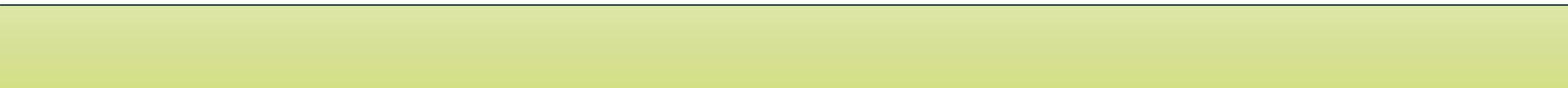




# Requirements Presentation

Dr. David Gilbert, D.Sc. CBAP, PMP retired.

December 29, 2018



# About the Presenter



## **Dr. David W. Gilbert, D.Sc.**

### **Education:**

Doctor of Science (D.Sc.) Information Systems and Communications; Robert Morris University  
Masters of Science (MS) Information Systems Management; Seattle Pacific University  
Masters Business Administration (MBA) Management; Seattle Pacific University  
Bachelor of Science (BS) Marketing; Central Washington University

### **Certifications and Certificates:**

Certified Business Analysis Professional (CBAP); International Institute of Business Analysis (IIBA)  
Former Project Management Professional (PMP); Project Management Institute (PMI) Retired

### **Contact Points:**

LinkedIn: <https://www.linkedin.com/in/dr-david-gilbert-d-sc-pmp-cbap-ba659a7/>

Facebook: <https://www.facebook.com/david.w.gilbert.9>

# Purpose of Presentation

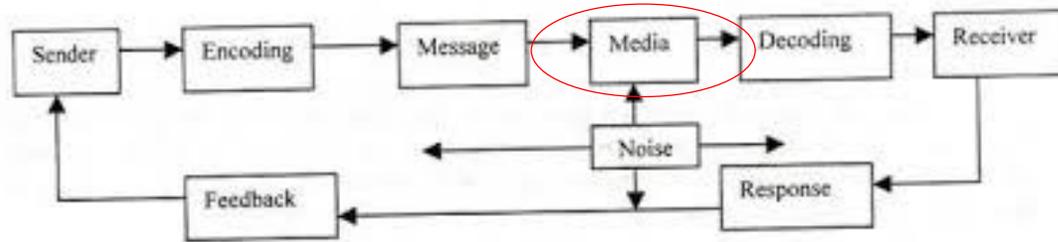
- Introduction of Requirements/Design/Build as a Formal Engineering Process
- Introduction of Team Roles within a large application design
- Introduction of Design Features
- Introduction of concept of design/build anywhere

# Presentation Contents

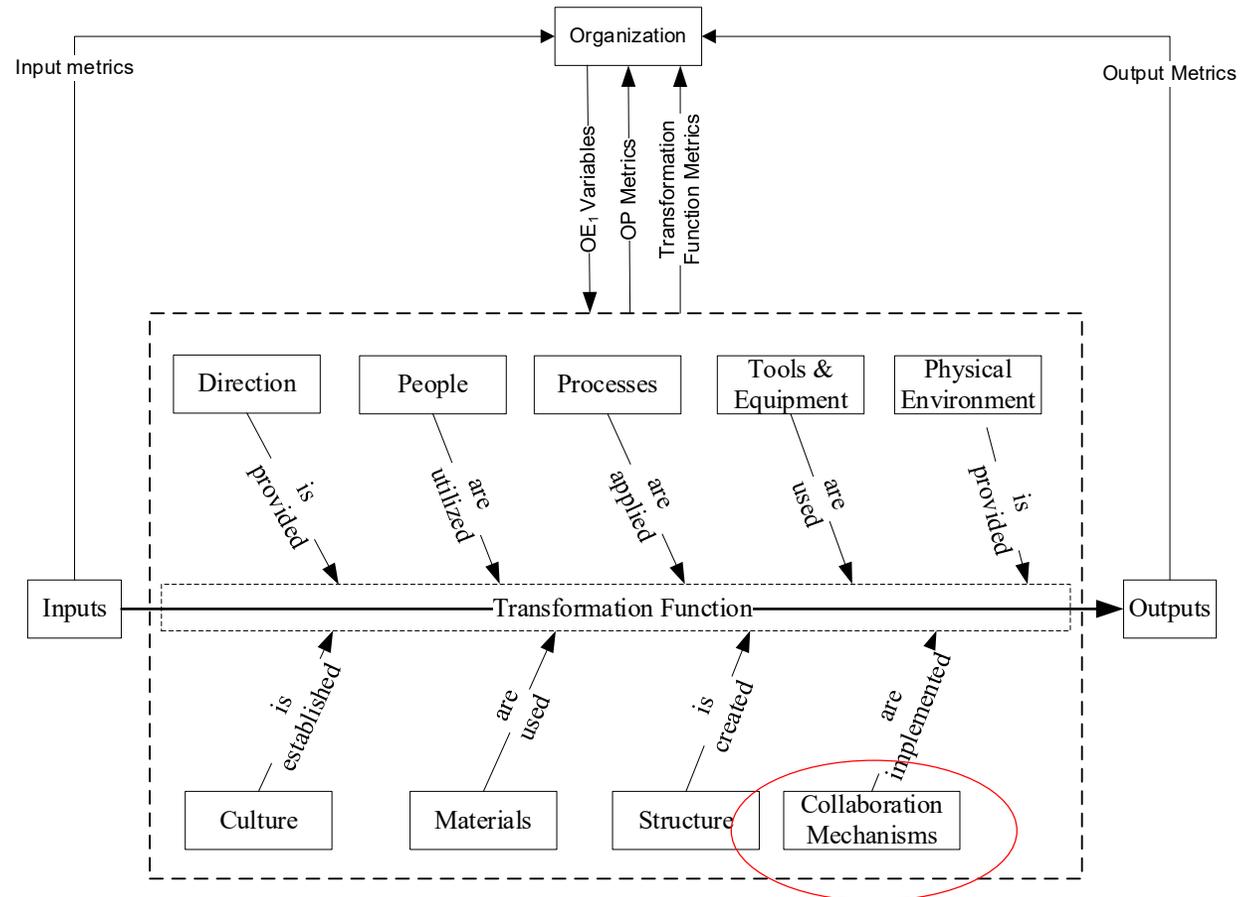
- Requirements Design Build Process
- Requirements Design Build Team
- Design Features
- Requirements Definitions
- Stakeholder Requirements
- Use Cases, DFD
- Wireframes
- Design Package
- Summary

