TOGAF® Enterprise Architecture Training Course (Practitioner)

Unit 1 - The Context for Enterprise Architecture

1.1 Guiding Effective Change: The Purpose of Enterprise Architecture

Guiding Effective Change

- An Enterprise Architecture (EA) is developed for one simple reason: to guide effective change.

- Guidance on effective change takes place during the activity to realize the approved EA.

- During implementation, EA is used by the stakeholders to govern change.

How Enterprise Architecture Guides Effective Change

- An architected approach provides a rigorous planning and change governance methodology.

- Enterprise Architecture facilitates effective governance, management, risk management, and exploitation opportunities.

- It describes the future state and the current state of the Enterprise.

- The gap between the Enterprise's current state and future state highlights what must change.

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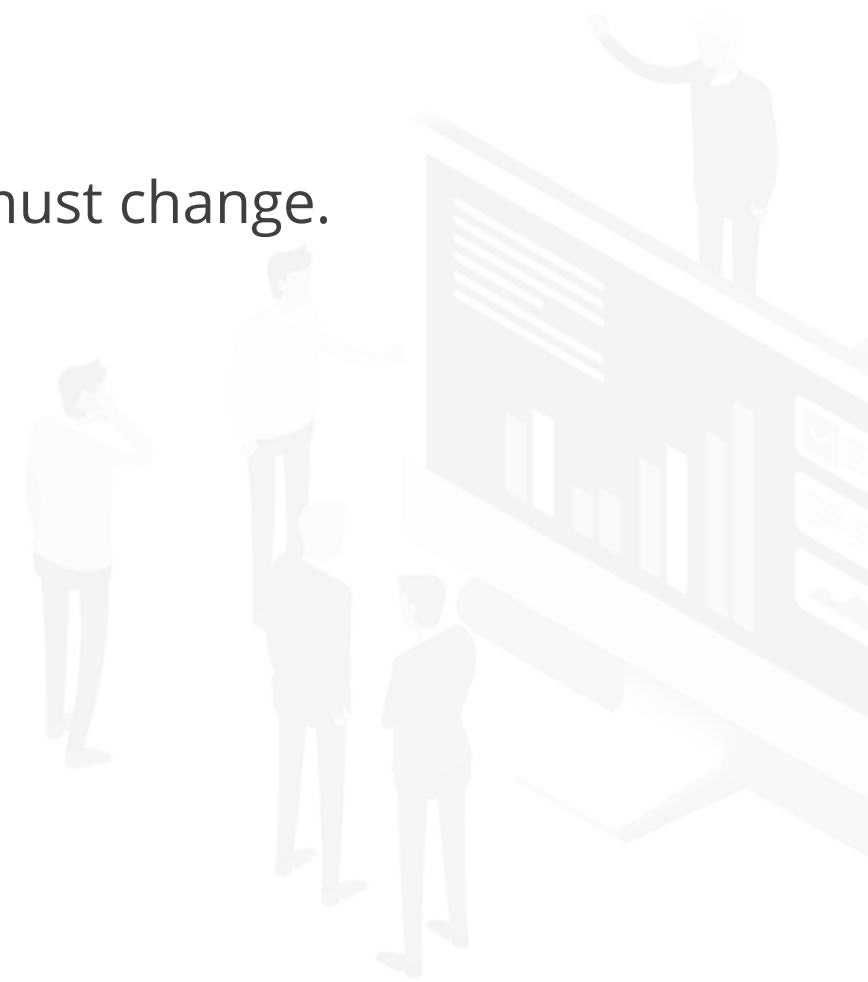
1.2 What does an Enterprise Architecture look like?

What an Enterprise Architecture Looks Like

- An Enterprise Architecture (EA) is the set of models, the components, and their relationships that comprise the scope of the EA Landscape under consideration.

- It exists to guide and constrain change planning and work to perform the change.

- The scope of work embedded in a Request for Architecture Work should identify the applicable characteristics of the EA Landscape.
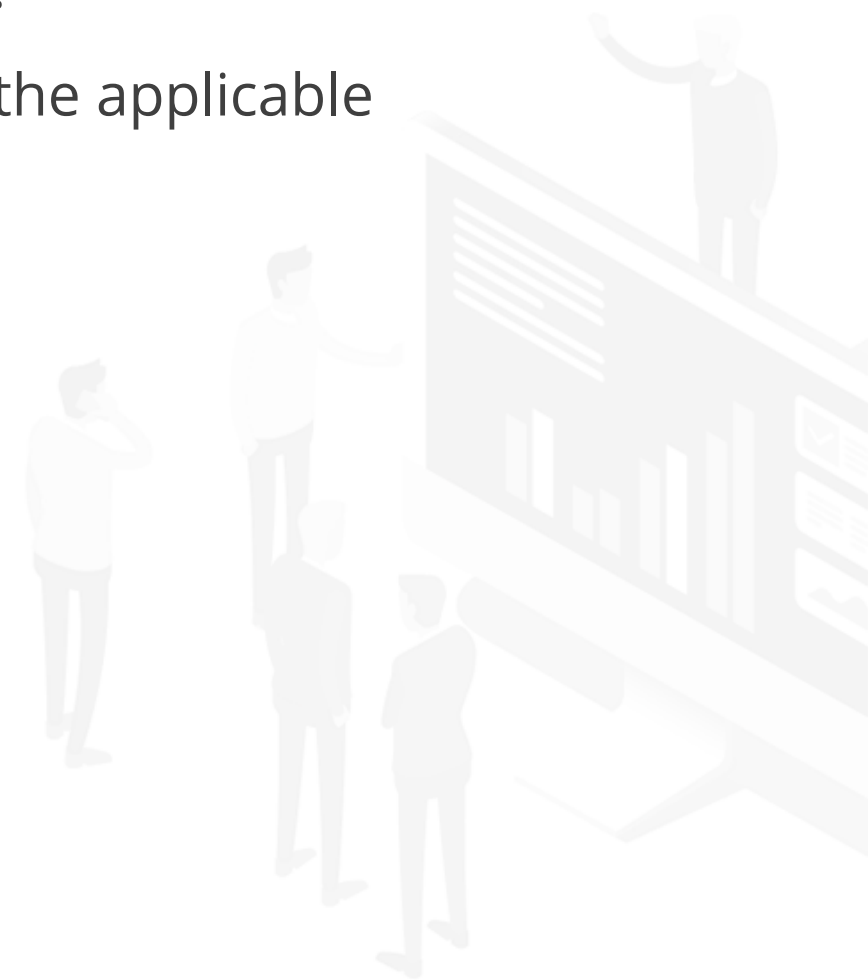
Models

- Models consistently describe the current and Target Architecture.

- The primary purpose of the models is to facilitate the architect to understand the system being examined.

- A secondary purpose is re-use.

1.3 Architecture Capability

Architecture Capability (aka EA Capability)

In order to carry out architectural activity effectively within an enterprise, it is necessary to put in place an appropriate business capability for architecture, through organization structures, roles, responsibilities, skills, and processes.

Source: TOGAF Fundamental Content — Introduction and Core Concepts §3.13

Architecture Capability (aka EA Capability)

- An EA Capability is the ability to develop, use, and sustain the architecture of a particular enterprise, and use the architecture to govern change.

