A Brief Introduction to
Enterprise Architecture

16th Feb 2017

Daljit Roy Banger  MSc  FBCS

Hosted by: Student Union
Agenda

• Introduction
• A Quick Primer
• Products of Enterprise Architecture
  • The Role
• Q&A
A Quick Primer
The Stack

**Business Operating Model**
- Information / Resources (pushed & pulled)
- External Forces (government, competitors, market, influential individuals)
- Strategic Drivers (organisational, industry, state)
- Structure (business / physical)

**Business Process**
- Manual / Automated
- Formal / Informal
- Outsourced
- Straight Through / Call Off

**Capabilities / Services**
- Channels
- Technical
- Tactical v's Operational
- Business
- Innovation
- Micro

**Applications**
- Custom Off the Shelf
- Bespoke Development
- In-house/out-source
- Development Methods
- Frameworks

**Data & Information Services**
- Big Data
- ETL
- Custodians
- Classification
- Master Data Mgmt.
- DW

**Services (Logical Technology)**
- Service Bus
- Messaging
- Security
- Logging
- Containers
- Monitoring
- Routing
- Name Services

**Enabling Technology (Physical)**
- Device (Pervasive/Fixed)
- Hosting (Physical/Virtual)
- Cabling
- Appliances

**Value Added / Hygiene Technology Services**
- Non-Functional Capabilities
- Disaster Recovery
- Security
- Governance / Compliance
What if a new piece of legislation is imposed by a Local, Central or International body with which the organisation must comply

- One such piece of legislation that is coming in 2018 is the General Data Protection Regulation (GDPR)


- “Do nothing” is not an option as GDPR significantly raises the stakes in terms of compliance, with maximum penalties of 4% annual global turnover or up to 20m Euros (whichever is higher).

- How do we insure that we are compliant using an Enterprise Architectural Approach to the problem?
General Data Protection Regulation (GDPR)

- **Consent**: freely given?
- **Transparency**
- **Profiling**
- **High risk processing**
- **Certification**
- **Administrative fines**
  - 4% annual global turnover or up to 20m Euros (whichever is higher).
- **Breach notification**
  - Where feasible, within 72 hours of becoming aware!
- **Data transfers**
Impact of GDPR on the Enterprise

Business Operating Model
- Information / Resources pushed & pulled
- External Forces (Governing, Competitors, Market)
- Strategic Drivers (organisational, industry, state)
- Structure (Business / Physical)

Business Process
- Manual / Automated
- Formal / Informal
- Outsourced
- Straight Through / Call Off

Capabilities / Services
- Channels
- Technical
- Tactical v’s Operational
- Business
- Innovation
- Micro

Applications
- Custom Off the Shelf
- Bespoke Development
- In-house/out-source
- Development Methods
- Frameworks

Data & Information Services
- Big Data
- ETL
- Custodians
- Classification
- Master Data Mgmt.
- DW

Services (Logical Technology)
- Service Bus
- Messaging
- Security
- Logging
- Containers
- Monitoring
- Routing
- Name Services

Enabling Technology (Physical)
- Device (Pervasive/Fixed)
- Hosting (Physical / Virtual)
- Cabling
- Appliances

Value Added / Hygiene Technology Services
- Non-Functional Capabilities
- Disaster Recovery
- Security
- Governance / Compliance

Copyright Daljit R Banger
Efficiency Gains / Cost Savings can be achieved through:

1. **Exploiting** Technology Synergies
2. **Re-using** System Components
3. **Exposing** System Services to new processes.
4. Understanding the **impact** of new systems on the performance and capacity of enabling technologies.
Products of Enterprise Architecture
The deliverables and attributes of artefacts produced by the EA teams will be directly influenced by one or all of the following:

- The Structure / Size of the Organisation
- Characteristics of the Organisation
- The Operating Environment of the Enterprise Architecture Practice
- Management buy-in of Enterprise Architecture
- Size and Budget Available to the Team
- Team Capabilities