# Where are you in the Universe

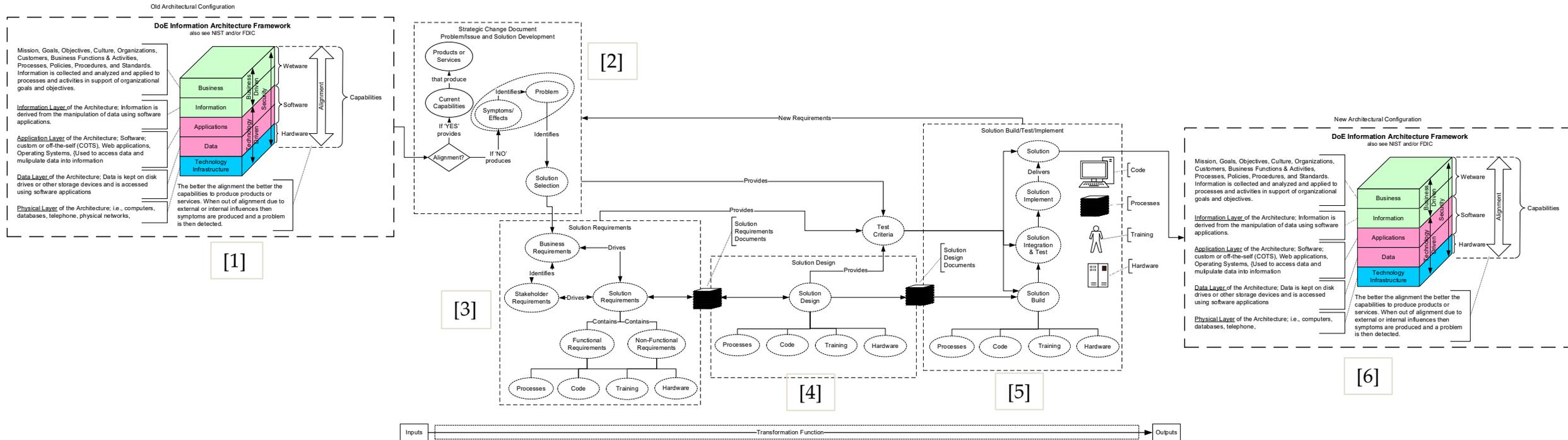
FIGURE 6.2: WILBUR SCHIRAMM'S MODEL



- You are part of the Media within the communication model.
- You develop information systems that support supports business needs.
- You develop information systems that support supports the Organizational Effectiveness ( $OE_1$ ) Collaboration Mechanisms variable supporting an organization's transformation function.



