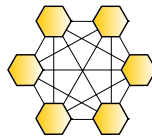


MetaFramework MetaModels

DAMA Metadata - Denver 4/25/06

John A. Zachman
Zachman International
2222 Foothill Blvd. Suite 337
La Canada, Ca. 91011
818-244-3763



© 2006 John A. Zachman, Zachman International

Frameworks

A Framework is a classification scheme that enables focused concentration on selected aspects of a subject or object while retaining a sense of the contextual, or holistic perspective.

It is useful to:

- a. simplify for understanding and communication,
- b. clearly focus on independent variables for analytical (engineering) purposes, but at the same time
- c. maintain a disciplined awareness of contextual relationships that are significant to preserve the integrity of the object.

© 2006 John A. Zachman, Zachman International

Frameworks (cont)

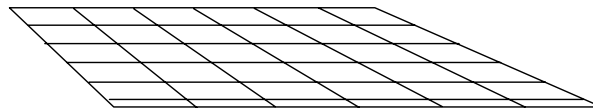
The (Zachman) Framework is a classification scheme for descriptive representations of complex objects. It is generic ... can be used to classify the descriptive representations of any object.

A "clean" ("normalized") classification scheme is an important characteristic of a Framework.

My opinion is, some day, in addition to using the Zachman Framework for analytical purposes, you are going to want to operationalize the primitive models of the Framework because the primitive models constitute the total "knowledge-base," everything you need to know in order to create (engineer and manufacture) and manage (change) the object (e.g the Enterprise) being described.

© 2006 John A. Zachman, Zachman International

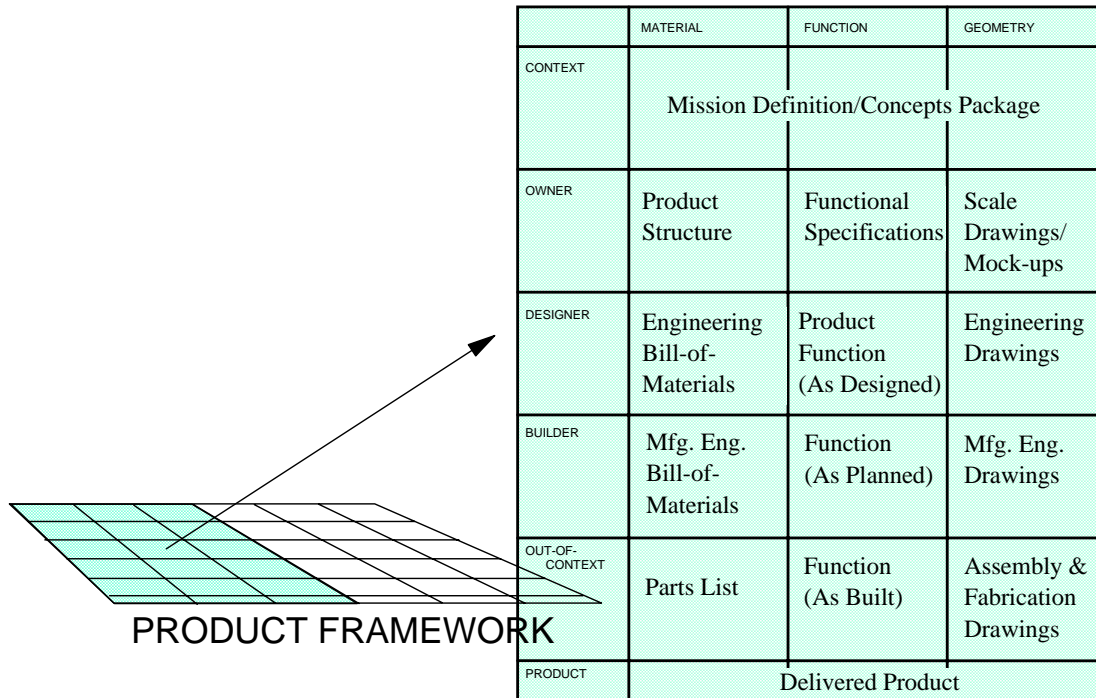
Fwk. #1: The Product Framework



PRODUCT FRAMEWORK

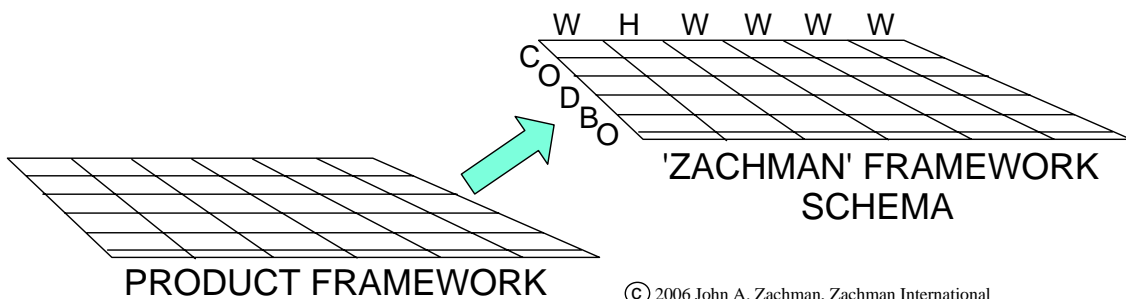
© 2006 John A. Zachman, Zachman International

Three Cols. of the Prod. Fwk.



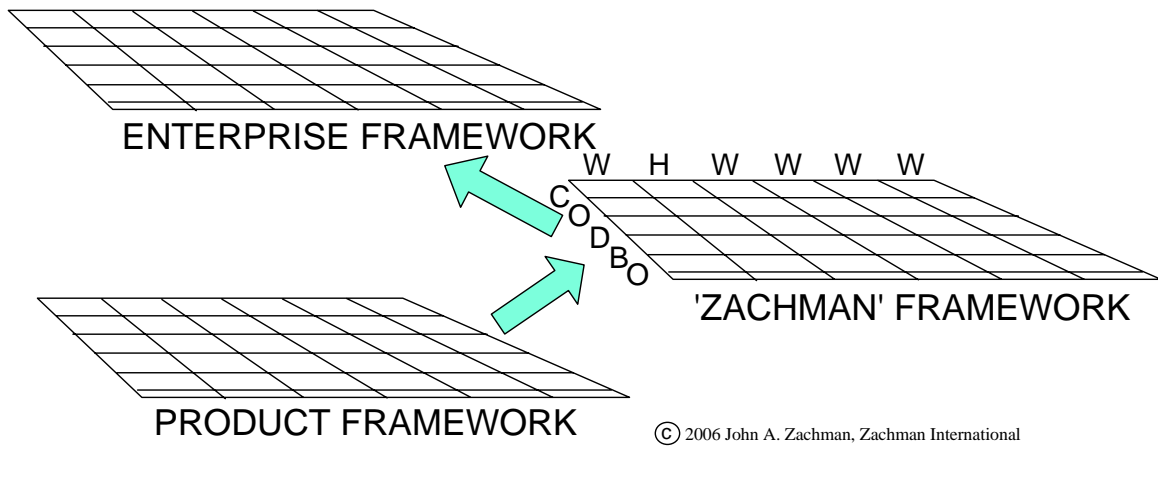
© 2006 John A. Zachman, Zachman International

The "Zachman Framework"



