Chapter	Topics	Keywords	Input	Output
Components	**Components** • ADM, Guidelines & Techniques (to apply ADM), Ent Content fwk, Ent Continuum, Ref Model, Capability fwk (**6 #s**) **Arch Content Fwk** • Deliverables, Artifacts (3 Types) & BBs • Provides Model of arch work products • Provides Open std for describing Architecture • Includes MetaModel **Enterprise Continuum** • Found Arch -> CSA -> Industry -> Org specific • Made of Arch Continuum & Solutions Continuum • Arch Cont - Defines the Architecture (Ph A,B,C & D) • Sol Cont - Defines the Implementation (Phase E) **Reference Models** • Use TRM to define FA & IIIRM to define CSA • IIIRM (Info consumer,provide,dev tools,mgmt util & brokering apps) **Capability Framework** - Helps to establish Arch Practice	• ADM is Iterative, • Arch Landscape (Strategic, Segment & Capability), Generic to Specific, • TRM & IIIRM, • Arch Repository, • Boundaryless Info Flow™ • Arch Capability as an Operational Entity should include several capabilities (**no Network, IT, Change/Release Mgmts**)		
ADM Intro	Provides a set of • Arch Views, recommended Deliverables, method for managing rqmts, Guidelines on tools for Arch Dev • 4 Dimensions of Scope (Breadth, Depth/Level, Time & Domain)	Core of TOGAF, is a process for developing EA, High level deliv (ver 0.1), Detailed deliv (ver 1.0), • **Scope,Constrtains & Expectations are set in Vision,** • **Analyze Cost, Benefits & Risk in Phase F** • Only Phases B,C,D cycle through Views		
Ent Continuum	• Model for structuring a repository and methods for classifying Architecture & Solution artifacts • It's practical implementation is Arch Repository • Aids organizing reusable Arch/Soln assets • Provides common language • Arch Governance decides which assent to be in this • Soln Cont = Soln Inventory or Reuse Library **Tools** • Re-use, Share arch info within Org, ensure common terminology, easy maintenance of architecture, provide stakeholders with relevant models	• Arch vs Soln Continuum Relationship = Guidance, Direction & Support • Open Group's Found Arch built using TRM • Open Group's CSA built using III-RM		
Arch Repo	• Provides formal taxonomy to Architectural Assets • ADM has reminders when to use assets from Repo **Contents (6 #s)** • **Metamodel** - Describes Arch framework in use • **Arch Landscape** - Shows state of operating Enterprise in a particular point in time • **Ref Library** - Contains Best Practice/Template Materials/Re-usable arch work products • **Standards Info Base** - Defines Compliance Criteria (Specification to which Architectures should conform) • **Gov Log** - Results of Governance Activity • **Arch Capability** - Roles,Skills & Resp of EA practice	**Types of Standard** • Legal & Regulatory, Industry & Organizational **Standards Lifecycle** • Trial, Active, Deprecated & Obsolete **Classification** • **Business std** - Business Funcs, Role & Actor defn, security & governance for business activity • **Data std** - Structure/Format/Origin/Ownership & Restriction on Replication/Access • **App std** - Appln for specific business fns, App communication & interoperation, Access, Presentation & Style.		

Arch Content Fwk	• Is a checklist of o/p of each phase in building an Arch • Defines structure, content of o/p & it's relationship to each other • Helps to improve TOGAF outputs by presenting them in an consistent & structured way • **Deliverables** - Formal Products, Contractually specified • **Artifacts** - Fine grained products describing Architecture from a specific viewpoint • **Build Blocks** - To deliver Architecture & Solutions	• **Based on a Standard Content Metamodel that defines all types of building blocks in an Arch** • Provides Model of arch work products • Provides Open std for describing Architecture • Includes MetaModel • **Artifact Types** - Catalog, Matrix & Diagrams • Is a companion to ADM • ADM describes what needs to be done to create an Architecture • ACF describes what id should look like		