# Requirements/Design/Build Process:



[1] Current Architectural Configuration

[2] Change - Change Document

[3] Requirements - Requirements Document

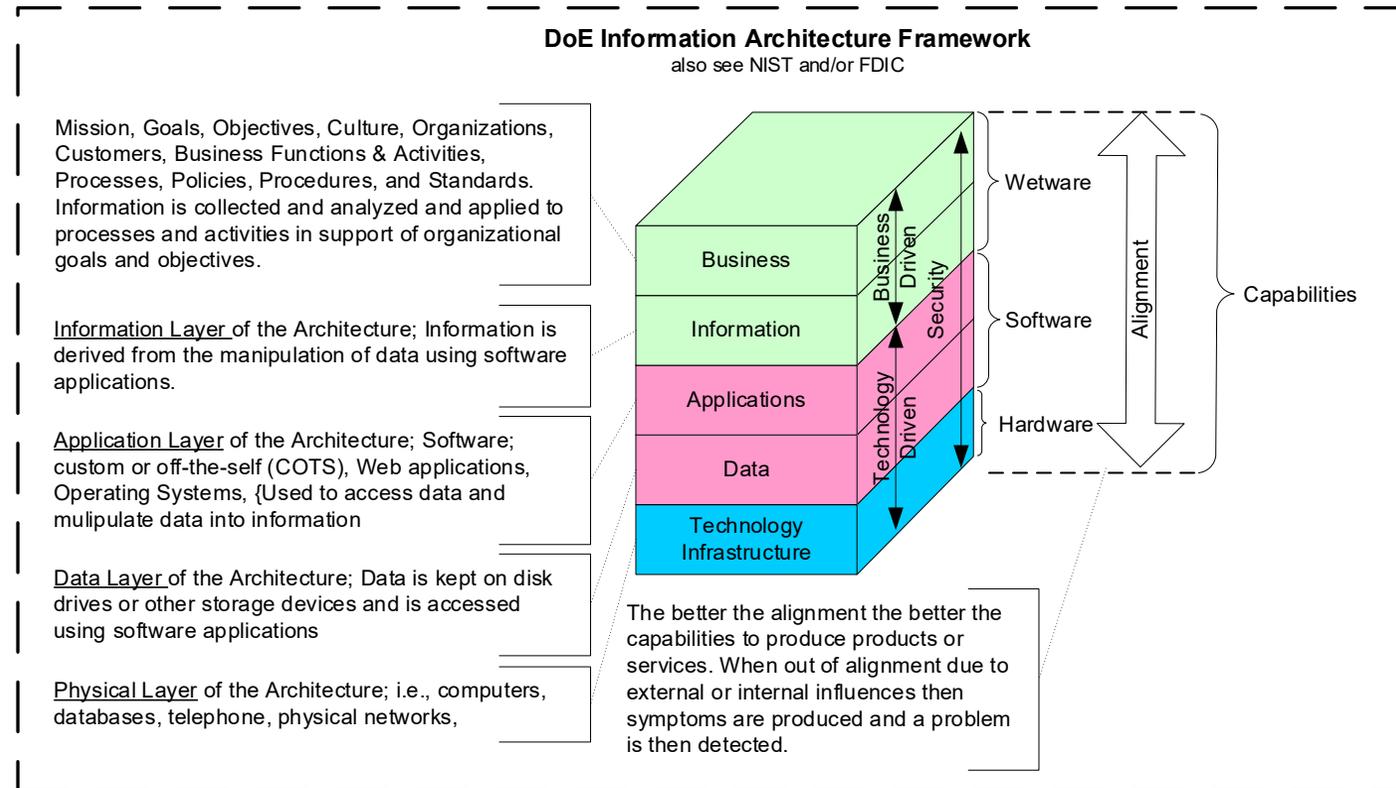
[4] Design – Design Documents

[5] Build/Test/Implement – Hardware/Software/Processes

[6] New Architectural Configuration

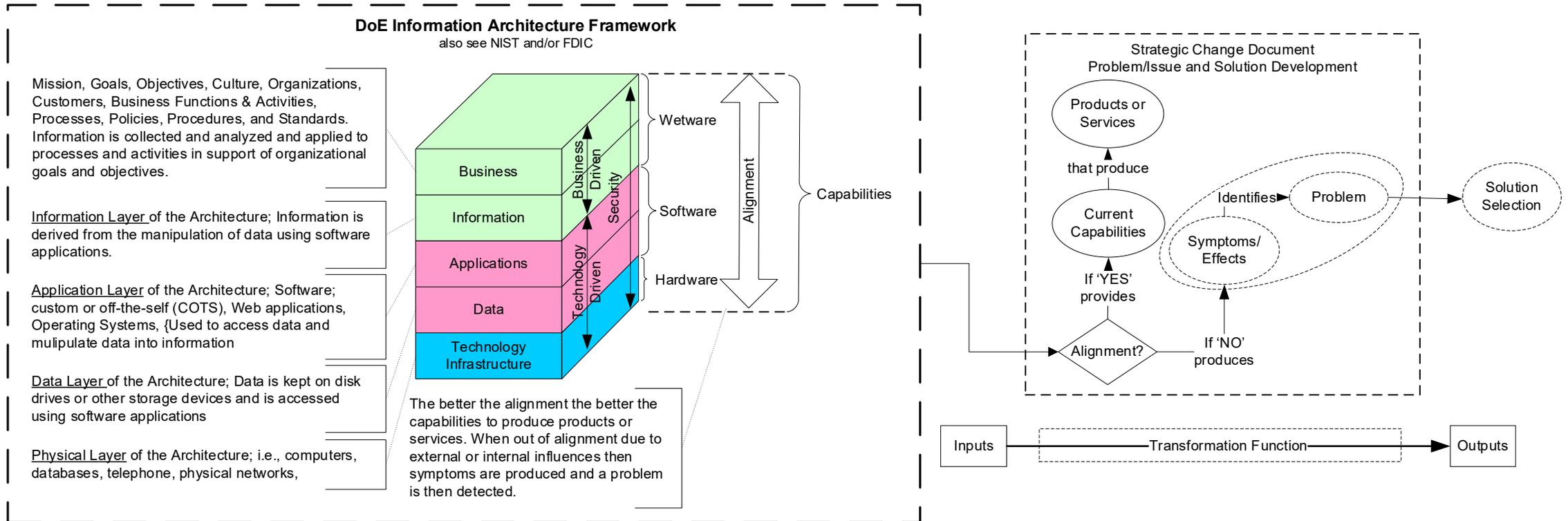
# Architectural Configuration

- Architecture
  - Business
  - Information
  - Application
  - Data
  - Technology/Infrastructure



# Change – Problem/Solution Selection

Old Architectural Configuration

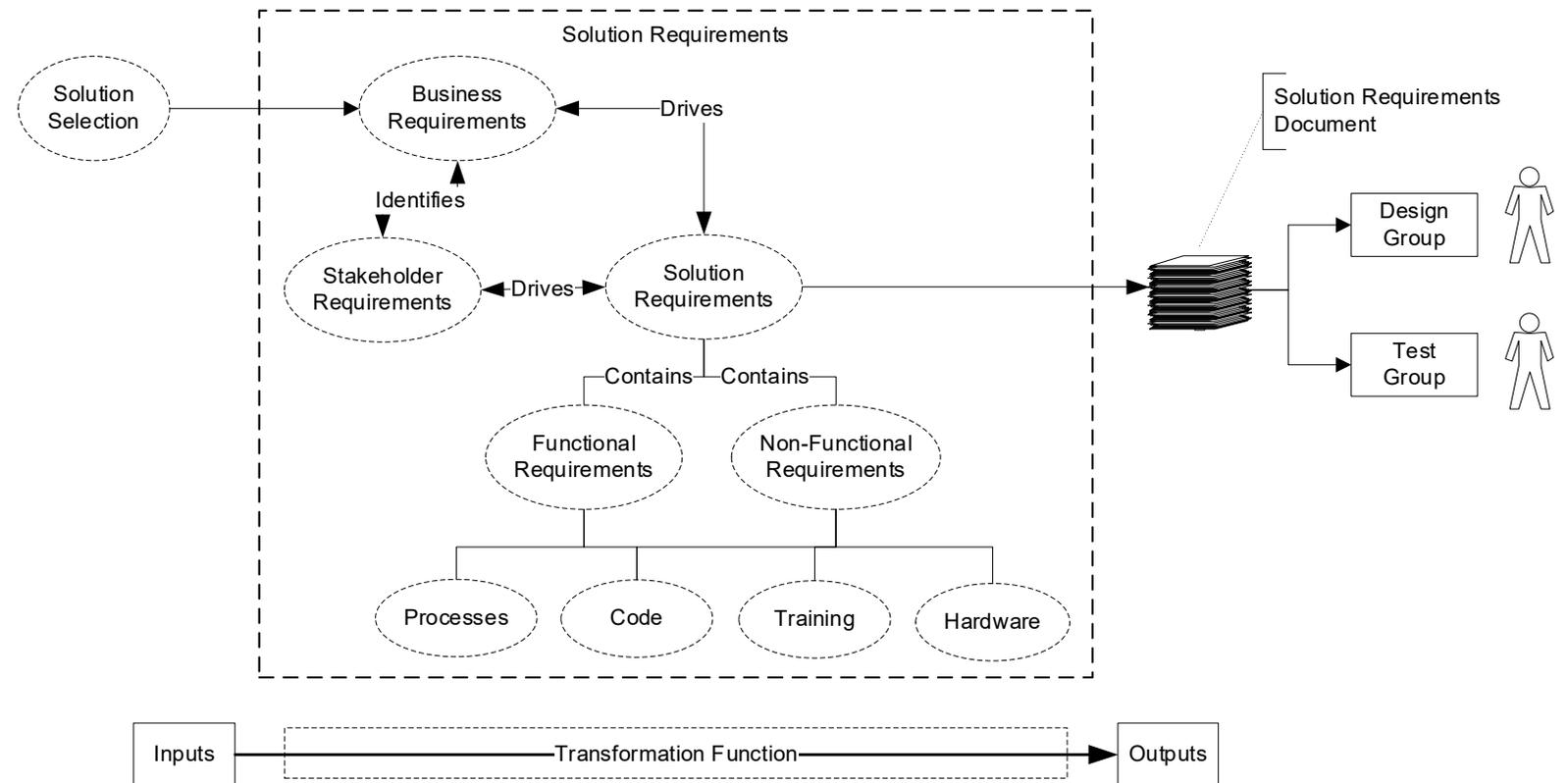


- Failure of alignment will result in symptoms of a problem.
- Problem needs to be identified

