Module 9 : Arch Repository for Asset

How to Proceed :

A. Part 1 : First read the immediate portion, which is a Summary portion : Part 1 is for reading right now

   This portion is important for

   1. Understanding TOGAF for practical purposes – Supplement class session understanding with this
   2. For Certification purposes, Level 1 and Level 2

B. Part 2 : Go through and workout the exercises in the Part 2 : Module9Questions&Answers. Very helpful for Certification preparation

C. Part 3 : Later when you find more time, do go through portion which says Part 3 : Detailed Courseware. That portion is useful for getting extra grades in Certification and for more proper understanding of TOGAF. Some sections of it are quoted from internet sources and from good authors as discovered by our Participants in earlier courses.

   In this Part 3, Case Study and its boxes with samples are for understanding purpose only. Not relevant for Certification.

Part 1 : Summary portion

You may like to first read this Quick Look : Glossary and Acronym

Repository : A Store

Architecture Repository : Here, a schema (the way of arrangement) of architecture specific materials.

Are there more than 'one store' in an Enterprise ? : Yes. These include :

Metamodel : Not an actual; model, but one which describes how a model should be. While the Enterprise Architecture we follow will be based on a model, TOGAF or Zachman etc., are the Metamodels which describe how to carry out the EA activity

Tailored TOGAF : After the Enterprise adopts and customizes the standard TOGAF documentation of Open Group, it lands with a Tailored document of this Metamodel

Capability : It is the ability that an organization, person, or system possesses. For example, Enterprise Architecture, marketing, customer contact, or outbound telemarketing are capability portions of an Enterprise

Business Capability : The particular ability that a business may possess or exchange to achieve a specific purpose

Architectural Capability : The capability that is possessed by the Enterprise by virtue of all architectural activities. Usually see in terms of People, Processes, Planning and Technology

Determining the Architecture Capability : Assessing the current level of capability

Establish the Architecture Capability : Making strategic plans and moving towards achieving the same

Capability Architecture : A highly detailed description of the architectural approach to realize a particular solution or solution aspect

Capability Increment : A discrete portion of a capability architecture that delivers specific value. When all increments have been completed, the capability has been realized

Log : A log is always a record of what has happened in a specific area

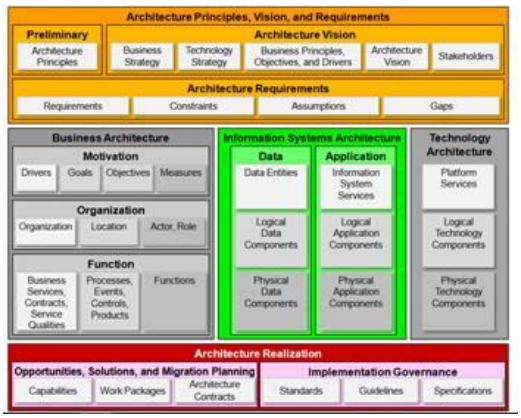
Governance Log : Only the records (not the process descriptions) of whatever significant happens in the (Architectural) Governance area. This portion of Architecture Repository can be treated as Governance Repository

Architecture Repository

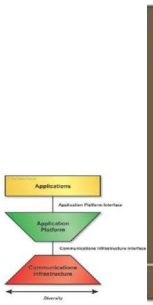
Stores different classes of Architecture Output at different level of abstractions created by ADM

Levels of Abstractions include :

Landscape : Arch assets prepared, reuse, Who all will use ?

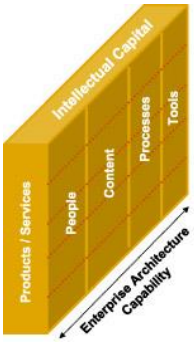


References & Standards : Who produces, Who uses ?

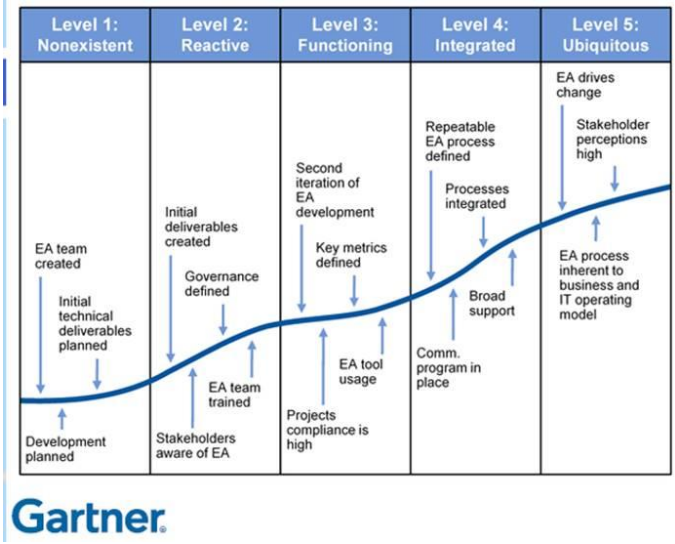


, other References, Standards

Capability Enhancement mechanism ; Who applies, Who benefits



Governance records :



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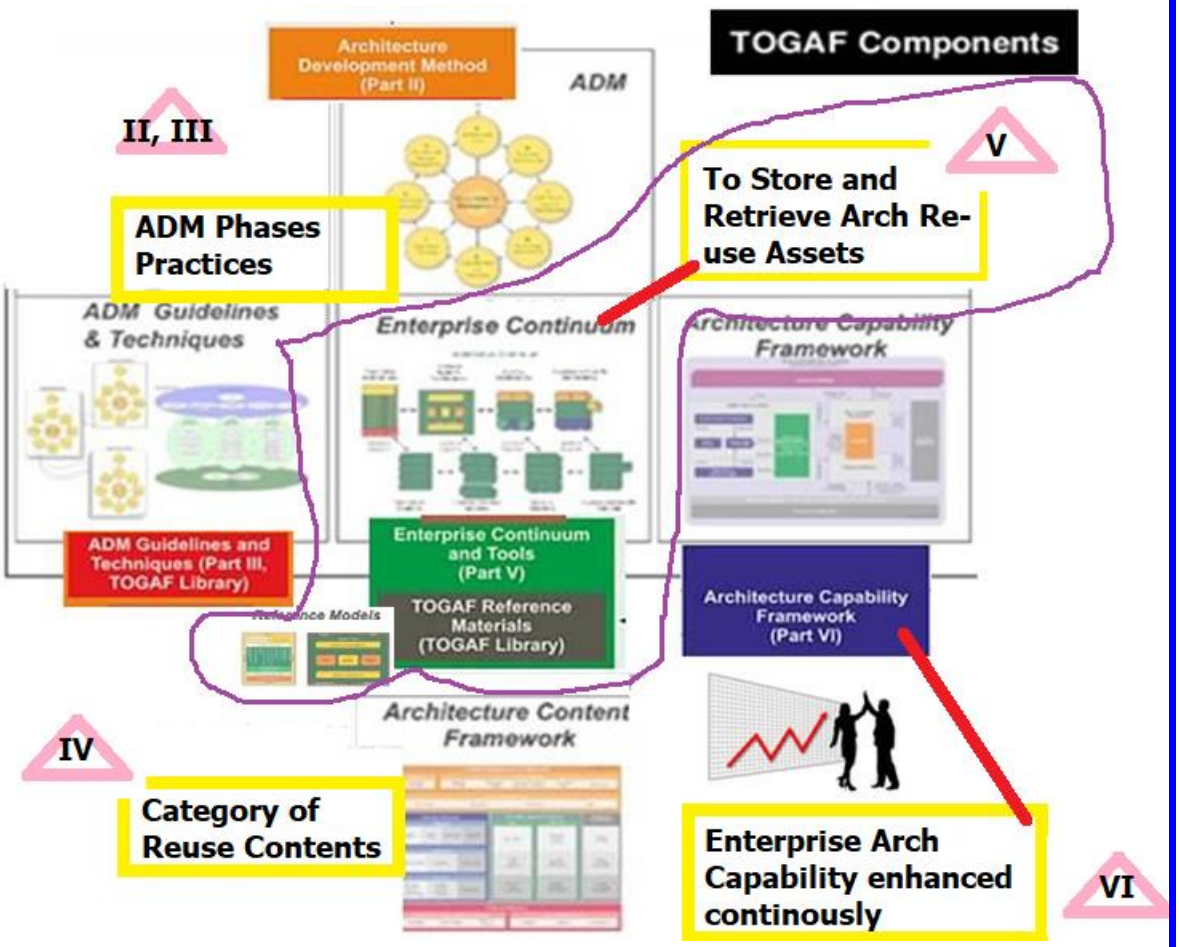
TOGAF Standard Documentation :

Architecture Repository is part of Enterprise Continuum,

Which is a Component of TOGAF



The Architecture Repository occupies a central position in TOGAF as a tool for **capitalizing, reusing, and structuring information**

Architecture Repository consists of

Descriptions from each of the four domains
Host of knowledge, guiding principles, and techniques

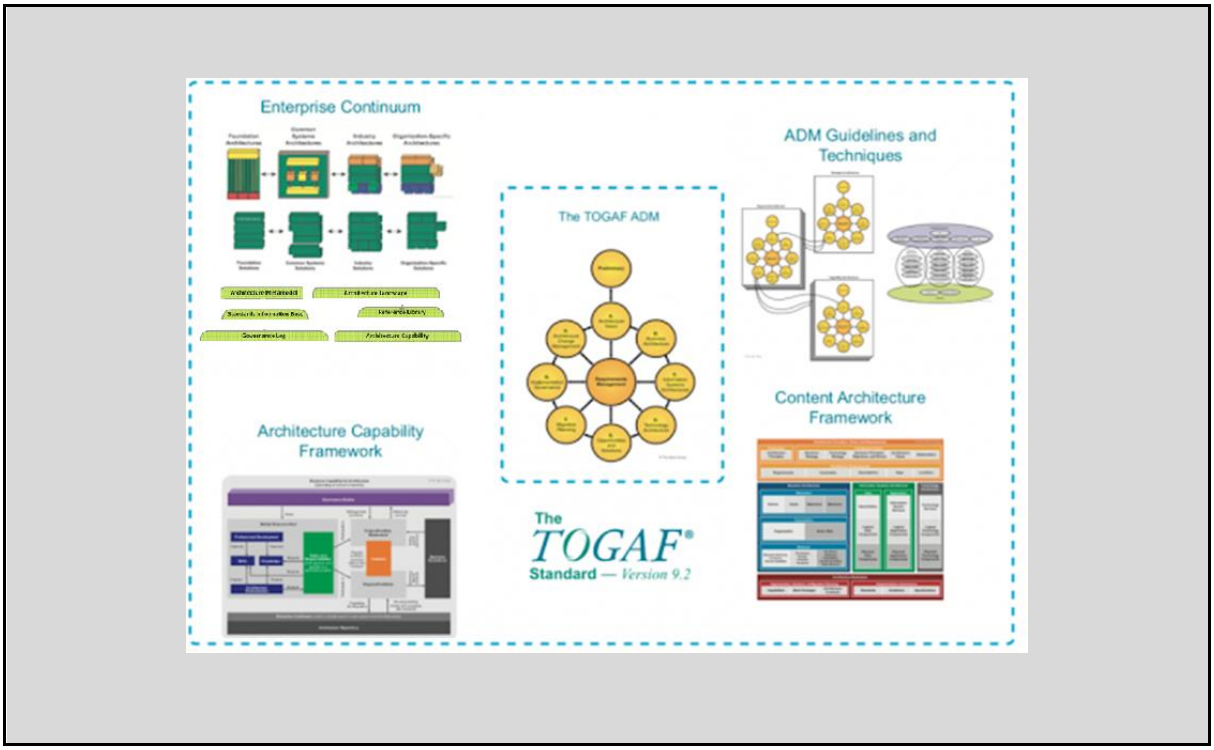
Role of Architecture Repository

Conserve, diffuse, and reuse the EA information & assets

Capitalizing, reusing, and structuring information

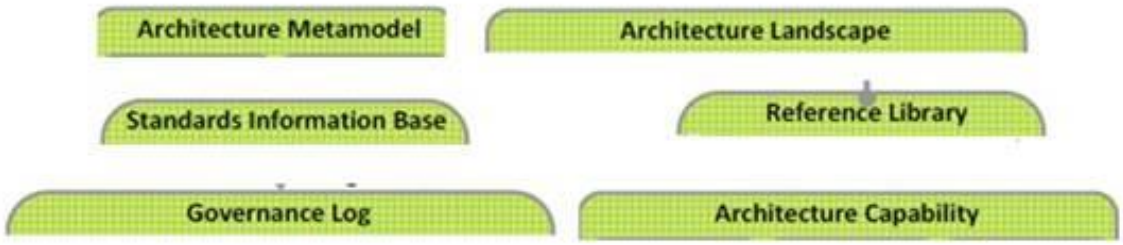
Think : What are Components of TOGAF ?

Answer : ADM as central one. We also have a few more, as shown in the picture below. The Architecture Repository is a sub-part of the Component of Enterprise Continuum



"Repository" is a system that manages all of the data of an enterprise, including data and process models and other enterprise information.

"Enterprise Continuum" is a categorization mechanism useful for classifying architecture and solution artifacts, both internal and external to the Architecture Repository, as they evolve from generic Foundation Architectures to Organization-Specific Architectures.



Six sections of Architecture Repository

RELATED TO ABOVE QUESTION, IN LEVEL 1

: 913

Q : Which of the following **lists the components** within the Architecture Repository ?

A. Organizational Metamodel, Architecture Capability, Architecture Landscape, Best Practices, Reference Library, Compliance Strategy

B. Architecture Metamodel, Organizational Capability Model, Application Landscape, SIB, Reference Library, Governance Model

C. Business Metamodel, Architecture Capability, Architecture Landscape, SIB, Reference Library, Governance Log

D. Architecture Metamodel, Architecture Capability, Architecture Landscape, SIB, Reference Library, Governance Log

Answer : D Remember the correct SIX ; Six sections of Architecture Repository

 Architecture Repository - for Provider, Consumer

ADM cycle :
Provider of information that feeds the repository
Consumer that draws elements from the repository

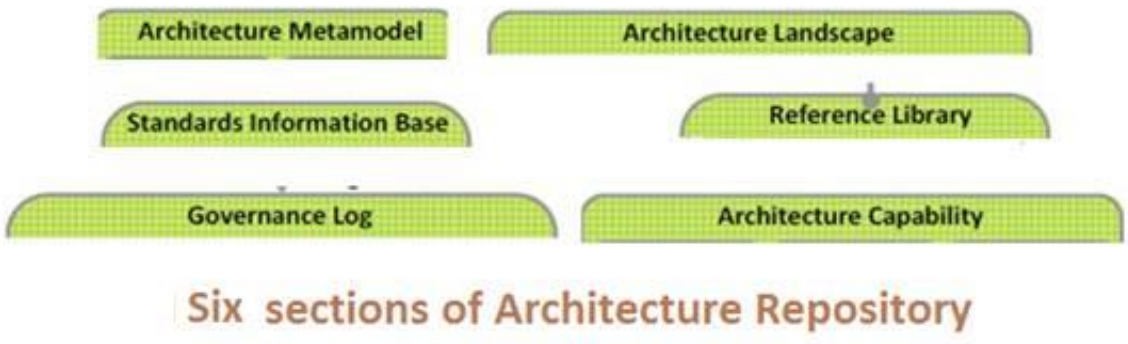
 Architecture Repository - More than source, destination

Constantly evolving throughout architecture transformations,

participating in know-how capitalization

Facilitates decision making at a strategic level – EA level

Now to get to know about each of the sections of this Storage Schema :



Six sections of Architecture Repository

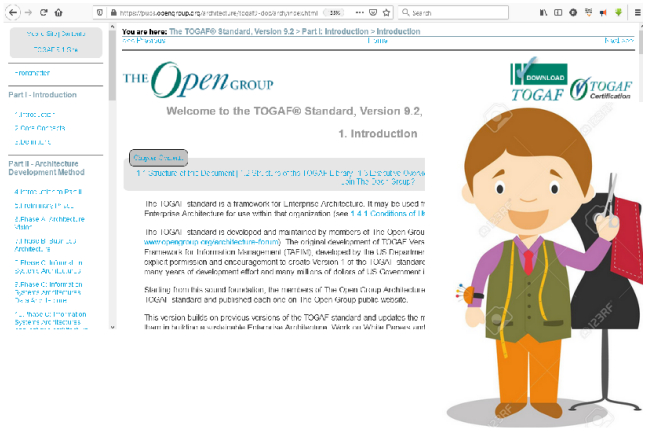
1. The **Architecture Metamodel** describes the organizationally tailored application of an architecture framework, including a method for architecture development and a metamodel for architecture content.

