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ITSM Frameworks and Processes and their Relationship to EA Frameworks and Processes

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Enterprise Architecture and IT Service Management

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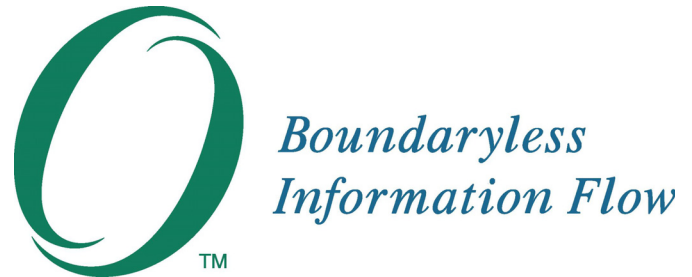Comments on the content of this document may be submitted to the author at:

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Executive Summary

Enterprise Architecture (EA) is "*the organizing logic for an organization's core business processes and IT capabilities captured in a set of policies and technical choices, to achieve business standardization and integration requirements of the firm's operating model*". [Jeanne Ross, MIT CISR 2003]

"*Enterprise architecture is about understanding all of the different elements that go to make up the enterprise and how those elements interrelate.*" Elements include People, Process, Business, and Technology.

IT Service Management (ITSM), on the other hand, is an IT Service and Process Management Framework and a set of best (good) practices that support these IT processes.

There is a strong relationship between developing enterprise architecture and developing an ITIL-based ITSM program. Similarly, there is a strong relationship between implementing a target enterprise architecture and an ITSM program. These relationships are manifested in terms of People, Process, Business, and Information.

This White Paper addresses some of the commonalities and inter-relationships between EA and ITSM.

EA and ITSM within Overall IT Management Frameworks

Global IT Management Framework

Global IT Management functional areas can be classified as:

- Global IT Strategy & Architecture

- Global IT Marketing & Finance

- Global IT Governance

- Global IT Services

- Global IT Processes

The ITSM Framework has implications for all five areas of Global IT Management. However, the ITSM Framework has significant implications from a Global IT Services and Global IT Processes management perspective.

One school of thought in Global IT Management (see Figure 1) subscribes to the view that IT Strategy & Architecture, IT Marketing & Finance, and IT Governance are managed from a global enterprise perspective, while IT Services and IT Processes are planned and implemented from a local/national perspective. This may be the current state for several global enterprises.
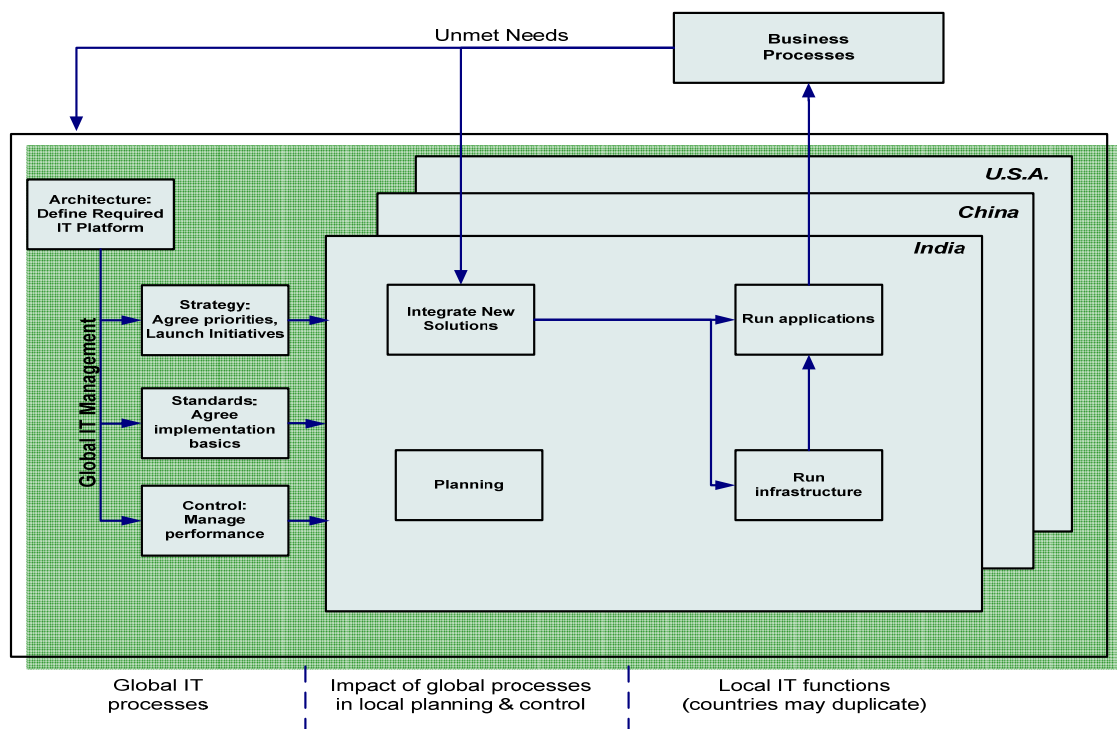
Figure 1: Global IT Management [Source: Robert Barton, Global IT Management: A Practical Approach][1]

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[1] Robert Barton, Global IT Management: A Practical Approach, Wiley, February 2001.

However, with the emergence of enterprise architecture as a new field of study and service sciences as another emerging field of study, there is considerable momentum toward standardized and/or integrated Global IT Services and Global IT Processes.

The goal for many organizations, today, is to have globally standardized and/or integrated IT Processes.
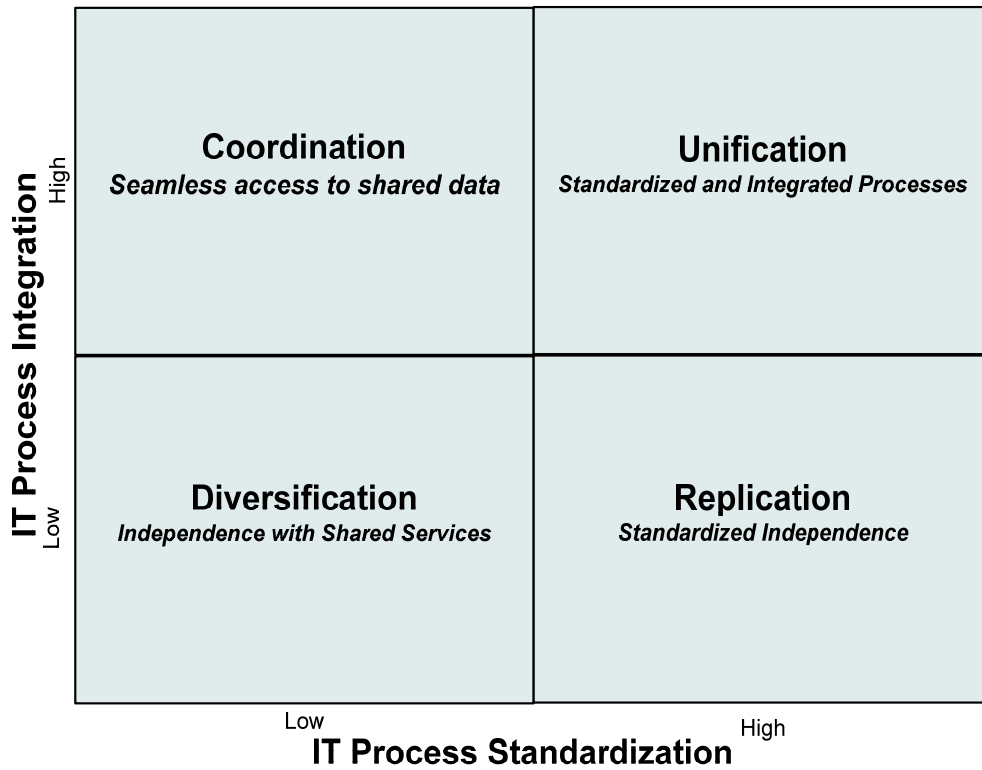
Figure 2: Four Operating Models [Source: Jeanne Ross et al, Enterprise Architecture as Strategy][2]

Given this objective, both EA and ITSM Frameworks and best practices can help global enterprises to plan and implement standardized and/or integrated IT Processes.

