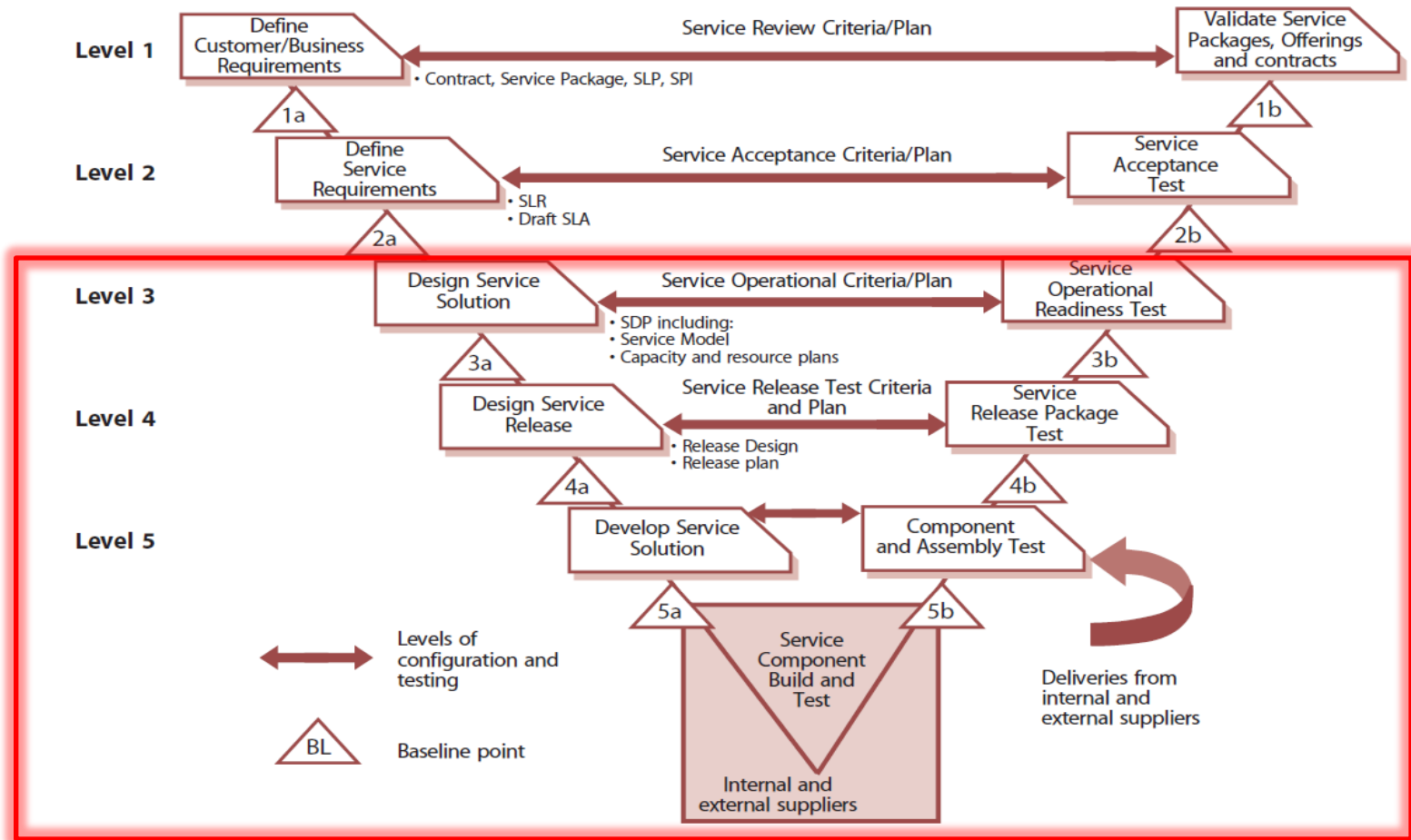
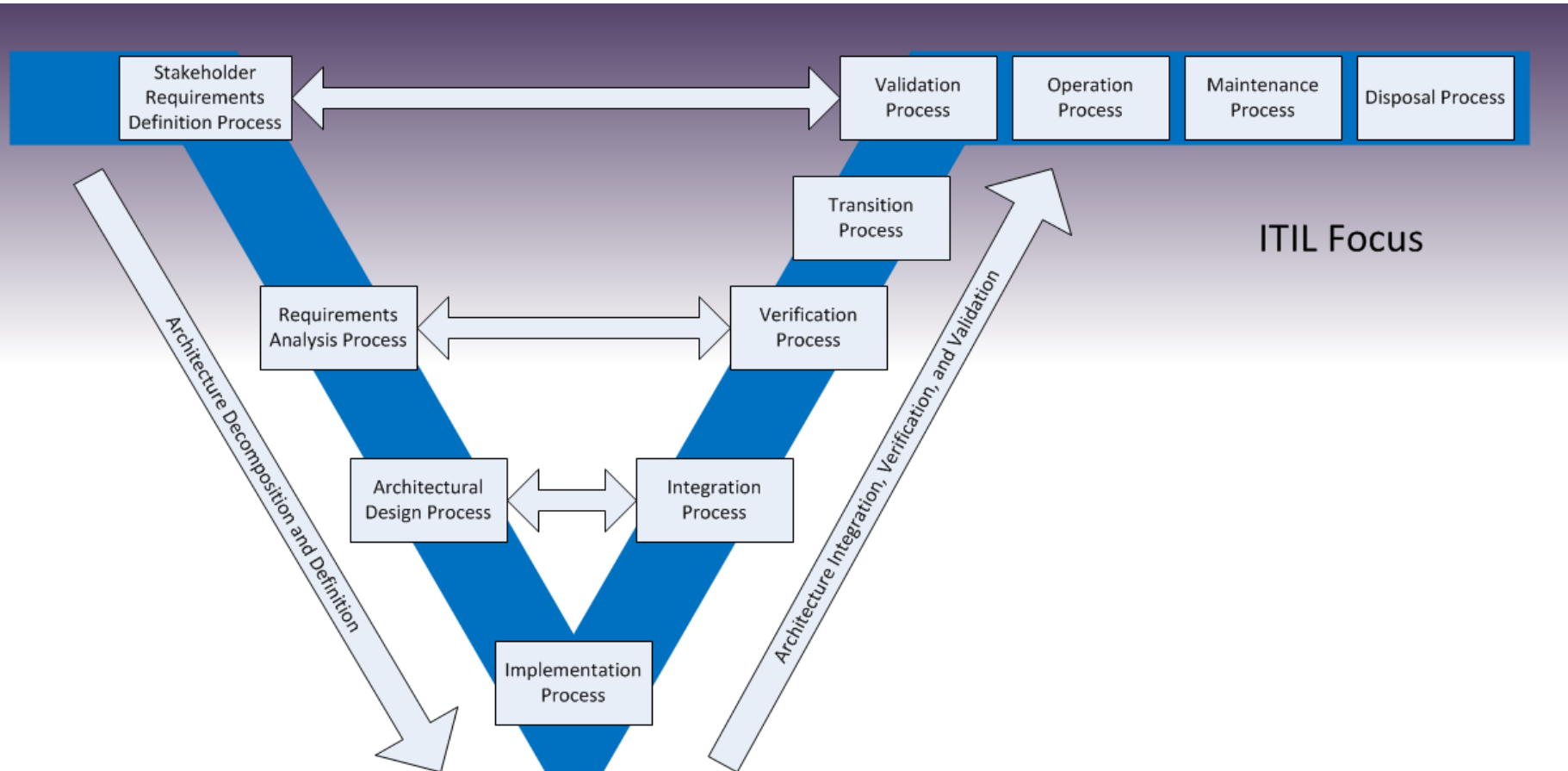


