PRECISION STUDIO

A LEADER IN EFFECTIVE COMMUNICATION

Project Management Methodology

Architecture & Design SubPhase

Architecture & Design Sub-Phase

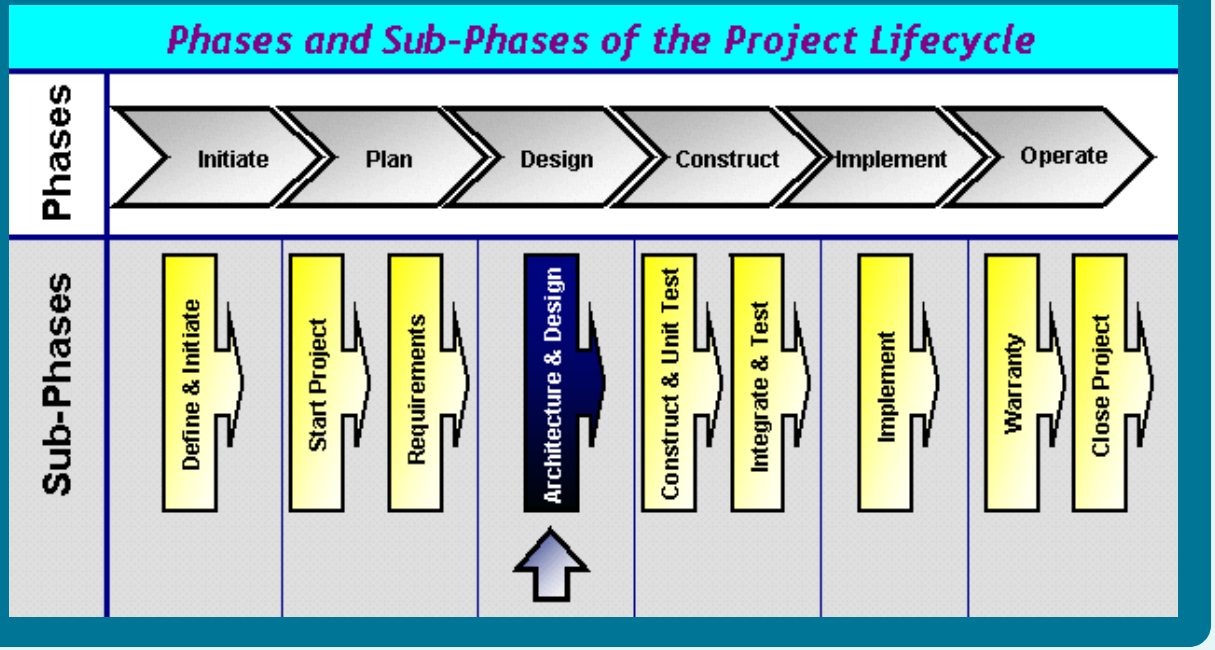
Agenda

- Course Outline
- The Project Lifecycle
- Sub-Phase Purpose
- Team Members
- Inputs/Outputs
- Overview of Sub-Phase Processes

Course Purpose

- Familiarize team members with the Architecture & Design Sub-Phase processes.
- Understand process flows, team member roles, and artifacts employed.
- Employ the course concepts to participate as a team member in the preparation of critical sub-phase deliverables.

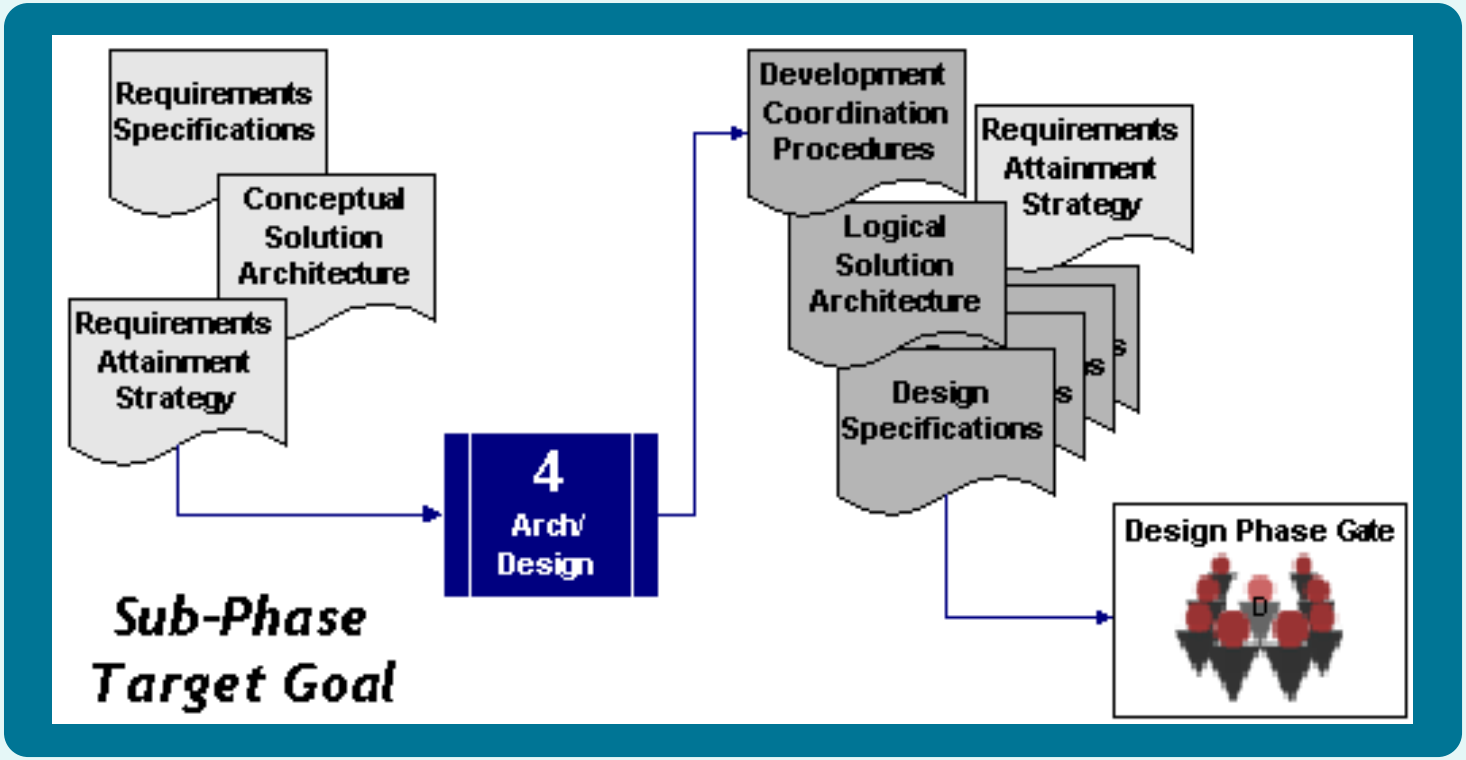
The Project Life Cycle



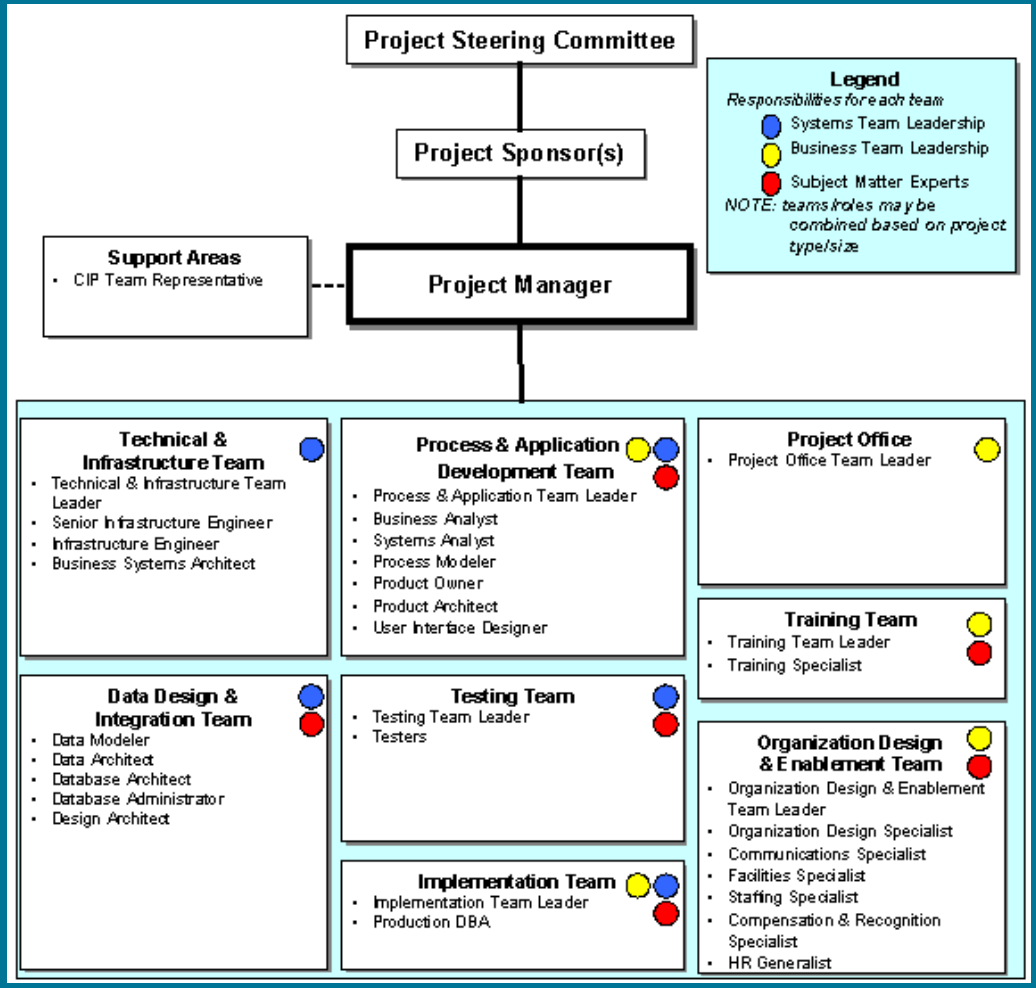
- A Project Solutions Methodology defines a standard project lifecycle.
- The Architecture and Design Sub-Phase is executed during the Design Phase of the standard project lifecycle

Architecture & Design – What Will You Accomplish?

The purpose of the Architecture & Design Sub-Phase is to determine "how" a solution will be structured to achieve targeted business objectives.

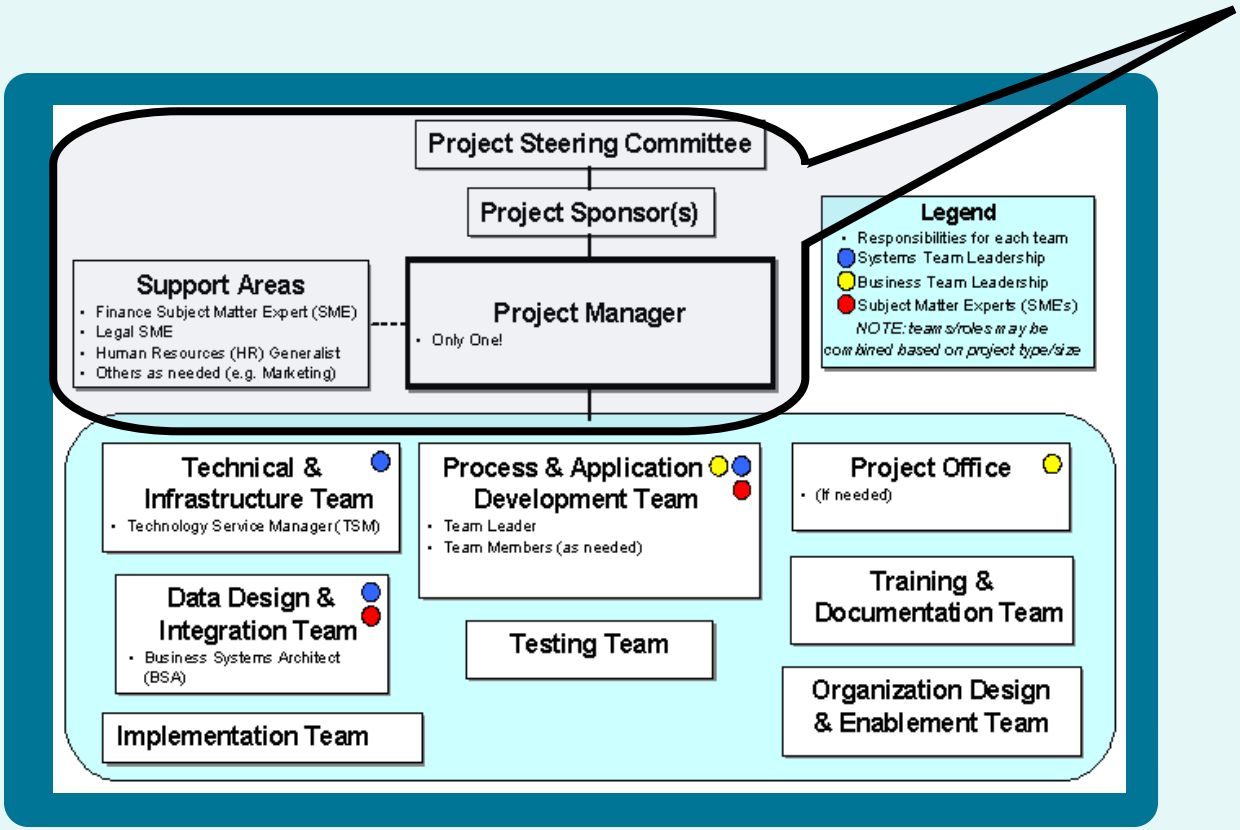


Who Are Your Team Members?



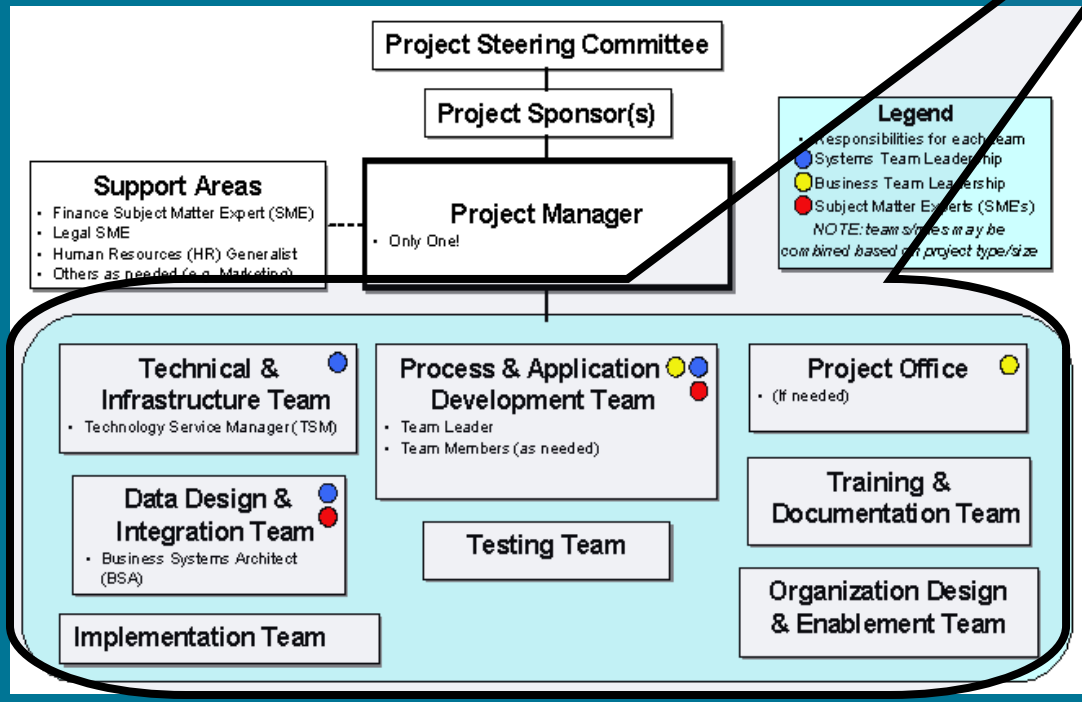
- Individuals with the appropriate skills collaborating to drive a successful project.
- Team roles are subdivided according to functional requirements.

The Management Team



- The Steering Committee provides senior management oversight and direction for a project.
- The Project Sponsor/Business Partner is the "owner" of a project.
- The Project Manager's primary responsibility is to manage and coordinate day-to-day project activities.
- Support Areas provide Subject Matter Expertise

The Support Teams



- The Technical & Infrastructure Team defines the Logical Technology Architecture.
- The Data Design & Integration Team produces Data Design Specifications and a Logical Data Architecture.
- The Process & Application Team develop the various architectures and designs.
- The Project Office provides administrative support for Common Project Management Processes.
- The Training and Documentation Team design all educational materials called for in the Work Force Enablement Strategy.
- The Organization Design Team produces Organization Design Specifications and a Logical Organization Architecture.
- The Testing Team develop test plan and the test cases.
- The Implementation Team is responsible for the feasibility of the overall release plan.

What Critical Outputs Will You Create?

Development Coordination Procedures

- Documents how designs will be aligned and coordinated across multiple subject areas to ensure that each of the logical architectures will work with and support one another.

Logical Solution Architecture

- A compilation of deliverables that together is an integrated engineered design that documents the overall solution. This deliverable includes business process, data, application, organization, and technology architectures.

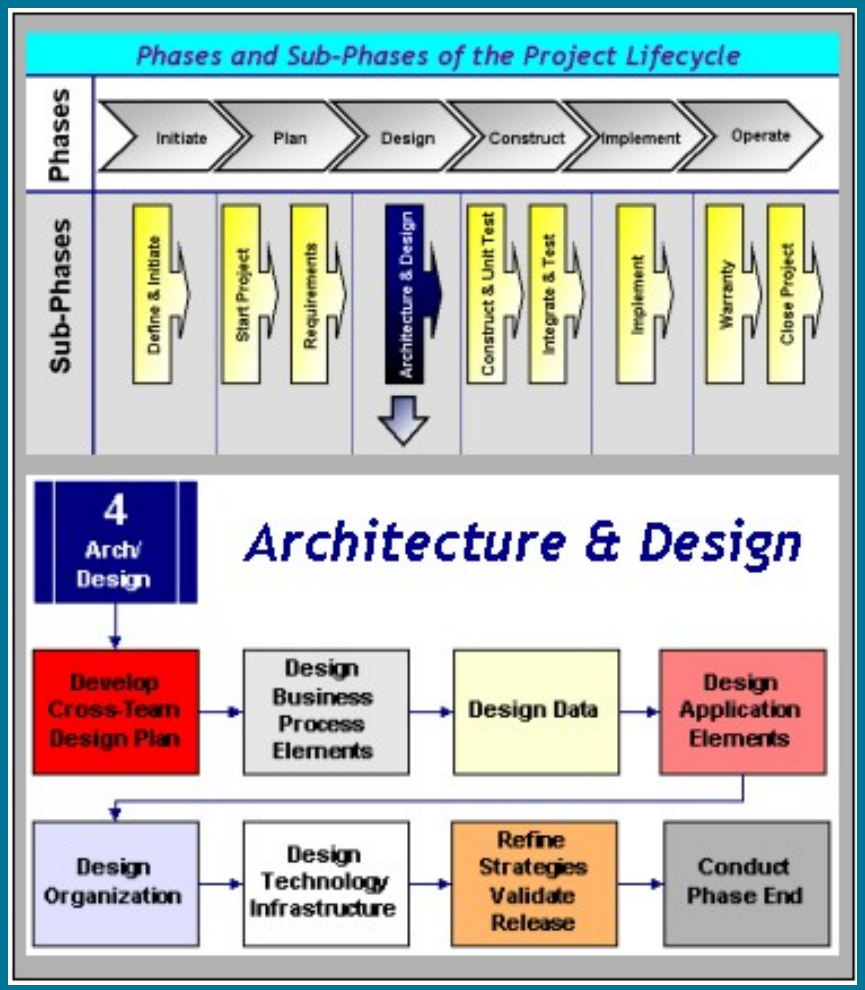
Design Specification

- Drives construction of the solution in the areas of business process, data, application, organization, and technology infrastructure.

Detailed Requirements Attainment Strategy

- Ensures that requirements are met, consciously omitted, or postponed. Includes the Requirements Management Strategy, Test Strategy, Work Force Enablement Strategy, and System Implementation Strategy.

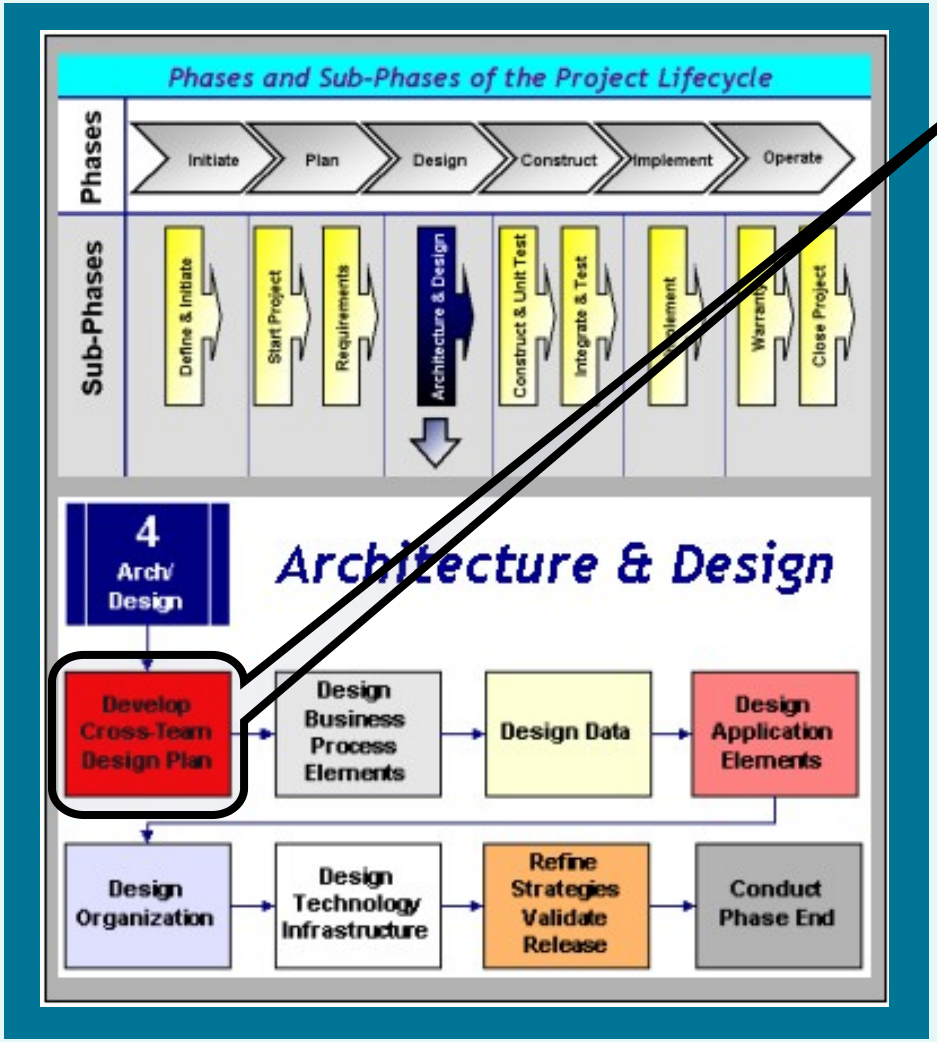
How Does the Sub-Phase Breakout?



- The *Architecture & Design* sub-phase is broken into eight processes.
- Depending on your role, you may participate in one or more of the processes.

Develop Cross-Team Design Plan

Develop Cross-Team Design Plan



- Whenever design and development affect multiple domains, (e.g., when application development is accompanied by related training development), the deliverables from all project-related teams must align with and support one another.
- The larger the project, the more important Design Coordination becomes.
- If such coordination is required, identify who will represent each domain and establish procedures for ensuring consistency and alignment with multi-team deliverables.