© 2006 John A. Zachman, Zachman International

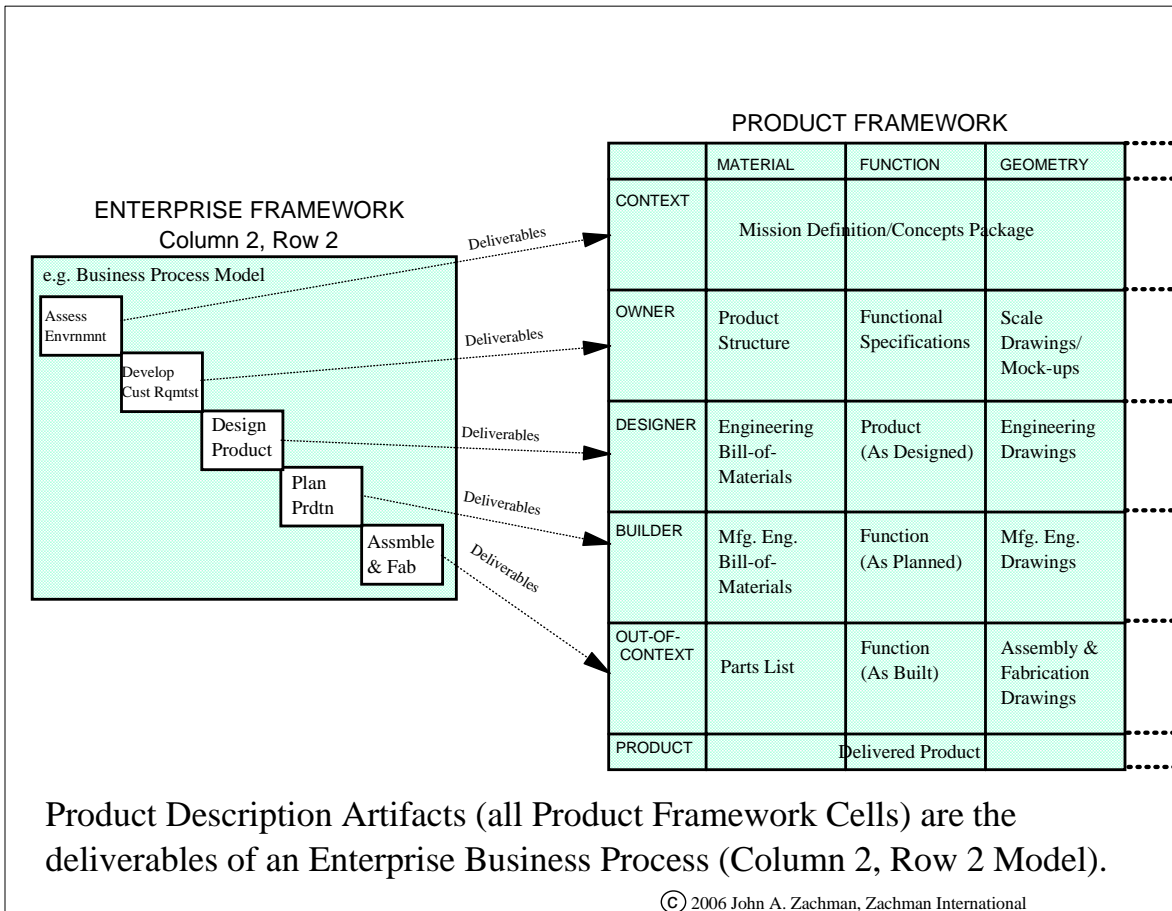
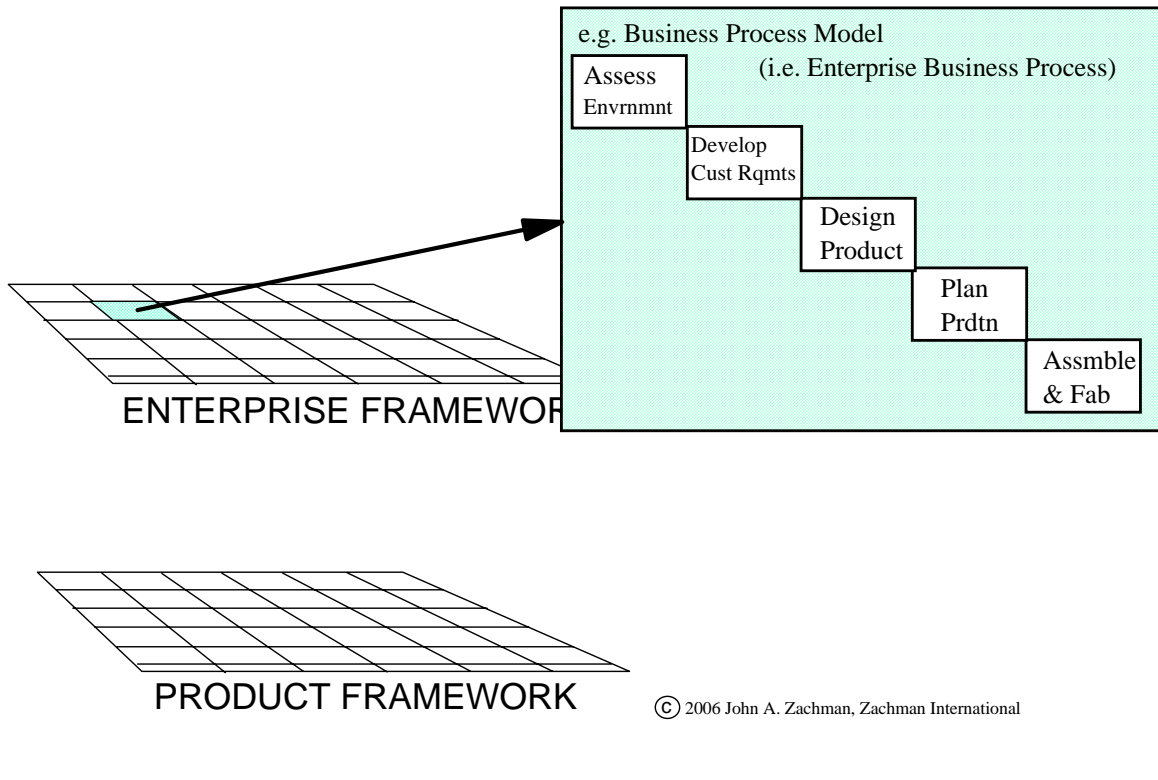
The Enterprise Framework



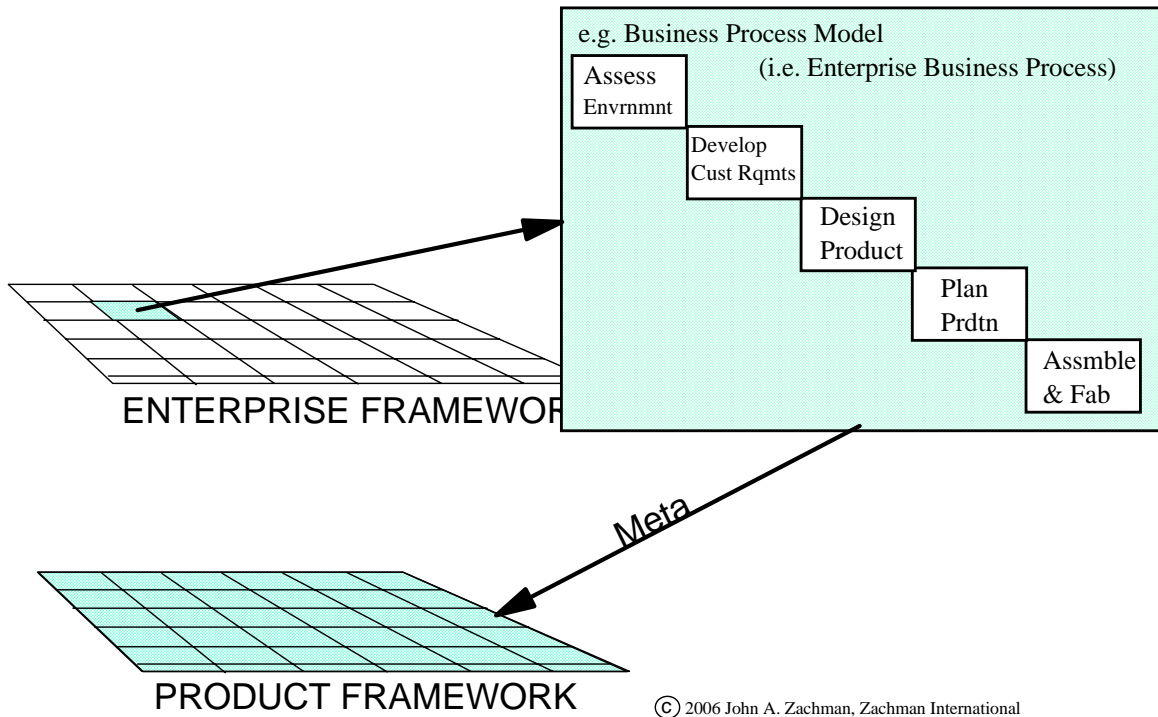
ENTERPRISE ARCHITECTURE - A FRAMEWORK™

	DATA	What	FUNCTION	How	NETWORK	Where	PEOPLE	Who	TIME	When	MOTIVATION	Why	
SCOPE (CONTEXTUAL)		List of Things Important to the Business		List of Processes the Business Performs		List of Locations in which the Business Operates		List of Organizations Important to the Business		List of Events/Cycles Significant to the Business		List of Business Goals/Strategies	SCOPE (CONTEXTUAL)
<i>Planner</i>	ENTITY = Class of Business Thing		Process = Class of Business Process		Node = Major Business Location		People = Major Organization Unit		Time = Major Business Event/Cycle		Ends/Mean = Major Business Goal/Strategy		<i>Planner</i>
BUSINESS MODEL (CONCEPTUAL)		e.g. Semantic Model		e.g. Business Process Model		e.g. Business Logistics System		e.g. Work Flow Model		e.g. Master Schedule		e.g. Business Plan	BUSINESS MODEL (CONCEPTUAL)
<i>Owner</i>	Ent = Business Entity Reln = Business Relationship		Proc. = Business Process I/O = Business Resources		Node = Business Location Link = Business Linkage		People = Organization Unit Work = Work Product		Time = Business Event Cycle = Business Cycle		End = Business Objective Means = Business Strategy		<i>Owner</i>
SYSTEM MODEL (LOGICAL)		e.g. Logical Data Model		e.g. Application Architecture		e.g. Distributed System Architecture		e.g. Human Interface Architecture		e.g. Processing Structure		e.g. Business Rule Model	SYSTEM MODEL (LOGICAL)
<i>Designer</i>	Ent = Data Entity Reln = Data Relationship		Proc. = Application Function I/O = User Views		Node = I/S Function (Processor, Storage, etc) Link = Line Characteristics		People = Role Work = Deliverable		Time = System Event Cycle = Processing Cycle		End = Structural Assertion Means = Action Assertion		<i>Designer</i>
TECHNOLOGY MODEL (PHYSICAL)		e.g. Physical Data Model		e.g. System Design		e.g. Technology Architecture		e.g. Presentation Architecture		e.g. Control Structure		e.g. Rule Design	TECHNOLOGY MODEL (PHYSICAL)
<i>Builder</i>	Ent = Segment/Table/etc. Reln = Pointer/Key/etc.		Proc. = Computer Function I/O = Data Elements/Sets		Node = Hardware/Systems Software Link = Line Specifications		People = User Work = Screen Format		Time = Execute Cycle = Component Cycle		End = Condition Means = Action		<i>Builder</i>
DETAILED REPRESENTATIONS (OUT-OF-CONTEXT)		e.g. Data Definition		e.g. Program		e.g. Network Architecture		e.g. Security Architecture		e.g. Timing Definition		e.g. Rule Specification	DETAILED REPRESENTATIONS (OUT-OF-CONTEXT)
<i>Sub-Contractor</i>	Ent = Field Reln = Address		Proc. = Language Statement I/O = Control Block		Node = Address Link = Protocol		People = Identity Work = Job		Time = Interrupt Cycle = Machine Cycle		End = Sub-condition Means = Step		<i>Sub-Contractor</i>
FUNCTIONING ENTERPRISE	e.g. DATA		e.g. FUNCTION		e.g. NETWORK		e.g. ORGANIZATION		e.g. SCHEDULE		e.g. STRATEGY		FUNCTIONING ENTERPRISE