In a Nutshell :

Mainly what is stored in this section is TOGAF 9.2 documentation

Usually it is tailored to suit the Enterprise before being stored

TOGAF Standard Documentation :



Architecture Metamodel : Note from Preliminary Phase :

The ADM is a generic method for architecture development

However, it will often be necessary to modify or extend the ADM to suit specific needs. One of the tasks before applying the ADM is to review its components for applicability, and then tailor them as appropriate to the circumstances of the individual enterprise. This activity may well produce an "**enterprise-specific" ADM**.

Note that Metamodel is never a model, but only information and Guidance that helps in making a model.

So, Phase A to H may produce model artifacts. But this is about whether to use TOGAF or TOGAF + other, what exactly in TOGAF is to be used and how etc.,

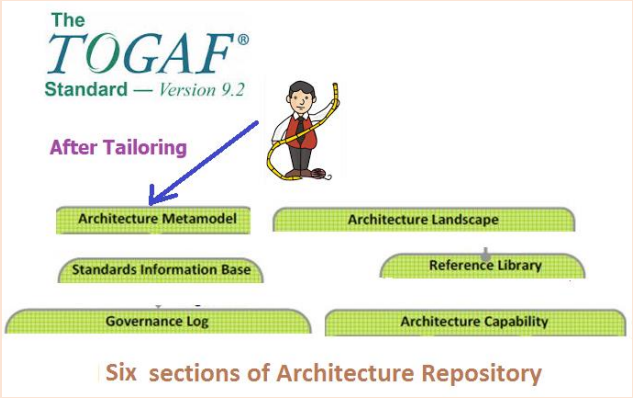
Do Not mistake Modelling techniques used in producing Building Blocks with this jargon of Architectural Metamodel. This term just refers to TOGAF Documentation, as Tailored by us

Architecture Metamodel –contains Tailored TOGAF specification

Note : Model here is not the diagram kind of model

Figuratively the entire TOGAF Framework documentation is being referred to as "Model"

Metamodel, the Tailored TOGAF is what we refer for steps throughout the ADM process



Q : What is the meaning of 'meta' in software ?

Answer : Meta is something that is about something else.

For example, *metadata* is data that describes other data (*data about data*). A *metalanguage* is a language used to describe other languages. A *metafile* is a file that contains other files. The HTML META tag is used to describe the contents of a Web page.

A QUESTION, IN LEVEL 1 :  914

Q : Which one of the following does TOGAF **recommend as a framework** to be created in order to address adaptation and integration of individual architectures ?

A. An Architecture Repository

B. An Enterprise Continuum

C. An Integrated Information Infrastructure Reference Model

D. A meta-architecture framework

E. A technical reference model

Answer : D **Meta is 'about' Tailored TOGAF - Meta data is ? Like this, Meta AF is what ?**

Here, creating the framework refers to the act of tailoring the standard TOGAF documentation

'**Metamodel'** is to be taken as the model framework that we refer while doing ADM and in working with other TOGAF Components

2. The **Architecture Capability** defines the parameters, structures, and processes that support governance of the Architecture Repository.

Best Practice guidelines in taking Enterprise Forward :

Beyond what is seen in TOGAF documentation and in Tailored TOGAF

Naturally, guidelines given by Architecture Board (and their Consultants) with very specific points and aspects relevant to our Enterprise will be in this section of the Architecture Repository

In a Nutshell :

Guidelines (from and for Architecture Governance Board and others) regarding :

Way to enhance Architecture Capabilities

including training and certification of the architects,

including management and development of the Enterprise Continuum,

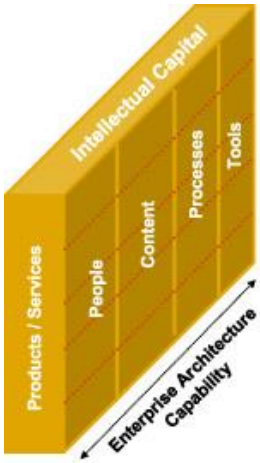
development of new processes

development of new architectures

management and monitor of request for changes

Think : What is the meaning of Capabilities, as per TOGAF ?

Answer : The purpose of the EA capability is to integrate the resources necessary to create a complete EA view of an Enterprise, as well as to provide products and services to facilitate the organisation's transition to an integrated environment with optimised processes that are responsive to change and to the delivery of the business strategy. This EA role is cross-disciplinary, requiring integration of diverse skills, methods and tools, within and beyond the technology community and comprises of:



A QUESTION, IN LEVEL 1 :

915

Q : A list of Capabilities as considered under Enterprise Architecture **may not include**

A. Architecture Value

B. Architecture Planning

C. Architecture Framework

D. Architecture Processes

E. Unit Test Results

Answer : E First four : Do they add (Architecture) Capability to the Enterprise ?

3. The **Architecture Landscape** shows an architectural view of the Building Blocks that are in use within the organization today (e.g., architecture behind live applications). The landscape is likely to exist at multiple levels of granularity to suit different architecture objectives.

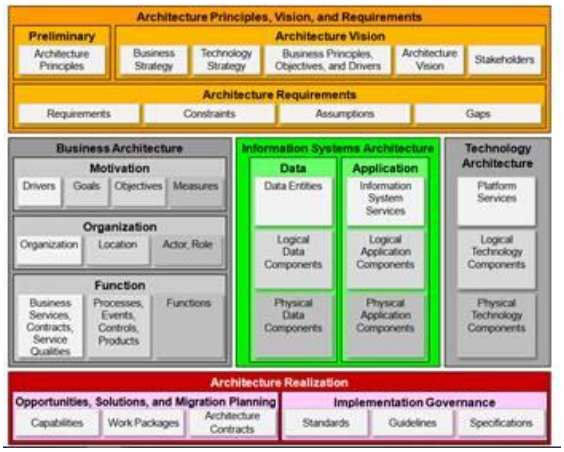
In a Nutshell :

Every Building Block produced in ADM

From Preliminary Phase to Phase H

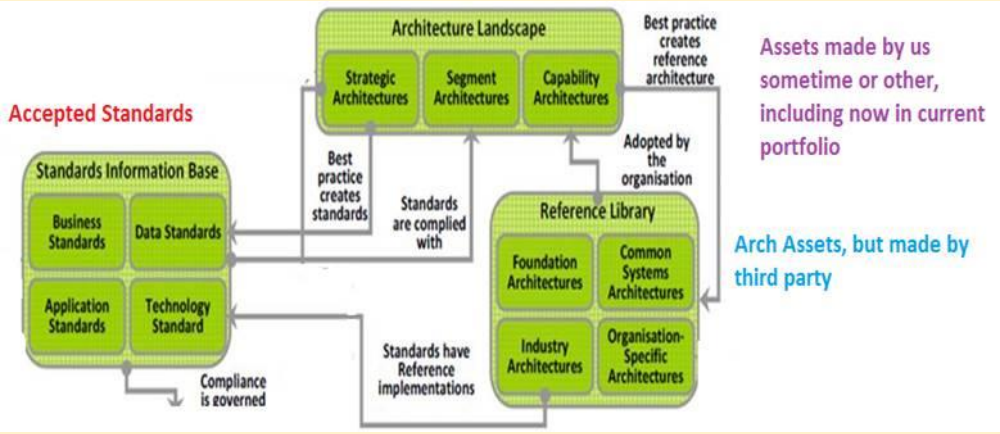
The landscape contains models of the existing architecture across the entire Enterprise. Its content varies from one enterprise to the next. The models found here most frequently deal with business processes, applications, and data.

Landscape : Arch assets prepared, reuse, Who all will use ?



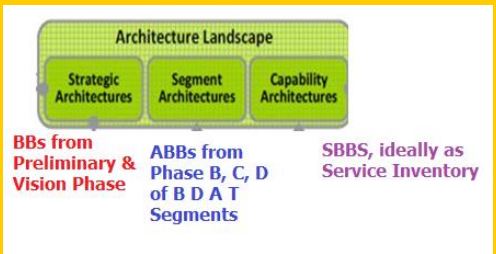
Architecture Landscape : Section containing Building Blocks (Architectural assets) **which are prepared by our Enterprise only** are known as Architecture Landscape.

Naturally Standards and Reference are in separate sections of the Repository



Architecture Landscape –

Contains architectural assets that are currently in use within the Enterprise



Think : What is the meaning of 'Architecture in use' as per TOGAF ?

Answer : It is about the previous Architectural ABBs and SBBs and also the current ones which are accepted for reuse by the Enterprise Architect. In short, all past and active IT projects and current projects where ABBs or SBBs have reached an accepted plateau level

A RELATED QUESTION, IN LEVEL 1 :

916

Q : **What part** of the Architecture Repository shows the building blocks that are currently in use within the organization ?

A. Architecture Landscape

B. Architecture Metamodel

C. Governance Log

D. Reference Library

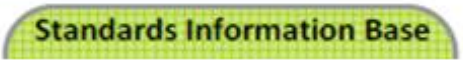
E. Standards Information Base

Answer : A Land surface which holds all current Architectural assets

4. The **Standards Information Base** captures the standards with which new **architectures must comply**, which may include industry standards, selected products and services from suppliers, or shared services already deployed within the organization.

In a Nutshell :

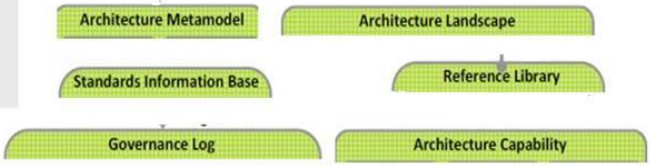
Every **Published Standard / Regulation / Stipulation** that is needed to be viewed during ADM process of any Project portfolio is stored either physically or as a link



The SIB is a collection of standards and pseudo-standards that The Open Group recommends that you consider in building an IT architecture.

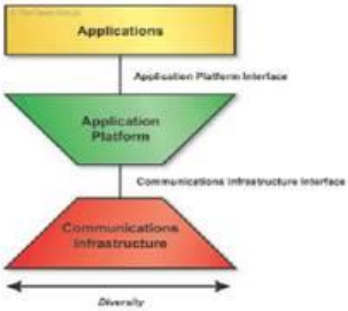
Standards Information Base – contains standards, as per TRM and otherwise, which are to be complied by the architectural process

No prize guessing where Standards go



Six sections of Architecture Repository

References & Standards : Who produces, Who uses ?



, other References, Standards

Mostly produced by others and referred to by us

Think : Who publishes standards ?

Answer : Usually external neutral bodies. In software scenario, this includes ISO, ASTM, IEEE, ANSI, OMG, W3C, **IEC, ITU, ECMA, OASIS,** WS-Integration (WS-I)

Regulatory standards like PCI DSS, HIPAA, and ISO 27001 prescribe recommendations for protecting data and improving info security management in the Enterprise.

ISO/IEC 17788, Cloud computing – Overview and vocabulary, provides definitions of common cloud computing terms, including those for cloud service categories such as Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS

We can keep on quoting many more like this. We can add Government regulatory standards, Internal standard in any Enterprise and so on.

A RELATED QUESTION, IN LEVEL 1 :

917

Q : A standard is **different from** other Reference Models because

A. Standard is something to be complied with, while Reference Models can be adapted to suit the Enterprise

B. Standards are made in house while Reference Models are obtained from external sources

C. Standards are obtained from external sources while Reference Models are made in house

D. None of the above are reasons for the difference

Answer : A One to comply mandatorily, other just to refer

5. The **Reference Library** provides guidelines, templates, patterns, and other forms of reference material that can be leveraged in order to accelerate the creation of new architectures for the Enterprise.

In a Nutshell :

Every **Reference Material that may be needed during ADM work**

Reference Models,

Patterns

Other

TRM : TOGAF Technical Reference Model

TOGAF Reference Models (Part VI)

It is a sample part of the core **Enterprise Continuum** Enterprise Continuum and Tools (Part V),

its Architecture Continuum portion

Actually III-RM seen earlier is an example of Common Systems Architecture

Reference Library – contains, as per TRM and otherwise, references and best practices which are guidelines, templates, patterns, and other forms of reference material

Think : What is the meaning of 'Reference Model ?

Answer : A reference model is a standard decomposition of a known problem into parts that cooperatively solve the problem.

A RELATED QUESTION, IN LEVEL 1 :  918

Q : Which component of the Architecture Repository provides guidelines, templates, and patterns that can be used to create new architectures ?

A. The Architecture Metamodel

B. The Architecture Capability

C. The Architecture Landscape

D. The Reference Library

E. The Governance Log

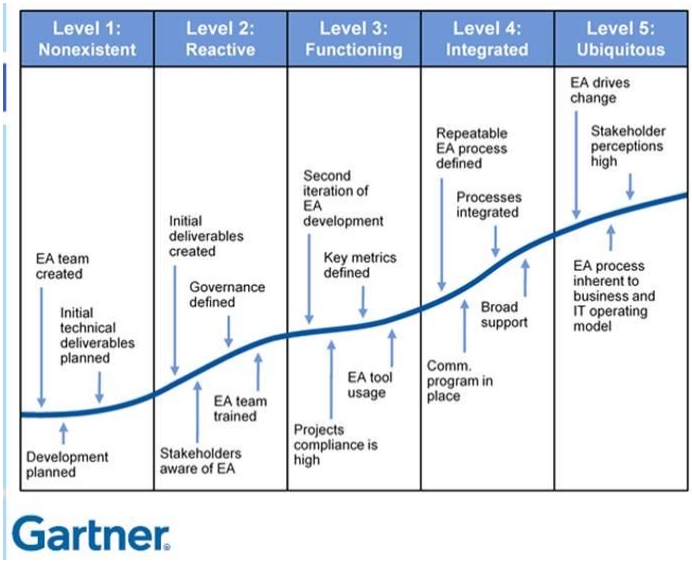
Answer : D **Refer for Guideline, for Templates, for Patterns**

6. The **Governance Log** provides a **record of governance activity** across the Enterprise

In a Nutshell :

This section of Architecture Repository is actually Governance Repository

All the records that emerge by actions of the Architecture Governance Board is stored here



Governance records :

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The Governance Repository contains :

(Governance) Reference data : Internal and external (COBIT/ITIL). It includes a description of the governance procedure.

(Governance) Process Status : Outstanding compliance requests , dispensation requests, and compliance assessments investigations.

(Governance) Audit Information : Key decisions and responsible personnel , a reference for future architectural and supporting process developments, guidance and precedence. The Governance Log is this portion while the Architecture Capability portion is also pertaining to the Governance

Most of these are focused during Phase G for Implementation Governance and in a separate section on Enterprise Governance. Only the '**records'**, meaning results of Governance Compliances and Reviews are stored here.

Governance process itself will be part of the Architecture Capability portion and the Architecture Metamodel discussed already.

Governance Repository

- Reference Data
  - Used for guidance and instruction during project implementation.
- Process Status
  - All information regarding the state of any governance processes will be managed
- Audit Information
  - All completed governance process actions

Think : Log in IT industry means anything that is stored. Correct ?

Answer : No. In IT, a log file is a file that records events that occur when a system or a software runs

A RELATED QUESTION, IN LEVEL 1 :

919

Q : Statement that is **true with** Governance Log

A. Contains a record of what happened as part of governance activity across the enterprise.

B. Tailored Governance processes

C. Capability improvement process under Governance

D. Standards referred to as part of governance and Regulation

Answer : A Record, but of only the result of Governance. Not the process of doing Governance. That would have come under the Architecture Repository section of : Architecture Capability

This Scenario : Where would it fit ?

What is the focus ?

