Developing Architecture Skills

- In this session we will explore
  - the architecture role and skills of Enterprise Architecture
  - the TOGAF Skills Framework and varieties of IT Architects
- Is your organisation up to the Challenge?

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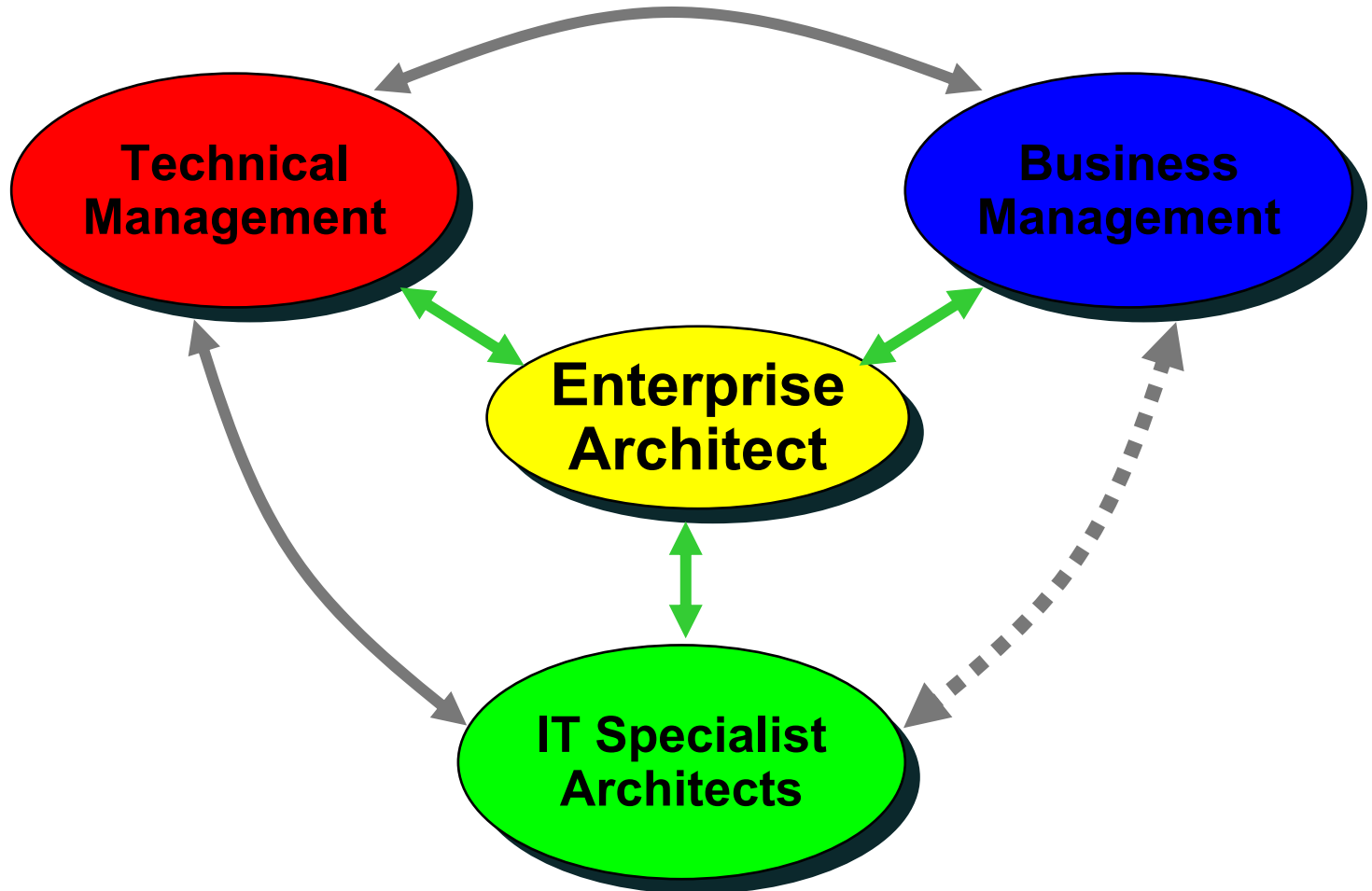## Architecting-the-Enterprise

What is an 'IT' Architect ?

- The word "architect" is a protected term used to designate individuals who are licensed to operate as building designers.

- In the IT industry when we use the term architect, it must be preceded by words that describe the nature of the work being done or an organization. The term "IT Architect" is the accepted norm.