Enterprise Business Process Model

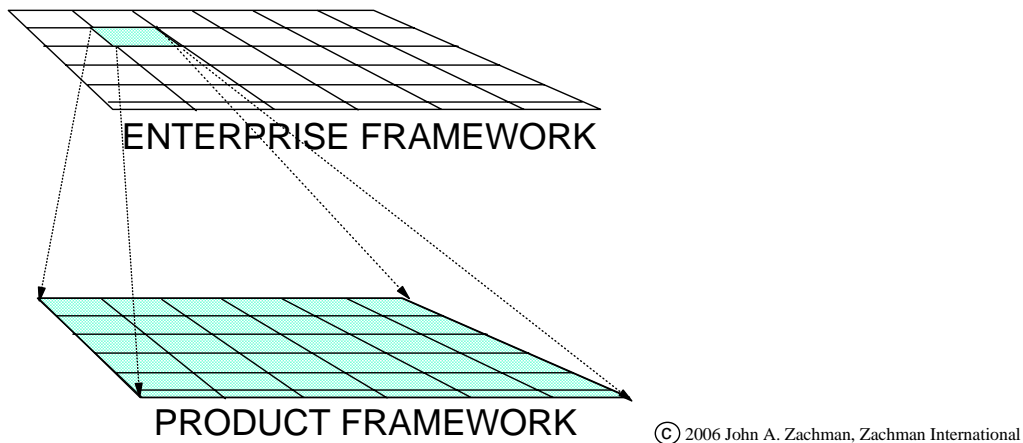


Enterprise Business Process Model

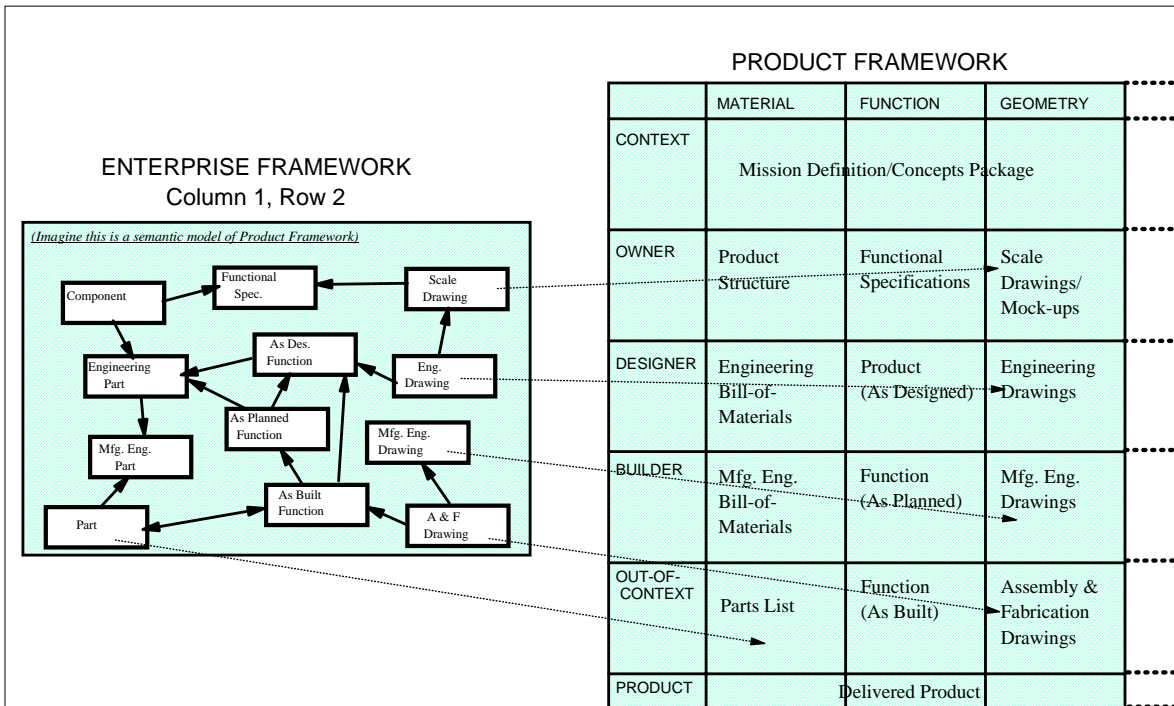
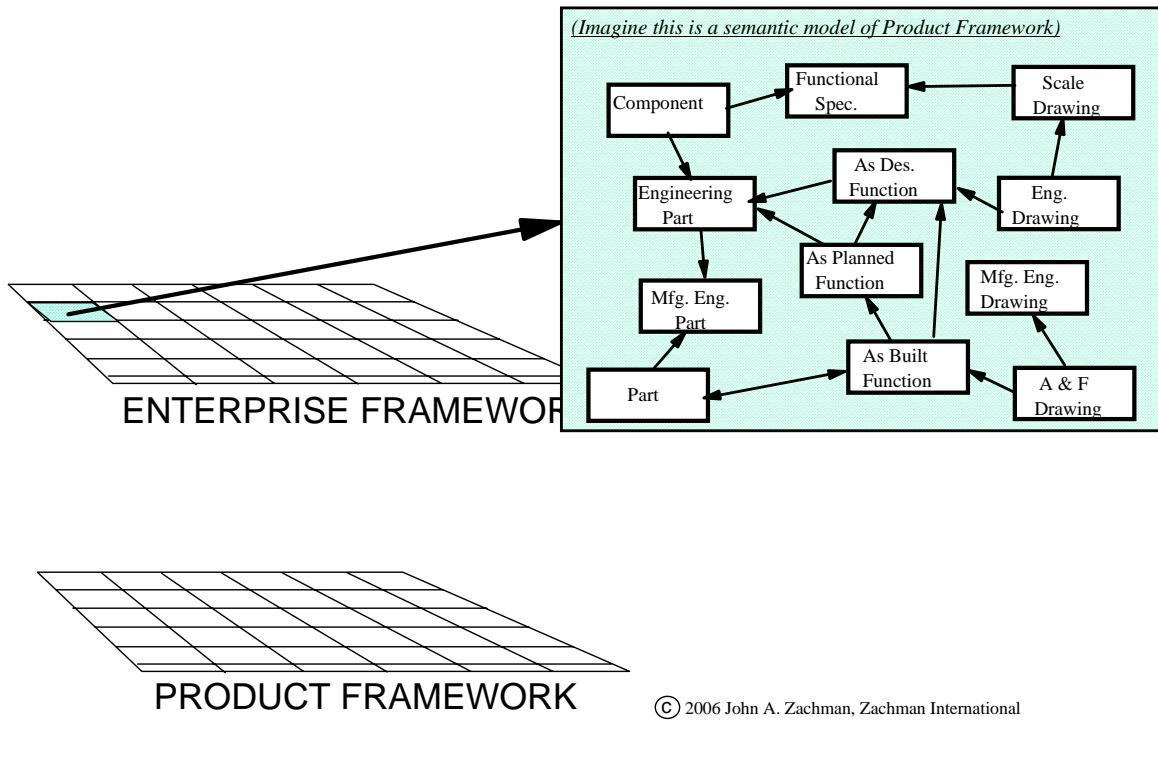


Enterprise Business Process Model

The Enterprise Business Process Model is "meta", that is, is the Process that is building all of the Product engineering design artifacts, that is, the Product Framework Cells.