We have a Chapter 37. Architecture Repository in TOGAF Documentation.

It starts with the words :

Operating a mature Architecture Capability within a large enterprise creates a huge volume of architectural output. Effective management and leverage of these architectural work products require a formal taxonomy for different types of architectural asset alongside dedicated processes and tools for architectural content storage.

This section provides a structural framework for an Architecture Repository that allows an enterprise to distinguish between different types of architectural assets that exist at different levels of abstraction in the organization. This Architecture Repository is one part of the wider Enterprise Repository, which provides the capability to link architectural assets to components of the Detailed Design, Deployment, and Service Management Repositories.

Now, a Level 2 Scenario Based Question

Quick Look at Question and its focus :

The company has defined a strategic architecture

They believe in following Best Practices and Reference guidelines

All information pertaining to these are not stored in a very systematic manner

Aiming for every good organization of their Architecture Repository

You are to finalize the structure of that Repository

Detailed treatment of Question and answering process :

Scenario Based Question : SBR – 9001

Scenarios is about : Structure of the Architecture Repository

Giveall Online Digital Company is into a variety of electronic and digital lines of business. As part of a corporate-wide Lean Manufacturing initiative, the company has defined a strategic architecture to improve its ability to meet consumer demand and improve its ability to manage its supply chain.

Their strategic architecture called for the consolidation of multiple applications that have been operating for many years. A fairly good Governance system and Capability Enhancement program is in vogue for last few years. They are conscious of necessary standards and the need for adhering to regulatory norms. They also believe in following Best Practices and Reference guidelines with respect to Architecture wherever and whenever available. Despite these, the Top Management felt that all information pertaining to these are not stored in a very systematic manner.

This Enterprise is aiming for every good organization of their Architecture Repository.
You are the Enterprise Architect. You are to finalize the structure of that Repository and define as to what would go where. You are keen on following it as recommended by TOGAF.

You found out from the existing documents that there were four different recommendations given by different people who had some idea of Enterprise Architecture. Your task right now is to narrow down to the best one among them and take it up to the rest of the team make them understand all about it.

Pick one among the four possible answers

A. Standard Information Base and Reference Library are produced and lie outside the Enterprise. So, these two sections should be removed from the Architecture Repository representation.

Governance Log and Architecture Capability are same thing which are about Architecture Governance and the way to go about doing it. Hence the Log section should also be removed and merged with the other one.

The Architecture Meta Model is nothing but something produced by us with respect to architecture and so this also should be merged with this section called Architecture Landscape.

B. The Architecture Meta Model is one where you are supposed to describe the organization specific architecture framework, as adopted by the Enterprise. Hence the Architecture Meta model section provides guidelines to carry out the architectural work.

Assets prepared and in regular use by us will be a major part of the Architecture Landscape. This is because this landscape is container for architecture representation of assets which could be used within the enterprise at any particular point of time.

The Architecture Capability portion defines the processes, structures and the parameters which relate to the Governance. Skills Repository, Architectural Standards and Architecture Charter will find its place here.

C. The Architecture Meta Model is one where you are supposed to describe the organization specific architecture framework, as adopted by the Enterprise. Hence the Architecture Meta model section provides guidelines to carry out the architectural work.

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The Architecture Capability portion defines the processes, structures and the parameters which relate to the Governance. Skills Repository, Architectural Standards and Architecture Building Blocks produced will find its place here.

Hand holding clues and approach tips from Faculty :

Issues in focus :

Top Management felt that all information pertaining to these are not stored in a very systematic manner.

Aims : A fairly good Governance system and Capability Enhancement program is in vogue for last few years. They are conscious of following stands and adhering to regulatory norms. They also believe in following Best Practices and Reference guidelines with respect to Architecture wherever and whenever available.

Hence aiming for every good organization of their Architecture Repository

To do : Four different recommendations given by different people who had some idea of Enterprise Architecture is available. Narrow down to the best one among them and take it up to the rest of the team make them understand all about it.

37. Architecture Repository

Chapter Contents

Please see Part 2 of this pdf document for answer discussion

Part 2 : Module 9 Questions and Answers (Also Explanations)

Please answer questions appearing below on a piece of paper and then check the answer and explanation appearing immediately below the questions. Some Questions may be on earlier modules too.

You can choose the ones you want to answer now and keep the rest for a workout on your own later on.

The pictures that appear next to the question is only to break the monotony and has no special meaning.

The star rating gives you a clue of the relative importance of questions, from Certification viewpoint. Three-star questions may appear more often than two star and so on

This Scenario : Where would it fit ?

What is the focus ?

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Their strategic architecture called for the consolidation of multiple applications that have been operating for many years. A fairly good Governance system and Capability Enhancement program is in vogue for last few years. They are conscious of necessary standards and the need for adhering to regulatory norms They also believe in following Best Practices and Reference guidelines with respect to Architecture wherever and whenever available. Despite these, the Top Management felt that all information pertaining to these are not stored in a very systematic manner.

This Enterprise is aiming for every good organization of their Architecture Repository. You are the Enterprise Architect. You are to finalize the structure of that Repository and define as to what would go where. You are keen on following it as recommended by TOGAF.

You found out from the existing documents that there were four different recommendations given by different people who had some idea of Enterprise Architecture. Your task right now is to narrow down to the best one among them and take it up to the rest of the team make them understand all about it.
Pick one among the four possible answers

A. Standard Information Base and Reference Library are produced and lie outside the Enterprise. So, these two sections should be removed from the Architecture Repository representation.

Governance Log and Architecture Capability are same thing which are about Architecture Governance and the way to go about doing it. Hence the Log section should also be removed and merged with the other one.

The Architecture Meta Model is nothing but something produced by us with respect to architecture and so this also should be merged with this section called Architecture Landscape.

B. The Architecture Meta Model is one where you are supposed to describe the organization specific architecture framework, as adopted by the Enterprise. Hence the Architecture Meta model section provides guidelines to carry out the architectural work.

Assets prepared and in regular use by us will be a major part of the Architecture Landscape. This is because this landscape is container for architecture representation of assets which could be used within the enterprise at any particular point of time.

The Architecture Capability portion defines the processes, structures and the parameters which relate to the Governance. Skills Repository, Architectural Standards and Architecture Charter will find its place here.

C. The Architecture Meta Model is one where you are supposed to describe the organization specific architecture framework, as adopted by the Enterprise. Hence the Architecture Meta model section provides guidelines to carry out the architectural work.

Assets prepared and in regular use by us will be a major part of the Architecture Landscape. This is because this landscape is container for architecture representation of assets which could be used within the enterprise at any particular point of time.

The Architecture Capability portion defines the processes, structures and the parameters which relate to the Governance. Skills Repository, Organizational Structure and Architecture Charter will find its place here.

D. The Architecture Meta Model is one where you are supposed to describe the organization specific architecture framework, as adopted by the Enterprise. Hence the Architecture Meta model section provides guidelines to carry out the architectural work.

Assets prepared and in regular use by us will be a major part of the Architecture Landscape. This is because this landscape is container for architecture representation of assets which could be used within the enterprise at any particular point of time.

The Architecture Capability portion defines the processes, structures and the parameters which relate to the Governance. Skills Repository, Architectural Standards and Architecture Building Blocks produced will find its place here.

Hand holding clues and approach tips from Faculty :

Issues in focus :

Top Management felt that all information pertaining to these are not stored in a very systematic manner.

Aims : A fairly good Governance system and Capability Enhancement program is in vogue for last few years. They are conscious of following standards and adhering to regulatory norms. They also believe in following Best Practices and Reference guidelines with respect to Architecture wherever and whenever available.

Hence aiming for every good organization of their Architecture Repository

To do : Four different recommendations given by different people who had some idea of Enterprise Architecture is available. Narrow down to the best one among them and take it up to the rest of the team make them understand all about it.

37. Architecture Repository

Chapter Contents

A.

Standard Information Base and Reference Library are produced and lie outside the Enterprise. So, these two sections should be removed from the Architecture Repository representation.

Why should a useful and referrable potion be removed ? **Not a reasonable argument**

Governance Log and Architecture Capability are same thing which are about Architecture Governance and the way to go about doing it. Hence the Log section should also be removed and merged with the other one.

Architecture Capability is the set of best practices given by Governance Board (and others) to the EA Team about the way they can improve the Architectural Capability Maturity.

On the other hand, Governance Log is the record of happenings when the Architecture Governance Board exercises their scrutiny and control action over EA department as also other departments of PMO and Operations, which are also under its umbrella.

Illogical to say that these two are to be merged.

The Architecture Meta Model is nothing but something produced by us with respect to architecture and so this also should be merged with this section called Architecture Landscape.

We 'tailor' TOGAF and come out with the 'tailored TOGAF' as the Architectural Metamodel. It is not something 'produced' by us.

Architectural Landscape contains the 'scape' in the 'land' of all Architectural assets : All Building Blocks produced either in the current ADM cycle or in the earlier cycles for all earlier projects which are 'active' in production and being run regularly.

Again, illogical to say that these two are to be merged.

B.

The Architecture Meta Model is one where you are supposed to describe the organization specific architecture framework, as adopted by the Enterprise. Hence the Architecture Meta model section provides guidelines to carry out the architectural work.

True.

Assets prepared and in regular use by us will be a major part of the Architecture Landscape. This is because this landscape is container for architecture representation of assets which could be used within the enterprise at any particular point of time.

True. Assets in use, and potentially re-usable.

The Architecture Capability portion defines the processes, structures and the parameters which relate to the Governance. Skills Repository, Architectural Standards and Architecture Charter will find its place here.

Skills Repository, Architectural Standards and Architecture Building Blocks will find its place here. : Architectural Standards and Architecture Building Blocks are not part of Architecture Capability portion.

C.

The Architecture Meta Model is one where you are supposed to describe the organization specific architecture framework, as adopted by the Enterprise. Hence the Architecture Meta model section provides guidelines to carry out the architectural work.

Assets prepared and in regular use by us will be a major part of the Architecture Landscape. This is because this landscape is container for architecture representation of assets which could be used within the enterprise at any particular point of time.

The Architecture Capability portion defines the processes, structures and the parameters which relate to the Governance. Skills Repository, Organizational Structure and Architecture Charter will find its place here.

D. The Architecture Meta Model is one where you are supposed to describe the organization specific architecture framework, as adopted by the Enterprise. Hence the Architecture Meta model section provides guidelines to carry out the architectural work.

Assets prepared and in regular use by us will be a major part of the Architecture Landscape. This is because this landscape is container for architecture representation of assets which could be used within the enterprise at any particular point of time.

The Architecture Capability portion defines the processes, structures and the parameters which relate to the Governance. Skills Repository, Architectural Standards and Architecture Building Blocks produced will find its place here.

Skills Repository, Architectural Standards and Architecture Building Blocks produced will find its place here. : Architecture Building Blocks produced are not part of Architecture Capability portion. It belongs to Architectural Landscape

Answer :

Best answer : C : Every point mentioned here about Architecture Repository and its constituents are correct.

Second Best : D : Rest of the portion is correct. but one error noticed.

Third Best : B : Rest of the portion is correct. but two errors noticed.

Worst Answer: A : Factually incorrect arguments appear through the suggestions to merge.

The **Architecture Metamodel** describes the organizationally tailored application of an architecture framework, including a method for architecture development and a metamodel for architecture content.


901  Which of the following is organizationally tailored application of an architecture framework which includes method for architecture development and metamodel for architecture content ?

A. Architecture Capability
B. Architecture Landscape
C. Standards Information Bas
D. Architecture Metamodel

Answer : D

Explanation : Metamodel refers to any definition of how a model should be. TOGAF documentation is considered to be a definition of models (including ADM, Frameworks therein) . It is recommended to be tailored before being placed in the Architecture Repository as a content.

See : **37.1** : The **Architecture Metamodel** describes the organizationally tailored application of an architecture framework, including a method for architecture development and a metamodel for architecture content.

Note the step in Preliminary Phase : **Step 5.3.5 Tailor the TOGAF Framework and, if any, Other Selected Architecture Framework(s) :** After such a Tailoring, the Metamodel (the model that describes how to model and architecture EA as per adapted TOGAF) is placed in the Architecture Repository

The **Architecture Capability** defines the parameters, structures, and processes that support governance of the Architecture Repository.

902  A list of those defined by Architecture Capability to support the governance of the Architecture Repository includes

A. Parameters
B. Structure
C. Processes
D. None of the above
E. All of the (first three) above

Answer : E

Explanation :

It is parameters, structures, and processes that support governance of the Architecture Repository

See under : **37.1**

The **Architecture Capability** defines the parameters, structures, and processes that support governance of the Architecture Repository

The **Architecture Landscape** shows an architectural view of the building blocks that are in use within the organization today (e.g., a list of the live applications). The landscape is likely to exist at multiple levels of granularity to suit different architecture objectives.


903 
What level of the Architecture Landscape provides a long-term summary view of the entire enterprise ?

A. Capability Architecture
B. Operational Architecture
C. Segment Architecture
D. Strategic Architecture
E. Tactical Architecture

Answer : D

Explanation : Strategic Architecture always looks at a long term view of the Enterprise and is about thinking of Initiatives and Goals to relieve the pain points and to improve the overall Architectural maturity.

See under : **37.2 Architecture Landscape**

Strategic Architectures show a long-term summary view of the entire enterprise. Strategic Architectures provide an organizing framework for operational and change activity and allow for direction setting at an executive level.

The **Standards Information Base** captures the standards with which new **architectures must comply**, which may include industry standards, selected products and services from suppliers, or shared services already deployed within the organization.

The **Reference Library** provides guidelines, templates, patterns, and other forms of reference material that can be leveraged in order to accelerate the creation of new architectures for the enterprise.


904 Which class of architectural information held within the Architecture Repository would contain adapted reference models ?

A. Architecture Metamodel
B. Architecture Capability
C. Standards Information Base
D. Reference Library

Answer : D

Explanation : TOGAF asks us not just to store reference materials of architecture importance as it is, but will expect us to adopt it (make changes to suit our need, add comments and so on) while it is being stored.

See under : **37.3.1 :** Typically, a generic reference architecture provides the architecture team with an outline of their organization specific reference architecture that will be customized for a specific organization.

This customisation leads to adopted Reference Models. These are ideally identified upfront in Preliminary Phase and place int eh Architecture Repository

905  Which of the following applies to Reference Library in a TOGAF Architecture Repository ?

A. Define parameters, structures and processes that governs the Architecture Repository
B. Standards that new architectures should comply
C. Guidelines, templates, patterns and other forms of reference material which can be used to accelerate the development of new architecture
D. Record of governance activity for the enterprise

Answer : C

Explanation :

Reference Library is full of guidelines, templates, patterns and many other forms of reference material. These are meant to be used by the EA Team to accelerate the development of the architecture under current ADM cycle.

See under : **37.1**

The **Reference Library** provides guidelines, templates, patterns, and other forms of reference material that can be leveraged in order to accelerate the creation of new architectures for the enterprise.


