

Enterprise Architecture Process

“Nothing is permanent except change.” Heraclitus (ca. 535–475 BC)

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The Issues

Decision makers around the world have come to understand that the information systems of a company or public administration can no longer be seen simply as a cost center but rather as a strategic investment. Therefore the IT architecture, which links the gap between enterprise strategy and information technology choices, has become a business necessity, for the following major reasons:

- Customers and/or constituents – New information technologies are enabling the creation of new electronic channels to reach out to customers and new services to meet their needs
- Effectiveness – The IT department must enable and improve the business allowing the required flexibility
- Cost - Organizations need a cost effective IT department that gets the most out of the investment in information technology
- Change - With globalization, the pace of economic, technological and social change has accelerated. Competitiveness and effectiveness increasingly depends on the capacity to ensure the rapid and coherent evolution of information systems

Key Recommendations

- Enterprise Architecture is a process and must be business driven to succeed
- Enterprise Architecture must be flexible and adapt to changes
- Regular communication between IT and business must be implemented in order to ensure that the architecture is aligned with the strategic direction of the business
- Architecture needs governance to be of value, particularly when the business tries to dictate tactical decisions which do not conform to the architecture and have negative medium or long term ramifications

Enterprise Architecture Process

Today, IT architecture must take into account not just the technical issues of systems, data bases and networks but also business issues such as profitable relationships with customers, rapid creation of products as well as easy access to information within the context of secure information systems.

An effective architecture process ensures that business and IT teams share a common vision of the information system and of the value it can bring to the business. It addresses three fundamental issues: what is central to the business, what is practical for the business and what can change in the business.

The architecture process enables the enterprise to manage these key issues on a continuous basis and provides the business with a cost-justified and effective IT systems environment.

Organizational Benefits of Enterprise Architecture

The implementation and the governance of an Enterprise Architecture Process will:

- Enable cost effectiveness
 - Common infrastructure
 - Reduction in number of vendors
 - Shared components which are reusable
 - Economies of scale in procurement
- Enable change & on-going development
 - Easy integration of new products, services or delivery channels
 - Enable new technologies which have business value
- Support the business
 - Technology aligned to the business
 - Secure and reliable systems based on business requirements

Risks of ignoring Enterprise Architecture

Without an Enterprise Architecture Process organizations may face some or all of the following issues:

- The overall information systems landscape is a "spaghetti" architecture with many isolated islands with poor interconnection
- There is no common vision of the information system generating misunderstandings and conflicts
- Integration and communications between the applications and/or services are a major challenge
- Data is not shared and data consistency is not guaranteed
- Implementing new applications and / or services is difficult and time consuming; rarely can existing functionality be reused
- More competencies and resources are required to support application and infrastructure portfolios which have evolved through tactical business needs rather than through a strategic design
- Costs cannot easily be contained due to complexity and this drives up the total cost of ownership of the organization's IS portfolio
- IT budgets can not be correctly managed and optimized (e.g.: different systems or projects address similar issues with overlaps)

Enterprise Architecture Process

The Enterprise Architecture Process

The initiation of the Enterprise Architecture Process must be a top down approach, from the business to the technology. Starting with technology debates is unlikely to produce an enterprise architecture which is aligned with the business.

The following are the key phases of the enterprise architecture process:

- Business assessment
- Validation of the business drivers
- Definition of the required information and functional requirements
- Definition of the required conceptual architecture
- Definition of the required target applications architecture
- Definition of the required target infrastructure architecture
- Current application and infrastructure assessment
- Gap analysis
- Migration and implementation planning

The definition of the architecture will potentially spawn many implementation projects. The management of these implementation projects is not under the direct responsibility of the architecture process.

Strong governance must be implemented to ensure the architecture process works.

Enterprise Architecture Process

The following Figure describes the architecture process including the phase interactions and iterations. The subsections following the Figure outline each of these.