TOGAF Content MetaModel	• Model describing how and with what Architecture will be described in a structured way
	• **Core** - provides min set of Arch Content to support traceability across artifacts
	 It's Entities are
	  • Actor-Role
	  • App Component-Tech Component
	  • Business Service - Platform Service
	  • Organizational Unit - Function
	  • Data - Information System Service
	• **Extension** - allows more specific/in-depth modeling
	  • Motivational
	  • Process Modeling
	  • Services
	  • Infrastructure Consolidation
	  • Data Extension
	  • Governance
		• Enables EA Tool mapping & Formalizes EA definition
		• **Motivational** - To understand Org motivation in detail and to understand & address conflicting drivers/objectives.
		• **Process Modeling** - used at Event driven Arch
		• **Service Xtn** is used when
		  We need a common lang btwn Business & IT
		  IT Service misaligned with Business
		  IT takes initial steps to talk to business
		• **Infra Consol** - App portfolio Rationalization
		• **Data Xtn** - Arch has risk with location/mgmt/access/encap to data
		• **Governance Xtn** - To show ownership & Mgmt of systems and is used when
		  IT change significantly impacting Gov Models
		  Rqmts of service levels diff for each service
		  Rqmt is to tnsfrm Org Operational Gov Practice		

Preliminary Phase	**Steps 6 #s**
	• Scope the Enterprise's Organizations getting impacted
	  Core Ent/Soft Ent/Xtended Ent/Communities & Gov
	• Confirm Governance & support Frameworks
	  Understand existing governance & support models.
	  Consult with Sponsor/Stakeholders regd the impact
	• Define & Establish Enterprise Architecture Team
	  Determine existing Ent & Bus capability
	  Conduct BTR Assessment
	  Allocate key roles & responsibilities
	  Scope new Enterprise Arch Work
	  Determine constraints on Enterprise Arch Work
	  Review with Sponsor & Board
	  Assess Budget requirements
	• Identify & Establish Architecture Principles (which provide a framework for decision)
	• Select & Tailor Architecture Framework
	• Implement Architecture Tools (Tool Selection)
		Core Enterprise (Directly impacted)
		Soft Enterprise (Indirectly impacted)
		Principle (Name/Stmt/Rationale/Implications)
		URCCS - 5 Qualities of principles
		Fmwk Tailoring (Terminology/Process & Content)
			• Other Arch Frameworks
			• Business & IT Strategy
			• Business Principles, Goals & Drivers
			• Governance & Legal Fwk
			• Existing Org Model, Arch fwk, Principles & Repository
				• Organizational Model
				• Tailored Arch Framework
				• Architecture Principles
				• Architecture Governance Fwk
				• Request for Architecture Work
				• Restated Business Principles, Goals & Drivers

	• Governance should be established in Prelim Phase **Includes** • Controls creation & monitoring of components & activities • Ensuring compliance with stds & regulatory obligations • Ensuring Accountability to Int & Xternal Stakeholders • Ensures Integrity & Effectiveness of Architectures • Integral to Ent Continuum (manages it's contents) **Benefits** • Links process/resource/info to Org Strategy & Obj • Enable Orgs to take full adv of digital assets • Supports Regulatory & Best Practice rqmts • Promotes visible Risk Management	• Hierarchy of Gov Domains (Technology, IT & Arch Governance) • **COBIT** - Open std, Helps to Ctrl & Measure IT Resources • Process, Content & Context (Arch Gov Fwk - Struc) • Arch Compliance - 6 Types (**Venn Diagram**) **[** Irrelevant, Consistent, Compliant, Conformant, Fully Conformant & Non-Conformant **]** **Key Success factor**: Submit->Adopt->Reuse->Report ->Retire (**Arch Policies/Procedure/Roles/Skills/Org Struct**)	