Develop Cross-Team Design Plan

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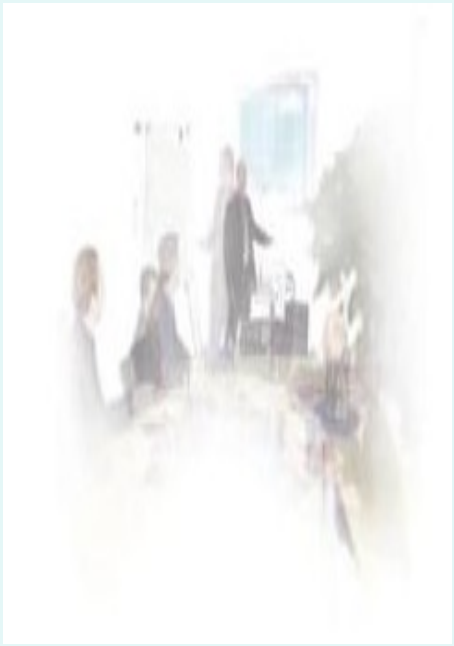
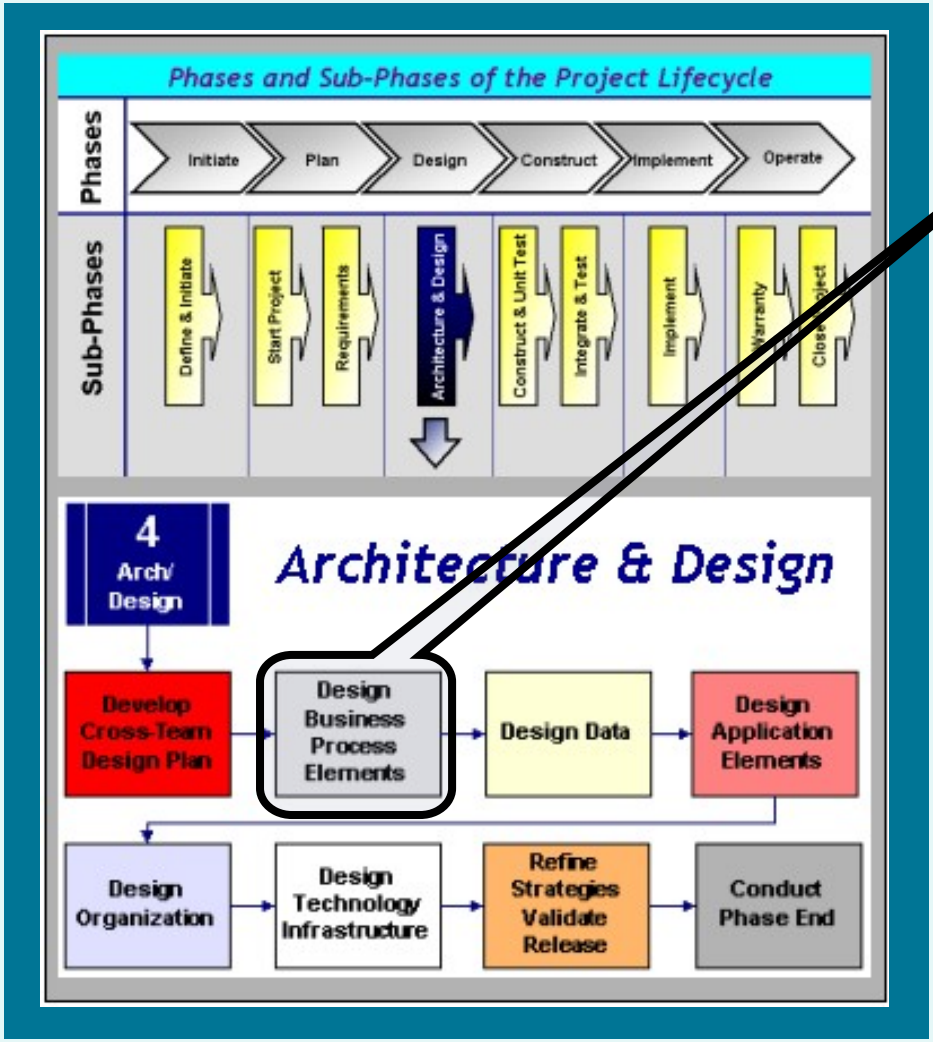


Additional Details

- Since individual teams will work, at least to some extent, independently, one of the most important goals of design coordination is to ensure that cross-team dependencies have been identified and are being managed. To this end, the overall project plan (the consolidated project plan that encompasses all plans for all teams) should be updated to clearly identify cross-team dependencies. Design activities (such as design sessions) should consider all parts of the future architecture and should be detailed along with key interface points and deliverable handoffs from one team to another. Whenever these dependencies are impacted by change, the overall project plan should be updated accordingly.
- Use the Design Coordination Procedures and the overall project plan throughout the Architecture and Design Sub-Phase and the rest of the project lifecycle to ensure that appropriate coordination management is occurring. Note: Use the standard PM Change Management Process to implement any changes resulting from use of these procedures.

Design Business Process Elements

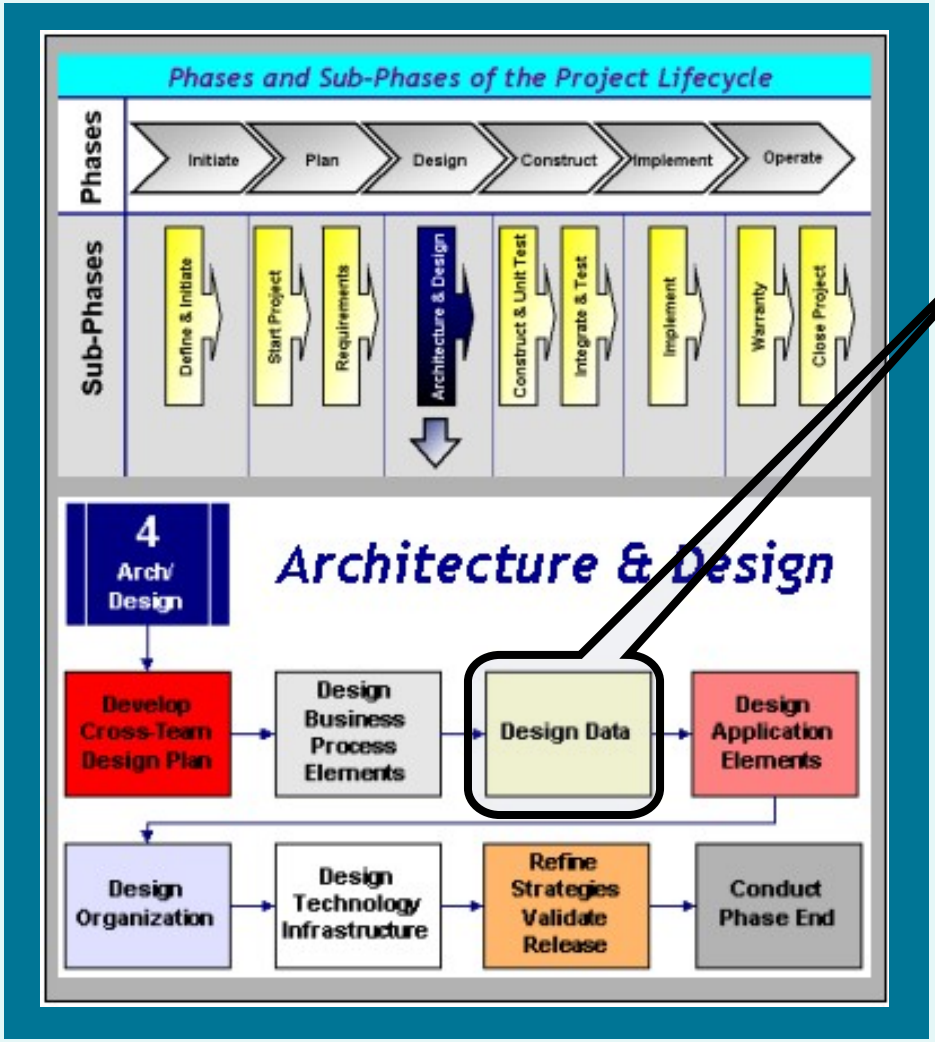


This process focuses on expanding the Business Process Model to include implementation related processes, optimally designed with an eye towards achieving related Business Process Performance Objectives.

This process is broken out into 4 sub-processes:

- Estimate Expected Process Volumes
- Add/Confirm Current Process Metrics
- Design Business Process
- Determine Business Process Staffing Needs.

Design Data

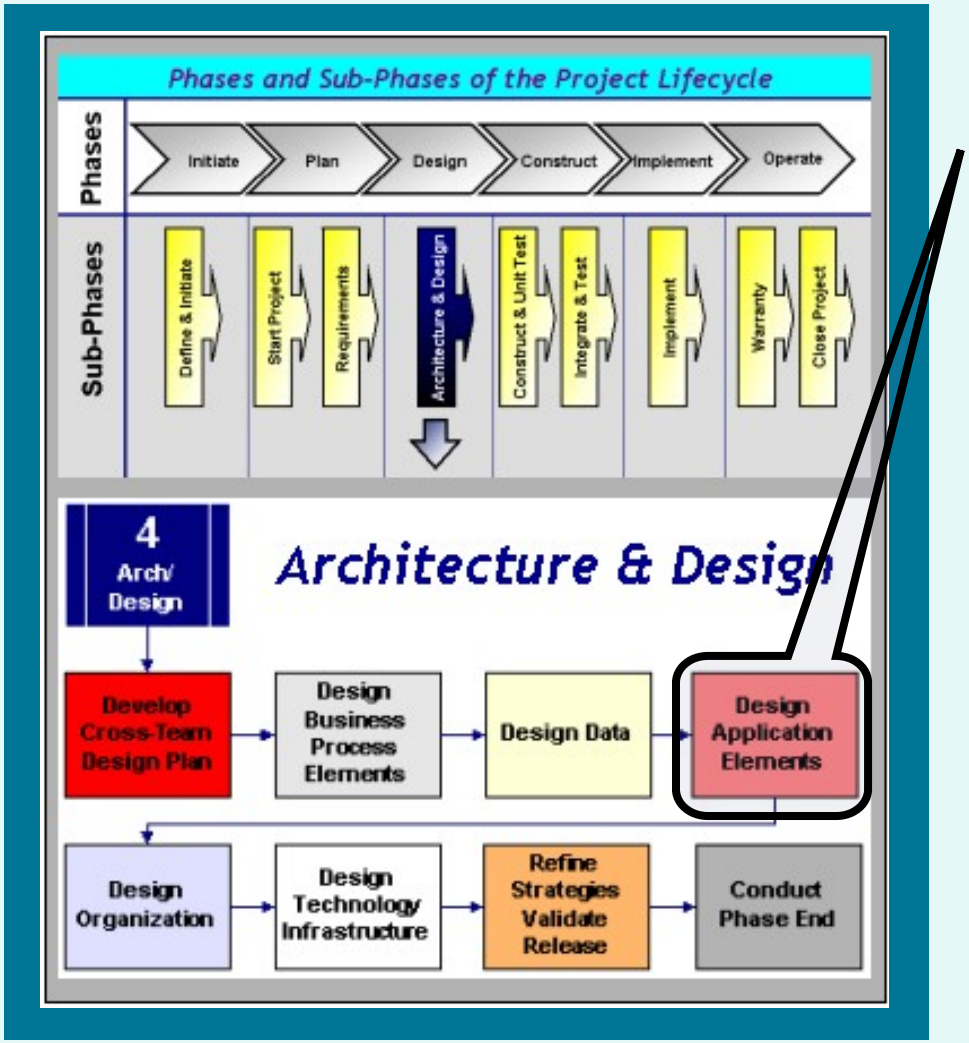


This process focuses on the building of an optimally designed data model and database for use by solution-related applications.
In addition, this process specifies the requirements and design for any data interfaces and/ conversion.

This process is broken out into 2 sub-processes:

- Design Data Models
- Create/Enhance Data Interface/Conversion Design

Design Application Elements



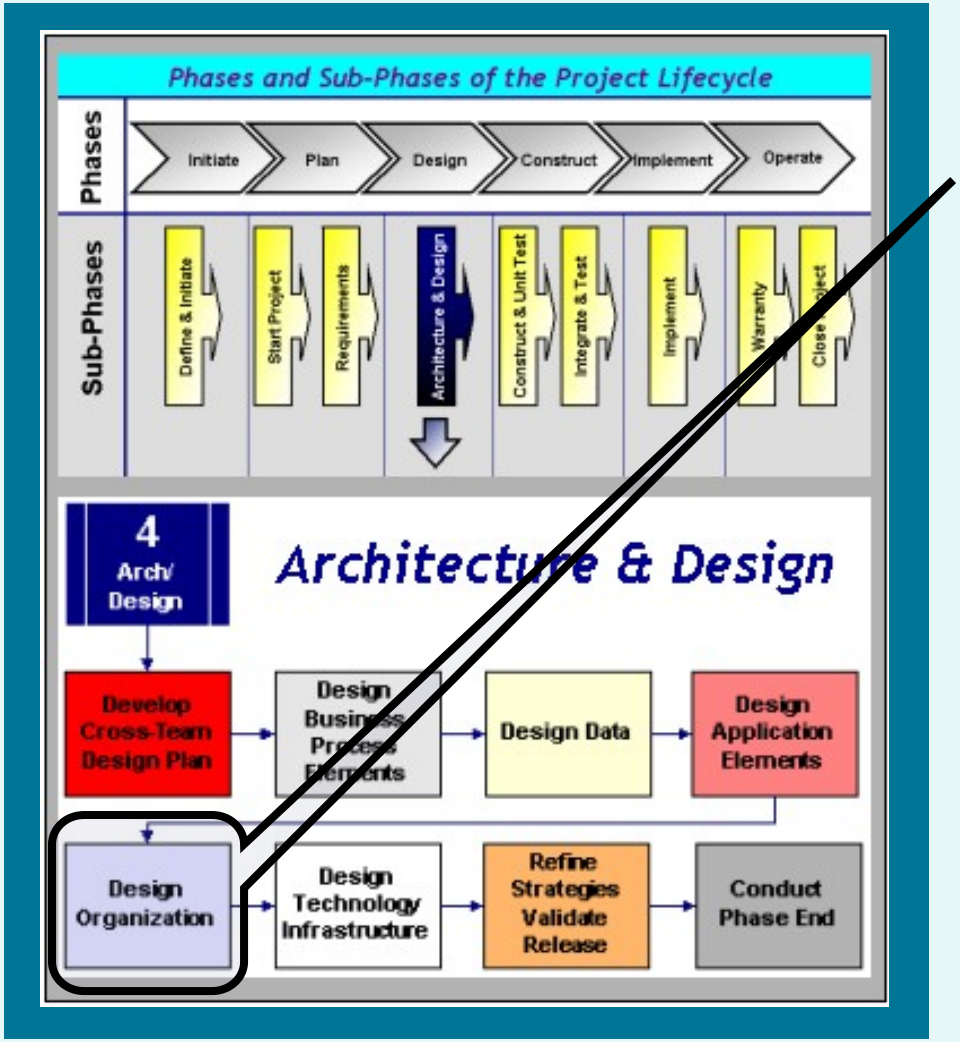
This process focuses on producing a development design that satisfies the functional and non-functional application requirements identified during the Requirements Sub-Phase.

Note: This process is the same for custom application design, package-related application design, and object-oriented design. It is also independent of development approach. See the Techniques sections of PLC handbooks for object-oriented and structured approaches to related activities.

This process is broken out into 5 sub-processes:

- Develop Logical Application Architecture
- Develop Test Plan and Test Cases
- Design Development Elements
- Evaluate Design Against Requirements
- Review and Validate Application Architecture and Quality

Design the Organization

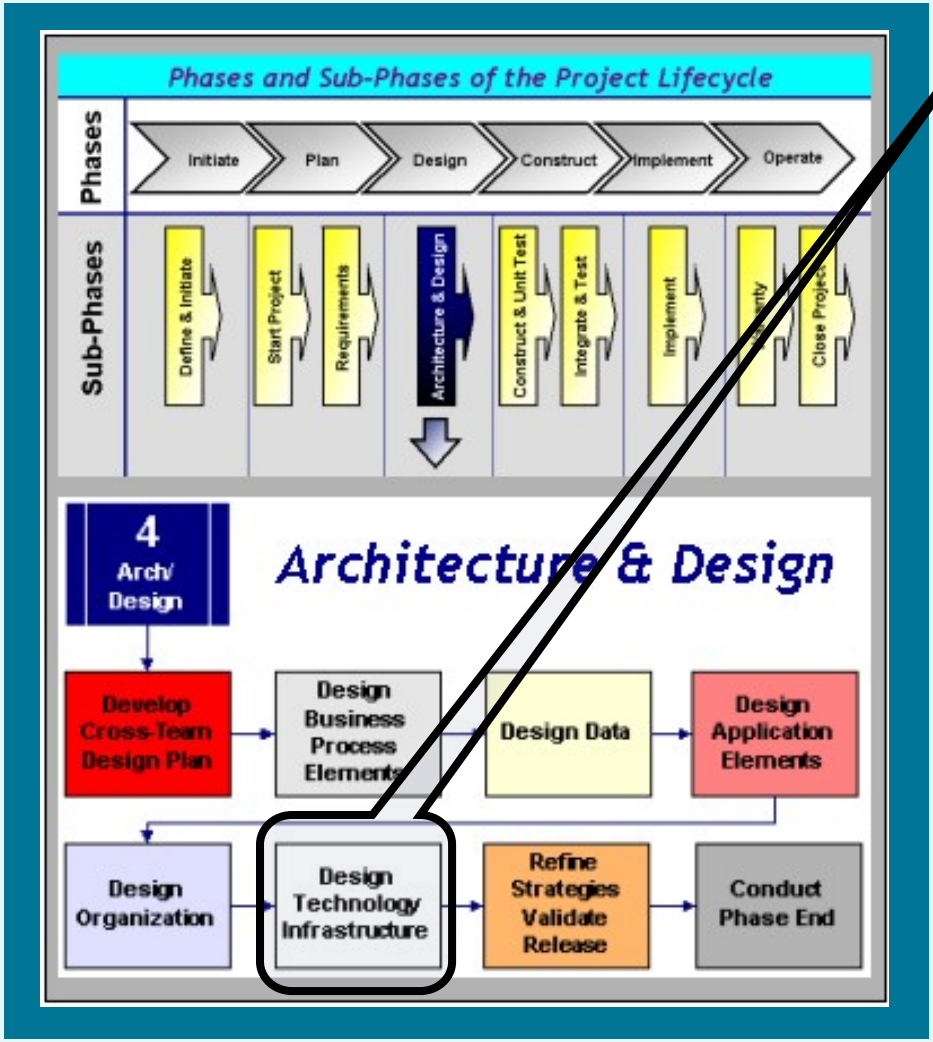


This process focuses on the design of structurally specific organization reporting patterns and related job descriptions without any reference to the individuals who will fill the roles or perform the jobs described in the organization structure.

This process is broken out into 4 sub-processes:

- Determine Impact On Specific Jobs And Organizations
- Design Organization Infrastructure
- Determine Performance Enhancement Infrastructure
- Update Work Force Enablement Strategy

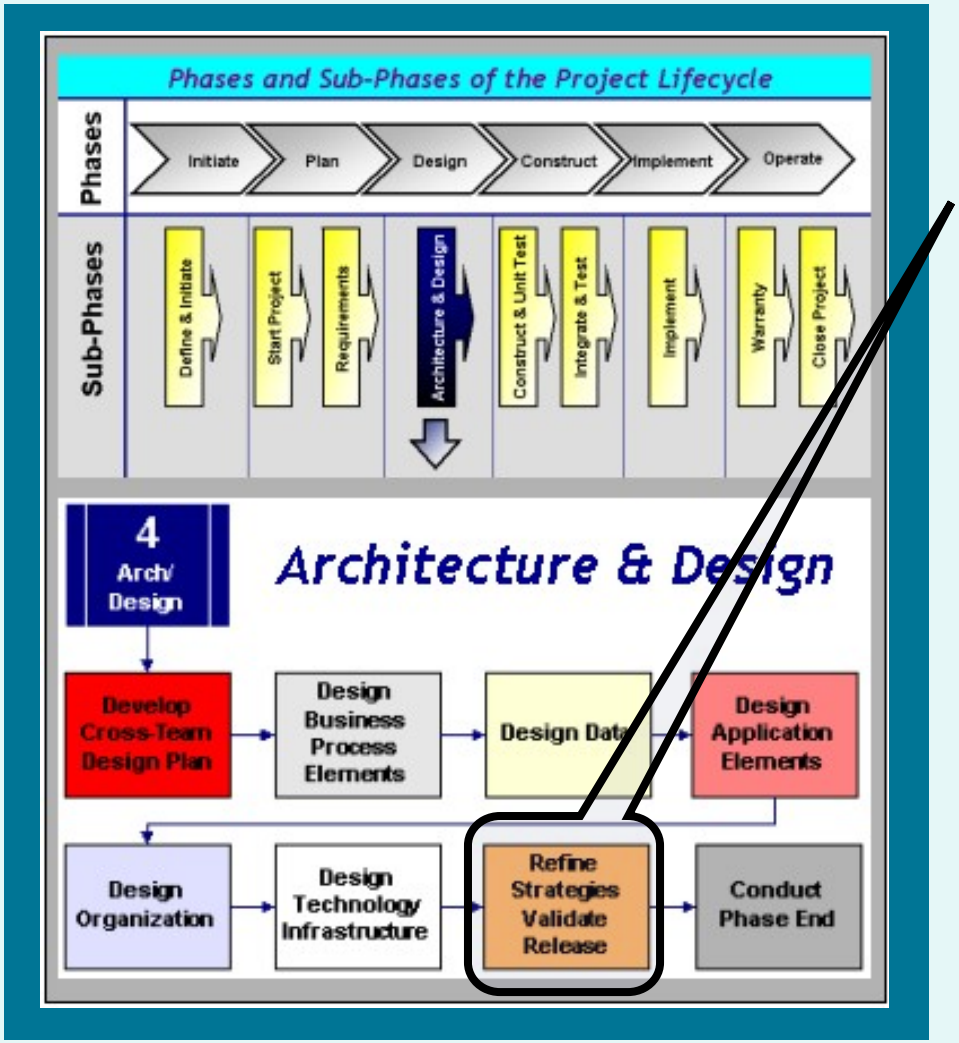
Design Technology Infrastructure



This process is broken out into 2 sub-processes:

- Design Information Security Controls
- Engineer the Technology Infrastructure

Refine Strategies & Validate Release

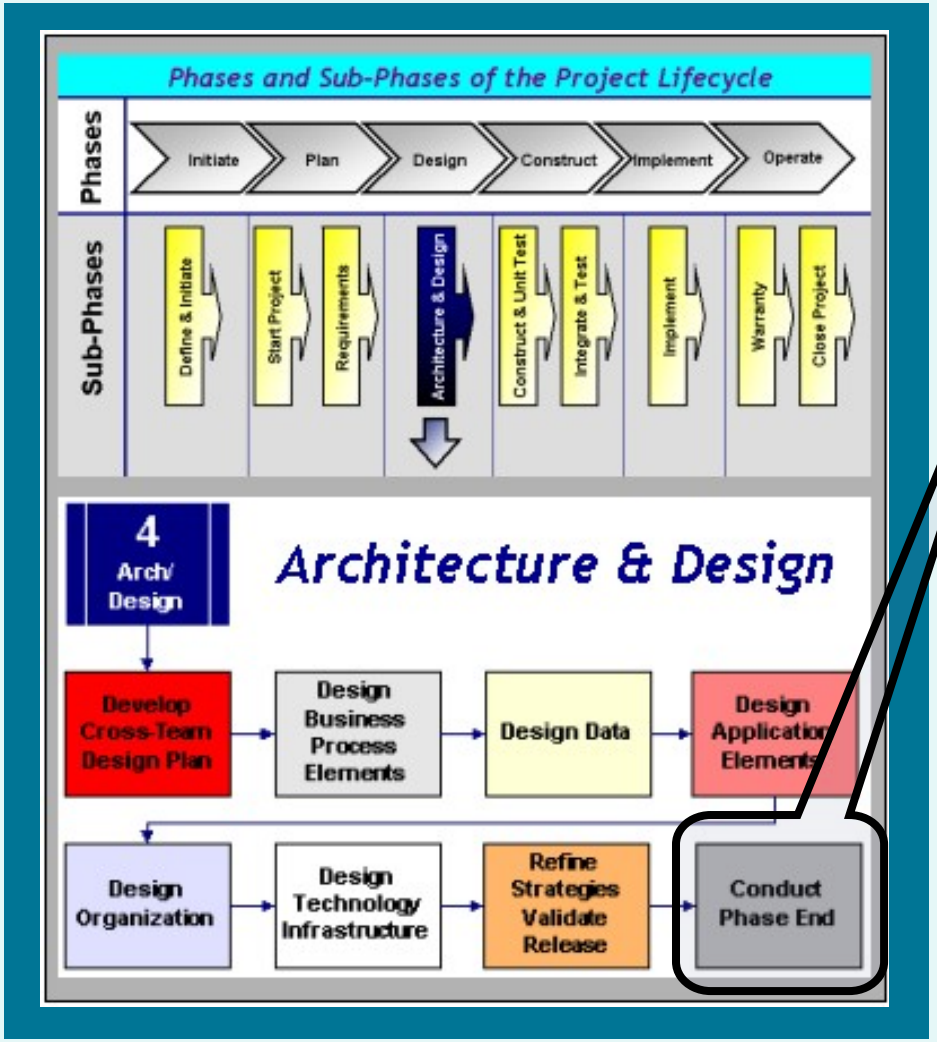


This process refines the various project strategies for ensuring that all solution requirements are met, ensures their alignment, and validates the viability of the release.

This process is broken out into 5 sub-processes:

- Confirm Release Plan
- Refine Work Force Enablement Strategy
- Refine Test Strategy
- Refine System Implementation Strategy
- Review and Validate Releases

Conduct Phase End



- The standard project phases, as defined in the project lifecycle, incorporate phase end gates or "decision points" to allow for a senior management review.
- Just as a Business Case (with Cost Benefit Analysis) is presented to senior management for funding in the Define & Initiate Sub-Phase, additional validations of the project are performed at the subsequent phase end gates (e.g. Plan, Design, Construct).

Conduct Phase End

Conduct Phase End

- To prepare for this review, a Project Manager would ensure the quality of their key deliverables produced during the sub-phase (see Quality Management), confirm the required Information Protection deliverables, update their project workplan for the next phase (see Planning & Estimating) and re-calculate the project costs and benefits (see the Define & Initiate sub-phase).
- These phase end gates or "decision points" enable Project Managers and leaders to the review and evaluate the project to ensure continued alignment with business objectives; project financial and task progress, and provide guidance and funding for the remaining phases. After review of the project status, if it is determined by management that at this point, the project should be cancelled, the Project Manager should reference the Close Project Sub-Phase for help in closing the project.

