

Architect Role Definitions

Extracts from research into real architect role definitions, for the BCS professional certificates

Update of presentation to BCS EA group in 2009

BCS ESA focuses on Solution Architecture in an EA context

- ▶ All solutions need architecting. The larger the enterprise, the more distinct architect roles emerge, and the more likely the solution architect will report to a central enterprise architecture team, and need to understand EA

“Skills Framework for the Information Age” (SFIA)

Target roles? People wanting step from level 4 to a level 5 architect role

| SFIA Role | Responsibility level | | | | | | |
|--|----------------------|---|---|---|---|---|---|
| Enterprise architecture | | | | | 5 | 6 | 7 |
| Solution architecture | | | | | 5 | 6 | |
| Project management | | | | 4 | 5 | 6 | 7 |
| Business analysis | | | 3 | 4 | 5 | 6 | |
| Business modelling | | 2 | 3 | 4 | 5 | 6 | |
| Requirements definition and management | | 2 | 3 | 4 | 5 | 6 | |
| System design | | 2 | 3 | 4 | 5 | 6 | |
| Database design | | 2 | 3 | 4 | 5 | 6 | |
| Software development | | 2 | 3 | 4 | 5 | | |
| Database admin | | 2 | 3 | 4 | 5 | | |



Extract from research into “architect” roles for the BCS

- ▶ Many job titles used in adverts
- ▶ Many are ambiguous
- ▶ There are inconsistent names and definitions

- ▶ Survey 1: over two thousand IT job adverts with architect in the title.
- ▶ Survey 2: over one thousand roles from a different source

| Architect job title in job advert | Survey 1 | Survey 2 |
|--------------------------------------|------------|------------|
| Technical Architect | 960 | 141 |
| Solution(s) Architect | 177 | 433 |
| Enterprise Architect | 56 | 105 |
| Network Architect | 39 | |
| System(s) Architect | 27 | |
| Infrastructure Architect | 24 | 75 |
| Information or Data Architect | 35 | 53 |
| Application(s) Architect | 19 | 53 |
| Security Architect | 16 | 21 |
| Java Architect | 16 | |
| Software Architect | 14 | |
| Functional Architect | 9 | |
| IT Architect | 6 | 37 |
| Product Architect | 4 | |
| Oracle Architect | 4 | |
| SAP Architect | 4 | 70 |
| Business Architect (or Analyst in 2) | 3 | 27 |
| Technology Architect | 2 | |
| Environment Architect | 2 | |
| Process Architect | 1 | |
| Development Architect | 1 | |

The architecture levels and domains addressed

- ▶ BCS ESA explains architecture terms and concepts used in the four primary architecture domains

| Architecture Work Space | | | | |
|-------------------------|----------|------------------|--------------|------------------------------------|
| Domain/view | Business | Information Data | Applications | Infrastructure Platform Technology |
| Level | | | | |
| Enterprise | | | | |
| Solution | | | | |
| Software/ Technical | | | | |
| Operations | | | | |

Knowledge and skill required – generalised from survey

| Category | Past class answers |
|------------------------|--|
| Communication | Communication, presentation and facilitation skills. |
| Business knowledge | Business awareness. Corporate know how. Industry knowledge. |
| Technical knowledge | Aware of technical options, feasible solutions, future alternatives. |
| Holistic understanding | Big picture – how it all hangs together |
| Methodology knowledge | Knows architecture frameworks, industry frameworks & standards. |
| Analysis | Abstraction, requirements capture and assessment. |
| Leadership | Vision, confidence, decisiveness, delegation, mentoring. |
| Other soft skills | Empathy, organization sensitivity, negotiation, team player. |
| Commercial awareness | Understand cost of technology choices, and economies of scale. |
| Project management. | Cost, time and risk management. Also self-management. |

Enterprise Architects

Extracts from research into real architect role definitions, for the BCS professional certificates

▶ EA at Level 7

- Directs the creation and review of an enterprise capability strategy to support the strategic requirements of the business.
- Identifies the business benefits of alternative strategies.
- Directs development of enterprise-wide architecture and processes which ensure that the strategic application of change is embedded in the management of the organisation.
- Ensures compliance between business strategies, enterprise transformation activities and technology directions, setting strategies, policies, standards and practices.