- Many organisations have defined Chief and IT Architect roles to provide expertise in their development of their business and IT infrastructure and IT applications

- For Example vendor organisations who have embraced IT Architecture include IBM who announced the ITA profession in 1992. This was in response to client demands for expertise in a number of disciplines involved in client-related professional engagements

What is an 'IT' Architect ?

- Definitions
  - "IT Architecture" and "IT Architect" are widely used but poorly defined terms in the IT industry today.
  - They are used to denote a variety of practices and skills applied in a wide variety of IT domains.
  - There is a need for better classification to enable more implicit understanding of what type of Architect / Architecture is being described.
  - This lack of uniformity leads to difficulties for organizations seeking to recruit or assign/promote staff to fill positions in the Architecture field.
  - Due to the different usages of terms, there are often misunderstanding and miscommunication between those seeking to recruit for, and those seeking to fill, the various roles of Architect.
  - Despite the lack of uniform terminology, Architecture skills are in increasing demand, as the discipline of Architecture gains increasing attention within the IT industry.
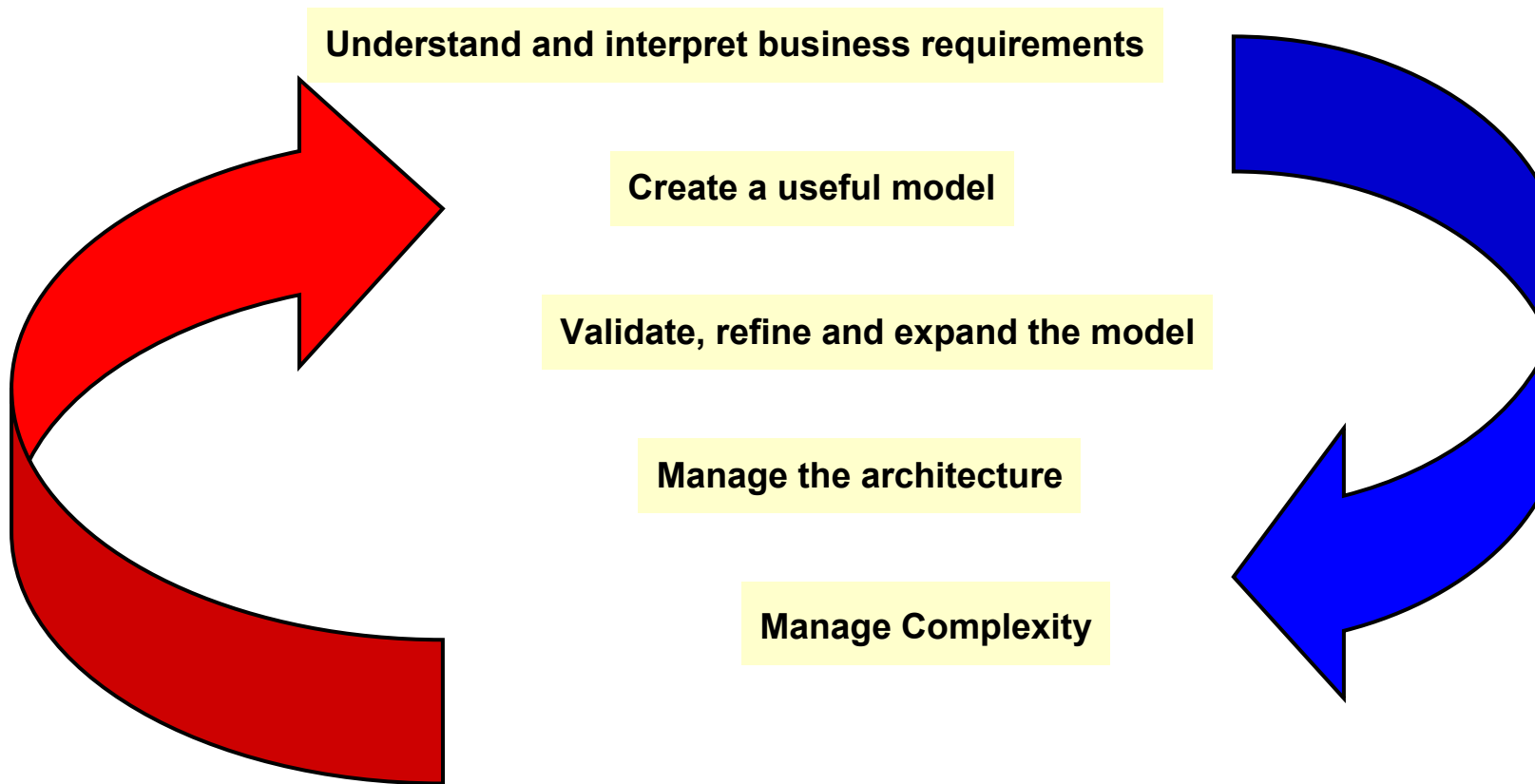
The Enterprise Architect

Who is an Enterprise and an IT Architect ?