- EA Capability is used here as a management concept that "facilitates planning improvements in the ability to do something that leads to enhanced outcomes enabled by the Capability".
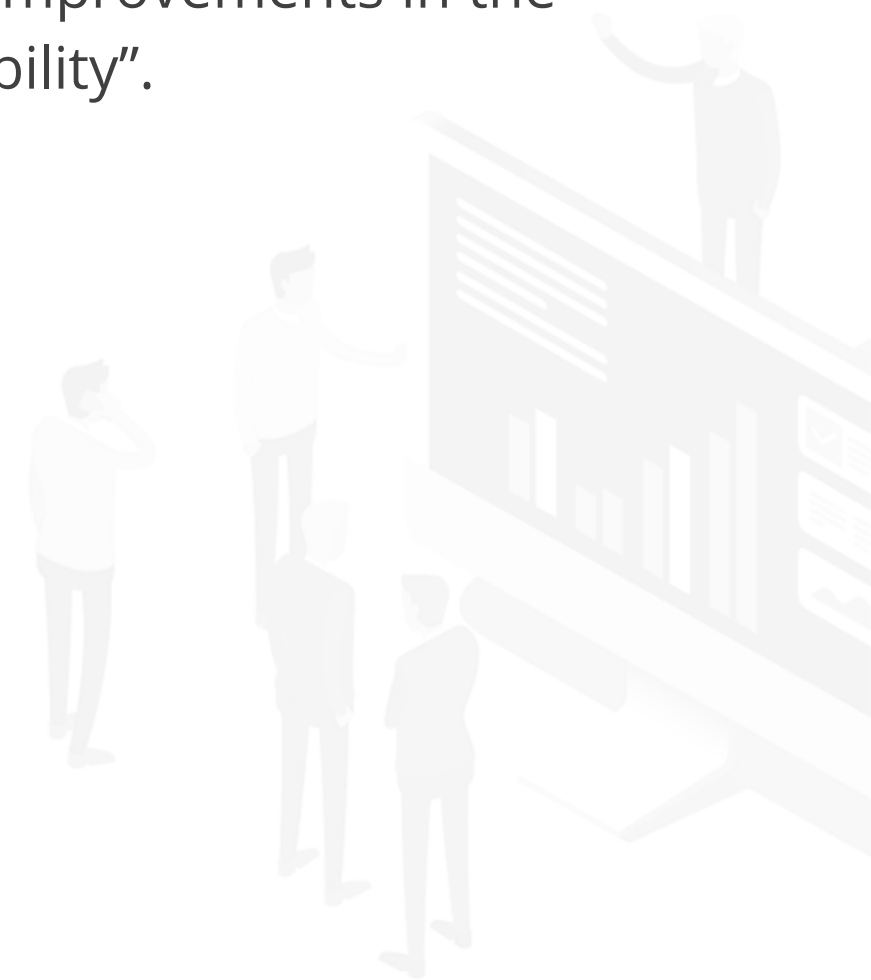
Source: ADM Practitioners' Guide

Example: "Four Purpose" EA Capability Model

EA to support Strategy: Deliver EA to provide a target architecture, and develop roadmaps of change over a three to ten-year period

General Business Capabilities

Purpose Capabilities

Architecture to Support Strategy

Architecture to Support Portfolio

Architecture to Support Projects

Architecture to Support Solution Delivery

Foundational Capabilities

EA to support Solution Delivery: deliver EA that is used to support the solution deployment

EA to support Portfolio: Deliver EA to support cross-functional, multi-phase, and multi-project change initiatives

EA to support Project: Deliver EA to support the enterprise's project delivery method

Example: Decomposition of "Four Purpose" EA Capability Model
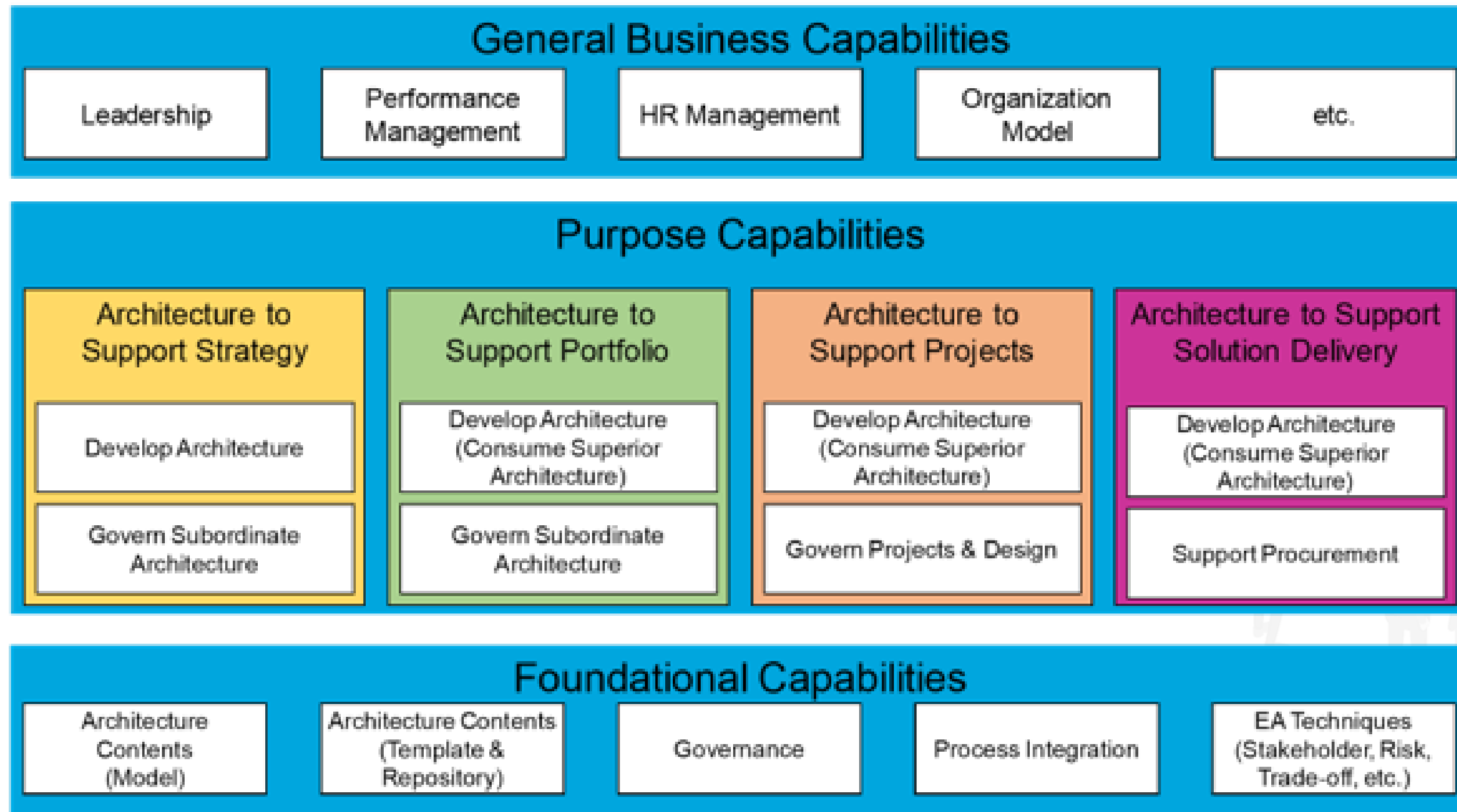
1.4 Architecture Governance and the Role of an Enterprise Architect

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Governance

Corporate Governance
EA Governance
Business Architecture Governance
Domain Architecture Governance
Security and Risk Governance
Implementation Governance

- ISO/IEC 38500:2015 defines governance as: "a system that directs and controls the current and future state".