▶ EA at Level 6

- Captures and prioritises market and environmental trends, business strategies and objectives, and identifies the business benefits of alternative strategies.
- Establishes the contribution that technology can make to business objectives, conducting feasibility studies, producing high-level business models, and preparing business cases.
- Leads the creation and review of a systems capability strategy that meets the strategic requirements of the business.
- Develops enterprise-wide architecture and processes that ensure that the strategic application of change is embedded in the management of the organisation, ensuring the buy-in of all stakeholders.
- Develops and presents business cases, for high-level initiatives, for approval, funding and prioritisation.
- Ensures compliance between business strategies, enterprise transformation activities and technology directions, setting strategies, policies, standards and practices.

▶ EA at Level 5

- Contributes to the creation and review of a systems capability strategy which meets the strategic requirements of the business.
- Develops models and plans to drive forward the strategy, taking advantage of opportunities to improve business performance.
- Takes responsibility for investigative work to determine requirements and specify effective business processes, through improvements in information systems, data management, practices, procedures, organisation and equipment.

A real EA job advert – for a superman

- ▶ solid and proven EA experience, a track record in delivering effective architectural roadmaps and blueprints in the past with practical experience in **TOGAF or Zachman**.
- ▶ highly experienced in all aspects of EA across ranging technologies, including applications architecture, integration, infrastructure, business intelligence and Data Warehousing.
- ▶ Responsibilities:
 - **Model and maintain EAs** (current and target) with cohesive roadmaps covering the transition and migration steps required to reach the selected target model.
 - With the divisional delivery and infrastructure services managers, **monitor adherence to IS EA standards and guidelines** through appropriate architecture governance, policies and design rules.
 - Act as the **guardian of the IT strategy**, providing EA input and developing and enhancing this as required in conjunction with the other members of the senior management team.
 - **Ensure that the IT strategy is aligned to the business strategy** by developing appropriate relationships with assigned business stakeholders (via Divisional Delivery teams)
 - Introduction of **best practice in solution definition and development** procedures, processes and working practices through the deployment of best practices and standards to raise the maturity level of the department.
 - Provide **input to strategic IS investment decisions** through technical input to business cases and provision of TCO (Total Cost of Ownership) information
 - Proactively **demonstrate appropriate innovation** (both technical and process) opportunities to the business.
 - Together with the senior management team, undertake **a structured and methodological approach to IT based risk across the department**.
 - Ensure that all project based works are completed on time every time and to budget.”

IBM's *Chief Enterprise Architect* (for US DoD) - extract

- ▶ Leads and directs large teams with diverse functional and technical disciplines
- ▶ **Works directly with senior executives** of the enterprise
- ▶ Coordinates resolution of highly complex problems and tasks, **selling new ideas and concepts** in support of operational goals and objectives.
- ▶ Provides technical and analytical guidance to enterprise architecture team.
- ▶ Integrates and translates complex concepts into tactical action plans.
- ▶ **Directs high-level enterprise architecture** analysis, evaluation, design, integration, documentation, and development.
- ▶ Has a **deep understanding of DoD business** transformation and processes,
- ▶ Possesses extensive knowledge of the DoDAF
- ▶ has had hands-on experience with the Business Enterprise Architecture

**Enterprise architects set principles,
standards and directions**

Enterprise architect role – a generalisation

- title often used by enterprises for the manager or member of a central EA function.
- is strategic: addresses cross-organisational concerns and goals
- treats a whole enterprise as a system, the highest, widest, longest term kind of architecture
- responsible for optimisation (often by integration or standardisation) of the enterprise system estate
- responsible for the quality and completeness of strategic road maps
- maintains enterprise architecture collateral in enough detail to enable impact analysis
- must understand the enterprise system estate
- must engage with senior executives and their strategies.
- is responsible for enterprise integrity and quality
- guides solution architects on cross-organisational standardisation and integration opportunities.
- may commission and govern solution architects working on discrete system developments.
- acts as a governor to ensure solution architects comply with any relevant overarching EA.

