(Most) Comprehensive Case Study on TOGAF

(You cannot find such a Comprehensive one anywhere else. This is written out of the expertise and experience of the Faculty) – Bit and Piece Case Study are aplenty.

This is a **Comprehensive Case Study** to illustrate what is involved in making TOGAF a practical reality. It takes you into a journey of TOGAF, end to end.

This set of Case Study is **not at all needed** for preparing towards Certification

These are meant only to add practical real-life value about TOGAF IN PRACTICE.

Do note that TOGAF only tells us **what is needed** as part of Enterprise Architecture

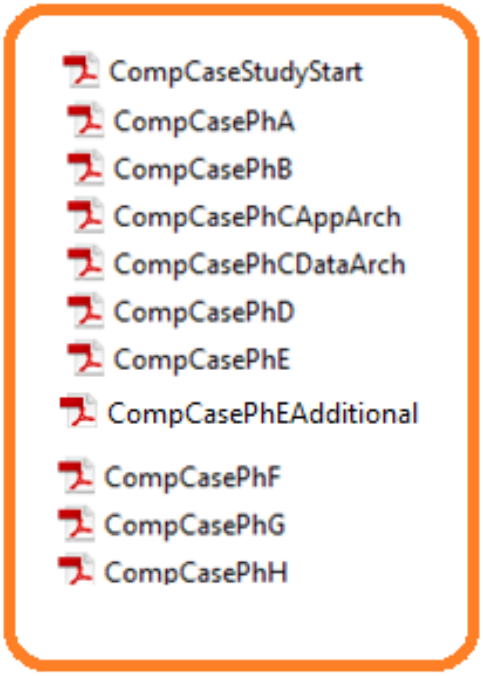
Nowhere in the TOGAF documentation that we can find **How to do it**

This Comprehensive Case Study fills that gap

This Comprehensive Case Study is an attempt to tell you **HOW EXACTLY** Enterprise Architecture and Segment Architecture are performed for a large ENTERPRISE

No effort is made to fit in any of the Templates suggested by TOGAF. You may refer to them in our Courseware

Please follow this from Phase A to Phase H in same sequence, after assimilating this document first



Our Case Study here is about a large **Enterprise**. It is often not worthwhile looking at TOGAF if the scope is a small company or even for a single project only. We are looking at an **Enterprise** now.

Let us get into a **Case Study** form an **e-Commerce domain** :

A large Corporate which has presence in many fields now wants to enter into E-Commerce. It wants to leverage its presence of physical stores in many areas of merchandise.

It has the long-term strategic aim of filling up a large gap in the existing e-Commerce ecosphere where many services, and some goods segments are yet to exploit the full potential of e-Commerce. It is aspiring to effect one-hour delivery from order placement for as many goods and services as possible.

It is further aiming at no questions asked return and refund policy to the largest possible extent, this being the most popular USP - Unique Selling Proposition that they can use to beat the competition at any time.

In the near term they want to establish a minimal set of E-commerce delivery of most common items that are in demand. They have already conducted a survey of most common items which they can immediately book online and start the delivery. They would like to start with first set of identified vendors and would like to continue the registration process of new vendors as an ongoing activity.

Following business processes are among the ones to be captured in depth and brought in as Business Requirement documentation :

Vendor registration after due verification

Onboarding of customers who will enrol into the e-commerce platform through web and mobile access

Establishing the Shopping Cart process, with order confirmation with payment choices

Fulfilment to delivery - the complete pipeline once an order is accepted

Though the following would be in subsequent years, the corporate wants to make futuristic provisions for easy integration of the same :

Adding off service areas including food delivery from various kitchens; including medicine orders, medical services, repair services …..

Customer picking up deliveries of goods from a local spot for which a discount can be offered

A perfect omnichannel model for goods where it makes sense : Pick up from warehouse, local store – hyper store or a partner location; services from local but trusted partners and in-house teams

Highly AI oriented prediction of needs of customer even before their inventories run out or needs come up due to employment and social circumstances

Points of Essence :

eCommerce initiative, moving above from Store Commerce

Minimal set first and then continuous addition of other features

Initiative should remain open for futuristic additions and opportunities

Involves Customers and Vendors as major external elements

Comprehensive Case Study : Preliminary Phase of ADM

Points of Essence : Within Steps of Preliminary Phase :

Study and understand the Organization, business lines, set up in IT and software as of now

Plan EA department, also suggest a higher Governance setup

Architecture Maturity Assessment, and set long term (3 year) Goals, plan Driving forces thereon

A long term (3 year) pan – Requirement of Architecture work

Architecture Principles, which all will understand, follow and meet are defined

Get Commitment of Top Level Executives, by involving them

Decide on TOGAF path, including "Tailoring' as needed; Plan Tools and Techniques requirements

Let us first apply all the jargons seen so far to this context given above and prove that it is an Enterprise where the whole portfolios of Software Architecture and rest of IT need special attention by us, the Architects.

Does this context qualify as an **Enterprise** ?

Enterprise is any collection of organizations (departments and various units) that have a common set of goals. This Corporate is already in merchandising.

So, it does have many departments, including Mall-Sales, Store-Sales, Marketing and Promotion, Stock Keeping and Warehousing, Purchase and Supply Chain Management, Finance, HR, …. A lot that you may add here, stretching your simple imagination.

So, it is an Enterprise. It already is having many IT systems. It has Suppliers and even Corporate Customers (apart from Retail Customers who visit their stores) as the Extended Enterprise. It is coming under various Government Regulations which constraint and discipline their operations. They have a Top Management, consisting of President, Vice Presidents, CEO and other CxOs and a large number of Executives including an existing IT section. They have a Corporate Board which has ultimate oversight control over its operations.

Preliminary Phase involves :

Scoping the Enterprise : Study of its Organizational Structures : Reviewing Organizational Context

Finding the way Architecture is currently applied : Architecture Blueprint

Determine the Architecture Capability : Capability Maturity assessment

Focus on the Architecturally Challenging areas

Scope the Enterprise Organizations Impacted

identify and scope : which all elements / departments impacted by EA initiative ?

What is given above about the Enterprise is what you would have done as an essential step, as you take charge as the Chief Enterprise Architect.

You would have understood the Enterprise, the way it is. You would have determined that all its departments will be "impacted" by the large Initiative to get into **e-Commerce domain.** You would have obtained an Organization Chart of departments and executives as it is existing now.

You would have noticed that "communities" such as Individual Customers, Corporate Customers, Suppliers and others who provide service would also be 'impacted' by the Initiative to be taken up now. You certainly have understood the LOB – Line of Business users of the IT systems, both internal to the Enterprise (a large population) and the external few.

" **Architecture footprint**" for the organization
the people responsible for performing architecture work,
where they are located, and
what are their responsibilities
towards such an Architecture

Now you, the Chief Enterprise Architect will make a study of people involved in IT, Software and Software Architecture related work.

You notice that every physical store has a junior IT person, mostly doing administrative tasks. You noted that there is a central PMO – Project Management Office that handles all new software or hardware projects – coding and other tasks in the pipeline. You are happy to note that this is in line with TOGAF recommendation. TOGAF separates the three : **Enterprise Architecture** department which is related to but is totally separate from the other two – **PMO** and **IT Operations** Department.

You observed that there is no central IT Operations Department and only individuals work on own in every store or every physical location where computers and automation systems exist. Other automation systems, beyond computers are not taken care of by anyone and only the supplier of gadgets like POS - Point of Sale Terminal are summoned in case of failure of operations.

You also noticed that there are isolated Architects and Designers, but they just come under CTO – Chief Technology Officer and project work of preparing Architecture and Design documents are assigned to them randomly. A few are Business Analysts, a few are Application specialists, a few are Data specialists but none of them are having dedicated Infrastructure focus. A Security Architect is also there.

You notice that the term "**Enterprise**" as seen above matches following points of TOGAF :

The term "enterprise" in the context of "**Enterprise Architecture**" can be used to denote both an entire enterprise, encompassing all of its information systems, and a specific domain within the enterprise. In both cases, the architecture crosses multiple systems, and multiple functional groups with the Enterprise.

But you are clear now that the term "**Enterprise Architecture**" needs strengthening for your Corporate, in the lines of following points as given by TOGAF :

Enterprise Architecture has to be under a coherent and complete set of principles, methods, and models that is used in the design and practical realization of an enterprise's organizational structure, business processes, information systems, and infrastructure.

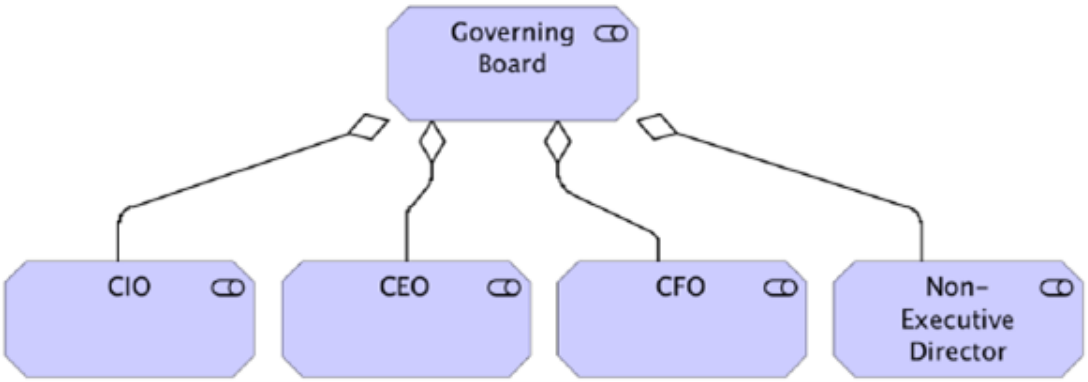
Enterprise : Info Systems, Domain Extended Enterprise	 **info systems**  **domain**

	 **Extended :** Partners Suppliers Customers

You are not only qualified as a TOGAF Practioneer by clearing Level 1 and Level 2 of the Certification, but by now have picked up a lot of knowledge on putting it into practice.

While you know that you are reporting to the CEO, you are highly aware of a Governance set up that TOGAF mandates. While you are administratively under the CEO, you know that there are a few situations are there when you will have to reach a higher body of Wisdom and Advice. You recognize this body as "Architecture Governance Board", though many others would be referring to such a group as Steering Committee.