Arch Governance	**Architecture Board**
	  What it does ?
	  • Oversees implementation of governance strategy
	  Who does it ?
	  • Stakeholders responsible for Review & Maintenance of Architecture (Local & Global)
	  How it does ?
	  • Responsibilities & Decision making capabilities
	  • Remit [Legal Mandates] and Authority Limits
		Board Value is offset by preventing one-off solutions leading to
		 • High cost of dev, operation & support of numerous environments, languages, interfaces & protocols
		 • Difficulty in replicating & re-using solutions	

	Architecture Compliance • Prepare Project Impact Assessments - project views illustrating how EA impact a project • Perform Architecture Compliance Review **Architecture Compliance Review** • Catch Errors early • Ensure application of Best Practices • Provide overview of Standards/Compliance • Identify Standards which require modification • Identify app specific services that could be part of Enterprise Infra • Document strategies for mult arch team collab..etc • Take advantage of advances in Technology • Identify key criteria for procurement • Identify significant Arch Gaps to product vendors **Establishing Architecture Capability** • TOGAF provides guidelines for this • Address the 4 domain architectures	**Architecture Contracts** - Btwn Development partners & sponsors on deliverables, quality & fitness-for-purpose of Architecture **It's usage ensures** • To check Integrity, Changes, Decision Making & Audit • Adherence to principles, stds & rqmts • Risk identification • Accountability, Responsibility & Discipline	Architecture Contract - **Phase A o/p**

Business Scenarios	• Phase A - prominently used
	• Phase B - Iteratively used
	• Helps to identify business rqmts that the Arch development must address
	• **Contributed By**: Business Mgmt,IT Vendor & Architect
	
	Developing a Business Scenario (**7 Steps**)
	 • Identify, document & Rank the **PROBLEM**
	 • Identify Buss/Tech **ENVIRONMENT** of the scenario
	 • Identify desired **OBJECTIVE** & result for success
	 • Identify **HUMAN ACTORS** & their place in business model
	 • Identify **COMPUTING ELEMENTS** & their place in technology model
	 • Identify **ROLES,RESPONSIBILITIES & METRICS** for success
	 • Check for fitness-for-purpose & **REDEFINE**
		SMART - Good Business Scenario
		
		If Business Scenarios NOT available,
		 • Requirements might not be complete
		 • Business value to solution might not be clear
		 • Relevance of potential solutions will be unclear
		
		Used to communicate with stakeholders & vendor
		
		Getting it right
		 • Customers KNOW what they want
		   They don't write it, esp linkage to business
		 • Customers DON'T KNOW what they want
		   Observe & Probe to discover the need
		   Bring out critical business rules
		   Focus on 'What' and not 'How'	

	Business Scenario Models • Capture Business & Technology views graphically • Relate Actors & Interactions **Business Scenario Description** • Critical steps between actors in right sequence • Partition responsibility of actors • List Pre-Condition for proper sys functionality • Provide Tech requirement to ensure service quality is acceptable	**Template:** • Problem Description • Detailed Objective • View of Environment • Actors & their roles/responsibilities • Principles & Business Constraints • Requirements • Next Steps	
Stakeholder Mgmt	TOGAF Technique: (**4 Steps**) • Identify Stakeholders • Classify & Record their positions in **Stakeholder Analysis Matrix** • Determine approach (**Power-Interest Matrix**) • Tailor Engagement deliverables (**Stakeholder Map**) (choose specific viewpoints to address their specific stakeholder groups)	• Used in '**Phase A**' to identify Key Players & updated throughout each Phase • **Stakeholders** - Have Key Roles in or Concerns about the Enterprise Architecture.Impacted by EA project **Benefits**: • Identifies powerful stakeholders & ensures their input shapes the architecture • Achieve their support to get necessary resource • Helps them to understand Arch Process • Anticipate likely reactions and able to address • Identify conflicting/competing objectives & address	

Views & ViewPoints	<u>**View**</u> - WHAT YOU SEE (**Specific to the Architecture**)
	<u>**ViewPoint**</u> - FROM WHERE YOU SEE (**Generic**)
	