Architecture & Design Summary

Purpose

- **Determine "how" a solution will be structured to achieve targeted business objectives.**

Team Roles

- **Steering Committee, Project Sponsor, Project Manager, Support Areas, Project Office, Process and Application Team, Testing Team, Technical and Infrastructure Team, Data Design and Integration Team, Organization Design and Enablement Team, Training and Documentation Team, Implementation Team.**

Major Inputs

- **Requirements Specification**
- **Conceptual Solution Architecture**
- **Requirements Attainment Strategy.**

Major Outputs

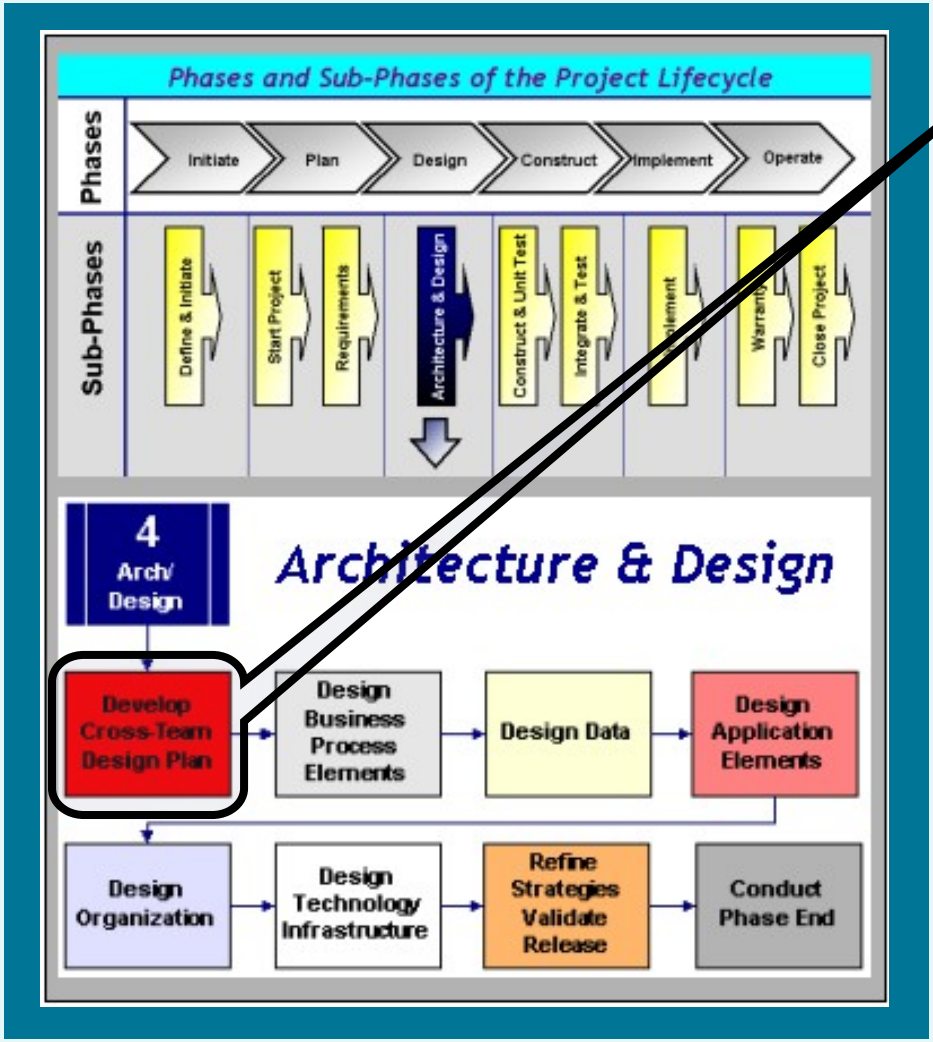
- **Development Coordination Procedures**
- **Logical Solution Architecture**
- **Design Specification**
- **Detailed Requirements Attainment Strategy.**

Processes

- **Develop Cross-Team Design Plan**
- **Design Business Process Elements**
- **Design Data**
- **Design Application Elements**
- **Design the Organization**
- **Design Technology Infrastructure**
- **Refine Strategies & Validate Release**
- **Conduct Phase End.**

Develop Cross-Team Design Plan

Details - Develop Cross-Team Design Plan



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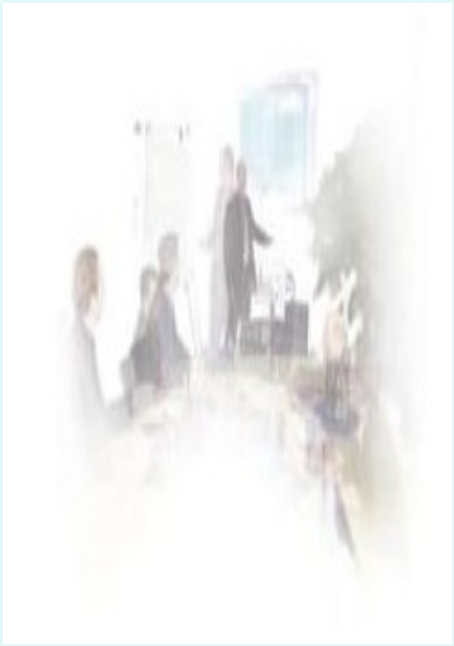

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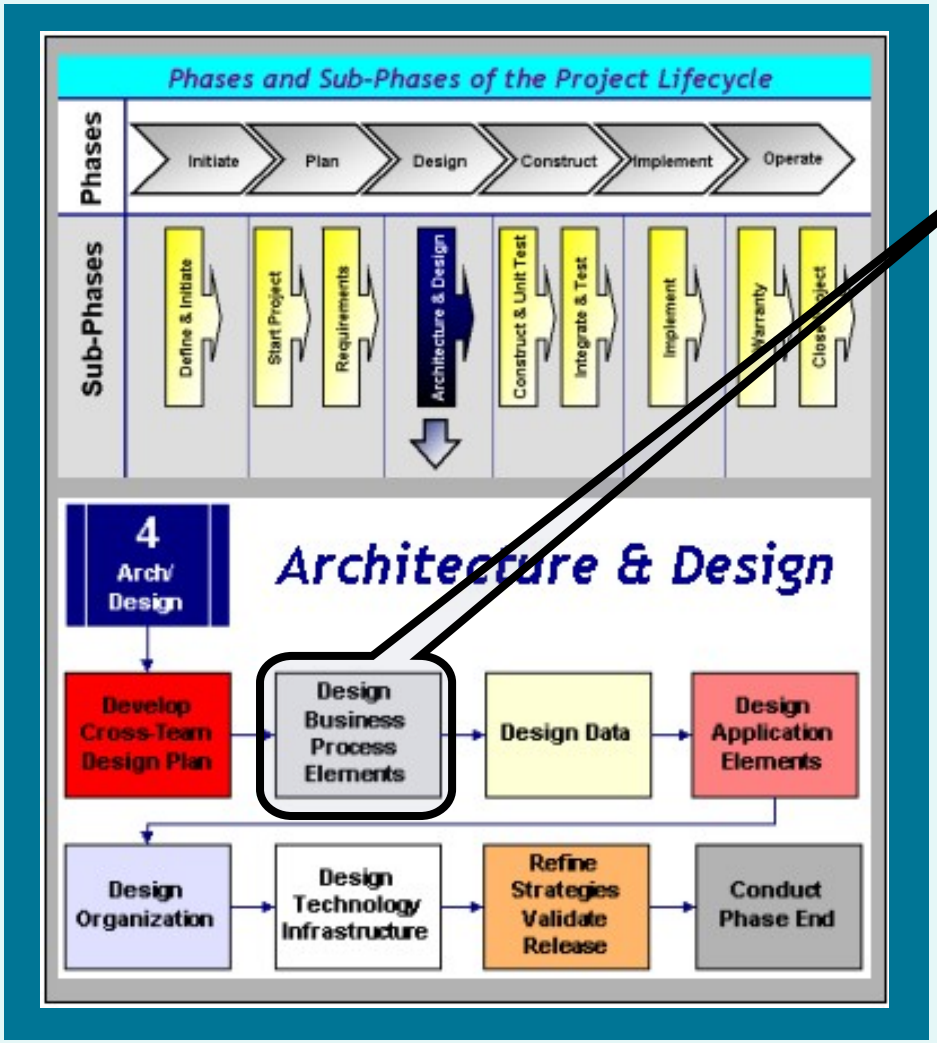
Develop Cross-Team Design Plan

Develop Cross-Team Design Plan

Inputs & Outputs	
Inputs	Requirements Attainment Strategy Conceptual Solution Architecture Requirements Specification
Outputs	Design Coordination Procedures

Roles & Responsibilities	
Role	**Responsibility**
Project Manager	Executes this activity. Produces the Design Coordination Procedures and an updated comprehensive project plan (with key interface points and deliverable handoffs) based on input from the various project teams and the project's scope, business requirements, and technology.

Details - Design Business Process Elements



This process focuses on expanding the Business Process Model to include implementation related processes, optimally designed with an eye towards achieving related Business Process Performance Objectives.

This process is broken out into 4 sub-processes:

- Estimate Expected Process Volumes
- Add/Confirm Current Process Metrics
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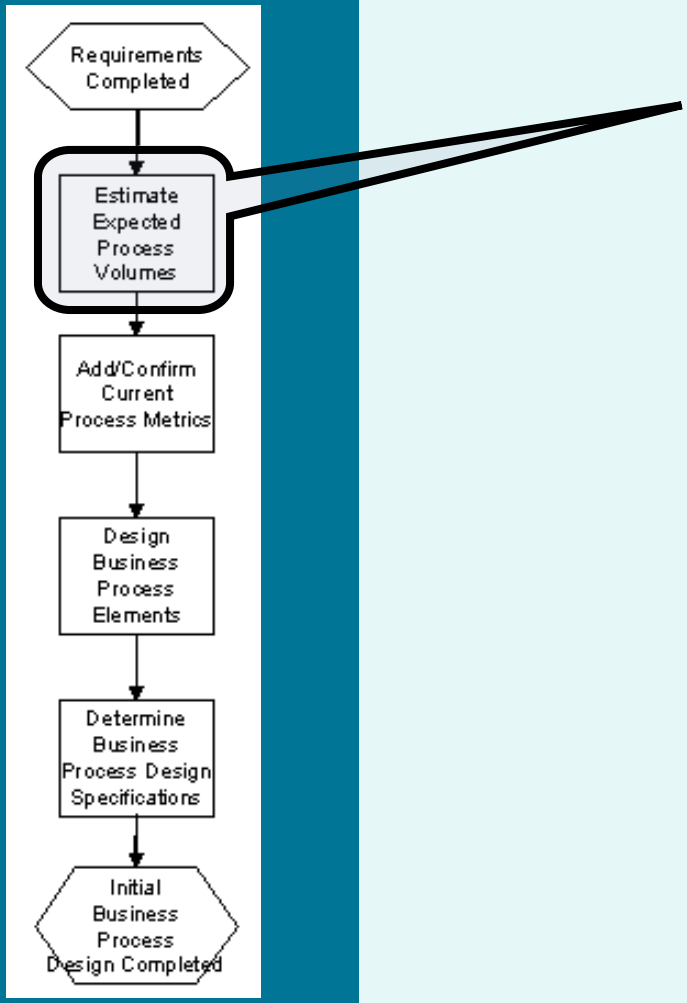
- Determine Business Process Staffing Needs.

Design Business Process Elements

Estimate Expected Process Volumes



- Review the Conceptual Business Process Architecture section of the Conceptual Solution Architecture and Business Process Specification section of the Requirements Specification to understand overall solution objectives.
- Identify the processes that will have the greatest impact on achievement of related objectives. For each selected process, document significant information, transaction volumes, and growth projections that will impact overall solution performance.
- If there will be significant variations by physical location, break volumes down by location.
- Once developed, the metrics and the process of obtaining them must be adopted by the process own and manager for monthly tracking. This will be key to ongoing forecasting and benefit tracking.

Design Business Process Elements

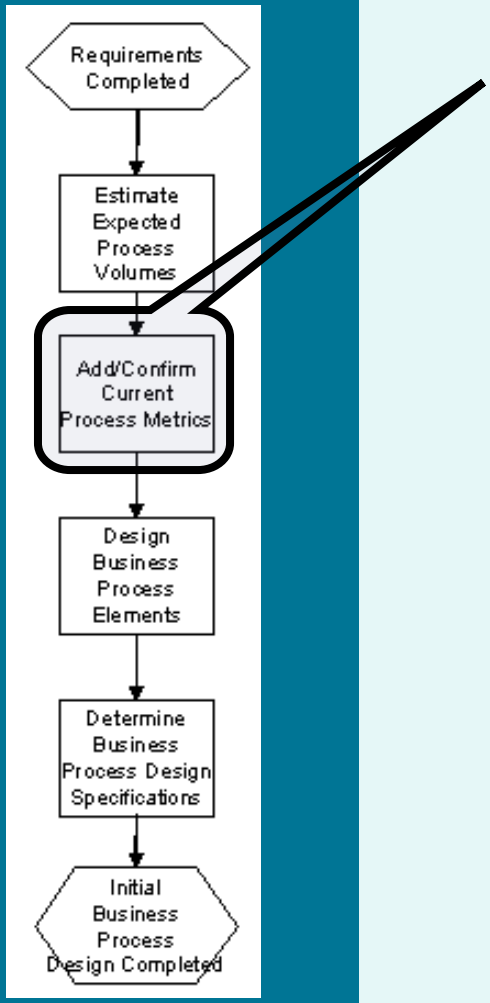
Estimate Expected Process Volumes

Inputs & Outputs	
Inputs	Business Process Specification section of the Requirements Specification Conceptual Business Process Architecture section of the Conceptual Solution Architecture Requirements Specification
Outputs	Future Business Process Volumes

Roles & Responsibilities	
Role	**Responsibility**
Business Analyst	Executes this activity. Analyzes inputs to determine how projected business processes and growth will affect processing volumes over time. Identifies and documents significant impacts.
Subject Matter Expert	Supports this activity. As owner of affected business processes, provides guidance to Business Analyst regarding growth of processing volumes.

Design Business Process Elements

Add/Confirm Current Process Metrics



- If a Current Detailed Business Process Model is available, confirm detailed level metrics for selected processes.
- If a current model is unavailable, capture or estimate detailed level metrics for a single execution of each selected key process.
- In either case, annotate the future Conceptual Business Process Architecture section of the Conceptual Solution Architecture to show where additional efficiencies must be introduced.

Design Business Process Elements

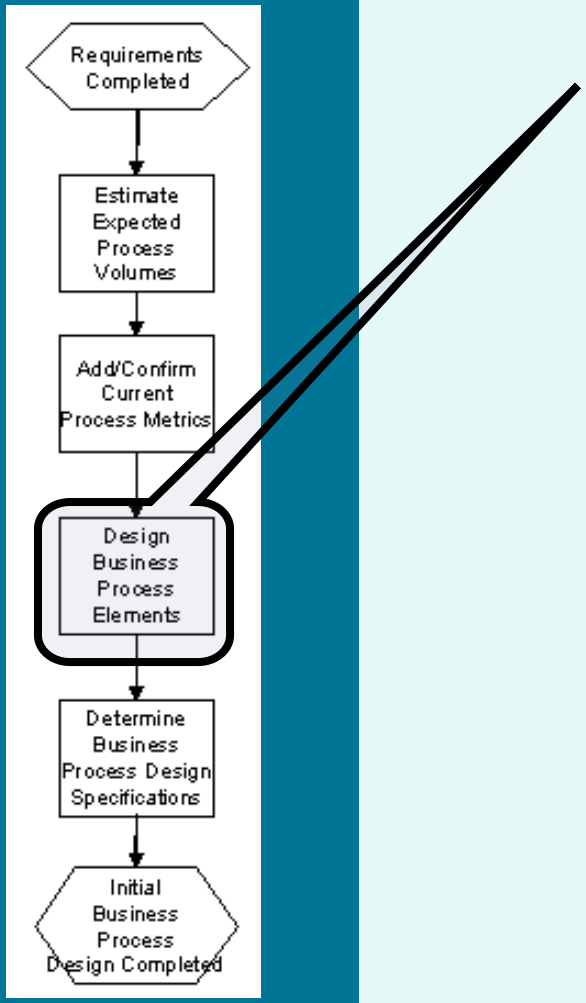
Add/Confirm Current Process Metrics

Inputs & Outputs	
Inputs	Future Business Process Volumes Current Detailed Business Process Model
Outputs	Conceptual Business Process Architecture section of the Conceptual Solution Architecture

Roles & Responsibilities	
Role	**Responsibility**
Business Analyst	Executes this activity. Verifies that metrics for current processes are valid and notes what impacts discrepancies may have on the Conceptual Business Process Architecture section of the Conceptual Solution Architecture.
Subject Matter Expert	Supports this activity. As owner of affected business processes, provides guidance to Business Analyst regarding validity of process metrics.

Design Business Process Elements

Design Business Process Elements



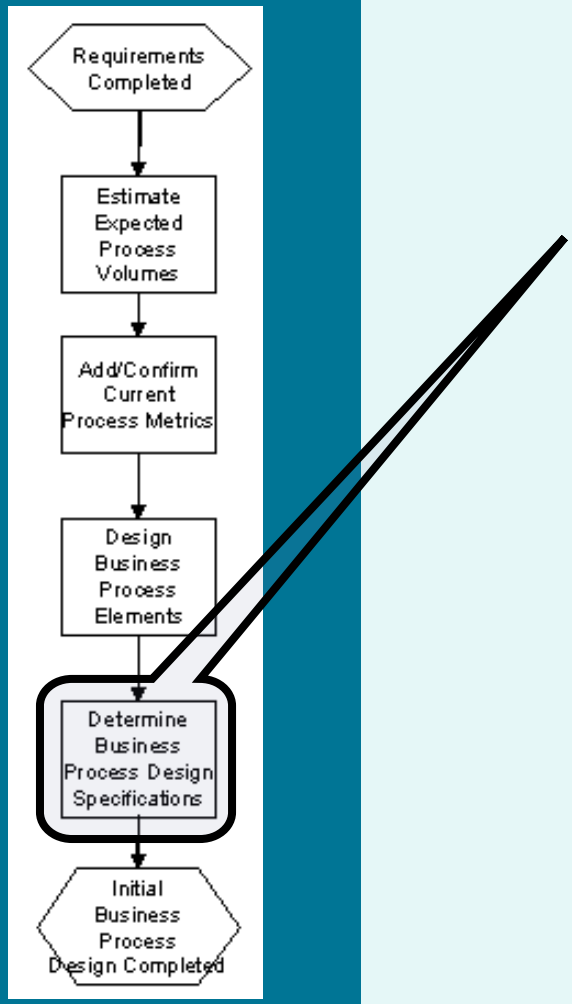
- Review the Conceptual Business Process Architecture section of the Conceptual Solution Architecture and Business Process Specification section of the Requirements Specification to understand overall solution objectives. Study Expected Process Volumes to understand how efficient and effective the selected processes must be to achieve objectives.
- Determine how each key business process might be implemented in order to achieve target performance. Consider varying staffing levels, process locations, single-stream vs. batched processing, and similar alternatives for improving business process performance.
- Use event mapping. Understand key metrics of the process and how they link to customer needs such as cycle time, error rate, rework, and so on. Select the best solution, documenting changes in the Logical Business Process Architecture section of the Logical Solution Architecture.

Design Business Process Elements

Inputs & Outputs	
Inputs	Conceptual Business Process Architecture section of the Conceptual Solution Architecture Future Business Process Volumes Business Process Specification section of the Requirements Specification
Outputs	Logical Business Process Architecture section of the Logical Solution Architecture
Roles & Responsibilities	
Role	**Responsibility**
Process Modeler	Executes this activity. Uses knowledge of the proposed business process to develop procedures for executing that process. Documents the results in the Logical Business Process Architecture section of the Logical Solution Architecture.
Business Analyst	Supports this activity. Provides the Process Modeler with the business process context in which to understand the new system.

Design Business Process Elements

Determine Business Process Staffing Needs



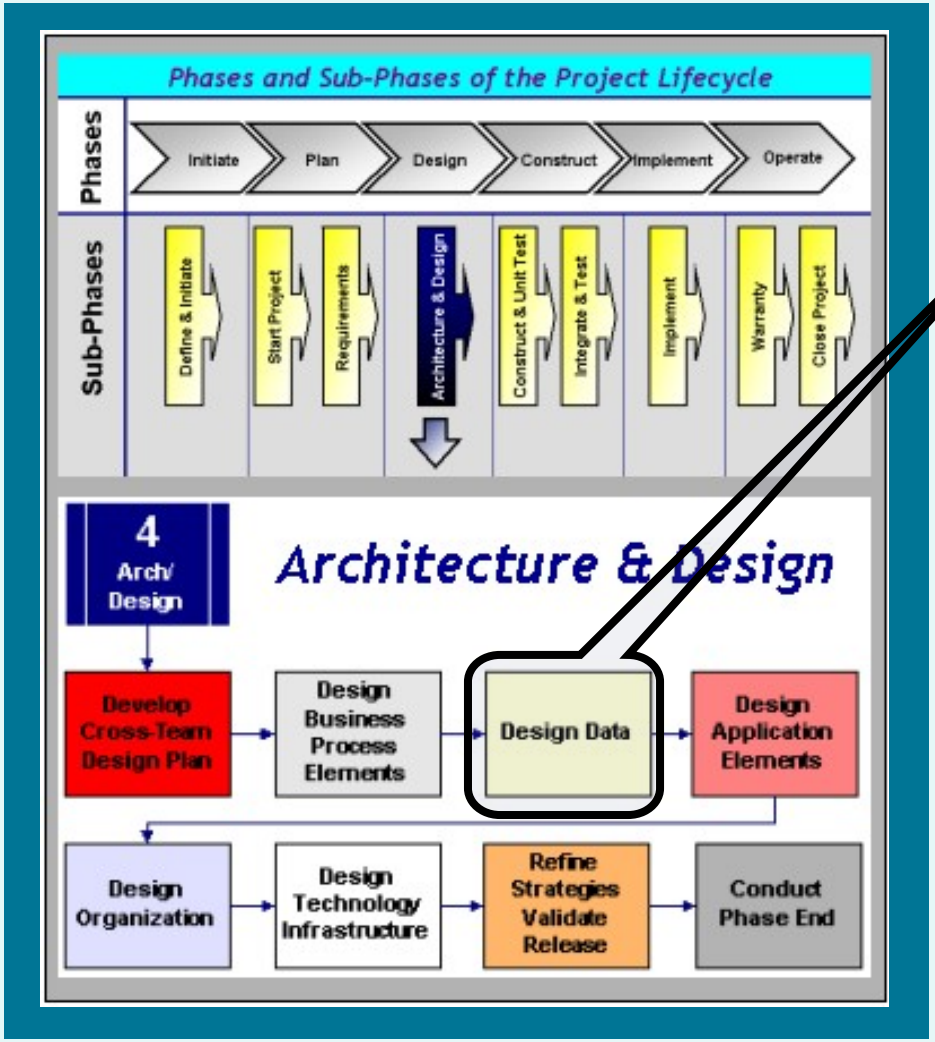
- Based on the Logical Business Process Architecture section of the Logical Solution Architecture and accompanying notations, determine target staffing levels needed to implement the future business process and achieve related objectives. If appropriate, break staffing down by location.
- Document target staffing levels in the Business Process Design Specification section of the Design Specification. If there are any other process design considerations, document them here.

Design Business Process Elements

Determine Business Process Staffing Needs

Inputs & Outputs	
Inputs	Logical Business Process Architecture section of the Logical Solution Architecture
Outputs	Business Process Design Specification section of the Design Specification
Roles & Responsibilities	
Role	**Responsibility**
Business Analyst	Executes this activity. Determines the staffing (skills and quantity) needed to implement Logical Business Process Architecture section of the Logical Solution Architecture and documents them in the Business Process Design Specification section of the Design Specification.

Details - Design Data



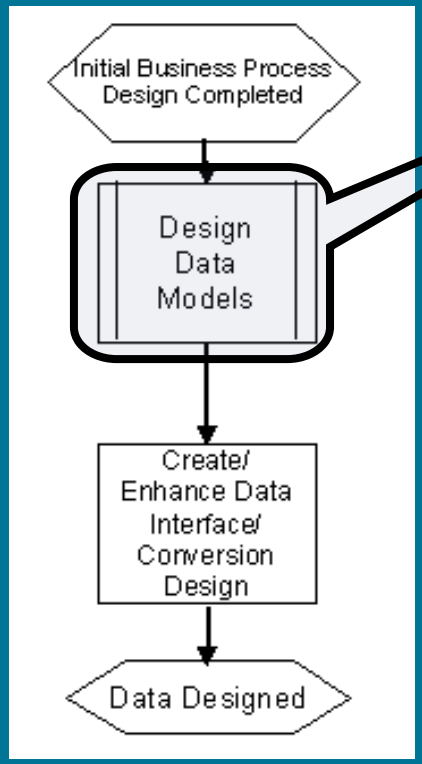
This process focuses on the building of an optimally designed data model and database for use by solution-related applications.
In addition, this process specifies the requirements and design for any data interfaces and/ conversion.