Enterprise architect role – a more detailed generalisation

- Often works for an enterprise, is a manager or member of a central EA function, superintends work done by service providers.
 - Optimises the enterprise systems by integration or standardisation.
 - Aims for enterprise-wide integrity and quality.
 - Responsible for the quality and completeness of strategic road maps.
 - May specialise in one architecture domain.
 - Looks to increase business agility and technical agility.
- ▶ **Leadership and governance**
- Engages with senior executives and their strategies.
 - Acts as highest-level design authority.
 - May lead architects in a programme, and guide them on standardisation and integration opportunities.
 - May assign other architects to work on discrete developments.
 - Defines general principles, standards, and reusable components.
 - Governs that solution architects comply with relevant overarching EA.
- ▶ **Planning level and time frame**
- Considers the whole enterprise as a system.
 - Sets out strategic cross-organisational road maps
 - Addresses the politics of cross-organisational concerns and goals, setting strategic and cross-organisational directions.
 - Governs diverse programmes over the long term.
- ▶ **Design and documentation**
- Designs and documents the enterprise system estate (aka landscape) and reference models.
 - Works at the highest level with coarse-grained and logical outlines
 - Documents the architecture of the enterprise enough to enable impact analysis.

- ▶ Governance of the business systems portfolio, meaning:
 - the business processes,
 - the business data they create and use,
 - the systems that support them.
 - the functional and non-functional qualities of those systems.
 - enterprise-wide optimisation of those business systems.

- ▶ Principles, standards, patterns and high-level designs that
 - enable cross-organisational systemisation of a business,
 - encourage integration and reuse
 - align the four primary architecture domains
 - define a strategic context for business system changes.

Solution Architects

Extracts from research into real architect role definitions, for the BCS professional certificates

The role of a Solution Architect in short

- ▶ Has a sponsor
 - has problems and requirements, and
 - needs systems to support business processes.

- ▶ A Solution Architect
 - plays a leading role
 - shapes and directs solution development
 - before implementation projects start, and then during them.

- ▶ May double as a project-level software or technical lead, but usually
 - starts earlier and
 - stays higher.

▶ SA at Level 6

- Leads the development of architectures for complex systems, ensuring consistency with specified requirements agreed with both external, and internal customers.
- Takes full responsibility for the balance between functional, service quality and systems management requirements within a significant area of the organisation.
- Establishes policy and strategy for the selection of systems architecture components, and co-ordinates design activities, promoting the discipline to ensure consistency.
- Ensures that appropriate standards (corporate, industry, national and international) are adhered to.
- Within a business change programme, manages the target design, policies and standards, working proactively to maintain a stable, viable architecture
- Ensures consistency of design across projects within the programme.

▶ SA at Level 5

- Uses appropriate tools, including logical models of components and interfaces, to contribute to the development of systems architectures in specific business or functional areas.
- Produces detailed component specifications and translates these into detailed designs for implementation using selected products.
- Within a business change programme, assists in the preparation of technical plans and cooperates with business assurance and project staff to ensure that appropriate technical resources are made available.
- Provides advice on technical aspects of system development and integration (including requests for changes, deviations from specifications, etc
- Ensures that relevant technical strategies, policies, standards and practices are applied.

Real Solution Architect role definition

The role

As an ambitious and talented Solution Architect you will validate and produce a variety of end-to-end Solutions that align and integrate with the Universities technical landscape and IT strategy to add value to this transforming organisation.

- ▶ You will work closely with the Head of Architecture to help mature and develop the architecture practice including implementing best practice, standards, documentation and relevant frameworks.
You will assist project managers and business analysts in the design and planning of projects providing expert advice to help identify the most appropriate solutions available.
- ▶ As an enthusiastic problem solver with a passion for technology you will be a key influencer on the technology chosen to be implemented into the University in the future.

Your profile

- ▶ Proven experience of providing solution architecture, across multiple platforms within an enterprise technical environment is essential
- ▶ Experience of building architecture strategy and best practise is highly desirable
- ▶ A knowledge and appreciation of architecture standards such as TOGAF would be advantageous
- ▶ Demonstrable experience of understanding and interpreting business processes with the ability to create 'fit for purpose' technology solutions
- ▶ A broad knowledge of technology is required ideally with experience of virtualised environments
- ▶ A demonstrable track record of influencing and negotiating with key stakeholders at various levels across organisational boundaries
- ▶ Ability to problem solve and have a keen interest in emerging technology and trends
- ▶