	Architects Responsibility in developing Views:
	  <u>**Ensure Completeness**</u>
	  • Does it address all concerns of Arch Stakeholders
	  <u>**Integrity of the Architecture**</u>
	  • Can views be connected to each other
	  • Can the conflicting concerns be reconciled
	  • What trade-offs were made
	
	<u>**View creation process**</u>
	  • Refer for existing views in Library of Viewpoints
	  • Select Key Stakeholders
	  • Analyze their concerns & document them
	  • Select appropriate Viewpoints
	  • Generate views of the system using ViewPoints as templates
		System - Collection of components organized to accomplish a specific function or set of functions
		Stakeholders - Have Key Roles or Key Concerns
		Concerns - Key Interest that are crucial to Stakeholders. Determines 'SYSTEM ACCEPTABILITY'
		View - Representation of a System from perspective of related set of concerns
		ViewPoint - Perspective from which view is taken	

	3 Classes of Viewpoints are: **Catalog** - Lists BBs of similar/related types **Matrix** - Shows relationship between BBs **Diagram** - Pic rep of BBs for Stakeholder Communication	TOGAF includes example artifacts (Catalog/Matrix & Diagrams), which can be adopted/enhanced & combined to produce views	

Building Blocks	<u>**Basic Characteristics**</u>
	  • Package of functionality to meet Business Needs
	  • Has an interface to access it's functionality
	  • Inter-Operates & Inter-Dependent with other BBs
	<u>**Good Characteristics**</u>
	  • Evolves to exploit Technology & Standards
	  • Assembled from a sub-assembly of other BBs
	  • Is Re-Usable & Replicable
	
	<u>**Principles Applied**</u>
	  • Only required service's BB should be in Architecture
	  • Implements 1 or more or partial service
	  • Should conform to Standards
	
	<u>**Patterns**</u>
	  • Reusable Design solution to recurring Design problems
	  • Tells how to use BBs, when, why and trade-offs made
		ABB **SBB**
		Define what functionality is to be implemented → Define what product/component used to implement the functionality
		Technology Aware → Product/Vendor Aware
		Define Business/Tech Requirements → Fullfill Business Requirements
		Guide development of SBB → Define the Implementation
		
		Grouped at Functional Level - **ABB**
		Defined during Phases A,B,C & D
		
		Products or Custom Developments - **SBB**	

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Support Techniques

Managing Interoperatability Requirements
 • Interop - Ability to share SERVICE & INFORMATION
 • TOGAF provides technique for Define/Refine & Determine interop requirements

Architect must ensure that there is NO interop conflicts

Determination of Interoperability occurs in **ALL Phases**

Degree of Interop
 • Lev 1 - Unstructured Data
 • Lev 2 - Structured Data
 • Lev 3 - Seamless Data
 • Lev 4 - Seamless Info

Type of Info exchanged
 • A - Formal Message
 • B - Common Message
 • C - Complete Message
 • D - Real-time Message

Business Transformation Readiness Assessment
 • To understand Readiness of Organization for changes caused by EA program
 • Identify issues
 • Deal with issues during Phase E & F

Activities are:
 • Determine the readiness factors
 • Present them using Maturity Models
 • Assess them and Determine ratings
 • Assess risk on each factor & Identify Mitigation plan
 • Work these Mitigation plans during Phase E & F

Initial BTR Assessment in **Phase A**
Address issues during **Phase E & F**

Risk Management activities
 • Classification -> Identification -> Initial Assessment -> Mitigation & Residual Risk Assessment -> Monitoring

Classification on Effect
 • **Catastrophic** - Result in Bankruptcy
 • **Critical** - Financial Loss, No ROI in more than one Line of Business
 • **Marginal -** Financial Loss, Less ROI in one Line of Business
 • **Negligible** - Minimal impact on services

Classification on Frequency
 • **Frequent** - very often or continuously
 • **Likely** - occurs several times
 • **Occasional** - occurs sporadically
 • **Seldom** - remote possibility, not more than once
 • **Unlikely** - probably not occur