Since such a setup is currently not existing, you decide to have it as mandated by TOGAF. You know well that you cannot just order that it to be setup. Instead, you, as Chief Enterprise Architect, will be recommending its structure and the Highest Management (the Corporate Board) will take the final call on who all will be there in it. You referred to Chapter 41 of TOGAF documentation and suggested its structure. It will comprise of 4 more (other than yourself) Top Management Officials, especially those with exposure to Architecture and IT. The CEO will be a part of it, since the other two related departments of PMO and IT Operations also come under the same person.



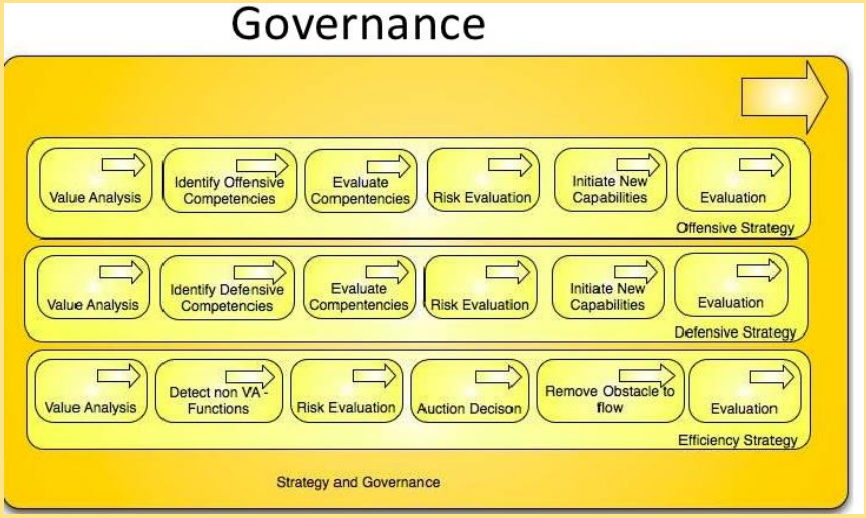
Just a sample

Sponsorship

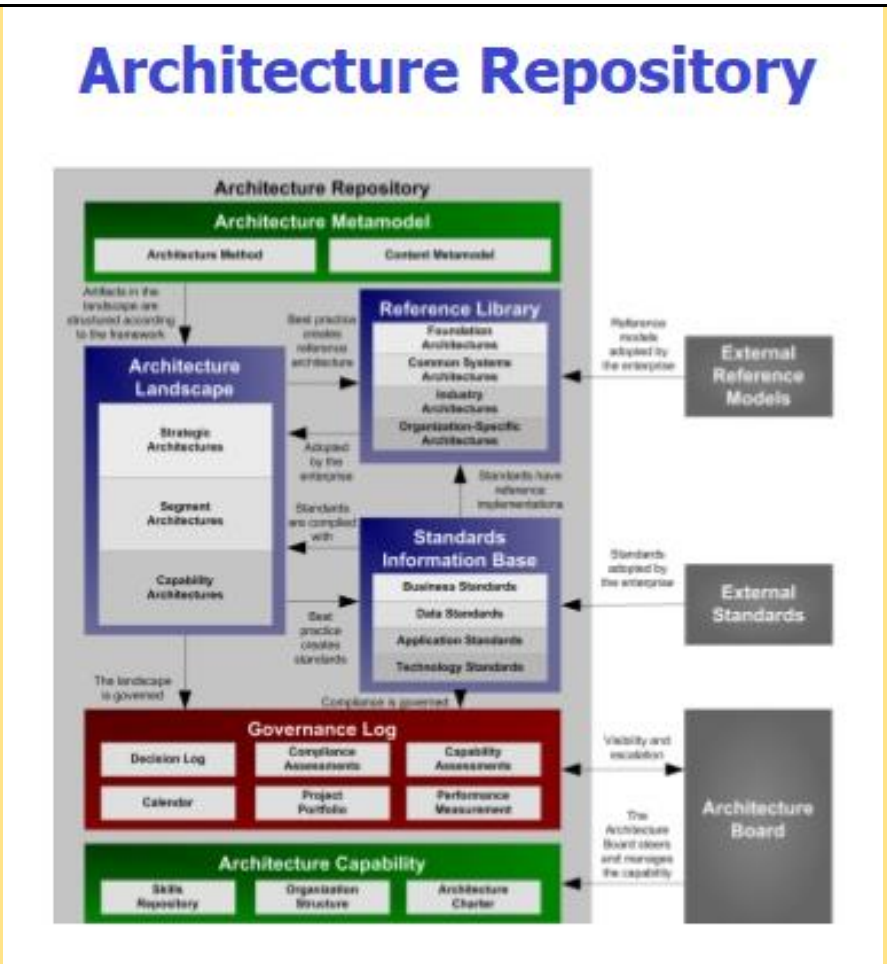
Recommending a Governance Board setup in line with TOGAF recommendations

Set up a Governance organization, called the "**Architecture Board**"

Made responsible for the following : to guarantee that common rules are respected, and to ensure that implementation projects are supported.



Architecture Board also takes care of managing the Architecture Repository.



A place where all architectural assets are stored and found

Now that the Board (Architecture Governance Board) has been set up, what is your next step ? Should it be on the Architecture Repository as appearing above ?

Not yet. To set up such a Repository, you need the services of a Data Architect. You need a full team under you to carry out many of the EA activities.

As a first step, you need a sponsorship, as TOGAF calls it, a kind of mandate to go ahead with all the activities in Preliminary Phase and other Phases as well. Sponsorship is the authority for you to go ahead with EA tasks. Usually a CxO, and more so the CEO is the sponsor. In simplest words, you, as Chief EA formalize your boss to whom you will be reporting on a day-to-day basis.

Finding out a Sponsor

say (CEO) : 

Step : Finding out a Sponsor for the whole Enterprise Architectural Movement

Request for Architecture work : drafted; sent up for consideration by Sponsor and Architectured Governance Board – issued as Requirement for Architecture work

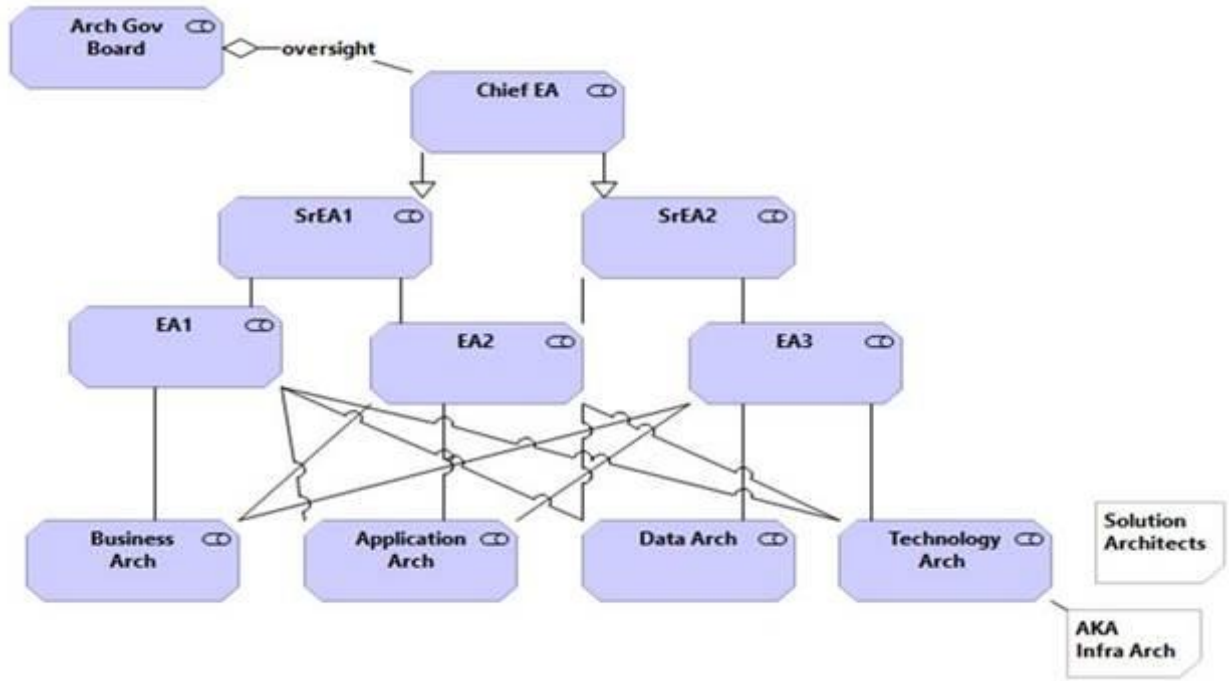
You will draft a Request for Architecture Work (also referred to as Requirements for Architecture Work sometimes in TOGAF). We will see about this document soon, but it is mentioned here because most of your work in Preliminary Phase and later on will be based on the contents of this document. This document will be drafted by you, but will be formally issued by the sponsor. The CEO naturally will have it vetted by the Architecture Board before formally issuing it.

EA department : Key roles; responsibilities, skill set : Examined and fixed

Now about setting up your Team. The structure depends on the enormity of tasks ahead. We are showing a typical setup where your Team will comprise of four Tiers : You at the top Tier as Chief Enterprise Architect, next Tier of Senior EA and the third tier of EAs. The Last Tier will comprise of Segment Architects, drawn from four Domains.

