SCSP 3744
ENTERPRISE SYSTEM DESIGN AND MODELING

TOPIC 4:

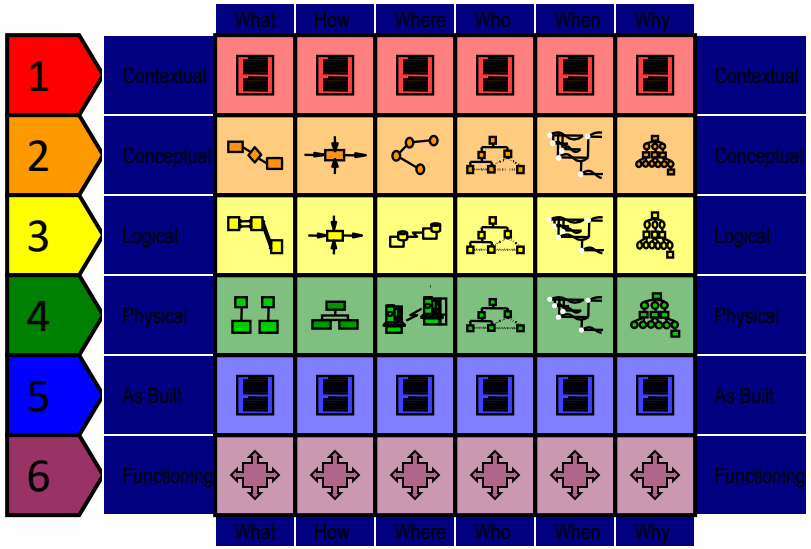
Zachman Framework for Enterprise Architecture

Zachman Framework

VA Enterprise Architecture	DATA *What*	FUNCTION *How*	NETWORK *Where*	PEOPLE *Who*	TIME *When*	MOTIVATION *Why*	Based on work by John A. Zachman
SCOPE (CONTEXTUAL) *Planner*	Things Important to the Business Entity = Class of Business Thing	Processes Performed Function = Class of Business Process	Business locations Node = Major Business Locations	Important Organizations People = Major Organizations	Events Significant to the Business Time = Major Business Event	Business Goals and Strategy Ends/Means = Major Business Goals	SCOPE (CONTEXTUAL) *Planner*
ENTERPRISE MODEL (CONCEPTUAL) *Owner*	Semantic Model Ent = Business Entity Rel = Business Relationship	Business Process Model Proc = Business Process I/O = Business Resources	Business Logistics System Node = Business Location Link = Business Linkage	Work Flow Model People = Organization Unit Work = Work Product	Master Schedule Time = Business Event Cycle = Business Cycle	Business Plan End = Business Objective Means = Business Strategy	ENTERPRISE MODEL (CONCEPTUAL) *Owner*
SYSTEM MODEL (LOGICAL) *Designer*	Logical Data Model Ent = Data Entity Rel = Data Relationship	Application Architecture Proc = Application Function I/O = User Views	Distributed System Architecture Node = IS Function Link = Line Characteristics	Human Interface Architecture People = Role Work = Deliverable	Processing Structure Time = System Event Cycle = Processing Cycle	Business Rule Model End = Structural Assertion Means = Action Assertion	SYSTEM MODEL (LOGICAL) *Designer*
TECHNOLOGY MODEL (PHYSICAL) *Builder*	Physical Data Model Ent = Segment/Table Rel = Pointer/Key	System Design Proc = Computer Function I/O = Data Elements/Sets	Technology Architecture Node = Hardware/Software Link = Line Specifications	Presentation Architecture People = User Work = Screen Format	Control Structure Time = Execute Cycle = Component Cycle	Rule Design End = Condition Means = Action	TECHNOLOGY MODEL (PHYSICAL) *Builder*
DETAILED REPRESENTATIONS (OUT-OF-CONTEXT) *Sub-Contractor*	Data Definition Ent = Field Rel = Address	Program Proc = Language Statement I/O = Control Block	Network Architecture Node = Addresses Link = Protocols	Security Architecture People = Identity Work = Job	Timing Definition Time = Interrupt Cycle = Machine Cycle	Rule Design End = Sub-Condition Means = Step	DETAILED REPRESENTATIONS (OUT-OF-CONTEXT) *Sub-Contractor*
FUNCTIONING ENTERPRISE	Data Ent = Rel =	Function Proc = I/O =	Network Node = Link =	Organization People = Work =	Schedule Time = Cycle =	Strategy End = Means =	FUNCTIONING ENTERPRISE
	DATA *What*	FUNCTION *How*	NETWORK *Where*	PEOPLE *Who*	TIME *When*	MOTIVATION *Why*	