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[2] Jeanne Ross, Peter Weill, & David C. Robertson, Enterprise Architecture as Strategy, Harvard Business School Press, 2006.
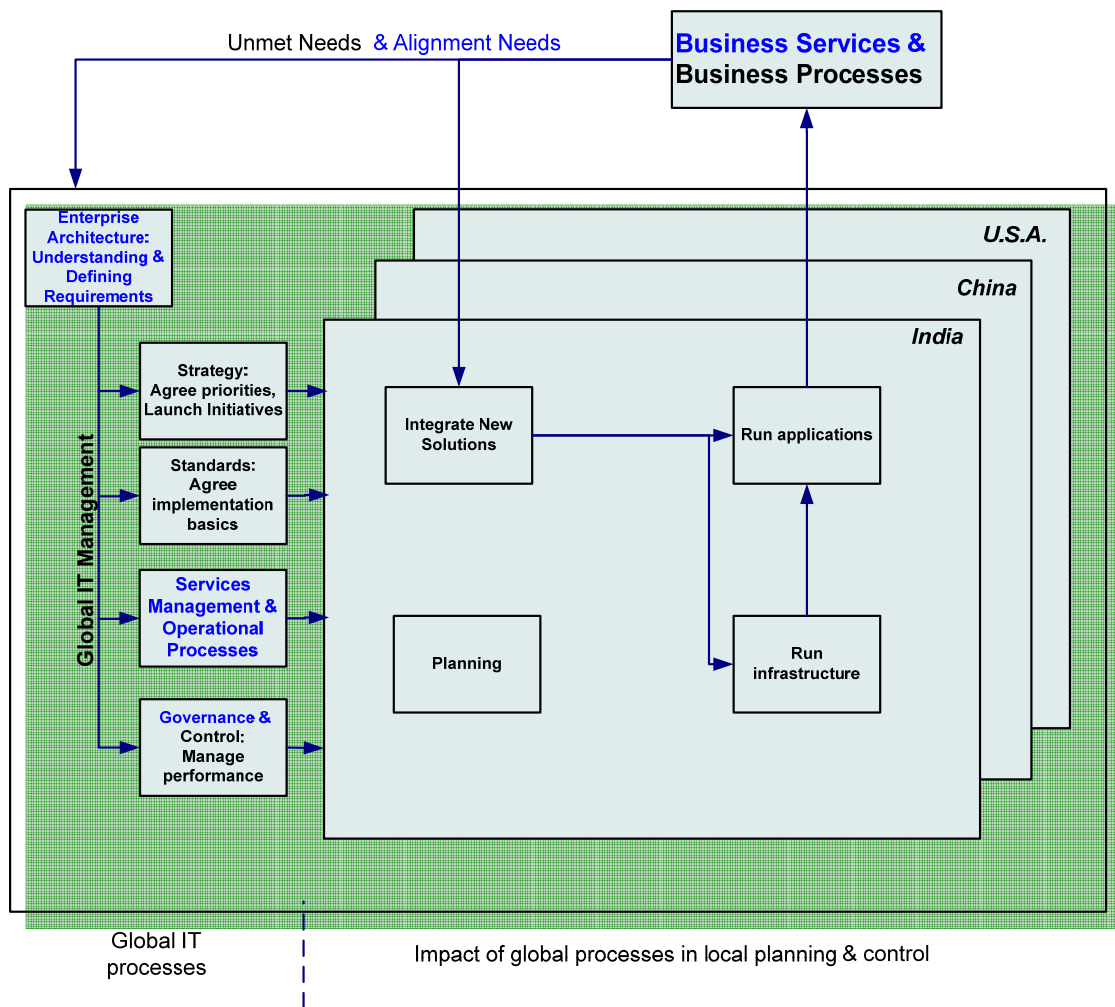
Figure 3: Global IT Management and ITSM

In Figure 3, the Global IT Management framework is adapted by introducing the Global ITSM as a set of IT Processes and IT Service-related processes (work flows), that can come under the Global IT Processes framework, in addition to Global IT Strategy & Architecture processes, Global IT Standards (in terms of technology standards), and Global IT Control.

Note: COBIT is a governance model for most, if not all, of these Global IT Processes.

Now, these globally standardized and integrated processes that are driven top-down from global IT to local and/or national IT, can be tuned to specific local and/or national requirements/needs – via an exception handling process (request and approval process within the Global IT Governance Framework).

Enterprise IT Management Frameworks

ITGI-COBIT
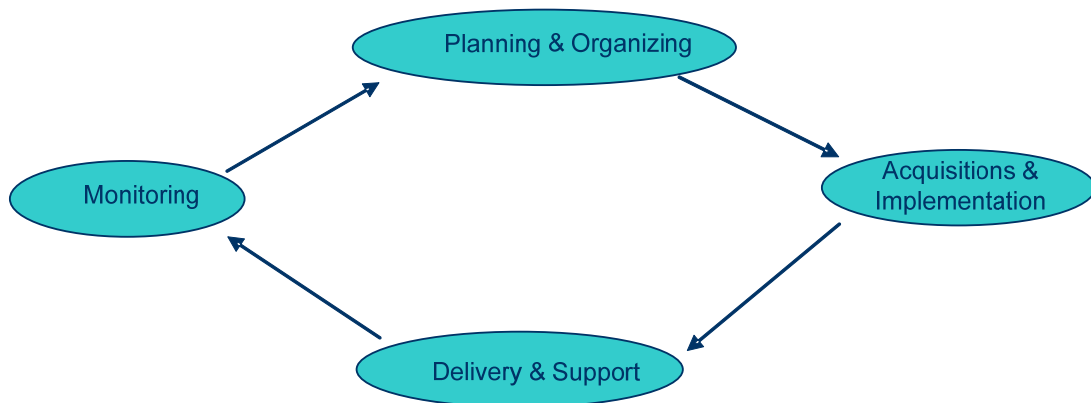
Figure 4: Control Objectives for Information and Related Technologies (COBIT)

Control Objectives for Information and Related Technologies (COBIT) is a framework developed by the IT Governance Institute (ITGI) primarily to audit IT Processes. The framework has defined IT Processes in four different areas, as follows:

* Plan & Organize – Set of PO Processes that give direction to AI (Solution Delivery) and DS (Service Delivery & Support) processes.

* Acquire & Implement – Set of AI Processes that provide the solutions and pass them on to become services.

* Delivery & Support – Set of DS Processes that receive solutions and convert them to user-consumable services.

* Monitor & Evaluate – Set of ME Processes that monitor all services and processes to ensure the given direction is being followed.

Most of enterprise architecture-related processes are related to the PO set of processes, while most IT Service Management processes are related to the AI and DS set of processes. COBIT not only identifies these processes, but also provides a framework to measure and monitor all processes with KGI (Key Goal Indicators), KPIs (Key Performance Indicators), and CSF (Critical Success Factors).

In the following tables, Blue processes are significantly under the domain of Enterprise Architecture (Enterprise Business, Application, Information, Integration, Infrastructure Architecture; i.e., IS and IT Architecture), and Green processes are significantly under the domain of IT Service Management (both ITIL V2 and V3).

Plan & Organize	
PO1	Define a Strategic IT Plan
PO2	Define the Information Architecture
PO3	Determine Technological Direction
PO4	Define the IT Processes, Organization, and Relationships
PO5	Manage the IT Investment

Plan & Organize	
PO6	Communicate Management Aims and Direction
PO7	Manage IT Human Resources
PO8	Manage Quality
PO9	Assess and Manage IT Risks
PO10	Manage Projects

Acquire & Implement	
AI1	Identify Automated Solutions
AI2	Acquire and Maintain Application Software
AI3	Acquire and Maintain Technology Infrastructure
AI4	Enable Operation and Use
AI5	Procure IT Resources
AI6	Manage Changes
AI7	Install and Accredit Solutions and Change

Deliver & Support	
DS1	Define and Manage Service Levels
DS2	Manage Third-party Services
DS3	Manage Performance and Capacity
DS4	Ensure Continuous Service
DS5	Ensure Systems Security
DS6	Identify and Allocate Costs
DS7	Educate and Train Users
DS8	Manage Service Desk and Incidents
DS9	Manage the Configuration
DS10	Manage Problems
DS11	Manage Data
DS12	Manage the Physical Environment
DS13	Manage Operations

Monitor & Evaluate	
ME1	Monitor and Evaluate IT Performance
ME2	Monitor and Evaluate Internal Control
ME3	Ensure Compliance with External Requirements
ME4	Provide IT Governance

MIT CISR – Enterprise IT Management Model

The MIT Center for Information Systems Research (CISR) has developed a model that factors in the Businesses Operating Model (diversified enterprise with unrelated business units *versus* undiversified enterprises with related business units), and the enterprise's engagement model (IT Governance, Program, and Project Management), and ties enterprise architecture to Business Processes & IT Capabilities. The core Business Processes and IT Capabilities (can include ITSM Capabilities) form the foundation for execution. This is a more realistic model as it depicts key IT activity areas within enterprises, including:

- Strategic Initiatives (both business and IT initiatives)

- Business Operating Model (which defines integration/standardization requirements)

- Enterprise Architecture (development & implementation)

- Engagement Model made up of IT Program/Project Management and IT Governance:
  IT Program/Project Management – PEMM can be used as an audit tool from a business process perspective.
  IT Governance – ITIL-ITSM/COBIT can be used as audit tools from an IT Process perspective.