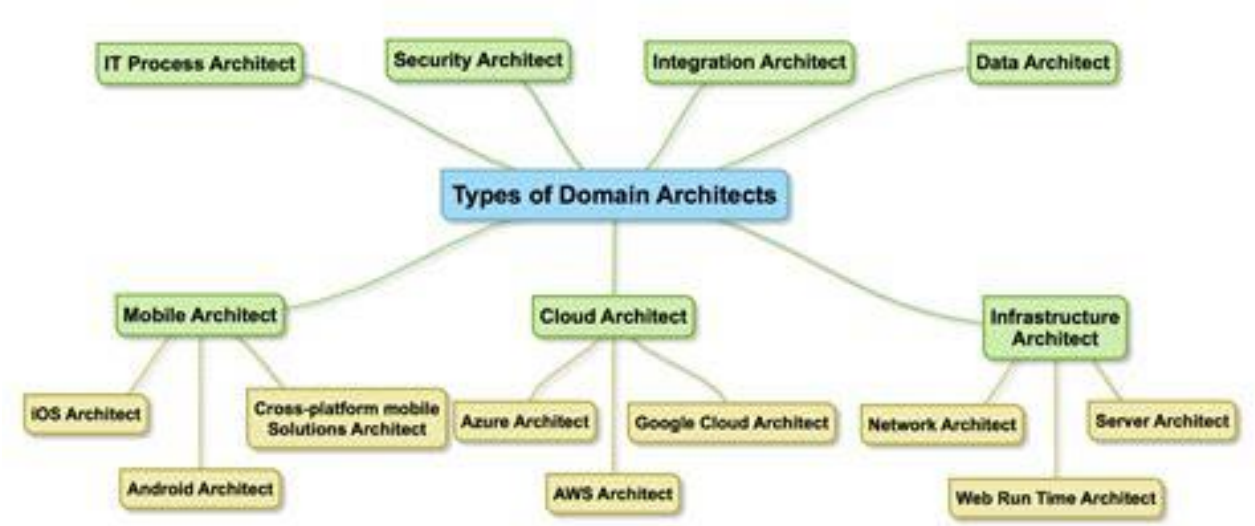
Enterprise Architecture also has four Architectural specialty domains : Business Architecture, Application Architecture, Data (Information) Architecture and Technology (Infrastructure) Architecture. Do not get mixed with these two conflicting classifications of the word 'domain'. All four above are : Architectural specialty domains

How will job description of each role be ? You referred to : Chapter 46 of TOGAF documentation. Since EA is still a nascent activity in most companies, you may not get the exact skills in people to be recruited by your HR efforts. But you will strive to get close to it.



What about roles such as Security Architect, Network Architect etc., ? Three are many Architect roles in our industry, including that Security Architect, Network Architect. Cloud Architect, User Experience Architect and many more. In general, most of the specialist roles can be brought under the four Domain Architecture roles of : Business Architect (a superior role than a just Business Analyst), Application Architects (covering all areas including User Experience, Application Integration and more), Data Architects (starting from RDBMS and DBA roles and going beyond Data Warehousing, Business Intelligence and so on), Technology Architect (often known as Infrastructure Architect, which can include Network Architecture, Security Architecture, Cloud Architecture and so on).

If you are into very modern world of Architecture, roles such as DevOps Architect and area such as SRE – Site Reliability Engineering will also flash into your thinking.

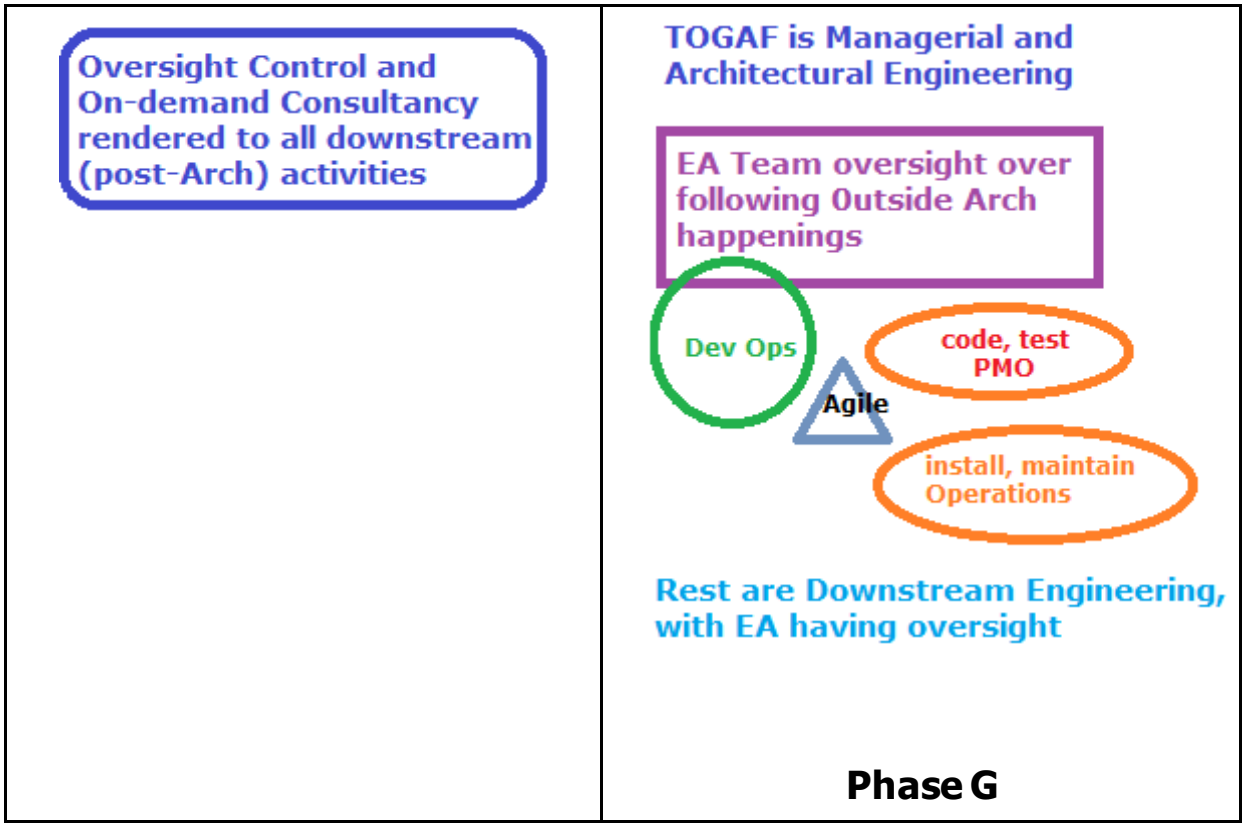


We will take here that you have considered all such specialty roles as needed in your EA journey over a strategic period of three to five years. Note that short term aims like a few months and single project is not what TOGAF and EA is all about.

Prepared a Responsibility Schema, for EA related roles

Only Oversight, and resolution in case of Disputes, Crisis ..	Arch Gov Board **All Phases, All activities** **Change approvals in Phase H**
Direct involvment in Preliminary Phase	Chief EA **Preliminary Phase**

Vision for Three Years	Chief EA **Strategic part of Phase A**
Vision for current year Portfolios	Sr EA **Segment part of Phase A**
HLD, as ABBs	Respective B D A T Segment Architects **Phases B, C, D**
LLDs prepared as SBBs with due Integration	EA with D A T FullStack Expertise, deputing some work to Segment Architects **Phase E**
Consolidating from Managerial outlook	Sr EA **Phase F**

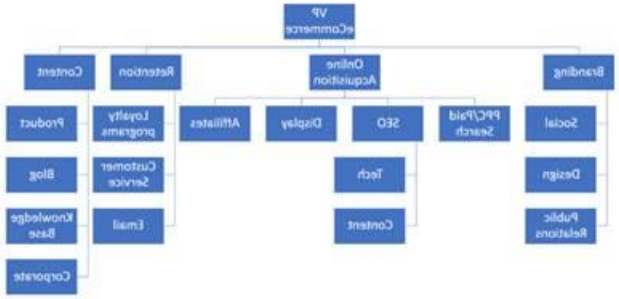


Going back to vertical business domains, there are many departments. These are what you have determined as you studied the Organizational Context. Being in an **e-Commerce domain** of your Enterprise, it sure will be having : Marketing, Procurement and Supply Chain, Finance and many more. You can add a more precise list as we proceed with this Case Study. Meanwhile, keep guessing and prepare your own list so that you can compare whenever a department name gets mentioned hereon.

Since your Enterprise is not planning any manufacture of their own right now, Production and Production Planning will not be part of it. Nevertheless, when they start making their own house brands and house labels, manufacturing may also step in. But, do you think ones like Transportation, Loan Management (extending loans to Customers for enabling their purchase) and many such diverse departments will be part of your list ? Just start making your own list right now.

This Preliminary Phase produced :

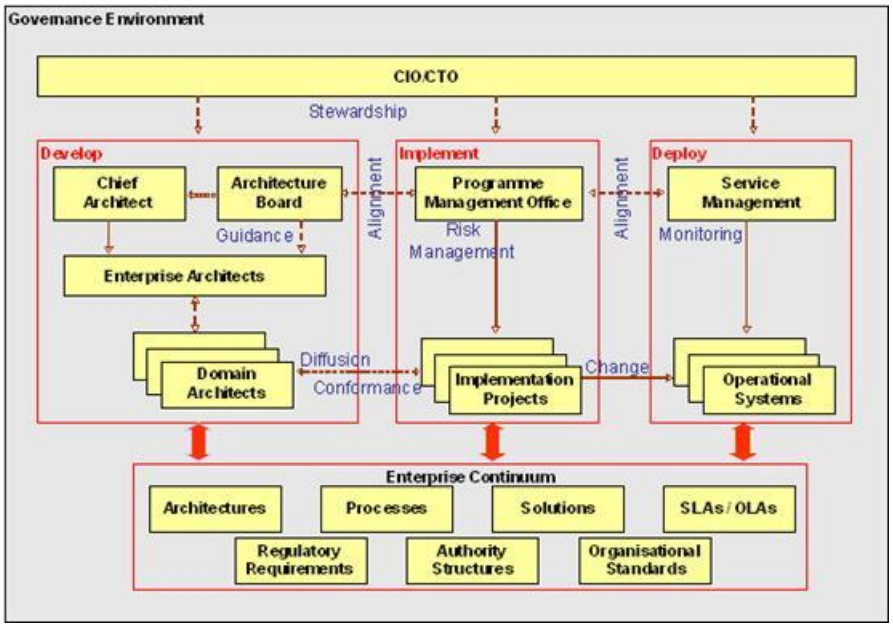
Requirement for Architecture work : Deliverable Document



Architecture footprint

Governance : Architecture Governance Board

Support Framework



What is set up and pre-populated now includes :

Governance Steering Committee : Known as Architecture Governance Board

Architecture Repository : What all and Where to store (Storage Schema of all assets as per TOGAF)

Enterprise Continuum – How to Retrieve only what is needed (Retrieval Schema as per TOGAF)

Goal is set based on result of Capability Maturity Assessment. Establish the Architecture Capability : **Where will be in .. years ?**

The objectives / techniques of the Preliminary Phase include : Determine the Architecture Capability desired by the organization.

This boils down to making a study of their current Capability level with respect to Architecture and IT, by way of making a Capability Maturity Assessment. You need to assess "where are we now" with respect to the Architectural level. Since you have gone through TOGAF for your Certification, you know that Chapter 45 of its documentation mentions some possible models for such an assessment.