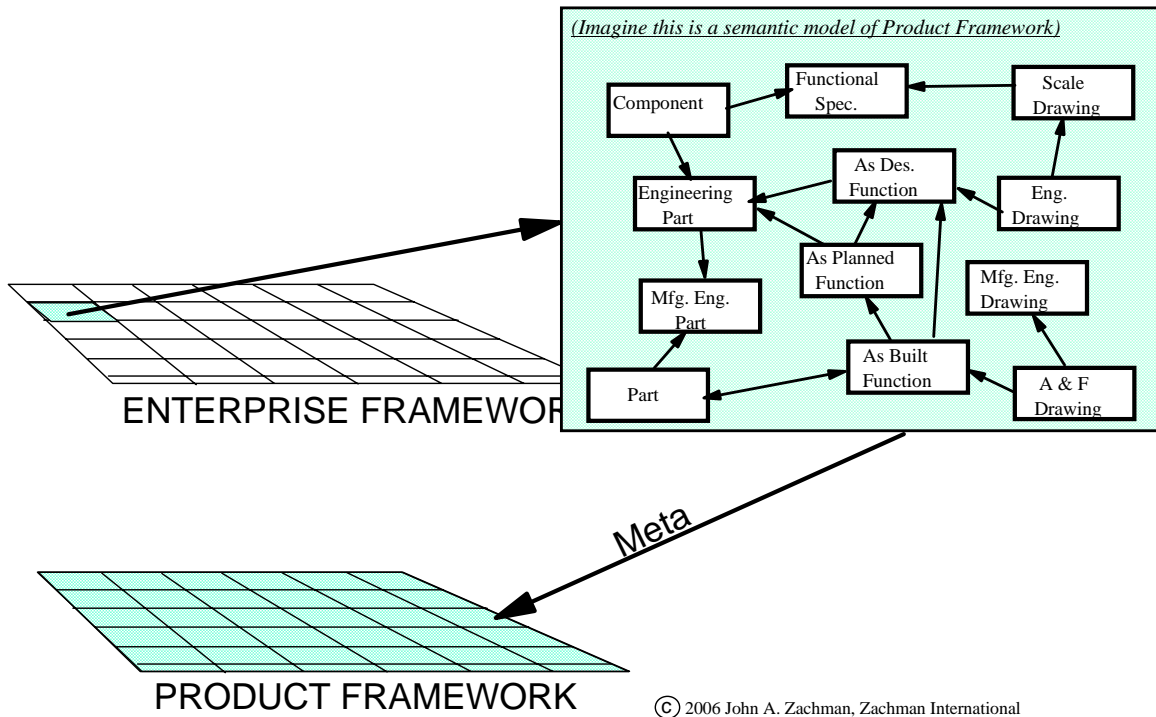


Enterprise Business Semantic Model



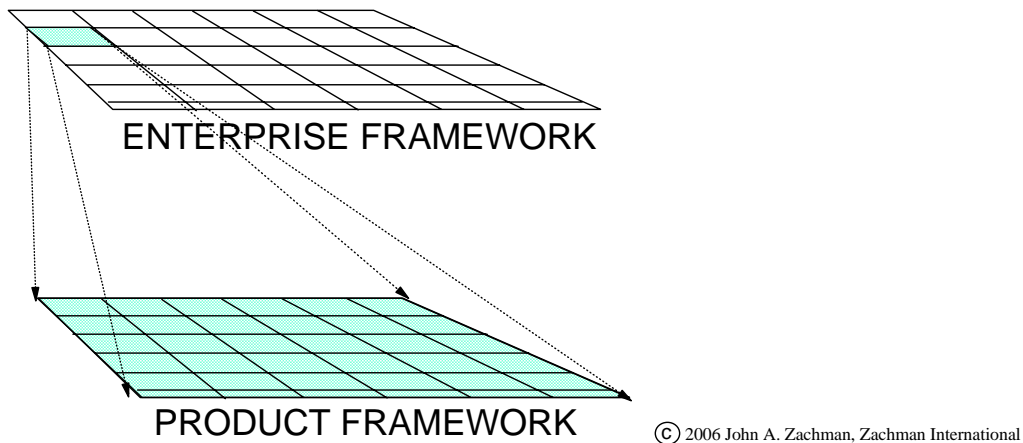
The Enterprise Semantic Model is a model of all the Cells of the Product Framework. They are what the Enterprise has to produce and manage in order to manufacture the Product.

Enterprise Business Semantic Model



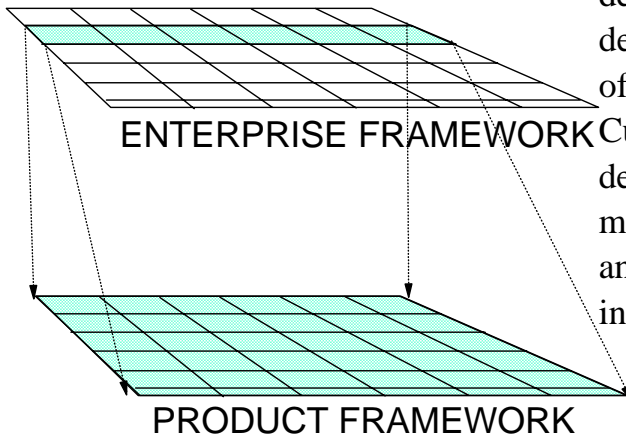
Enterprise Business Semantic Model

The Enterprise Business Semantic Model is "meta", that is, is the Semantic Model of all of the Product engineering design artifacts, that is, the Product Framework Cells.



"Meta" Framework

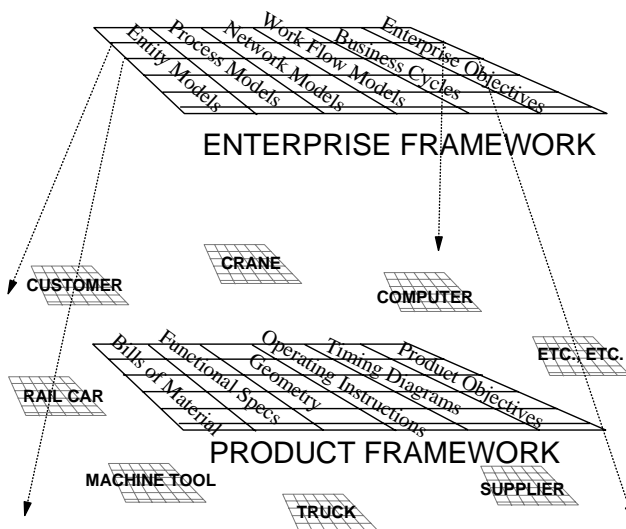
Similarly, all the Row 2 Models of the Enterprise Framework are "meta" relative to the Product Framework.



The Enterprise engineers and manufactures the Product and therefore defines the "templates" for the Product descriptive representations (artifacts) of the Product Framework. The Customer (Owner) of the Product defines the contents of the Row 2 models of the Product Framework and the Enterprise transforms them into the Product.

© 2006 John A. Zachman, Zachman International

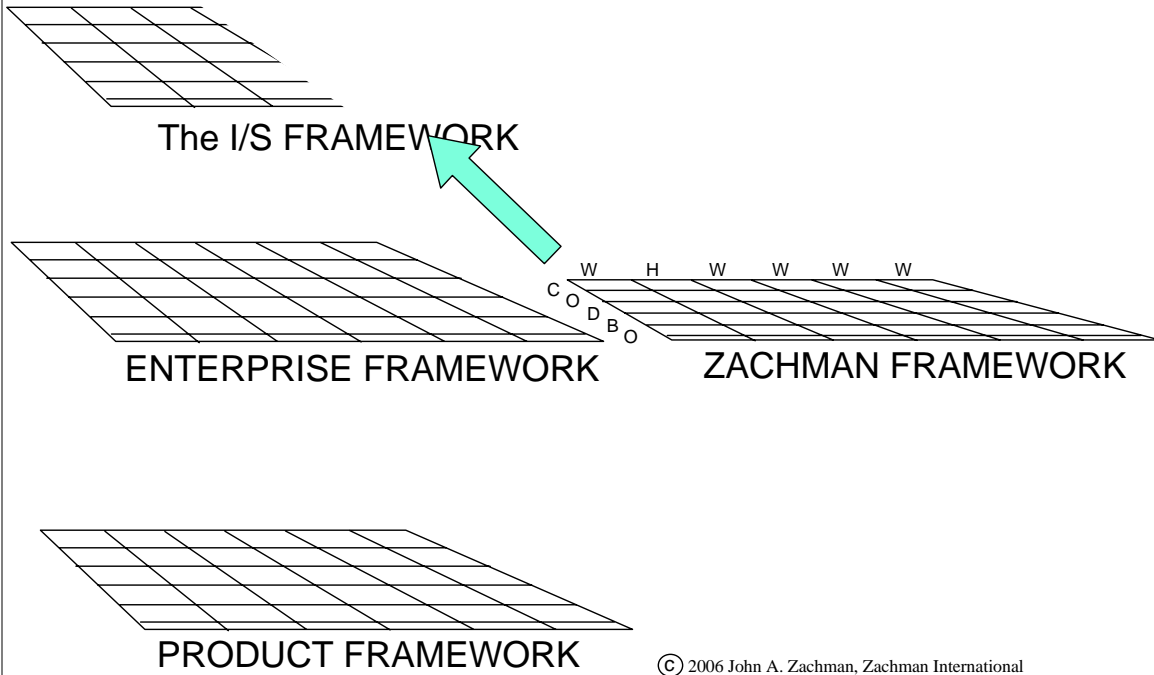
Product Frameworks Artifacts ... Plus



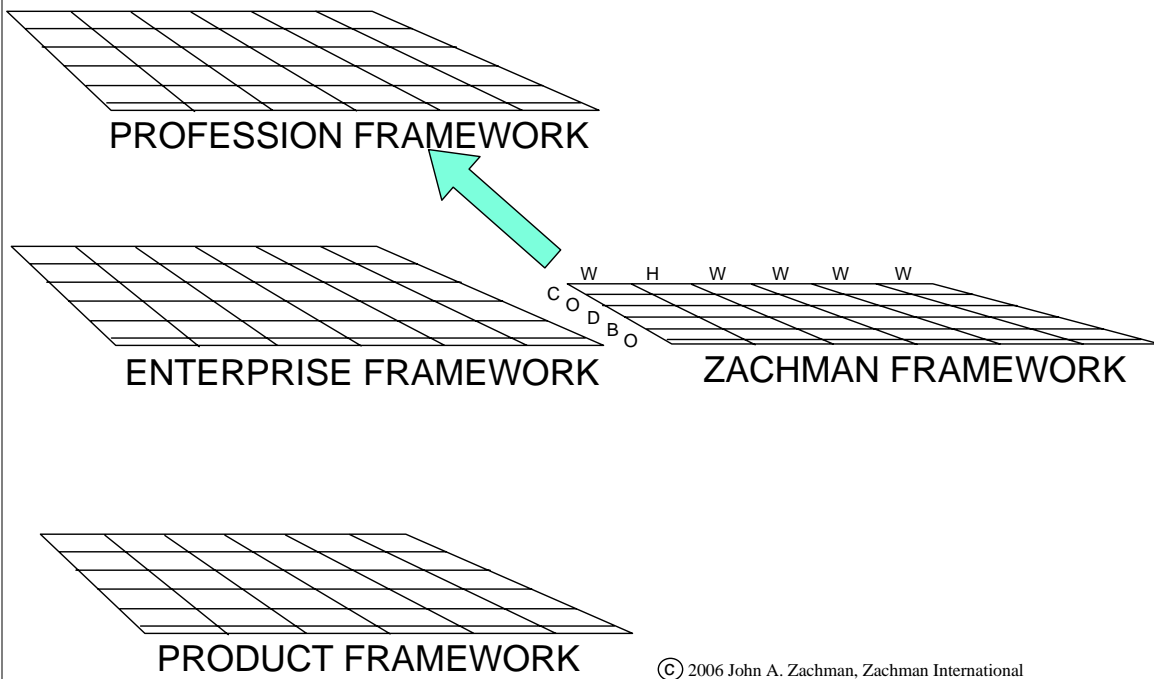
The Enterprise produces and maintains all the descriptive representations (Cells) of its Product Framework ... but it only cares that the non-product entities exist. It simply maintains inventory control over the other resources required to manufacture the Product. (Other Enterprises produce and maintain all of the descriptive representations of these other resources in their respective Product Frameworks.)