- Foundation for Execution (current core business processes, IT Capabilities including IT Infrastructure, Services, and Processes)

Important Note: ITSM fits in with this enterprise framework in many ways:

- As part of the foundation for execution: Current IT Service & IT Process Capabilities

- As a subset or part of enterprise architecture: IT Processes/Services (ITSM) architecture

- As part of the engagement model (ITSM Audits & IT Governance)

- As the framework, processes, and tools used for implementing enterprise models. This view is supported by the Generalized Enterprise Reference Architecture and Methodology (GERAM).

Note: As the GERAM framework indicates, Enterprise Models (both Enterprise Business Processes and Operational Processes) can be implemented using Enterprise Operational Systems (EOS) which in turn can use Enterprise Modules for Operations (EMO) that provide modules (Building Blocks) of Operational Processes and technologies for implementation. ITSM processes and tools can and will be the provider of EMOs. So, there is a bi-directional link between Strategic Planning (Business and IT), Enterprise Architecture, and IT Service Management (ITSM).
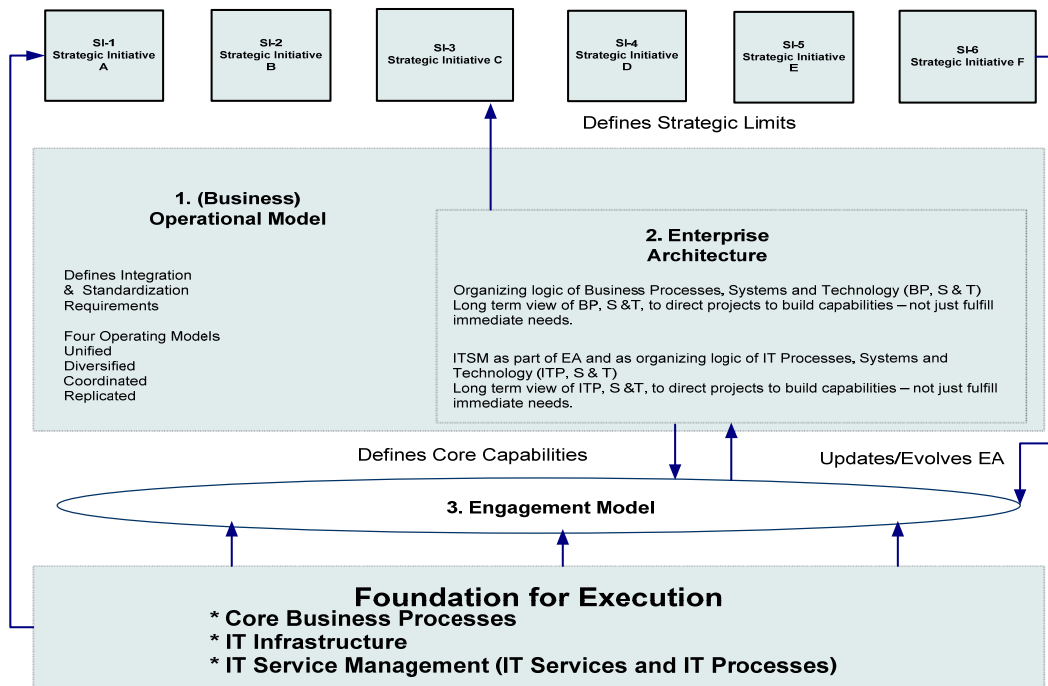
Figure 5: Enterprise IT Management Model [Modified from source: Jeanne Ross et al, Enterprise Architecture as Strategy]

EA and ITSM Frameworks

Introduction

There are two popular IT Service Management Frameworks (ITIL-ITSM):[3]

• IT Information Library Version 2 (ITIL V2)

• IT Information Library Version 3 (ITIL V3)

There are also vendor-specific IT Service Management Frameworks such as:

• IBM Service Management (ISM) which covers Business and IT Services

• IBM Process Reference Model for IT (PRM-IT) which covers IT Processes

There are several Enterprise Architecture Frameworks, and some of the most popular ones are:

• The Open Group Architecture Framework (TOGAF) by The Open Group

• Zachman Framework by the Zachman Institute for Framework Advancement (ZIFA)

• The Federal Enterprise Architecture Framework (FEAF) by the Federal CIO Council

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[3] ITIL materials are owned by the Office of Government & Commerce (OGC), UK (refer to www.itil.co.uk).

ITIL V2 Framework

IT Information Library-based IT Service Management (ITIL-ITSM) is an IT Processes and Services Management Framework with a set of best practices associated with each set of IT Processes.

ITIL provides a cohesive set of best practices, drawn from the public and private sectors internationally. It consists of seven sets of books related to the business perspective, planning to implement Service Management, Service Delivery, Service Support, ICT Infrastructure Management, Applications Management, and Security Management.
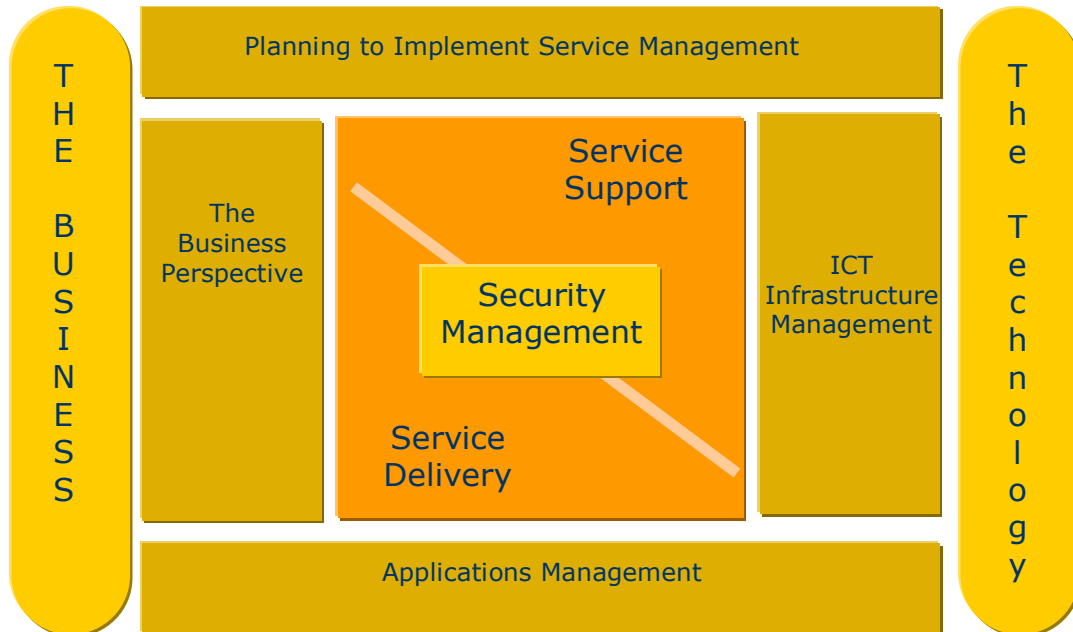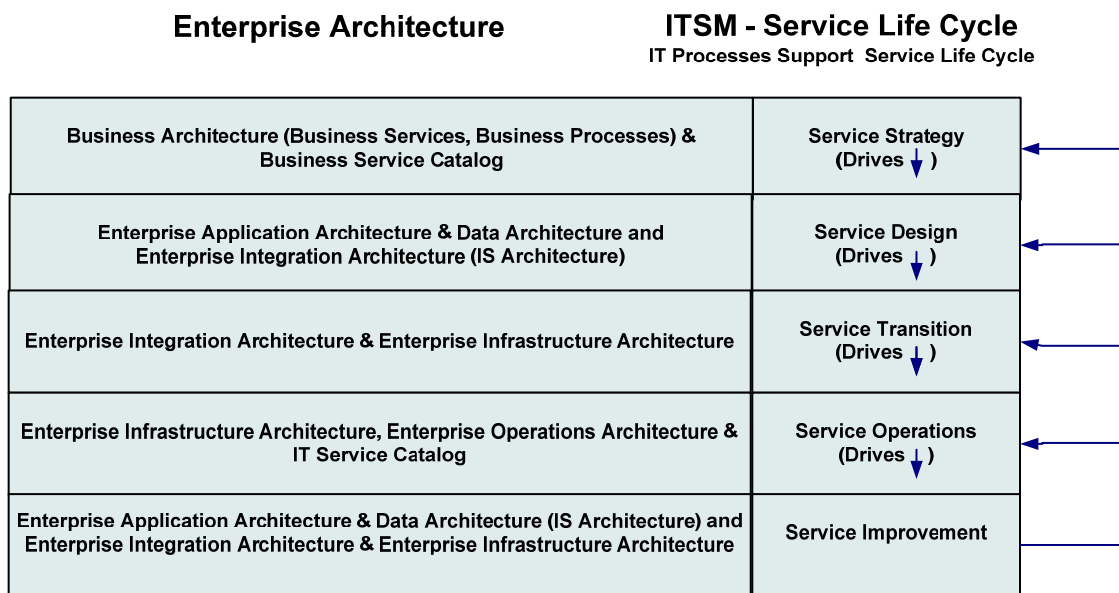