You narrowed down to Architecture Capability Maturity Model (ACMM) developed by US Department of Commerce (DoC).

You applied the nine Enterprise Architecture elements of :

1. Architecture Process (hardly any now)

2. Architecture Development (certain ways how PMO is doing it or how individual separate Architects are doing it. You can formalize this now, making proper use of ADM)

3. Business Linkage (how much ae the Business needs aligned to IT and how much IT is leaning backward to bring latest technologies to further Business Capability)

4. Senior Management Involvement (how much committed are they ? Better to revisit this Commitment now, if this level is low)

5. Operating Unit Participation (This means how much is LOB – Line of Business Units participate in the Stakeholder Engagement sphere ? If this is low, then it needs a great boost, as we proceed with ADM)

6. Architecture Communication – Whatever Architecture and Design prepared must get communicated to the Right Stakeholders at the Right time. They need to know about to it, to the extent they can understand it from their own Viewpoints. Is there any Communication Plan ? What part (artifacts) of the architecture is communicated and how and when ? (ADM needs to formalize this in a more streamlined manner)

7. IT Security – This will be largest among the concerns throughout the Enterprise. How much of Architectural efforts are put in at various stages of software and IT operations – Right from concept stage to installation and execution stage ?

8. Architectural Governance – Since it never existed, it is at level zero and now only it gets established.

9. Strategy for IT Investment and Acquisition – Is there any long-term planning towards IT – new systems, upgrade of existing system and about acquiring newer and latest software systems (including adopting appropriate public domain freeware systems, going more digital, buying Cloud subscriptions and so on), software products (like ERP) and right and state-of-art hardware solutions.

This assessment consists of six maturity levels :

Level 0 : No Maturity

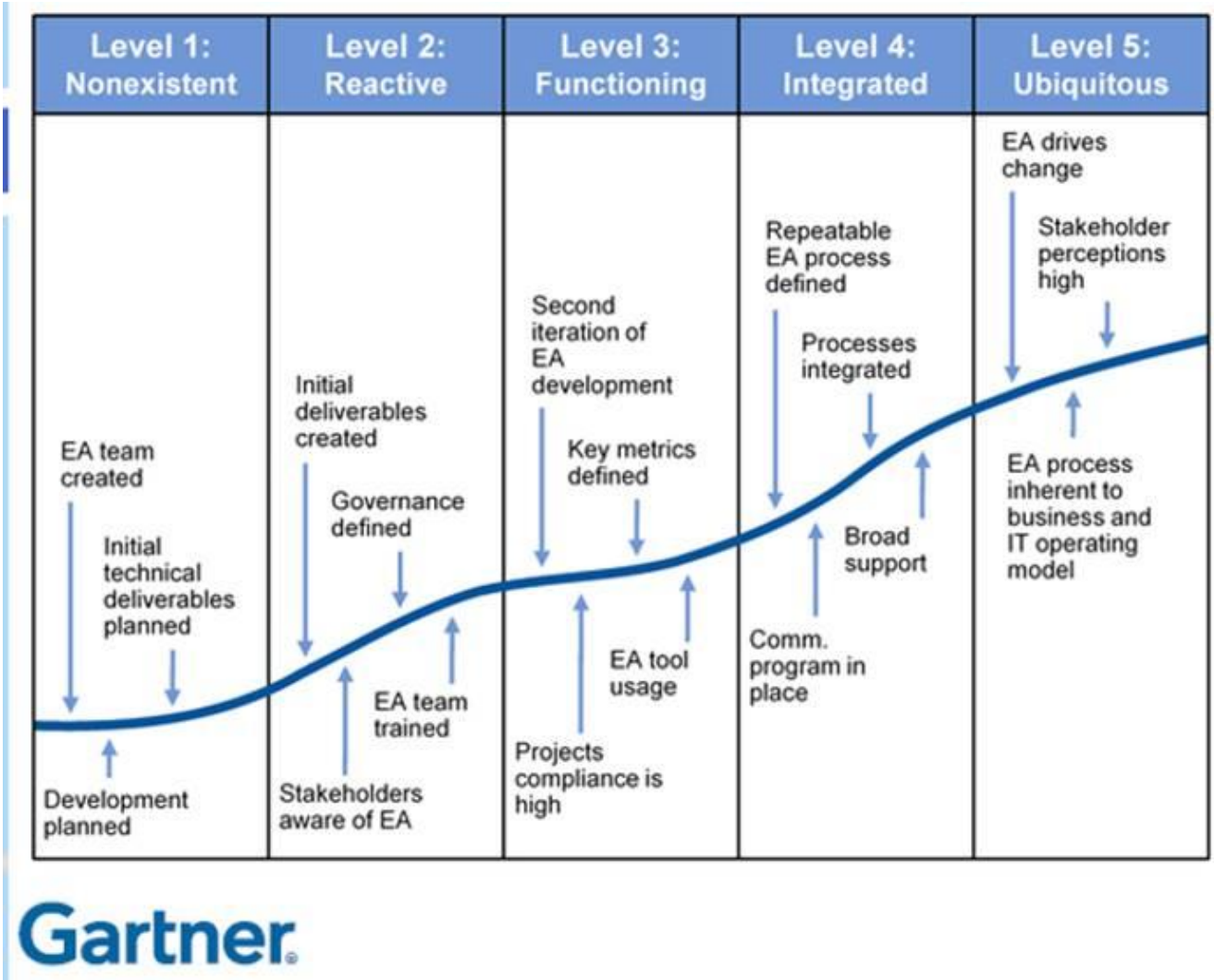
Level 1 : Initial

Level 2 : Under Development

Level 3 : Defined (at least properly documented process for Architecture)

Level 4 : Managed (Moving in right path)

Level 5 : Measured (Optimized Architectural process and continuous improvements towards perfection)



You assessed that it is somewhere between Level 0 and Level 1 right now.

You resolved to raise it to Level 2 in the very first year of your leadership. Your strategic long-term goal is to reach Level 3 to Level 5 well within three years.

This matches the other objective of Preliminary Phase : Establish the Architecture Capability : Means what is your long-term plan to establish better levels of Maturity.

Where will be in 3 years ? – As given above.

Through what Architecture Strategy ? – By following TOGAF to the extent possible and feasible.

To this effect, some changes (Tailoring and Customizing TOGAF documentation to adopt to needs of your Enterprise) will be made into TOGAF Metamodel – the model and ADM process that you plan to pursue.

Informal Commitment of Top Management and Top rung of each department

What more could be done in this direction ?

Now that the current level of Architecture Capability is known, better to take that assessment and get to the Top-Level Stakeholders (All CxO, Vice Presidents, department heads) and appraise them of the way Architectural Capability will be raised gradually.

Get Commitment

of all **high-Level Stakeholders** to EA first, for the Movement

Get a list of the pain points from their angle and merge it with Chief EA's idea of what is going wrong

Move towards long Term Strategic Architectural Movement

Get Commitment that they will coordinate with us till the target is achieved; A commitment for long Term involvement

Got the Commitment that they will coordinate with us till the target is achieved; A commitment for long Term involvement. Got it from all CxOs, VPs, department heads.

Architectural Movement :

This is also known as EA Project, though it is strictly not one Project

It is a Project of Projects

A list of Pain points that the EA will attack over the Strategic Period (say 3 years in this Case Study)

You pick the following points after all above steps and tasks and in due Consultation with various Top rung Managers:

Digital Journey in all aspects of e-Commerce : Online as total access mode

Enterprise Mobility : Even all employees use digital means, where relevant

Cloud Enablement reduce CapEx : To reduce capital costs of IT estate

To reduce OPEX of the IT estate by decentralized Services

Gradual replacement of legacy and obsolete technology which drags down business, revenue and efficiency

To enhance capability through state-of-art automation in Call Centres and Service Desks, all points of Source Data Automation and integrate them with Artificial Intelligence support, resulting from a revamped Data System in toto

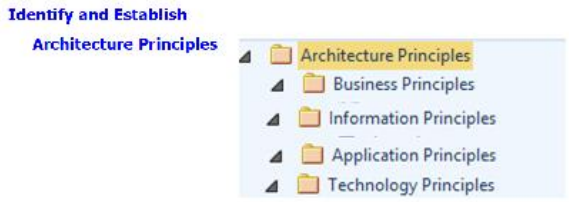
Architectural Principles : To be followed by entire EA initiative and by all connected with it - are finalized; Expected to stay put and can at best be validated for individual projects

As you set the above as Strategic Initiative and get down to its Goal targets, it is time to think of Architecture Principles, which is an important aspect of Preliminary Phase

TOGAF definition : Principles : A qualitative statement of intent that **should always be met** by the Architecture

You are also clear that there could be Policies (and Mission Statements) of the Enterprise, but what you are into now is Principles which will apply to Architecture.

The main difference between Principle and Policy is that a Principle is a rule that has to be followed while a Policy is a guideline that can be adopted.



You also look into Chapter 20 of TOGAF Documentation. It states a number of Principles as samples. You are at liberty to pick up any from them or to come up with ones of your own idea.

Let us take that you have listed the following as the Principles to be followed in the Architectural Approach over the Strategic period of 3 years. When another Preliminary Phase kicks in at that stage, same Principles may be continued, or additions and deletions can happen.

Architectural Principles that apply to all four domains:

Build to change instead of building to last. Changes in Technological and Business environment are too rapid and so every attempt at adding Architectural Capability must have openness to accept changes easily.

Always use Models to analyze, visualize and reduce risk. Every piece of Architectural work will be supplemented with appropriate modelling diagrams

Primary of Principles : Which means : These Principles apply to all organizations / departments within the enterprise. No scope for exclusions, favouritism of inconsistency. Hence these Principles apply to all units and all departments within the Organization

Business Principles

Compliance with Law : Which means : Enterprise information management processes **comply with all relevant laws, policies, and regulations**. This boils down to strict compliance, avoidance of pirated materials, protection of Intellectual Property and so on

Maximize Benefit to the Enterprise through **Common Use Applications** : Which means : Development of applications which are used across the Enterprise is preferred over the development of similar or duplicative applications which are only provided to a particular organization / department

Application Principles

Interoperability, through state-of-art standards and practices will be at back of every possible decision

Applications are independent of specific technology choices and therefore can operate on a variety of technology platforms, at the same time will be based on Application Frameworks that evolve on the platforms. This will apply to client side, server side, enterprise mobility and all such areas. This will apply to on-premise and Cloud deployments.

