Enterprise Architecture:
Concept and Practice
Our world is made up of complex systems.
To extract their full potential, you have to understand how they work in all their dimensions.
How could your company work? How could the world work?

At IBM, we’ve always thought this way—from enabling U.S. Social Security in the 1930s, to the moon missions of the 1960s, to the modern global banking system. Today, we’re seeing more opportunities for innovation than ever before—and new approaches to innovation itself.
Many long-established institutions and forms of work are being reshaped in fundamental ways. Not least among them:

the enterprise.
Your company is a system, too.
The question facing any organization or society – whether the future it constructs is grounded in something that fades with time, or in values that will endure.
Topics

- What is enterprise architecture?
- What are the needs for enterprise architecture?
- Enterprise architecture best practices @ IBM
What is enterprise architecture?

- Smart companies strive to simultaneously combine business management excellence with IT best practices.

- Enterprise Architecture is one of most important concept - a viable and imperative technology for all large companies to achieve that goal.

- To create any complex object, including an enterprise, you need properly describe it.

- Armed with an Enterprise Architecture (EA) for such a description, you will have a chance of being able to properly create or change it.
EA is defined as the planning function between strategy formulation and delivery.
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**Strategy**  
= “the city’s purpose & goals”

**Enterprise Architecture**  
= “the city plan”

**System Design**  
= “the buildings”
IBM’s Enterprise Architecture definition

**EA enables:**
- Viable solution architectures
- IT transformation
- Exploitation of technology
- The realisation of business and IT Strategies

**EA provides reference material** in many forms

**EA ensures the architecture is maintained and used**

**EA is not just passive or reactive, it is proactive**

“The EA discipline defines and maintains the architecture models, governance and transition initiatives needed to effectively co-ordinate semi-autonomous groups towards common business and/or IT goals.”

“Neutral phrasing”: EA works at many levels

EA can address the business and IT domains
The focus of Enterprise Architecture

- Business Architecture
- No Architecture
- Enterprise Architecture
- Technology Architecture
What are the needs for enterprise architecture?

- Enterprise Architecture (EA) has become a major focus area in medium and larger companies, as most, if not all, employees should know how their part in company processes influences the success of the organization.

- The need to build simple system structures so that everyone in the organization will see where they fit in and how their activities contribute to its success.

- The underlying structural forms and systems in the excellent companies are elegantly simple.
What are the needs for enterprise architecture?

- The need to support agile business model has triumphed over IT organizations ability to keep track of complexity of enterprise systems.

- As knowledge of the system wanes and new requirements appear, cost and risk of changes increase exponentially.

- Many older systems are often left outdated and slowly decreasing in business value – HUGE investments left to rot.
Challenges driving Enterprise Architecture

**Trends**
- Speed of technology change
- Volatility in demanded volume
- From Hardware to Services
- More personalization and customization

**Pressure**
- Shorter product lifecycles
- Faster convergence of technologies
- Customer relationships
- Profitability @ lower volumes

**Issue**
- Faster development
  - Productivity improvement
- Value chain disaggregation
  - Outsourcing
- Customer-value centric organization
- Realtime collaboration
  - Integrated value chain
The context of Enterprise Architecture

**Business Need**  ➔  **Systems Architecture**  ➔  **Technical Infrastructure**

- **Business value framework**
  - Vision
  - Case for action
  - Value disciplines

- **Unifying design/structure**
  - Applications
  - Data
  - Technology

- **Specific physical implementation**
  - Tools
  - Vendor products
  - Processes and procedures

**Principle #1**
Drive architectural decisions from business value

**Principle #2**
Isolate architecture from infrastructure
# The Zachman Enterprise Architecture Framework schema

<table>
<thead>
<tr>
<th>DATA</th>
<th>FUNCTION</th>
<th>NETWORK</th>
<th>PEOPLE</th>
<th>TIME</th>
<th>MOTIVATION</th>
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<tbody>
<tr>
<td>What</td>
<td>How</td>
<td>Where</td>
<td>Who</td>
<td>When</td>
<td>Why</td>
</tr>
</tbody>
</table>