Figure 6: IT Information Library Version 2 (ITIL V2) [Source: OGC]

ITIL V3 Framework

The next manifestation of the ITIL-ITSM Framework (ITIL V3, published May 2007) involves a Service Lifecycle Approach with five stages in the Service Lifecycle from conception to retirement of services:

• Service Strategies

• Service Design

• Service Transition

• Service Operations

• Service Improvement (Continuous Service Improvement)

Enterprise Architecture   **ITSM - Service Life Cycle**
IT Processes Support Service Life Cycle

Enterprise Architecture	ITSM - Service Life Cycle
Business Architecture (Business Services, Business Processes) & Business Service Catalog	Service Strategy (Drives ↓)
Enterprise Application Architecture & Data Architecture and Enterprise Integration Architecture (IS Architecture)	Service Design (Drives ↓)
Enterprise Integration Architecture & Enterprise Infrastructure Architecture	Service Transition (Drives ↓)
Enterprise Infrastructure Architecture, Enterprise Operations Architecture & IT Service Catalog	Service Operations (Drives ↓)
Enterprise Application Architecture & Data Architecture (IS Architecture) and Enterprise Integration Architecture & Enterprise Infrastructure Architecture	Service Improvement

ITSM as subset or part of EA:
This diagram is not a one to one mapping of Service Life Cycle Stage and key aspects of EA
This diagram does indicate the primary relationships between EA and ITSM
For Example: a) Service Design should use enterprise application, data and integration architecture
and standards to design the tools and applications supporting the Service.
b) Tools used by ITSM processes such as CMDB and Service Catalog can be a source of meta data
and input for the organizing logic of IT Processes, Services, Systems and Technology.

Figure 7: Enterprise Architecture and Service Lifecycle

IBM Process Reference Model for IT (PRM-IT)

The Process Reference Model for IT (PRM-IT) essentially contains 41 different processes that are grouped into eight categories. This is a more holistic view of IT and covers both EA Processes (in IT Direction) and ITSM Processes (in Solution Development – Service Design, Solution Deployment – Service Transition, IT Operational Services, and Resilience (Service Operations and Improvement)).

IT Governance and Management System

IT Governance and Management System
   Framework
IT Governance and Management Capabilities
IT Management System Operation
IT Governance and Management System
   Evaluation

IT Customer Relationships

Stakeholder Requirements Management
IT Customer Transformation Management
Service Marketing and Sales
Service Level Management
Customer Satisfaction Management

IT Direction

IT Strategy
IT Research and Innovation
Architecture Management
Risk Management
IT Portfolio Management
Program and Project Management

Solution Development

Solution Requirements
Solution Analysis and Design
Solution Build
Solution Test
Solution Acceptance

Solution Deployment

Change Management
Release Management
Configuration Management

IT Operational Services

Service Execution
Data Management
Event Management
User Contact Management
Incident Management
Problem Management

IT Resilience

Compliance Management
Security Management
Availability Management
Capacity Management
Facility Management
IT Service Continuity
   Management

IT Administration

Financial Management
Asset Management
Supplier Relationship Management
Service Pricing and
   Contract Administration
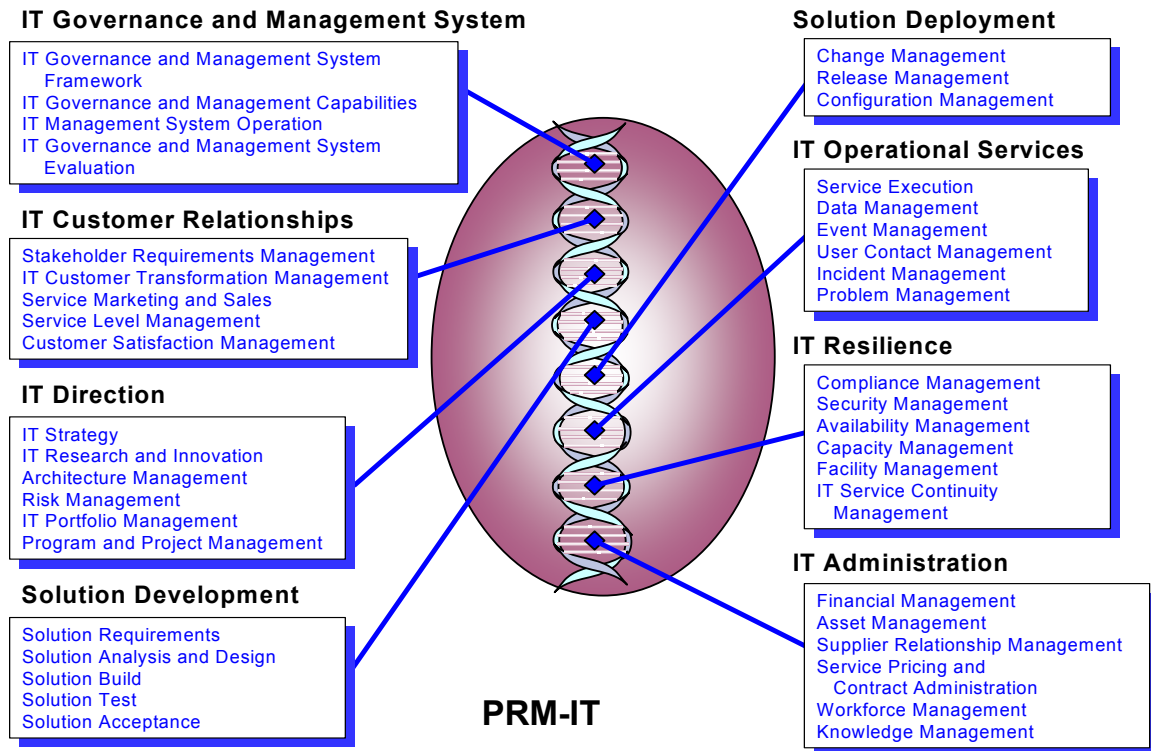Workforce Management
Knowledge Management

PRM-IT

Figure 8: IBM Process Reference Model for IT (PRM-IT) V2

TOGAF by The Open Group

The Open Group Architecture Framework (TOGAF) is essentially made up of the following:

- Enterprise Continuum – Provides context for the leveraging of relevant architecture assets and provides navigational help when discussions move between different levels of abstraction.

- Architecture Development Method (ADM) – Provides a method to develop current and target enterprise architecture, as well as a method to move toward the target architecture.