Zachman Framework

- **Row 1 – Scope**
  - External Requirements and Drivers
  - Business Function Modeling
- **Row 2 – Enterprise Model**
  - Business Process Models
- **Row 3 – System Model**
  - Logical Models
  - Requirements Definition
- **Row 4 – Technology Model**
  - Physical Models
  - Solution Definition and Development
- **Row 5 – As Built**
  - As Built
  - Deployment
- **Row 6 – Functioning Enterprise**
  - Functioning Enterprise
  - Evaluation



Framework Rules

- ***Rule 1:***

  Columns have no order

- *Rule 2:*

  Each column has a simple, basic model

- *Rule 3:*

  Basic model of each column is unique

- *Rule 4:*

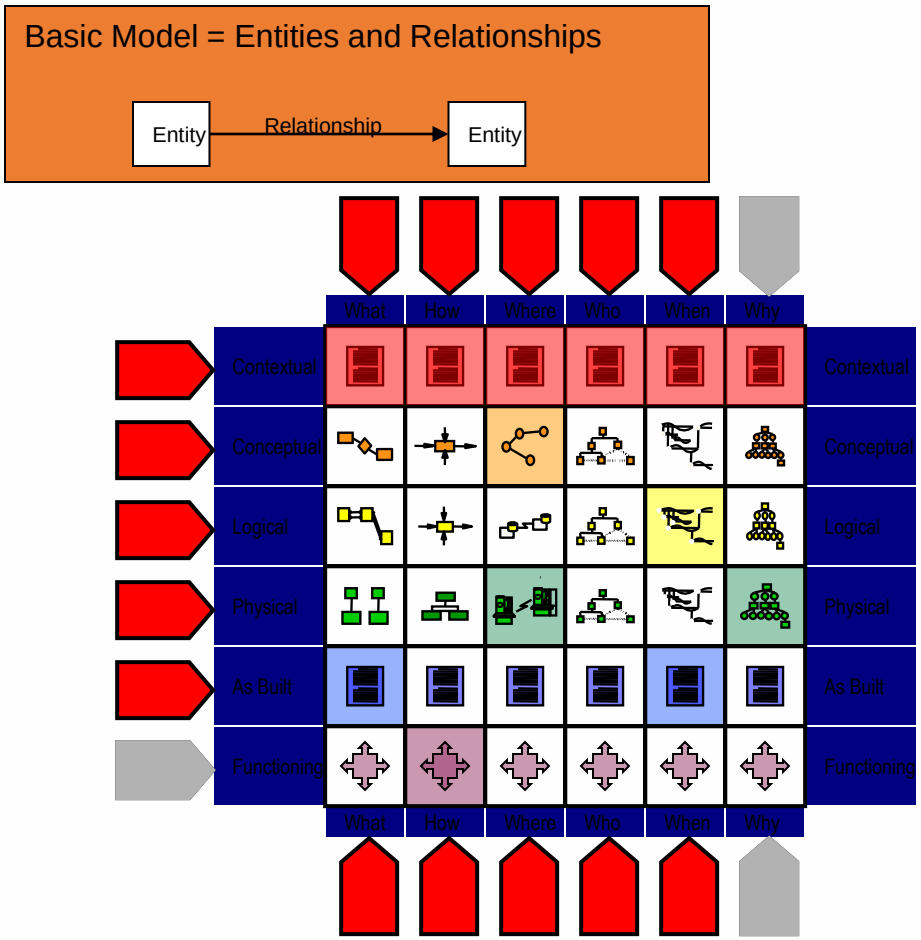
  Each row represents a distinct view

- *Rule 5:*

  Each cell is unique

- *Rule 6:*

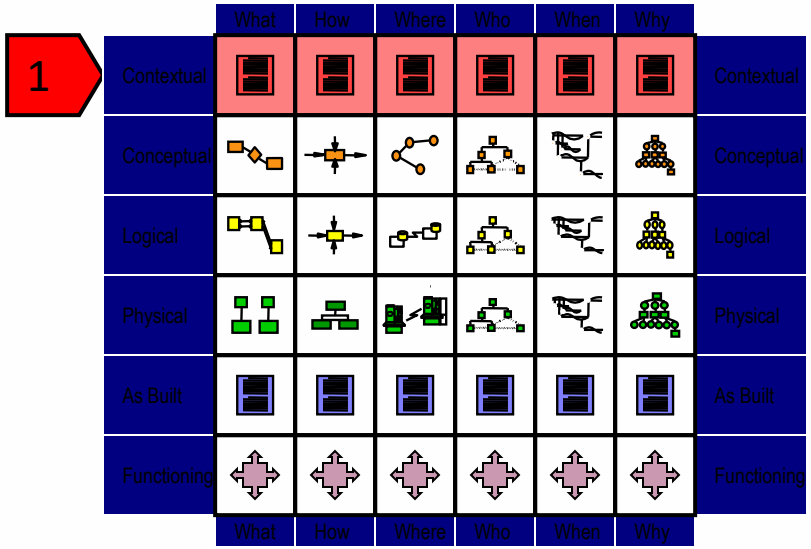
  Combining the cells in one row forms a complete description from that view