906  What is the process of defining parameters, structures and processes that governs the Architecture Repository ?

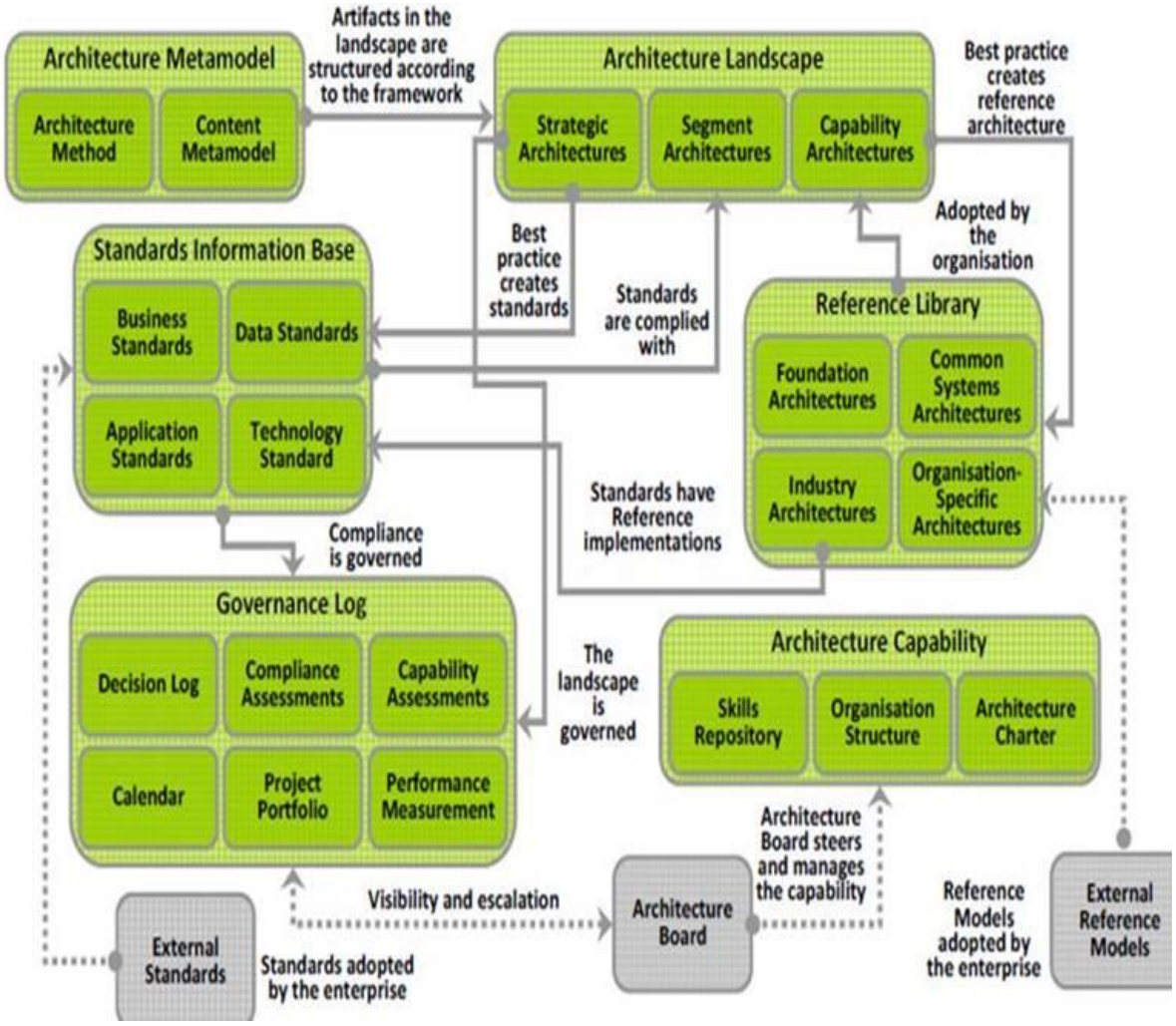
A. Reference Library
B. Standard Information Base
C. Architecture Capability
D. Architecture Meta Model

Answer : C

Explanation : Architecture Repository itself requires a defined process of its parameters and structures. This is found in the Architecture Capability section of itself.

See under : **37.1**

The **Architecture Capability** defines the parameters, structures, and processes that support governance of the Architecture Repository.


Architecture Metamodel
Architecture Method
Content Metamodel
Artifacts in the landscape are structured according to the framework
Architecture Landscape
Strategic Architectures
Segment Architectures
Capability Architectures
Best practice creates reference architecture
Adopted by the organisation
Best practice creates standards
Standards are complied with
Standards Information Base
Business Standards
Data Standards
Application Standards
Technology Standard
Reference Library
Foundation Architectures
Common Systems Architectures
Industry Architectures
Organisation-Specific Architectures
Standards have Reference implementations
Compliance is governed
Governance Log
Decision Log
Compliance Assessments
Capability Assessments
Calendar
Project Portfolio
Performance Measurement
The landscape is governed
Architecture Capability
Skills Repository
Organisation Structure
Architecture Charter
Architecture Board steers and manages the capability
Visibility and escalation
Architecture Board
Reference Models adopted by the enterprise
External Reference Models
External Standards
Standards adopted by the enterprise

907  What part of the Architecture Repository holds specifications to which architectures must conform ?

A. Standards Information Base
B. Enterprise Continuum
C. Governance Log
D. Architecture Landscape
E. Reference Library

Answer : A

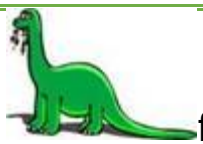
Explanation :

Standards are the ones which every part of the architecture must comply. Standards Information Base is the area in the Architecture Repository where standards are stored.

See under : **37.1**

The **Standards Information Base** captures the standards with which new architectures must comply, which may include industry standards, selected products and services from suppliers, or shared services already deployed within the organization

Components of the repository : Another favourite question topic. This question is another sample.

908 Which of the  following statements is correct in the context of ADM and Architecture Repository relationship ?

A. At relevant places throughout the ADM, there are reminders to consider which architecture assets from the Architecture Repository the architect should use

B. The practical implementation of the Enterprise Continuum will typically take the form of an Architecture Repository that includes reference architectures, models, and patterns mandated in TOGAF

C. In executing the ADM, the architect is only developing a snapshot of the enterprise at particular points in time, and populating the organization's own Architecture Repository is outside the scope of ADM

D. The first execution of the ADM is simplified because of the re-use potential of the standard architecture assets available for re-use in TOGAF Architecture Repository

E. Architecture Repository is only accessed in the Requirement Management phase

Answer : A

Explanation : Looking at the wrong answers : The practical implementation of the Enterprise Continuum will typically take the form of an Architecture Repository that includes reference architectures, models, and patterns mandated in TOGAF – Not an ADM and Architecture Repository relationship; read this question again after you get to know about Enterprise Continuum.

In executing the ADM, the architect is only developing a snapshot of the enterprise at particular points in time, and populating the organization's own Architecture Repository is outside the scope of ADM – ADM goes through actions which re much more than a snapshot of the Enterprise. ADM populates the Architecture repository with Architectures that are Platform independent (ABBs), Solutions which are implementation and vendor biased (Platform Specific SBBs) and even Implementation Governance and Change Management thereafter.

The first execution of the ADM is simplified because of the re-use potential of the standard architecture assets available for re-use in TOGAF Architecture Repository - Not a point relevant to ADM and Architecture Repository relationship

Architecture Repository is only accessed in the Requirement Management phase – Totally wrong understanding of ADM Phases including its Requirement Management Phase

909  Which of the following acts as a holding area for all architecture related projects within the enterprise ?

A. Architecture Building Block
B. Architecture Repository
C. Architecture Roadmap
D. Architecture Vision

Answer : B

Explanation :

Architecture Repository is the one that acts as a holding area for all architecture related projects within the enterprise.

See under : **37.1**

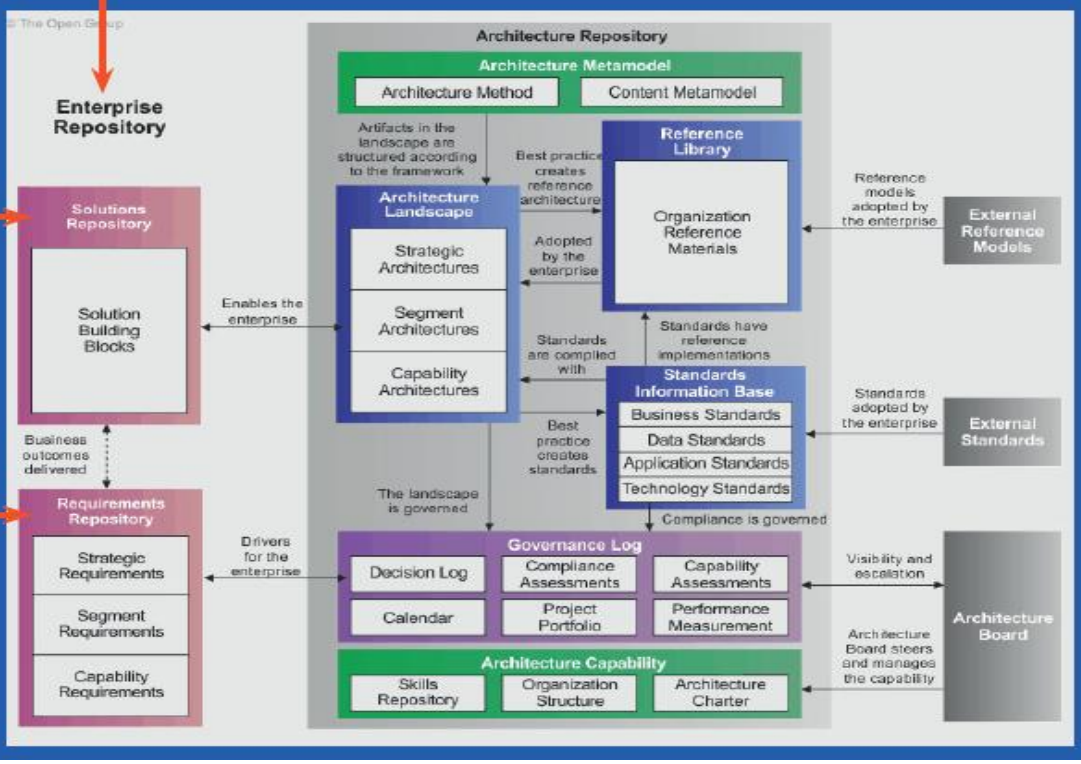
The **Architecture Landscape** presents an architectural representation of assets in use, or planned, by the enterprise at particular points in time.

Do not forget that the Architecture Landscape is one among the six constituents of the Architecture repository

The Architecture Repository is part of the wider Enterprise Repository, linking architectural assets to components of the Detailed Design, Deployment, and Service Management Repositories.

The Requirements Repository is used by the Requirements Management Phase (in the ADM) to record & manage all information relevant to architecture requirements.

The Solutions Repository holds the Solution Building Blocks (SBBs).



Areas that hold the Outputs of Projects

Architecture Landscape

Three Levels of Granularity:

Strategic Architecture – long-term summary of the entire enterprise

Segment Architectures – detailed models for areas within an enterprise

Capability Architectures – detailed view of particular capabilities

Reference Library

Reference Architectures

Reference Models

Viewpoint Library

Templates

The Architecture Continuum can be used to segregate different classes of reference materials

Standards Information Base

Three Classes of Standards:

Legal and Regulatory Obligations

Industry Standards

Organizational Standards

Standards Lifecycle:

Proposed > Provisional > Active > Phasing-Out > Retired

Governance Log

Includes all architecturally significant decisions, including product selections, justification for major architectural features of projects, standards deviations, standards lifecycle changes, change request evaluations and approvals, and re-use assessments.

910  Which one of the following completes the sentence: When executing the ADM, the architect is not only developing a snapshot of the enterprise, but is also populating the _____

A. Architecture Repository
B. Architecture Capability Framework
C. Enterprise Continuum
D. Foundation Architecture

Answer : A

Explanation :

Architect is producing artifacts which is populated (stored) in the Architecture Repository. The Architecture Capability Framework is a set of best practices and guidelines and not a model that is not populated as such, but is only improved with higher capability.

911 When applying  a cycle of the ADM with the Architecture Vision to establish an Architecture Capability, which phase does TOGAF Part VI recommend that defines the structure of the organization's Architecture Repository?

A. Application Architecture
B. Business Architecture
C. Data Architecture
D. Preliminary Phase
E. Technology Architecture

Answer : C

Explanation : The Data Architecture would define the structure of the organization's Enterprise Continuum and Architecture Repository. TOGAF Part VI is **Architecture Capability Framework.**

Phase C : Information Systems Architecture – Data Architecture : The Data Architecture of the architecture practice would specify and govern the structure of the organization's Enterprise Continuum and Architecture Repository. The Data Architecture should be defined based on the architecture framework. The Data Architecture is sometimes referred to as the metamodel of the architecture practice. Implementing any capability within an organization would require the design of the four domain architectures : Establishing the architecture practice within an organization would therefore require the design of :

The **Business Architecture** of the architecture practice that will highlight the architecture governance, architecture processes, architecture organizational structure, architecture information requirements, architecture products, etc.

- The **Data Architecture** that would define the structure of the organization's Enterprise Continuum and Architecture Repository
- The **Application Architecture** specifying the functionality and/or applications services required to enable the architecture practice
- The **Technology Architecture** that depicts the architecture practice's infrastructure requirements and deployment in support of the architecture applications and Enterprise Continuum.

912  Which of the following best completes the sentence? The Architecture Repository _____.

A. is used to store different classes of architectural output created by the ADM or needed by the ADM
B. is a categorization mechanism for classifying architecture and solution artifacts
C. is a detailed model of architectural work products, including deliverables and artifacts
D. is an architecture of generic functions and services
E. is a set of resources to help establish an architecture capability within an organization

Answer : A

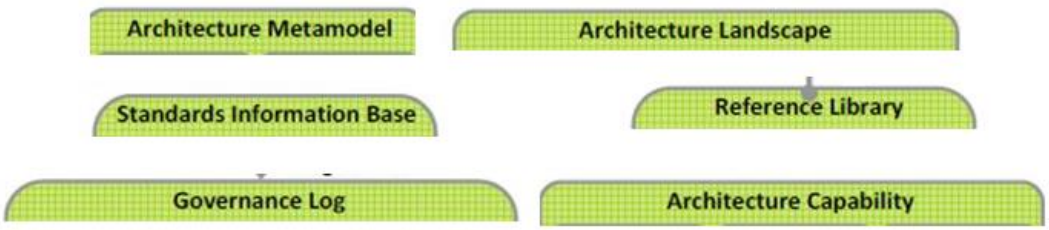
Explanation :

Architecture Repository which can be used to store different classes of architectural output at different levels of abstraction, created by the ADM.

See under : **2.7**

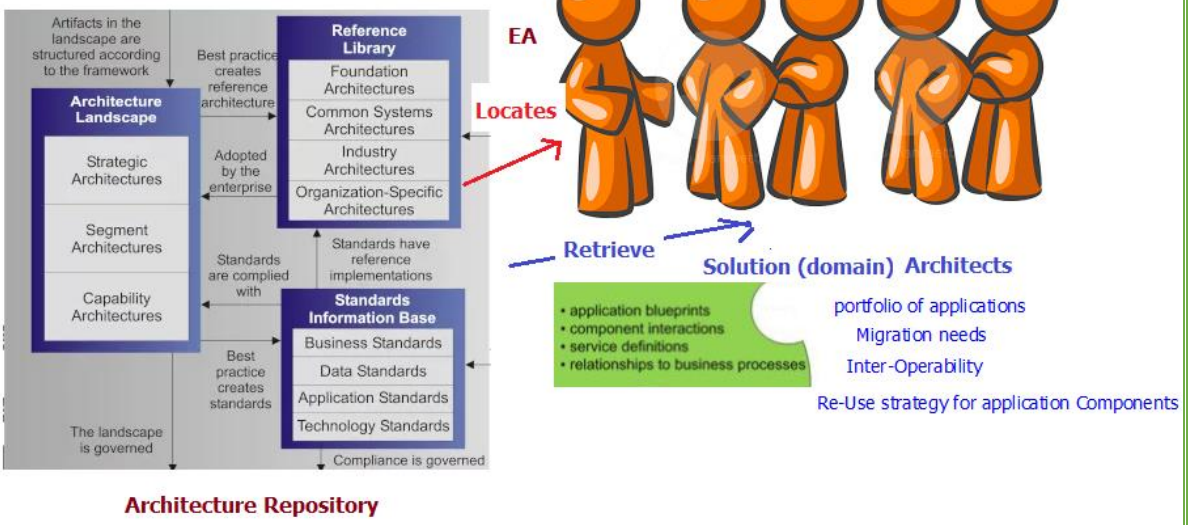
Use of the Repository is …

Architecture Repository and its part Components.