- Governance is a decision-making process with a defined structure of relationships to direct and control the enterprise to achieve stated goals.

Two distinct things must be governed and supported by the Enterprise Architect:

- The development of the Target Architecture

- All change within the scope of the Target Architecture

The Enterprise Architect Role

- The Enterprise Architect supports their organization's leadership directing and controlling change through the governance of the development of the Target Architecture.

- Governance of all change within the scope of the Target Architecture enables to develop a good target that provides an organization's best achievable course forward.

- Typically, the Enterprise Architect and implementer are directed, and both are controlled by the stakeholder.

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1.5 Architecture Compliance, Levels of Conformance, Reviews, and the Role of the Architect

Architecture Compliance

Ensuring the compliance of individual projects with the Enterprise Architecture is an essential aspect of Architecture Governance.

There are usually two complementary processes:

- The **Architecture** function will be required to prepare a series of Project Architectures

- The **Enterprise and IT Governance** functions will define a formal Architecture Compliance review process for reviewing the compliance of all projects to the Enterprise Architecture

Level of Conformance

Irrelevant:
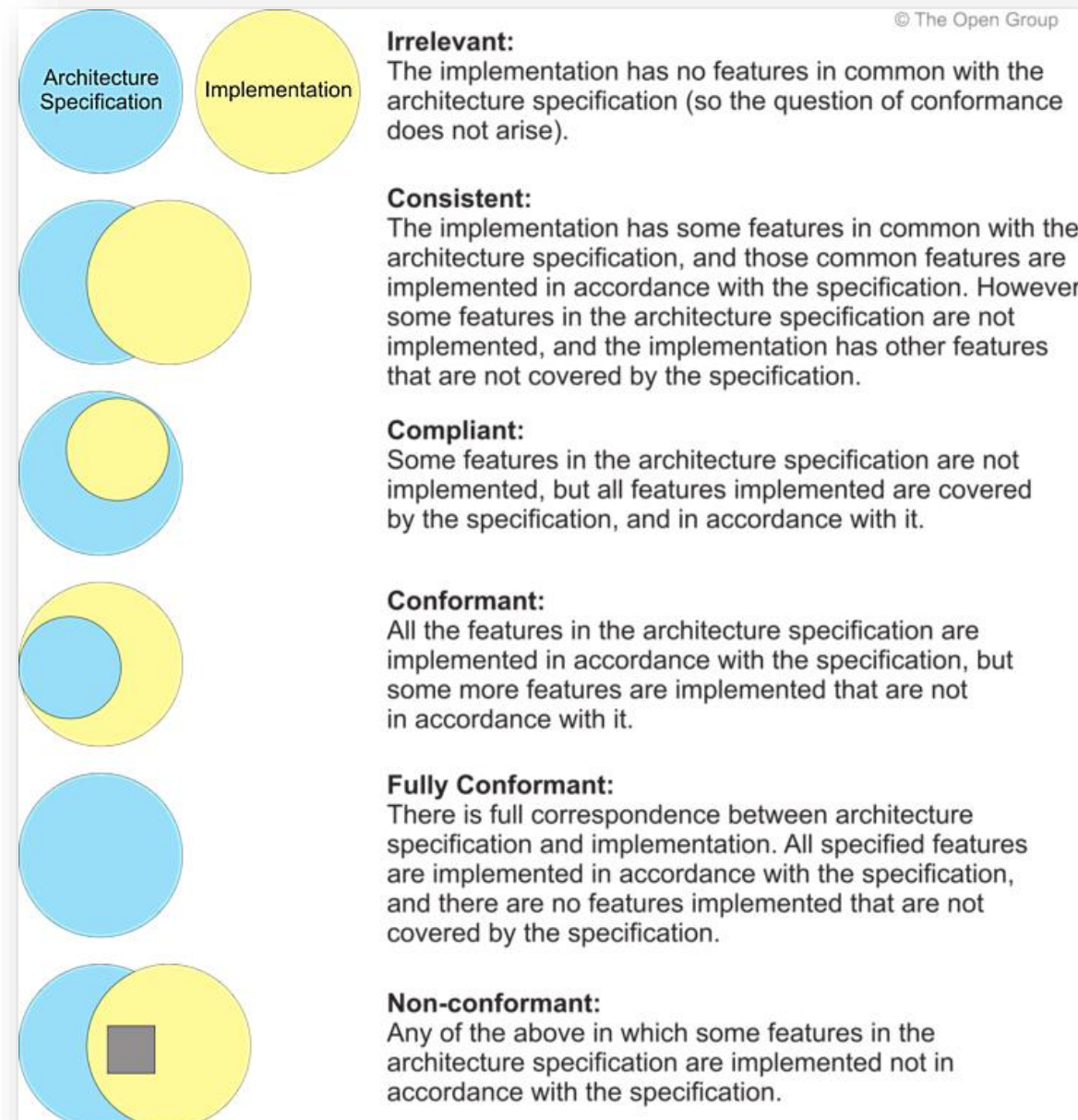The implementation has no features in common with the architecture specification (so the question of conformance does not arise).

Consistent:
The implementation has some features in common with the architecture specification, and those common features are implemented in accordance with the specification. However, some features in the architecture specification are not implemented, and the implementation has other features that are not covered by the specification.

Compliant:
Some features in the architecture specification are not implemented, but all features implemented are covered by the specification, and in accordance with it.

Conformant:
All the features in the architecture specification are implemented in accordance with the specification, but some more features are implemented that are not in accordance with it.

Fully Conformant:
There is full correspondence between architecture specification and implementation. All specified features are implemented in accordance with the specification, and there are no features implemented that are not covered by the specification.

Non-conformant:
Any of the above in which some features in the architecture specification are implemented not in accordance with the specification.

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- A key relationship between the architecture and the implementation lies in the definitions of the terms "conformant", "compliant", etc.

- While terminology usage may differ between organizations, the concepts of levels of conformance illustrated in the figure should prove useful in formulating an IT compliance strategy.

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Reviews

- An Architecture Compliance review is a scrutiny of the compliance of a specific project against established architectural criteria, spirit, and business objectives.

- A formal process for such reviews normally forms the core of an Enterprise Architecture Compliance strategy.
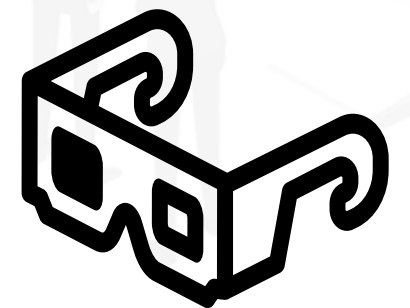
Checklists

Target Checklist

- Used to execute Architecture Governance.

- Only stakeholders can approve architecture.

Implementation and Other Change Checklist

- Designed to assist the Practitioner to understand what must be demonstrated during the governance process to address a non-compliance report.

Note on Using the Target Checklist

The last question is "Have the stakeholders approved the views?"

- If the answer is yes, the governance process is done.

- If the answer is no, then there is a decision on whether the Practitioner should rework the architecture or the Architecture Project should be canceled.