This process is broken out into 2 sub-processes:

- Design Data Models
- Create/Enhance Data Interface/Conversion Design

Design Data

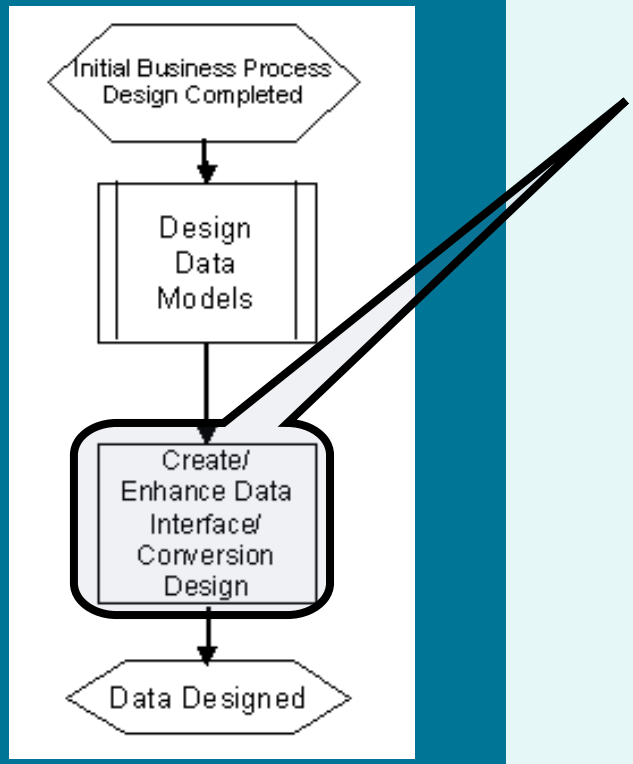
Design Data Models



This process focuses on the building of an optimally designed data model and database for use by solution-related applications.

Design Data

Create/Enhance Data Interface/Conversion Design



- This activity assesses the requirements for interfaces and conversion and creates a design for data to support those functions.
- Map interface and conversion needs against the database object design.
- Develop a data design for interface files:
  - Design any necessary conversion files
  - Map conversion data to the database object design.

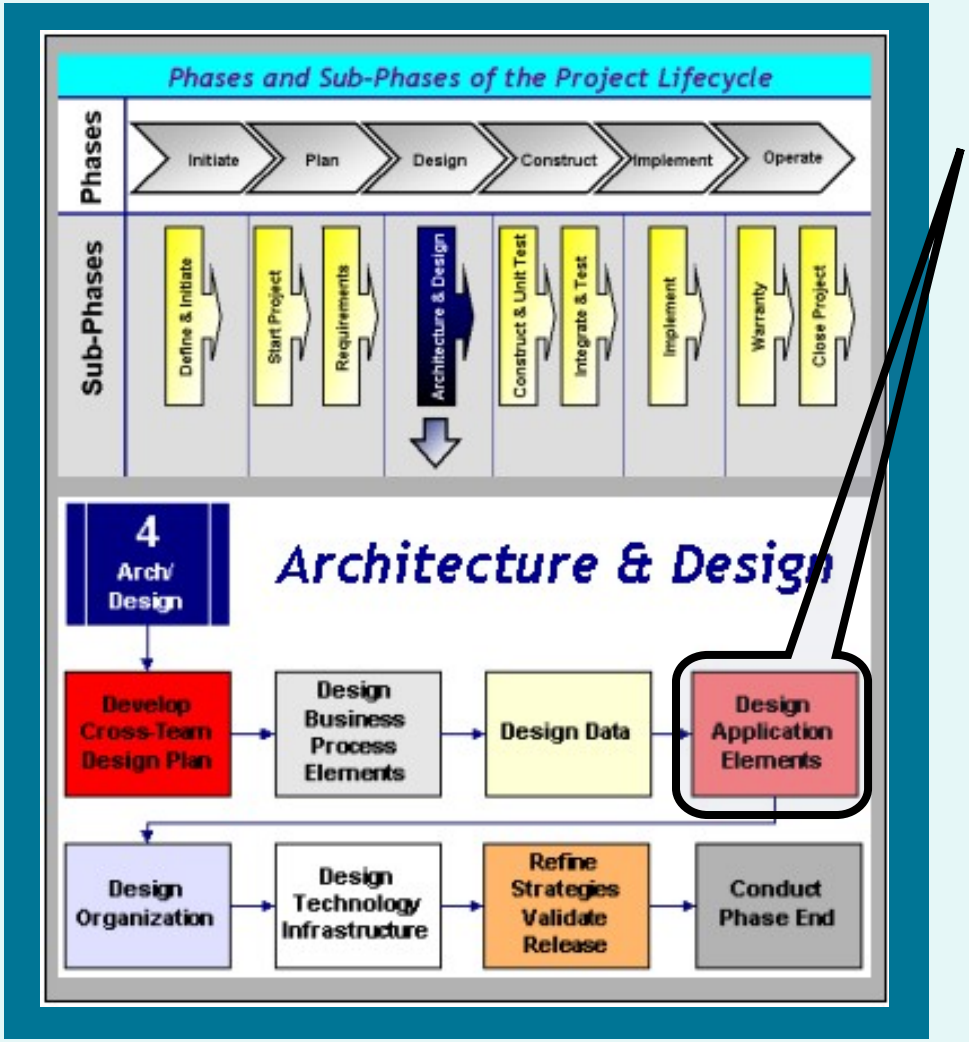
Design Data

Create/Enhance Data Interface/Conversion Design

Inputs & Outputs		
Inputs	Requirements Specification Conceptual / Logical Application Architecture Physical Data Model section of the Design Specification	Logical Business Process Architecture Logical Data Architecture
Outputs	Database Design Specification section of the Design Specification	

Roles & Responsibilities	
Role	**Responsibility**
Application Team	Executes this activity. Identifies requirements for conversion and interfaces. Determines data required and mapping to data model. Develops strategy for interface and conversion.
Database Administrator	Supports this activity. Assists in data mapping and development of interface and conversion strategies. Provides input with regard to potential performance issues.
Data Modeler	Supports this activity. Assists in data mapping and development of interface and conversion strategies.
Design Architect	Supports this activity. Provides input regarding the design and structure of conversion and interface programs.
Infrastructure Engineers	Supports this activity. Provides input regarding the technical infrastructure needed to support interface and conversion activities.
Production DBA	Supports this activity. Provides input regarding the performance and behavior of the production environment.
Product Architect	Supports this activity. Provides input regarding user needs with respect to conversion and interfaces.

Details - Design Application Elements



This process focuses on producing a development design that satisfies the functional and non-functional application requirements identified during the Requirements Sub-Phase.

Note: This process is the same for custom application design, package-related application design, and object-oriented design. It is also independent of development approach. See the Techniques sections of PLC handbooks for object-oriented and structured approaches to related activities.

This process is broken out into 5 sub-processes:

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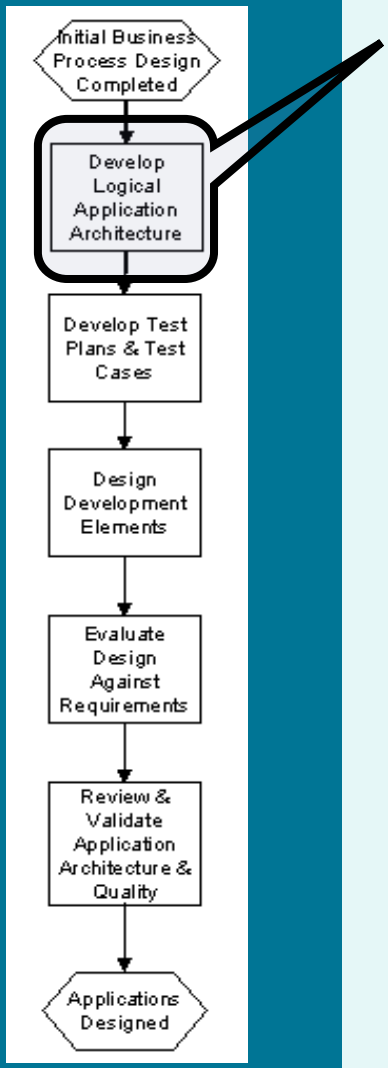
Design Application Elements

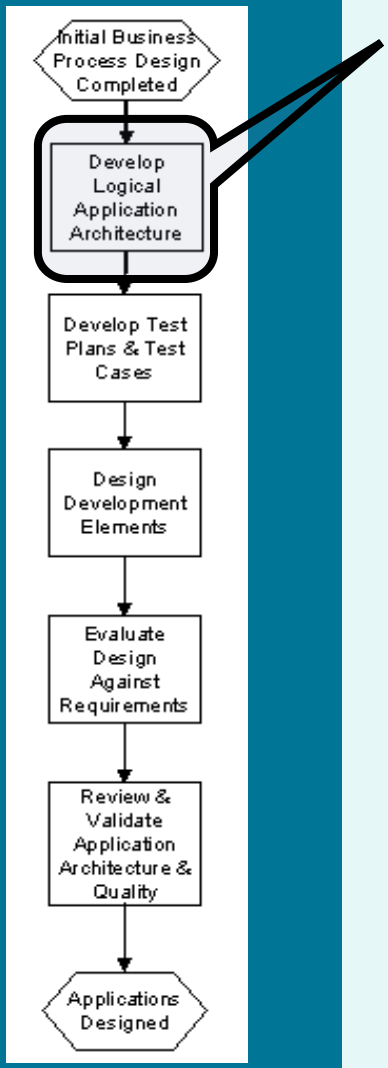
Develop the Logical Application Architecture



- Review the Logical Business Process Architecture to understand how the application supports the business processes. Review the Conceptual Application Architecture to understand and confirm how the application will integrate with existing and new systems. This set of diagrams will help the project team understand the changes that must be made to a related package and/or existing systems, as well as the scope of any new system development.
- In some cases, the application is a one-to-one replacement of an existing stand-alone system, but projects are rarely that simple. Typical scenarios that could occur are:
  - The functionality provided by a software package does not fully meet requirements, so some in-house development is required to fill in the gaps.
  - A software package entirely replaces one system and partially replaces one or two others. In this case, existing systems must be rebuilt to remove the parts replaced by the package.
  - The old system impacts data used or provided by other systems that will continue to exist. In this case, related systems may need to be modified, data attributes may need to be modified, and complicated interfaces may need to be developed.

Design Application Elements

Develop the Logical Application Architecture

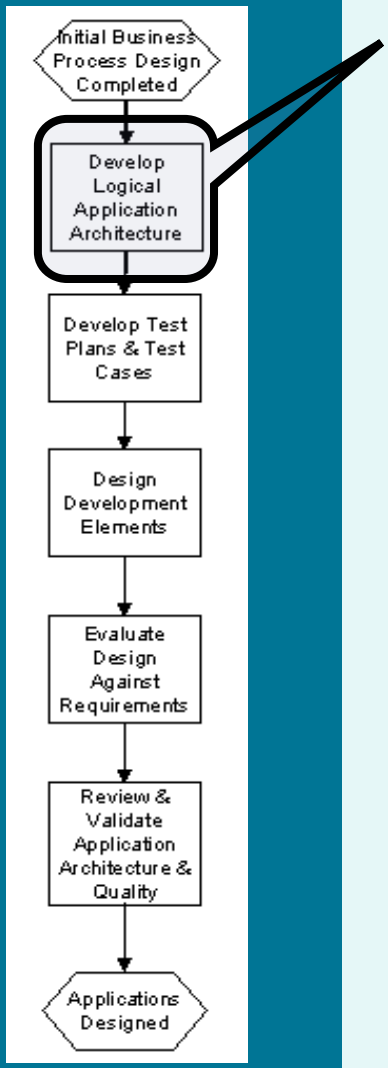


In all of these scenarios, understanding the way the new application fits into the web of peripheral or higher-level systems is key to determining possible release strategies.

- Start by determining the level of rigor and detail that is appropriate in defining the logical application architecture.
- If the application replaces all or most of one existing system, a single diagram with associated descriptive text may suffice.
- If the application replaces and integrates with several existing and planned systems, several diagrams may be necessary to show how the systems are organized and interrelate.
- In cases of complex interfacing, subsystems or even programs may need to be indicated on the diagrams.

Design Application Elements

Develop the Logical Application Architecture



- Conduct one or more working sessions with current systems experts to develop the Logical Application Architecture section of the Logical Solution Architecture. Review the Business Process Change Impact Summary, System Implementation Strategy, and Requirements Specification and discuss on these key issues:
  - Which existing systems or portions of systems will be replaced?
  - What new systems or portions of systems will be developed to fill functionality gaps in a related software package?
  - How will the application interface with existing and new systems?
- After making these key decisions, create the Logical Application Architecture diagram(s) and related text to show systems, application(s), data stores, and interfaces. Annotate the diagrams to indicate where significant effort will be required. After completing the working sessions, conduct a full team review of the diagrams for completeness, consistency, and correctness.

Design Application Elements

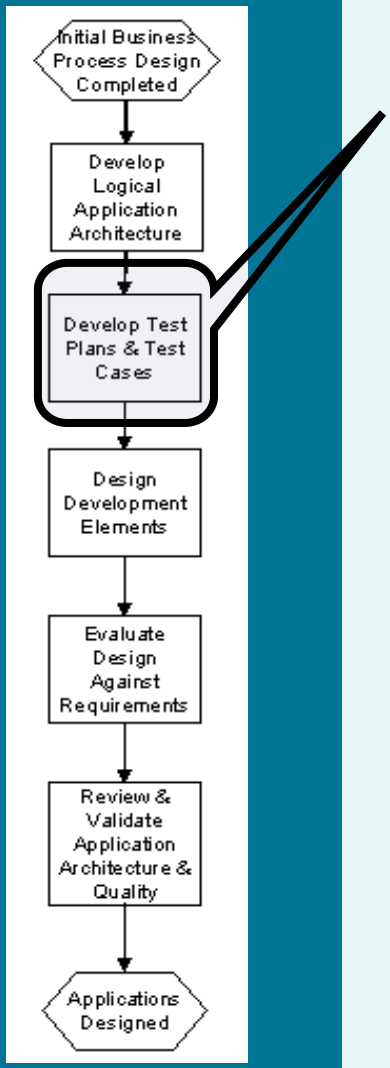
Develop the Logical Application Architecture

Inputs & Outputs	
Inputs	Conceptual Application Architecture section of the Conceptual Solution Architecture Requirements Specification Logical Business Process Architecture
Outputs	Logical Application Architecture section of the Logical Solution Architecture

Roles & Responsibilities	
Role	**Responsibility**
Design Architect	Executes this activity. Develops the Logical Application Architecture section of the Logical Solution Architecture by facilitating sessions with the Business Systems Architect and other technical experts to understand how the proposed system will work.
Business Systems Architect	Supports this activity. Provides inputs on key issues such as how the new system will interface with existing systems.

Design Application Elements

Develop the Test Plan and Test Cases



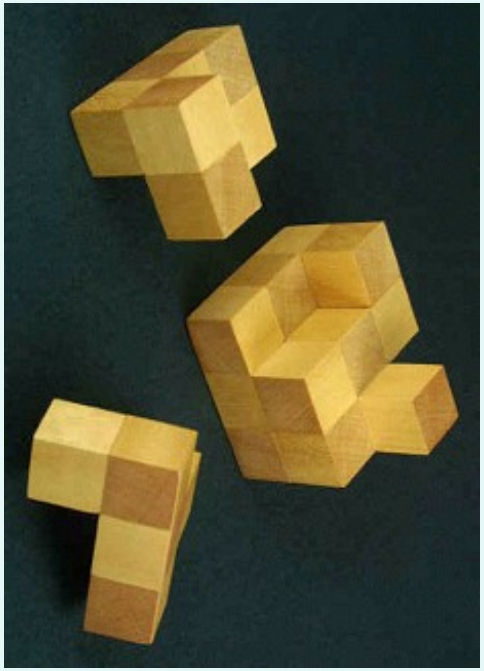
- While design activities are underway, transform Use Case scenarios into test cases and begin to flesh out the test plan.
- Consider questions such as what test cases (scenarios) should be tested together, what scenarios require special set-up or conditions, and what order of test cases makes the most sense.
- Review of historical transactions will assist in identifying scenarios for testing. Since Use Cases are crucial to the development of a good application design, developing the test plan, test cases, and testing scenarios in synchrony with design can actually save effort later in the project lifecycle.
- In addition, by considering testing at this level of detail in conjunction with design, it is possible to clearly document that all functional requirements are being met by the design of the application and are covered by testing scenarios.

Design Application Elements

Develop the Test Plan and Test Cases

Inputs & Outputs	
Inputs	Use Cases Logical Business Process Architecture Logical Application Architecture Test Strategy
Outputs	Updated Test Strategy
Roles & Responsibilities	
Role	**Responsibility**
Test Team Leader	Executes this activity. Uses the Use Case model to develop test cases. Develops a test plan based on project objectives and time/resources available.
Testers	Supports this activity. Supports the test team lead in the development of the test strategy and test cases.

Develop the Test Plan and Test Cases



Example – Developing Test Cases from Use Cases

Overview

This section will discuss a technique that may be used to develop test cases from use cases. Detailing test cases directly from use cases can highlight missing pieces or inadequate descriptions in use cases. In addition, if test cases are generated immediately after use cases are created, the test cases can be used to guide development, so that additional out-of-scope requirements do not creep into code at development time.

Description

Fully detailed use cases can easily be transformed into test cases. The following technique is a three-step process for making this transformation. Given that test cases are fully detailed, scenarios are developed from the use cases. Then test cases are outlined using generic “valid” and “invalid” descriptors for the type of data necessary to execute each test case, along with the expected results of each test case. Finally, data is assigned to each test case.

Develop the Test Plan and Test Cases

Example – Developing Test Cases from Use Cases

Who Uses This Technique? When is the Technique Used?

Test cases may be developed by a specialized testing team, by developers, or by analysts who have developed the use cases. In any case, it is important to involve business users in this process, so that appropriate data is used in testing, so that error messages are clear from a business perspective, and so that unusual or boundary conditions are included in the testing process.

Benefits of the Technique

This technique can be used not only to quickly generate robust test cases, but can also be used to verify the correctness and completeness of the use case specification. It is also a technique that can be readily understood and verified by business users. It should be noted, however, that this technique would not result in the generation of test cases for non-functional requirements that have not been captured as part of a use case. For example, there may be performance or scalability requirements that need to be tested that would not be within the scope of specification by a use case.

Considerations in Deciding Whether or Not to Use the Technique

Obviously, if requirements were not specified as use cases, this technique would not be useful. As mentioned above, it is also not an appropriate technique for the specification of non-functional requirements not captured as use cases. However, in the situation where use cases are developed, this technique works quite well not only to specify test cases, but also to verify the completeness of specification of use cases developed.

Develop the Test Plan and Test Cases

Example – Developing Test Cases from Use Cases

A test case is a set of inputs, execution conditions, and outputs developed for the specific objective of exercising a particular program path or to verify compliance with a specific requirement. A use case (in RUP terminology) "fully describes a sequence of actions performed by a system to provide an observable result of value to a person or another system using the product under development."

The steps to transform a use case into test cases are:

- For each use case, generate a full set of use-case scenarios. Identify each combination of main and alternate flows and create a scenario matrix. The basic flow will be the first scenario. Then, each of the remaining scenarios should be a combination of the basic flow plus alternative flows generated from the use case above.
- For each scenario, identify at least one test case and the conditions that will make the test case execute. The test cases can be documented in a table format, in which the first column contains the test case identifier, the second column describes the scenario (or condition, if a scenario gives rise to multiple conditions that can be tested), and all the other columns except the last contain data elements that must be used in implemented the test. The last column contains a description of the expected output for the test case. Note that a single scenario may result in multiple test cases.
- For each test case, identify the data values with which to test.

A sample use case transformed into test cases is described in detail in the following section.

Design Application Elements

Develop the Test Plan and Test Cases

Example – Developing Test Cases from Use Cases

The following is a sample use case for a fictional system under development.

USE CASE #1	**Obtain cash from ATM**	
Scope	ATM system	
Primary Actor	Customer	
Trigger	Customer inserts card in ATM	
Basic Flow	**Step**	**Action**
	1	ATM reads bank ID, account number, and encrypted PIN from card
	2	ATM validates account number from Banking System
	3	ATM requests entry of PIN
	4	Customer enters PIN. ATM validates PIN against encrypted PIN on card.
	5	ATM requests type of transaction.
	6	Customer enters transaction type of “Cash Withdrawal”.
	7	ATM requests amount of withdrawal.
	8	Customer enters withdrawal amount. ATM determines that withdrawal amount is a multiple of $20.
	9	ATM checks withdrawal amount against amount of cash available in machine.
	10	ATM notifies banking system of customer account number and amount requested for withdrawal. Banking System responds with acknowledgement and new balance.
	11	ATM delivers cash, card, and receipt.
	12	ATM logs transaction and updates available cash amount.

Design Application Elements

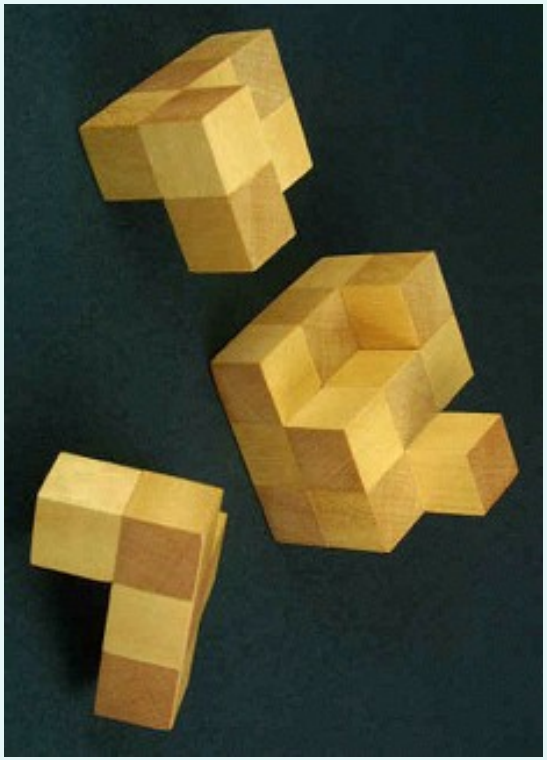
Develop the Test Plan and Test Cases

Example – Developing Test Cases from Use Cases

Alternate Flow	Alternate Flow Number	Step	Action
ATM can not read magnetic strip on card	1	1a	ATM returns card and message “This card is not readable by this machine.” End Case.
Bank ID is not valid for this ATM	2	2a	ATM returns card and message “This card may not be used at this machine”. End Case.
Less than three tries to enter correct PIN	3	4a	ATM checks to determine number of tries to enter correct PIN. Only three tries are allowed. ATM returns message “PIN not valid. Please re-enter.” Return to step 4.
Three tries to enter correct PIN	4	4b	ATM keeps card and returns message “Your ATM card is being retained. Please contact bank to retrieve.” End Case.
ATM determines amount requested is not a multiple of $20	5	8a	ATM returns message “Withdrawal amounts must be a multiple of $20. Please try again.” Return to Step 8.
Amount of money in machine is not sufficient to complete request.	6	9a	ATM machine returns card and message “This machine does not have enough cash to complete your request.” End Case.
Bank account does not have sufficient money to complete request.	7	10a	ATM machine returns card and message “Insufficient funds to complete your request.” End Case.

Develop the Test Plan and Test Cases

Example – Developing Test Cases from Use Cases



For each use case, generate a full set of use-case scenarios. Identify each combination of main and alternate flows and create a scenario matrix. The basic flow will be the first scenario.

Then, each of the remaining scenarios should be a combination of the basic flow plus alternative flows generated from the use case above.

Note that some mathematically possible combinations are not possible as scenarios.

For example, basic flow plus alternative flow 1 and alternative flow 2 is not a possible scenario, because alternative flow 1 must occur before any other alternative flow and it ends the use case.

Design Application Elements

Develop the Test Plan and Test Cases

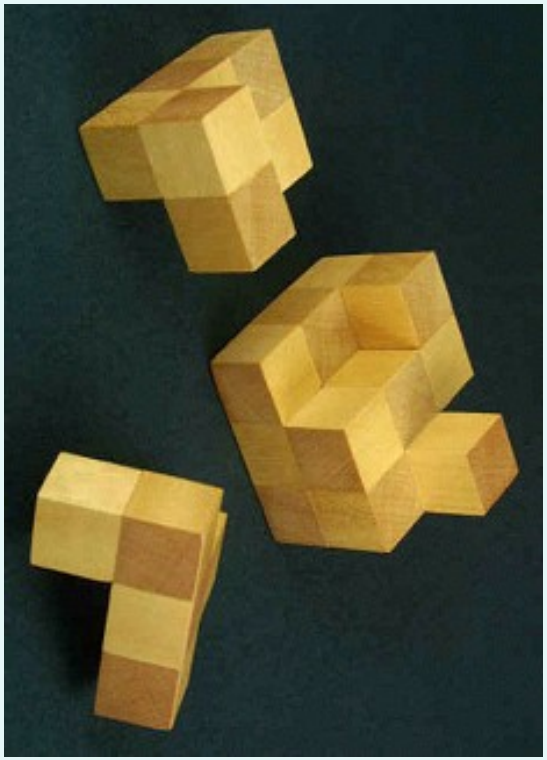
Example – Developing Test Cases from Use Cases

The following table depicts the various combinations of scenarios for the sample Use Case.

Scenario	Initial Flow	Alternate Flow	Alternate Flow	Alternate Flow	Alternate Flow
Scenario 1	Basic Flow				
Scenario 2	Basic Flow	Alternate Flow 1			
Scenario 3	Basic Flow	Alternate Flow 2			
Scenario 4	Basic Flow	Alternate Flow 3			
Scenario 5	Basic Flow	Alternate Flow 3	Alternate Flow 3		
Scenario 6	Basic Flow	Alternate Flow 3	Alternate Flow 3	Alternate Flow 4	
Scenario 7	Basic Flow	Alternate Flow 5			
Scenario 8	Basic Flow	Alternate Flow 3	Alternate Flow 5		
Scenario 9	Basic Flow	Alternate Flow 3	Alternate Flow 3	Alternate Flow 5	
Scenario 10	Basic Flow	Alternate Flow 5	Alternate Flow 6		
Scenario 11	Basic Flow	Alternate Flow 3	Alternate Flow 5	Alternate Flow 6	
Scenario 12	Basic Flow	Alternate Flow 3	Alternate Flow 5		
Scenario 13	Basic Flow	Alternate Flow 3	Alternate Flow 3	Alternate Flow 6	
Scenario 14	Basic Flow	Alternate Flow 3	Alternate Flow 3	Alternate Flow 5	Alternate Flow 6
Scenario 15	Basic Flow	Alternate Flow 6			
Scenario 16	Basic Flow	Alternate Flow 7			
Scenario 17	Basic Flow	Alternate Flow 3	Alternate Flow 7		
Scenario 18	Basic Flow	Alternate Flow 3	Alternate Flow 3	Alternate Flow 7	
Scenario 19	Basic Flow	Alternate Flow 5	Alternate Flow 7		
Scenario 20	Basic Flow	Alternate Flow 3	Alternate Flow 5	Alternate Flow 7	
Scenario 21	Basic Flow	Alternate Flow 3	Alternate Flow 3	Alternate Flow 5	Alternate Flow 7

Develop the Test Plan and Test Cases

Example – Developing Test Cases from Use Cases



For each scenario, identify at least one test case and the conditions that will make the test case execute.