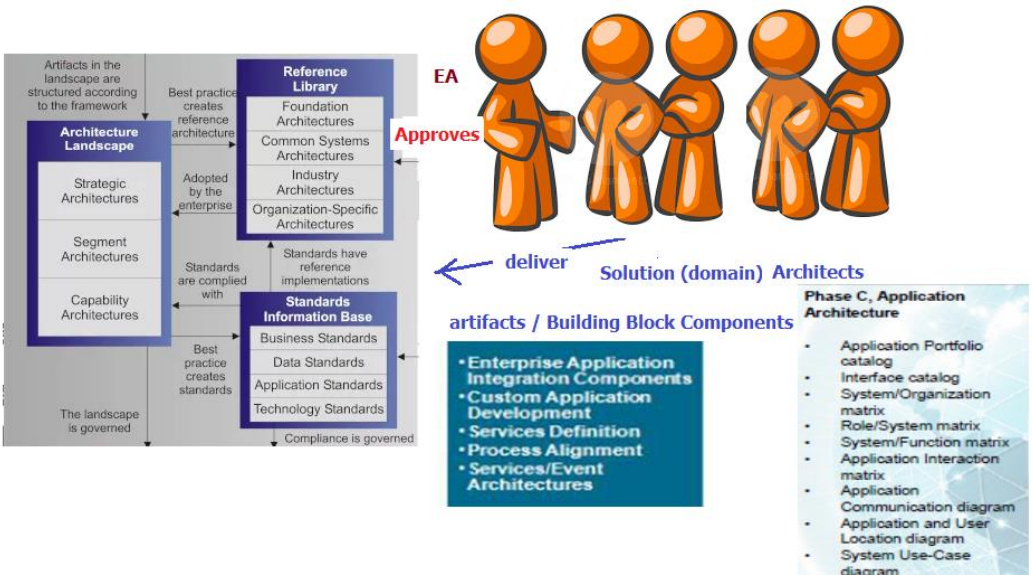
Six sections of Architecture Repository

Needed by ADM



Architecture Repository

Created by ADM



On non-correct answer choices :

Enterprise Continuum categorization mechanism for classifying architecture and solution artifacts

Content Meta Model and Content Framework : These have a detailed model of architectural work products, including deliverables and artifacts

Foundation Architecture (and TRM) is an architecture of generic functions and services

ADM and its guidelines are a set of resources to help establish an architecture capability within an organization

Think : What are Components of TOGAF ?

Answer : ADM as central one. We also have a few more. The Architecture Repository is a sub-part of the Component of Enterprise Continuum

913 Which of the following lists the components within the Architecture Repository ?

A. Organizational Metamodel, Architecture Capability, Architecture Landscape, Best Practices, Reference Library, Compliance Strategy

B. Architecture Metamodel, Organizational Capability Model, Application Landscape, SIB, Reference Library, Governance Model

C. Business Metamodel, Architecture Capability, Architecture Landscape, SIB, Reference Library, Governance Log

D. Architecture Metamodel, Architecture Capability, Architecture Landscape, SIB, Reference Library, Governance Log

Answer : D

Explanation :

Remember the correct SIX

It is important to get to know the names of each of the six sections as also about the nature of contents stored therein. Note that this is the Repository of Architectural contents for the whole Enterprise. So it will be a comprehensive one accommodating a variety of assets.

Think : What is the meaning of 'meta' in software ?

Answer : Meta is something that is about something else.

For example, *metadata* is data that describes other data (*data about data*). A *metalanguage* is a language used to describe other languages. A *metafile* is a file that contains other files. The HTML META **tag is used to describe the contents of a Web page.**

914  Which one of the following does TOGAF recommend as a framework to be created in order to address adaptation and integration of individual architectures ?

A. An Architecture Repository

B. An Enterprise Continuum

C. An Integrated Information Infrastructure Reference Model

D. A meta-architecture framework

E. A technical reference model

Answer : D

Explanation :

Meta is 'about' Tailored TOGAF - Meta data is ? Like this, Meta AF is what ?

Here, creating the framework refers to the act of tailoring the standard TOGAF documentation

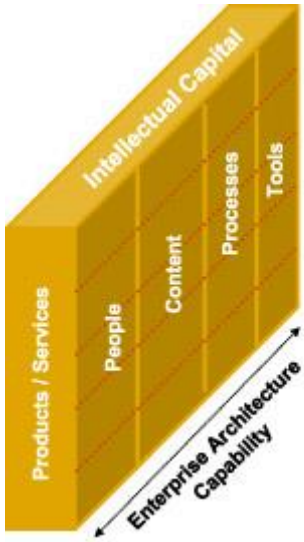
'**Metamodel'** is to be taken as the model framework that we refer while doing ADM and in working with other TOGAF Components

TOGAF recommends a meta-architecture framework in this case. The integrated changes can be stored in Architecture Metamodel portion of the Architecture Repository.

Note from this question that TOGAF expects you to customize the Solution Architecture (individual architectures) to suit your own practices.

Think : What is the meaning of Capabilities, as per TOGAF ?

Answer : The purpose of the EA capability is to integrate the resources necessary to create a complete EA view of an enterprise, as well as to provide products and services to facilitate the organisation's transition to an integrated environment with optimised processes that are responsive to change and to the delivery of the business strategy. This EA role is cross-disciplinary, requiring integration of diverse skills, methods and tools, within and beyond the technology community and comprises of:



915  A list of Capabilities as considered under Enterprise Architecture may not include

A. Architecture Value

B. Architecture Planning

C. Architecture Framework

D. Architecture Processes

E. Unit Test Results

Answer : E

Explanation :

First four : Do they add (Architecture) Capability to the Enterprise ?

See: 40.1 Overview

As with any business capability, the establishment of an Enterprise Architecture Capability can be supported by the TOGAF Architecture Development Method (ADM).

Successful use of the ADM will provide a customer-focused, value-adding, and sustainable architecture practice that enables the business, helps maximize the value of investments, and pro-actively identifies opportunities to gain business benefits and manage risk.

Think : What is the meaning of 'Architecture in use' as per TOGAF ?

Answer : It is about the previous Architectural ABBs and SBBs and also the current ones which are accepted for reuse by the Enterprise Architect. In short, all past and active IT projects and current projects where ABBs or SBBs have reached an accepted plateau level


916

What part of the Architecture Repository shows the building blocks that are currently in use within the organization ?

A. Architecture Landscape

B. Architecture Metamodel

C. Governance Log

D. Reference Library

E. Standards Information Base

Answer : A

Explanation :

Landscape is to contain : Building Blocks, comprising of ABB and SBB assets which have been prepared earlier for IT projects which are currently executing. Also the ADM outputs of projects currently in ADM Phases and which are approved by EA. These will be stored in the Architectural Landscape of the Repository, duly channelized by the Content Framework as a Schema.
It is the "Land surface" which holds all current Architectural assets

Think : Who publishes standards ?

Answer : Usually external neutral bodies. In software scenario, this includes ISO, ASTM, IEEE, ANSI, OMG, W3C, **IEC, ITU, ECMA, OASIS,** WS-Integration (WS-I)

Regulatory standards like PCI DSS, HIPAA, and ISO 27001 prescribe recommendations for protecting data and improving info security management in the enterprise.

ISO/IEC 17788, Cloud computing – Overview and vocabulary, provides definitions of common cloud computing terms, including those for cloud service categories such as Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS

We can keep on quoting many more like this. We can add Government regulatory standards, Internal standard in any Enterprise and so on.


917

A standard is different from other Reference Models because

A. Standard is something to be complied with, while Reference Models can be adapted to suit the Enterprise

B. Standards are made in house while Reference Models are obtained from external sources

C. Standards are obtained from external sources while Reference Models are made in house

D. None of the above are reasons for the difference

Answer : A

Explanation :

By basic definition, Standards are issued so that the Architecture work is prepared in compliance with it. These are often issued by standard bodies and neutral bodies.

Reference Models, mostly coming from third party outside the Enterprise could not be exactly as per practices and technologies that are practiced. Hence, they will be adapted and customized before being placed in the Repository of the Enterprise.

One to comply mandatorily, other just to refer – Which one, what

Think : What is the meaning of 'Reference Model ?

Answer : A reference model is a standard decomposition of a known problem into parts that cooperatively solve the problem.


918 Which component of the Architecture Repository provides guidelines, templates, and patterns that can be used to create new architectures ?

A. The Architecture Metamodel

B. The Architecture Capability

C. The Architecture Landscape

D. The Reference Library

E. The Governance Log

Answer : D

Explanation :

Refer for Guideline, for Templates, for Patterns

The very purpose of Reference Library is to hold materials which could be referenced by Architects from time to time. It is natural that such content is in the form of guideline materials, template suggestion's and patterns that pertain to best practices.

Think : Log in IT industry means anything that is stored. Correct ?

Answer : No. In IT, a log file is a file that records events that occur when a system or a software runs


919  Statement that is true with Governance Log

A. Contains a record of what happened as part of governance activity across the enterprise.

B. Tailored Governance processes

C. Capability improvement process under Governance

D. Standards referred to as part of governance and Regulation

Answer : A

Explanation :

As the name implies, it is only a log of what has happened.

Record, but of only the result of Governance. Not the process of doing Governance. That would have come under the Architecture Repository section of : Architecture Capability

Refer to TOGAF 9.2 online documentation while starting to prepare for Level 2 Questions

Very important to get to know parts of TOGAF documentation

https://pubs.opengroup.org/architecture/togaf9-doc/arch/

You will need this link to be open most of the time in this course

Similar content will **open during your Level 2 Exam**.

Sorry, not during Level 1 Exam

Since the Architecture Repository is a component of Enterprise Architecture that has direct control of Governance Body, and since it is made up of six important sections, possibility of a Level 2 question is never ruled out.

Part 3 : Detailed Courseware

We can use any storage system to create and store the contents of the Repository.

If we use TOGAF supporting Tools (such as Visual Paradigm, then the task is easy and we can use and drag and drop of contents into the appropriate section

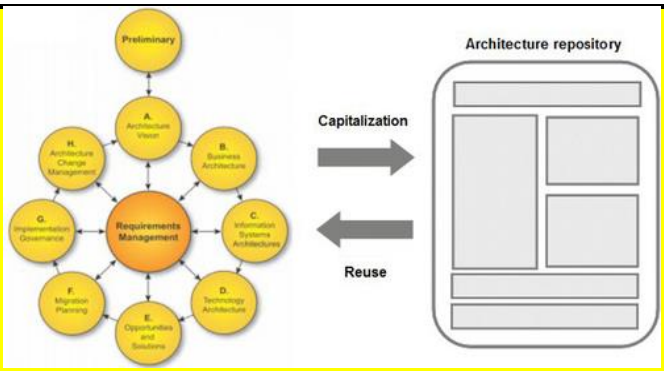
See this short video :

https://www.youtube.com/watch?v=JF4wQBHq4pw

Nice to Know Box

Architecture Repository

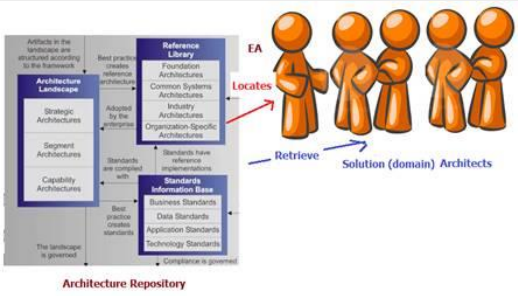
From this point of view, the TOGAF ADM cycle can be considered in two ways : as a **Provider** of information that feeds the repository during its construction or as a **Consumer** that draws elements from the repository according to its needs.



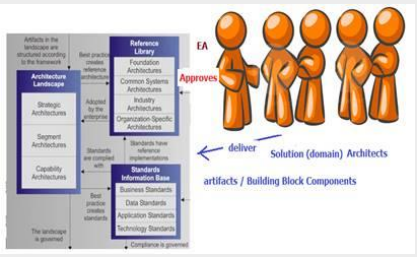
Is it like Saving and Consuming ?

No. Produce once, with re-use possibility

Retrieve it again and again



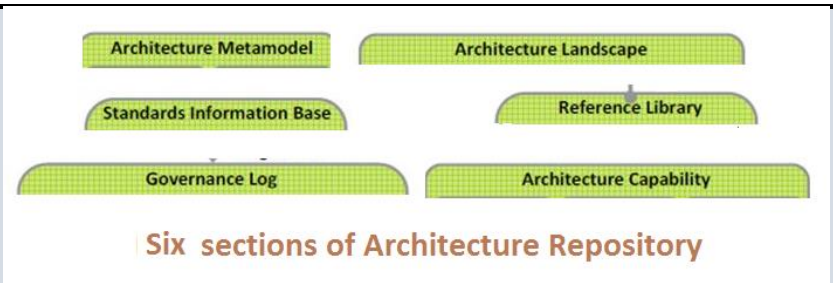
Provider & Consumer



Provider & Consumer

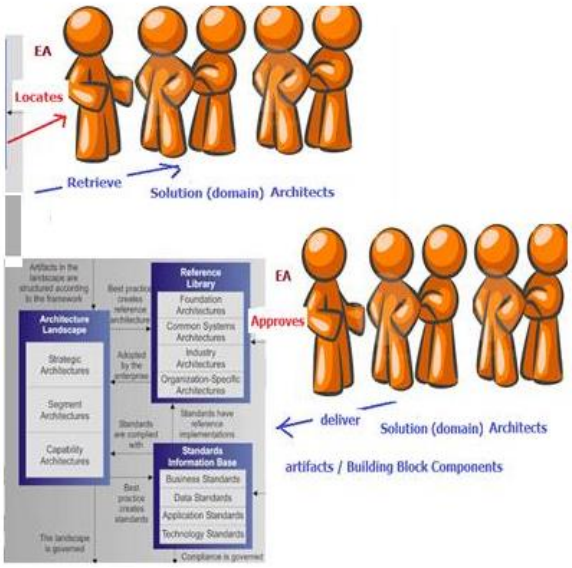
Where would one find TRM and III-RM within the Enterprise ?

Answer : In the Architecture Repository of the Enterprise.



Storage Schema

Far from being a static source of information,
the Repository is constantly evolving.



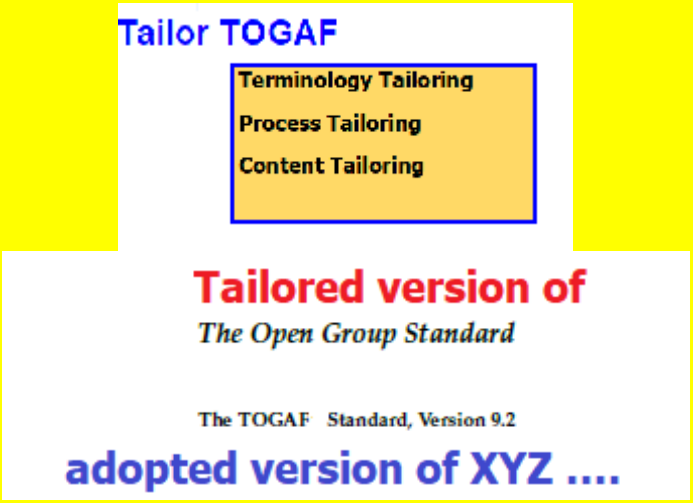
Evolves throughout architecture transformations,
thereby participating in know-how capitalization.
It also provides an overview of the Architecture,
which facilitates decision making at a strategic level

Nice to Know Box

The Architecture Metamodel describes the organizationally tailored application of an architecture framework including a method for architecture development and a metamodel for architecture content.

In Case Study

A step in Preliminary Phase was : **Tailor TOGAF**
And Other Selected Architecture Framework(s), if any,



Quick reference Document of 100 pages

Full Reference Document of 535 pages

Both documents placed in Architecture Repository : Metamodel portion

Quiz Time

Role of EA, Segment Architect in above

Who will Tailor – adopt – customize TOGAF ?

Who will use it

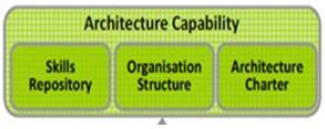
Nice to Know Box

TOGAF states that a mature architecture capability requires an Architecture Repository in order to structure all of the information generated and managed by the architecture team.