The Role of the Architect in Architecture Compliance

Two governance roles are often performed: the Auditor and the Architect.

- Compliance assessment is an auditor role. When non-compliance is identified, the architect needs to produce an impact assessment and recommendation on what to do.

- Impact must be assessed on the same terms as the target was developed. Assessing on any other terms invalidates the assessment and recommendation.

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1.6 How an Architecture Enables Alignment to Organizational Objectives using Agile development as an example

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Architecture in an Agile Enterprise

- Agile development aligns with ADM Phase G, Implementation Governance

- A good Architecture (developed in Phases A-F) will identify what products the Enterprise needs, the boundary of the products, and what constraints a product owner has.

- Architecture will have a set of constraints that limit the choices of the Agile team — often termed as guardrails
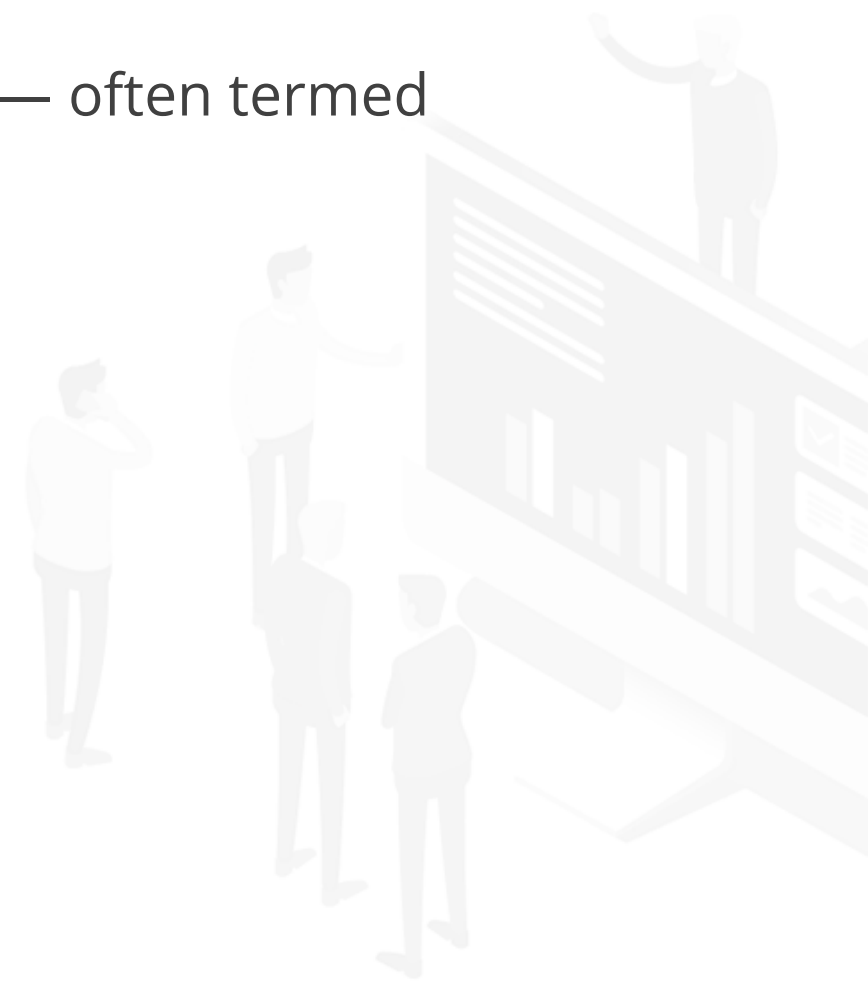
Focus on Risk Mitigation

- The Practitioner needs to provide support for the change activity.

- There should be a focus on risk mitigation, to ensure that the project meets its objectives.

- The Practitioner needs to act as the stakeholder's agent.

1.7 The Need to Manage Multiple Architecture States

Multiple Architecture States

Current – or **Baseline**: What you have in place.

Candidate (Candidate Transition & Candidate Target): An unapproved Transition or Target. A working hypothesis.

Transition & **Target**: What you have in Phase F when 'the architecture is approved'.

Target: Where the current time-horizon of architecture development ends. That is an approved Target state. There may be a new Target later.

Transition: Reasonable places between Current/Baseline and Target, where it is possible to stop further progress and gain value.

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Managing Multiple States (Candidate, Current, Transition, and Target)

The Practitioner must track the Architecture states across two characteristics:

- Time

- A Conformance Test

Tracking conformance facilitates the Implementation Project and operational change governance.

Managing Complex Roadmaps

Complexity increases when you add in:

- The four characteristics of the EA Landscape: breadth, depth, time, and recency

- The different Architecture Projects that can work on the same subject at different times and at different levels of detail

Factors Adding to the Complexity

- Advancements and changes outside the Enterprise

- Shared services

- Collaboration with suppliers and partners, including portfolio ownership model

- Impenetrable dependencies

- Multiple geopolitical boundaries (fiscal calendars, regulations, cultures)

- Varying rate of maturity and growth of teams

- EA team model (federated, centralized, etc.)

- Availability of multiple solutions or announcement of end-of-life for products currently in use

1.8 Enterprise Security Architecture

Essential Security and Risk Concepts and their Position in the TOGAF ADM

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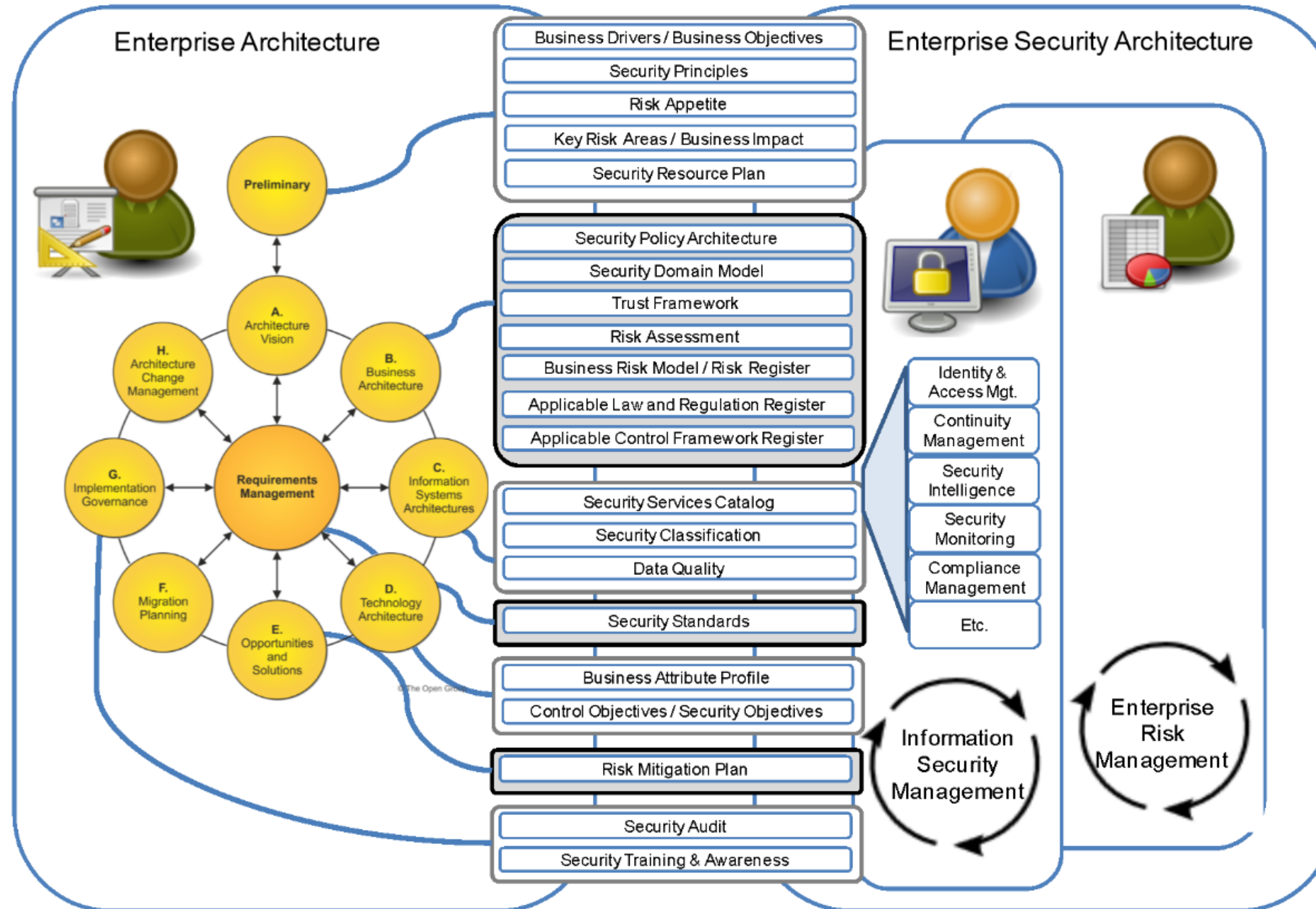
Security Architecture