However, irrespective of the structure or capabilities of the team, all artefacts can be classified into 1 of 3 domains:

One Size does not necessarily always fit all ➔ No Two Organisations are Identical
Control

Governance – Process

Stakeholder Management

Boards – Review, Technical, Business Boards

Business / Partner Engagements

Programme / Project Engagement
Direct Stakeholder Engagement

Business Architecture Target Definition

Application Target Architecture

Data & Information (Master Data Management Strategy)

Infrastructure Target Architecture – Enabling Technology & Platforms

Roadmaps (Product / Technology)

Gap Analysis – Transitional States

Impact Assessments

Service promotion, catalogue etc…
Services/Touchpoints of Enterprise Architecture

Control
- Governance – Process
- Boards - Review, Technical, Business Boards
- Programme / Project Engagement
- Business / Partner Engagements
- Stakeholder Management

Inform
- Architectural Principles (Segmented by domains)
- Portfolio Management (Application / Data / Infrastructure)
- Funding Models
- Technical Reference Model
- Application Reference Model
- Best Practice Patterns Repository
- Impact Assessments
- Standards / Notations

Direct
- Stakeholder Engagement
- Business Architecture Target Definition
- Application Target Architecture
- Data & Information (Master Data Management Strategy)
- Infrastructure Target Architecture – Enabling Technology & Platforms
- Roadmaps (Product / Technology)
- Impact Assessments
- Gap Analysis – Transitional States
- Marketing Plans
- Impact Assessments
- Service promotion, catalogue etc.
**Principles**

- **Business**
  - This criteria element relates to the promotion of enterprise wide principles around the domain of business processing, especially business process modelling and service design.

- **Application**
  - Principles relating to the design, build and deployment of applications

- **Information**
  - Principles linked with the production, cleansing and publishing of information

- **Data**
  - Principles associated with data design, usage, persistence etc.

- **Infrastructure**
  - Principles associated with selection, deployment, management of the infrastructure (data Centres, Servers storage, network etc)

- **Foundation Services.**
  - Foundation services relate to DR, Security, Incident management etc i.e. services that are core to all of the above

- **Business Operations**
  - Here Enterprise Architects should be concerned with the practices associated with capturing, modelling and digitally executing the business operations.

- **Application Design**
  - I.e. delivery of designs of. Whilst, practices adopted may based on a specific methodology or approach, the real question ' how efficiently have we adopted the practices of the approach and are we meeting the business demands based on this adoption ?'

- **Application Build**
  - The maturity of the build of applications both internal and externally developed applications should encapsulate test of software unit, components etc prior to build

- **Governance**
  - Architectural Governance and the teeth i.e. power of associated with the various boards.

- **Service Delivery**
  - The maturity of the practices i.e. what actually happens during the deployment, management of systems on the technology landscape.

- **Support**
  - Whilst this is close to Service Delivery it must be noted that we should rank how effectively the EA team deliver the support of its artefacts

- **Foundation Services.**
  - Foundation services relate to DR, Security, Incident management etc i.e. services that are core to all of the above

**Practices**

- **Business Operations**
  - Here Enterprise Architects should be concerned with the practices associated with capturing, modelling and digitally executing the business operations.

- **Application Design**
  - I.e. delivery of designs of. Whilst, practices adopted may based on a specific methodology or approach, the real question ' how efficiently have we adopted the practices of the approach and are we meeting the business demands based on this adoption ?'

- **Application Build**
  - The maturity of the build of applications both internal and externally developed applications should encapsulate test of software unit, components etc prior to build

- **Governance**
  - Architectural Governance and the teeth i.e. power of associated with the various boards.

- **Service Delivery**
  - The maturity of the practices i.e. what actually happens during the deployment, management of systems on the technology landscape.

- **Support**
  - Whilst this is close to Service Delivery it must be noted that we should rank how effectively the EA team deliver the support of its artefacts

**Process**

- **Business**
  - The engagement of the Enterprise Architecture functions with the Business Process Modelling and Design functions and any alignment activities.