© 2006 John A. Zachman, Zachman International

The I/S Framework

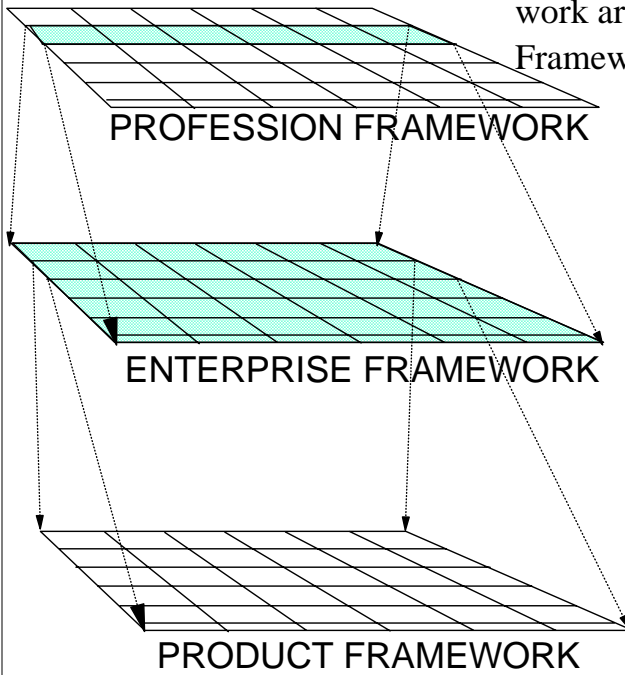


The "Profession" Framework



Meta Framework

The Row 2 Models of the Profession Framework are "meta" relative to the Enterprise Framework.

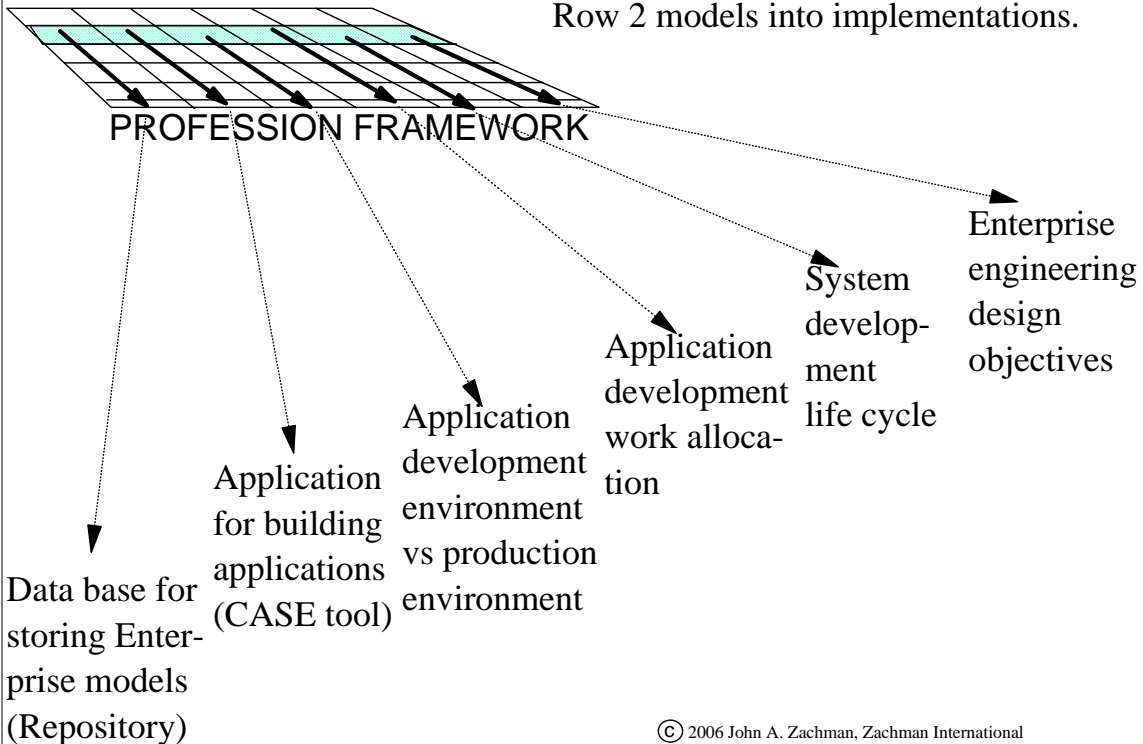


Enterprise Engineering and Manufacturing (i.e. The "Profession") engineers and manufactures the Enterprise and therefore defines the "templates" for the Enterprise descriptive representations (artifacts) of the Enterprise Framework. The Owners of the Enterprise define the contents of the Row 2 models of the Enterprise Framework and Enterprise Engineering and Manufacturing (the Profession) transforms them into the Enterprise.

© 2006 John A. Zachman, Zachman International

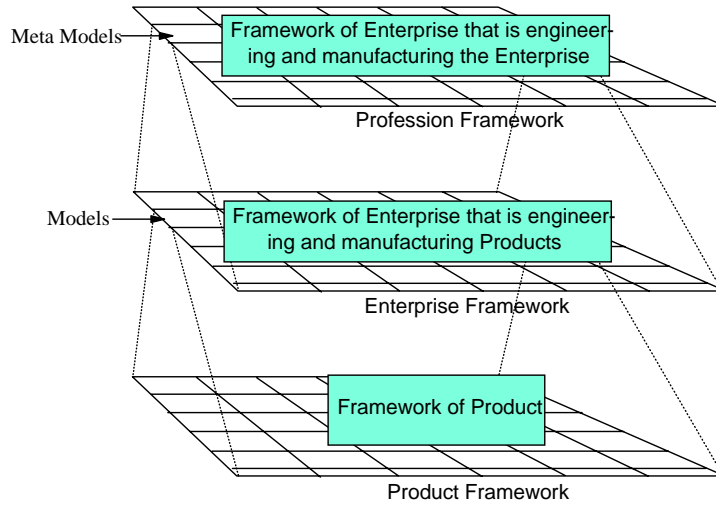
The Profession

Transforming the Profession Framework Row 2 models into implementations.



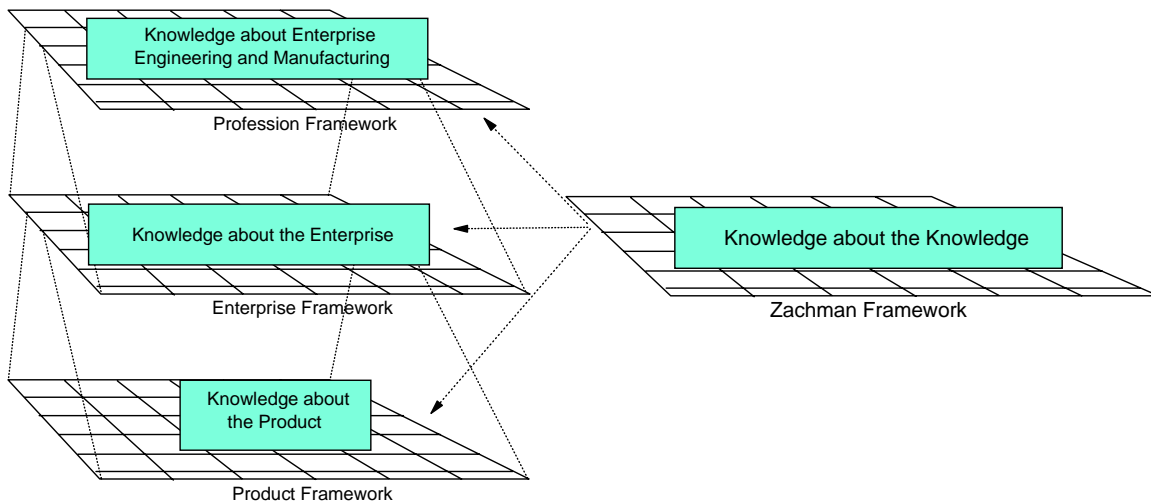
© 2006 John A. Zachman, Zachman International

Meta Frameworks



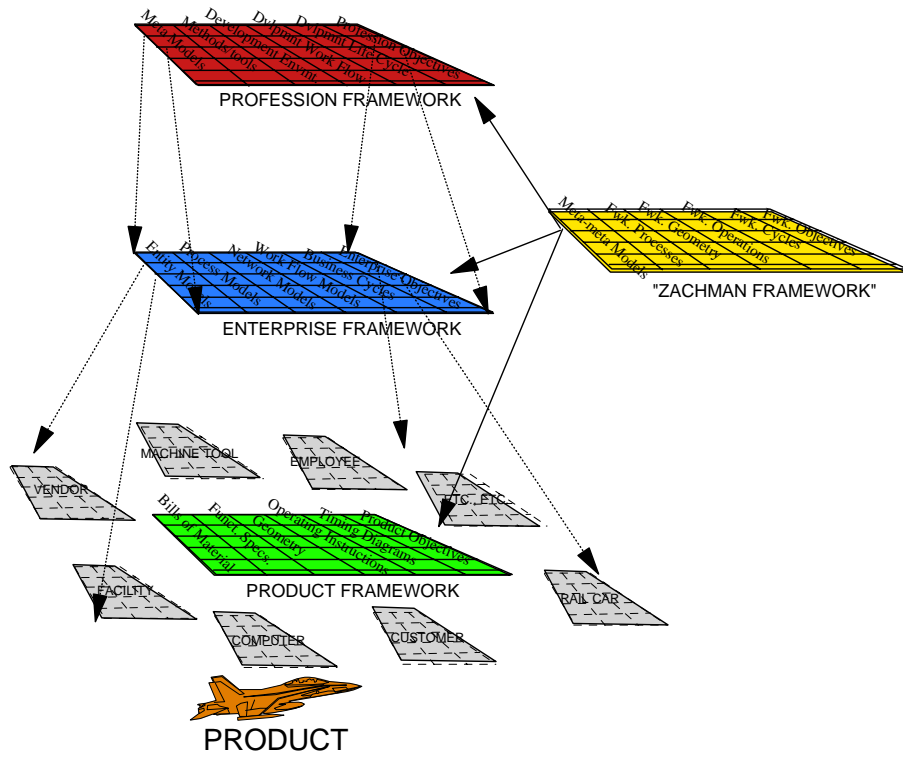
© 2000 - 2006 John A. Zachman, Zachman International