- Solution Options Presented
- Solution Selected

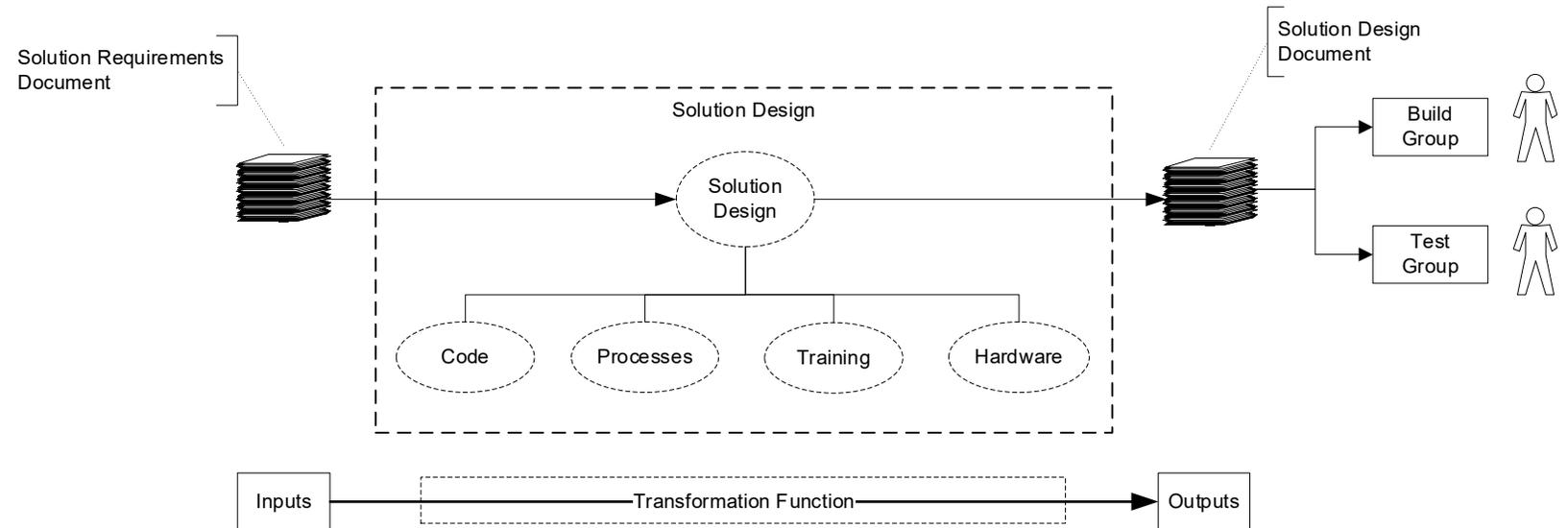
# Change – Solution Requirements

- Input: Change Document with Authorization – Project Begins
- Requirements development process
- Output: Approved requirements document

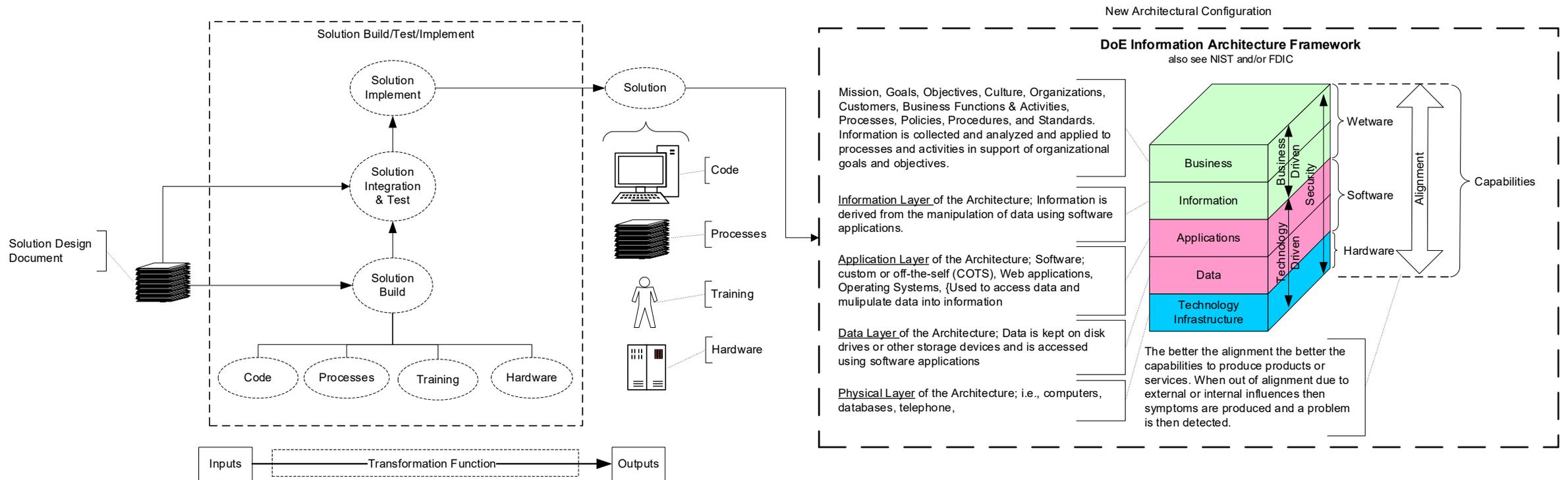


# Change – Solution Design

- Input: Requirements Document
- Design Process
- Output: Design Documents



# Change – Build, Test, Implement



- Input: Design Documents
- Build/Test/Implement
- New Architectural Configuration

# Design Build Team

- Management Team

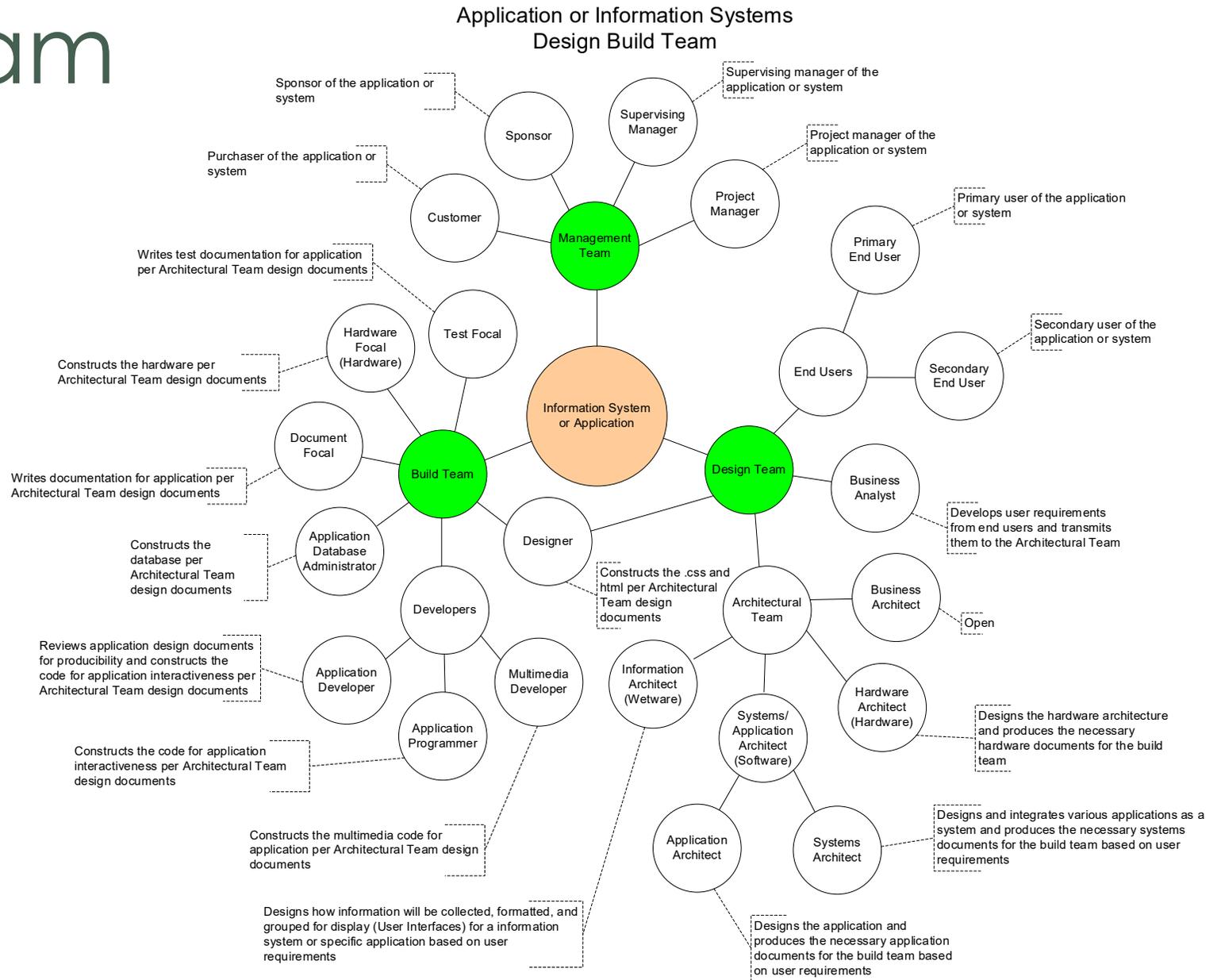
- Customer
- Sponsor
- Supervising Manager
- Project Manager