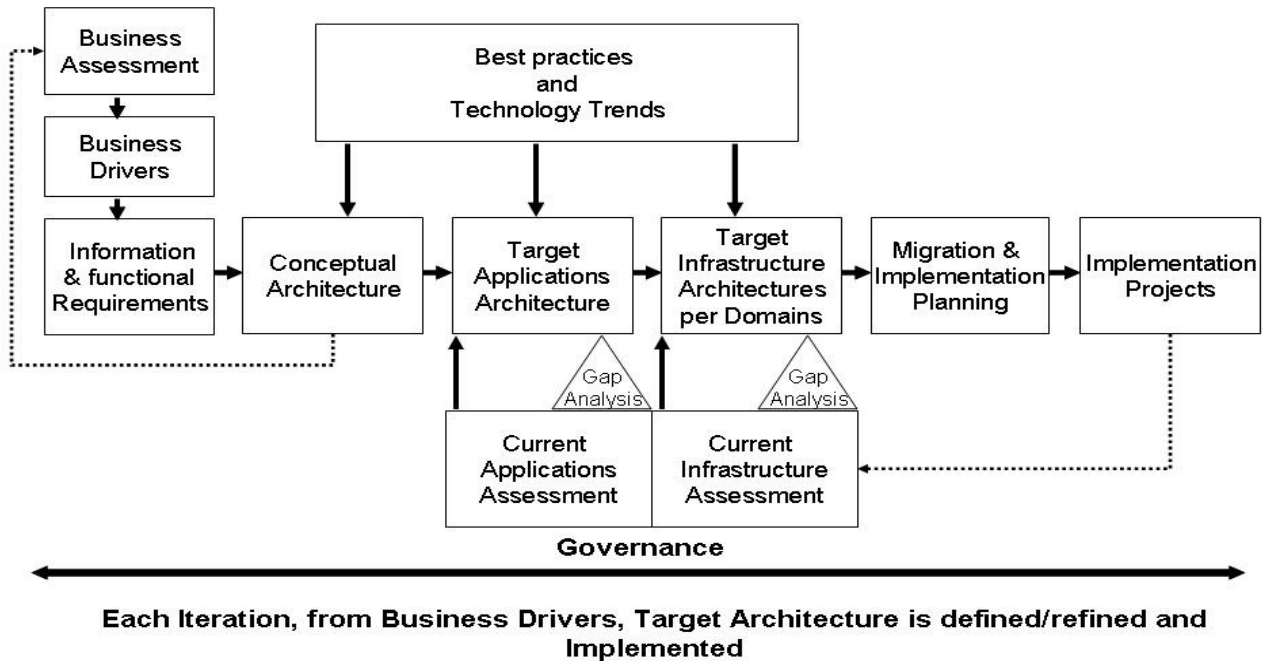


Figure 1: The Enterprise Architecture Process

Business Assessment

The role of the business assessment is to identify the business trends and positioning of the company. The following should be considered:

- Understanding of the Environmental Trends
 - Market
 - Competition
 - Technology
 - Macro economic
- Identifying Operational Issues
 - Processes
 - Quality
 - People

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Business Drivers

The business drivers are the key issues that the organization must focus on to be successful in the context of the business environment within which it is operating. For the definition of the business drivers the enterprise must:

- Think business dynamics within a comprehensive context
- Recast the most important trends in business strategic language

The business assessment and drivers underpin the enterprise architecture process since the enterprise architecture must align to and support the business strategy and drivers.

Information and Functional Requirements

Key questions which must be answered as part of this phase include:

- What information or function is required?
- What is the value of the information?
- Who needs the information?
- Who fulfills the function?
- When do they need the information?
- How often do they need the information?
- Where does the information come from?
- Where is the information located?

The information and functional requirements are used as input for defining the conceptual architecture.

Conceptual Architecture

The conceptual architecture is a set of principles that:

- Guides the enterprise's engineering efforts
- Gives a clear statement of the of the "strategic doctrine" to be adhered to when questions emerge about the management of the information

Here are examples of principles:

- Provide a unified view of customer
- Reduce integration complexity

Each principle is described with its statement, rationale and implications and this guides the target architecture.