Knowledge Domains



© 2000 - 2006 John A. Zachman, Zachman International

The Total Picture



The Knowledge Base of the Enterprise

© 2006 John A. Zachman, Zachman International

ZACHMAN CLASSIFICATION SYSTEM FOR AN ENTERPRISE

INTERROGATIVE PERSPECTIVES →	WHAT	HOW	WHERE	WHO	WHEN	WHY	TARGET CONTRIBUTORS
SCOPE	INVENTORY IDENTIFICATION SCOPE INVENTORY	PROCESS IDENTIFICATION SCOPE PROCESS	NETWORK IDENTIFICATION SCOPE NETWORKS	ORGANIZATION IDENTIFICATION SCOPE ORGANIZATIONS	TIMING IDENTIFICATION SCOPE TIMINGS	MOTIVATION IDENTIFICATION SCOPE MOTIVATIONS	VISIONARIES
BUSINESS	INVENTORY DEFINITION c.g. BUSINESS ENTITY BUSINESS RELATIONSHIP	PROCESS DEFINITION c.g. BUSINESS TRANSFORM BUSINESS INPUT	NETWORK DEFINITION c.g. BUSINESS LOCATION BUSINESS CONNECTION	ORGANIZATION DEFINITION c.g. BUSINESS ROLE BUSINESS WORK	TIMING DEFINITION c.g. BUSINESS CYCLE BUSINESS MOMENT	MOTIVATION DEFINITION c.g. BUSINESS END BUSINESS MEANS	EXECUTIVE LEADERS
SYSTEM	INVENTORY REPRESENTATION c.g. SYSTEM ENTITY SYSTEM RELATIONSHIP	PROCESS REPRESENTATION c.g. SYSTEM TRANSFORM SYSTEM INPUT	NETWORK REPRESENTATION c.g. SYSTEM LOCATION SYSTEM CONNECTION	ORGANIZATION REPRESENTATION c.g. SYSTEM ROLE SYSTEMS WORK	TIMING REPRESENTATION c.g. SYSTEM CYCLE SYSTEM MOMENT	MOTIVATION REPRESENTATION c.g. SYSTEM END SYSTEM MEANS	ARCHITECTS
TECHNOLOGY	INVENTORY SPECIFICATION c.g. TECHNOLOGY ENTITY TECHNOLOGY RELATIONSHIP	PROCESS SPECIFICATION c.g. TECHNOLOGY TRANSFORM TECHNOLOGY INPUT	NETWORK SPECIFICATION c.g. TECHNOLOGY LOCATION TECHNOLOGY CONNECTION	ORGANIZATION SPECIFICATION c.g. TECHNOLOGY ROLE TECHNOLOGY WORK	TIMING SPECIFICATION c.g. TECHNOLOGY CYCLE TECHNOLOGY MOMENT	MOTIVATION SPECIFICATION c.g. TECHNOLOGY END TECHNOLOGY MEANS	ENGINEERS
COMPONENT	INVENTORY CONFIGURATION COMPONENT ENTITY COMPONENT RELATIONSHIP	PROCESS CONFIGURATION COMPONENT TRANSFORM COMPONENT INPUT	NETWORK CONFIGURATION COMPONENT LOCATION COMPONENT CONNECTION	ORGANIZATION CONFIGURATION COMPONENT ROLE COMPONENT WORK	TIMING CONFIGURATION COMPONENT CYCLE COMPONENT MOMENT	MOTIVATION CONFIGURATION COMPONENT END COMPONENT MEANS	IMPLEMENTERS
OPERATIONS	INVENTORY INSTANTIATION OPERATIONS ENTITY OPERATIONS RELATIONSHIP	PROCESS INSTANTIATION OPERATIONS TRANSFORM OPERATIONS INPUT	NETWORK INSTANTIATION OPERATIONS LOCATION OPERATIONS CONNECTION	ORGANIZATION INSTANTIATION OPERATIONS ROLE OPERATIONS WORK	TIMING INSTANTIATION OPERATIONS CYCLE OPERATIONS MOMENT	MOTIVATION INSTANTIATION OPERATIONS END OPERATIONS MEANS	WORKERS
↑ AUDIENCE PERSPECTIVES	INVENTORY	PROCESS	NETWORK	ORGANIZATION	TIMING	MOTIVATION	← TARGET DOMAINS

© 2005 John A. Zachman, Zachman International

ZACHMAN CLASSIFICATION SYSTEM FOR A PROFESSION

INTERROGATIVE PERSPECTIVES	WHAT	HOW	WHERE	WHO	WHEN	WHY	TARGET CONTRIBUTORS
OPPORTUNITY	SET* IDENTIFICATION  OPPORTUNITY SETS*	METHOD IDENTIFICATION  METHODS	NETWORK* IDENTIFICATION  OPPORTUNITY NETWORKS*	ORGANIZATION* IDENTIFICATION  OPPORTUNITY ORGANIZATIONS*	TIME* IDENTIFICATION  OPPORTUNITY TIMES*	RATIONALE IDENTIFICATION  OPPORTUNITY RATIONALES	STRATEGISTS
PRIMITIVES	SET* DEFINITION  PRIMITIVES PRIMITIVES RELATIONSHIP	METHOD DEFINITION  METHODS METHOD RELATIONSHIP	NETWORK DEFINITION  NETWORKS NETWORK RELATIONSHIP	ORGANIZATION DEFINITION  ORGANIZATIONS ORGANIZATION RELATIONSHIP	TIME* DEFINITION  TIMES TIME RELATIONSHIP	RATIONALE DEFINITION  RATIONALES RATIONALE RELATIONSHIP	ARCHITECTS
STANDARDS	SET* REPRESENTATION  STANDARDS STANDARDS RELATIONSHIP	METHOD REPRESENTATION  METHODS METHOD RELATIONSHIP	NETWORK REPRESENTATION  NETWORKS NETWORK RELATIONSHIP	ORGANIZATION REPRESENTATION  ORGANIZATIONS ORGANIZATION RELATIONSHIP	TIME* REPRESENTATION  TIMES TIME RELATIONSHIP	RATIONALE REPRESENTATION  RATIONALES RATIONALE RELATIONSHIP	METHODS ENGINEERS
TEMPLATES	SET* SPECIFICATION  TEMPLATES TEMPLATE RELATIONSHIP	METHOD SPECIFICATION  METHODS METHOD RELATIONSHIP	NETWORK SPECIFICATION  NETWORKS NETWORK RELATIONSHIP	ORGANIZATION SPECIFICATION  ORGANIZATIONS ORGANIZATION RELATIONSHIP	TIME* SPECIFICATION  TIMES TIME RELATIONSHIP	RATIONALE SPECIFICATION  RATIONALES RATIONALE RELATIONSHIP	TEMPLATE ENGINEERS
TOOLING	SET* CONFIGURATION  TOOLING TOOLING RELATIONSHIP	METHOD CONFIGURATION  METHODS METHOD RELATIONSHIP	NETWORK CONFIGURATION  NETWORKS NETWORK RELATIONSHIP	ORGANIZATION CONFIGURATION  ORGANIZATIONS ORGANIZATION RELATIONSHIP	TIME* CONFIGURATION  TIMES TIME RELATIONSHIP	RATIONALE CONFIGURATION  RATIONALES RATIONALE RELATIONSHIP	SUPPLIERS
PRACTICE	SET* INSTANTIATION  PRACTICE PRACTICE RELATIONSHIP	METHOD INSTANTIATION  METHODS METHOD RELATIONSHIP	NETWORK INSTANTIATION  NETWORKS NETWORK RELATIONSHIP	ORGANIZATION INSTANTIATION  ORGANIZATIONS ORGANIZATION RELATIONSHIP	TIME* INSTANTIATION  TIMES TIME RELATIONSHIP	RATIONALE INSTANTIATION  RATIONALES RATIONALE RELATIONSHIP	PROFESSIONALS
AUDIENCE PERSPECTIVES	SETS*	METHOD	NETWORK*	ORGANIZATION*	TIME*	RATIONALE	TARGET DOMAINS