Communication

- ▶ It is essential that you are able to communicate ideas clearly and persuasively, and can present compelling arguments both written and oral
- ▶ You will have experience in building good relationships at all levels across stakeholder groups and partner organisations
- ▶ You will be able to work effectively in cross-functional teams with both business and technical stakeholders

Director – *Technical Architect*: London £70 to £90K 2015

- ▶ The ideal candidate for the **Enterprise Architect** will have:
 - experience working through **end-to-end project life cycles** on high level projects
 - with **complex process and data requirements**.
 - some experience in **system and component design** on large scale projects,
 - recent knowledge of **Unified Modelling Language (UML)** and
 - architecture **modelling tools** such as EA Sparx.
- ▶ Candidates with experience in the following areas would be considered at an advantage:
 - Certification in and implementation of **frameworks** such as **TOGAF, ZACHMAN** or equivalents
 - Production of **Risks, Assumptions, Issues and Dependencies** registers
 - Manage **architectural risk** for duration of a project's lifecycle
 - Knowledge of **Modelling languages** and **Software** including **ArchiMate** and **Troux**
 - Recent knowledge of **SOA solutions**, ideally **Oracle** but would be open to **MS** or **IBM**
- ▶ Personal Specification
 - The best candidates will come from an IT environment within a major corporate or government organisation.
 - They should have experience using their strong **risk management skills** throughout a **projects lifecycle** to **manage architectural risk with multiple solution service providers**.
 - Applicants should have experience **managing and engaging with internal and external senior stakeholders** and **be able to show a solid understanding of the Financial Services Industry**
 - as well as show familiarity with **methodologies, modelling languages** and **SOA patterns**.

IBM's *Lead Enterprise Architect* - extract

- ▶ Responsible for all aspects of the development and maintenance of assigned enterprise architecture **project**...
- ▶ Interfaces with all areas affected by the **project**...
- ▶ Defines **project** scope and objectives and develops detailed work plans,
- ▶ Conducts meetings and is responsible for **project** tracking and analysis.

- ▶ **Leads** a group of engineers, architects, and analysts...
- ▶ Provides technical and analytical **guidance** to enterprise architecture team.
- ▶ Directs and participates in **high-level** enterprise architecture analysis..
- ▶ Applies **high-level** business and technical **principles and methods**...
- ▶ Recommends and acts to **direct** the analysis and solutions of problems.
- ▶ Has a **deep understanding of DoD business** transformation and processes,
- ▶ Possesses extensive knowledge of and hands-on experience with the DoDAF, the Business Enterprise Architecture...
- ▶ **Lead** the development of the BEA and updates to the BEA Development Methodology and Architecture Planning Guide.

- ▶ “I'm currently working as a **Solution Architect**
 - on a large project that has
 - an Enterprise Architecture roadmap - within
 - the framework of a Design Authority.
- ▶ My experience over the last year suggests that
 - **Solution Architects do need to engage with the Data and Application domains; not [in] detail, but at an appropriate level...**
- ▶ I am currently working in the Business Architecture domain [so] need to understand how
 - business processes and business services influence
 - the Logical Data Model and the Process/Data Usage of that model.
- ▶ To a lesser extent, I also need to understand
 - how the same business processes and business services map to
 - the coarse grained software services defined in the Application Model.
- ▶ **Feedback between Architects charged with defining Business, Data, and Application architecture is essential.. at the coarse-grained level.”**

Henry Slennett, Avancier Architecture Discussion

- title often used by systems integrators in the bid phase, and sometimes the delivery phase.
- relatively tactical: addresses specific problems and requirements
- focuses on selected business processes and applications.
- shapes and describes a solution, usually at a project level
- responsible for the quality and completeness of a solution outline or high-level design.
- describes architecture at a level sufficient for detailed design and building to proceed
- must understand all facets of design well enough to form a coherent solution architecture
- must partnership with and coordinate lead business analysts, software architects and others
- is responsible for delivery quality: focuses on critical success factors, especially non-functional qualities.
- must identify and mitigate all manner of technical risks, with delivery time and cost in mind.
- governs solution delivery at a project level
- may or may not be asked to be heedful of any relevant overarching EA.