- A structure of organizational, conceptual, logical, and physical components that interact in a coherent fashion in order to achieve and maintain a state of managed risk and security (or information security).

- It is both a driver and enabler of secure, safe, resilient, and reliable behavior, as well as for addressing risk areas throughout the enterprise.
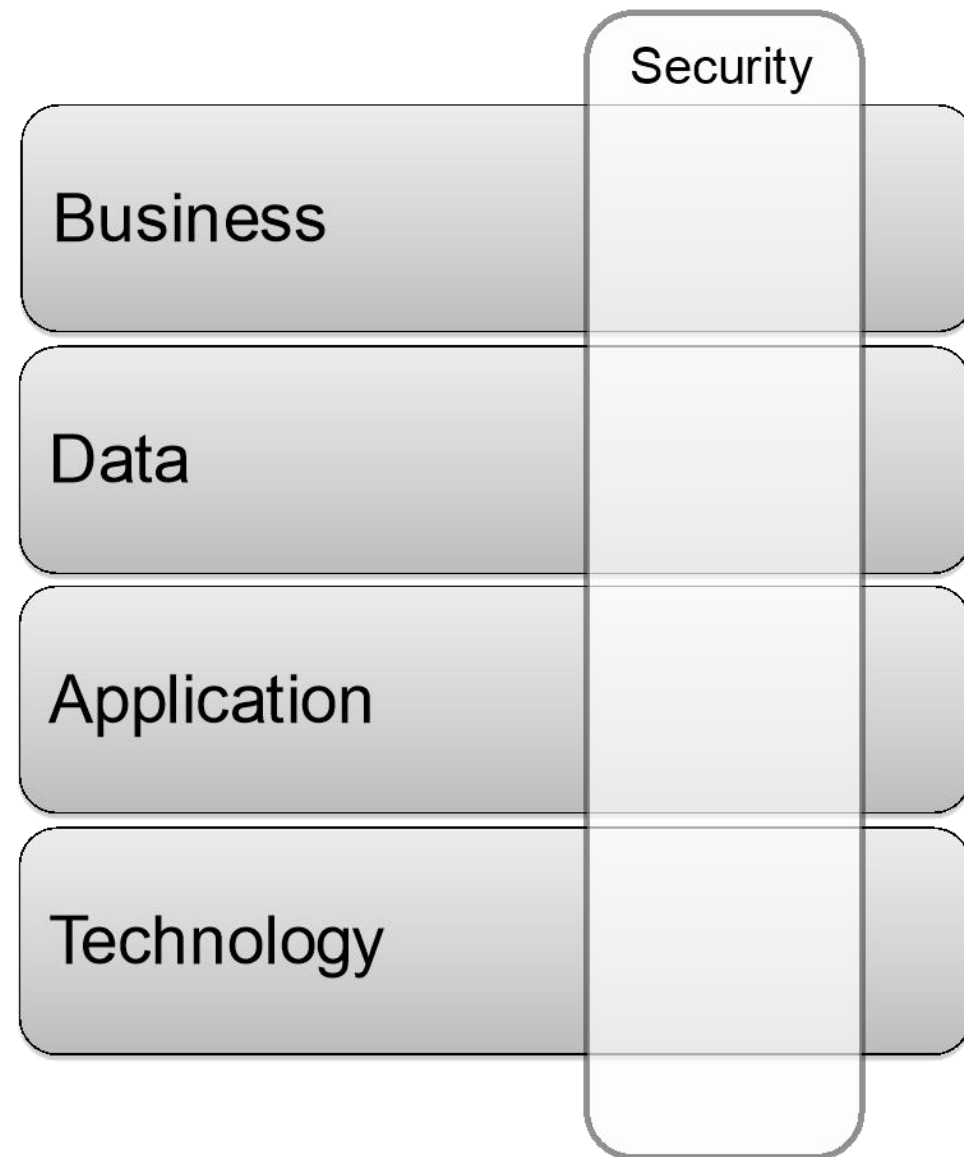
Enterprise Security Architecture

- An Enterprise Security Architecture does not exist in isolation.

- A close integration of Security Architecture in the Enterprise Architecture is beneficial.

- It builds on enterprise information that is already available in the Enterprise Architecture, and it produces information that influences the Enterprise Architecture.

- Doing it right the first time saves costs and increases effectiveness compared to bolting on security afterwards.

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1.9 Security, a Cross-Cutting Concern

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Security as a Cross-Cutting Concern

- The TOGAF ADM covers the development of the four architecture domains commonly accepted as subsets of an Enterprise Architecture: Business, Data, Application, and Technology.

- The Security Architecture interacts with all four of them and is therefore called cross-cutting.

1.10 Managing Uncertainty in Order to Optimize Maximum Business Benefit and Minimum Business Loss

Risk and Uncertainty

- Risk is the effect that uncertainty has on the achievement of business objectives.

- Uncertainty typically involves a deficiency of information and leads to inadequate or incomplete knowledge or understanding.

- The uncertainty is concerned with predicting future outcomes, given the limited amount of information available when making a business decision.