Zachman Framework – Row 1
Scope/Planner's View

- **Motivation/Why**
  Business goals, objectives and performance measures related to each function
- **Function/How**
  High-level business functions
- **Data/What**
  High-level data classes related to each function
- **People/Who**
  Stakeholders related to each function
- **Network/Where**
  VA locations related to each function
- **Time/When**
  Cycles and events related to each function

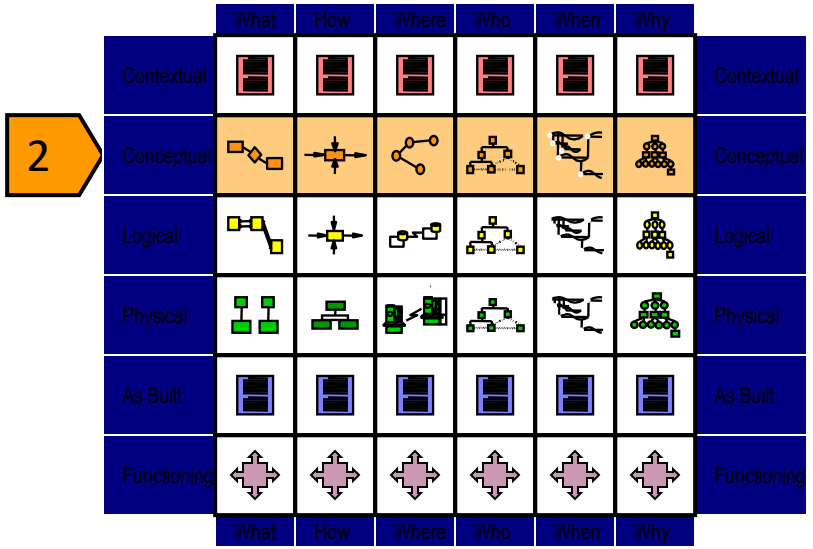
- **External Requirements and Drivers**
- **Business Function Modeling**



Zachman Framework – Row 2
Enterprise Model/Designer's View

- **Motivation/Why**
  Policies, procedures and standards for each process
- **Function/How**
  Business processes
- **Data/What**
  Business data
- **People/Who**
  VA roles and responsibilities in each process
- **Network/Where**
  VA locations related to each process
- **Time/When**
  Events for each process and sequencing of integration and process improvements

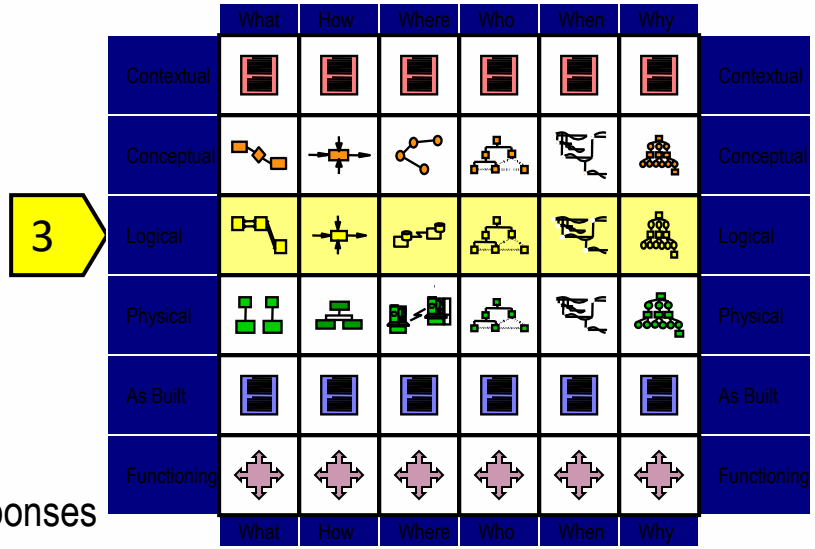
- **Business Process Models**
- **Business Function Allocation**
- **Elimination of Function Overlap and Ambiguity**



Zachman Framework – Row 3
System Model/Designer's View

- **Motivation/Why**
  VA policies, standards and procedures associated with a business rule model
- **Function/How**
  Logical representation of information systems and their relationships
- **Data/What**
  Logical data models of data and data relationships underlying VA information
- **People/Who**
  Logical representation of access privileges constrained by roles and responsibilities
- **Network/Where**
  Logical representation of the distributed system architecture for VA locations
- **Time/When**
  Logical events and their triggered responses constrained by business events and their responses