- Often works for a service provider in the bid and/or delivery phase.
- Shapes and steers a solution, usually at a project level.
- Aims for delivery quality: focused on critical success factors, esp. non-functional qualities.
- Responsible for the completeness of solution outlines and high-level designs.
- Understands all facets of system design well enough to join up a coherent solution architecture
- Shares responsibility for time and cost of solution delivery.

▶ **Leadership and governance**

- Joins up business analysts, software architects and technicians
- Submits solution architectures for approval to higher/other authorities.
- Joins lower-level technical specialists to each other and the overall architectural landscape.
- Identifies and mitigate technical risks, with delivery time and cost in mind.
- Adopts general principles, standards, and reusable components.
- Governs solution delivery, may be asked to heed relevant overarching EA.

▶ **Planning level and time frame**

- Considers selected business roles and processes.
- Relatively tactical: the migration path for a programme or project.
- Addresses specific problems and requirements, and shape and steer system changes with an eye on risks and costs.
- Shapes specific solutions over a shorter time frame.

▶ **Design and documentation**

- Designs and documents solutions to specific business problems.
- Works at a middle level, elaborates from the abstract to the concrete, selects physical components.
- Describes the architecture of a system that is the outcome of one endeavour, at a level sufficient for detailed design and building to proceed.

About “Technical Architects”

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“Technical Architects” in the roles surveyed

A catch-all covering many different technical domains/specialisms

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|------------------------------------|----------|----------|
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| Application(s) Architect | 19 | 53 |
| Security Architect | 16 | 21 |
| Java Architect | 16 | |
| Software Architect | 14 | |
| Functional Architect | 9 | |
| IT Architect | 6 | 37 |
| Product Architect | 4 | |
| Oracle Architect | 4 | |
| SAP Architect | 4 | 70 |
| Business Architect (1) Analyst (2) | 3 | 27 |
| Technology Architect | 2 | |
| Environment Architect | 2 | |
| Process Architect | 1 | |
| Development Architect | 1 | |

- ▶ Domain specialists: Client or server hardware, virtualisation, Storage, Networks, IBM, CISCO, MS Exchange, etc.

Aims may include

- ▶ Ensure solutions meet non-functional requirements
- ▶ Ensure built systems are deployable and manageable
- ▶ Ensure infrastructure technologies are used properly and economically

Responsibilities may include

- ▶ Define solution platforms in sufficient detail for engineers
- ▶ Guide engineers in how to configure and deploy technologies
- ▶ Keep up to date and advise on the use of infrastructure technologies
- ▶ Fight fires related to technology use
- ▶ Compliance with higher level architecture collateral

▶ Aims may include

- Ensure solutions meets requirements
- Ensure built systems are testable, deployable and maintainable

▶ Responsibilities may include

- Define a solution-to-build in sufficient detail for a development team
- Guide a team to develop software in a consistent and maintainable manner
- Software layering and componentisation
- Standards for state management, transaction management, authentication and authorisation, error handling & logging, etc.
- Software architecture description (component, class & interaction diagrams)
- Software deployment (deployment diagrams)
- Compliance with higher level architecture collateral

Architect Role Definitions

In TOGAF 9.1

TOGAF uses these names for architecture at different levels

► Here

- “Strategic architecture” = 1st level **enterprise architecture**
- “Segment architecture” = 2nd level **enterprise architecture**
- “Capability architecture” = **solution architecture or technical architecture**

| | |
|--------------------------------|---|
| Strategic Architecture | A summary formal description of the enterprise , providing an organizing framework for operational and change activity, and an executive-level, long-term view ... |
| Segment Architecture | A detailed, formal description of areas within an enterprise , used at the program or portfolio level to organize and align change activity. |
| Capability Architecture | A highly detailed description of the architectural approach to realize a particular solution or solution aspect ... |