- This information can never be perfect, although our expectation is that given better quality information we can make better quality decisions.
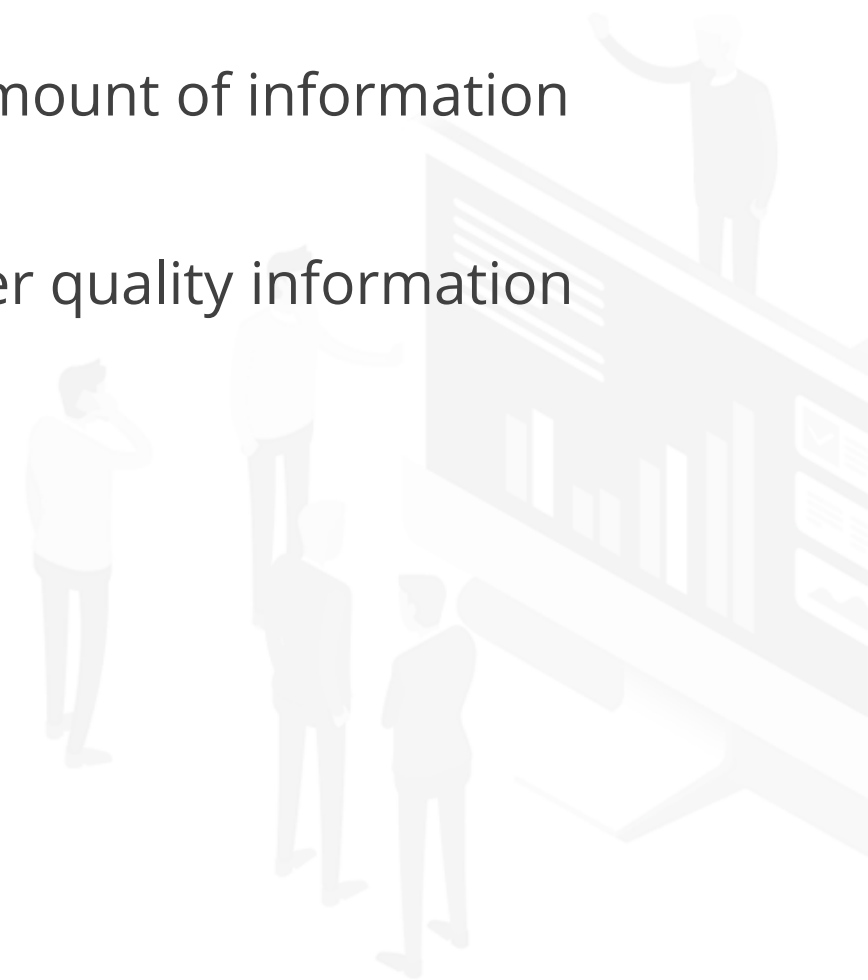
Decision Making Based on Risk Management

Every decision is based on assessing:

- The balance between potential opportunities and threats

- The likelihood of beneficial outcomes versus damaging outcomes,

- The magnitude of these potential positive or negative events

- The likelihood associated with each identified outcome. Identifying and assessing these factors is known as "risk assessment" or "risk analysis"

Risk related Concepts

- "Risk management" is the art and science of applying these concepts in the decision-making process.

- Risk can be seen at the strategic long-term level (overall direction of the business), the medium term tactical level (transformation projects and programs), and at the operational level (regular day-to-day operational decisions, processes, and practices).

- The objective of risk management is to optimize business outcomes to maximize business value and minimize business losses.
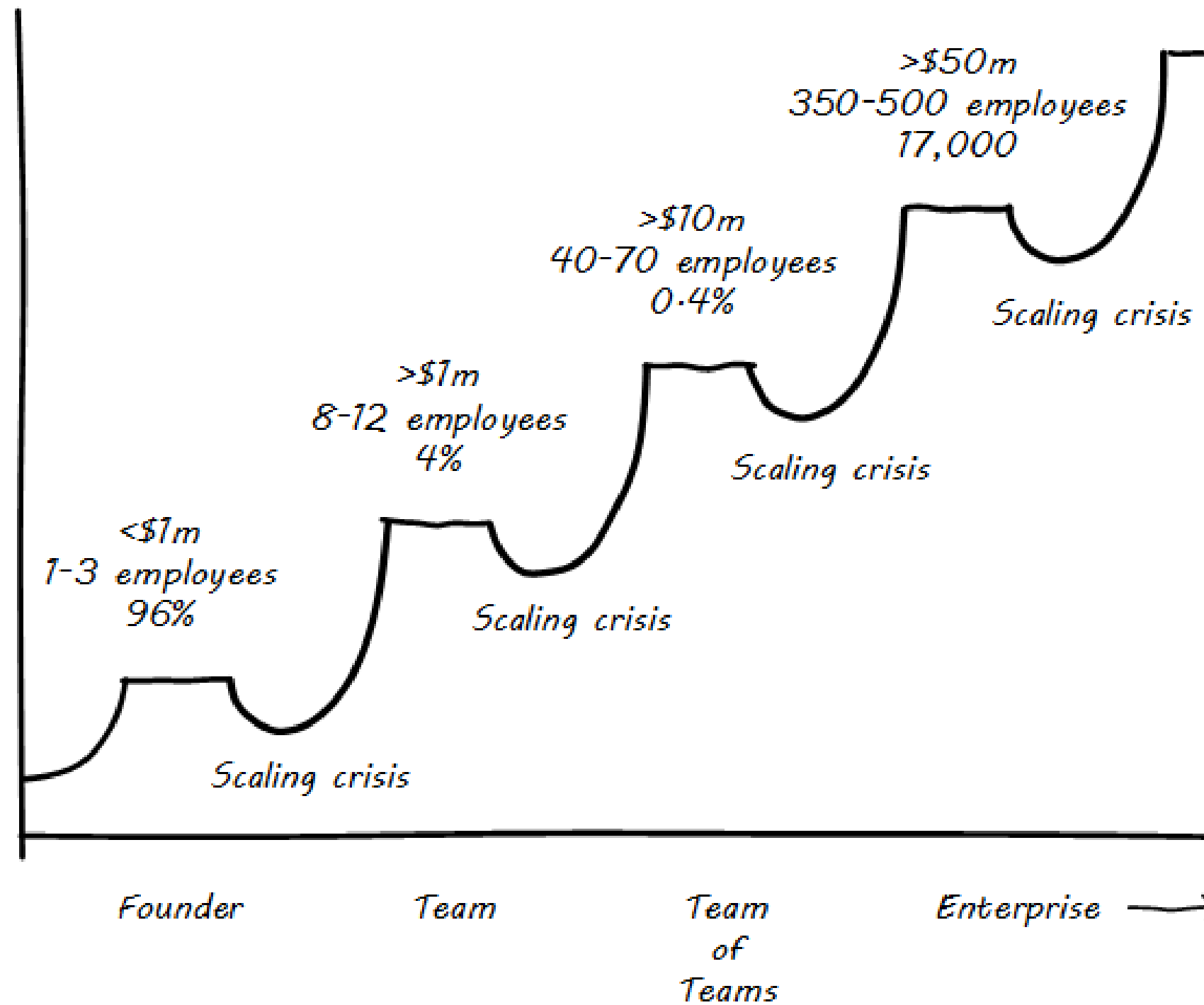
Risk and Business Stack