- Resource Base – A set of resources (guidelines, templates, checklists, and other detailed materials) supporting the TOGAF ADM. In other words, artifacts for re-use.
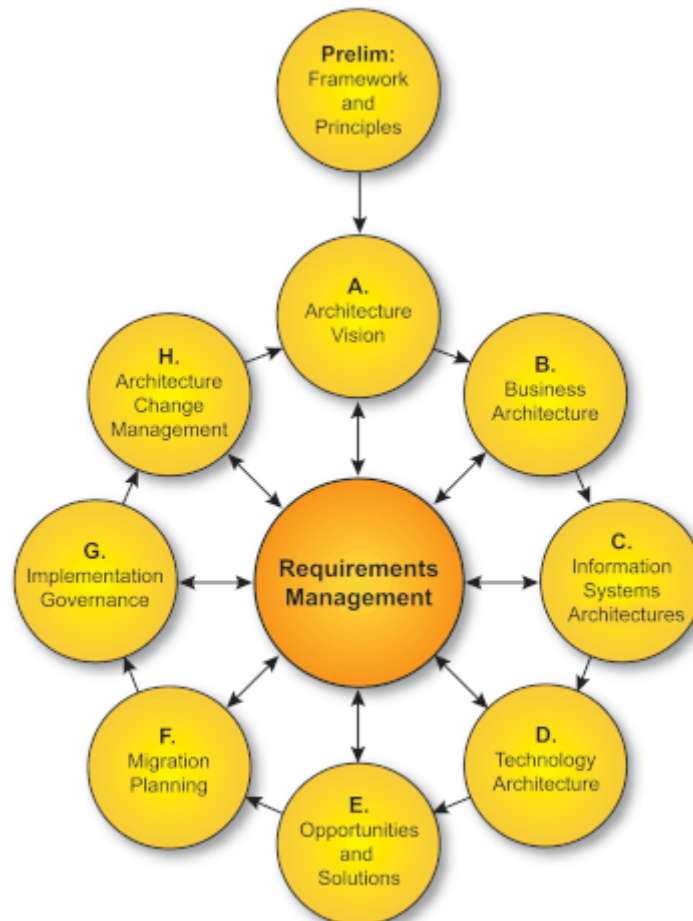

Figure 9: Architecture Development Method (ADM) by The Open Group

Zachman Framework by ZIFA

This is more of a static two-dimensional enterprise architecture framework with:

- Data, Function, Network, People, Time, and Motivation on one dimension

- Scope, Business, System, Technology, Detailed, and Functional Models on another dimension – creating 6 X 6 (36) types of models/depiction of the enterprise
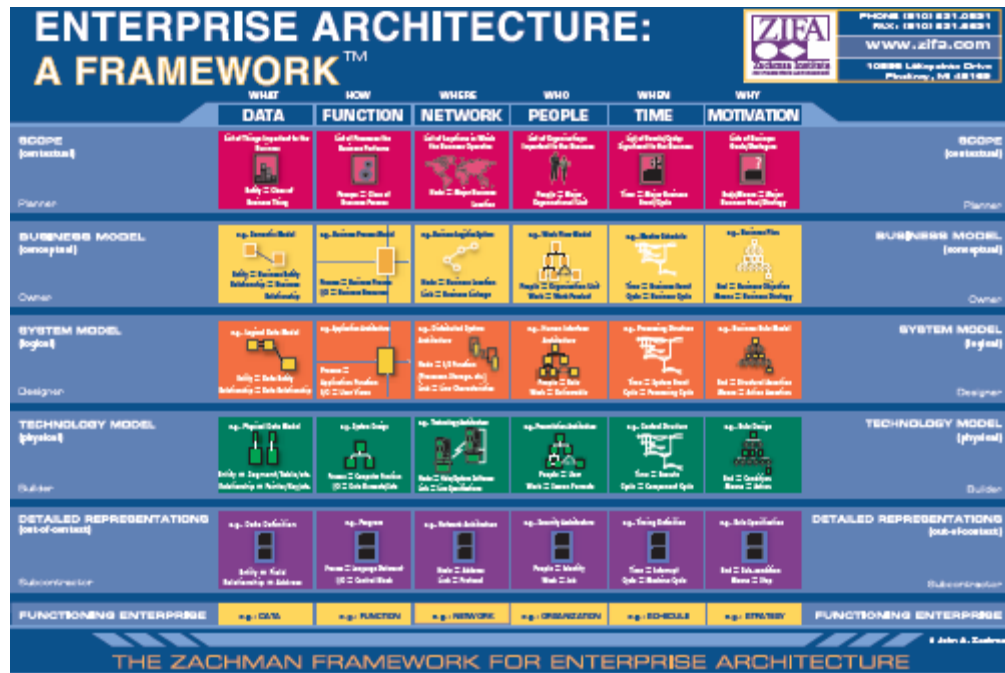

Figure 10: The Zachman Framework for Enterprise Architecture

FEAF

"*The Federal Enterprise Architecture Framework (FEAF) was established in 1999 by the Federal Chief Information Officers (Federal CIO Council) in response to the Clinger-Cohen Act of 1996. The purpose of the FEAF is to facilitate shared development of common processes and information among Federal Agencies and other government agencies.*" [Source: FEAF]

Based on the FEAF, a given architecture can be organized into Business, Data, Applications, and Technology Architectures:

- *Business Architecture* represents the business functions that the Business/Federal Government Agency performs and the information that the Business/Federal Government Agency uses.

- *Data Architecture* defines how data is stored, managed, and used in a system. It establishes common guidelines for data operations that make it possible to predict, model, and control the flow of data in the system.

- *Applications Architecture* consists of logical systems that manage the data objects in the Data Architecture and support the business functions in the Business Architecture. The applications are defined without reference to particular technologies. The applications are stable and relatively unchanging over time, whereas the technology used to implement them will change over time, based on the technologies currently available and changing business needs.

- *Technology Architecture* describes current and future technical infrastructure and specific hardware and software technologies that support Business/Federal Government Agency information systems. It provides guidance and principles for implementing technologies that support the Applications Architecture.

The FEAF consists of a set of "interrelated models" designed to facilitate cross-agency analysis and the identification of duplicative investments, gaps, and opportunities for collaboration within and across agencies. FEAF models are defined as:

- Business Reference Model (BRM)

- Performance Reference Model (PRM)

- Service Components Reference Model (SRM)

- Data and Information Reference Model (DRM)

- Technical Reference Model (TRM)

EA and ITSM Maturity Models

There are several Maturity Models for EA and ITSM.

Note: The Process and Enterprise Maturity Model (PEMM) has a holistic view on both the Enterprise Architecture and Business Processes. However, the focus is primarily on Business Processes and not on IT Processes.

In general, there is a dependency relationship between EA maturity and ITSM maturity. Organizations moving up through different in EA maturity levels need also to be progressing through ITSM maturity levels. For example, to reach EA maturity level 4 (i.e., an enterprise with plug-and-play capabilities for IT-enabled Business Process Modules), organizations need ITSM maturity level 5, or at least level 4 (i.e., ITSM Processes and Services are well-defined and well-operated with significant business alignment to enable Business Modularity; Service Oriented Architecture (SOA) for Application/Data/Integration Architecture and Service Oriented Infrastructure (SOI) for Facilities, Storage, Systems, and Network are also key determinants of Business Modularity).

This dependency between EA work/progress and ITSM work/progress is also depicted in the figures below:

• There is significant overlap between EA and ITSM work.

• However, EA work tends to focus more on strategic IT issues, while

• ITSM work tends to focus more on operational IT issues.

• Both EA and ITSM work focus on tactical IT issues.

• Invariably ITSM provides the foundation for progress towards the target enterprise architecture.

• ITSM provides Building Blocks and Operational Capabilities to implement Enterprise Business Models.
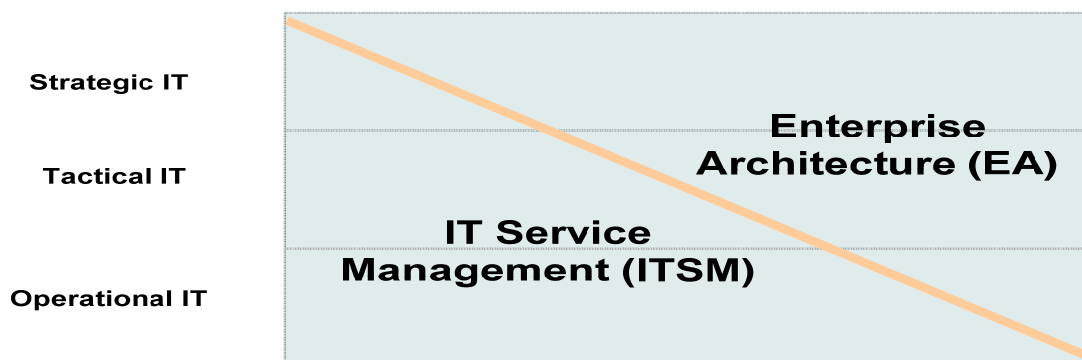
Maturity Level	EA Maturity Level 1 – *Business Silos*	EA Maturity Level 2 – *Standard Technology*	EA Maturity Level 3 – *Optimized Core*	EA Maturity Level 4 – *Business Modularity*
IT Capability	Local IT Application	Shared Technical Platform	Companywide standardized processes/data	Plug and Play Business Processes Modules
Business Objectives	ROI of Local Business Initiatives	Reduced IT Costs	Costs & Quality of Business Operations	Speed to market & strategic agility
Funding Priorities	Individual Applications (Appl. Silos)	Shared Infrastructure Services	Enterprise Applications	Reusable business process components
Key Management Capability	Technology Enabled Change Management	Design & Update of Standards	Core ent. process definition/measurement	Management of reusable business processes
Who defines application	Local Business Leaders (BU)	IT and Business Unit Leaders	Sr. Management and Process Leaders	IT, Business and Process Leaders
Key IT Governance Issues	Measuring & Communicating Value	Establishing Local/Regional/Global Resp.	Aligning project priorities with architecture obj.	Defining, sourcing & funding business modules
Strategic Implications	Local/Functional Optimization	IT efficiency	Business Operational efficiency	Strategic Agility