- An IT Architect is a :
  - Practitioner
  - Consensus builder
  - Results oriented
  - IT Generalist and technology expert
  - Top Level Designer
  - The IT thinker who defines the form, function and fitness for purpose of the solution

- An Enterprise Architect leads the
  - Business Managers

  and

  - The Project Manager
  - The Solutions Builder
  - The Product Experts
  - The Scientists
  - The Client
  - To define the solutions to meet the business needs for today and tomorrow

The Role and Activities of an Enterprise Architect

Understand and interpret business requirements

Create a useful model

Validate, refine and expand the model

Manage the architecture

Manage Complexity

Characteristics of an Enterprise Architect

■ *Skills and experience in producing Enterprise and IT designs*

■ *Extensive technical breadth, with technical depth in one or a few disciplines?*

■ *Method-driven approach to execution*

■ *Full project scope experience*

■ *Leadership*

Certificate

■ *Personal and professional skills*

■ *Skills and experience in one or more industries*

The Enterprise & the IT Architect

■ Relatively young professions….carried by long experience

■ As the role of the IT Architect has evolved the breadth of knowledge and skills is becoming extensive and too broad for any one person.

■ Therefore it is imperative that all IT Architects develop the core skills that enable them to create IT Architectures and the specialist skills to focus on the evolving and different architectures e.g. Security, Mobile Management, Industry specifics.

■ The Enterprise Architect is evolving to become the one who knows the enterprise and the IT Architect competencies required and goes put them all together and makes IT work

Internal Architecture Practices

■ Many Enterprises have set up or are considering setting up an IT Architecture practice or a virtual IT Architecture practice.

■ The purpose of the practice is an organizational means of fostering the development, experience and knowledge skills of in-house staff to undertake the various architecting tasks required by the enterprise.

■ An IT Architecture practice is :
  ■ A formal program of development and certification by which an enterprise formally recognizes the skills of its practicing IT Architects as demonstrated by their work.
  ■ The program ensures the alignment of staff skills and experience with the IT Architecture tasks that the enterprise wishes to be performed.

Certification for an IT Architecture Practice

- The IT Architect practice will be able to establish a certification program that will ensure that qualified personnel are recruited

- Enterprise Certification of IT Architects
  - The main advantages for an enterprise setting up an internal IT Architect certification program are:
    - to formally recognize the skill of its practising IT Architects, as part of the task of establishing and maintaining a professional IT Architecting organization; and
    - to ensure the alignment of necessary staff skills and experience with the IT Architecture tasks that the enterprise wishes to be performed, whether these are to be performed internally to the enterprise or externally - for example, as part of a consultancy engagement.

Skills Frameworks

- Skills Frameworks provide a view of the competency levels for specific roles
- They define
    - the roles within a work area
    - The skills required by the roles
    - The depth of knowledge required to fulfil the role successfully

- Quite common for defining consultancy, project management and other skills required to deliver a project or work package
- Used by recruitment and search agencies to match candidates and roles

- Their value is to provide a rapid means of identifying skills matches and gaps
- Successfully applied they can ensure that candidates are fit for the job
- Their value in the context of Enterprise Architecture arises from the immaturity of the Enterprise Architecture discipline, and the problem that arise from this

TOGAF Enterprise Architecture Skills Framework

- TOGAF Version 8 delivers an Enterprise Architecture, and requires both Business and IT trained professionals to develop the Enterprise Architecture.

- The TOGAF Enterprise Architecture Skills Framework provides:
  - Definitions of the Enterprise & IT Architecting skills and proficiency levels required for personnel, internal or external, who are to perform the various architecting roles defined within the TOGAF framework.
  - The framework for IT Architect certification

- Specific benefits anticipated from use of the TOGAF Skills Framework include:
  - Reduces the time, cost, and risk in training, hiring, and managing IT Architecture professionals, both internal and external.
  - Simplifies communication between recruiting organizations, consultancies and employment agencies.