The test cases can be documented in a table format, in which the first column contains the test case identifier, the second column describes the scenario (or condition, if a scenario gives rise to multiple conditions that can be tested), and all the other columns except the last contain data elements that must be used in implemented the test.

The last column contains a description of the expected output for the test case.

Note that a single scenario may result in multiple test cases.

For example, we could add a test case to the list below that tests successive repetition of entering a withdrawal amount that is not a multiple of $20.

Design Application Elements

Develop the Test Plan and Test Cases

Example – Developing Test Cases from Use Cases

NOTE: In the following table, "V" indicates that "valid" data should be used. "I" indicates that "invalid" data should be used.

Test Case ID	Scenario / Condition	Bank ID	Account Number	PIN	Amount of Withdrawal	Cash available in machine	Account Balance	Expected Results
TC 1	Scenario 1 – successful cash withdrawal	V	V	V	V	V	V	Cash, receipt, and ATM card returned
TC 2	Scenario 2 – ATM card not readable	I (can't be read)	I (can't be read)	I (can't be read)	N/A	N/A	N/A	ATM card returned with error message "Not readable"
TC 3	Scenario 3 – bank ID not valid	I	N/A	N/A	N/A	N/A	N/A	ATM card returned with error message "Card can't be used at this machine"
TC 4	Scenario 4 – PIN entered incorrectly one time	V	V	I, then V	V	V	V	"PIN incorrect" error message; after correct entry, cash, receipt and ATM card returned
TC 5	Scenario 5 – PIN entered incorrectly twice	V	V	I, I, then V	V	V	V	"PIN incorrect" error message twice; after correct entry, cash, receipt and ATM card returned
TC 6	Scenario 6 – PIN entered incorrectly three times	V	V	I, I, I	N/A	N/A	N/A	ATM card retained; error message "ATM card being retained"

Develop the Test Plan and Test Cases

Example – Developing Test Cases from Use Cases

NOTE: In the following table, "V" indicates that "valid" data should be used. "I" indicates that "invalid" data should be used.

Test Case ID	Scenario / Condition	Bank ID	Account Number	PIN	Amount of Withdrawal	Cash available in machine	Account Balance	Expected Results
TC 7	Scenario 7 – withdrawal amount not divisible by 20	V	V	V	I, V	V	V	Error message "w/d must be multiple of $20"; re-entry of appropriate amount and then cash, receipt and ATM card returned.
TC 8	Scenario 8 – incorrect PIN entered once; then amount not divisible by 20 entered	V	V	I, V	I, V	V	V	"PIN incorrect" error message; correct entry of PIN, then error message "w/d must be multiple of $20"; re-entry of appropriate amount and then cash, receipt and ATM card returned.
TC 9	Scenario 9 – incorrect PIN entered twice; then amount not divisible by 20 entered	V	V	V	I, I, V	I, V	V	"PIN incorrect" error message twice; correct entry of PIN, then error message "w/d must be multiple of $20"; re-entry of appropriate amount and then cash, receipt and ATM card returned.

Develop the Test Plan and Test Cases

Example – Developing Test Cases from Use Cases

NOTE: In the following table, "V" indicates that "valid" data should be used. "I" indicates that "invalid" data should be used.

Test Case ID	Scenario / Condition	Bank ID	Account Number	PIN	Amount of Withdrawal	Cash available in machine	Account Balance	Expected Results
TC 10	Scenario 10 – w/d amount not divisible by 20 entered; re-entry then ATM does not have enough cash to complete request	V	V	V	I, V	I	N/A	"W/d amount not a multiple of 20" error message; then "Not enough cash in machine" error message; ATM card returned
TC 11	Scenario 11 – incorrect PIN, then w/d amount not divisible by 20; then not enough cash in machine	V	V	I, V	I, V	I	N/A	"Incorrect PIN" error message; "W/d amount not a multiple of 20" error message; then "Not enough cash in machine" error message; ATM card returned
TC 12	Scenario 12 – Incorrect PIN entered, then w/d amount not divisible by 20	V	V	I, V	I, V	V	V	"Incorrect PIN" error message; "W/d amount not a multiple of 20" error message; then cash, receipt, and card returned

Develop the Test Plan and Test Cases

Example – Developing Test Cases from Use Cases

NOTE: In the following table, "V" indicates that "valid" data should be used. "I" indicates that "invalid" data should be used.

Test Case ID	Scenario / Condition	Bank ID	Account Number	PIN	Amount of Withdrawal	Cash available in machine	Account Balance	Expected Results
TC 13	Scenario 13 – PIN entered incorrectly twice; ATM does not have enough money to complete request	V	V	I, I, V	V	I, V	V	"Incorrect PIN" error message; then "ATM does not have enough money" error message; then, cash, receipt, and card returned
TC 14	Scenario 14 – PIN entered incorrectly twice, w/d amount not divisible by 20, machine does not have enough cash to complete request	V	V	I, I, V	I, V	I	N/A	"Incorrect PIN" error message twice; "w/d amount not a multiple of 20" error message; then "not enough cash in machine" error message; card returned.
TC 15	Scenario 15 – Not enough cash in machine	V	V	V	V	I	N/A	"Not enough cash in machine" error message; card returned
TC 16	Scenario 16 – insufficient funds in bank account	V	V	V	V	V	I	"In-sufficient funds" error message; card returned
TC 17	Scenario 17 – incorrect PIN entered, insufficient funds in bank account	V	V	I, V	V	V	I	"Incorrect PIN" error message; then "in-sufficient funds" error message; card returned

Design Application Elements

Develop the Test Plan and Test Cases

Example – Developing Test Cases from Use Cases

NOTE: In the following table, "V" indicates that "valid" data should be used. "I" indicates that "invalid" data should be used.

Test Case ID	Scenario / Condition	Bank ID	Account Number	PIN	Amount of Withdrawal	Cash available in machine	Account Balance	Expected Results
TC 18	Scenario 18 – incorrect PIN entered twice, then insufficient funds in bank account	V	V	I, I, V	V	V	I	"Incorrect PIN" error message twice; then "in-sufficient funds" error message; card returned
TC 19	Scenario 19 – W/d amount not divisible by 20, insufficient funds in bank account	V	V	V	I, V	V	I	"W/d amount not a multiple of 20" error message; then "in-sufficient funds" error message; card returned
TC 20	Scenario 20 – PIN incorrect once; w/d amount not divisible by 20, insufficient funds in bank account	V	V	I, V	I, V	V	I	"PIN incorrect" once; "W/d amount not a multiple of 20" error message; then "in-sufficient funds" error message; card returned
TC 21	Scenario 20 – PIN incorrect twice; w/d amount not divisible by 20, insufficient funds in bank account	V	V	I, I, V	I, V	V	I	"PIN incorrect" twice; "W/d amount not a multiple of 20" error message; then "in-sufficient funds" error message; card returned

Develop the Test Plan and Test Cases

Example – Developing Test Cases from Use Cases

For each test case, identify the data values with which to test. The following table list values that can be used to "run" each test case as well as the expected results for each test case.

Test Case ID	Scenario / Condition	Bank ID	Account Number	PIN	Amount of Withdrawal	Cash available in machine	Account Balance	Expected Results
TC 1	Scenario 1 – successful cash withdrawal	21111111	05040321	7890	100	1000	500	Cash, receipt, and ATM card returned
TC 2	Scenario 2 – ATM card not readable	I (can't be read)	I (can't be read)	I (can't be read)	N/A	N/A	N/A	ATM card returned with error message "Not readable"
TC 3	Scenario 3 – bank ID not valid	21111X34	N/A	N/A	N/A	N/A	N/A	ATM card returned with error message "Card can't be used at this machine"
TC 4	Scenario 4 – PIN entered incorrectly one time	2111111	05040321	5443, 7890	100	1000	500	"PIN incorrect" error message; after correct entry, cash, receipt and ATM card returned
TC 5	Scenario 5 – PIN entered incorrectly twice	2111111	05040321	1000, 5443, 7890	100	1000	500	"PIN incorrect" error message twice; after correct entry, cash, receipt and ATM card returned
TC 6	Scenario 6 – PIN entered incorrectly three times	2111111	05040321	1000, 5443, 7089	N/A	N/A	N/A	ATM card retained; error message "ATM card being retained"

Develop the Test Plan and Test Cases

Example – Developing Test Cases from Use Cases

For each test case, identify the data values with which to test. The following table list values that can be used to "run" each test case as well as the expected results for each test case.

Test Case ID	Scenario / Condition	Bank ID	Account Number	PIN	Amount of Withdrawal	Cash available in machine	Account Balance	Expected Results
TC 7	Scenario 7 – withdrawal amount not divisible by 20	2111111	05040321	7890	90, 100	1000	500	Error message "w/d must be multiple of $20"; re-entry of appropriate amount and then cash, receipt and ATM card returned.
TC 8	Scenario 8 – incorrect PIN entered once; then amount not divisible by 20 entered	2111111	05040321	5443, 7890	90, 100	1000	500	"PIN incorrect" error message; correct entry of PIN, then error message "w/d must be multiple of $20"; re-entry of appropriate amount and then cash, receipt and ATM card returned.
TC 9	Scenario 9 – incorrect PIN entered twice; then amount not divisible by 20 entered	2111111	05040321	1000, 5443, 7890	90, 100	1000	500	"PIN incorrect" error message twice; correct entry of PIN, then error message "w/d must be multiple of $20"; re-entry of appropriate amount and then cash, receipt and ATM card returned.

Develop the Test Plan and Test Cases

Example – Developing Test Cases from Use Cases

For each test case, identify the data values with which to test. The following table list values that can be used to "run" each test case as well as the expected results for each test case.

Test Case ID	Scenario / Condition	Bank ID	Account Number	PIN	Amount of Withdrawal	Cash available in machine	Account Balance	Expected Results
TC 10	Scenario 10 – w/d amount not divisible by 20 entered; re-entry then ATM does not have enough cash to complete request	2111111	05040321	7890	90, 100	60	N/A	"W/d amount not a multiple of 20" error message; then "Not enough cash in machine" error message; ATM card returned
TC 11	Scenario 11 – incorrect PIN, then w/d amount not divisible by 20; then not enough cash in machine	2111111	05040321	5443, 7890	90, 100	60	500	"Incorrect PIN" error message; "W/d amount not a multiple of 20" error message; then "Not enough cash in machine" error message; ATM card returned
TC 12	Scenario 12 – Incorrect PIN entered, then w/d amount not divisible by 20	2111111	05040321	5443, 7890	90, 100	1000	500	"Incorrect PIN" error message; "W/d amount not a multiple of 20" error message; then cash, receipt, and card returned
TC 13	Scenario 13 – PIN entered incorrectly twice; ATM does not have enough money to complete request	2111111	05040321	1000, 5443, 7890	100	60	N/A	"Incorrect PIN" error message; then "ATM does not have enough money" error message; then, cash, receipt, and card returned

Develop the Test Plan and Test Cases

Example – Developing Test Cases from Use Cases

For each test case, identify the data values with which to test. The following table list values that can be used to "run" each test case as well as the expected results for each test case.

Test Case ID	Scenario / Condition	Bank ID	Account Number	PIN	Amount of Withdrawal	Cash available in machine	Account Balance	Expected Results
TC 14	Scenario 14 – PIN entered incorrectly twice, w/d amount not divisible by 20, machine does not have enough cash to complete request	2111111	05040321	1000, 5443, 7890	90, 100	60	N/A	"Incorrect PIN" error message twice; "w/d amount not a multiple of 20" error message; then "not enough cash in machine" error message; card returned.
TC 15	Scenario 15 – Not enough cash in machine	2111111	05040321	7890	100	60	N/A	"Not enough cash in machine" error message; card returned
TC 16	Scenario 16 – insufficient funds in bank account	2111111	05040321	7890	100	1000	50	"In-sufficient funds" error message; card returned
TC 17	Scenario 17 – incorrect PIN entered, insufficient funds in bank account	2111111	05040321	5443, 7890	100	1000	50	"Incorrect PIN" error message; then "in-sufficient funds" error message; card returned
TC 18	Scenario 18 – incorrect PIN entered twice, then insufficient funds in bank account	2111111	05040321	1000, 5443, 7890	100	1000	50	"Incorrect PIN" error message twice; then "in-sufficient funds" error message; card returned

Develop the Test Plan and Test Cases

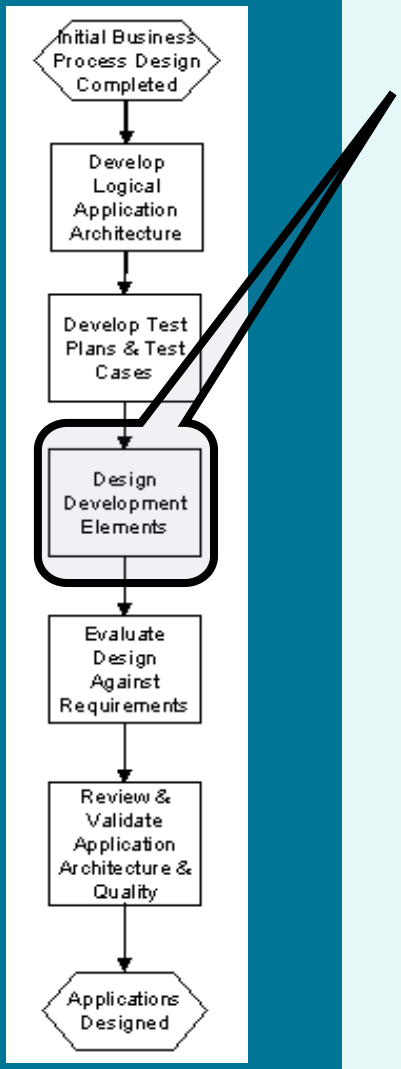
Example – Developing Test Cases from Use Cases

For each test case, identify the data values with which to test. The following table list values that can be used to "run" each test case as well as the expected results for each test case.

Test Case ID	Scenario / Condition	Bank ID	Account Number	PIN	Amount of Withdrawal	Cash available in machine	Account Balance	Expected Results
TC 19	Scenario 19 – W/d amount not divisible by 20, insufficient funds in bank account	2111111	05040321	7890	90, 100	1000	50	"W/d amount not a multiple of 20" error message; then "in-sufficient funds" error message; card returned
TC 20	Scenario 20 – PIN incorrect once; w/d amount not divisible by 20, insufficient funds in bank account	2111111	05040321	1000, 5443, 7890	100	1000	500	"PIN incorrect" once; "W/d amount not a multiple of 20" error message; then "in-sufficient funds" error message; card returned
TC 21	Scenario 20 – PIN incorrect twice; w/d amount not divisible by 20, insufficient funds in bank account	2111111	05040321	1000, 5443, 7890	90, 100	1000	50	"PIN incorrect" twice; "W/d amount not a multiple of 20" error message; then "in-sufficient funds" error message; card returned

Design Application Elements

Design the Development Elements



The following are compared to the documentation of the current systems environment to help determine where changes are required in existing system components and where new development is required.

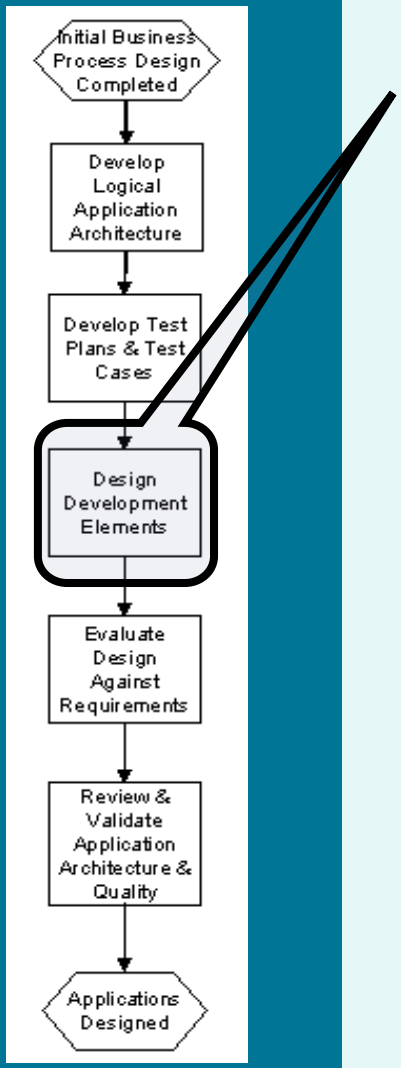
- Requirements Specification
- Logical Application Architecture section of the Logical Solution Architecture
- Business Process Change Impact Summary

Existing functionality is then examined to identify gaps and determine where changes are required. Areas that should be inspected include:

- Business Process and Data
- Queries and Reporting
- Conversion and Interfaces
- Technology, Security, and Performance
- Documentation
- User Interface
- Application Procedures
- Stored and Batch Procedures
- Interface Requirements
- Reports and Queries
- Data Conversion Programs
- Ad-Hoc Reports and Queries

Design Application Elements

Design the Development Elements

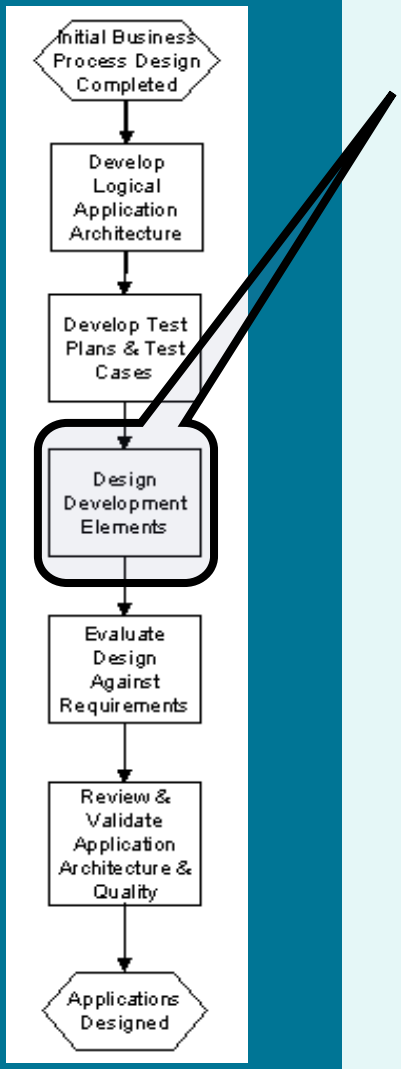


Business Process and Data

- Identify gaps or necessary changes to functionality, behavior, and business rules. Use Cases are an excellent tool to map against any existing functionality to ensure completeness and to identify changes and gaps in functionality.
- Identify gaps or necessary changes in data structures, including data types, value ranges, field sizes, table columns, etc. The physical data model is an excellent tool to map against any existing data structures to ensure completeness and to identify changes and gaps in data structures.

Design Application Elements

Design the Development Elements

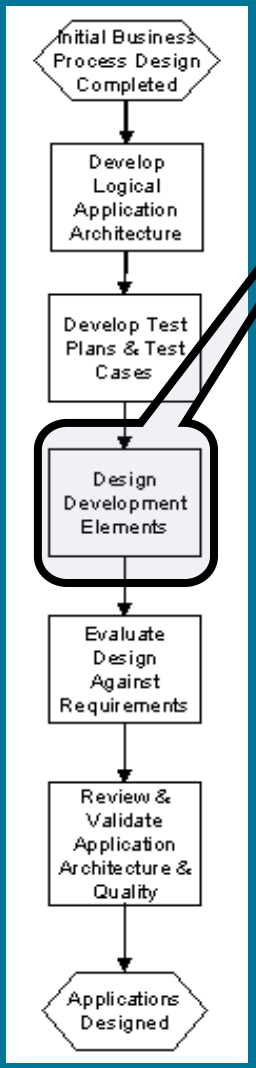


Queries and Reporting

- Identify gaps or necessary changes to existing reports, both online and offline.
- Identify gaps or necessary changes to query capabilities.

Design Application Elements

Design the Development Elements

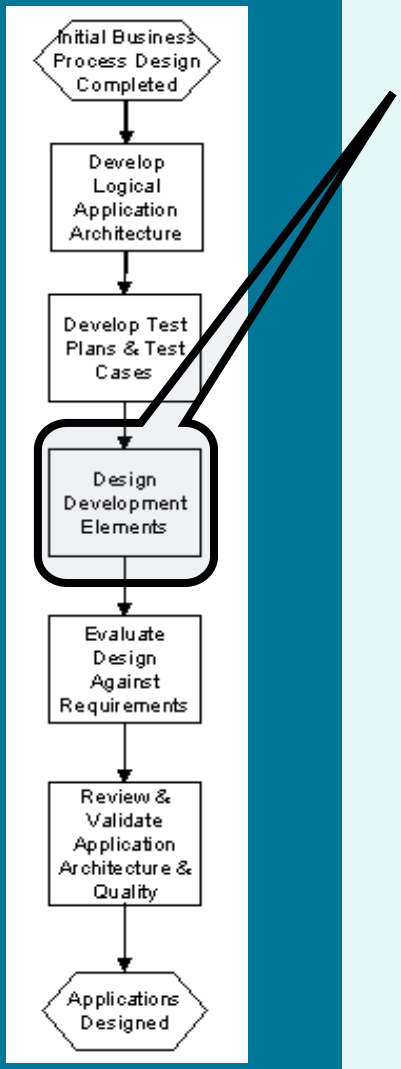


Conversion and Interfaces

- Determine the requirements for converting data to the required format in the target system.
- Determine the requirements for populating tables with required data, including data that may not currently exist in electronic format, such as organizational data. Be sensitive to issues of timeliness, quality, and consistency in connection with data to be converted. Examine requirements for the conversion of historic data.
- Map required interfaces to existing databases. Determine requirements for direct access to existing data files or databases.

Design Application Elements

Design the Development Elements

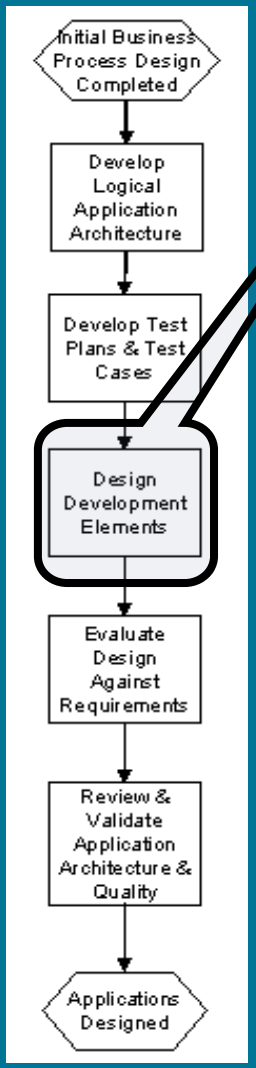


Technology, Security, and Performance

- Identify gaps or necessary changes to performance and technical environment options.
- Define security requirements and options, such as authorization levels. Identify gaps or necessary changes.
- Identify gaps or necessary changes to implementation details, such as the requirement to migrate between platforms, distribute data, convert to client/server architecture, or add a GUI (Graphical User Interface) front end.

Design Application Elements

Design the Development Elements



Documentation

User Interface

Application Procedures

Stored and Batch Procedures

Interface Requirements

Reports and Queries

Data Conversion Programs

Ad-Hoc Reports and Queries

- Identify gaps or necessary changes to functionality, behavior, and business rules. Use Cases are an excellent tool to map against any existing functionality to ensure completeness and to identify changes and gaps in functionality.
- Identify gaps or necessary changes in data structures, including data types, value ranges, field sizes, table columns, etc. The physical data model is an excellent tool to map against any existing data structures to ensure completeness and to identify changes and gaps in data structures.

Design Application Elements

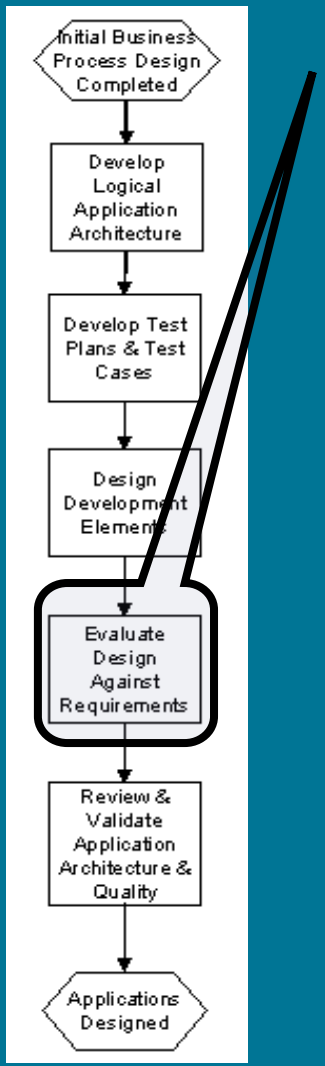
Design the Development Elements

Inputs & Outputs	
Inputs	Test Cases from Updated Test Strategy Use Case Model Database Design Specification Logical Application Architecture section of the Logical Solution Architecture Current System Documentation System Transactions Performance Requirements
Outputs	Application Design Specification section of the Design Specification

Roles & Responsibilities	
Role	**Responsibility**
Design Architect	Executes this activity. Conducts working sessions with the Systems Analyst, Business Analyst, Business Systems Architect, and other systems experts to fully understand and document new development.
Systems Analyst	Supports this activity. Provides input to the Design Architect on the functionality of the new and existing systems.
Business Analyst	Supports this activity. Provides the Design Architect with a business process context in which to understand the new system.
Business Systems Architect	Supports this activity. Provides input to the Design Architect on the Logical Application Architecture section of the Logical Solution Architecture.
User Interface Designer	Supports this activity. Reviews the Requirements Specification and Use Case Story Board to understand the solution. Identifies system transactions that require a user interface and designs a user interface for each transaction.
Database Administrator	Supports this activity. Provides domain knowledge to support efforts with respect of the System Analyst.