[Source: EA Maturity Model, Jeanne Ross et al, Enterprise Architecture as Strategy]

Maturity Level	ITSM Maturity Level 1	ITSM Maturity Level 2	ITSM Maturity Level 3	ITSM Maturity Level 4	ITSM Maturity Level 5
PMF Name	Initial	Repeatable	Defined	Managed	Optimized
Focus	Technology Focus	Service / Product Focus	Customer Focus	Business Focus	Value Chain
Comments	Technology is King; Technology excellence/experts	Excellence in Service Support; Reactionary environment	Proper Service Level Management; Move toward proactive work environment	Business and IT Alignment; Proactive work environment	Seamless integration of IT into business and strategy development and decision making.

[Source: ITSM Maturity Model, Process Management Framework (PMF)]

Figure 11: EA and ITSM Maturity Models

Architecture Building Blocks, Solution Building Blocks, and Service Building Blocks

Based on the IFEAD definition of enterprise architecture: "*Enterprise architecture is about understanding all of the different elements that go to make up the enterprise and how those elements interrelate.*"

Enterprise architecture can be further layered as:

- Enterprise Business Architecture

- Enterprise Application Architecture

- Enterprise Data Architecture

- Enterprise Integration Architecture

- Enterprise Infrastructure Architecture

- Enterprise Operations Architecture

There can be a set of distinct services related to each Architectural Layer.

Service Catalog - Business & IT Services   Enterprise

Business Services – Human Enabled & IT Enabled Business Services Example: HR Services for baby sitting for employees' children and Digital X-Rays as part of Dental Services	**Business Architecture**
Application Development and Testing (Life Cycle) Services Example: Application Performance Tuning Service	**Application / Data Architecture**
EAI Services, B to B Integration Services, EDI Services Example: B to B – Enterprise to Equifax (Vendor) Credit Check Service	**Integration Architecture**
Security Services, Storage Services, System Services, Network Services, DB and Application Infrastructure Services Example: Backup and Restore Service	**Infrastructure Architecture**
IT Process based Services Example: SLA development Service (part of Service Level Management Process)	**Operations Architecture**

Figure 12: Architecture Layers and Business/IT Services

TOGAF defines building blocks as: "*a package of functionality defined to meet a business need*". TOGAF further defines ABB and SBB (Architecture Building Blocks and Solution Building Blocks) as follows: "*Building blocks at this functional level of definition are described in TOGAF as Architecture Building Blocks (ABBs). Later on, real products or specific custom developments replace these simple definitions of functionality, and the building blocks are then described as Solution Building Blocks (SBBs).*"

Service Building Blocks, on the other hand, are a collection of Solution Building Blocks that are grouped together to provide a service or parts of a service. A Solution Building Block can be mapped to one or more Service Building Blocks. There may also be multiple Solution Building Block options for a Service Building Block.

While Architecture Building Blocks are in the Architecture Management space, Service Building Blocks are in the Service Management space. Solution Building Blocks are in both domains – Architecture and Service Management. Solution Building Blocks can originate from the Architecture group and be used for Service Building Blocks by the Service Management group.

Enterprise architecture uses and manages Architecture Building Blocks and Solution Building Blocks, both of which can provide the foundation for Services and Service Architectures.

Service Building Blocks associated with individual or bundles (groups) of services can map to Architecture Layers and Architecture Building Blocks.

For example, there may be multiple IT Solution Building Blocks, such as:

• SAN-based Storage Pool (with defined SAN elements)

• Storage Resource Monitoring (with defined SRM elements)

• Backup and Restore Solution (with defined B&R elements)

that can be grouped together as Service Building Blocks to provide:

• Premium (with High-end Storage Enclosures, Advanced Monitoring, and B&R Solutions)

• Standard Storage Capacity Services (with Mid-range Storage Enclosures, Basic Monitoring, and B&R Solutions)

These Services and Service Building Blocks can in turn map to an Architecture Building Block, such as a specific Storage Area Network Architecture.

Architecture Building Blocks and Solution Building Blocks, particularly in the Operations Architecture (IT Process Architecture), Infrastructure Architecture (Facilities, Storage, Servers, and Network), Integration Architecture, and Data (Information Architecture) can provide a platform (or multiple platforms) to design and build Business and IT Services.

In general, we can view Service Oriented Architecture (SOA) as a subset of EA, as SOA represents an architecture style of designing applications architecture, whereas EA is concerned with more than that. SOA, therefore, is more associated with the Enterprise Business Architecture (Business Processes and Business Services) and Enterprise Application Architecture. On the other hand, Service Oriented Infrastructure (SOI) can also be viewed as a subset of EA as SOI represents an architecture style of designing infrastructure architecture – aligned to Business Services. SOI, therefore, is more associated with Enterprise Infrastructure Architecture. SOA and SOI are complements to IT Service Management (ITSM). ITSM takes a service-oriented view of Enterprise IT Process/Operations Architecture and therefore a style of designing IT Process Architecture. ITSM also takes a Services view (Business and IT Services) and Services Lifecycle view. *This discussion also clarifies that EA envelopes and encompasses SOA, SOI, and ITSM.*

It is possible and recommended to embed many a Solution Architecture and Service Architecture across all layers of EA (shown in Figure 12).

EA and ITSM Tools

EA Tools

EA Tools in the market today contain an EA Server and an EA Client:

- EA Server

  The EA Server is essentially a database that contains metamodel(s) and other models; business, organization, and system models that depict current and target enterprise architecture. It can include an intranet web portal that allows users to browse through to learn more about the processes, services, systems, applications, and people in their organization and partner organization.

  One of the most exciting things about the popular EA Servers are that *anything* can be modeled that is of interest to an organization.

- EA Client

  An EA Client is a client application that allows people to drag and drop objects to create their view of their enterprise architecture. The client tools can then submit data back to the central repository (EA Server).

EA and ITSM tools can integrate in many ways, among them:

- EA Repositories (Meta Data Repositories) can provide CIs (Configuration Items, in the form of EA models and documents) to the ITSM Knowledge Management System. It is possible and desirable for both EA Meta Data Repositories and ITSM Managed Data Repositories (in a federated CMDB architecture) to use and apply standards such as the Distributed Management Task Force Common Information Model (DMTF-CIM). Several vendors are making their ITSM tools compliant with the DMTF-CIM. That is not true for EA tools.

  The CIM Schema allows for a standard definition of a CI and the CIM Specification allows for a standard mechanism of information exchange about a CI. The CIM covers infrastructure elements such as Servers (SMASH – Systems Management Architecture for Server Hardware), Desktops (DASH), and Storage (SMI-S). The same CIM Schema and CIM Specifications (based on XML) can be extended to Service CIs, Document CIs, and People CIs. EA modeling, on the other hand, is typically performed via UML and some vendors have XML modules to encapsulate their UML models. These XML modules, in turn, can comply with the DMTF-CIM.

- EA Repositories (Meta Data Repositories) themselves can use CI data and other information from the ITSM Knowledge Management System to develop certain meta models and system models.

- EA Tools can integrate with Software/Application Lifecycle Management and Software Development/Configuration Management tools, which in turn can integrate with ITSM tools such as Configuration and Knowledge Management tools both from an Application and Data integration perspective – this takes the holistic view of Enterprise Business Architecture and Business Models integrating with Enterprise Application Architecture and Design, which in turn integrates with Enterprise Operations Architecture and IT Operational Management.