Target Applications Architecture

The target applications architecture contains:

- The objectives which are derived from the conceptual architecture

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- A diagram of the target architecture of the applications allowing a better view of the domain strategy
- The functional design principles that will drive logical consistency with business requirements
- The technical design principles that will drive consistency with underlying infrastructure domains
- The applications portfolio, which is required to satisfy business needs
- Standards that apply to the applications portfolio

Target Infrastructure Architectures

The Infrastructure Domains

The infrastructure architectures contain multiple domains addressing the whole IT infrastructure and the appropriate services. The objectives for the infrastructure architecture are derived from the Conceptual Architecture.

The Figure below describes at a high level the infrastructure domains that support the applications. It contains horizontal domains that are the layer or the infrastructure and transversal domains (note the transversal domains can be addressed separately in other projects, e.g. IT Strategy, Sourcing) but their interactions with the architecture process must be considered.

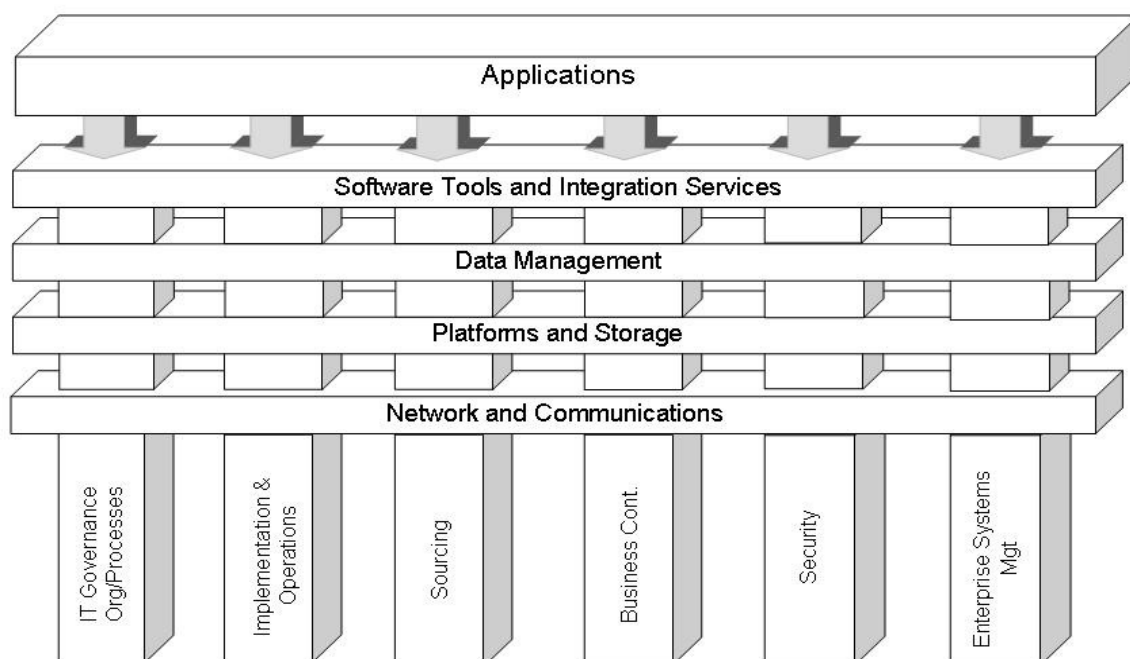


Figure 2: The Infrastructure Domains

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Developing an Infrastructure Domain Architecture

An Infrastructure Domain Architecture must define:

- The objectives which are derived from the conceptual architecture
- The target architecture of the domain containing a diagrammatical view of the domain
- The design principles driving logical consistency with other domains
- The technology categories, whose usage is governed by the domain
- The standards applying to the technology categories selected
- The products satisfying requirements and complying with conceptual domain design principles
- The standard configuration options for products

Current Architecture Assessment

While starting the target architecture development the current architecture and infrastructure must be assessed in order to prepare the gap analysis and the migration planning. A SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis is an appropriate tool for this assessment.