- **Application**
  - The maturity of the build of applications both internal and externally developed applications should encapsulate test of software unit, components etc prior to build

- **Support**
  - Whilst this is close to Service Delivery it must be noted that we should rank how effectively the EA team deliver the support of its artefacts

- **Foundation Services.**
  - Foundation services relate to DR, Security, Incident management etc i.e. services that are core to all of the above

**Patterns**

- **Business**
  - The engagement of the Enterprise Architecture functions with the Business Process Modelling and Design functions and any alignment activities.

- **Application**
  - The maturity of the build of applications both internal and externally developed applications should encapsulate test of software unit, components etc prior to build

- **Support**
  - Whilst this is close to Service Delivery it must be noted that we should rank how effectively the EA team deliver the support of its artefacts

- **Foundation Services.**
  - Foundation services relate to DR, Security, Incident management etc i.e. services that are core to all of the above

**Portfolio Management**

- **Business**
  - The engagement of the Enterprise Architecture functions with the Business Process Modelling and Design functions and any alignment activities.

- **Application**
  - The maturity of the build of applications both internal and externally developed applications should encapsulate test of software unit, components etc prior to build

- **Support**
  - Whilst this is close to Service Delivery it must be noted that we should rank how effectively the EA team deliver the support of its artefacts

- **Foundation Services.**
  - Foundation services relate to DR, Security, Incident management etc i.e. services that are core to all of the above

**Services**

- **Business**
  - The engagement of the Enterprise Architecture functions with the Business Process Modelling and Design functions and any alignment activities.

- **Application**
  - The maturity of the build of applications both internal and externally developed applications should encapsulate test of software unit, components etc prior to build

- **Support**
  - Whilst this is close to Service Delivery it must be noted that we should rank how effectively the EA team deliver the support of its artefacts

- **Foundation Services.**
  - Foundation services relate to DR, Security, Incident management etc i.e. services that are core to all of the above

**Information**

- **Application**
  - Principles linked with the production, cleansing and publishing of information

- **Data**
  - Principles associated with data design, usage, persistence etc.

- **Infrastructure**
  - Principles associated with selection, deployment, management of the infrastructure (data Centres, Servers storage, network etc)

- **Foundation Services.**
  - Foundation services relate to DR, Security, Incident management etc i.e. services that are core to all of the above

**Application Build**

- **Governance**
  - Architectural Governance and the teeth i.e. power of associated with the various boards.

- **Service Delivery**
  - The maturity of the practices i.e. what actually happens during the deployment, management of systems on the technology landscape.

- **Support**
  - Whilst this is close to Service Delivery it must be noted that we should rank how effectively the EA team deliver the support of its artefacts

**Governance**

- **Application**
  - The maturity of the build of applications both internal and externally developed applications should encapsulate test of software unit, components etc prior to build

- **Support**
  - Whilst this is close to Service Delivery it must be noted that we should rank how effectively the EA team deliver the support of its artefacts

**Application Build**

- **Governance**
  - Architectural Governance and the teeth i.e. power of associated with the various boards.

- **Service Delivery**
  - The maturity of the practices i.e. what actually happens during the deployment, management of systems on the technology landscape.

- **Support**
  - Whilst this is close to Service Delivery it must be noted that we should rank how effectively the EA team deliver the support of its artefacts

**Support**

- **Information**
  - Principles linked with the production, cleansing and publishing of information

- **Data**
  - Principles associated with data design, usage, persistence etc.