Design Application Elements

Evaluate the Design Against Requirements



- Confirm that all non-functional requirements have been addressed in the design. For any non-functional requirements that cannot be fully addressed at this stage of the lifecycle (e.g. performance tuning), document any tasks that must be performed later in the lifecycle in order to address those requirements.
- Update the test plan to include test cases or testing scenarios for each of the non-functional requirements, even if some of the non-functional requirements have not yet been addressed in the design. Cross reference functional requirement to application architecture components. Document on the traceability matrix.
- Reconfirm that all of the functional requirements have been met by the design. Confirm that all interface and conversion needs have been accounted for, and that an appropriate conversion plan is in place. Be alert to functionality that is outside the scope of the requirements. Any functionality of this type should be eliminated from the design.

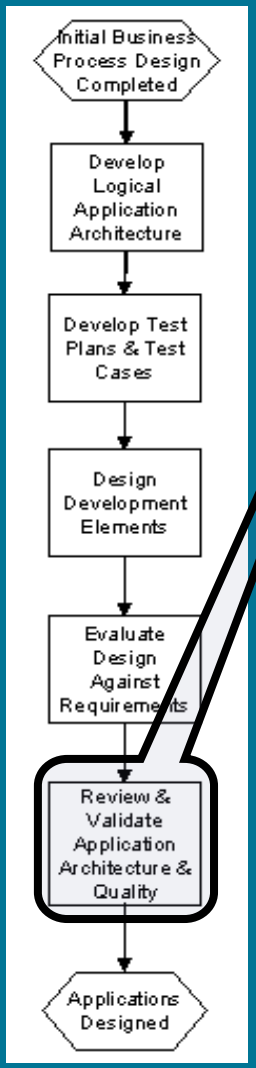
Design Application Elements

Evaluate the Design Against Requirements

Inputs & Outputs	
Inputs	Requirements Specification Requirements Traceability Matrix Test Strategy Application Design Specification
Outputs	Requirements Traceability Matrix Test Strategy Application Design Specification
Roles & Responsibilities	
Role	**Responsibility**
Project Manager	Executes this activity. Updates the Requirements Traceability Matrix to include reference to test cases.
Project Office Team Leader	Supports this activity. Supports the Project Manager in the maintenance of the Requirements Traceability Matrix.

Design Application Elements

Review and Validate Application Architecture and Quality



- Review the completed application design against the Logical Application Architecture and other aspects of the Design Specification. Make any adjustments to the Logical Application Architecture and to the Design Specification that are warranted based on inconsistencies amongst business process, data, and application design.
- Reconfirm the completeness of the design when mapped to the functional requirements, the non-functional requirements, and the test plan, test cases, and test scenarios. Conversely, confirm the completeness of the test cases and test scenarios based on the design.
- At this point, the application to be delivered should be well understood, and the team should feel confident that all existing requirements could be met. If new or leading edge functionality or technology is contemplated in the application design, consider ways of mitigating the risk of implementing portions of the application that are “leading edge”, perhaps by conducting a prototype, developing high risk functionality as early as possible, etc.

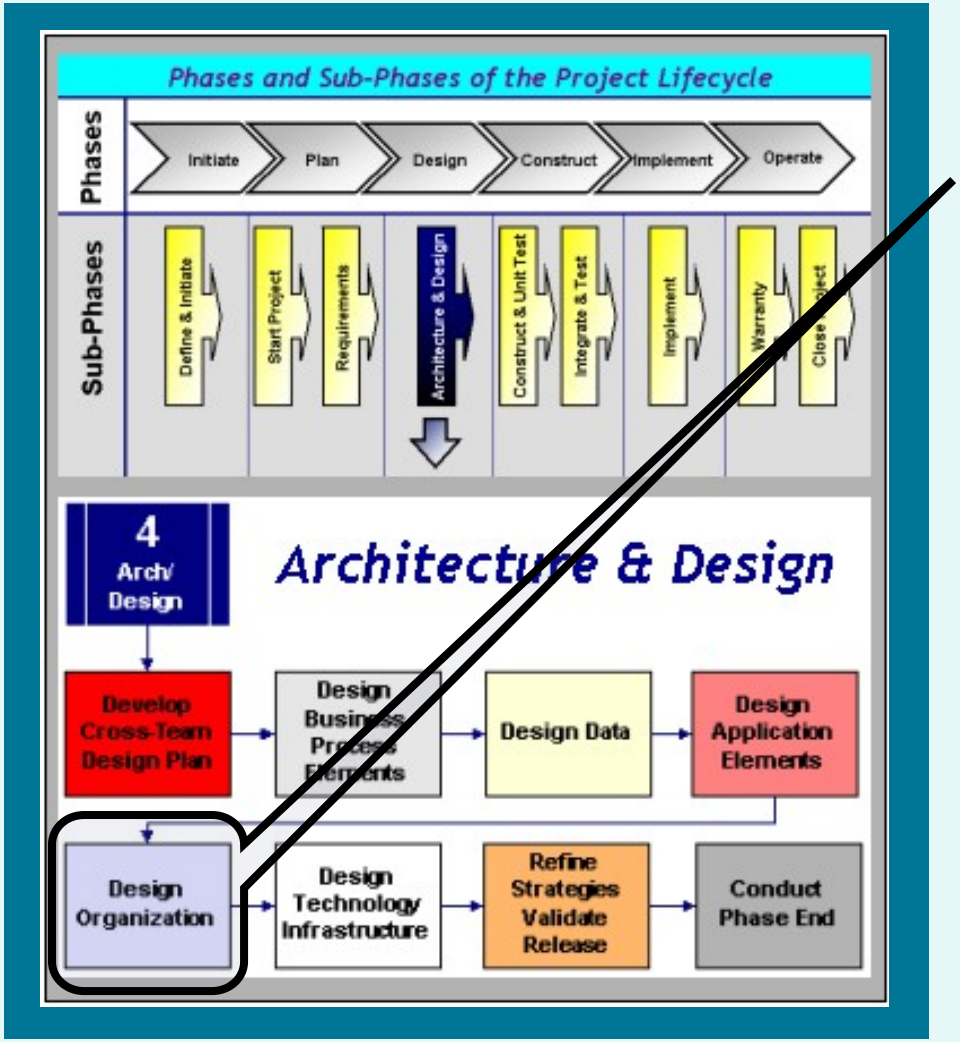
Design Application Elements

Review and Validate Application Architecture and Quality

Inputs & Outputs	
Inputs	Use Case Model Data Conversion Strategy Logical Solution Architecture Design Specification
Outputs	Application Design Specification section of the Design Specification Logical Application Architecture

Roles & Responsibilities	
Role	**Responsibility**
Project Manager	Executes this activity. Facilitates the review to determine completeness and appropriateness of the design.
Design Architect	Supports this activity. Provides input and feedback regarding the design.
Database Architect	Supports this activity. Provides input and feedback regarding the design.
Application Team	Supports this activity. Provides input and feedback regarding the design.

Details - Design the Organization



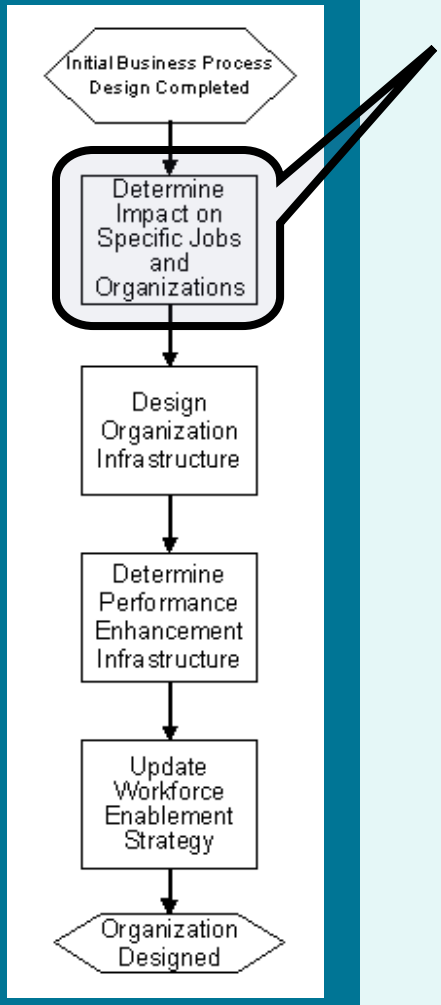
This process focuses on the design of structurally specific organization reporting patterns and related job descriptions without any reference to the individuals who will fill the roles or perform the jobs described in the organization structure.

This process is broken out into 4 sub-processes:

- Determine Impact On Specific Jobs And Organizations
- Design Organization Infrastructure
- Determine Performance Enhancement Infrastructure
- Update Work Force Enablement Strategy

Design Organization

Determine Impact On Specific Jobs And Organizations



Organizational units (enterprise down through work groups) impacted by the solution are identified along with job related impact.

- The Requirements Specification are first reviewed to understand what must change in the current organizational structure and job definitions.
- Second, the target Conceptual Organization Architecture section of the Conceptual Solution Architecture is compare to the existing organization architecture to identify specific structural differences.
- Finally, the Requirements Attainment Strategy is reviewed to determine when changes are expected to occur in the target organizational environment.

Design Organization

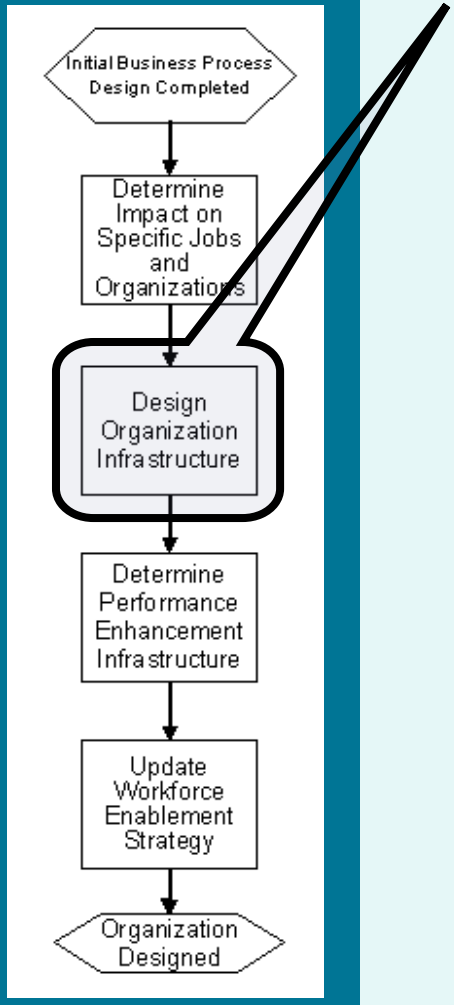
Determine Impact On Specific Jobs And Organizations

Inputs & Outputs	
Inputs	Current Job Description(s) Requirements Specification Current Organizational Structure(s) Conceptual Organization Architecture section of the Conceptual Solution Architecture Requirements Attainment Strategy
Outputs	Impacted Jobs Impacted Organizations

Roles & Responsibilities	
Role	**Responsibility**
Organizational Design Specialist	Executes this activity. Uses understanding of the current business organization/process to determine how the proposed application and business process will affect organizations/jobs (add, change, delete). Documents results of this study.
Project Manager	Supports this activity. Facilitates activities between the Organizational Design Specialist and the Subject Matter Experts.
Subject Matter Expert	Supports this activity. Provides input regarding current and target job descriptions.

Design Organization

Design Organization Infrastructure



- Create the Logical Organization Architecture section of the Logical Solution Architecture by adding specific organizational labels to units in the Conceptual Organization Architecture. Do not include specific employee names at this time.
- Next, create an Organization Charter for each organizational unit impacted by the change (enterprise through work group levels). Identify mission, guiding principles, responsibilities, and accountabilities. Also identify metrics relevant to whatever the organization is to achieve or do differently. Once agreed upon, expand the charter to include a similar description for each role in the organization.
- For each impacted organizational unit, design, modify, or confirm internal job descriptions needed to address all necessary roles identified in the Organization Charter. Include title, purpose, primary accountabilities and principal tasks, performance measures, competencies, and potential recruiting options (if applicable).
- For job design, work with an Organization Design Specialist to develop alternate strategies for clustering roles into work groups/teams and to select the strategy that optimizes your chances for achieving business process performance objectives and desired culture. Develop job descriptions for each role emphasizing leadership competencies when describing manager positions, since managers serve as role models to the people they influence.

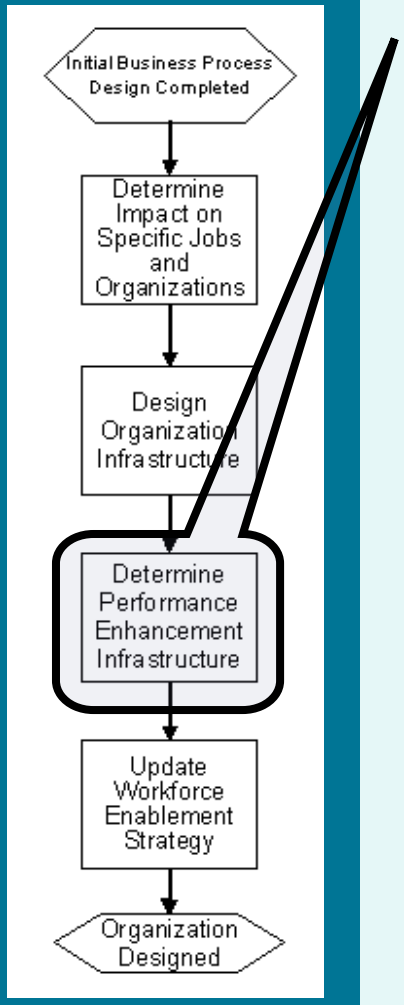
Design Organization

Design Organization Infrastructure

Inputs & Outputs	
Inputs	Impacted Organizations Requirements Specification Conceptual Organization Architecture section of the Conceptual Solution Architecture Conceptual Business Process Architecture section of the Conceptual Solution Architecture Current Organization Charters
Outputs	Organization Design Specification section of the Design Specification Logical Organization Architecture section of the Logical Solution Architecture
Roles & Responsibilities	
Role	**Responsibility**
Organizational Design Specialist	Executes this activity. Uses knowledge of the proposed business process and organizational/job impacts to design and document new organizational structures.
Subject Matter Expert(s) – representing each impacted organizational unit	Supports this activity. Provides input regarding current and target organization charters.

Design Organization

Determine Performance Enhancement Infrastructure



- Review the Organization Design Specification section of the Design Specification to understand new and changed job responsibilities.
- Determine compensation appropriate for new jobs and re-evaluate compensation and recognition for changed jobs. If an increase in compensation is warranted but financially undesirable, consider modifying the Reward and Recognition Section of the Work Force Enablement Strategy to bridge the gap.
- Determine training appropriate for new jobs and re-evaluate training for changed jobs. As necessary, update the Training Enablement section of the Work Force Enablement Strategy.
- Determine the potential impact to facilities given organization infrastructure changes. As necessary, update the Facilities section of the Work Force Enablement Strategy.

Design Organization

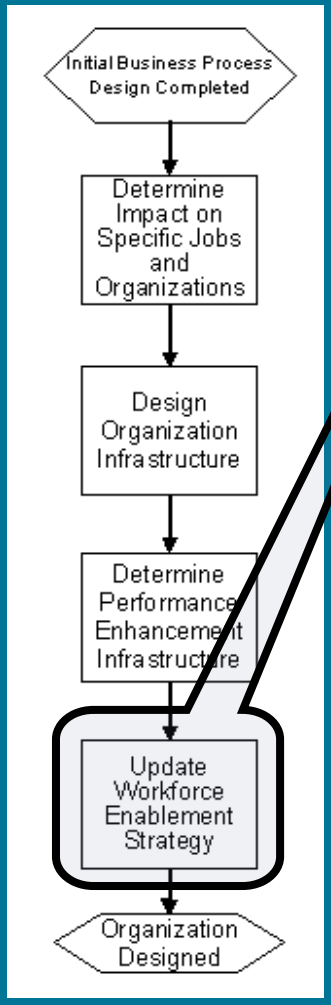
Determine Performance Enhancement Infrastructure

Inputs & Outputs	
Inputs	Current Job Descriptions for Impacted Jobs Work Force Enablement Strategy Organization Design Specification section of the Design Specification
Outputs	Work Force Enablement Strategy Logical Organization Architecture section of the Logical Solution Architecture Organization Design Specification section of the Design Specification

Roles & Responsibilities	
Role	**Responsibility**
Organizational Design Specialist	Executes this activity. Uses knowledge of the proposed business process and organizational/job impacts to design new job descriptions or revise existing one. Documents the results.
Subject Matter Expert	Supports this activity. Provides input regarding current and target job descriptions.

Design Organization

Update Workforce Enablement Strategy



- Review the Work Force Enablement Strategy and re-align enablement process approaches with other domains as necessary.
- Review all relevant enablement process strategies to understand process and data interdependencies.
- Expand Design Coordination Procedures for ongoing review and issue resolution.

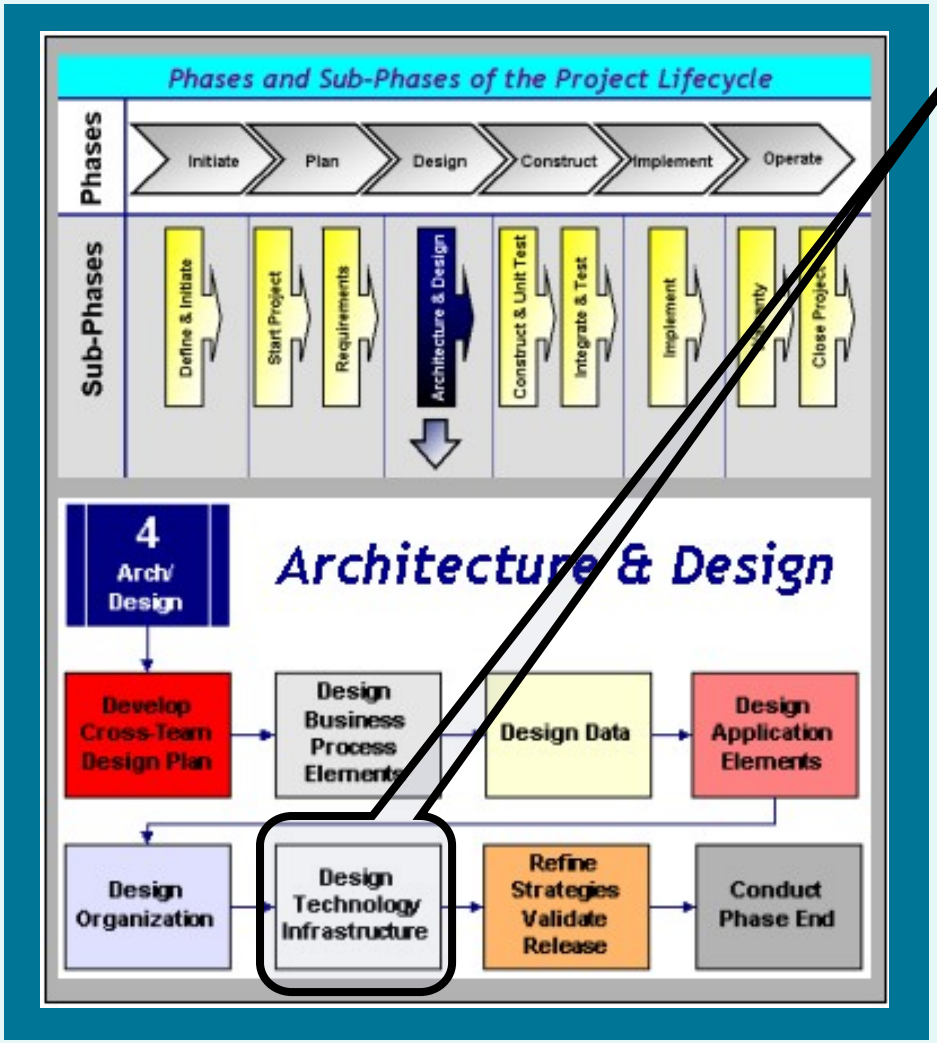
Design Organization

Update Workforce Enablement Strategy

Inputs & Outputs	
Inputs	Work Force Enablement Strategy Logical Organization Architecture section of Logical Solution Architecture Organization Design Specification section of the Design Specification
Outputs	Work Force Enablement Strategy Design Coordination Procedures

Roles & Responsibilities	
Role	**Responsibility**
Organization Design Specialist	Executes this activity. Reviews significant changes to the organization design to understand new and changed jobs. Determines additional incentives that may be required to bridge the gap.
Subject Matter Expert	Supports this activity. Provides input on current culture and anticipates reactions to change.

Details - Design Technology Infrastructure

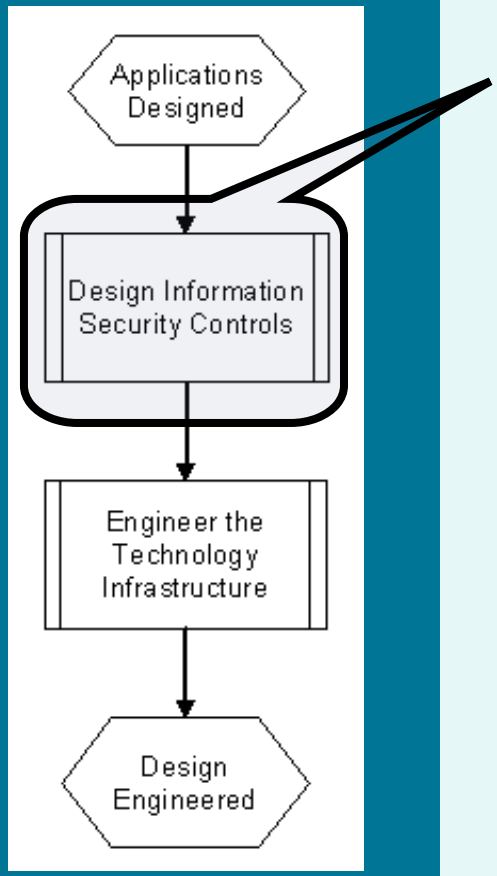


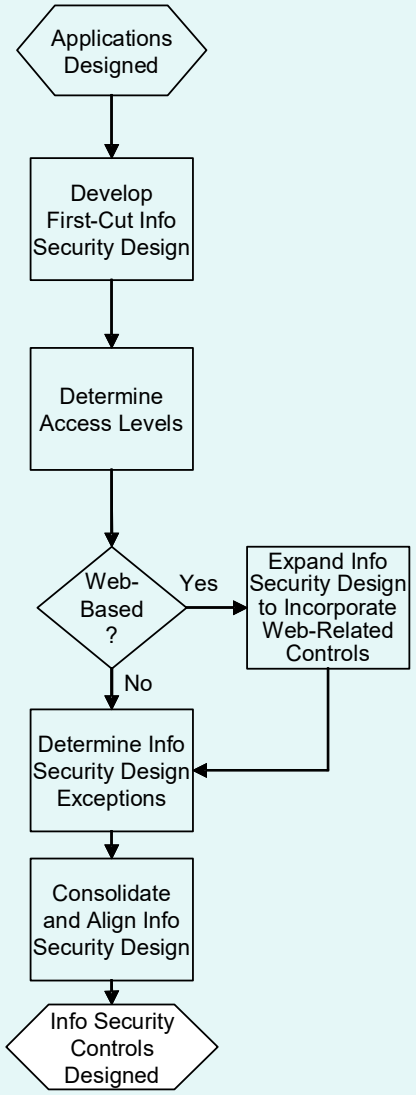
This process is broken out into 2 sub-processes:

- Design Information Security Controls
- Engineer the Technology Infrastructure

Design Technology Infrastructure

Design Information Security Controls

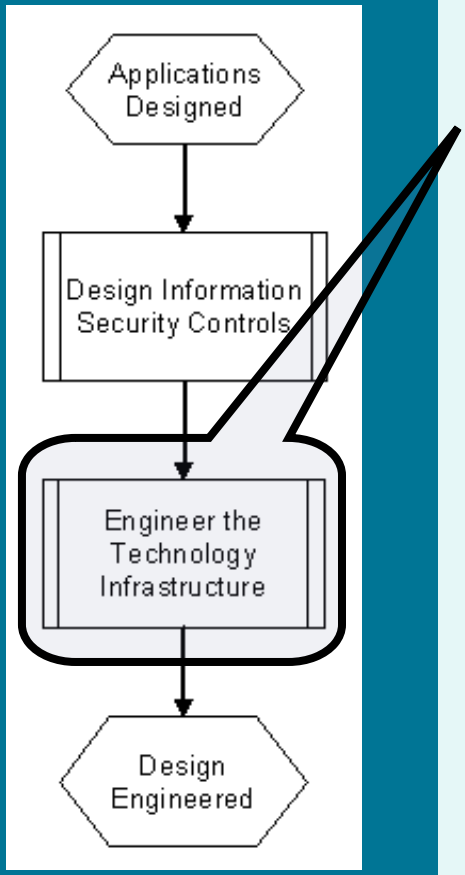




- This process focuses on designing information security elements that must be built into the Logical Solution Architecture, which is the overall solution including architectures for all domains.
- Document results in the Information Security Controls section of the Design Specification.