Business Risk versus Cyber Risk Areas (Figure: Copyright© The SABSA Institute)
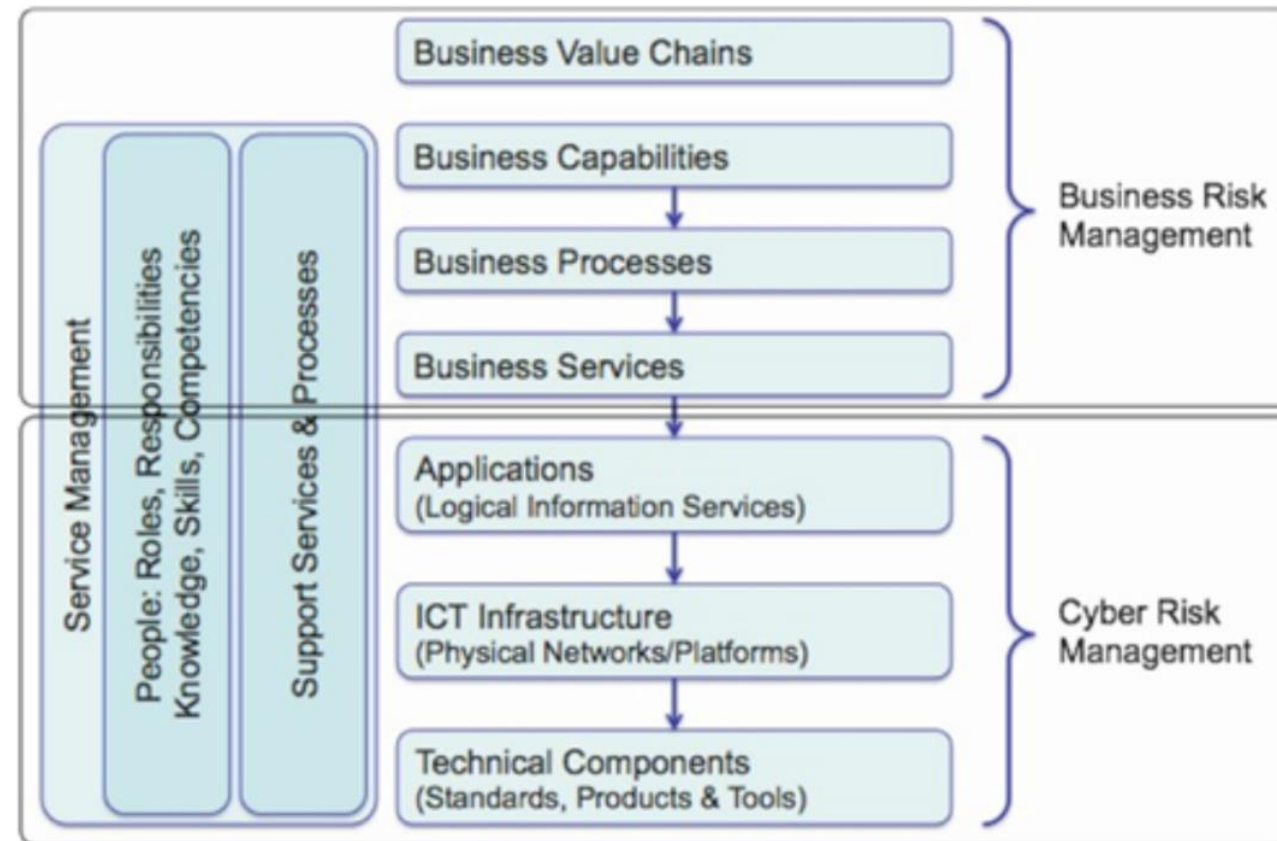
Risk can be seen at any level in the business stack but is always driven top-down from assessment of business value and its optimization.

1.11 The Enterprise Architect and Enterprise Architecture in a Digital Enterprise

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Digital Practitioner Body of Knowledge Scaling Model

>$50m
350-500 employees
17,000

>$10m
40-70 employees
0·4%

Scaling crisis

>$1m
8-12 employees
4%

Scaling crisis

<$1m
1-3 employees
96%

Scaling crisis

Scaling crisis

Founder   Team   Team
                               of
                               Teams   Enterprise ⟶

Context I – Individual Founder

- The Individual/Founder context addresses *"minimum essential concerns they must address to develop and sustain a basic digital product"*.

- This context represents the bare minimum requirements of delivering digital value.
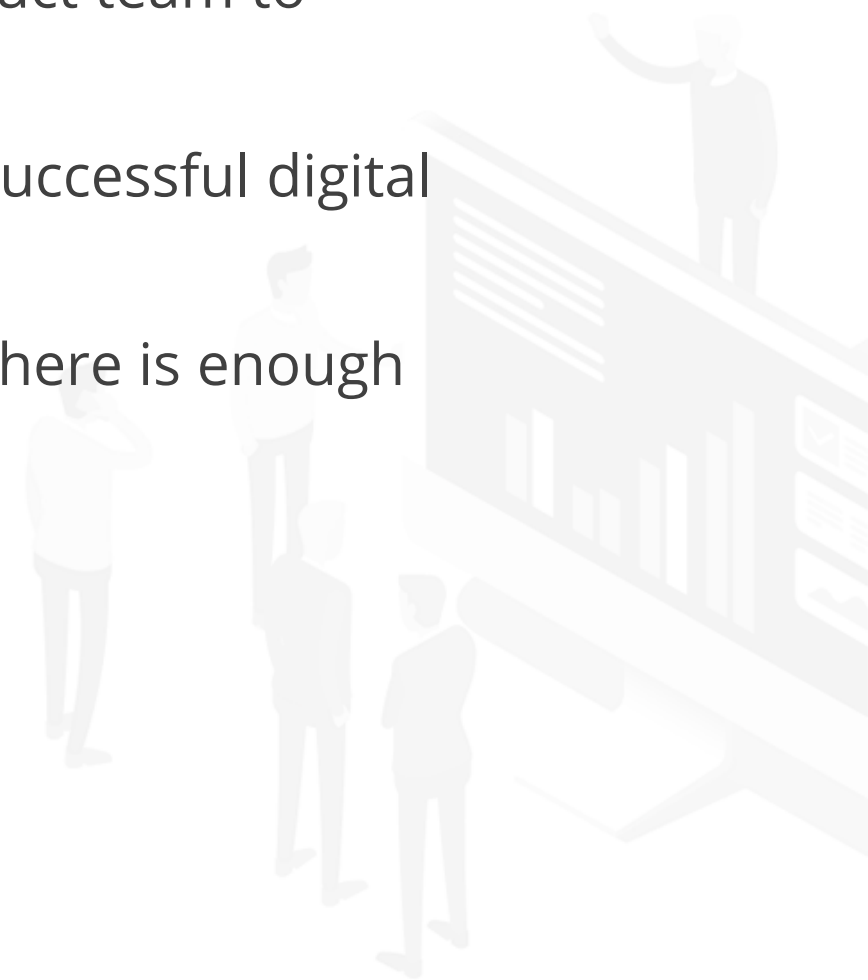
Architecture Role

- Used as a communication medium. Architecture models communicate very well.

- It provides the necessary descriptions to communicate the infrastructure available and its appropriate use for both development and delivery

- Use to support and provide answers to questions about Agile development and continuous delivery.

Architect Role

- A communicator and considered a key enterprise networker.

- Helps to identify existing infrastructure approaches that may be embedded in larger organizations, and to communicate vetted technical requirements to the infrastructure organization to ensure preparation for new workloads.

- Can be approached to provide guidance in these areas on demand, based on their practical experience.

Context II - Team

- The team has a single mission and a cohesive identity but does not need a lot of overhead to get the job done.

- The Team context covers the basic elements necessary for a collaborative product team to achieve success while remaining at a manageable human scale.

- Establishing team collaboration as a fundamental guiding value is essential to successful digital product development.