- Design Team

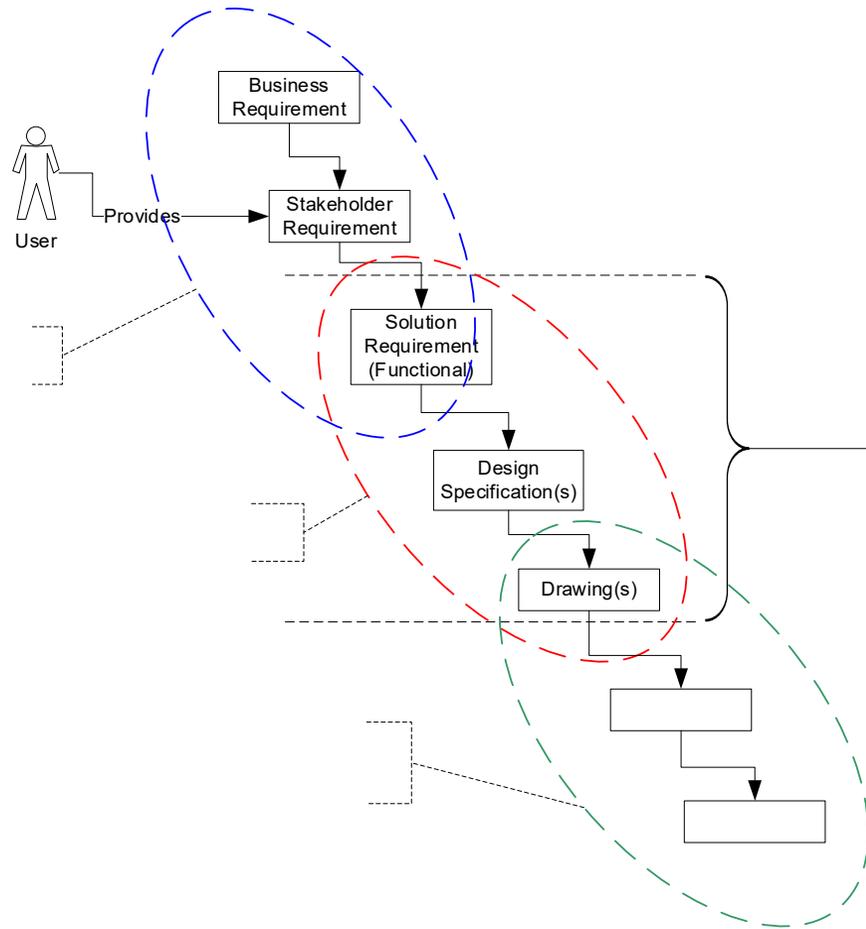
- End-Users (Primary, Secondary)
- Business Analyst
- Architectural Team
  - Business Architect
  - Hardware Architect
  - Information Architect
  - Systems/Application Architect
    - Designer
    - Application Architect (Developer)
    - Systems Architect

- Build Team

- Developers
  - Application Developer
  - Application Programmer
  - Multi-Media Developer
- Database Administrator
- Documentation Focal
- Hardware Focal
- Test/Implementation Focal



# Design of Features

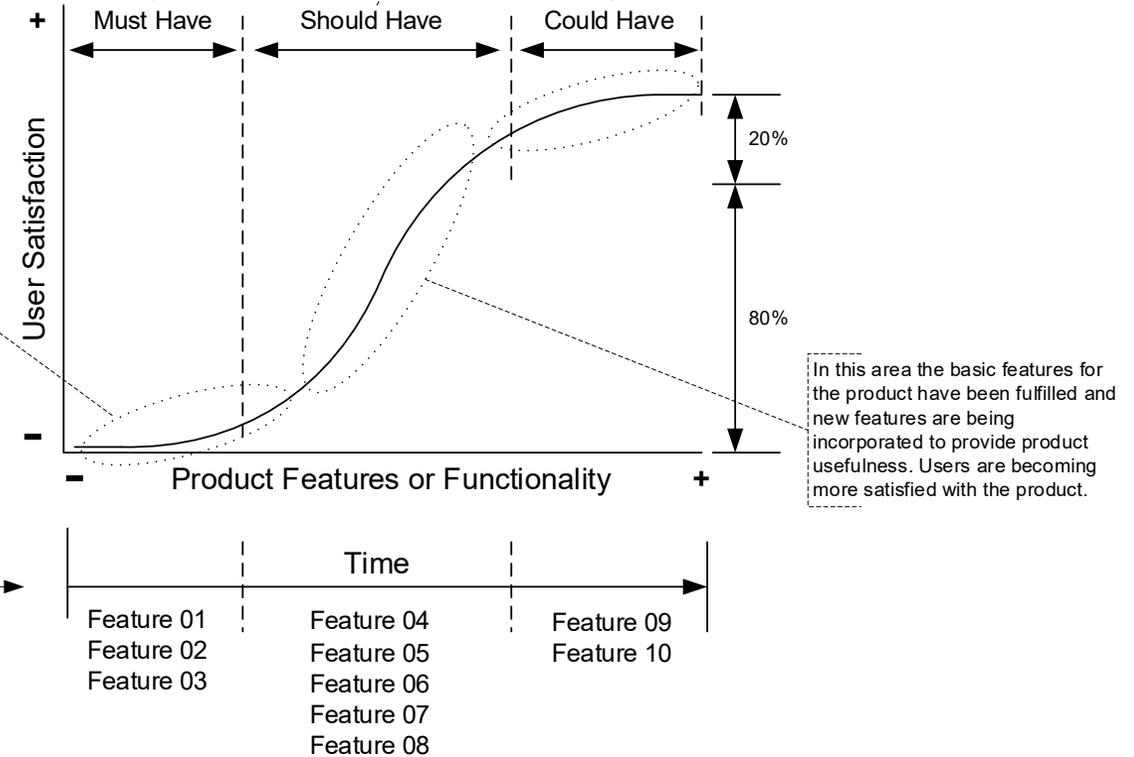


Must Have's are those basic features of the product that will fulfill the very basic necessary needs of the user.