ITSM Tools

A couple of key technologies emerging in the market in support of ITSM processes are:

• The Service Catalog, for Service Delivery Processes

• The Configuration Management Database (CMDB), for Service Support Processes

The Service Catalog is a critical tool to:

• Develop and publish a set of IT Services and associated prices

• Allow end users/customers to browse and buy IT Services

• Allow IT/end users to review documentation (Service Guides, SLA, and Service Architecture Document) associated with each IT Service

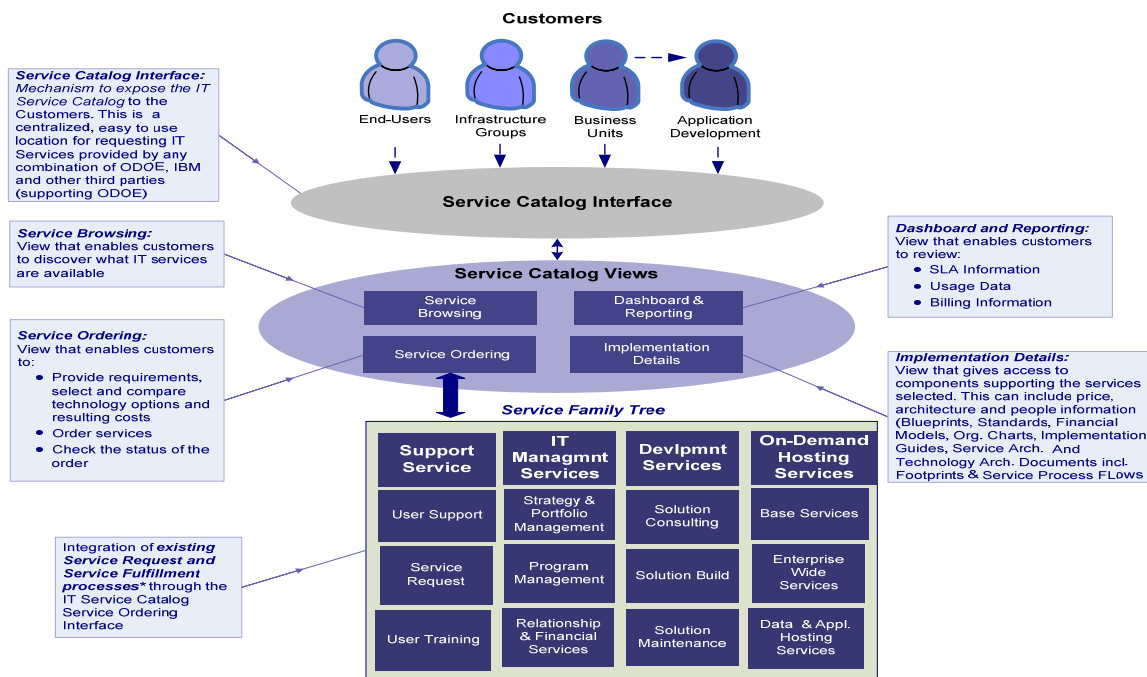• Capture Service Request, Service Fulfillment, and Service Financial Data

Figure 13: IT Service Catalog [Source: IBM]

The CMDB is required to define, identify, capture, maintain, and manage configuration items as they relate to the services identified in the Service Catalog. The CMDB is not only critical for the configuration management process, but is also the center piece of change/release as well as incident/problem management.
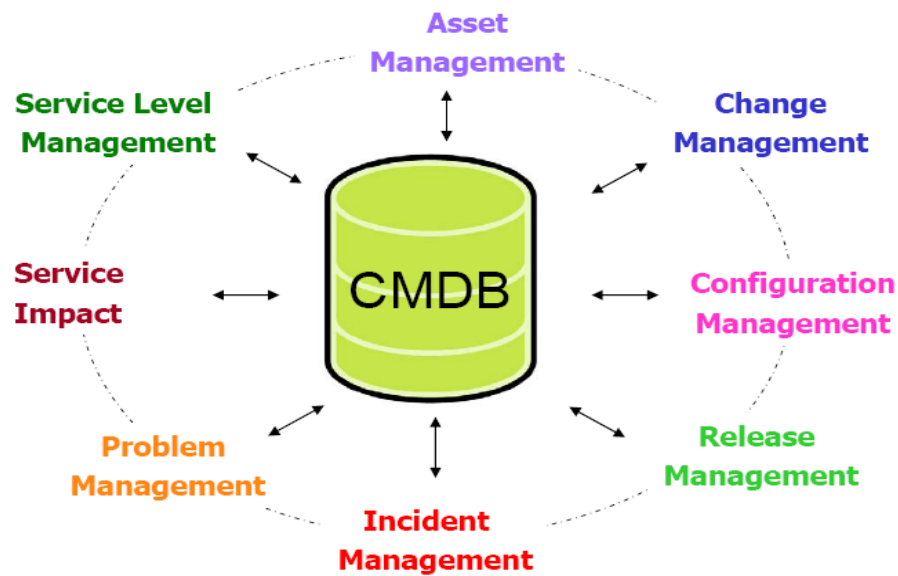
Figure 14: Configuration Management Database (CMDB)

Both the Service Catalog and the CMDB are critical for an ITSM program as it is possible (and often desirable) to design/implement IT Service Catalogs and CMDBs to support all ITSM Services/Processes. With ITIL V3, the Knowledge Management System is an all-encompassing tool that covers:

• Integrated CMDB

• Capacity Management DB

• Availability Management DB

• Service Knowledge DB (including Service Catalog)

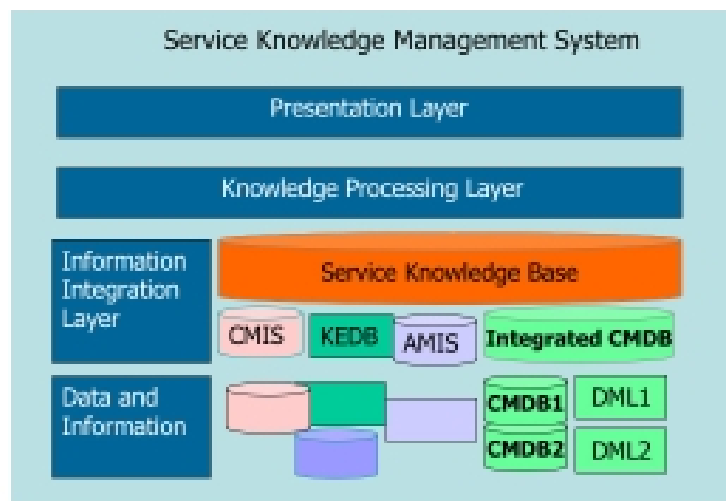Figure 15: Service Knowledge Management System [Source: OGC]

Business and IT Services

IT Services List, IT Service Taxonomy, and IT Service Catalog should align with Business Services and Business Processes.

Services (both IT and Business) can be classified into:

• Technology-based Services

• People-based Services

• Process-based Services

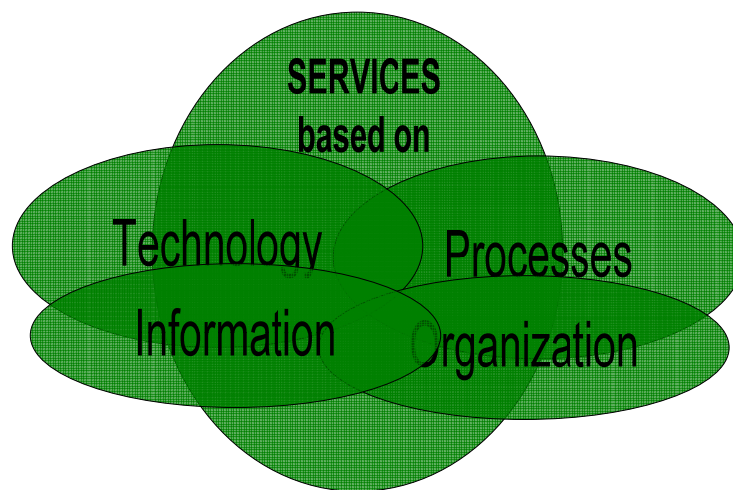• Information-based Services

Figure 16: Service Classification

However, all if not most services use a combination of technology, people (manual), and process and information resources. Most services are inclined to be based more on one of these four classes of resources.

Service Classification	IT Service	Retail Financial Service (Business Service)
Technology-based	Automated Infrastructure Monitoring (Operations)	Tax preparation using tools such as Turbo Tax.
People-based	Service Level Agreement & Reviews (Meetings, Negotiations, Agreements, and Reviews)	Personal financial assessment, analysis, and advice.
Process-based	IT Change Management Service	Setting up a new brokerage account.
Information-based	Reporting on Service Data (automated via Service Request and Service Fulfilment Systems)	Credit reporting.