In simpler words, all Architecture and Design will evolve in Platform Independent style initially till they reach a stage where Platform Specific detailing is to be incorporated thereon

Data Principles

Data belongs to the Enterprise. **Not to any one project or team**. Data is an asset that has value to **the** organization and is managed accordingly. Each data element has a definition and trustee accountable for data quality, the Trustee being the Data Architecture Organization, which comes under EA organization. Data Analytics and BI functions will be encouraged to benefit the business decisions and long-term forecast, apart from day-today operational decisions.

Data is defined consistently throughout the organization and the definitions are understandable and available to all users. This means we need a common definition throughout the Enterprise to enable sharing of data. **Data** thus will become a **valuable corporate resource** and will carry real, measurable value.

Technology Principles

Technological diversity is controlled to minimize the cost of maintaining expertise in and connectivity between multiple processing environments. Moving to neutral technology components free of vendor lock-in are encouraged. Even Cloud deployments must be **as inter-operable and portable** to the extent possible. We follow **Open standards software** to the extent it is possible unless we have strong case and need to buy out something proprietary to support our business.

Changes to the Enterprise information environment and infrastructure thereon are **implemented in a timely manner.** This implies that proactive look into **technological changes which offer a stable environment** should be a continuous ongoing activity.

Will you directly accept the Principles drawn out by you ? No. Actually Principles are kind of asset of the Architecture Governance. You will put up your list for consideration and approval by the Architecture Governance Board.

You, the Enterprise Architect will now focus on Goals and Drivers, which are in turn related to The Strategic Initiative (EA project) and the Principles.

Business Principles, Business Goals, and Business Drivers provide context for architecture work, by describing the needs and ways of working employed by the Enterprise.

Goals at Preliminary Phase

Business Goals, are the things an organization hopes to achieve during its time in operation and the very purpose of forming the Organization	

Goal : A high-level statement of intent, direction, or desired end state for an organization and its stakeholders.

Goals are typically used to measure success of an organization.

Goals are generally expressed using qualitative words; e.g., "increase", "improve", or "easier".

You will fix the Goals for the Three-year Strategic Initiative in lines of samples shown below :

Establish the e-Commerce Initiative with best of the breed Architecture. We will be ahead of the competition in most, if not all of the counts which are standard measures of success and quality centric service to Customer.

The Architecture systems will enable the business systems to keep on improving Market share by a double-digit number, every year.

Drivers at Preliminary Phase

An external or internal condition that motivates an organization to define its goals and implement the changes necessary to achieve them.

Drivers are events or conditions that motivate an Enterprise to change some aspect of its goals and consequently its objectives, and potentially business activities or technical solutions.	

Drivers may be internal, in which case they are usually associated with a stakeholder, and are often called "concerns".

Examples of internal drivers are Customer satisfaction and Profitability.

Another internal Driver : Will be moving all existing legacy and brown field systems also into modern day systems and integrate them well with green field systems which keep coming up.

External drivers include :

Cultural or Social - Fully stay in tune with all legal Social Media platforms and enable Customers and Extended Enterprise Partners to use them for business purposes in a safe and secure manner

So, in Preliminary Phase, you the Chief Enterprise Architect, define the Principles and come up with the strategic level Goals and Drivers, in tune with the Architectural Movement.

Budgetary plans for Enterprise Architecture : Initial budget for Architectural Organization for one year and the approval to adapt TOGAF in its practices was obtained. It is also decided that budgets will get enhanced as and when individual projects (Greenfield or Brownfield) get into its fold and the budget of EA department is separate from that of project specific budgets. The Governance Board and other Financial authorities are appraised of this

The idea of the Architectural Movement **(EA Project)** is now approved.

TOGAF is **NEVER used exactly as per the official 9.2 documentation**

It is tailored – meaning adopted and customized – to suit the Enterprise and its practices

Tailor TOGAF

And Other Selected Architecture Framework(s), if any,

As another step in Preliminary Phase, you also decided that TOGAF will be followed to a good degree, through some of steps and processes would be combined as per a detailed manual (Tailored TOGAF Meta Model) prepared and stored.

Based on inferences in this Phase, TOGAF was tailored and to remain so, say for next Three years

We are not highlighting the changes you have made at this stage. We can quote it at appropriate stages as we procced with this Case Study.

Tools to be used over the years for Architectural work : Initial decisions; Guidelines on what and when

TOGAF documentation, for this step in Preliminary Phase is tilted as :

5.3.6 Develop a Strategy and Implementation Plan for Tools and Techniques

These refer to a large spectrum of Tools. Both soft Tools which are techniques, as well as software Tools and Diagramming systems :

A tools strategy should recognize the stakeholders' articulation requirements

The strategy should encompass

Management techniques Decision management

Workshop techniques Business Modeling

Detailed Infrastructure Modeling

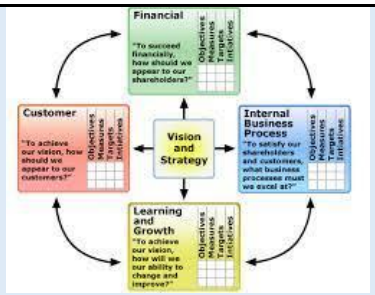
Change management of the artifact deliverables : Requirement Management Tools, Traceability systems, Project Control Tools, Bug tracking, Incidence Management ..

Office products, common desktop and office tools

Languages, and customized deployment of specialist management and architecture tools : UML Tools, ArchiMate style Tools, and many more diagramming tools; also development time Tools including Work Benches (say Visual Studio or Eclipse…) supported by compilers, debuggers, dependency managing tools, profiling and checking tools ….

Repository management : Especially focussing on Architecture Repository, CMDB, Requirement Repository and Enterprise Continuum (with Boundaryless Information Flow enablers) which are described elsewhere in same TOGAF documentation.

More formal architecture tools. For example, the Balanced Scorecard



Implement Architecture Tools :

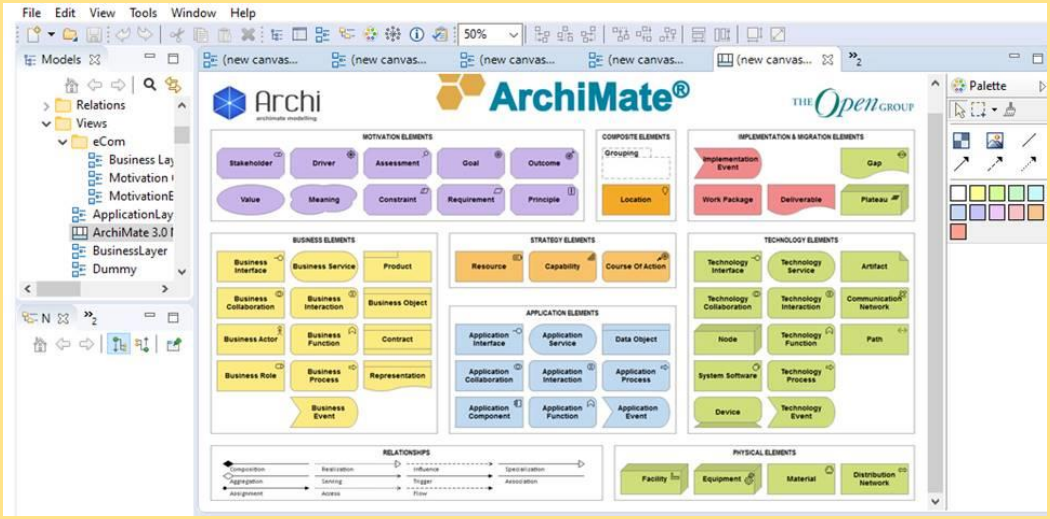
This step literally means you make a recommendation of the Software Modelling Tools. You also recognize that there are many tools and techniques which may be used to develop Enterprise Architecture across many domains. What is listed below is only two Modelling software Tools. Other Tools and techniques will come up as we move along the Case Study.

But let us be clear that the Preliminary Phase is used to select and standardise as much of these Tools as possible upfront. This leads to a uniform way in which various Architects working under you follow the mechanism.

Public domain Tools : Star UML and Archi would be combined and leveraged to produce Architectural documentation. All textual documentation will be produced by Office Suite of tools.

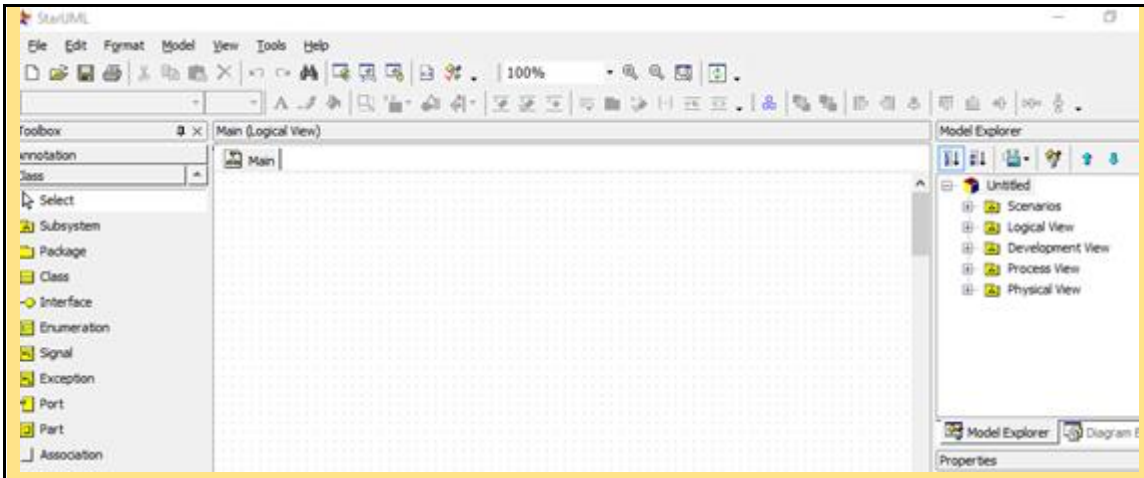
Archi

archimate modelling



Since Segment Architecture will have to come up with UML based diagrams, you also made a study of all possible diagrams and made recommendations of the specific diagrams to be used as deliverables…

UNIFIED MODELING LANGUAGE™



You also made a list of various Frameworks - Web Frameworks, Mobile and other UI Frameworks, Cross platform UI Frameworks, Server and Cloud side application Integration Frameworks including those involving Microservices, Data Architecture Frameworks including those for Data Warehousing, Cloud and Container hosting Frameworks and Cloud subscription services and so on.