© 2005 John A. Zachman, Zachman International

ZACHMAN CLASSIFICATION SYSTEM FOR A PRODUCT

INTERROGATIVE PERSPECTIVES	WHAT	HOW	WHERE	WHO	WHEN	WHY	TARGET CONTRIBUTORS
INNOVATION	PARTS IDENTIFICATION  INNOVATION PARTS	FUNCTIONALITY IDENTIFICATION  FUNCTIONALITY	GEOMETRY IDENTIFICATION  GEOMETRY	ORGANIZATION IDENTIFICATION  ORGANIZATIONS	TIMING IDENTIFICATION  TIMINGS	MOTIVATION IDENTIFICATION  MOTIVATIONS	INVENTORS
REQUIREMENT	PARTS DEFINITION  REQUIREMENT REQUIREMENT RELATIONSHIP	FUNCTIONALITY DEFINITION  FUNCTIONALITY FUNCTIONALITY RELATIONSHIP	GEOMETRY DEFINITION  GEOMETRY GEOMETRY RELATIONSHIP	ORGANIZATION DEFINITION  ORGANIZATIONS ORGANIZATION RELATIONSHIP	TIMING DEFINITION  TIMINGS TIMING RELATIONSHIP	MOTIVATION DEFINITION  MOTIVATIONS MOTIVATION RELATIONSHIP	CUSTOMERS
DESIGN	PARTS REPRESENTATION  DESIGN DESIGN RELATIONSHIP	FUNCTIONALITY REPRESENTATION  FUNCTIONALITY FUNCTIONALITY RELATIONSHIP	GEOMETRY REPRESENTATION  GEOMETRY GEOMETRY RELATIONSHIP	ORGANIZATION REPRESENTATION  ORGANIZATIONS ORGANIZATION RELATIONSHIP	TIMING REPRESENTATION  TIMINGS TIMING RELATIONSHIP	MOTIVATION REPRESENTATION  MOTIVATIONS MOTIVATION RELATIONSHIP	ENGINEERS
FABRICATION TECH-	PARTS SPECIFICATION  FABRICATION FABRICATION RELATIONSHIP	FUNCTIONALITY SPECIFICATION  FUNCTIONALITY FUNCTIONALITY RELATIONSHIP	GEOMETRY SPECIFICATION  GEOMETRY GEOMETRY RELATIONSHIP	ORGANIZATION SPECIFICATION  ORGANIZATIONS ORGANIZATION RELATIONSHIP	TIMING SPECIFICATION  TIMINGS TIMING RELATIONSHIP	MOTIVATION SPECIFICATION  MOTIVATIONS MOTIVATION RELATIONSHIP	MANUFACTURING ENGINEERS
ASSEMBLY	PARTS CONFIGURATION  ASSEMBLY ASSEMBLY RELATIONSHIP	FUNCTIONALITY CONFIGURATION  FUNCTIONALITY FUNCTIONALITY RELATIONSHIP	GEOMETRY CONFIGURATION  GEOMETRY GEOMETRY RELATIONSHIP	ORGANIZATION CONFIGURATION  ORGANIZATIONS ORGANIZATION RELATIONSHIP	TIMING CONFIGURATION  TIMINGS TIMING RELATIONSHIP	MOTIVATION CONFIGURATION  MOTIVATIONS MOTIVATION RELATIONSHIP	SKILLED LABORERS
AS BUILT	PARTS INSTANTIATION  AS BUILT AS BUILT RELATIONSHIP	FUNCTIONALITY INSTANTIATION  FUNCTIONALITY FUNCTIONALITY RELATIONSHIP	GEOMETRY INSTANTIATION  GEOMETRY GEOMETRY RELATIONSHIP	ORGANIZATION INSTANTIATION  ORGANIZATIONS ORGANIZATION RELATIONSHIP	TIMING INSTANTIATION  TIMINGS TIMING RELATIONSHIP	MOTIVATION INSTANTIATION  MOTIVATIONS MOTIVATION RELATIONSHIP	CONSUMERS
AUDIENCE PERSPECTIVES	PARTS	FUNCTIONALITY	GEOMETRY	USER	TIMING*	PURPOSE	TARGET DOMAINS

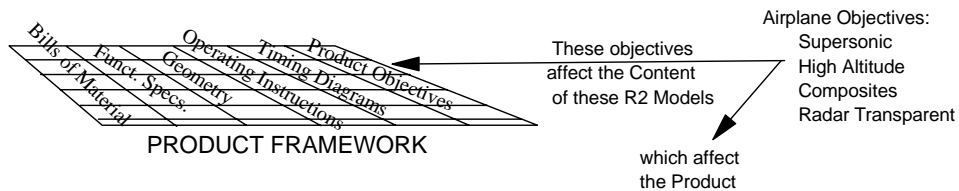
© 2005 John A. Zachman, Zachman International

ZACHMAN CLASSIFICATION SYSTEM FOR AN ANALYTICAL TARGET

INTERROGATIVE PERSPECTIVES →	WHAT	HOW	WHERE	WHO	WHEN	WHY	TARGET CONTRIBUTORS
CONTEXT	SET IDENTIFICATION CONTEXT SETS	FUNCTION IDENTIFICATION CONTEXT FORMATIONS	LOCATION* IDENTIFICATION CONTEXT LOCATIONS*	PEOPLE IDENTIFICATION CONTEXT PEOPLE GROUPS	TIME IDENTIFICATION CONTEXT TIMES	MOTIVE IDENTIFICATION CONTEXT MOTIVATIONS	ORIGINATORS
CONCEPTS	SET* DEFINITION CONCEPTS ENTITY CONCEPTS RELATIONSHIP	TRANSFORMATION SPECIFICATION CONCEPTS PROCESS CONCEPTS OUTCOME	LOCATION* DEFINITION CONCEPTS LOCATION CONCEPTS CONNECTION	PEOPLE DEFINITION CONCEPTS ROLE CONCEPTS WORK	TIME DEFINITION CONCEPTS CYCLE CONCEPTS MOMENT	MOTIVE DEFINITION CONCEPTS END CONCEPTS MEANS	OWNERS
LOGIC	SET* REPRESENTATION LOGIC ENTITY LOGIC RELATIONSHIP	TRANSFORMATION SPECIFICATION LOGIC PROCESS LOGIC OUTCOME	LOCATION* REPRESENTATION LOGIC LOCATION LOGIC CONNECTION	PEOPLE REPRESENTATION LOGIC PEOPLE LOGIC WORK	TIME REPRESENTATION LOGIC CYCLE LOGIC MOMENT	MOTIVE REPRESENTATION LOGIC END LOGIC MEANS	DESIGNERS
CONSTRUCTS	SET* SPECIFICATION CONSTRUCTS ENTITY CONSTRUCTS RELATIONSHIP	TRANSFORMATION SPECIFICATION CONSTRUCTS PROCESS CONSTRUCTS OUTCOME	LOCATION* SPECIFICATION CONSTRUCTS LOCATION CONSTRUCTS CONNECTION	PEOPLE SPECIFICATION CONSTRUCTS PEOPLE CONSTRUCTS WORK	TIME SPECIFICATION CONSTRUCTS CYCLE CONSTRUCTS MOMENT	MOTIVE SPECIFICATION CONSTRUCTS END CONSTRUCTS MEANS	BUILDERS
PIECES	SET* CONFIGURATION COMPONENTS* ENTITY COMPONENTS* RELATIONSHIP	TRANSFORMATION CONFIGURATION COMPONENTS* PROCESS COMPONENTS* OUTCOME	LOCATION* CONFIGURATION COMPONENTS* LOCATION COMPONENTS* CONNECTION	PEOPLE CONFIGURATION COMPONENTS* PEOPLE COMPONENTS* WORK	TIME CONFIGURATION COMPONENTS* CYCLE COMPONENTS* MOMENT	MOTIVE CONFIGURATION COMPONENTS* END COMPONENTS* MEANS	CONTRACTORS
TARGET	SET* INSTANTIATION TARGET ENTITY TARGET RELATIONSHIP	TRANSFORMATION INSTANTIATION TARGET PROCESS TARGET OUTCOME	LOCATION* INSTANTIATION TARGET LOCATION TARGET CONNECTION	PEOPLE INSTANTIATION TARGET PEOPLE TARGET WORK	TIME INSTANTIATION TARGET CYCLE TARGET MOMENT	MOTIVE INSTANTIATION TARGET END TARGET MEANS	PARTICIPANTS
AUDIENCE PERSPECTIVES ↑	SETS*	TRANSFORMATION	LOCATION*	PEOPLE GROUPS	TIME	MOTIVE	TARGET DOMAINS ←

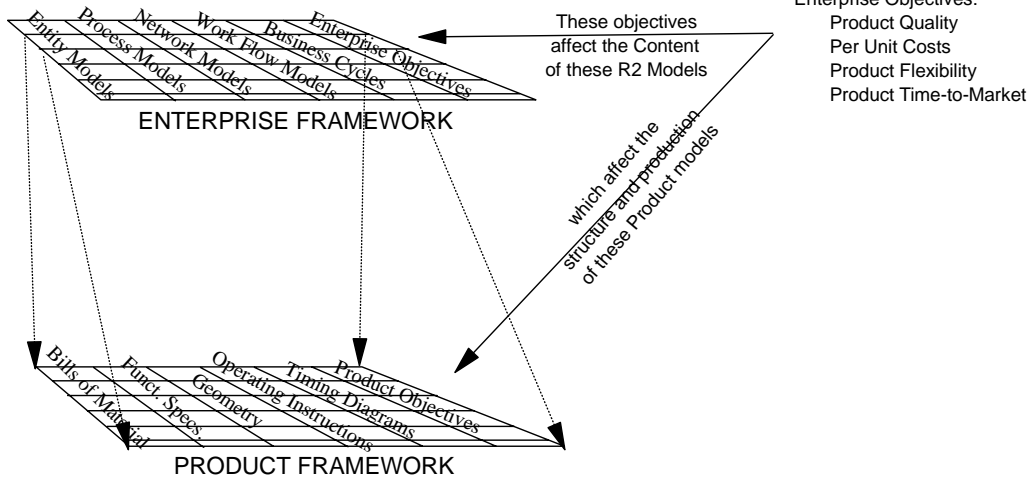
© 2005 John A. Zachman, Zachman International