Design Technology Infrastructure

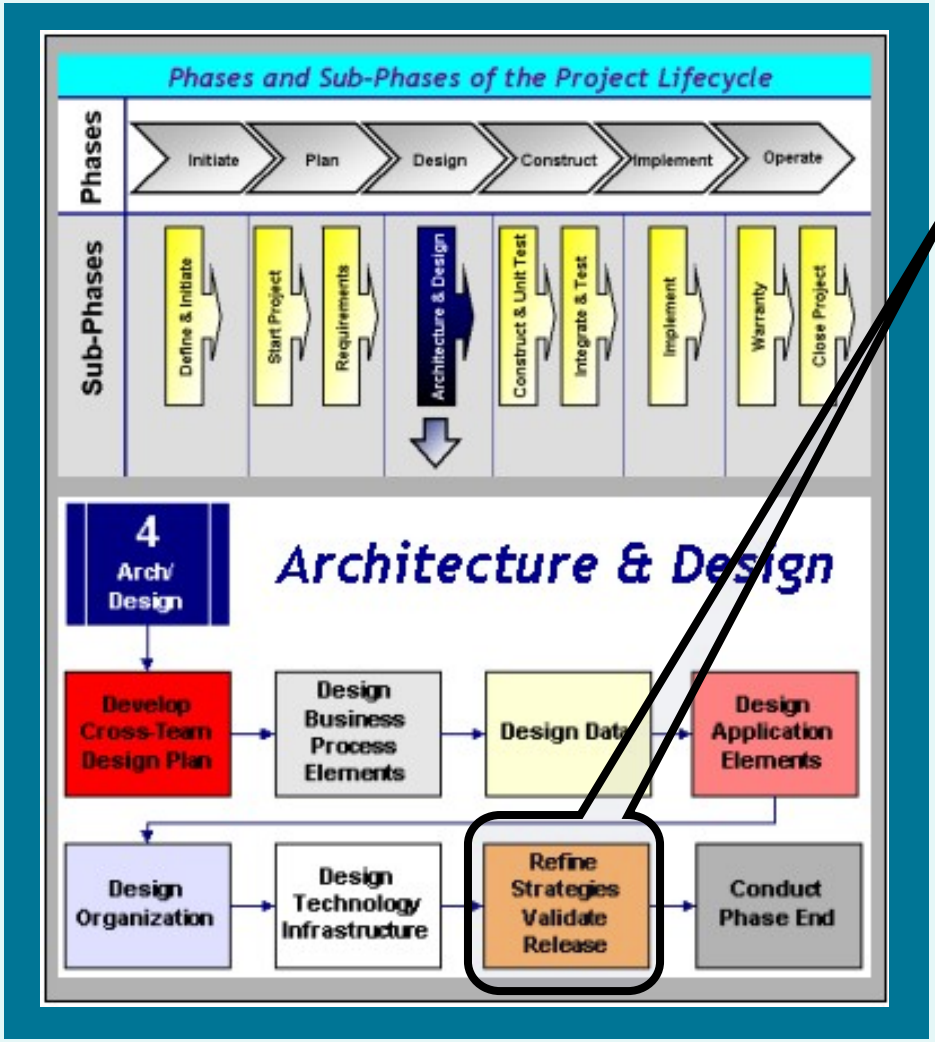
Engineer the Technology Infrastructure



- This activity's primary goals are to create the Infrastructure Engineering Package (IEP) and initial Infrastructure Implementation Readiness Plan (IIRP).

- Document results in the Logical Technology Infrastructure section of the Logical Solution Architecture and the Technology Infrastructure Section of the Design Specification.

Details - Refine Strategies & Validate Release



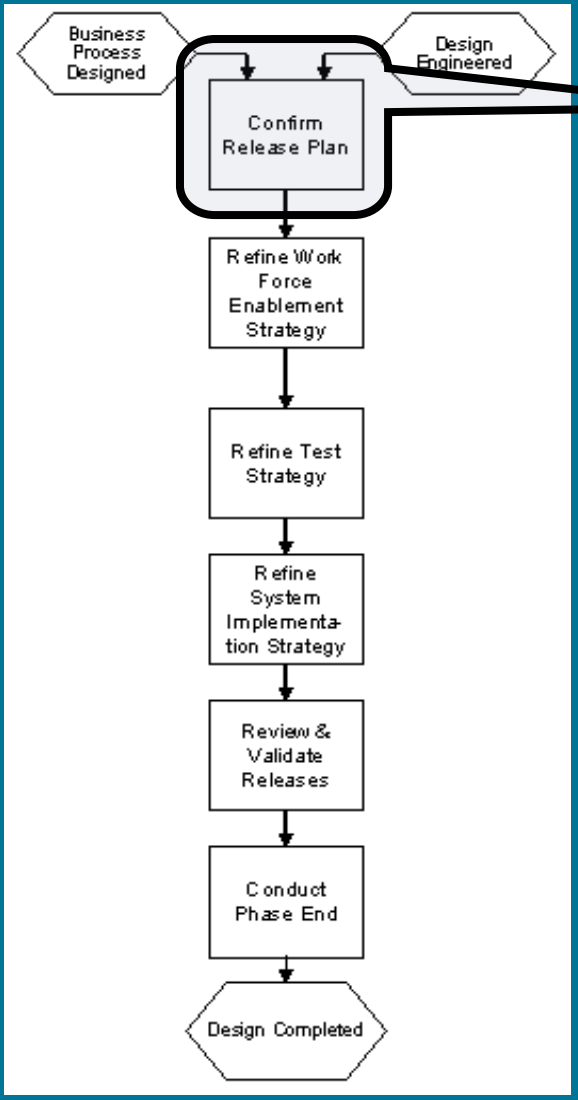
This process refines the various project strategies for ensuring that all solution requirements are met, ensures their alignment, and validates the viability of the release.

This process is broken out into 5 sub-processes:

- Confirm Release Plan
- Refine Work Force Enablement Strategy
- Refine Test Strategy
- Refine System Implementation Strategy
- Review and Validate Releases

Refine Strategies Validate Release

Confirm Release Plan



- Conduct team-working sessions with representatives from user organizations to confirm/update the Requirements Attainment Strategy developed in the Requirements Sub-Phase.
- Next, confirm/define how new functionality and changes will be packaged, sequenced, implemented and released to the organization.
- Document the results in the Project Approach section of the Project Charter and update the Project Workplan to reflect any changes. Update the strategy to tie requirements defined previously to the release(s) addressing them.

Refine Strategies Validate Release

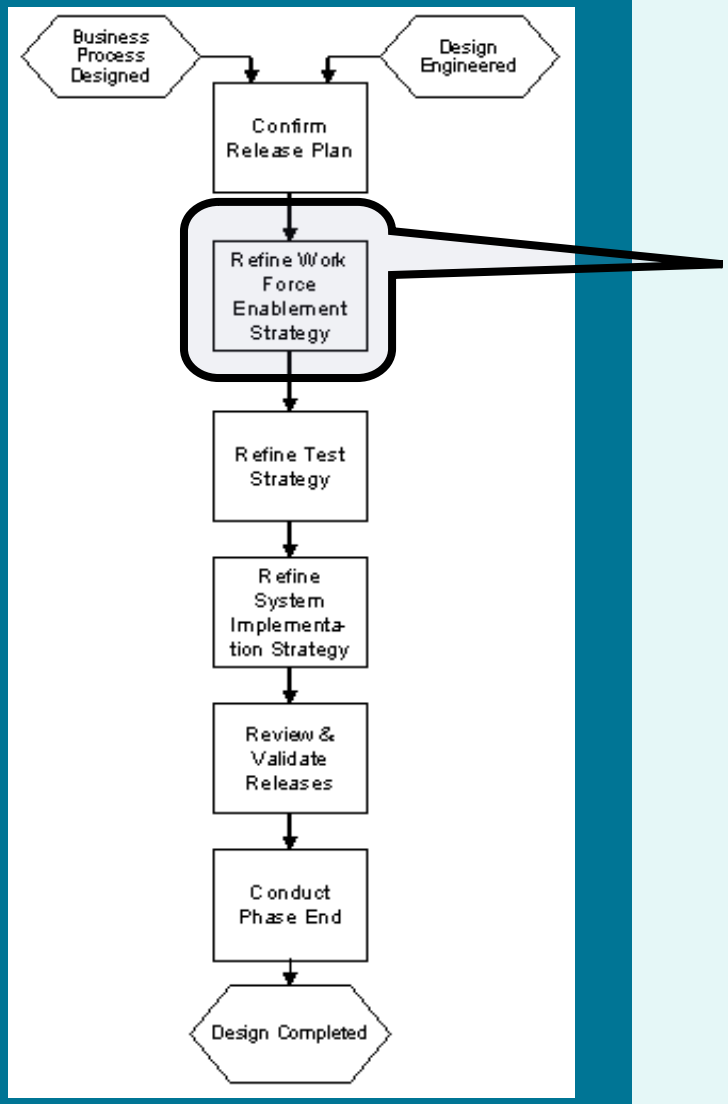
Confirm Release Plan

Inputs & Outputs	
Inputs	Requirements Attainment Strategy
Outputs	Project Charter Project Workplan

Roles & Responsibilities	
Role	**Responsibility**
Project Manager	Executes this activity. Facilitates project team workgroups to identify discrete release components and the best sequence for rolling them out. Documents results in the Solution Release Plan. Updates overall project plan to reflect discrete release components, associated deliverables, and associated estimates.
Business Systems Architect	Supports this activity. Provides input based on understanding of the system's technical architecture.
Project Sponsor	Supports this activity. Provides input based on understanding of the primary intent of the project and of the business processes.
Project Subject Matter Expert	Supports this activity. Provides input from the perspective of individuals whose organizations and business functions are directly affected by how the system is implemented.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy



This process adds detail to the high-level Work Force Enablement Strategy in the context of the new or revised Solution Release Plan.

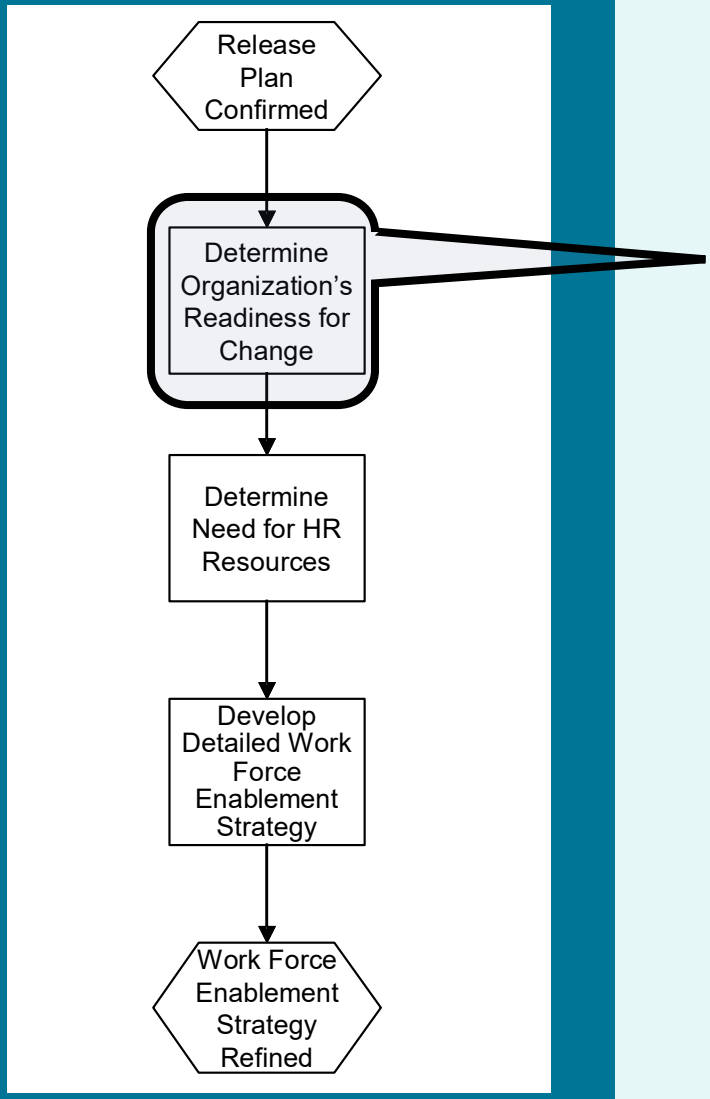
This process is broken out into 3 sub-processes:

- Determine Organization's Readiness for Change
- Determine Need for HR Resources
- Develop Detailed Work Force Enablement Strategy

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change



Stakeholders were originally identified when the project was defined and initiated (using the Stakeholder Breakdown Structure). This process re-confirms the identification of primary stakeholders – the people who have the power to impact the success of the change, and determines how great an effort will be required to bridge the gap between the current organization and the desired future state.

This process is broken out into 7 sub-processes:

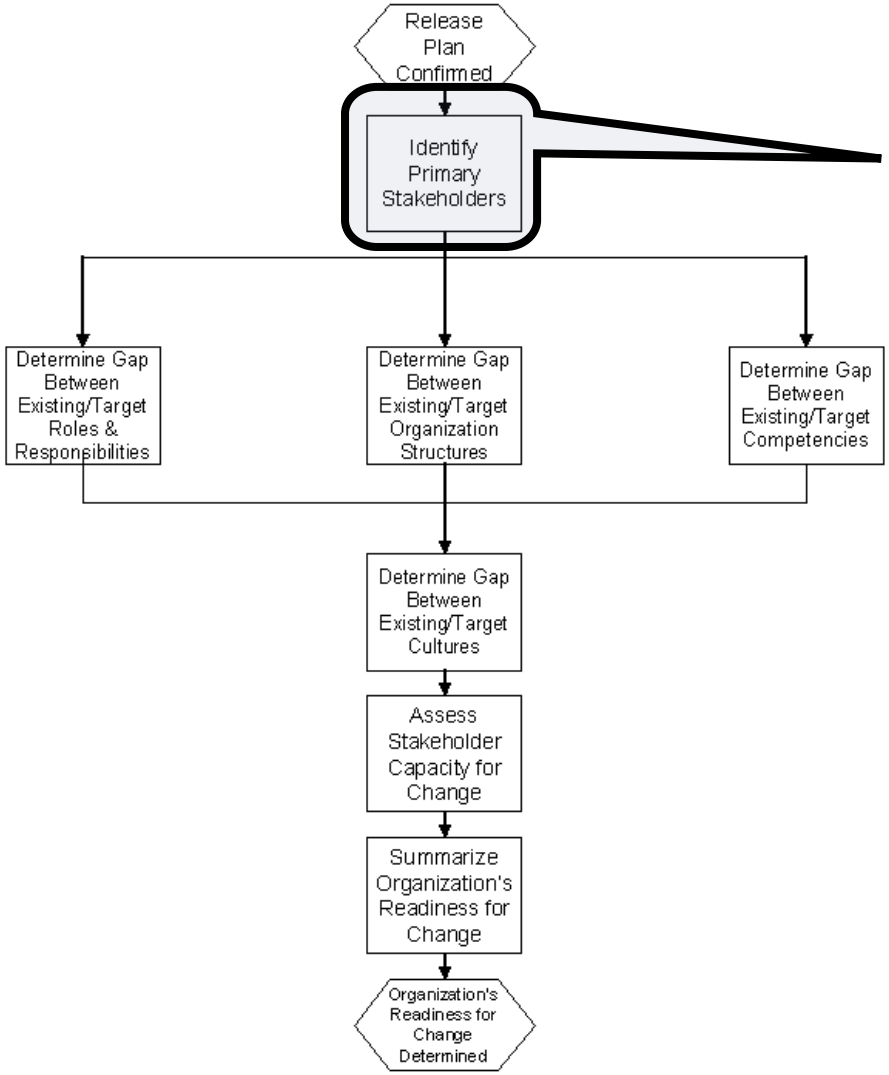
- Identify Primary Stakeholders
- Determine Gap between Existing & Target Roles & Responsibilities
- Determine Gap between Existing & Target Organization Structures
- Determine Gap between Existing & Target Competencies
- Determine Gap between Existing & Target Culture
- Assess Stakeholder Capacity for Change
- Summarize the Organization's Readiness for Change.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Identify Primary Stakeholders



- With previously determined impacted organizations and jobs, review the future organization design to determine the groups and individuals that are in a position to influence whether the change will be successful. Each influential group and individual should (at least initially) be considered to be a separate stakeholder.
- Determine the critical and influential stakeholders whose current state you must better understand in order to design an effective transition strategy, ranking stakeholders in order of relative influence.
- For each stakeholder, profile relevant demographic characteristics - the individual and group characteristics over which you have little or no control, such as stakeholder years of service. Other potential characteristics include nature of existing assignments (cognitive, technical, physical), point of focus (broad, narrow, short-term, long-term), orientation (internal or external to business area), length of service, personal strengths and weaknesses, level of education, and employee type (union, non-union).

Refine
Strategies
Validate
Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Identify Primary Stakeholders

Inputs & Outputs	
Inputs	Logical Business Process Architecture section of the Logical Solution Architecture Organization Design Specification section of the Design Specification Logical Organization Architecture of the Logical Solution Architecture Impacted Jobs Impacted Organizations
Outputs	Stakeholder Profiles

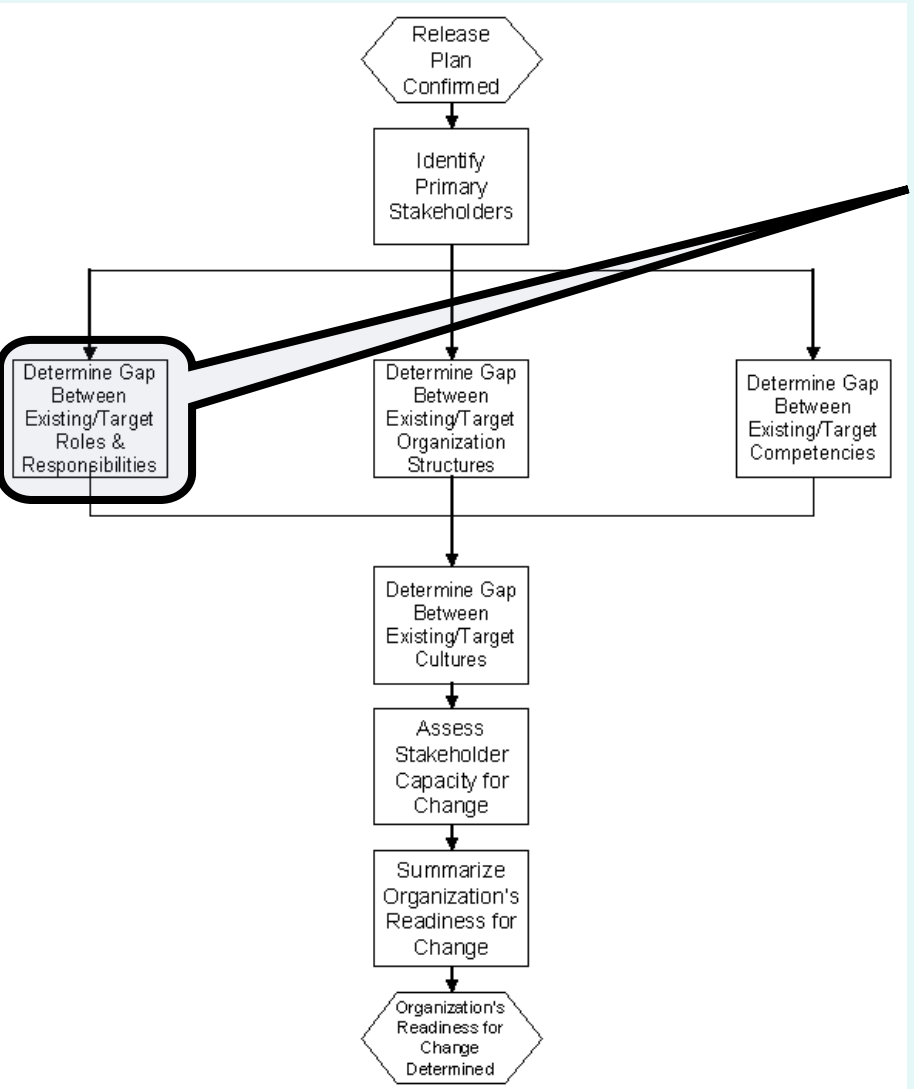
Roles & Responsibilities	
Role	**Responsibility**
Project Manager	Executes this activity. Identifies stakeholders in a position to influence the success implementation of required organizational changes and documents their characteristics in Stakeholder Profiles.
Organizational Design Specialist	Supports this activity. Uses understanding of the end-state organization to help identify the most influential stakeholders.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Determine Gap between Existing & Target Roles & Responsibilities



- With impacted jobs in-hand, review the future organization design and future process model to determine the extent to which relevant roles and responsibilities are impacted by the change.
- Led by the Organization Design Specialist, describe the current organizational environment, noting the degree to which employee actions are driven by corporate goals, the extent to which they feel free to make and carry out job-related decisions, and whether workers tend to keep their opinions to themselves.
- Describe the characteristic differences between current and target roles and responsibilities.

Refine
Strategies
Validate
Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Determine Gap between Existing & Target Roles & Responsibilities

Inputs & Outputs	
Inputs	Stakeholder Profiles Organization Design Specification section of the Design Specification Logical Business Process Architecture section of the Logical Solution Architecture Logical Organization Architecture section of the Logical Solution Architecture Impacted Jobs **Impacted Organizations**
Outputs	**Stakeholder Profiles**

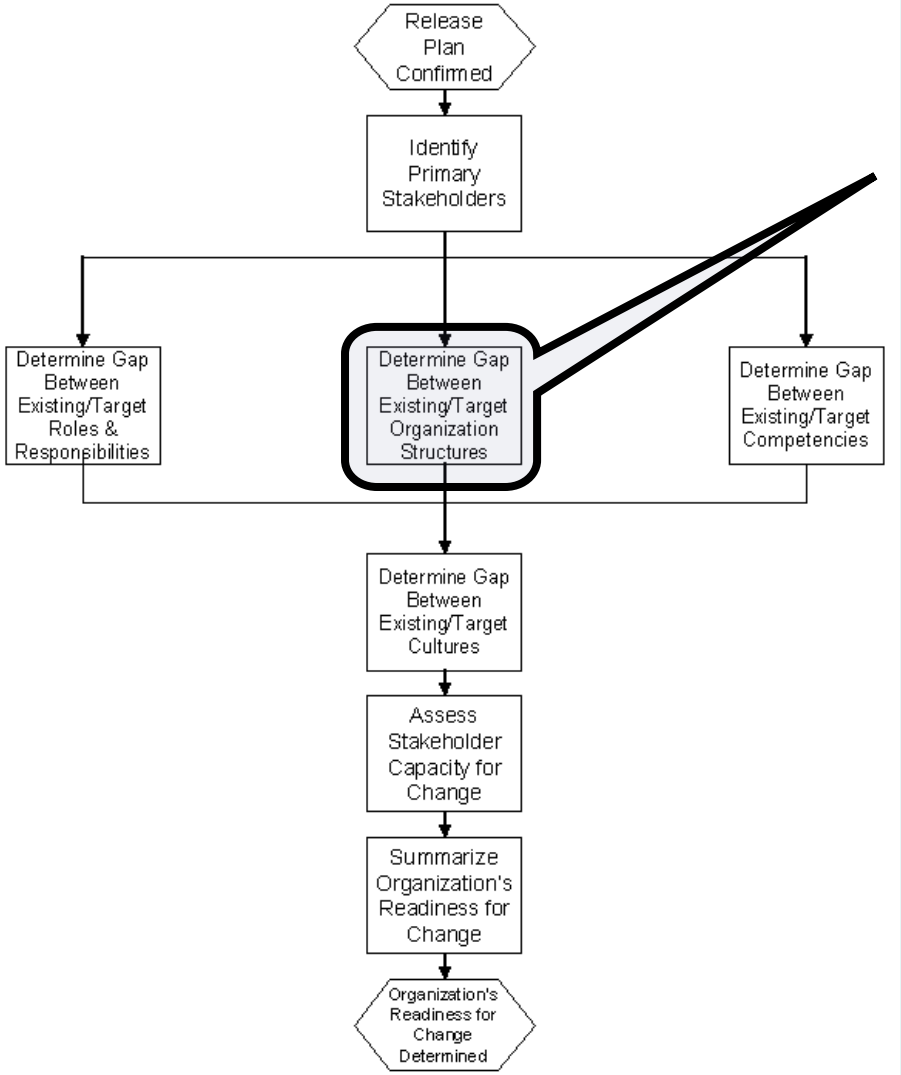
Roles & Responsibilities	
Role	**Responsibility**
Organizational Design Specialist	Executes this activity. Determines and documents any gaps between existing and target roles and responsibilities.
Project Manager	Supports this activity. Facilitates activities between the Organizational Design Specialist and the Stakeholder Representative.
Subject Matter Expert	Supports this activity. Provides stakeholder input regarding current and target roles and responsibilities.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Determine Gap between Existing & Target Organization Structures



- With impacted organizations in-hand, review the future organization design and future process model to determine the extent to which relevant organizations are impacted by the change.
- Led by the Organization Design Specialist, determine the formal and informal reporting and decision-making relationships between and within stakeholder organizations.
- Determine control structure decision-making levels, whether decision making is centralized, decentralized, or autonomous, and how operational control is maintained, such as by business unit, line of business, and/or functional unit.
- Explore the nature of existing responsibilities, focusing on whether they are cross-functional or stove-piped, how well members of an organization work together to accomplish common objectives, and the interrelationships between managers, leaders, and other group members.
- Describe the key differences between current and target structures for previously identified stakeholders.