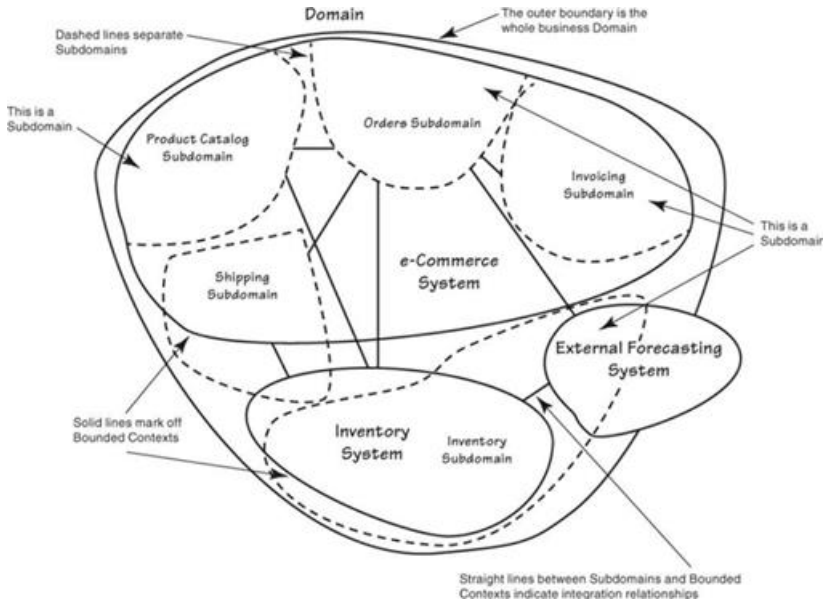
This list is very large and so we will bring it at appropriate stages in the Case Study as we move along the ADM cycle.

But main point to note is that a basic fixation is made of the Platform Technologies that can be normally used, thus discouraging the Segment Architects from picking up too many diverse platforms. Nevertheless this list will remain open so that any addition can be done when reasonable cases come up. Also you recognise the fact that newer platforms and technologies may spring up even in the three-year span under consideration.

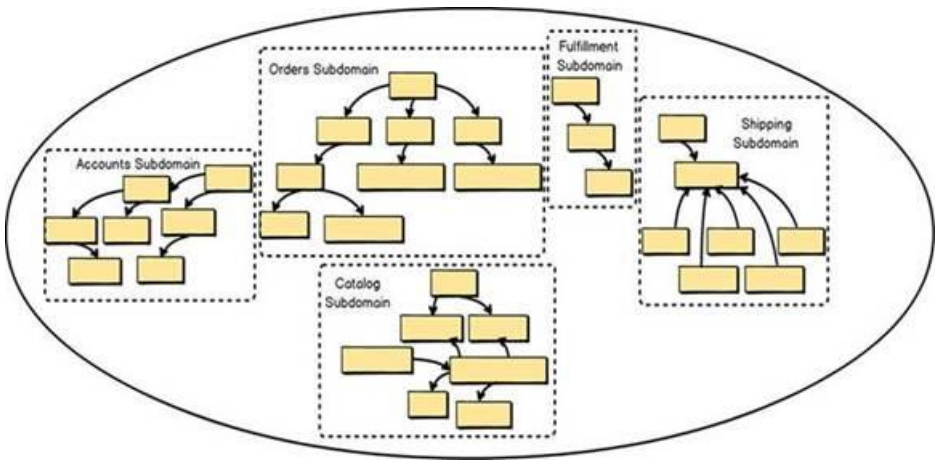
Soft Tools : Like DDD : Domain Driven Design is being used in this Comprehensive Case Study

Domain-centric Architecture – DDD

Context Map



• To develop a strategy, we need a large-scale view across our project and other projects we integrate with – in short, view across the Enterprise, to the extent it connects with current project in one way or other



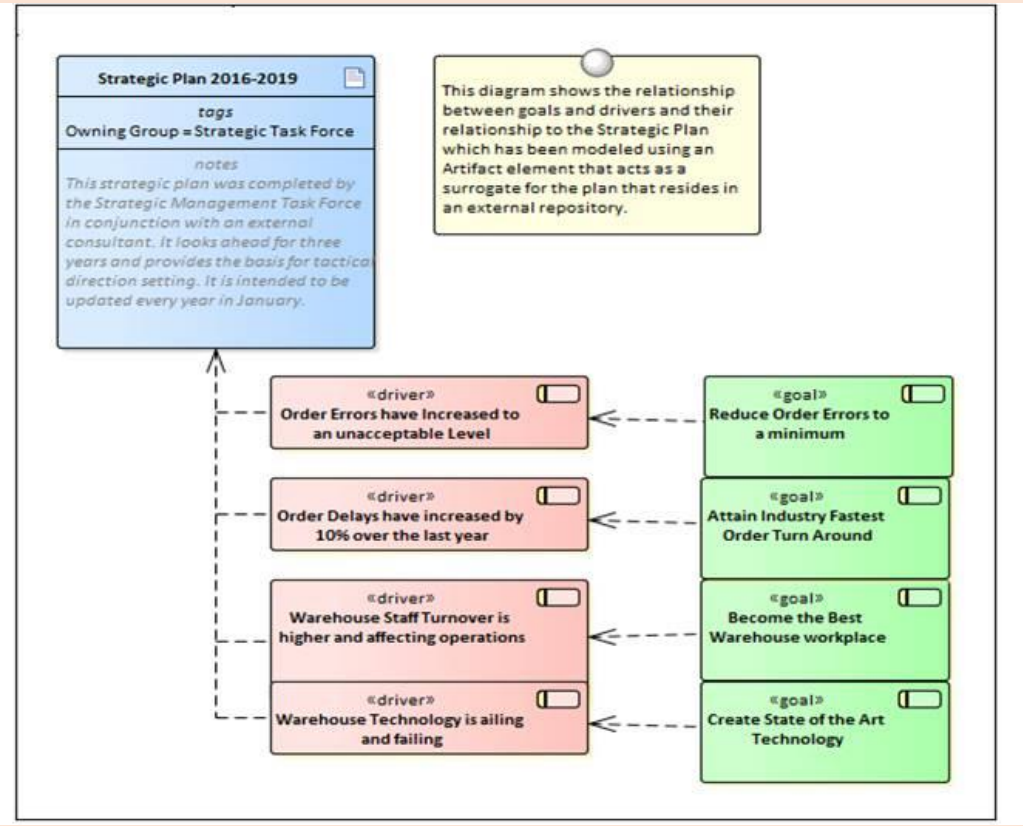
Tools : Software Platform Tools, likely to be used :

Like : K8s, Kafka, …

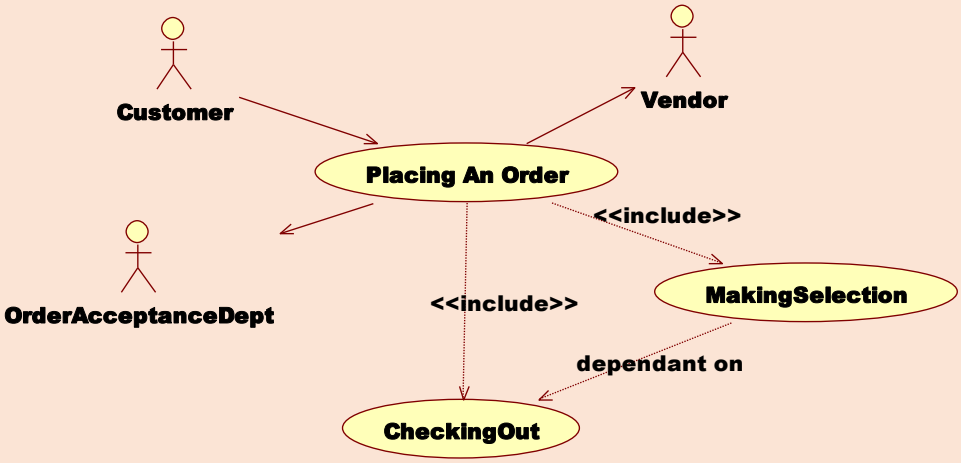
Like : Data Centric Tools : Cassandra,..

Like Agile / DevOps Mechanisms to be followed

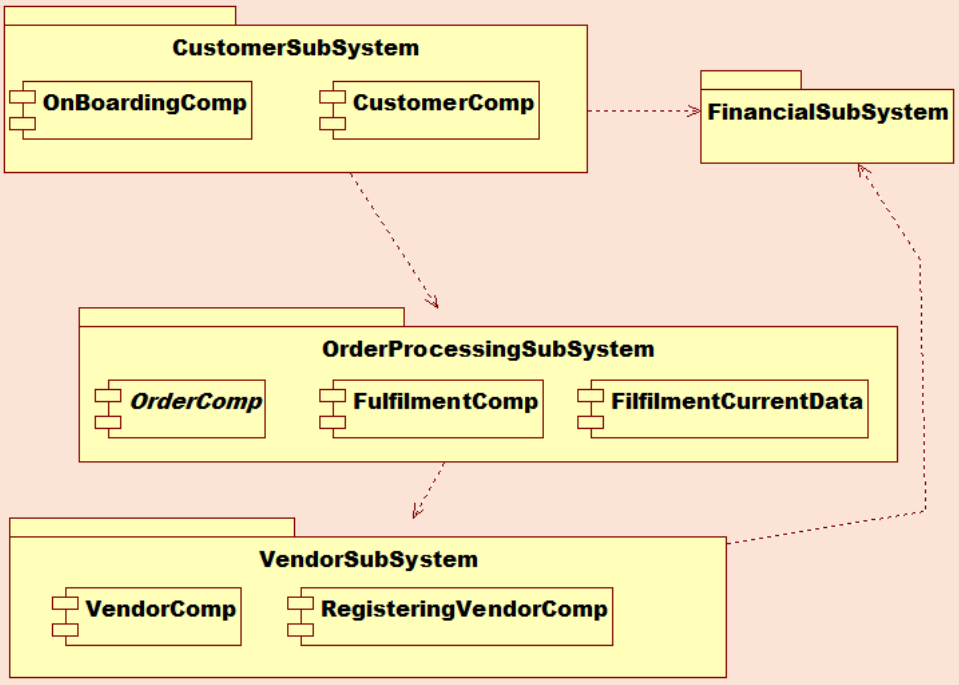
Sample of a Diagram drawn using Archi – ArchiMate specification : Can be produced like this in later Phases of this Comprehensive Case Study