- Successfully applied, the Framework can be used as a measure for:
  - Team and Staff development
  - ensuring that the right person does the right job

The TOGAF Enterprise Architecture Skills Framework

- TOGAF defines Team Roles, Skills and Characteristics

- A typical IT Architecture team undertaking the development of an Enterprise Architecture as described in TOGAF would comprise the following roles:
  - Architecture Board Members
  - Architecture Sponsor
  - IT Architecture Manager
  - IT Architects for:
    - Enterprise Architecture
    - Business Architecture
    - Data Architecture
    - Applications Architecture
    - Technology Architecture
  - Program and/or Project Managers
  - IT Designer
  - And many others…..

Skill 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.

TOGAF Enterprise Architecture Skills Framework

- Categories of Skills

- The TOGAF Team skill set will need to include the following main categories of skills:
  - Generic Skills; typically comprising:
    - Leadership, team working, inter-personal skills, etc.
  - Business Skills and Methods; typically comprising:
    - Business cases, business process, strategic planning, etc.
  - Enterprise Architecture Skills; typically comprising:
    - Modelling, building block design, applications and role design, systems integration
  - Program or Project Management Skills ; typically comprising:
    - Managing business change, project management methods and tools.
  - IT General Knowledge Skills; typically comprising:
    - Brokering applications, asset management, migration planning, SLAs
  - Technical IT Skills; typically comprising:
    - Software engineering, security, data interchange, data management (TRM)AS
  - Legal Environment; typically comprising:
    - Data protection laws, contract law, procurement law, fraud

Generic Skills

IT Architect Roles	Architecture Board Member	Architecture Sponsor	IT Architect Manager	IT Architect Technology	IT Architect Data	IT Architect Application	IT Architect Business	Programme or Project Manager
Framework Skills Areas								
Generic Skills								
Leadership	4	4	4	3	3	3	3	4
Team Work	3	3	4	4	4	4	4	4
Inter-personal skills	4	4	4	4	4	4	4	4
Oral Communications	3	3	4	4	4	4	4	4
Written Communications	3	3	4	4	4	4	4	3
Logical Analysis	2	2	4	4	4	4	4	3
Stakeholder Management	4	3	4	3	3	3	3	4
Risk Management	3	3	4	3	3	3	3	4

Business Skills & Methods

IT Architect Roles	Architecture Board Member	Architecture Sponsor	IT Architect Manager	IT Architect Technology	IT Architect Data	IT Architect Application	IT Architect Business	Programme or Project Manager
Business Skills & Methods								
Business Case	3	4	4	4	4	4	4	4
Business Scenario	2	3	4	4	4	4	4	3
Organisation	3	3	4	3	3	3	4	3
Business Process	3	3	4	4	4	4	4	3
Strategic Planning	2	3	3	3	3	3	4	3
Budget Management	3	3	3	3	3	3	3	4
Visioning	3	3	4	3	3	3	4	3
Business Metrics	3	4	4	4	4	4	4	4
Business Culture	4	4	4	3	3	3	3	3
Legacy Investments	4	4	3	2	2	2	2	3
Business Functions	3	3	3	3	4	4	4	3

Enterprise Architecture Skills

IT Architect Roles	Architecture Board Member	Architecture Sponsor	IT Architect Manager	IT Architect Technology	IT Architect Data	IT Architect Application	IT Architect Business	Programme or Project Manager
Enterprise Architecture Skills								
Business Modelling	2	2	4	3	3	4	4	2
Business Process design	1	1	4	3	3	4	4	2
Role design	2	2	4	3	3	4	4	2
Organization Design	2	2	4	3	3	4	4	2
Data Design	1	1	3	3	4	3	3	2
Application Design	1	1	3	3	3	4	3	2
Systems Integration	1	1	4	4	3	3	3	2
IT Industry Standards	1	1	4	4	4	4	3	2
Services Design	2	2	4	4	3	4	3	2
Architecture Principles design	2	2	4	4	4	4	4	2
Architecture Views & Viewpoints design	2	2	4	4	4	4	4	2
Building Block Design	1	1	4	4	4	4	4	2
Solutions Modelling	1	1	4	4	4	4	4	2
Benefits Analysis	2	2	4	4	4	4	4	4
Business Inter-working	3	3	4	3	3	4	4	3
Systems Behaviour	1	1	4	4	4	4	3	3
Project Management	1	1	3	3	3	3	3	4
Architecture Contracts	3	3	4	4	4	4	4	