Should Have's are those features of the product that provide usefulness to the user.

Could Have's are those features of the product that provide usefulness but are not necessary to the user.

In this area the basic features for the product are being fulfilled. Users will still be unsatisfied with the product.



- **Must Haves:** Basic features needed for the user
- **Should Haves:** Additional features that increases application usefulness wanted by the user
- **Could Haves:** Additional features that increase application usefulness of the application not requested by the user

# Requirements Definitions:

- Requirement Definitions (IIBA v2):
  - 1. A condition or capability needed by a stakeholder to solve a problem or achieve an objective.
  - 2. A condition or capability that must be met or possessed by a solution or solution
  - 3. A documented representation of a condition or capability as in (1) or (2)
- Business Requirements (IIBA v3): Statements of goals, objectives, and outcomes that describe why a change has been initiated. They can apply to the whole of an enterprise, a business area, or a specific initiative.
- Stakeholder Requirements (IIBA v3): Describes the needs of stakeholders that must be met in order to achieve the business requirements. They may serve as a bridge between business and solution requirements.
- Solution Requirements (IIBA v3): Describes the capabilities and qualities of a solution that meets the stakeholder requirements. They provide the appropriate level of detail to allow for the development and implementation of the solution.
  - Functional Requirements: Describe the capabilities that a solution must have in terms of the behaviour and information that the solution will manage.
  - Non-Functional Requirements: Describe conditions under which a solution must remain effective or qualities that a solution must have.
- Design Specifications: *Design Specification* is usually a *design* document that describes all data, architectural, interface and component-level *design* for the software. A *design specification* provides explicit information about the requirements for a product and how the product is to be put together.
- Transition Requirements (IIBA v3): describe the capabilities that the solution must have and the conditions the solution must meet to facilitate transition from the current state to the future state, but which are not needed once the change is complete. They are differentiated from other requirements types because they are of a temporary nature. Transition requirements address topics such as data conversion, training, and business continuity.

# Business Requirements:

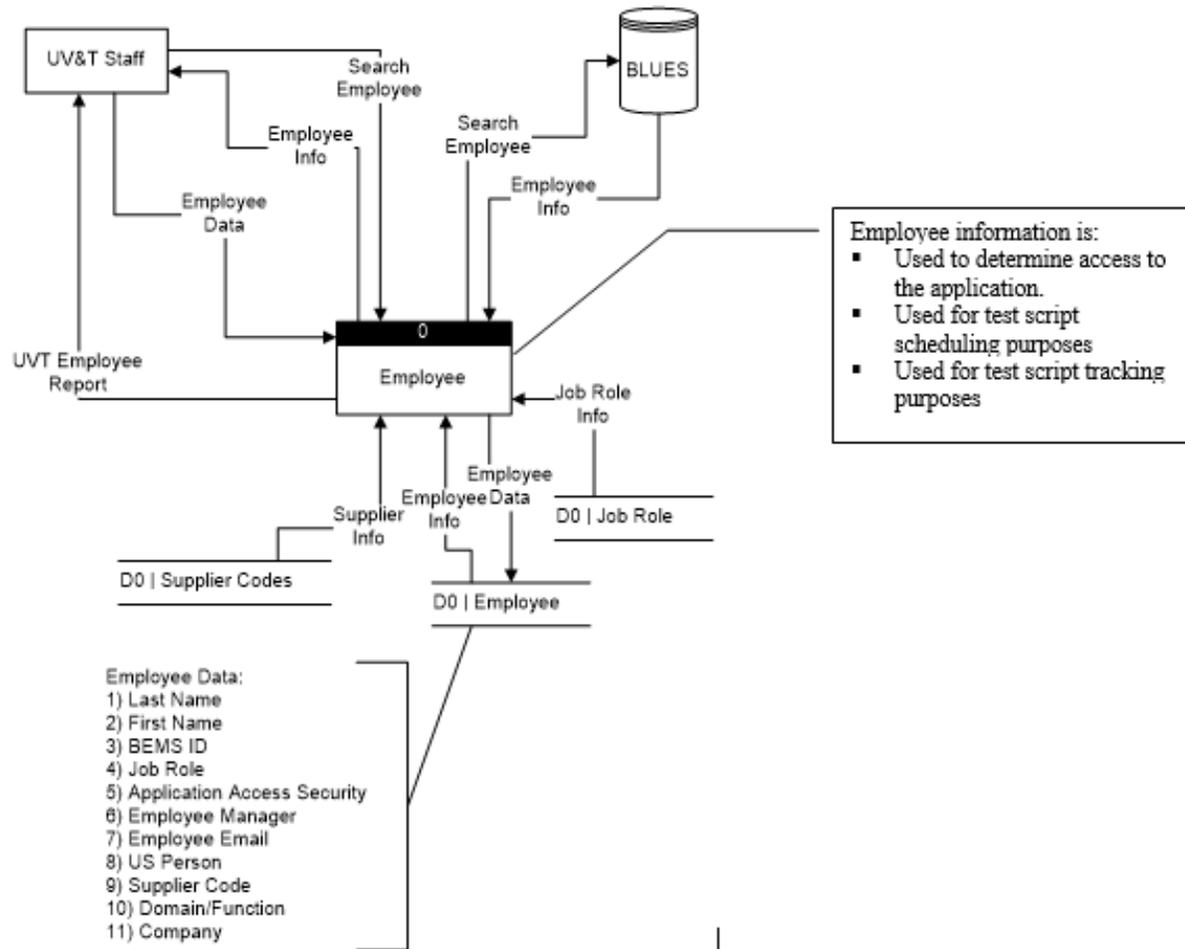
- ACME Nacelles: Design and builds custom warp nacelles
- ACME Computing: Internal organization that design and builds custom computing systems for ACME Nacelles.
- ACME User Validation & Test: Conducts User Testing on internally built computing systems for ACME Computing.

Organization	Business Need	Business Want
<b>ACME Computing and Divisional Functional Executive Management</b>	Executive Management needs the capability to ensure that both new, updated, and/or existing computing application functionality and associated process documentation meet ACME Computing standards for delivery to ACME Warp Nacelle programs.	Executive Management wants a tool that tests and reports that both new, updated, and/or existing application functionality and/or process documentation meet ACME Computing standards for delivery to ACME Warp Nacelle Programs for lower Functional/Domain organizations for which ACME Computing has both responsibility and authority to manage and regulate.
<b>ACME User Validation &amp; Test Management</b>	ACME User Validation & Test Management needs the capability to facilitate, measure, and report UV&T testing for new, updated, and/or existing application functionality and/or process documentation for the benefit of ACME Computing and ACME Warp Nacelle Functional Organizations	ACME User Validation & Test Management wants a tool that prepares for testing, schedules test scripts, executes test scripts, and reports testing status for new, updated, and/or existing application functionality and/or process documentation meet ACME Computing standards for delivery to ACME Warp Nacelle Programs for delivery for their specific area, discipline, organization, product, or service.