Figure 4.12 Example of service lifecycle configuration levels and baseline points, represented by the numbered triangles

Source: ITIL® Service Transition, Office of Government Commerce, 2007, p.78.

Systems Engineering and the role of the ITIL V-Model. . .



Ready for what's next.

Marrying ITIL + System Engineering (1)

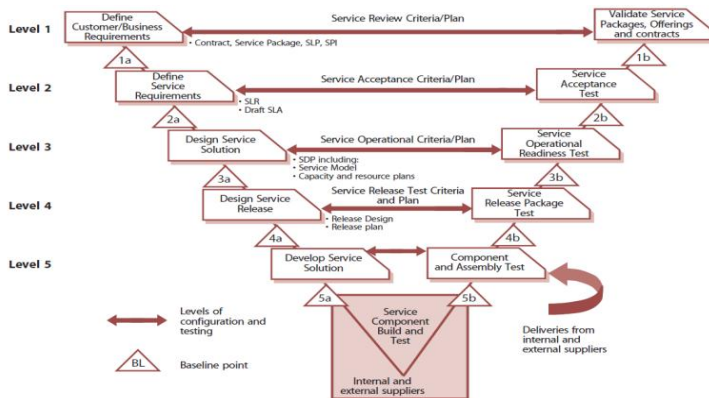
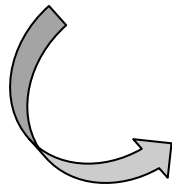
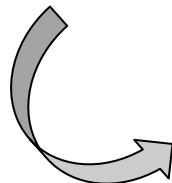