Programme or Project Management

IT Architect Roles	Architecture Board Member	Architecture Sponsor	IT Architect Manager	IT Architect Technology	IT Architect Data	IT Architect Application	IT Architect Business	Programme or Project Manager
Programme or Project Management								
Programme Management	1	2	3	3	3	3	3	4
Project Management	1	2	3	3	3	3	3	4
Managing Business Change	3	3	4	3	3	3	4	4
Change Management	3	3	4	3	3	3	4	3
Value Management	4	4	4	3	3	3	4	3

IT Knowledge Skills

IT Architect Roles / IT Knowledge Skills	Architecture Board Member	Architecture Sponsor	IT Architect Manager	IT Architect Technology	IT Architect Data	IT Architect Application	IT Architect Business	Programme or Project Manager
IT Application Development Methodologies & Tools	2	2	3	4	4	4	2	3
Programming Languages	1	1	3	4	4	4	2	2
Brokering Applications	1	1	3	2	4	4	3	2
Information Consumer Applications	1	1	3	2	4	4	3	2
Information Provider Applications	1	1	3	2	4	4	3	2
Storage Management	1	1	3	4	4	2	2	2
Networks	1	1	3	4	3	2	2	2
Web based Services	1	1	3	3	4	4	2	2
IT Infrastructure	1	1	3	4	3	2	2	2
Asset Management	1	1	4	4	3	3	3	2
Service Level Agreements	1	1	4	4	3	4	3	2
Systems	1	1	3	4	3	3	2	2
COTS	1	1	3	4	3	4	2	2
Enterprise continuums	1	1	4	4	4	4	4	2
Migration Planning	1	1	4	3	4	3	3	2
Management Utilities	1	1	3	2	4	4	2	2
Infrastructure Applications	1	1	3	4	3	4	2	2
Business Applications	1	1	3	2	3	4	3	2

Technical IT Skills

IT Architect Roles	Architecture Board Member	Architecture Sponsor	IT Architect Manager	IT Architect Technology	IT Architect Data	IT Architect Application	IT Architect Business	Programme or Project Manager
Technical IT Skills								
Software Engineering	1	1	3	3	4	4	3	2
Security	1	1	3	4	3	4	3	2
Systems & Network Management	1	1	3	4	3	3	3	2
Transaction Processing	1	1	3	4	3	4	3	2
Location & Directory	1	1	3	4	4	3	3	2
User Interface	1	1	3	4	4	4	3	2
International Operations	1	1	3	4	3	3	2	2
Data Interchange	1	1	3	4	4	3	2	2
Data Management	1	1	3	4	4	3	2	2
Graphics and Image	1	1	3	4	3	3	2	2
Operating Systems Services	1	1	3	4	3	3	2	2
Network Services	1	1	3	4	3	3	2	2
Communications Infrastructure	1	1	3	4	3	3	2	2

Legal Environment

IT Architect Roles	Architecture Board Member	Architecture Sponsor	IT Architect Manager	IT Architect Technology	IT Architect Data	IT Architect Application	IT Architect Business	Programme or Project Manager
Legal Environment								
Contract Law	2	2	2	2	2	2	2	3
Data Protection Laws	3	3	4	3	4	4	3	2
Procurement Law	3	2	2	2	2	2	2	4
Fraud	3	3	3	3	3	3	3	3
Commercial Law	3	3	2	2	2	2	3	3

Developing Architecture Skills

- The TOGAF Skills Framework provides an assessment of the skills required to deliver a successful Enterprise Architecture – use it freely!!!!!

- Ensure that your CEO and the Board understand and value the skill sets needed for their business

- Use a Skills Framework to define the skill requirements and competencies required for the IT

- Use Training, Skills development and Certification programmes to ensure your resources have the skills that you need

- Develop an Internal Architecture Practice approach to motivate and build a team approach which will de-risk your skills

- Work with certified Consultancy and Architecture practices to develop your own capability

- Involve, leverage skills and work with the business in developing the skills and competencies for the Enterprise Architecture

Who is an Architect & what are their skills?

"*The ideal architect should be a man [or woman] of letters, a mathematician, familiar with historical studies, a diligent student of philosophy, acquainted with music, not ignorant of medicine, learned in the responses of jurisconsults, familiar with astronomy and astronomical calculations."*

--- Vitruvius, circa 25 BC

Today's version

"*The ideal architect should be a man [or woman] of techno speak , an IT generalist, familiar with business school flavour of the month going back to Peter Drucker, a diligent student of politics and the meaning of life, acquainted with Mr &Mrs Fixits, not ignorant of the CEO ambitions , learned in the responses of commercial managers, and finally familiar with Bill Gates strategy before Bill Gates is .*"

--- Judith , circa 2004

Thank you for listening and participating

Enjoy lunch