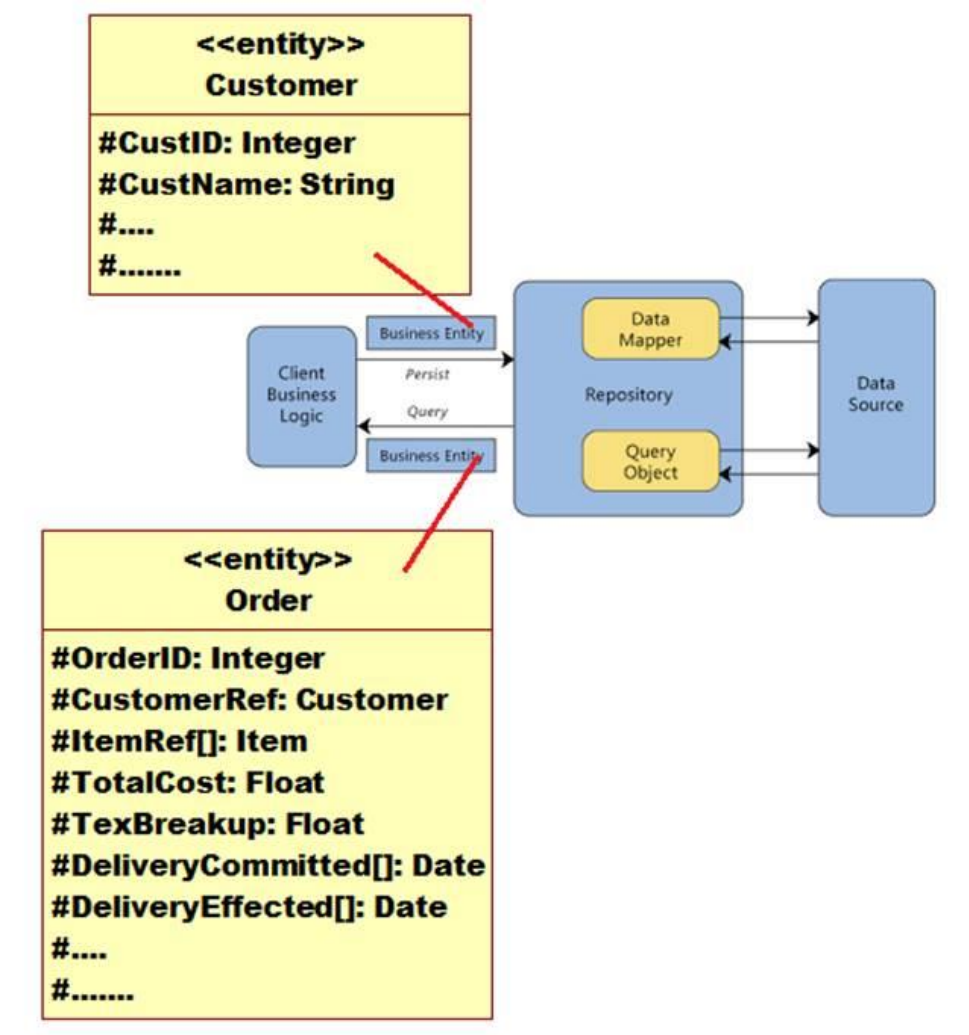
Sample of Diagrams drawn using Star UML or other Tools supporting Unified Modeling Language specification :



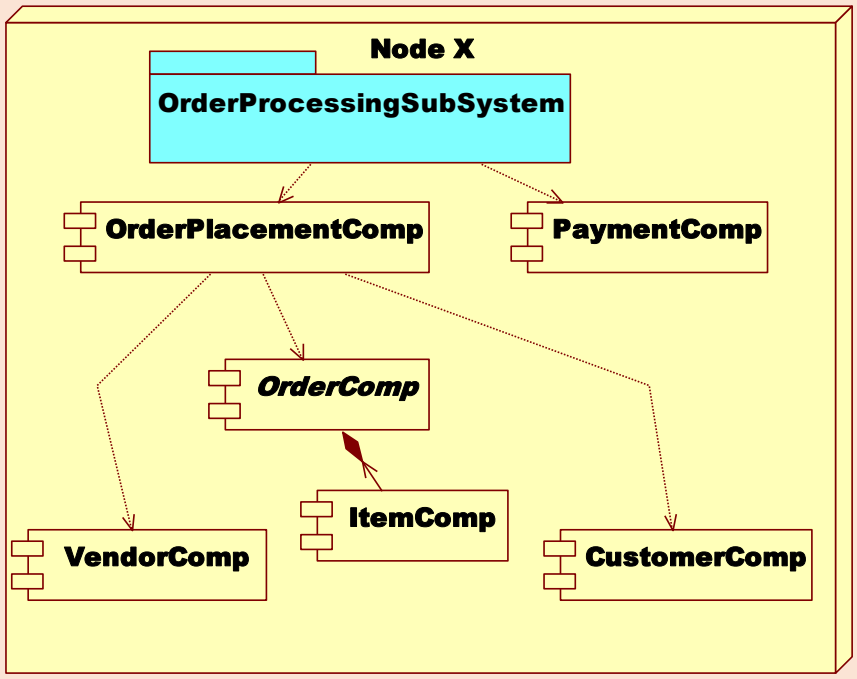
Simple Use Case Diagram



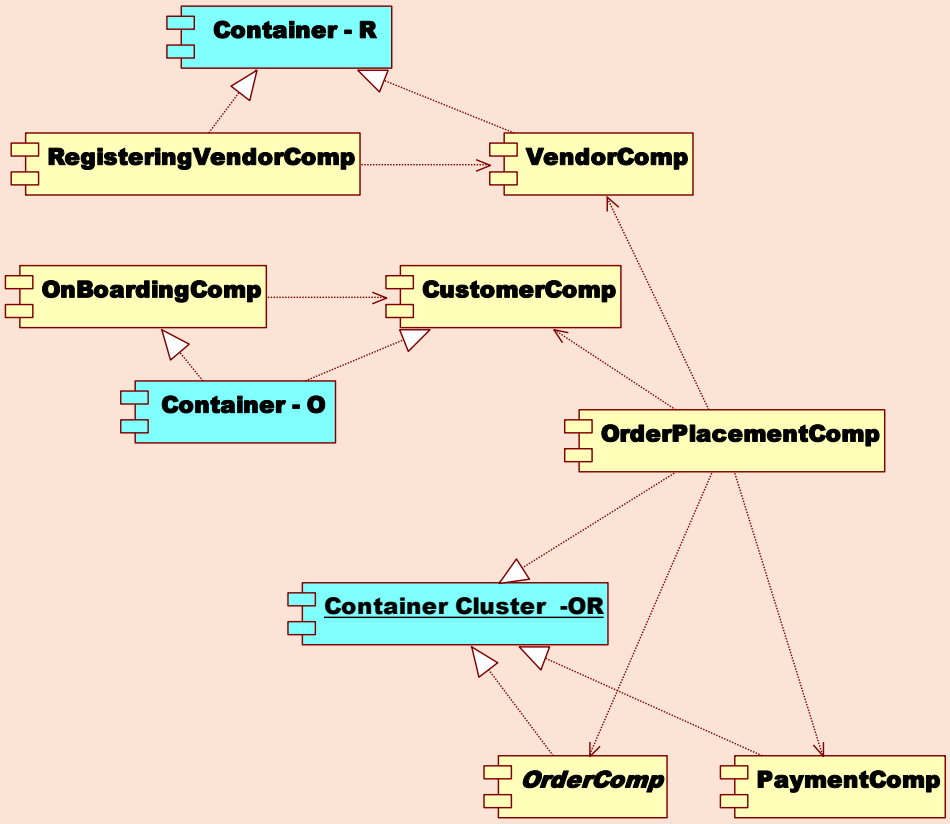
Application Level Component Diagram



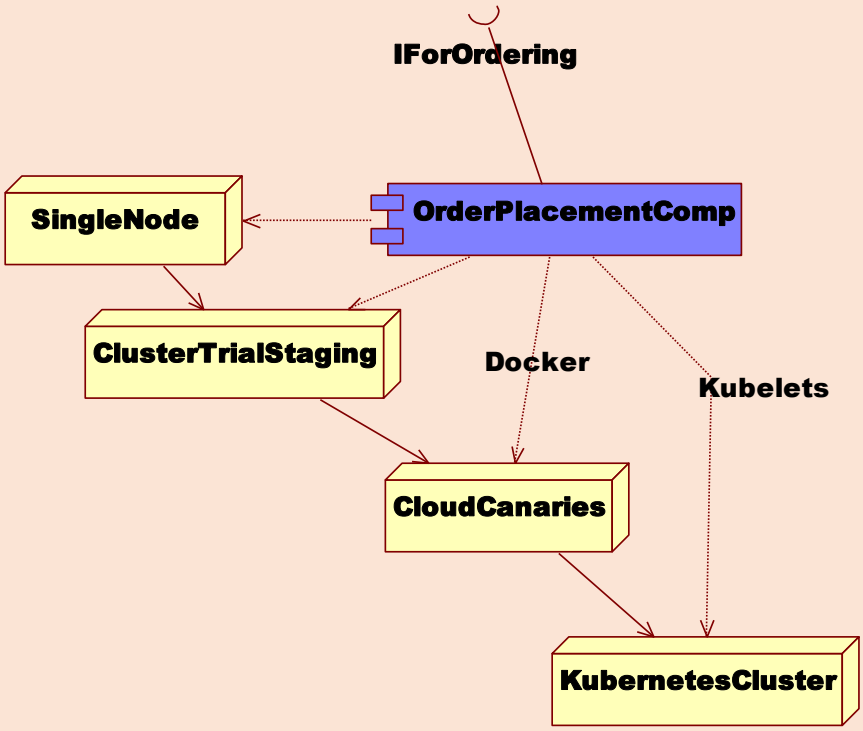
Data Architecture, progressing from Application Details