**Objective/Scope:**
- Contextual
- Role Planner

**Enterprise Model**
- Conceptual
  - Role Owner
    - Conceptual Data/Object Model
    - Business Process Model
    - Business Logistics System
    - Work Flow Model
    - Master Schedule
    - Business Plan

**System Model**
- Logical
  - Role: Designer
    - Logical Data/Class Model
    - System Architecture Model
    - Distributed Systems Architecture
    - Human Interface Architecture
    - Processing Structure
    - Business Role Model

**Technology Model**
- Physical
  - Role: Builder
    - Physical Data/Class Model
    - Technology Design Model
    - Technology Architecture
    - Presentation Architecture
    - Control Structure
    - Rule Design

**Detailed Representations**
- Out of Context
  - Role: Programmer
    - Data Definitions
    - Program
    - Network Architecture
    - Security Architecture
    - Timing Definition
    - Rule Specification
Practice of Enterprise Architecture implementation

Enterprise Architecture

Architecture Artifacts
- Framework
- Models
- Components

Transition Plan
- Current Environment
- Gap Analysis
- Transition Initiatives

Governance
- Processes
- Roles
- Organization
Enterprise Architecture method schema

Strategic Intent

EA Governance

“Are we still moving the right direction?”

“Are we designing these systems the way we said we want them done?”

“Are our target architectures still right?”

EA Transition

“These are the projects we should do”

“Business as Usual” project prioritisation & planning

Strategic Delivery

Programmes & Projects

Enterprise Architecture

“These are our roadmaps”

“This is the way these systems should be designed”

Solution Outline

Macro Design

Micro Design

Build Cycle

Deployment

Functional

Operational

Enterprise Business Architecture

EA Governance

EA Transition

Strategic Intent

Solution Outline

Macro Design

Micro Design

Build Cycle

Deployment

Programmes & Projects

Strategic Delivery

“Are we designing these systems the way we said we want them done?”

“Are our target architectures still right?”

“These are our roadmaps”

“Business as Usual” project prioritisation & planning

“Are we still moving the right direction?”
Enterprise architecture best practices

We have identified a number of best practices, including the following:

- **Business driven**—EA methodologies and tools all start with business definitions, so ensure your EA program is totally business driven.

- **Business process expertise**—Integrate any business process management, modelling, and continuous improvement teams within your company.

- **Experienced team**—Build, motivate, and retain a respected EA team that can communicate effectively at all levels of business and IT, plus act as scribe with EA methodologies and tools.

- **Speak business language**—Try to avoid IT jargon.

- **IT governance**—Link to standard IT governance policies.

- **Highly practical**—EA has no place in an ivory tower. It must be pragmatic, not theoretical.
Enterprise Architecture lessons learned

• **Lesson 1:** The Big Picture is More Important than the Whole Story

• **Lesson 2:** Don’t Reinforce Functional Stovepipes by Mimicking the Legacy Functional Hierarchy - Organize the Enterprise Architecture by Value Chain and Supporting Cross-cutting Processes

• **Lesson 3:** Business Processes Based Architectures are the Key to Realizing Business Transformation and Alignment

• **Lesson 4:** Develop a Performance Based Enterprise Architecture

• **Lesson 5:** The Business Process and its Technology Enablers are One and the Same

• **Lesson 6:** The EA Must be Specific to the Enterprise and Resonate to its Particular Circumstances
IBM enables EA capabilities via skills transfer to the company’s own Enterprise Architects

- Mentor and facilitate the client’s professionals and managers to create their own EA
- Train these people to govern and sustain their EA
- Provide technical support and thought leadership to assist them throughout the EA creation process
- Possibly long term consulting to assist in sustaining and in the event of a major business event

"Give a man a fish and he will eat for a day. Teach a man to fish and he will eat for the rest of his life."
- Chinese Proverb
Feedback on Enterprise Architecture practice

Answering the question how EA helps your company, answers were:

- Supports decision making
- Manages IT portfolio
- Delivers road maps for change
- Makes complexity manageable
- Supports systems implementation or development
- Delivers insight and overview of business and IT
- Supports business and IT budget prioritization
- Supports in/out –sourcing