Naturally a **section that describes the guidelines to proceed with Capability Enhancement in a way that it goes beyond the TOGAF standard documentation will be highly welcome.**

Establishing an Architecture Capability

Parameters, Structures, and Processes



- It is increasingly recognized that a successful enterprise architecture practice must sit on a firm operational footing
- Effective governance requires that all architecturally significant activity is controlled and aligned within a single framework
- In effect, an enterprise architecture practice should be run like any other operational unit (e.g. a Project Management Office)

Prescribed as the

Governance related Processes

For example, parameters, EA department structures and Governance structures and the process to be followed in areas like :

- Financial Management : Ballpark budget to final budget and Cost Benefit equations
- Performance Management : How and when KPI / SLOs are measured and action taken on deviations
- Service Management : How much interoperable, how much granular the services are to be. About API Management; about services beyond Domain service
- Risk Management : Since risk is managed throughout ADM, what are the specific actions needed, when
- Resource Management : How and when to demand resources other than finance : People and supporting resources

- Communications and Stakeholder Management : Guidelines far beyond what Phase A indicated
- Quality Management : NFRs, Quality attributes : What all to focus upon, when
- Supplier Management : Architectural and specification coordination with all outside agencies who supply hardware / software / subscriptions; oven on outsourced development and operations : Guidelines herein
- Configuration Management : How and when to recognize and assemble configurations of Architectural Components and how to align it with overall service configuration
- Environment Management : Guidelines on overall environment of governance and capability enhancement

Nice to Know Box

This may include more material and guidelines on Capability and Governance related topics of :

Maturity Assessment – how to

Team Composition and trend chasing – best practices

Distinction between EA, SA and with Full Stack Architecture skill vis a vis Full Stack Development skill; Skills Inventory

Distinction between Agile / DevOps / Lean and the like

Motivational difference between Principles and Policies versus Rules

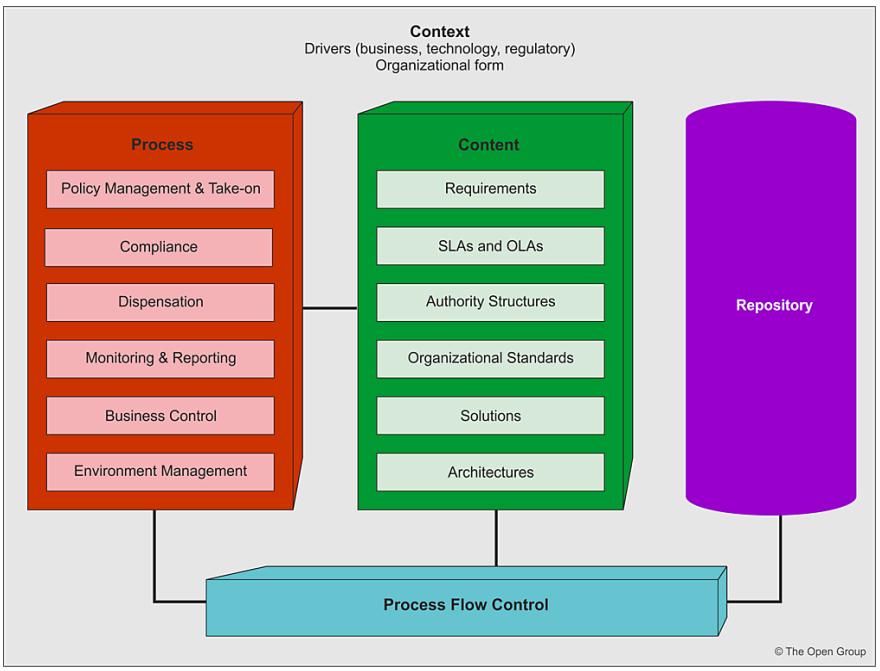
Motivational difference between Long Term Initiatives and Goals, Drivers, Assessment techniques and Outcome measurement and so on

How Requirements would have Constraints therein and how some of these would progress towards Serious Gaps, Risks and Critical Areas

Characteristics of Governance

Architectural Governance vis a vis other Governance Frameworks

In short, about the parameters, structures, and processes of :



Nice to Know Box

Most things an EA Capability needs to represent are complex.

Visualization of complex situations to support the Practitioner, the stakeholder, and others that need to be communicated with is critical. One of the most significant challenges to developing a high-functioning EA team is overcoming poor information management and information presentation practice.

A significant factor that results in a well-run sustainable EA Repository is the ruthless minimization of information gathered and maintained. Any information that is not required for the current Architecture Project, or supports minimal traceability, should not be captured. EA teams routinely drown in an information overload after capturing and maintaining extraneous information – information that is typically only useful for more detailed architecture analysis or implementation.

Good Practitioners will not confuse ruthless minimization of work with skipping necessary work: all stakeholders' concerns must be addressed. Leading Practitioners will understand that stakeholder management is necessary and attention to non-key stakeholders is rarely on the critical path.

(From TOGAF 10 documentation, Relevant for TOGAF 9.2 also)

The Architecture Capability section must contain guidelines mostly from Architecture Governance Board and efficient Consultants to the above effect.

Do note that these are best practice guidelines, aimed solely at Capability Enhancement mechanisms, and so is often prepared internally, under the guidance of the Architecture Governance Board.

Also note that it may even contain guidelines documents of generic POC – Proof of Concept, those from Centre of Excellence and similar specialist departments.

Nice to Know Box

Capability portion includes storing of Skills data

Skills framework

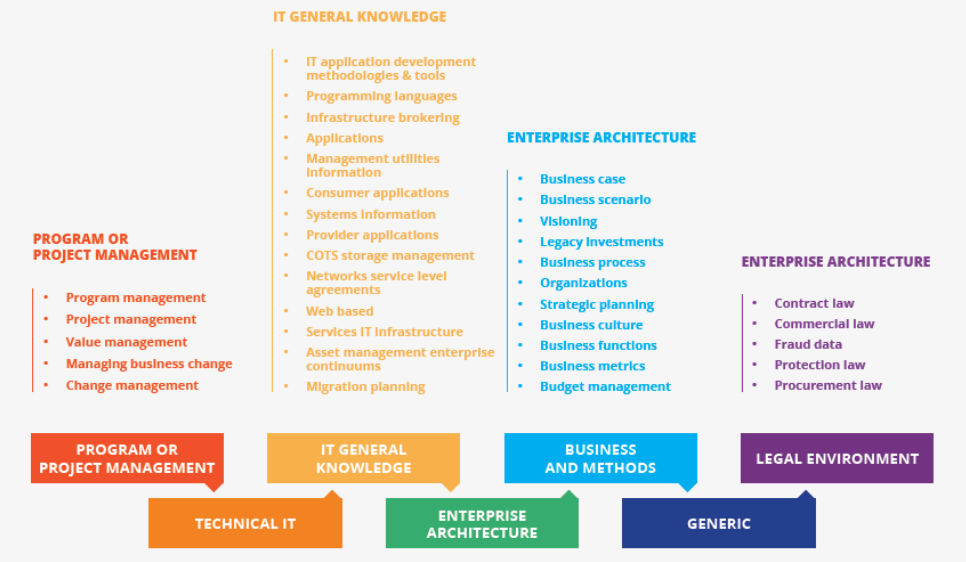
- Types of skill categories used in the TOGAF skills framework:
  - **Generic Skills:** typically comprising leadership, team working, inter-personal skills, etc
  - **Business Skills & Methods:** typically comprising business cases, business process, strategic planning, etc
  - **Enterprise Architecture Skills**: typically comprising modeling, building block design, applications and role design, systems integration, etc
  - **Program or Project Management Skills:** typically comprising managing business change, project management methods and tools, etc
  - **IT General Knowledge Skills:** typically comprising brokering applications, asset management, migration planning, SLAs, etc
  - **Technical IT Skills:** typically comprising software engineering, security, data interchange, data management, etc
  - **Legal Environment:** typically comprising data protection laws, contract law, procurement law, fraud, etc

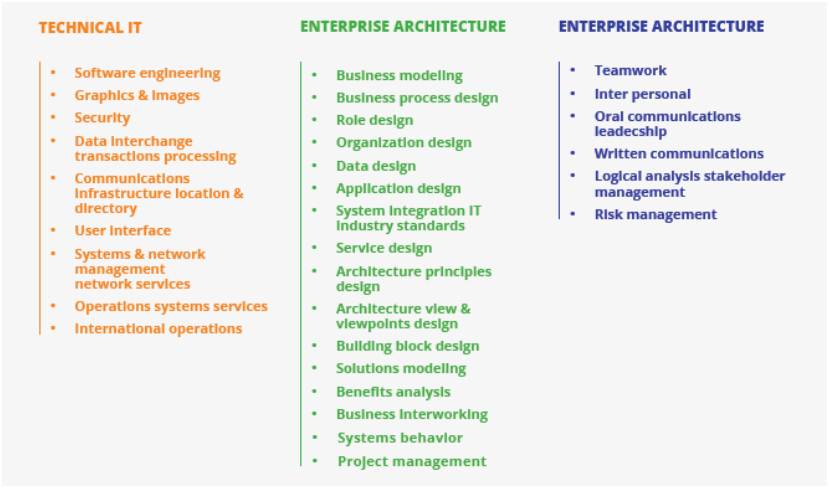
Refer to : Chapter 46 : Architecture Skills Framework

Customize this for the Enterprise and add it to this section of the Architecture Repository. This task can start from Preliminary Phase and can get supplemented as and when need arises

Nice to Know Box

The Skills Checklist





Proficiency Levels

Level	Achievement	Description
1	Background	Not a required skill, though should be able to define and manage skill if required.
2	Awareness	Understands the background, issues, and implications sufficiently to be able to understand how to proceed further and advise client accordingly.
3	Knowledge	Detailed knowledge of subject area and capable of providing professional advice and guidance. Ability to integrate capability into architecture design.
4	Expert	Extensive and substantial practical experience and applied knowledge on the subject.

Quiz Time

Role of EA, Segment Architect in above

Keep doing the right thing that improves Capability

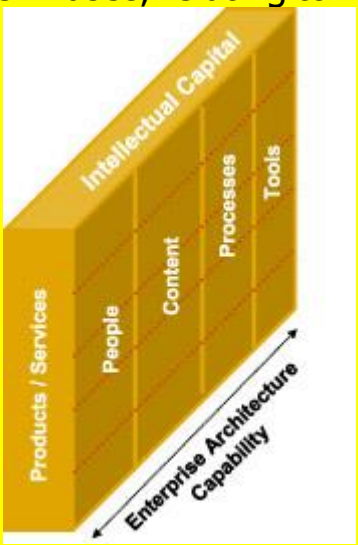
Architectural Capability

Of People, Of Process, through Planning

Nice to Know Box

In Case Study

All that is generated in all the Phases, relating to :



Architecture Capability :

These are a combination of

business processes,

people (organization, knowledge and skills, culture),

technology solutions, and

assets (facilities, funds, etc.)

aligned by strategic performance objectives

Nice to Know Box

In Case Study

The results of the assessment are documented in a Capability (Maturity) Assessment

But guidelines on how to carry it out is stored in this Architecture Capability section .

Can it handle all the integration that we are envisioning, from vvv and other downstream systems ?

Will analytics from … preferred – and so on will be efficiently used for future scheduling and service offerings by the airline.

Capabilities are delivered by a range of business, information technology and personnel changes so an Enterprise Architect will typically be involved in a range of activities that might include change management and staff training, information management, and application and technology stack changes.

These high-level Capabilities can be made more granular by defining a series of Capability Increments that are like steppingstones between the existing Enterprise and the attainment of the new capability. The Capability Increments can be represented on a Roadmap diagram to show the time based sequencing of their implementation.

Nice to Know Box

In Case Study

Assess Readiness for Business Transformation

Readiness Factors	
Vision	
Desire, Willingness, and Resolve	Top Mgt is ready
Need	Large Need Exists
Business Case	TBD, for each Project
Funding	Not a major issue
Sponsorship and Leadership	Seen in plentiful
Governance	Established, Active
Accountability	To be fixed
A Workable Approach and Execution Model	In the anvil
IT Capacity to Execute	Large Empowerment essential
Departmental Capacity to Execute	Needs Empowerment
Ability to Implement and Operate	EA group is resolved

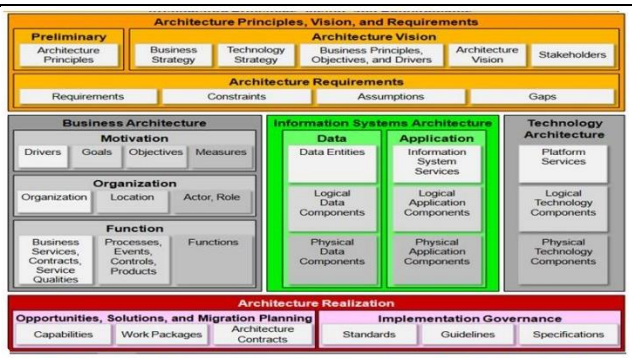
Nice to Know Box

Architecture Landscape

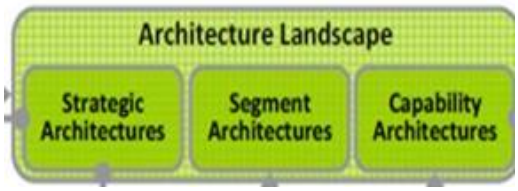
Current state of Building Blocks that are used in the Enterprise as of now

Operating a mature Architecture Capability within a large enterprise creates a huge volume of architectural output.

The Architecture Landscape presents **an architectural representation of assets in use, or planned, by the Enterprise at particular points in time**.



The Sub-Schema for Storing / Retrieving assets prepared by us : **Architectural Landscape**



Quiz Time

Role of EA, Segment Architect in above

Organize (Architecture Repository)

Organized by EA, Governed by ??

Produced by SAs

Stored by ?

Made easy for retrieval (Enterprise Continuum)

Managed by ?

Retrieved by : Many. At different situations

Nice to Know Box

What to Expect in a Well-Run EA Repository : EA Landscape

A common current state description of the architecture is maintained in the Repository. This common current state is periodically updated and used as the basis of all gap analysis. The governance test is that the current state reasonably represents what is.

The Repository also contains a consolidated target state and several transition states. **When Architecture Projects come to a close, their architecture descriptions are moved into the consolidated target state**. As the current state, the consolidated target is used in all gap analysis. While there is variance between transition states in the consolidated target, the Practitioner is in a position to assess whether the current project is moving towards the Enterprise's preference.

Architecture under development creates an additional information management challenge. For every Architecture Project, create a separate container in the EA Repository. This container allows the Practitioner freely to explore candidate target state options, different trade-off decisions, and impacts without affecting any other Practitioner's work.

A well-run EA Landscape will perform its modeling and analysis to support the decisions / questions at hand only to the extent necessary and nothing more.

These Practitioners understand and execute with the notion that more detailed work would come from another architecture cycle, post-decision to discuss implementation.

The essential component is ensuring that the EA Repository supports different states, and provides flexibility for an architect to explore a potential future without impacting any other architect's work.

(From TOGAF 10 documentation, Relevant for TOGAF 9.2 also)

Nice to Know Box

A headless Content Management System, or headless CMS, is **a back-end-only content management system that acts primarily as a content repository**. A headless CMS makes content accessible via an API for display on any device without a built-in, front-end or presentation layer.

This may be an approach appropriate for the Architecture Repository. However TOGAF m and the Enterprise Continuum. Has left it open to the Enterprise Architect (and the Data Solution Segment Architect of this department) to decide the best way to implement the Architecture Continuum.

Nice to Know Box

What to Expect in a Well-Run EA Repository : Reference Library

The Reference Library provides guidelines, templates, patterns, and other forms of reference material that can be leveraged in order to accelerate the creation of new architectures for the Enterprise.

The Reference Library of a well-run EA Repository is filled with accelerators. Accelerators speed time to market.

Broadly there will be two sets of reference material distinguished on whether they are directly used in

architecture development, or provide background material.

The first are materials that are used within the EA Landscape. These will include reference models, reference architectures, and patterns. These reference materials provide proven approaches. Proven approaches are accelerators, as they do not need to be explored with the same rigor as a novel approach.

For example, the IT4IT Reference Architecture and APQC's Process Classification Framework. In both cases there is no need to invent a novel set of processes.

This type of reference material provides a complete starter set, simplifies communication, and enables re-use within the EA team. Each Practitioner will use the same terms to describe a problem.