# Stakeholder Requirements:

Organization	Stakeholder(s)	Description	Functional Requirement (Need)	Functional Requirement (Want)
ACME User Validation & Test (UV&T)	ACME User Validation & Test (UV&T) Staff Member	ACME User UV&T staff members coordinate and facilitate all aspects of User Validation and Test for all release points; ie blockpoints, delta-rolls, and e-rolls.	ACME User Validation & Test (UV&T) Staff member needs the capability to prepare for UV&T testing	Want: ACME UV&T Staff member wants the capability to enter, update, or delete employee data into the application. Be able to: Search employee data from within the application or ACME BLUES system by last Name or BEMS ID number Be able to: Visually see display employee data retrived from search criteria Be able to: Update retrieved employee data in the application as necessary
				Employee Data
				First Name
				Last Name
				Middle Initial
				Job Roles
				Security Review (Yes/No)
				Organization
				Enabled (able to access the application no matter what the access permissions)
				Email Address
				Email Notification
				Domain
				Access permissions roles
				Admin – Admin roll has access to perform all functions in the application
				Manager – Manager roll can view all reports, complete scripts and testing reports
				Export Focal – Export Focal roll can only apply and/or approve script ECCN number
				Lab Scheduler - Schedule can only scheduled scripts
				Subject Matter Expert – SME roll can only create, retrieve, update, or delete scripts
				Tester - Tester roll can only perform the testing of scripts
				Viewer – Can only retrieve specific information in the form of reports.

# Requirements: DFD, Use Case



## Employee Process

**Process No:** 0  
**Process Title:** Create Employee  
**Organization:** ACME Computing  
**Project:** ACME TestMS Replacement  
**Project Manager:** David Gilbert

<b>Use Case Name/Process:</b> ACME UVT Staff Member creates employee			
<b>Short Description:</b> ACME UVT Staff Member searches and creates an employee to either create test script, administer ACME UVT testing, performs testing, or receives ACME UVT testing information.			
<b>Trigger:</b> ACME UVT Staff Member is notified that an employee needs to be add to the ACME UVT process			
<b>Entity(s):</b> ACME UVT Staff			
Step	Entity	Step	Process
1	ACME UVT Staff	ACME UVT Staff Member searches for employee by name or BEMS ID.	Process returns correct name of employee
2	ACME UVT Staff	ACME UVT Staff Member adds, updates, deletes employee to UVT test process	Process records employee data
<b>Notes:</b> None			

# Requirements: Wireframes

1) Example of form to search for employee either in ACME BLUES or within the testing database

Manage Employee  
Find Person

Last Name:

First Name:

Bemsid:

2) Example of form to create or update an employee in the testing database

BEMS ID: 88

Last Name:

First Name:

MI:

Job title:

Security Review:

Person Enabled:

Organization:

Person Type:

Email Address:

Email Notification Enabled:

Domain:

Provides basic information on employee accessing the database application

## Roles

- Admin
- Domain Project Manager
- Export Focal
- IPST Staff
- Lab Scheduler
- Portal Access
- Subject Matter Expert
- Testing
- Viewer

This area provides the permissions given to the employee to access the application.

- Design wireframe drawings based on Stakeholder Requirements, DFD, and Use Case information

# Requirements for Employee Data Update

Functional Requirement (Need)	Functional Requirement (Want)
ACME User Validation & Test (UV&T) Staff member needs the capability to prepare for UV&T testing	Want: ACME UV&T Staff member wants the capability to enter, update, or delete employee data into the application. Be able to: Search employee data from within the application or ACME BLUES system by last Name or BEMS ID number Be able to: Visually see display employee data retrieved from search criteria Be able to: Update retrieved employee data in the application as necessary
	<b>Employee Data</b>
	First Name
	Last Name
	Middle Initial
	Job Roles
	Security Review (Yes/No)
	Organization
	Enabled (able to access the application no matter what the access permissions)
	Email Address
	Email Notification
	Domain
	<b>Access permissions roles</b>
	Admin – Admin roll has access to perform all functions in the application
	Manager – Manager roll can view all reports, complete scripts and testing reports
	Export Focal – Export Focal roll can only apply and/or approve script ECCN number
	Lab Scheduler - Schedule can only scheduled scripts
	Subject Matter Expert – SME roll can only create, retrieve, update, or delete scripts
	Tester - Tester roll can only perform the testing of scripts
	Viewer – Can only retrieve specific information in the form of reports.

## 1) Example of form to search for employee either in ACME BLUES or within the testing database

Manage Employee  
Find Person

Last Name:   
First Name:   
Bemsid:

## 2) Example of form to create or update an employee in the testing database

BEMS ID: 88  
Last Name:   
First Name:   
MI:   
Job title:   
Security Review:    
Person Enabled:   
Organization:   
Person Type:   
Email Address:   
Email Notification Enabled:   
Domain:

**Roles**

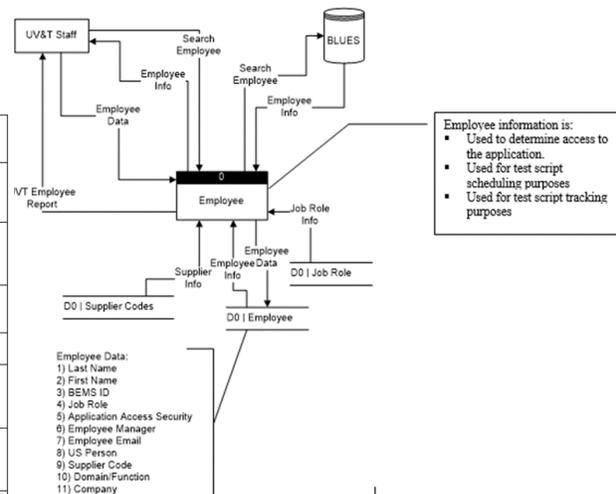
- Admin
- Domain Project Manager
- Export Focal
- IPST Staff
- Lab Scheduler
- Portal Access
- Subject Matter Expert
- Testing
- Viewer

Provides basic information on employee accessing the database application

This area provides the permissions given to the employee to access the application.