- The team is all in the same location, and can still communicate informally, but there is enough going on that it needs a more organized approach to getting work done.
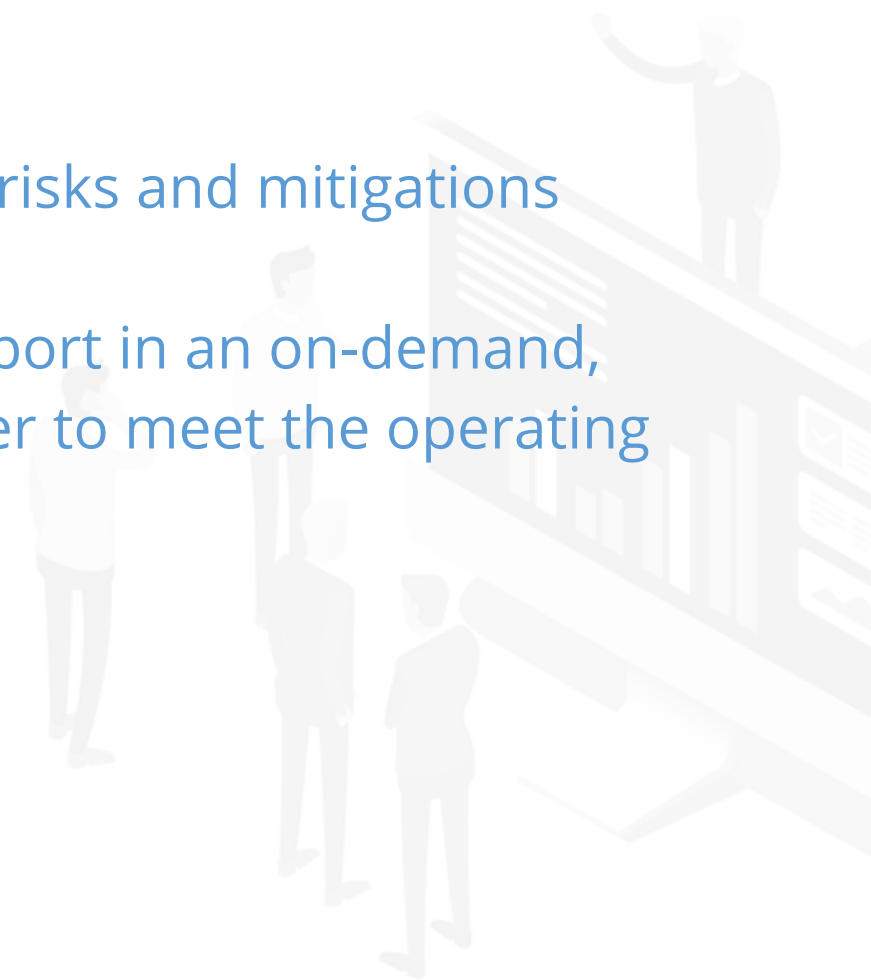
Context II Team: The Role of Architecture and the Architect

Architecture Role

- Enterprise Architecture can assist Product Management by providing models that map to a given digital product profile.

- It makes interdependencies explicit and assured a holistic view of the digital product.

- Used to depict processes and workflows in very simple to very complex levels of detail

- Provides models to depict how operations are expected to run

Architect Role

- Can ensure efficacy of communication and collaboration.

- Helps to communicate risks and mitigations

- Able to deliver this support in an on-demand, service-oriented manner to meet the operating tempo of the team.

Context III Team of Teams

- The Team of Teams context is a natural evolution of the Teams context, but one where the number of people and digital products involved generates complexity.

- Coordinating across a team of teams is the main concern.

- Communication is again key to ensure successful collaboration and value delivery.

Context III Team: The Role of Architecture and the Architect

Architecture Role

- Enterprise Architecture helps to resolve concerns related to cultural issues in more complex organizations.

- It is used to depict:
  - Portfolios of products
  - Processes and control mechanisms and to identify and eliminate choke points and for continuous process improvement
  - Interdependencies
  - Value generation, and cost
  - Supporting portfolio management decision-making

Architect Role

- Continues to ensure that risk is understood and communication is effective.

- Ensures that the digital products work together, leverage each other, and are appropriately coupled; thus, modeling and documenting the move from a specific digital product to portfolios of digital products that require interoperability.

Context IV – Enduring Enterprise

The Enduring Enterprise context is about how to manage an enterprise that has been successful and is now faced with the realities of operating a sustainable business over periods of time longer than the next product cycle.
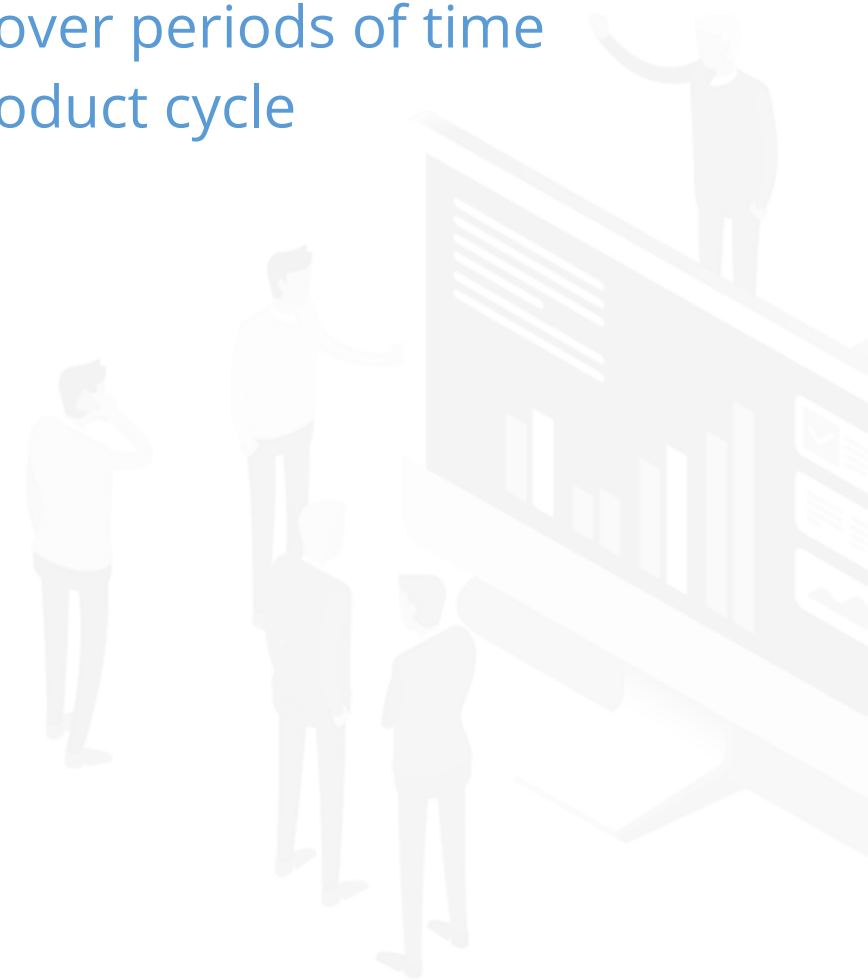
Architecture Role

- Helps managing risk

- Guide on Information Management through data and application architecture

Architect Role

- Supports the Enduring Enterprise in operating a sustainable business over periods of time longer than the next product cycle