- **Infrastructure**
  - Principles associated with selection, deployment, management of the infrastructure (data Centres, Servers storage, network etc)

- **Foundation Services.**
  - Foundation services relate to DR, Security, Incident management etc i.e. services that are core to all of the above
The Role..
Transition to Enterprise Architecture
Mapping the Architect to The Stack

Business Operating Model
- Information / Resources pushed & pulled
- External Forces (Government, Competitors, Market, Influential Individuals)
- Strategic Drivers (organizational, industry, etc.)
- Structure (Business / Physical)

Business Process
- Manual / Automated
- Formal / Informal
- Outsourced
- Straight Through / Call Off

Capabilities / Services
- Channels
- Technical
- Tactical / Operational
- Business
- Innovation
- Micro

Applications
- Custom Off the Shelf
- Bespoke Development
- In-house / out-source
- Development Methods
- Frameworks

Data & Information Services
- Big Data
- ETL
- Custodians
- Classification
- Master Data Mgmt.
- DW

Services (Logical Technology)
- Service Bus
- Messaging
- Security
- Logging
- Containers
- Monitoring
- Routing
- Name Services

Enabling Technology (Physical)
- Device (Pervasive/Fixed)
- Hosting (Physical / Virtual)
- Cabling
- Appliances

Value Added / Hygiene Technology Services
- Non-Functional Capabilities
- Disaster Recovery
- Security
- Governance / Compliance
Enterprise Architects maintain the organisational abstract view, with a primary objective to ensure that the technology landscape is aligned to the strategic, operational and tactical goals of the organisation.

- **Strategic** input into the technology roadmaps of the organisation – shape, form and stabilise
- **Influence** decision makers on technology investment – current & future
- Provide systems **consultancy**, guidance and assurance to large programmes
- Review and **assure** Solution Designs produced both internally and by 3rd party suppliers
- Ensure that **governance** mechanisms such as review boards, principles etc. are maintained and supported
- **Police** the standards through Project and Programme engagement
- **Represent** the organisation with 3rd parties, for example Systems Integrators and Standards Bodies
- Understand the **impact** of the introduction of new technology into the technology landscape of the organisation.
Solution Architects work with/in Projects and Programmes to provide systems consultancy services, impact assessments, end-to-end designs, cost models..

Technical Architects deliver the lower level of technical design, based on high-level component solution designs and costs provided by the Solution Architects.

Solution Architects work within the Projects and Programmes to deliver the following architectural services:

- Manage the ‘cradle to grave’ – from conception through to delivery into production of solution architectures
- Design both the physical and logical components of solution architectures that will deliver a positive business outcome
- Work with Project Managers to provide provisional costs for the components of the architecture
- Technical Analysis and Design capabilities
- Business and technical requirements capture, when required
- Facilitate design workshops
- Validate designs / costs produced by 3rd parties wishing to sell systems to the organisation.

Technical Architect work with projects and the BAU organisation to provide some of the following:

- Delivering technical designs and standards and the associated approvals from the formal governance channels.
- Understanding the technology estate and the encapsulated technology components of the organisation
- Providing technical recommendations and options based on solution designs which can cost-effectively be realised in the production environment
- Mitigating any technical risks that could occur through the introduction of new technology into the landscape of the organisation
- Providing input into the appropriate innovation funnels for the analysis of new technology
- Keeping abreast of technology trends, attending industry events to ensure product roadmaps are understood by the Solution and Enterprise Architects.
- Ensuring that production acceptance for projects is delivered and managed.
Enterprise Architects maintain a macro abstract organisational view, together with the understanding of the key business drivers and potential drivers for change and the effect that these drivers may have on the technology landscape of the organisation.

Solution Architects maintain a macro project view and deliver an end-to-end architecture in which they outline the key components (physical and logical) necessary to design a solution that meets requirements.

Technical Architects maintain a micro view of the technical components that will be deployed to realise the solution design and often act as the true ‘guardians’ of the technology estate.
Final Note

• Enterprise Architecture is delivered in the context of the Organisation – true value can not be realised by simply following a single ‘Cook Book’ or Framework approach.

• Architectural Realization is a way of thinking and not a concrete technological implementation. It is however, supported by frameworks, patterns & best practices that complement the mindset.

• As an Enterprise Architect you must be aware of both the technology landscape of your organisation and external factors that can impact the landscape
Thank You

Website: www.s-ea-t.com (Tools, Papers Downloads)
Blog: https://dalbanger.wordpress.com/
Email: dal@s-ea-t.com