Gap Analysis

During this phase a comparison of the desired target architecture against the current architecture assessment is carried out. Typical steps include:

- Itemize the gap between current and target architecture
- Identify what is required to support the business processes
- Unify applications, information, organization and infrastructure
- Determine if, how, and when to fill gaps
- Determine which information system and infrastructure elements are obsolete and need to be replaced in order to support the business drivers
- Analyze information system and infrastructure elements which needs to be procured

Migration and Implementation Planning

During this phase the following steps are carried out:

- Define the effort required to get to the target architecture as well as a realistic timeframe
- Define the needs and priorities
 - Which domains of the architecture should be implemented first?
 - Which domains of the architecture are necessary for multiple projects?
 - What is the implementation plan for the next one, two, and three years?
- Identify the implementation projects and their independencies

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Enterprise Architecture Governance

As the Enterprise Architecture is an iterative process, strong governance must be implemented. This includes:

- The implementation of a Governance Structure with:
 - A steering committee
 - An architecture review board
 - The involvement of the program management office
 - An architecture team with a chief architect who will drive the architecture process
 - Architecture domain teams
- The definition of the governance roles and responsibilities
- Dispute resolution and escalation processes

The Figure below describes a suggested governance structure with the roles and responsibilities.

Structure	Responsibility	Composition
IT Steering Committee	Prioritizing efforts in relation with Business Drivers, reaching a common vision between business and IT	Senior Management, IT and LOBs Managers, Chief Architect
Architecture Review Board	Reviewing and improving the Target Architecture	IT and LoBs Managers, Chief Architect
Program Management Office	Tracking budgets, resources, and interdependencies between all projects	PMO
Architecture Team	Driving architecture process, completing documentation, assisting projects, providing consultancy	Architecture team
Domain Teams	Collaborating with the architecture team on the domain target architectures, responsible for the implementation	Representatives of project teams, system teams, infrastructure, operation and architecture team

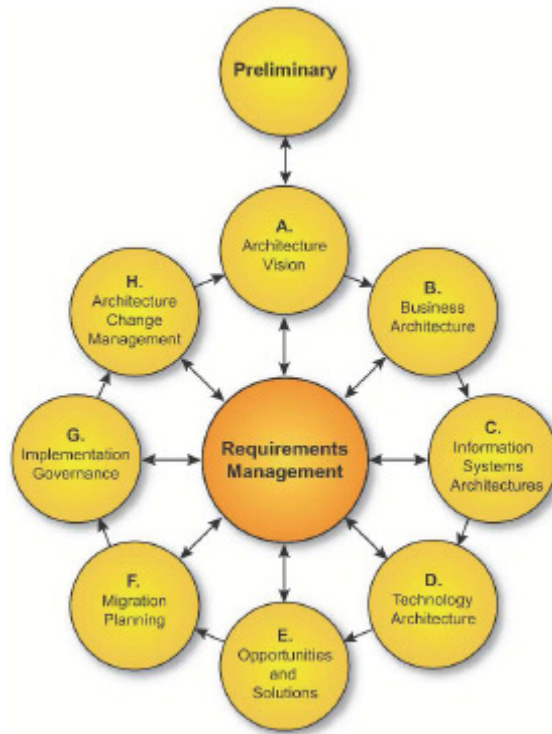
Figure 3: Governance Structure

While architecture governance may be seen as an overhead it will bring many valuable benefits, particularly when the business wishes to make tactical procurement decisions which conflict with the architecture and will have negative medium or long term impacts.

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Alternatives

The suggested process is based on **OPTIMIZE** methodology and experience but other approaches are similar and have been used by **OPTIMIZE** in the past. These approaches are developed with the same philosophy and a similar content. For instance The Open Group Architecture Framework (TOGAF V9) alternative approach is similar. The figure below describes the Architecture Development Method (ADM) suggested by TOGAF.



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Figure 4: The Architecture Development Model from TOGAF.

Enterprise Architecture Process

In Brief

The Enterprise Architecture Process:

- Controls costs
- Enables technology to effectively meet and adapt to business
- Anticipates business and technology trends
- Provides an adaptive infrastructure to facilitate dynamic business changes

The Enterprise Architecture Process must start with a top-down approach, from the business to the technology. This is an ongoing process and not a project. The architecture effort after the first iteration is not an end but is a constant process which must be refreshed on a continual basis. The Enterprise Architecture Process can only succeed with strong governance and good communications between business and IT.