Confusingly, TOGAF also uses these role names

► Here

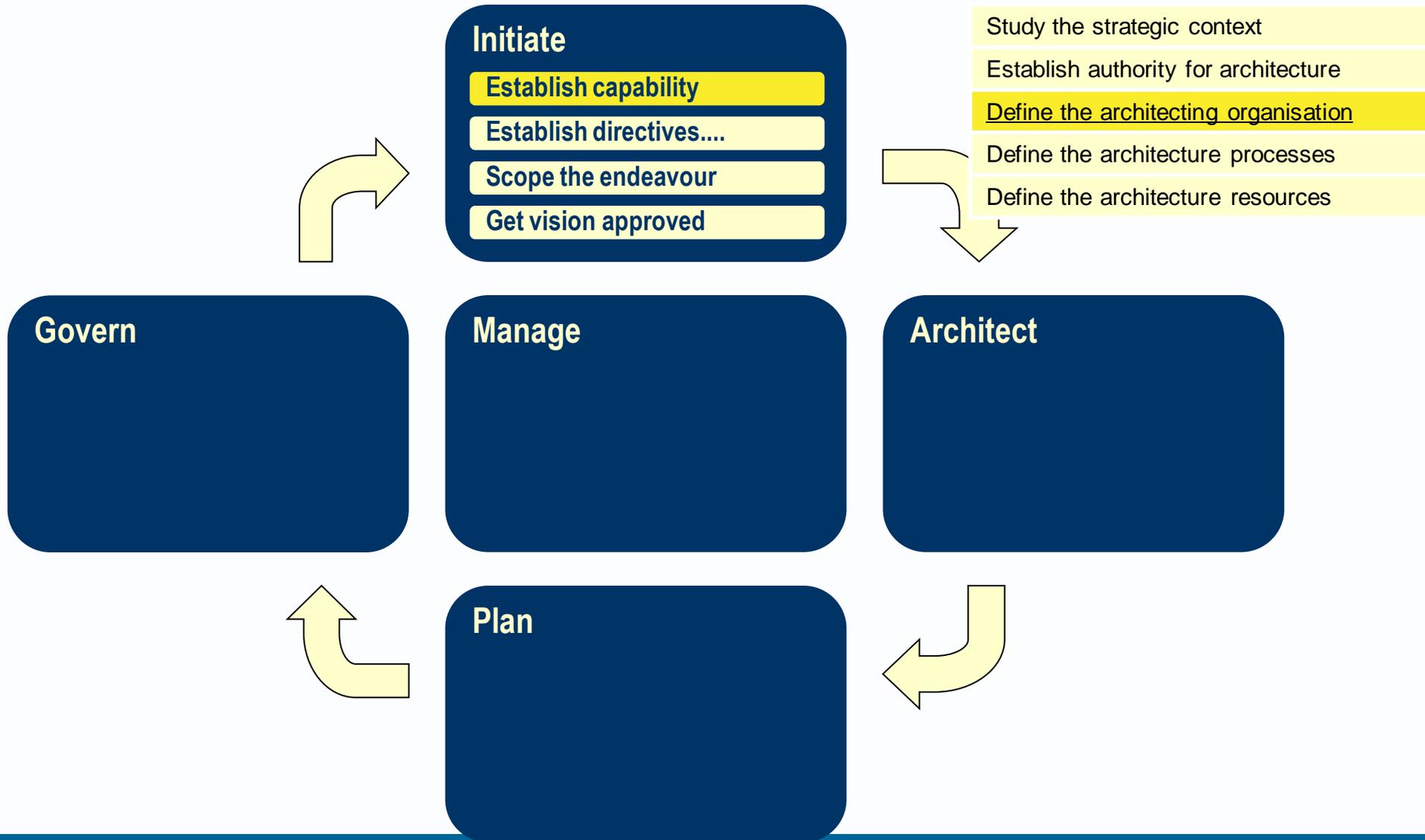
- “Segment architect” = **enterprise or solution architect**
- “Solution architect” = **technical and/or software architect**

| | |
|-----------------------------|--|
| Enterprise Architect | architectural design & documentation at <u>landscape and reference model level</u> often <u>leads a group</u> of [lower] architects in a given programme focuses on <u>enterprise-level business functions</u> . |
| Segment Architect | architectural design and documentation of <u>specific business problems or organizations</u> . re-uses output from other architects, joining [lower] detailed technical solutions to the [higher] overall architectural landscape. focuses on enterprise-level business solutions in a domain such as finance, HR, sales, etc. |
| Solution Architect | architectural design and documentation at a <u>system or subsystem level</u> , such as management or security. may shield [higher] Architects from unnecessary details of systems, products, and technologies. focuses on system <u>technology solutions</u> ; for example, a component of a solution such as enterprise data warehousing. |

Architect Role Definitions

In Avancier Methods

Role definition in Avancier Methods



▶ Aims

- Ensure a programme/project meets business/IT aims and supports business functions.
- Identify and reduce technical risks and complexity in a programme/project.
- Ensure a system meets its NFRs, is performant, scalable, secure, flexible, etc.
- Support project managers with scoping, estimation, resourcing and integration.
- Support Enterprise Architects and help to realise EA road maps.
- Ensure the initial phase of any software development project is completed properly.