Figure 4.12 Example of service lifecycle configuration levels and baseline points, represented by the numbered triangles

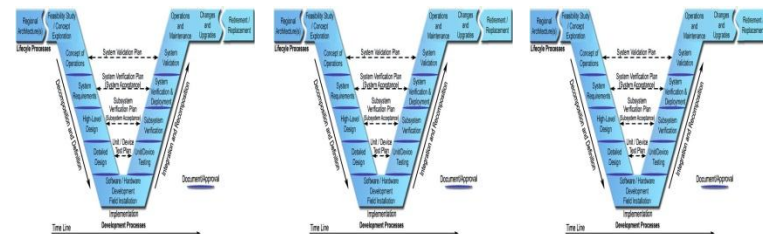
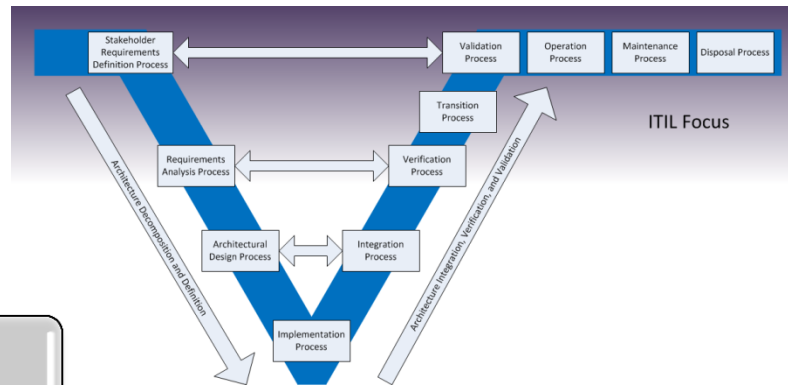
1 Service Portfolio