- **Logical Models**
- **Project Management**
- **Requirements Definition**



Zachman Framework – Row 4 Technology Model/Builder's View

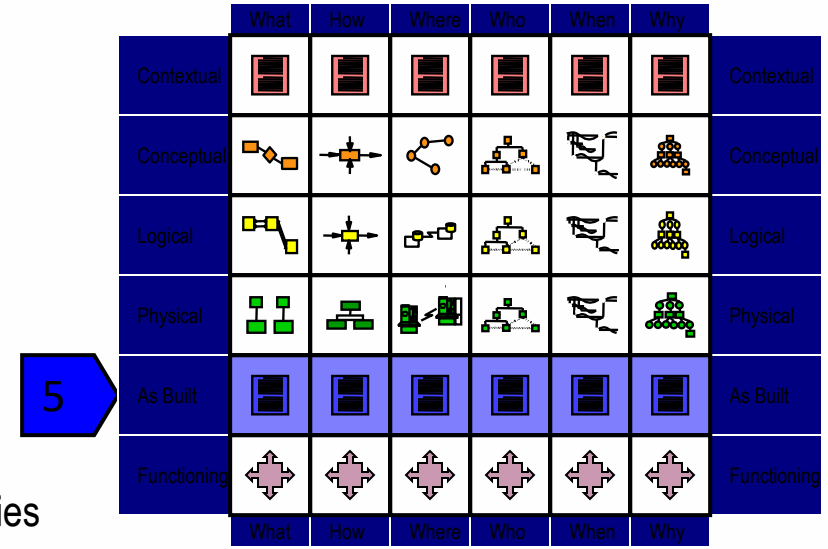
- **Motivation/Why**
  VA business rules constrained by information systems standards
- **Function/How**
  Specifications of applications that operate on particular technology platforms
- **Data/What**
  Database management system (DBMS) type requirements constrained by logical data models
- **People/Who**
  Specification of access privileges to specific platforms and technologies
- **Network/Where**
  Specification of network devices and their relationships within physical boundaries
- **Time/When**
  Specification of triggers to respond to system events on specific platforms and technologies

- Physical Models
- Technology Management
- Solution Definition and Development

Zachman Framework – Row 5
As Built/Integrator's View

- **Motivation/Why**
  VA business rules constrained by specific technology standards
- **Function/How**
  Programs coded to operate on specific technology platforms
- **Data/What**
  Data definitions constrained by physical data models
- **People/Who**
  Access privileges coded to control access to specific platforms and technologies
- **Network/Where**
  Network devices configured to conform to node specifications
- **Time/When**
  Timing definitions coded to sequence activities on specific platforms and technologies

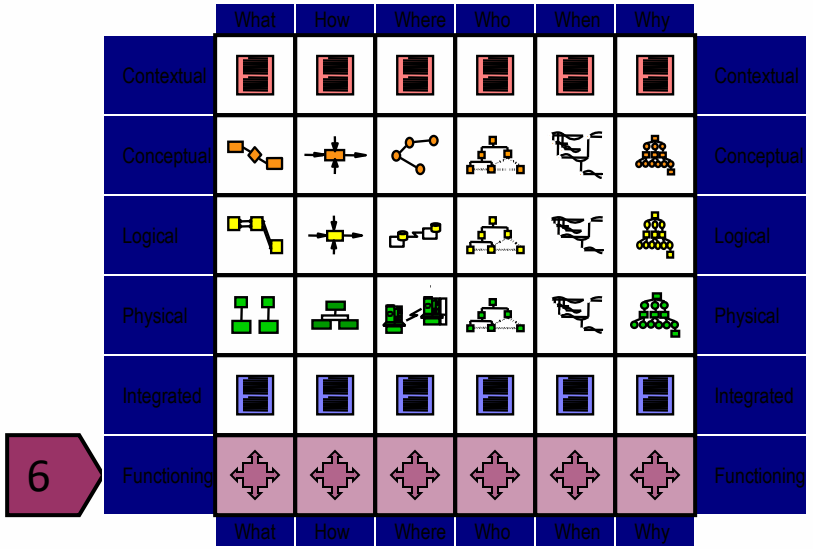
- As Built
- Configuration Management
- Deployment



Zachman Framework – Row 6
Functioning Enterprise/User's View

- **Motivation/Why**
  Operating characteristics of specific technologies constrained by standards
- **Function/How**
  Functioning computer instructions
- **Data/What**
  Data values stored in actual databases
- **People/Who**
  VA personnel and key stakeholders working within their roles and responsibilities
- **Network/Where**
  Sending and receiving messages
- **Time/When**
  Timing definitions operating to sequence activities

- **Functioning Enterprise**
- **Operations Management**
- **Evaluation**



VA Zachman Framework Portal