Product Objectives



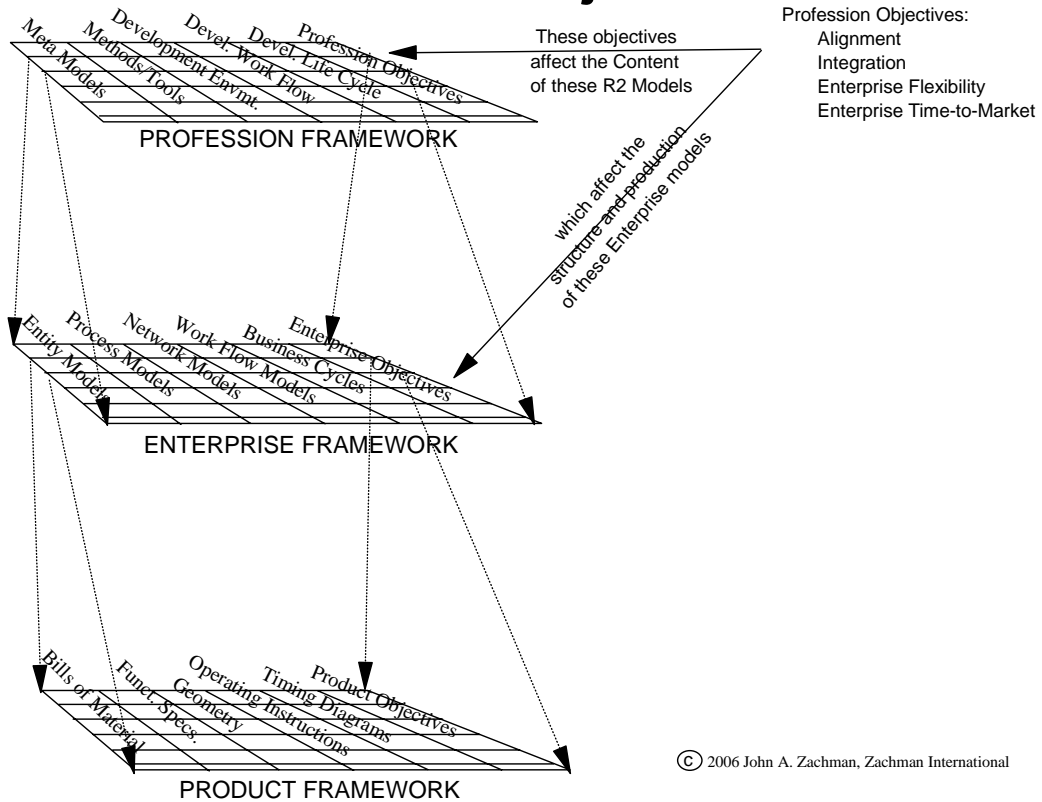
© 2006 John A. Zachman, Zachman International

Enterprise Objectives

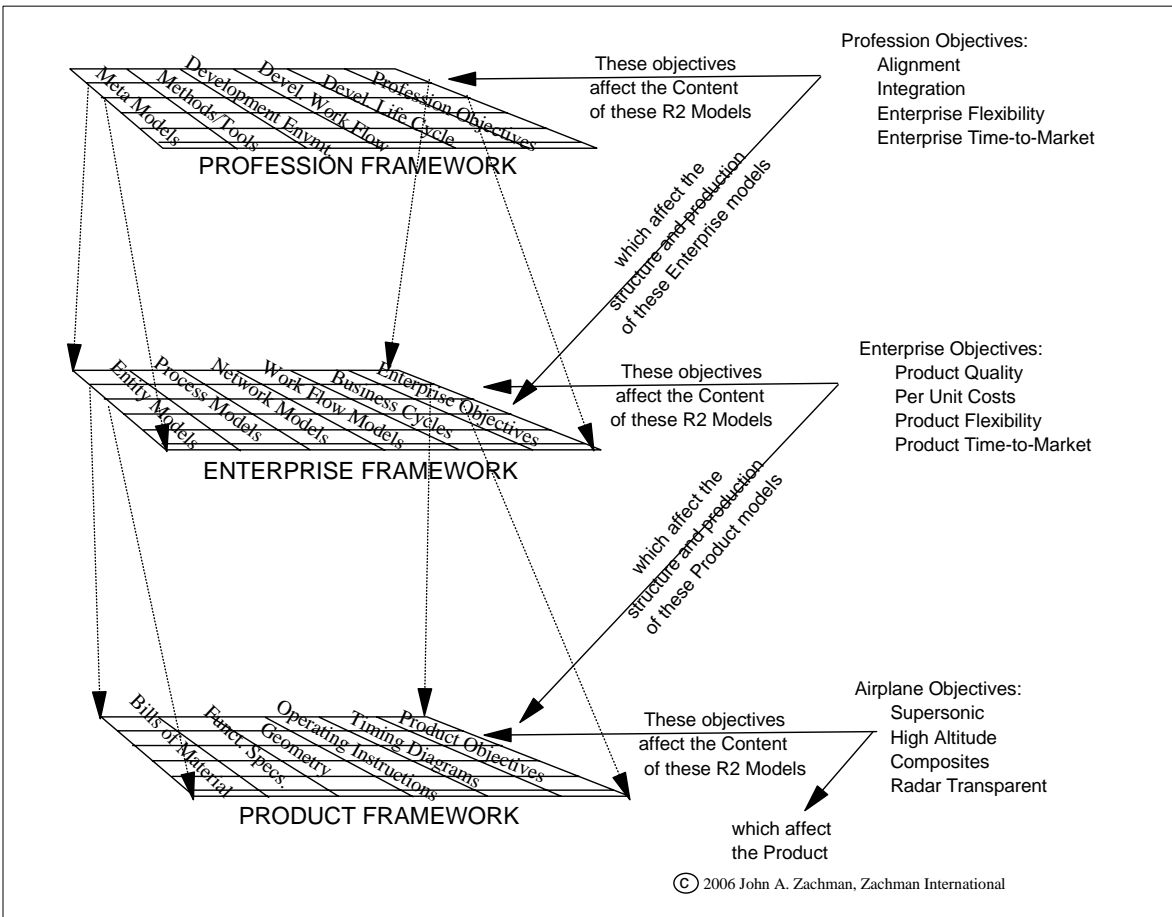


© 2006 John A. Zachman, Zachman International

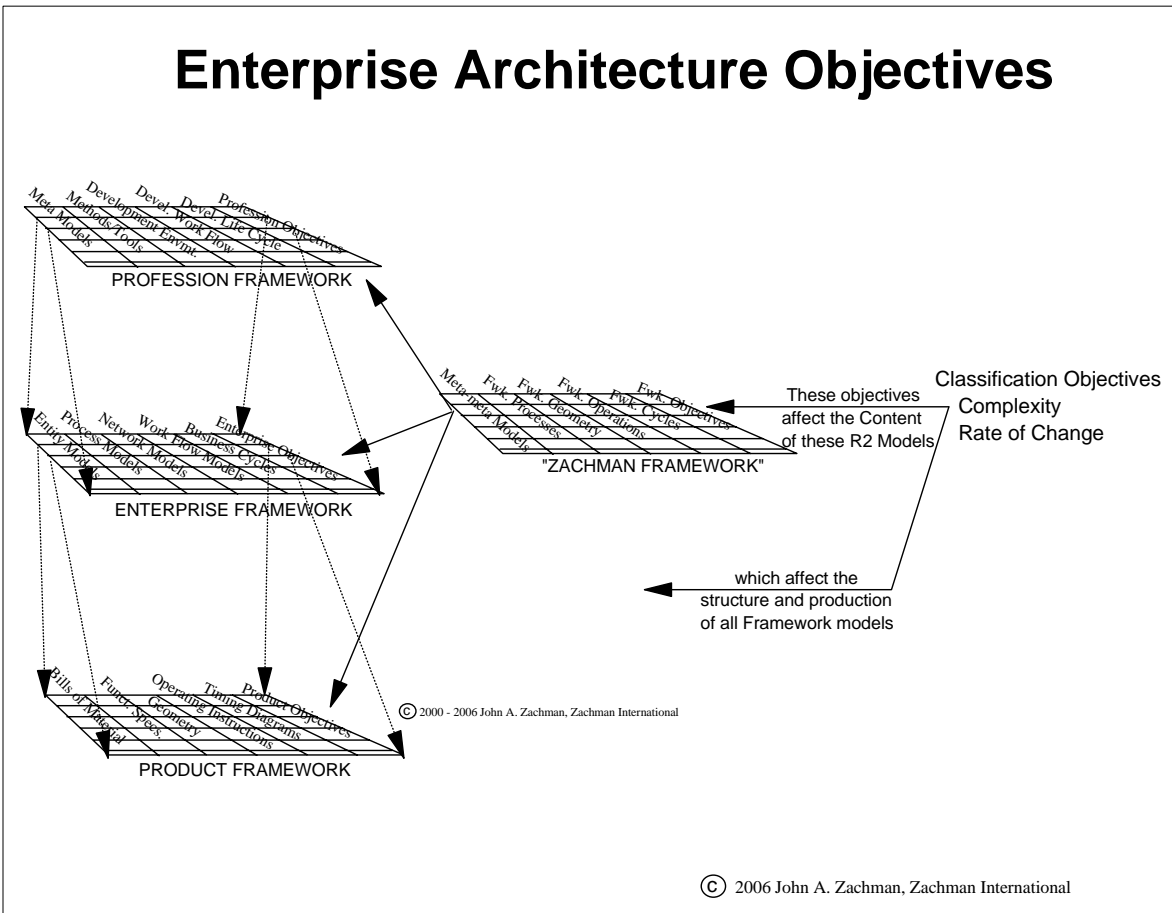
Profession Objectives



© 2006 John A. Zachman, Zachman International



Enterprise Architecture Objectives



What Makes It All Doable

What makes this doable ... IT IS THE SAME FRAMEWORK.

The logic is THE SAME. What changes is only the contents ... the instances. The metamodels for all the Frameworks are generated out of the same repository.

Each Cell is SIMPLE. One single variable from one single perspective.
PRIMITIVES. Independent Variables.

You can "normalize" EVERYTHING ... the ENTIRE set of
Enterprise Knowledge Domains.

You could engineer the Enterprise to be LEAN and MEAN!
And ... "ASSEMBLE IT TO ORDER"!

© 2006 John A. Zachman, Zachman International

In conclusion ...

Someday ... you are going to wish

Forget YOU !!!

**Someday ... THE ENTERPRISE
is going to wish**

© 2006 John A. Zachman, Zachman International