Patterns, and other Architecture Building Blocks (ABBs), are typically indistinguishable to a Practitioner from other reference material in the EA Landscape. Whether brought in from reference sources, or created inside the organization, they provide a consistent and known way of approaching a problem.

The second set are documentary reference materials. This material may include white papers, discussions of EA Landscape reference material, templates, stock material, and guides. Again, reference material is an accelerator. Communication between Practitioners is

improved when they have access to consistent background thinking. Communication outside the EA team is improved with consistency.

Maintaining discrete architectures allows the architect to be able to compare how the reference architecture was used in the current candidate or target against the base reference material.

In longer-lived repositories, it is common to find multiple overlapping reference architectures. Consider an organization that uses APQC's Process Classification Framework as a base reference model.

Should they implement a mainstream ERP, they will likely have work produced in the ERP vendor's process classification and the system integrator's process classification. Later, when the same organization adopts the IT4IT Reference Architecture, they will likely have another process classification.

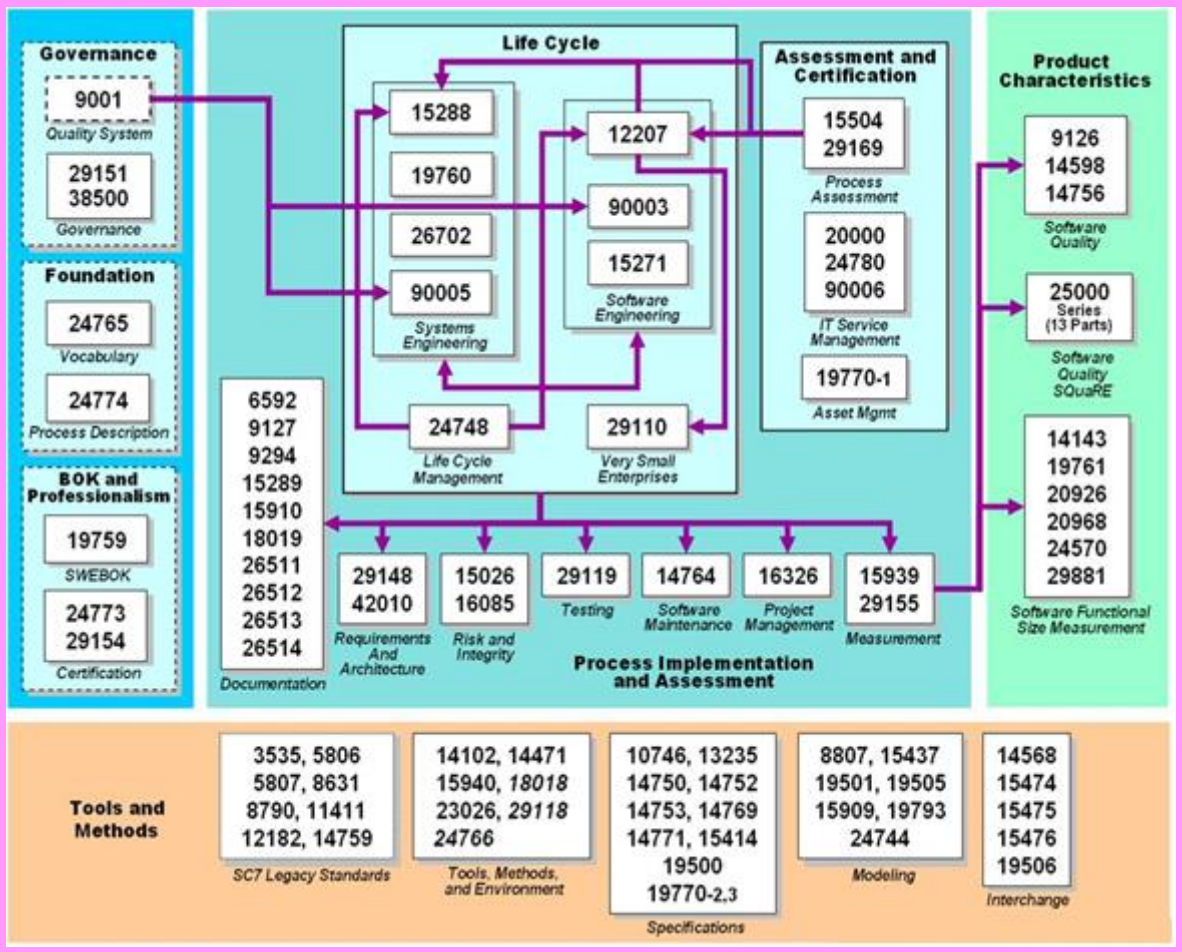
Maintaining each of these has a clear reference in the modeling, and analytic software will allow future architects to understand the decisions made during architecture development and implementation governance, especially when only part of a reference is brought into architecture development and maintained in the architecture. There is a need to integrate an architecture tool with tools supporting planning, solution delivery, solution validation, etc.

A Practitioner may have to refer to documentation in such tools on occasion or provide appropriate traceability.

Reference Architectures, planning data, analytic data, etc. are normally supported by detailed documentation managed in a document management system. A Practitioner concerned with the purpose and rationale for complete or partial use of such data will seek the supporting documents, to use them appropriately for modeling or analysis. Do not get swayed by looking at whether the Practitioner is likely to read them when creating the links to the document management system.

(From TOGAF 10 documentation, Relevant for TOGAF 9.2 also)

Interaction Point : For Practical purposes beyond Certification



ISO Standards for Software Engineering

There are many more standards that might apply to some parts of the Architecture of the Enterprise

Quiz Time

Role of EA, Segment Architect in above

EA ensures Standards are complied with

at appropriate places in Architecture

SA reads, understands, follows

Interaction Point : For Practical purposes beyond Certification

Business Standards include regulatory ones like :

SOX (Sarbanes– Oxley*)* Act

Disabilities Act

Many such **Regulatory Compliances**

Data Standards :

ISO 8000 is the global standard for Data Quality and Enterprise Master Data. It describes the features and defines the requirements for standard exchange of Master Data among business partners. It establishes the concept of Portability as a requirement for Enterprise Master Data, and the concept that true Enterprise Master Data is unique to each organization

Modern Microsystems specification include :

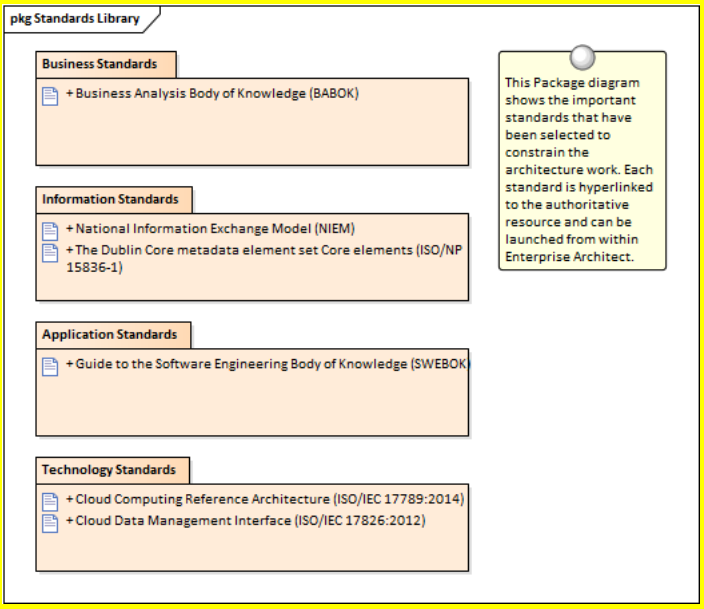
Open API (Swagger)

Infrastructure Standards

For example, **ISO/IEC 17788**, Cloud computing – Overview and vocabulary, provides definitions of common cloud computing terms

Nice to Know Box

In Case Study



Nice to Know Box

In Case Study

Examples for SIB

Payment Gateway, ….

Cloud : PaaS, IaaS, …; Standard Services : SMS texting, e-mail;

Image standards : JPEG, GIF, PNG, BMP….. For SOA : SOAP 2.0, REST….

Different types of content or media in MIME are available

Database : SQL ; Migration : JSON, XML, XSD ..

TCP, Http, SSL and Sockets, WebSocket …..

Nice to Know Box

Standards typically fall into three classes :

- **Legal and Regulatory Obligations**: These standards are mandated by law and therefore an Enterprise must comply or face serious consequences.
- **Industry Standards**: These standards are established by industry bodies, such as The Open Group, and are then selected by the Enterprise for adoption. Industry Standards offer potential for interoperation and sharing across Enterprises, but also fall outside of the control of the Enterprise and therefore must be actively monitored.
- **Organizational Standards**: These standards are set within the organization and are based on business aspiration (e.g., selection of standard applications to support portfolio consolidation). Organizational Standards require processes to allow for exemptions and standards evolution

Standards within the Standards Information Base are categorized according to the Building Blocks within the TOGAF content metamodel. Each metamodel entity can potentially have standards associated with it (e.g., Business Service, Technology Component).

Standards may relate to "approved" Building Blocks (e.g., a list of standard Technology Components) or may specify appropriate use of a Building Block (e.g., scenarios where messaging infrastructure is appropriate, application communication standards are defined).

At the top level, standards are classified in line with the TOGAF architecture domains, including the following areas :

- **Business Standards**:
  - Standard shared business functions
  - Standard role and actor definitions
  - Security and governance standards for business activity
- **Data Standards**:
  - Standard coding and values for data
  - Standard structures and formats for data
  - Standards for origin and ownership of data
  - Restrictions on replication and access
- **Applications Standards**:
  - Standard/shared applications supporting specific business functions
  - Standards for application communication and interoperation
  - Standards for access, presentation, and style
- **Technology Standards**;
  - Standard hardware products
  - Standard software products
  - Standards for software development

Nice to Know Box

What to Expect in a Well-Run EA Repository : Standards Library

In a well-run EA Repository, the Standards Library will perform two functions.

First, it provides a repository for the standards that the architecture must comply to. Second, it provides a repository for the standards imposed on all implementations by the architecture. The distinction is critical. **One is used to test the architecture; the second is used to test an implementation.**

In practice, these two sets of standards have to be separated. A simple example is provided by the PCI standards. An Enterprise that uses credit cards is subject to PCI standards. No Enterprise with a good EA will simply place PCI standards in a repository for an implementation to comply with.

The question of how to comply is inappropriate for an implementation team. The compliance with PCI may be as simple as a standard derived from the EA that requires the use of a third-party payment processor ensuring that PCI subject information is not in the hands of the Enterprise. The latter is a standard derived from the EA.

It is common to extend the Standards Library to include selected products and third-party services.

This pragmatic choice simplifies the governance of Implementation Projects where, in addition to an architecture requirement specification or control, there exists a product or service that conforms.

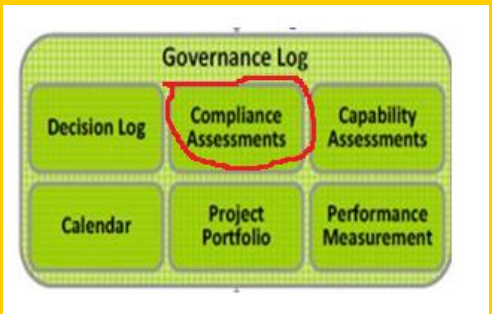
To further the example above, rather than the Architecture Requirements Specification requiring the use of the third-party payment processor, a specific third-party payment processor can be placed in the Standards Library.

Where specific products and services are placed in the Standards Library, it is best practice to trace those choices directly to the Architecture Requirements Specification or control that brought these products and services to life. Without traceability to the architecture, product or service selection can be viewed as an arbitrary choice. One of the traps of architecting through product and service standards is the lack of traceability to the requirement or risk. When there is simply the specification of a product or service as an arbitrary choice, the governance process is dramatically complicated because alternative products or services can be considered on criteria other than those that lead to an Architecture supported decision.

(From TOGAF 10 documentation, Relevant for TOGAF 9.2 also)

Nice to Know Box

Governance Log – mainly contains records, such as Compliance Review Reports that result out of Governance Process.

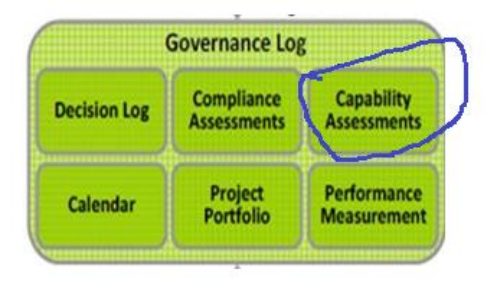


At key checkpoint milestones in the progress of a project, a formal architecture review will be carried out. This review will measure the compliance of the project to the defined architecture standards. For each project, this log should include :

- Project overview
- Progress overview (timeline, status, issues, risks, dependencies, etc.)
- Completed architecture checklists
- Standards compliance assessment
- Recommended actions

Nice to Know Box

Governance Log – contains results of Capability Assessment, carried out in early Phases of ADM, as well carried out again when found necessary during subsequent Architectural process



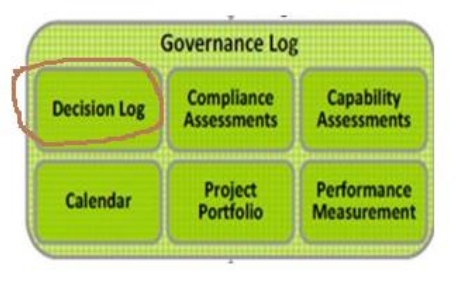
Depending on their objectives, some projects will carry out assessments of business, IT, or Architecture Capability. These assessments should be periodically carried out and tracked to ensure that appropriate progress is being made.

This log should include :

- Templates and reference models for executing Capability Assessments
- Business Capability Assessments
- IT capability, maturity, and impact assessments
- Architecture maturity assessments

Nice to Know Box

Governance Log – also contains decisions of Governance Board, such as one-time Dispensation that is relaxation from a specific Architectural Principle

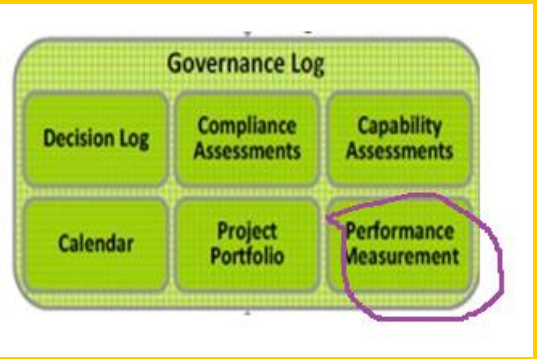


A log of all architecturally significant decisions that have been made in the organization. This would typically include:

- Product selections
- Justification for major architectural features of projects
- Standards deviations
- Standards lifecycle changes
- Change request evaluations and approvals
- Re-use assessments

Nice to Know Box

Governance Log – also holds Metrics and measurement thereon checked from time to time. Performance metrics are ones in greater focus



Based on a charter for the architecture function, a number of performance criteria will typically be defined. The Performance Measurement log should capture metrics relating to project governance and any other performance metrics relating to the architecture charter so that performance can be measured and evaluated on an ongoing basis.

Nice to Know Box

Governance Log – a schedule of in-flight projects and formal review sessions to be held against these projects

The Calendar should show a schedule of in-flight projects and formal review sessions to be held against these projects.

Nice to Know Box

Governance Log – summary information about the Statement of Architecture Work of all in-flight projects that fall under Architecture Governance

The Project Portfolio should hold summary information about all in-flight projects that fall under architectural governance, including :

- The name and description of the project
- Architectural scope of the project
- Architectural roles and responsibilities associated with the project

Nice to Know Box

Records that are outcome of Governance Process

That is why they are 'log's

The Governance Log provides a repository area to hold shared information relating to the ongoing governance of projects.

Maintaining a shared repository of governance information is important, because :

- Decisions made during projects (such as standards deviations or the rationale for a particular architectural approach) are important to retain and access on an ongoing basis. For example, if a system is to be replaced, having sight of the key architectural decisions that shaped the initial implementation is highly valuable, as it will highlight constraints that may otherwise be obscured.
- Many stakeholders are interested in the outcome of project governance (e.g., other projects, customers of the project, the Architecture Board, etc.).