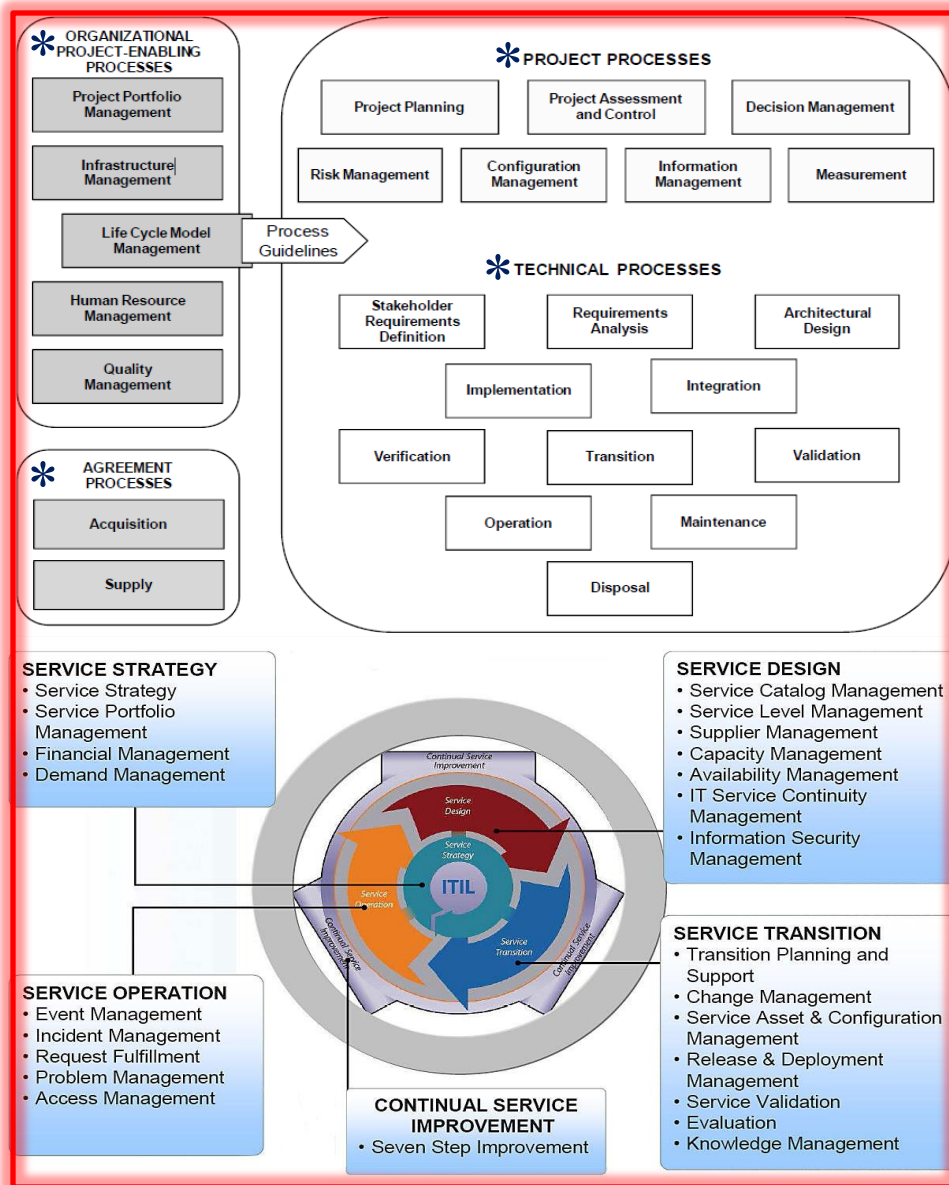
2 System of Systems



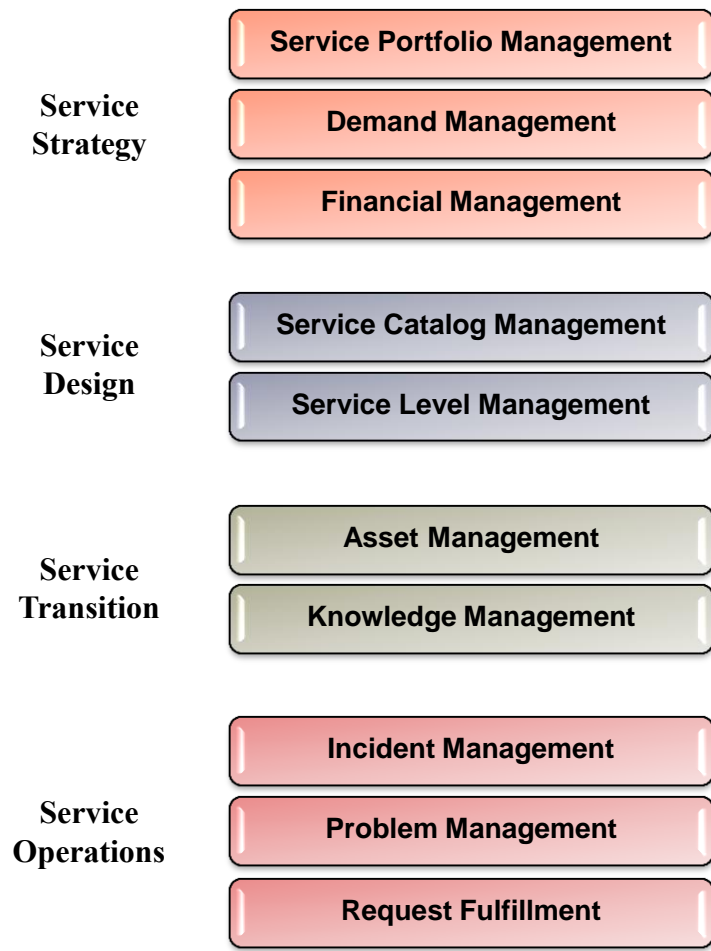
3 Systems + Components



Hierarchy of "V's" . . .



Integrated Processes...



So What is a System Engineer's Role in an ITIL World?