Risk Management is done along with BTRA
Risk **Identification** is done in **Phase A**
Risk **Monitoring** done in **Phase G**

Initial Level - Risk categorization prior identifying Mitigation Plan
Residue Level - Risk categorization after implementing Mitigation Plan

Assessment of Effect & Frequency combined:

Extremely High Risk - Most Likely fail with severe consequences
High Risk - Significant failure resulting in certain goals not achieved
Moderate Risk - Noticeable failure threaten success of some goals
Low Risk - Some goals will not be wholly success

Capability Based Planning
 • Focuses on Engineering, Developing & Delivering Strategic Business Capabilities
 • Capabilities = Derived from Corporate Strategic Plan
 • All of Architecture will be expressed in terms of Business Outcome & Value

Vision	**Objective:** • Develop high level aspirational vision of Capabilities & Business Value to be delivered as result of EA program • Get Approval for a 'Statement of Arch Work'	**Phase A defines** • What is In & Out of Arch work • Constraints (via Principles, Goals & Drivers) Business Scenario technique can be used to develop Arch Vision	• Request for Arch Work • Buss Principle,Goal & Driver • Org Model for EA • Tailored Arch Framework • Architecture Principles • Populated Arch Repo	• Approved Stmt of Arch Work • Refined Buss Principle,Goal&Driver • Capability Assessment • Communications Plan • Additional content in Arch Repo
	11 Steps: **1. Establish the Project** • Conduct procedures to secure recognition • Endorsement of Corp Mgmt • Support & Commitment of Line Mgmt • Refer other frameworks to how this proj relates **2. Identify Stakeholders, Concerns & Buss Rqmts** • Identify stakeholders, their roles & responsibilities • Identify Concerns & ViewPoints relevant to project • Stakeholder Map Matrix is developed **3. Confirm Business Goals, Drivers & Constraints** • Identify Buss Goals & Strategic Drivers • If existing, check it's currentness & clarify ambiguity • Define 'Business' constraints that must be dealt **4. Evaluate Business Capabilities** • Understand existing capabilities & desires of Buss • Find ways to realize those capabilities • Assess if Org has competency to build this • Create initial picture of required new capability		

	5. Business Transformation Readiness Assessment
	 • Determination & Rating of Readiness Factors
	 • Results used
	  • Shape the Scope of Architecture
	  • Identify activities rqd within Arch Project
	  • Identify Risk areas to be addressed
	6. Define the Scope
	 • Breadth of Coverage, Level of Detail
	 • Domains to be covered, Partitioning Characteristics
	7. Confirm & Elaborate Arch & Buss Principles
	 • Ensure existing definitions are current
	 • Clarify Ambiguity
	 • Secure Mgmt Endorsement
	8. Develop Architecture Vision
	 • Create high-level view of Baseline & Target Arch
	 • Buss Scenarios are useful here to find Buss Rqmts
	 • Result is high level definition of Baseline & Target Environments
		High Level definition = Version # 0.1
		Detailed Level of definition - Version # 1.0	

	9. <u>Define Target Arch 'Value Prop' and 'KPI's</u> • Develop 'Business Case' with ROI • Produce 'Value Proposition' for each Stakeholder Groups • Assess & Define 'Procurement Requirements' • Review & Agree 'Value Props' with Sponsor & Stakeholders • Define 'Performance Metrics' • Assess Business Risk • Incorporate o/p in 'Statement of Arch Work' **10. <u>Identify BTRA Risks & Mitigation Activities</u>** • Identify risks with vision • Assess initial level of risk & frequency • Assign mitigation strategy for each risk • Include them all in 'Statement of Arch Work'		
	11. <u>Develop 'Statement of Arch Work' & Approval</u> • Assess & Estimate 'Resource Requirements' • Develop Roadmap & Schedule for the proposed development • Define Performance Metrics • Develop 'Communications Plan' • Review & Agree plan with Sponsor & Stakeholders • Gain Sponsor Sign-Off		