Nice to Know Box

This Architecture Repository is one part of the wider Enterprise Repository ecosystem which provides the capability to link architectural assets to components of the Detailed Design Deployment and Service Management Repositories. This can be used to store diverse types of architectural outputs each at varying levels of abstraction.

Nice to Know Box

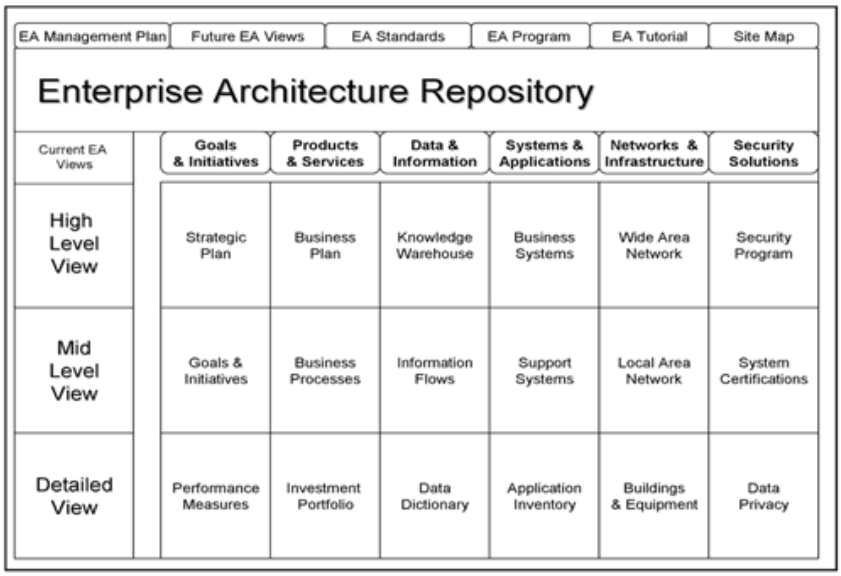
Now that we know different types of outputs are produced during architectural development work and as the capability grows the number of these artifacts only increase over time, the obvious question that would come is how are all these documents organized ?

Additionally, there are large number of external reference documents which the architects need to use.

Imagine, there is a large library with tons of useful books but are not stored in proper way - how will you get a book you want to refer in such a library ? It will be chaotic, right ? Same is true with documents produced in architectural work as well.

TOGAF also attempts to provide some high level organizing guidelines for all the architectural material through concepts of **Architectural Repository** and Enterprise Continuum.

The Architecture Repository occupies a central position in TOGAF as a tool for capitalizing reusing and structuring information. Enterprise Continuum is the tool for retrieving any required piece of information, in a indexed manner.



TOGAF describes the structure and content of the repository areas that hold the output of projects namely the Architecture Landscape, the Reference Library, the Standards Information Base and the Governance Log. There are two more sections also in it.

Nice to Know Box

Also stores many related Architectural materials, processes and references

which are relevant during ADM

Facilitate understanding and cooperation between

Architecturally inclined Stakeholders and

Architecture Practitioners who are at different levels

Even those in PMO, Operations Department,

those in Governance Setup

and Stakeholders who have Architectural knowledge

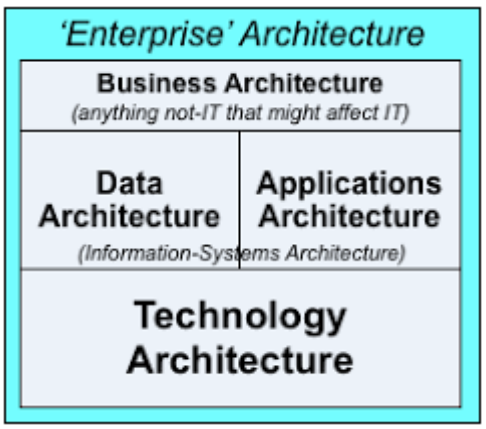
may have something stored in this which is of their interest

It is the Storage Schema and the Store

What is stored ?

Enterprises need to conserve, diffuse, and reuse the EA information that constitutes one of their key assets. This is the role of the Architecture Repository, which includes :

Descriptions from each of the four domains



,

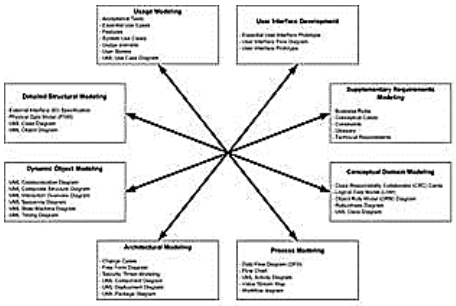
as well as a

whole host of knowledge

Best Practices,
Ref Materials (say Patterns ...)
POC Arch
...

,

guiding principles ,



and techniques

linked to Enterprise Architecture.

The goal consists of finding practices and work pieces accumulated during previous ADM cycles to progressively constitute an asset that is continuing to be available to the entire Enterprise

Nice to Know Box

Note : **Architecture Capability** : This section stores the process recommendations of the Architecture Governance Board, duly supplemented by EA department

These are about

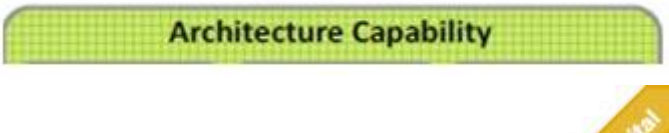
process recommendations on capability enhancement through ADM,

structures of Architectural function (people) within the Enterprise and

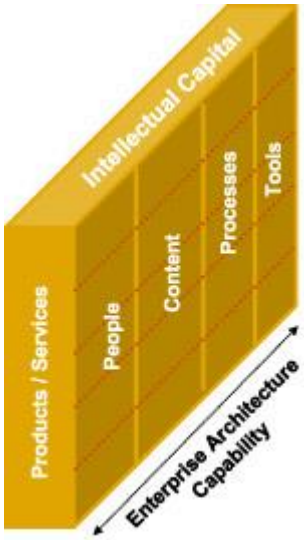
the input (parameters) which apply over the process

All recommendations are aimed at **improving the Architectural Capability Maturity** of the Enterprise

Capability Enhancement mechanism ; Who applies, Who benefits



Architecture Capability



:

These are a combination of business processes, people (organization, knowledge and skills, culture), technology solutions, and assets (facilities, funds, etc.) aligned by strategic performance objectives.

The objectives of the Preliminary Phase are :

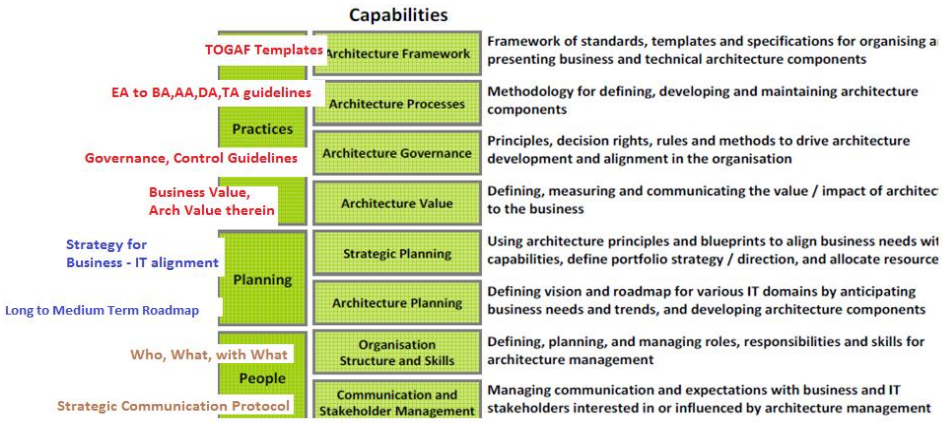
1. Determine the Architecture Capability desired by the organization :
2. Establish the Architecture Capability

Capability : Determine where the organizations stands, Establish more

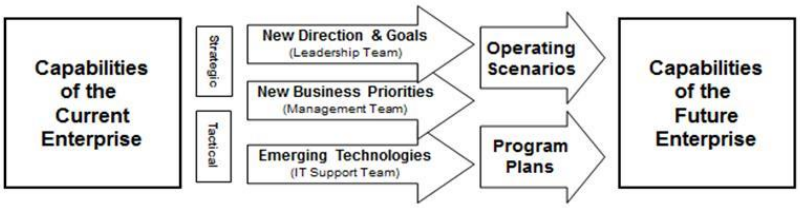
Architecture Capability Framework

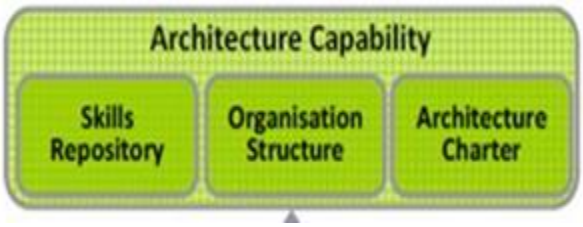
The Architecture Capability defines the parameters, structures, and processes for governance of the Architecture

Capability Increment happens through Building Blocks developed in ADM



Establish the Architecture Capability :

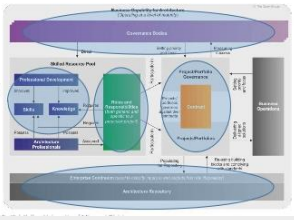


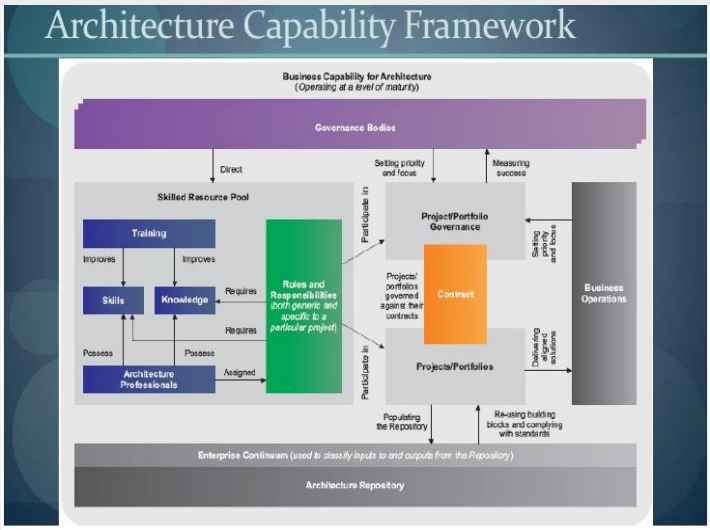


TOGAF has full part in its documentation about this as a Capability Framework

Architecture capability framework (part VII)

- To do EA, there are critical capabilities you must have in place.
  - Skills and knowledge
  - Roles and responsibilities
  - Architecture repository for content
  - Essential connections to project/portfolio mgmt.
  - Governance bodies





It is natural that Architecture Repository has a dedicated section for these

Architecture Capability –

Contains Governance and Capability management

process specifications

not the artifacts which are architectural assets

Not even the TOGAF documentation process

But what is prescribed as the

Governance related Processes

Governance Body lays out such Processes; Stored in … ?

Say

How to do Capability Maturity Assessment

How to proactively plan People Empowerment of Architecture and IT

– say through training

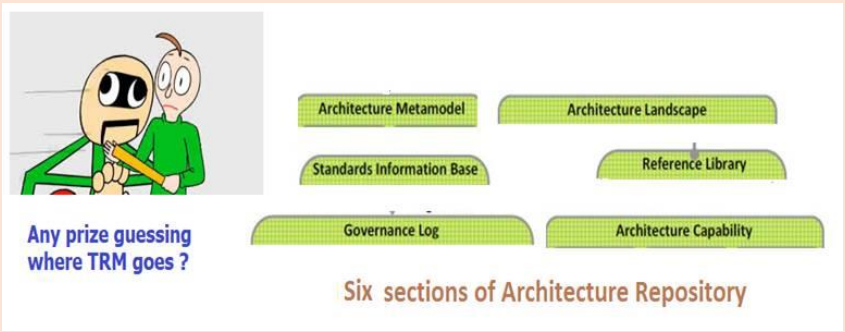
How to assess Business Transformation Readiness

Nice to Know Box

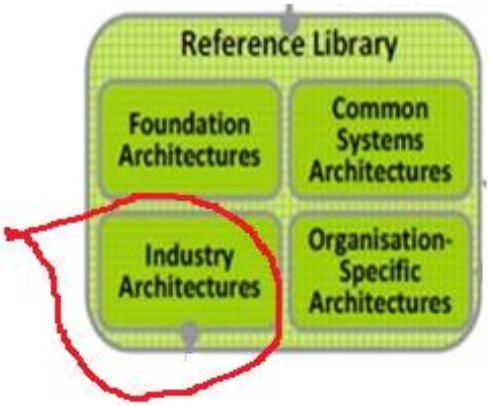
A good point of external Reference here could be :

The TOGAF Library, as maintained under the governance of The Open Group Architecture Forum / Library resources.

Visit : https://publications.opengroup.org/togaf-library



Apart from TRM and III-RM as part of our Reference library, it is advised to get reference architectures **specific to our industry** that is reflected in the portion shown rounded below :



ABBs, SBBs from Industry bodies

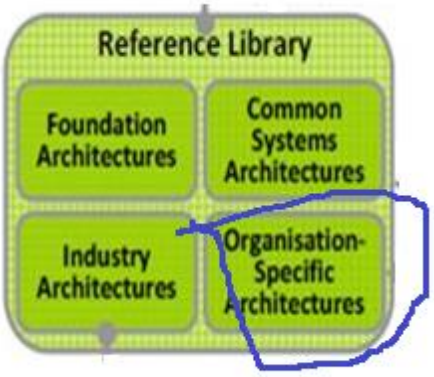
To note :

TMF ; Tele Management Forum : Telecom Industry

Energetics – Petrochemical Industry

ARTS - Retail Industry : (Association for Retail Technology Standards)

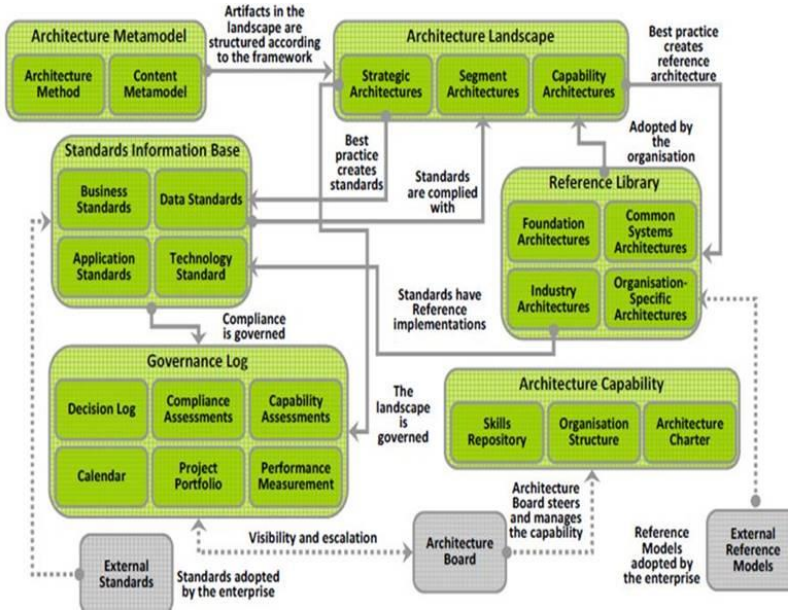
Why not build up a Reference Library that is meant for re-use by our own project. This **Enterprise specific Reference library** is shown as rounded in the diagram below.



POCs made by us for Reuse

Centre of Excellence created libraries, sub-Frameworks ,,,

Nice to Know Box



Storage Schema + External Links

There are many industry reference models available which may assist in understanding the role of and developing the Reference Architectures. Examples include MDA from OMG, FEA for US Government, TMF from the Telecoms Industry, SOA reference models from OASIS and The Open Group.

External Standards : These relate to industry, best practice, or formal defined standards used by leading organizations. Examples include ISO, IEEE, and Government standards.