▶ Responsibilities

- **Initiation:** Studies strategic business, IT and EA context. Develops (or reviews) solution vision.
- **Architecting:** In the strategic context, develops a solution outline for a programme or project.
 - Takes a business scenario-driven approach to define data, application and infrastructure components.
 - Addresses non-functional requirements and mitigates technical risks.
 - Balances stakeholder needs with the higher level goals, principles and standards.
- **Planning:** Can assist in supplier selection. Prepares a migration path to inform planning. Supports programme and project planning.
- **Governance:** Provides technical leadership for a programme or project. Coaches and supports designers. Provides quality assurance and architecture governance.

Aims

- Better business-IT alignment, partly through improved visibility of the enterprise's estate and better change impact analysis.
- Improved planning: support for business and IT strategies; strategic and cross-organisational road maps for change.
- Improved integrity and efficiency: joining up the enterprise by integrating data and processes.
- Lower costs from de-duplication of business systems and technologies.
- Greater agility through standardisation of business processes, applications and technologies.

Responsibilities

- Establishment of architect roles, processes and resources.
- Definition of baseline and target operating models and maturity levels.
- Definition of business taxonomies, Enterprise Architecture landscape, principles, policies, standards and other EA collateral.
- Application portfolio road maps: master data management, application consolidation and integration, package selection and integration.
- Technology portfolio road maps: technology consolidation, replacement and outsourcing.
- Planning: migration paths and other support for programme and project planning.
- Governance: compliance with regulations and EA collateral.

Assigning processes and products to the work space – an example for you to extend or modify

| Business view | Information/Data view | Applications view | Infrastructure/Platform view |
|---|---|--|---|
| <p>Enterprise/Business</p> <p>Standardisation & integration of business roles & processes Business function/capability hierarchy Business products & services catalogue Business processes and roles Etc.</p> | <p>Enterprise/Data</p> <p>Data standardisation & integration Data store & data flow catalogues Maps data to business functions Business data model & views of it Canonical data model(s) Core business data entity life cycles. Etc.</p> | <p>Enterprise/Apps</p> <p>Business app standardisation & integration Business app portfolio/catalogue Maps business apps to business functions Business app life cycles and road maps Etc.</p> | <p>Enterprise/Platform</p> <p>Platform standardisation & integration Platform technology portfolio/catalogue Platform services portfolio/catalogue (TRM) Platform technology life cycles and road maps Etc.</p> |
| <p>Solution/Business</p> <p>For a required system/solution: Business services Business processes and roles Mappings to goals & locations Requirements catalogues Use case diagrams and definitions Outline UI (or other I/O) designs Etc.</p> | <p>Solution/Data</p> <p>For a required system/solution: Maps data to processes and roles Logical data models CIA requirements Data qualities/meta data Etc.</p> | <p>Solution/Apps</p> <p>For a required system/solution: Maps use cases to processes and roles Maps business apps to use cases Design for NFRs Coarse-grained app components Coarse-grained sequence diagrams Etc.</p> | <p>Solution/Platform</p> <p>For a required system/solution: Maps platform to business apps Platform technology definitions Client & server node definitions Design for NFRs Outline deployment diagrams Outline network diagrams Etc.</p> |
| <p>Software/Business</p> <p>Detailed use case definitions Detailed UI designs Governs UI implementation Etc.</p> | <p>Software/Data</p> <p>Detailed database design Detailed message design Governs database administration Etc.</p> | <p>Software/Apps</p> <p>Detailed (fine-grained) software design Governs software development Etc.</p> | <p>Software/Platform</p> <p>Detailed deployment diagrams Detailed network diagrams. Governs platform and network configuration Etc.</p> |