Enterprise Architecture

Problem
How to fully describe a project?

Difficulty
Work with an SME

1. An **Enterprise Architecture** (EA) shows project details, from business understanding to enterprise deployment.
2. An EA's artifacts includes models, documents, and specifications.
3. Example EAs include DoDAF (52 artifacts in 8 categories) the Zachman Framework (36 artifacts), and TOGAF.
4. Usually, only a subset of an EA's artifacts are created.

DoDAF (Department of Defense Architectural Framework) has 8 categories of elements:
1. All Viewpoint (AV)
2. Capability Viewpoint (CV)
3. Data and Information Viewpoint (DIV)
4. Operational Viewpoint (OV)
5. Project Viewpoint (PV)
6. Services Viewpoint (SvcV)
7. Standards Viewpoint (StdV)
8. Systems Viewpoint (SV)

- Project concept
- Subject matter experts

→ **Enterprise Architecture Process** →

Project details at all levels for all customers

1. Select an Enterprise Architecture
2. Decide on which elements in the EA to create
   - A minimal list of DoDAF artifacts could include
   - AV-1 : Overview and Summary Information
   - AV-2 : Integrated Dictionary
   - OV-1 : High Level Operational Concept Graphic – **most common**
   - OV-2 : Operational Node Connectivity Description
   - OV-3 : Operational Informational Exchange Matrix
   - OV-5 : Operational Activity Model
   - StdV-1 Standards Profile
   - SV-1 : System Interface Description
3. Create the artifacts and review with stakeholders

The **Zachman Framework** has (example instantiations shown below)
- **6 descriptive areas**: data, function, network, people, time, motivation
- **6 perspectives**: planner, owner, designer, builder, subcontractor, enterprise
- The 36 elements are arranged in a 6-by-6 grid

TOGAF (The Open Group Architecture Framework) uses 4 architecture domains: Applications, Business, Data, and Technical

Enterprise Architecture – Example – Phone App

- Consider creating a phone application
- Use the Zachman framework to show all needed artifacts.
- The 6 perspectives (rows) can be interpreted in several different ways; three are shown.
  - For example: “Objective /Scope” / “Contextual layer” / “Role: Planner”
- The cells in the 6-by-6 grid below contain only some of the items that would be in that cell.

6 perspectives – must be in this top down order

6 descriptive areas – can be in any order

		What	How	Where	Who	When	Why
		Data	*Function*	*Network*	*People*	*Time*	*Motivation*
(1)	**Objective/Scope** **Contextual layer** *Role: Planner*	**Business vision & goals**	**Business processes**	**Business locations**	**Departments involved**	**Future products road map**	**User needs. app business case**
(2)	**Enterprise model** **Conceptual layer** *Role: Owner*	**Short term goals**	**App financing, hiring, training**	**Project locations**	**Stakeholders buy-in plan**	**Product release timeline**	**App alignment with other offerings**
(3)	**System logic** **Logical layer** *Role: Designer, Architect, or General Manager*	**App look and feel**	**System architecture (e.g., support capabilities)**	**System connectivity**	**User interface design**	**Master schedule**	**App functionality**
(4)	**Technology model** **Physical model** *Role: Builder, General Contractor, or Local Manager*	**Platform description, wireframe model**	**App requirements**	**Technology architecture (e.g., component libraries)**	**Skill identification**	**Development milestones**	**Define function capabilities**
(5)	**Detailed representation** **Detailed model** *Role: Scientist, Engineer, Subcontractor, or Programmer*	**Interface definitions, database schema, code**	**App design**	**Communications architecture**	**Security design**	**Implementation model (e.g., scrum)**	**Motivate team to create sucessful product**
(6)	**Functioning result** **Enterprise release** *Role: End user*	**User data needs**	**Usage instructions**	**User locations (e.g., sales roll-out plan)**	**Market segmentation**	**App responsiveness**	**Motivation for end-users to obtain and use app**

Enterprise Architecture – Notes

Slide 1

1. An architecture framework is a capability for developing a range of different architectures. It should support multiple perspectives (for the different stakeholders), and provide a set of tools and a common vocabulary.
2. It is critical that the different stakeholders agree on the final creation.
3. When changes (e.g., organization's vision) occur, updating the architectural artifacts is facilitated by showing each artifact's context.

Slide 2

1. The initial Zachman framework was created by John Zachman in 1987.
2. The Zachman Framework concept is that the same thing/project can be described in different ways for different purposes and for different stakeholders.
3. The rows show different perspectives/views.
4. The rows are NOT a system decomposition, and do NOT just show increasing detail.
5. The Zachman Framework is an "ontology" or "schema" supporting the organization of architect artifacts (e.g., documents, models, and specification).
6. Rules for the 6-by-6 grid include
    A. Columns have no order
    B. A basic model of each column is unique
    C. Each row presents a distinct view
    D. Each cell is unique
    E. All the cells in one row is a complete description from that point of view