- Recognize where ITIL processes support and enhance systems engineering processes
- Leverage ITIL processes when defining, validating, and providing services
- Utilize an ITSM/ITIL approach to encourage emphasis on stakeholder requirement development
 - Stakeholder requirement development often considered extraneous overhead by IT managers when using a traditional system-of-systems approach to IT development

Utilizing ITIL is a BIG WIN for systems engineers – helps systems engineers efficiently define and provide IT services

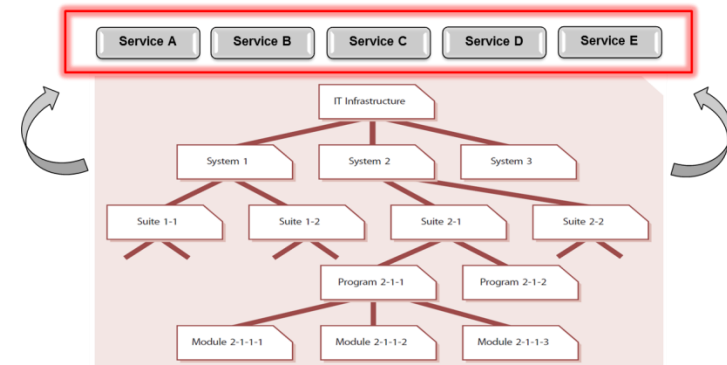
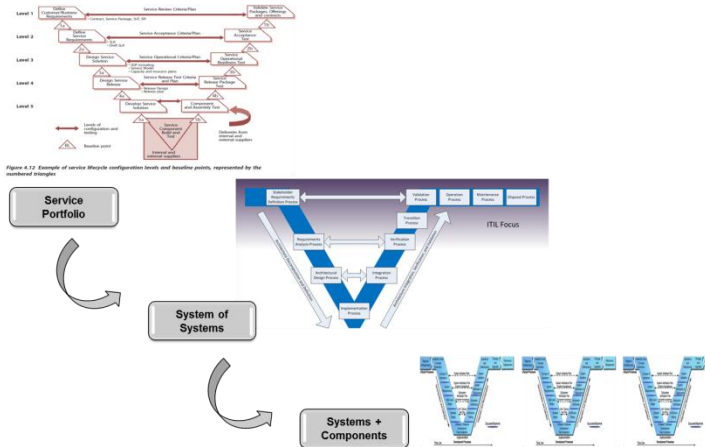


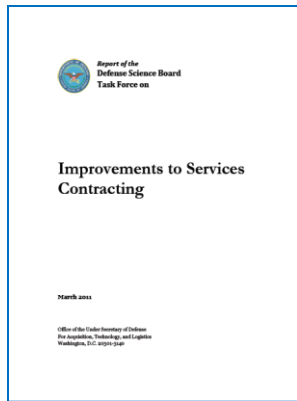
Figure 4.13 Simplified example of an IT infrastructure

How Can You Help Your Organization Make the Transition?

- Understand where your organization is within the IT transformation process
- Identify the changes to your system that will be required to provide IT services as your organization progresses through IT transformation
- Encourage shifting to an ITSM/ITIL approach for gathering and defining stakeholder requirements and providing a focus on the services



DoD is transitioning from a traditional waterfall *systems* acquisitions approach to a more agile approach to acquiring and managing *services*.