Node Level Deployment

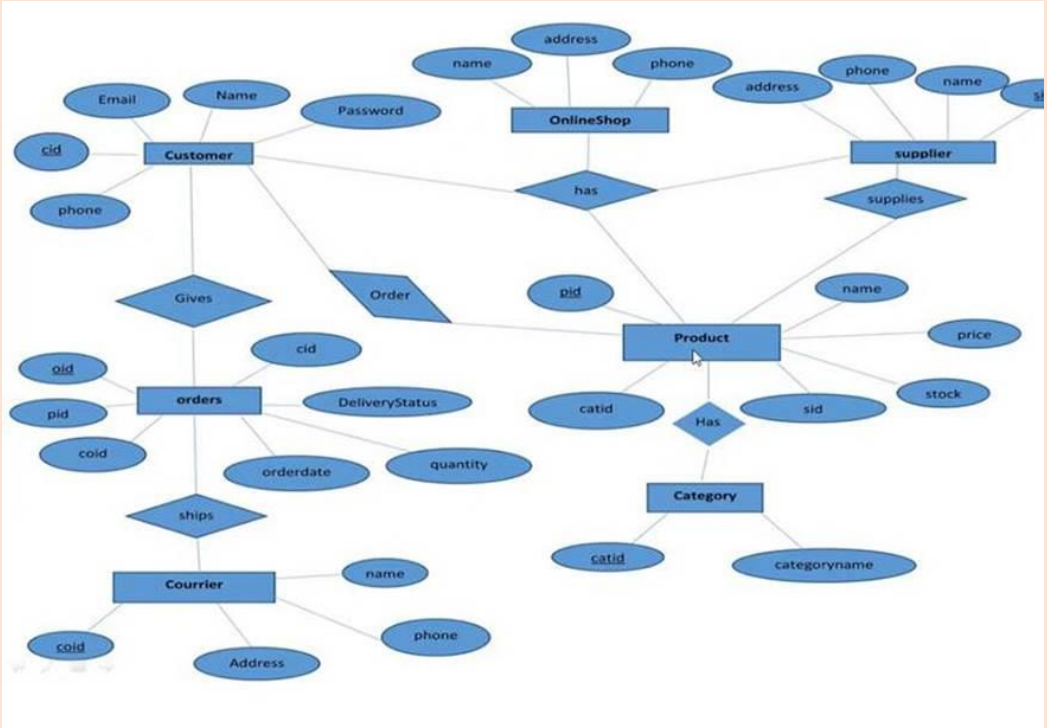


Deployment Level with Cloud Native Container – say Kubernetes Architecture

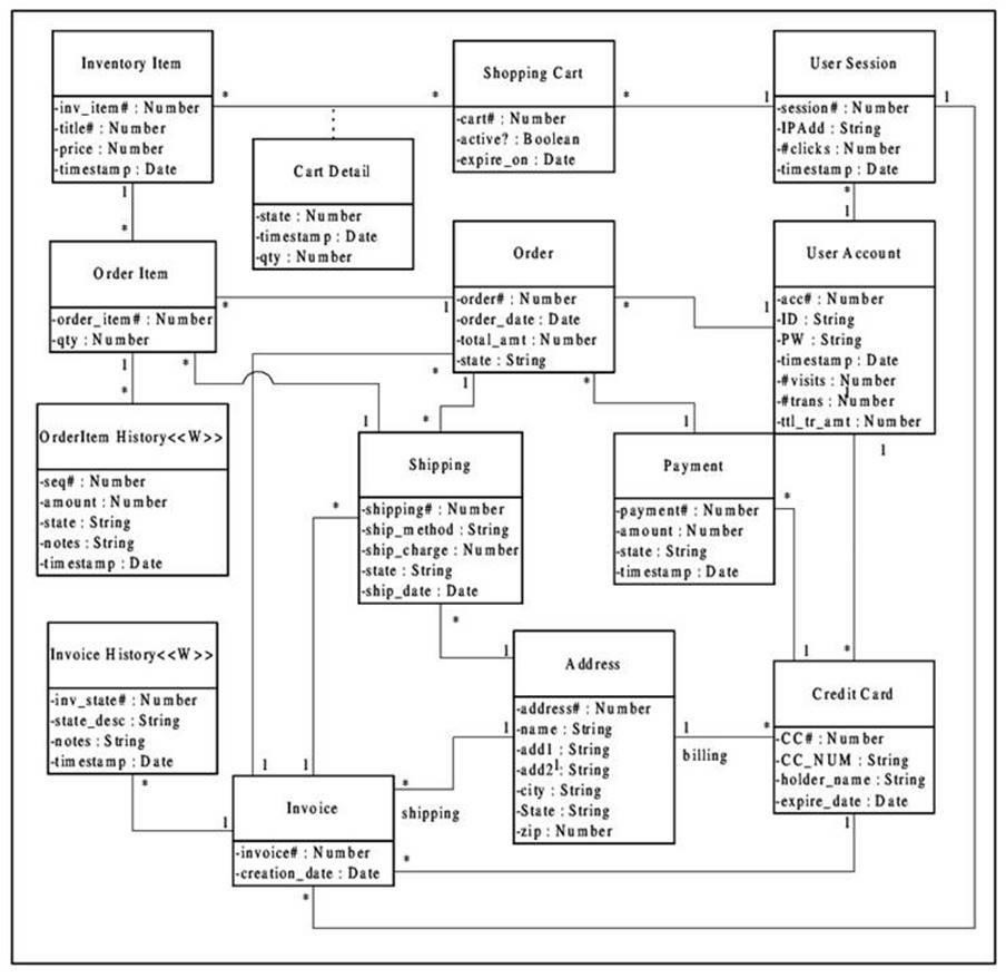


Dev Ops Level Progressive Deployment Model (Cd / CI)

Though not an UML Diagram, Logical Data Architecture Diagrams are supported by such Tools :

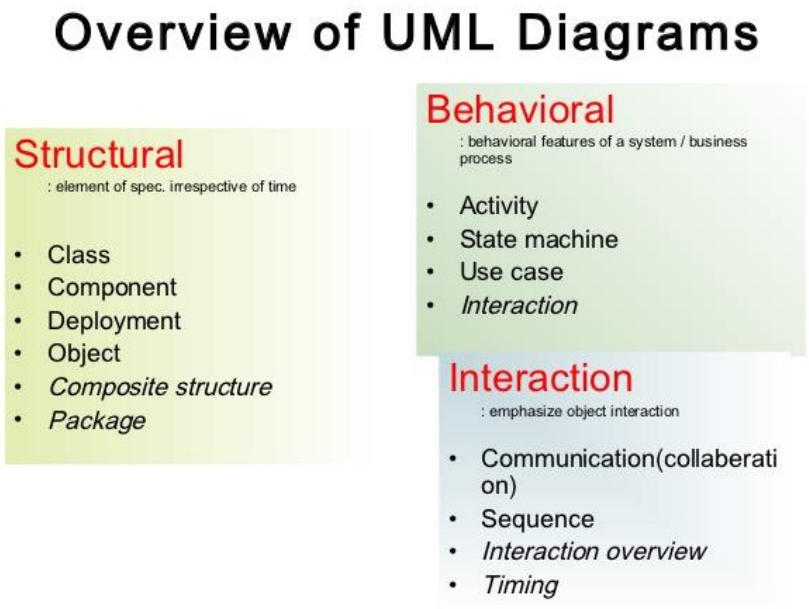


E & R Diagram at elemental level



The resulting Data View

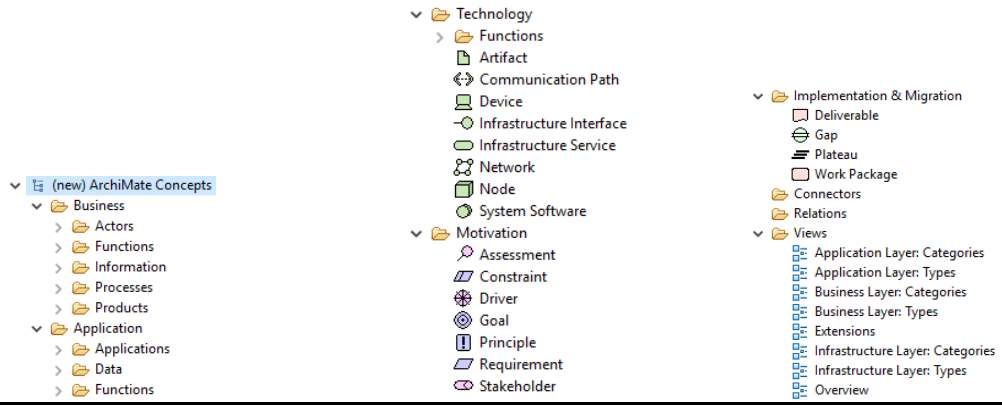
We will see specific diagrams at various stages as we move along the ADM. As such, Preliminary Phase does not require any UML Diagram.



ArchiMate®

The Open Group Open Certified ArchiMate 3 Tool

ArchiMate diagrams are popularly used by Enterprise Architects. We are skipping them here as ArchiMate is covered under a dedicated Course and even as a separate Certification from The Open Group.



Documents Produced in this Phase :

Principles Catalog

Requirements for Architecture Work

You referred to Chapter 31 and Chapter 32 of TOGAF Documentation to understand the specific templates and formats of the above. You did customize them to be of a simpler nature that suits your Enterprise. Actually you did look at all applicable Artifacts / Deliverables and Documents from these two Chapters and customized them and stored it as part of the Tailored TOGAF Metamodel document.

Request for Architecture Work before approval becomes Requirements for Architecture Work and includes :

- Organization sponsors – CEO and your Role as Chief EA
- Organization's mission statement – defines the company's business, its objectives and its approach to reach those objectives, as seen on top of this Case Study document
- Business goals (and changes) - filling up a large gap in the existing e-Commerce ecosphere where many services, and some goods segments are yet to exploit the full potential of e-Commerce
- Strategic plans of the business - USP - Unique Selling Propositions : such as no questions asked return and refund policy to the largest possible extent
- Time limits – Three-year span for this Preliminary Phase to reach the Initiative
- Changes in the business environment – Store Commerce to e-Commerce, high degree of automation
- Organizational constraints – People, Process, Planning strength needs enhancement
- Budget information, financial constraints- xxx yyy
- External constraints, business constraints – zzz like Government Regulations ...

- Current business system description - presence in many fields including physical stores in many areas of merchandise – Detailed as ….
- Current architecture/IT system description – Limitations as shown above under Architecture Footprint
- Description of developing organization – Long term and near term Goals, Drivers
- Description of resources available to developing organization – Governance, EA Team, PMO, Operations Department, where needed Agile and DevOps, LOB training