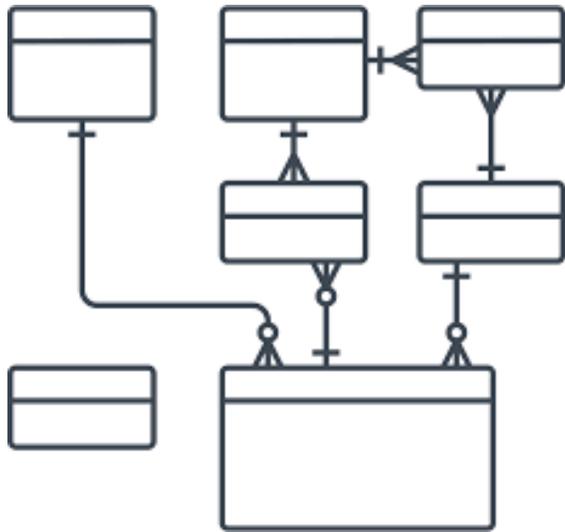
**Employee Process**  
Process No: 0  
Process Title: Create Employee  
Organization: ACME Computing  
Project: ACME TestMS Replacement  
Project Manager: David Gilbert

<b>Use Case Name/Process:</b> ACME UVT Staff Member creates employee			
<b>Short Description:</b> ACME UVT Staff Member searches and creates an employee to either create test script, administer ACME UVT testing, performs testing, or receives ACME UVT testing information.			
<b>Trigger:</b> ACME UVT Staff Member is notified that an employee needs to be add to the ACME UVT process			
<b>Entity(s):</b> ACME UVT Staff			
Step	Entity	Step	Process
1	ACME UVT Staff	ACME UVT Staff Member searches for employee by name or BEMS ID.	Process returns correct name of employee
2	ACME UVT Staff	ACME UVT Staff Member adds, updates, deletes employee to UVT test process	Process records employee data
<b>Notes:</b> None			



# Design Package

- Create Employee Data Update design package per approved requirements. Similar to: \_\_\_\_\_
  - Database Design
  - Architectural Design
  - Navigational Design
  - Business Layer Design (Views, Procedures, CFCs, Etc.)
  - Presentation Layer Design



Database Table – Person

Project Name: TestMS 2.0  
 Customer: User Validation & Test  
 Customer Contact Point: Kat Acme  
 Project Manager: David Gilbert  
 Project Analyst: David Gilbert  
 Project Chief Architect: David Gilbert

Database: TestMS  
 Table Title: Person  
 Table Name: Person  
 Table Type: Data  
 Table Description: Contains specific data of the people use the application  
 Table Picture:

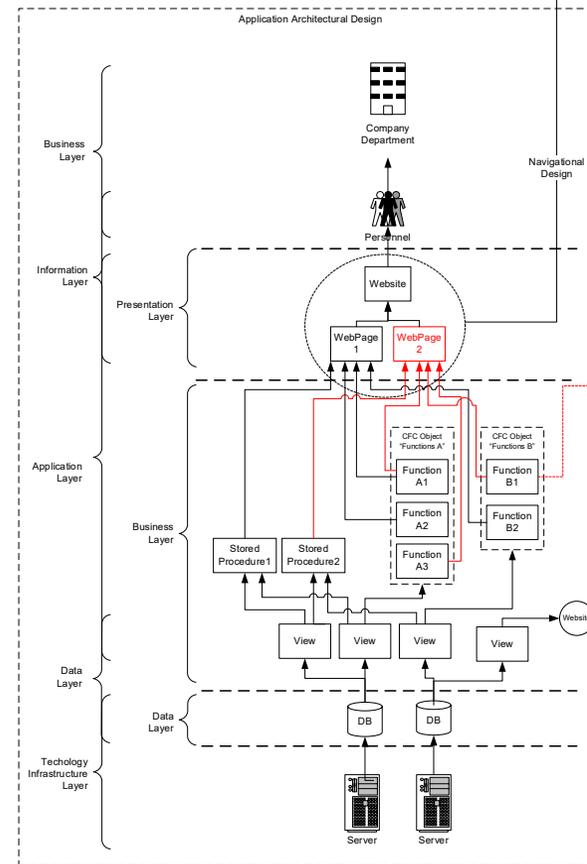
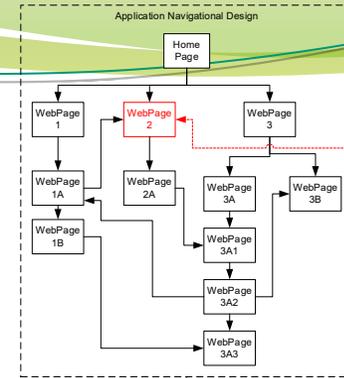
Person	
BEMSID (PK)	
LN	
FN (FK)	
JT	
Email	
Partner	
CompanyName	
SupplierCode	
USPerson	
Country	
Enabled	

Field Name	Data Type	Key	Field Description
BEMSID	numeric(18,0)	PK	Unique ID number for the Blockpoint (Auto generated)
LN	varchar(50)		Last Name of the person
FN	varchar(50)		First Name of the person
JT	int	FK	Id of the Job Title of the person
Email	varchar(250)		Email of the person
Partner	char(1)		Is the person a partner (Y/N)
CompanyName	varchar(50)		Company name the person belongs to
SupplierCode	int		The supplier code of the company of the person
USPerson	char(1)		US person (Y/N)
Country	char(10)		Country the person is a legal residence
Enabled	char(1)		Allows the person to access the application (Y/N)

Business Rules:  
 ACME UVT Staff Analyst shall enter the data into the PT table as required.

Notes:  
 Data for this table is downloaded from the ACME Business Employee Data Warehouse or Blues and shall be accessed by the web application. The user shall access BEDW or Blues then make the selection of the person to be downloaded into TestMS

Business Analyst	Architect	Developer	DBA	Project Manager
On Record: David Gilbert	On Record: David Gilbert	On Record: David Gilbert		On Record: David Gilbert



```

ColdFusion Component (CFC)
Class Functions B
<cfcomponent>
  <cfquery B1>
  <cfquery>
  Select *
  From table
  </cfquery>
  </cffunction B1>
  <cfquery B2>
  <cfquery>
  Select *
  From table
  </cfquery>
  </cffunction B2>
  </cfcomponent>
    
```

**WebPage2 (CFM)**

**User Interface Design**  
(Picture)

**Page Description and Functionality**  
 This page allow the user to ...

**Solution Requirements:**  
 Functional Requirements & Specifications:  
 Functional Requirement 1  
 Functional Requirement 2

Non Functional Requirements & Specifications:  
 Non Functional Requirement 1  
 Non Functional Requirement 2

**Pseudo Code:**  
 <cfquery Name="name" DataSource="DB">  
 Exec Stored Procedure 2  
 </cfquery>

<cfinvoke>  
 Component="Class Function A"  
 Method="Function A1"  
 ReturnVariable="ReturnData A1"  
 </cfinvoke>

<cfinvoke>  
 Component="Class Function A"  
 Method="Function A3"  
 ReturnVariable="ReturnData A3"  
 </cfinvoke>

<cfinvoke>  
 Component="Class Function B"  
 Method="Function B1"  
 ReturnVariable="ReturnData B1"  
 </cfinvoke>

<html>  
 <head>  
 </head>  
 <body>

<cfoutput query="ReturnData B1">  
 #ReturnData.Data#  
 </cfoutput>

</body>  
 </html>

# Summary

- What we have discussed:
  - Requirements Design Build Process
  - Design Build Team
  - Requirements
    - Business Requirements
    - Stakeholder Requirements
    - DFD, Use Cases
    - Wireframes
  - Design Package

# References:

- **Database Design for Mere Mortals : A Hands-On Guide to Relational Database Design / Edition 1**
  - **ISBN-10: 0201694719**
  - **ISBN-13: 9780201694710**