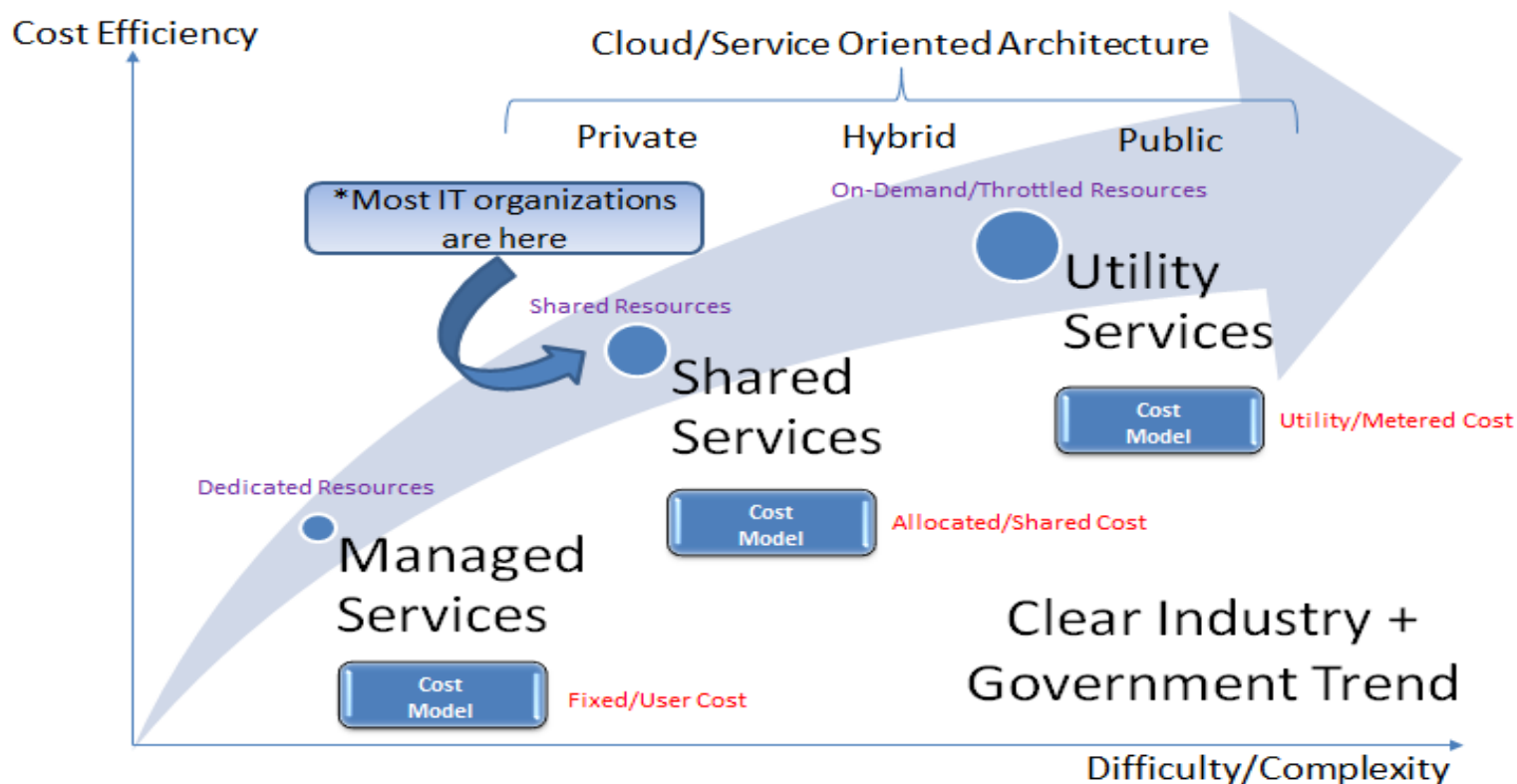
- IT services have completely permeated the national security enterprise. The DOD is increasingly dependent on IT enabled services for both business enterprise and mission activities. As a result IT service reliability is directly related to DOD business and mission risk.
- DoD is facing \$450 billion to \$1 trillion in cuts over the next decade that will force consolidation to enterprise shared services including cloud computing.
- Shared enterprise services will require enterprise service management capabilities beyond what currently exists or is budgeted for.
- **The DOD currently acquires more *service* than *product*.** DOD programs provide more service than product. Service acquisition extends through the period of performance, but *current DOD capabilities are based on product and system acquisition and are inadequate for managing the cost, quality, risk, performance, and mission outcomes related to service.*

Defense Science Task Force on Improvements to Service Contracting

(All services, including IT Services):

Product: \$158B (43%)
Service: \$212B (57%)

Ref: "ITSM in the DoD" Presentation Dated 14 December 2011
Presented by Bill Powell and Michael Thompson to the ISACA Virginia Chapter



- DoN to reduce total IT spend 25% over 5 years via enterprise IT efficiencies
- Strategy – Shift from owning assets (CAPEX) to managing services (OPEX)
- How? – Enterprise data center consolidation, shared services, processes, etc...