EA and ITSM Process Relationship

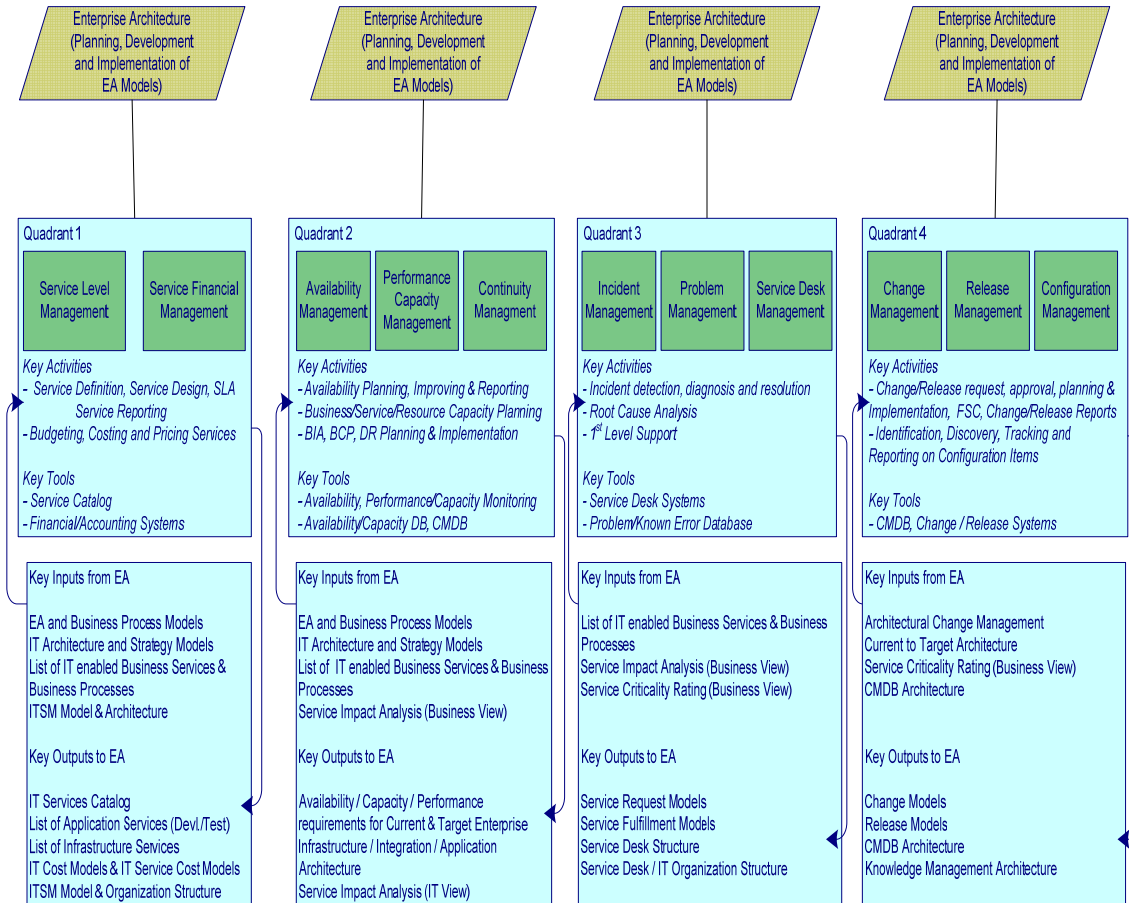There are several touch points between EA and ITSM processes as depicted in Figure 17.

Figure 17: EA and ITSM Process Relationship (ITIL V2)

Benefits of Collaboration (Between EA and ITSM)

There are several benefits to collaboration between EA and ITSM teams. Some of the salient benefits are:

- Organizational learning – the two teams can learn from each other and thereby have a greater impact on their enterprise (both the Business and IT side of their enterprise).

- Avoid duplication of effort – you do not want both teams to be developing ITSM architecture in parallel without being cognizant about the other team's effort.

- Re-use of documentation and other outputs – EA Process outputs are useful as ITSM Process inputs and *vice versa*. Constant communication and collaboration are required to exchange information and insights.

- Cross-training between the two teams can help with collaboration at a deeper level and improvement of morale (keep them excited about their jobs).

- Collaboration via integrated toolsets can help in developing and maintaining a consistent view of the Enterprise Processes and Services (EA) and IT Processes and Services (ITSM).

- EA and ITSM Maturity Model planning and implementation can happen in a coordinated and integrated fashion. In other words, the target EA and ITSM architecture can be planned and implemented with a coordinated and integrated method.

Collaborative work between EA and ITSM teams requires:

- Awareness and knowledge of both EA and ITSM – objectives, processes, tools and techniques, and methods

- Training and skills in EA development, implementation, and management

- Training and skills in ITSM program development, implementation, and management

- Training and skills associated with EA and ITSM tools and their integration

Abbreviations & Acronyms

ABB	Architecture Building Block
CISR	Center for Information Systems Research (MIT)
COBIT	Control Objectives for Information and Related Technologies
CSF	Critical Success Factor
DMTF-CIM	Distributed Management Task Force Common Information Model
EA	Enterprise Architecture
EMO	Enterprise Module for Operations
EOS	Enterprise Operational System
FEAF	Federal Enterprise Architecture Framework
GERAM	Generalized Enterprise Reference Architecture and Methodology
ITGI	IT Government Institute
ITIL	IT Information Library
ISM	IBM Service Management
ITSM	IT Service Management
KGI	Key Goal Indicators
KPI	Key Performance Indicators
OGC	Office of Government & Commerce, UK (www.itil.co.uk)
PEMM	Process and Enterprise Maturity Model
PMF	Process Management Framework
PRM-IT	IBM Process Reference Model for IT
SBB[1]	Service Building Block
SBB[2]	Solution Building Block
TOGAF	The Open Group Architecture Framework (www.opengroup.org/togaf)
ZIFA	Zachman Institute for Framework Advancement

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About the Author

Rajesh Radhakrishnan is currently a Senior Managing Consultant and Senior IT Architect at IBM, Global Services (GTS). His current client engagements involve Global ITIL Program Management, Service Level Management, and Service Availability/Continuity Management. Prior to joining IBM, Rajesh was an Independent IT Architect at Zygous LLC for two years and a Technical Consultant at Sun Microsystems, Professional Services in McLean, Virginia for about five years. Prior to Sun, he was a Senior Technical Staff Member at Metamor Worldwide for five years and consulted for numerous Fortune 500 companies.

Rajesh specializes in ITIL-ITSM Consulting, Business Continuance, High-End Systems, High Availability and Storage Technologies, as well as Technical Project Management. Rajesh has presented/published papers on such topics as IT Architecture, Storage Architecture, Systems Architecture, ITIL-ITSM Processes, and Technical Change Management (TCM) at such conferences as the APC (Architecture Practitioners' Conference), MDC (Management Development Conference), and Sun SuperG (Super User Group).

He has an MBA from Old Dominion University and an MS Degree from the University of Virginia, McIntire School of Commerce. Rajesh was awarded the VITS (Virginia IT Scholar) for 2003 by UVA. Rajesh is a certified Systems Administrator, Storage Architect, and ITIL-ITSM Consultant (Managers Level).

Significant activities in 2007 include:

- Presentation on Enterprise Architecture at the Architecture Practitioner's Conference (APC) organized by The Open Group in San Diego (January 2007); refer to www.opengroup.org/sandiego2007.

- Paper on "ITIL-ITSM: Global Perspective" at the Conference on Information Science, Technology & Management, held at Hyderabad, India (July 2007); refer to www.information-institute.org/cistm/cfp.htm.

- Tutorial/Paper on "ITSM, Technical Data Warehouse & Data Center Intelligence" at the Data Warehouse Institute (TDWI) (August 2007); refer to www.tdwi.org/education/conferences/main.aspx?pageName=upcoming_conf.

- Chapter on "Enterprise Architecture and ISO 20000/ITSM" in the forthcoming Enterprise Architecture book "Advances in Government Enterprise Architecture" by the National University of Singapore (NUS).

- Presentation/Paper on "ITSM and CIM – Common Information Model" at the Management Development Conference (MDC) in Santa Clara (December 2007); refer to www.mandevcon.com/track_cim.html#cim_itsm.

- Presentation/Paper on "Framework for IT Intelligence" at the International Symposium on Information Systems, at ISB, Hyderabad, India (December 2007); refer to www.isb.edu/SeminarsConference/ISIS2007.

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