DoD Acquisition Lifecycle improvement plans

Programs and regulations to improve and accelerate the IT acquisitions process

Office of Management and Budget (OMB) 25 Point Plan

- DC Consolidation (800/2015)
- IT Program Mgr. Career Path
- Enterprise shared services
- Federal Cloud First Policy
- Eliminate underperforming IT projects
- Acquisition process for IT

National Defense Authorization Act (NDAA) of 2011

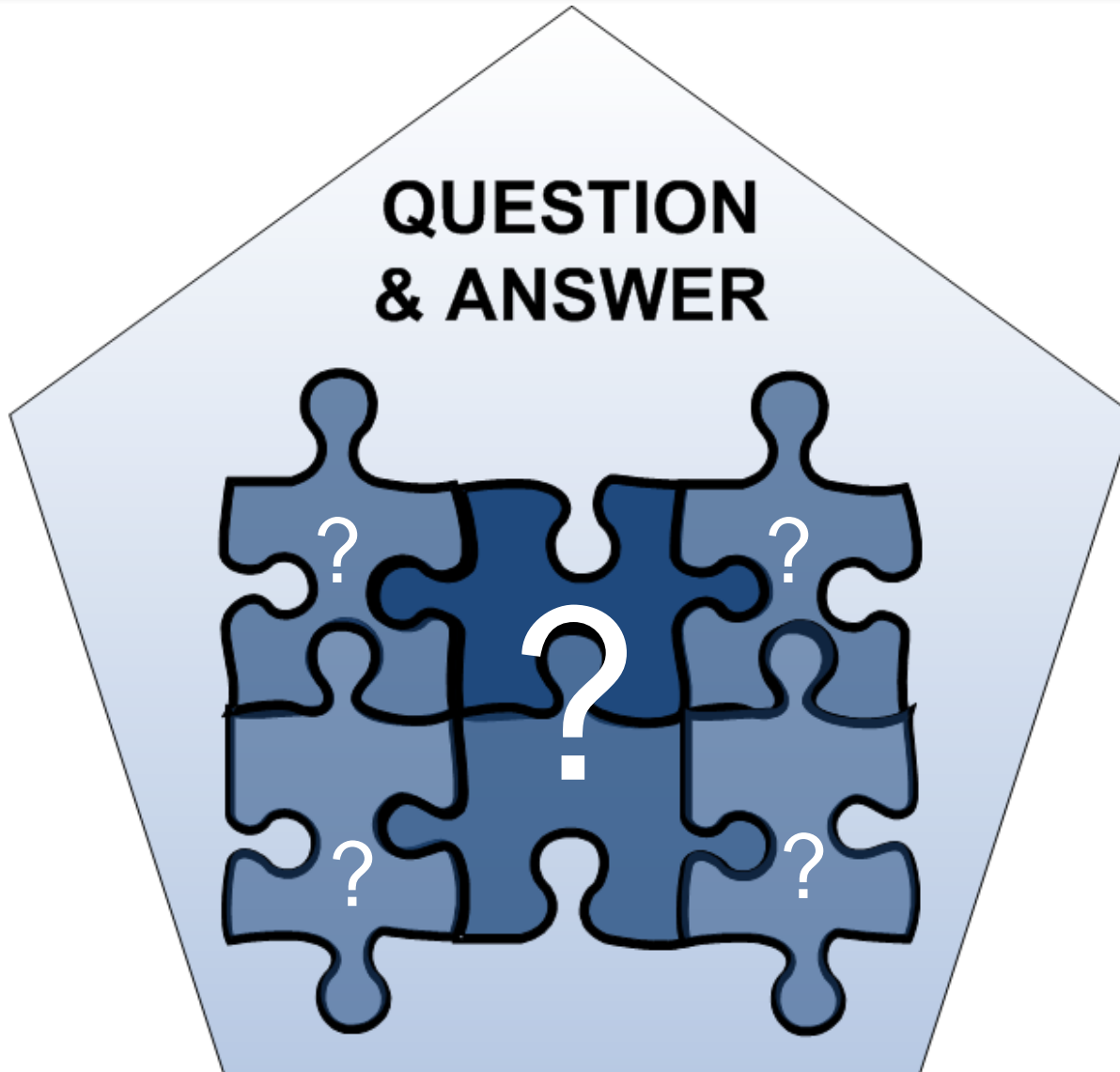
- BPR required if development or modernization funding exceeds \$1M
- IT Management coordination through updated Enterprise Architecture regulations

Defense Business Capability Lifecycle (BCL)

- Rapidly acquire and deliver business IT capabilities
- Designed to enable delivery of incremental capabilities while requiring compliance with business process requirements
- Shortens cycle time to reduce waste while maintaining oversight

Ref: “*ITSM in the DoD*” Presentation Dated 14 December 2011
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Ready for what's next.



Thank You for Participating!

- **An ITIL® Approach to System Engineering**
- Recommended Reading: *Ten Steps to ITSM Success: A Practitioner's Guide to Enterprise IT Transformation*



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