Refine
Strategies
Validate
Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Determine Gap between Existing & Target Organization Structures

Inputs & Outputs	
Inputs	Stakeholder Profiles Logical Organization Architecture section of the Logical Solution Architecture Impacted Organizations Organization Design Specification section of the Design Specification
Outputs	Stakeholder Profiles

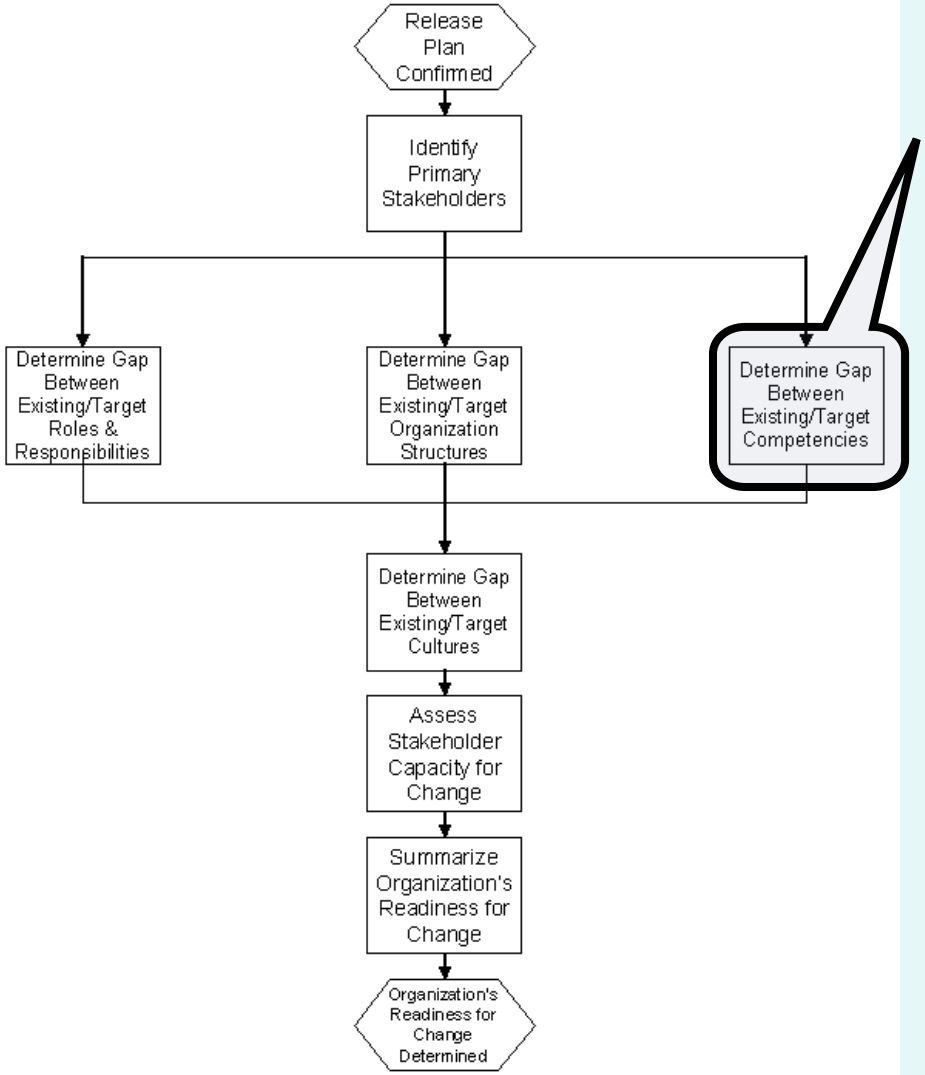
Roles & Responsibilities	
Role	**Responsibility**
Organizational Design Specialist	Executes this activity. Determines and documents any gaps between existing and target organization structures.
Project Manager	Supports this activity. Facilitates activities between the Organizational Design Specialist and the Stakeholder Representative.
Subject Matter Expert	Supports this activity. Provides stakeholder input regarding current and target organization structures.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Determine Gap between Existing & Target Competencies



- Review the future organization design and future process model to determine relevant job performance competencies.
- Led by the Training Specialist, assess current competency levels for stakeholders who are being asked to do their jobs differently. Note the skills and knowledge present for existing roles and the relative levels of expertise, determine known deficiencies, estimate the average suitability of staff to assignment, and observe whether leaders demonstrate adequate and appropriate behaviors for direct reports to emulate.
- Describe the key differences between current and target competencies.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Determine Gap between Existing & Target Competencies

Inputs & Outputs	
Inputs	Stakeholder Profiles Organization Design Specification section of the Design Specification Impacted Jobs Logical Organization Architecture section of the Logical Solution Architecture Logical Business Process Architecture section of the Logical Solution Architecture
Outputs	Stakeholder Profiles

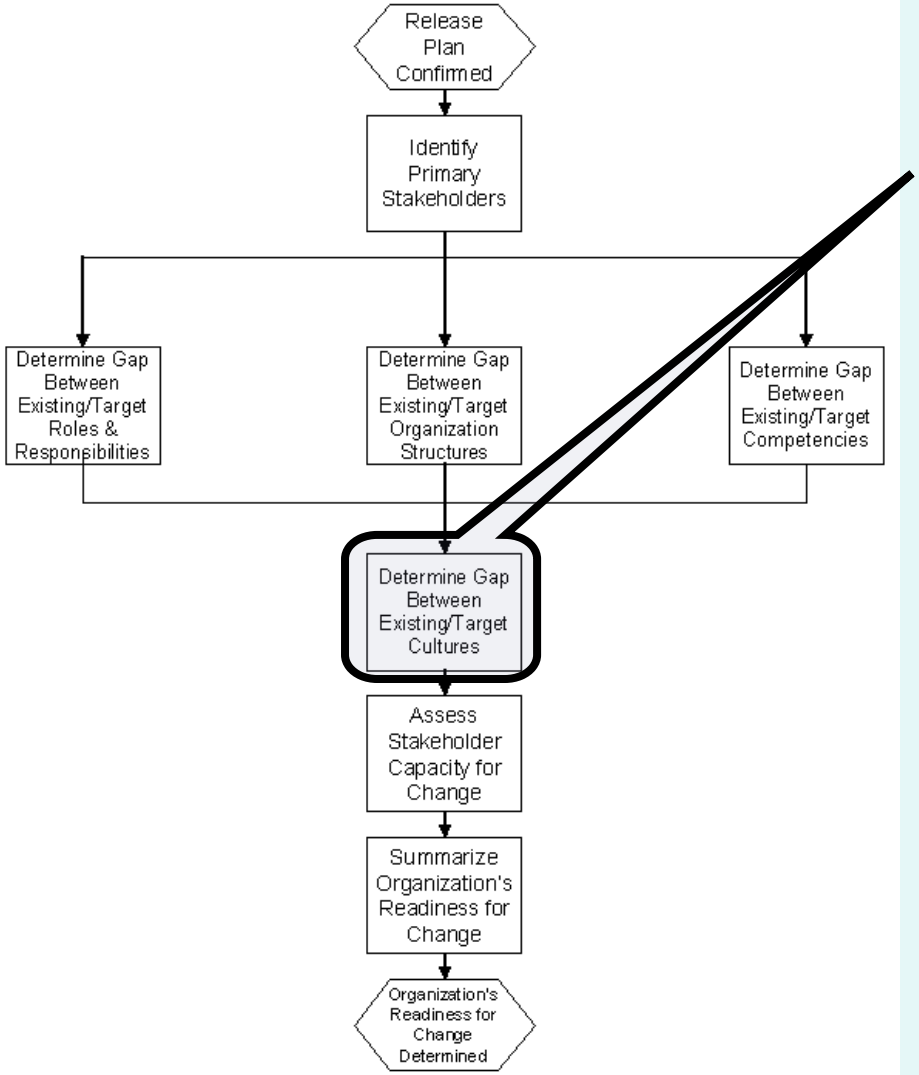
Roles & Responsibilities	
Role	**Responsibility**
Training Specialist	Executes this activity. Determines and documents any gaps between existing and target competencies.
Project Manager	Supports this activity. Facilitates activities between the Training Specialist and the Stakeholder Representative.
Subject Matter Expert	Supports this activity. Provides stakeholder input regarding current and target competencies.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Identify Determine Gap between Existing & Target Culture



- Review the future organization design and future process model to determine relevant values, attitudes, and behaviors required for the change.
- Led by an Organizational Design Specialist, assess and document current culture, focusing on the emotional atmosphere of the organization and how stakeholders feel about one another, especially the attitude and beliefs of business staff about information technology staff, and vice versa. Also, observe the formal and informal norms for dealing with disagreement and the degree to which creativity and continuous improvement are encouraged.
- Finally, find out how well stakeholders understand how they fit into the big picture.
- Describe the key differences between current and target cultural values, beliefs, and attitudes.

Refine
Strategies
Validate
Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Identify Determine Gap between Existing & Target Culture

Inputs & Outputs	
Inputs	Organization Design Specification section of the Design Specification Logical Organization Architecture section of the Logical Solution Architecture Logical Business Process Architecture section of the Logical Solution Architecture Stakeholder Profiles
Outputs	Stakeholder Profiles

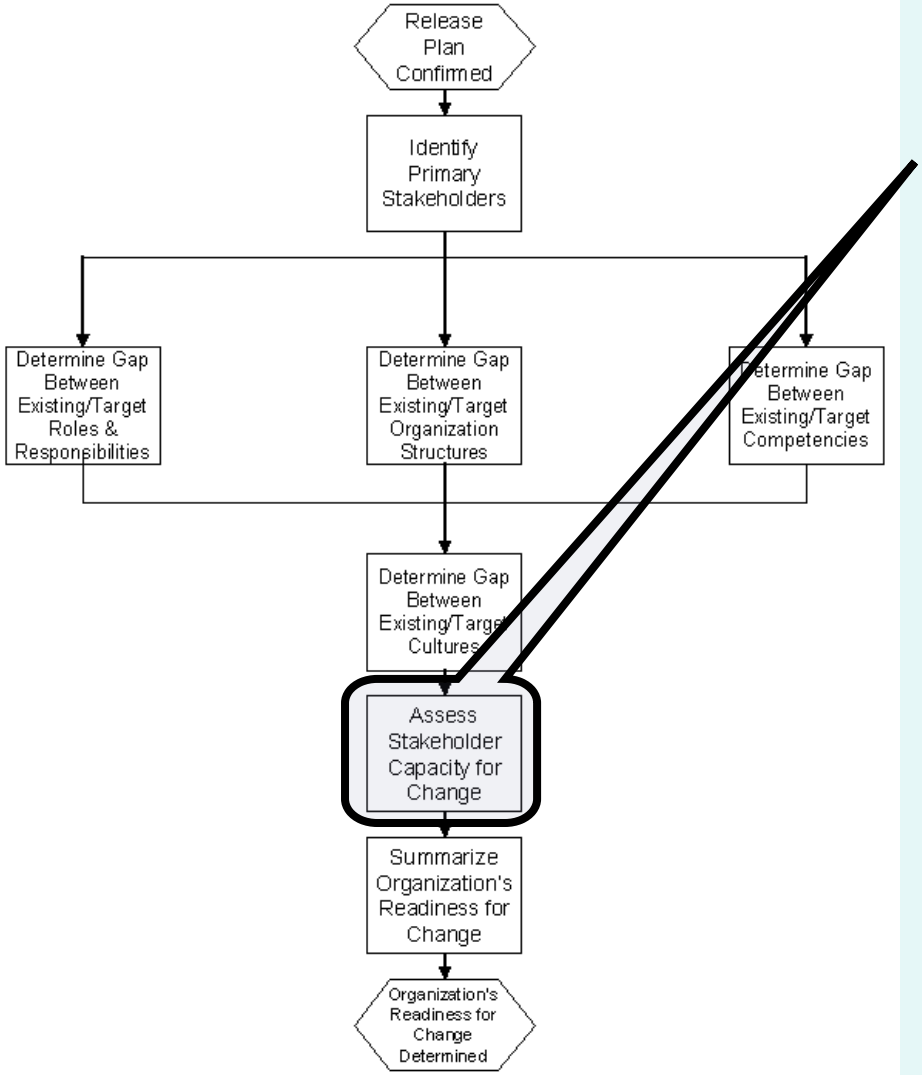
Roles & Responsibilities	
Role	**Responsibility**
Organizational Design Specialist	Executes this activity. Determines and documents any gaps between the existing and target culture.
Project Manager	Supports this activity. Facilitates activities between the Organizational Design Specialist and the Stakeholder Representative.
Subject Matter Expert	Supports this activity. Provides stakeholder input regarding the existing and target culture.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Assess Stakeholder Capacity for Change



- Before stakeholders fully accept and institutionalize any kind of change, they typically pass through five stages, each with its own peculiarities:
  1. During the awareness stage, stakeholders are more curious than wary, usually craving information, or they are apathetic as a result of past experience with change.
  2. During the self-concern stage, stakeholders question how the business change will affect them personally and typically feel unsafe, fear failure to measure up, and have a general sense that things are moving too fast for comfort.
  3. During the mental try-out stage, stakeholders understand where they fit in and how they can adapt to the business change, by now understanding what they need to learn in order to participate and contribute.
  4. During the involvement stage, stakeholders confront the future head-on by taking an active role in the change process, and have formed an opinion about the change in general.
  5. During the acceptance stage, stakeholders have bought in to the change, although their enthusiasm may be less than desired.
- Discern which stage each stakeholder is in so that you can design tactics for moving all stakeholders forward. Finally, for each stakeholder, determine the obstacles that impede and the enablers that expedite business change. Where the potential impact of enablers exceeds the potential impact of obstacles, stakeholder capacity for change is strong. Where the potential impact of obstacles exceeds the potential impact of enablers, capacity for change is weak.

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Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Assess Stakeholder Capacity for Change

Inputs & Outputs	
Inputs	Stakeholder Profiles
Outputs	Stakeholder Profiles

Roles & Responsibilities	
Role	**Responsibility**
Organizational Design Specialist	Executes this activity. Determines and documents individual stakeholder readiness for change and obstacles specific to each.
Project Manager	Supports this activity. Facilitates activities between the Organizational Design Specialist and the Stakeholder Representative.
Subject Matter Expert	Supports this activity. Provides stakeholder input to help the Organizational Design Specialist determine where individual stakeholders fall in the change acceptance continuum.

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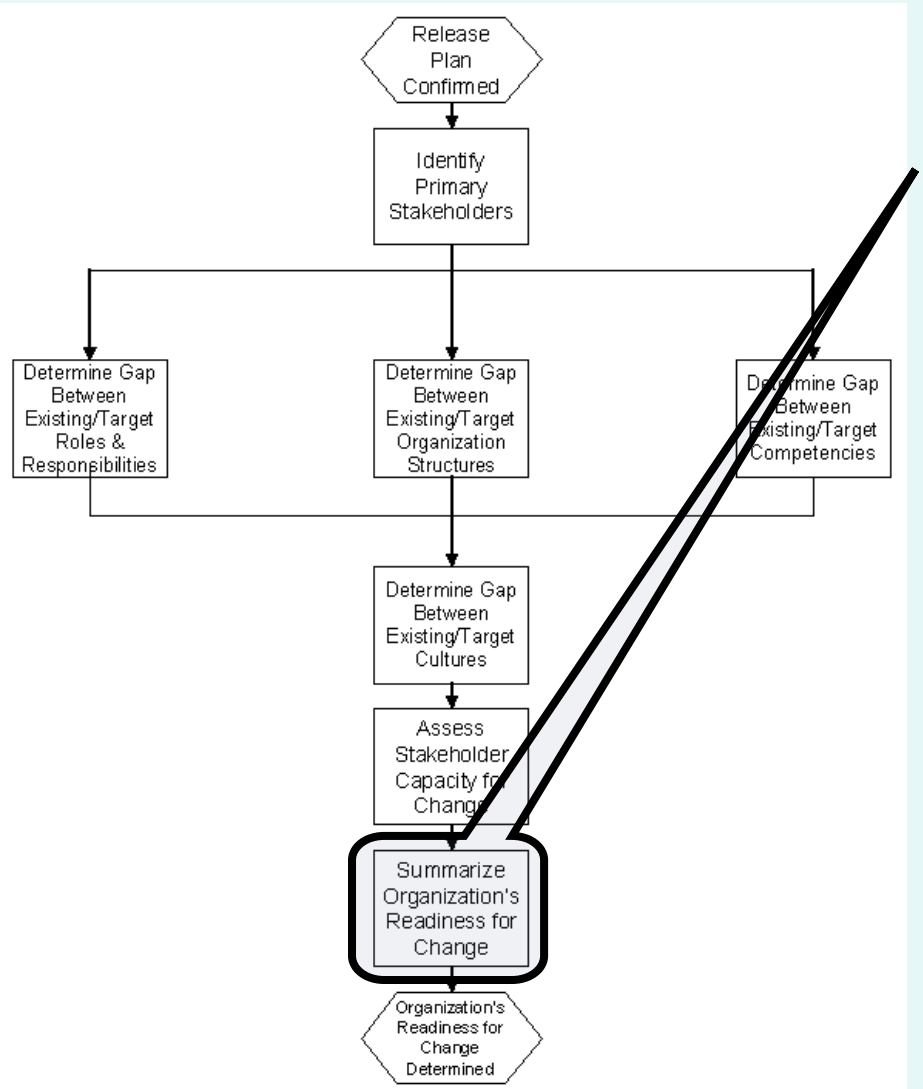
Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Summarize the Organization's Readiness for Change



- Produce a readiness assessment for each stakeholder or group of stakeholders with similar profiles.
- Focus on which stage(s) of the change life cycle they are in, needs, obstacles, and initial recommendations for overcoming obstacles and moving forward.

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Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Summarize the Organization's Readiness for Change

Inputs & Outputs	
Inputs	Stakeholder Profiles
Outputs	Stakeholder Assessment

Roles & Responsibilities	
Role	**Responsibility**
Organizational Design Specialist	Executes this activity. Produces a readiness assessment for each stakeholder or stakeholder group with similar profiles. Focuses on which stage of the change life cycle they are in.
Project Manager	Supports this activity. Reviews and approves the Stakeholder Assessment before its release.

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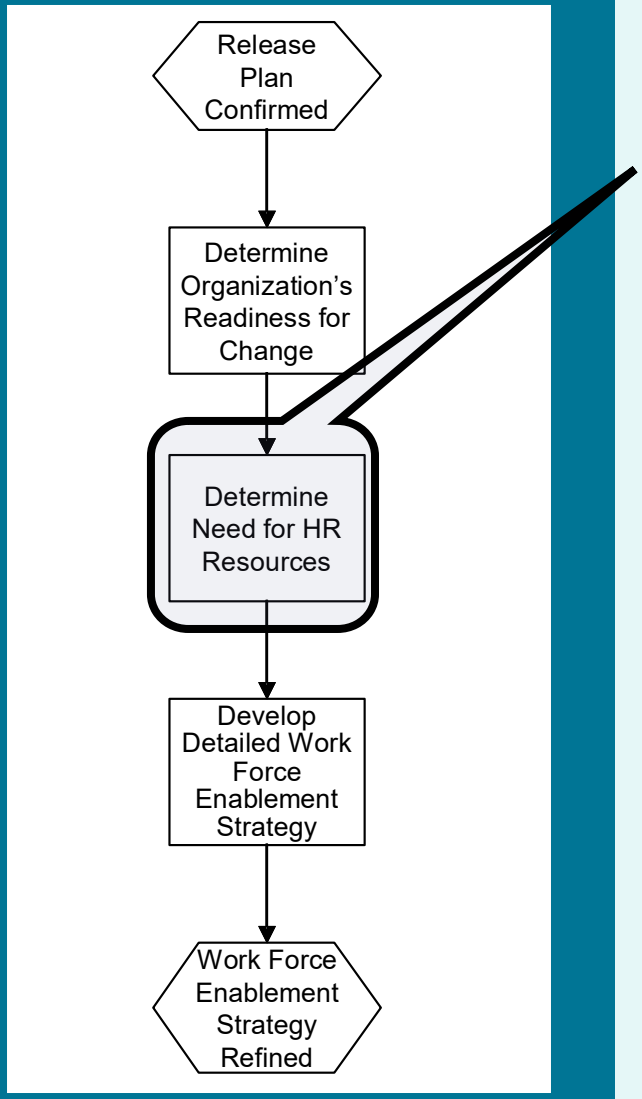
Refine Work Force Enablement Strategy

Determine Need for HR Resources



Whenever there is a gap between existing and desired culture, organization design, or competencies, stakeholders must adapt. Some stakeholders can withstand the stress and pressures of change on their own, while others need ongoing support. This process focuses on how much support will be required and which enablement systems play a part in bridging the gap.

This process is broken out into 12 sub-processes:

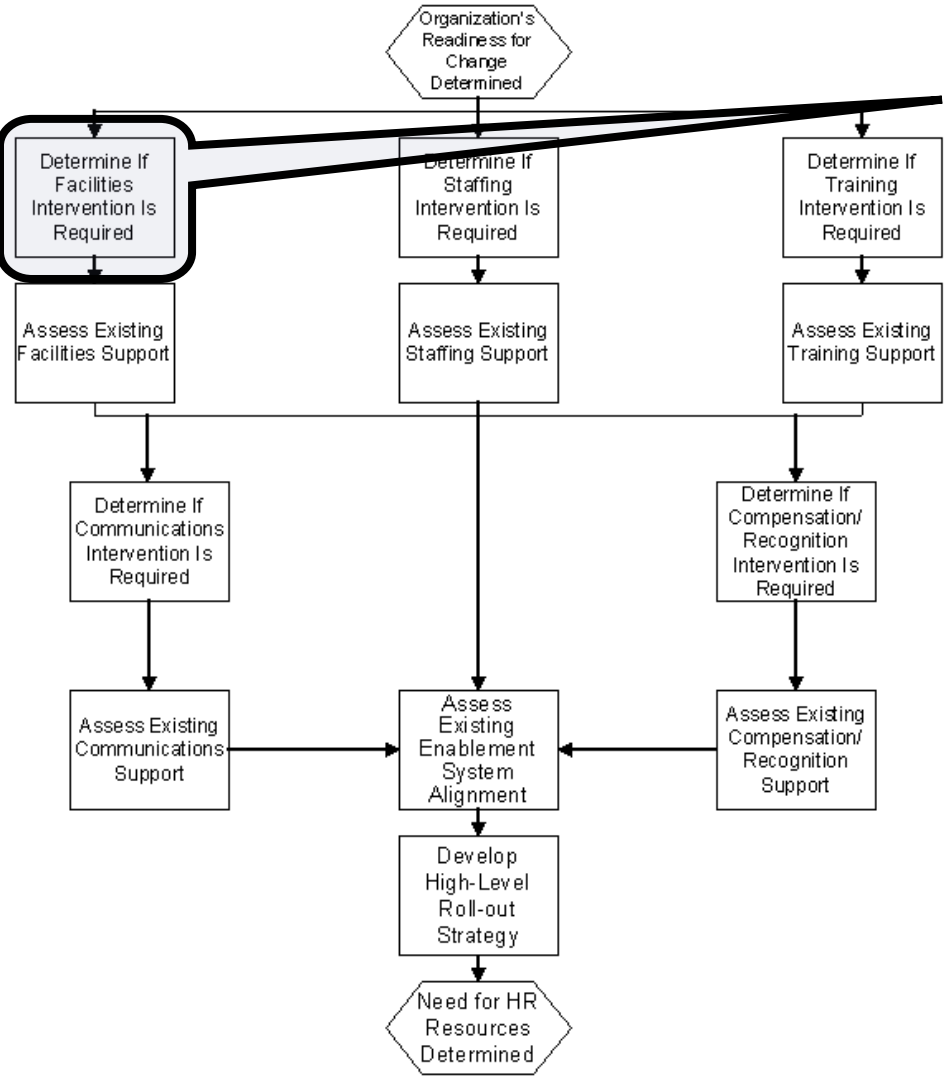
- Assess Existing Facilities Support
- Determine if Staffing Intervention Is Required
- Assess Existing Staffing Support
- Determine if Training Intervention Is Required
- Assess Existing Training Support
- Determine If Communications Intervention Is Required
- Assess Existing Communication Support
- Determine if Compensation or Recognition Intervention Is Required
- Assess Existing Compensation & Recognition Support
- Assess Existing Enablement System Alignment
- Update Work Force Enablement Strategy

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Determine if Facilities Intervention Is Required



- Work with your Facilities Specialist to determine if services are needed. If there is a significant difference between current and future organizational structures, determine whether it makes sense to relocate related organizations nearer one another. If there is a significant difference between current and target stakeholder roles and responsibilities, decide whether new or modified work areas and facilities are in order.
- If systems changes require stakeholders to replace or update their current hardware and systems software, decide whether special wiring and work area layouts are required. If workflow is changing for new or modified business processes, decide whether individual workstations need to be redesigned or reorganized for maximum efficiency. If stakeholders are to be relocated, determine whether environmental comfort will be impacted. For example, make sure they will have access to dining facilities.

Refine
Strategies
Validate
Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Determine if Facilities Intervention Is Required

Inputs & Outputs	
Inputs	Stakeholder Assessment
Outputs	Stakeholder Facilities Needs section of the Stakeholder Assessment

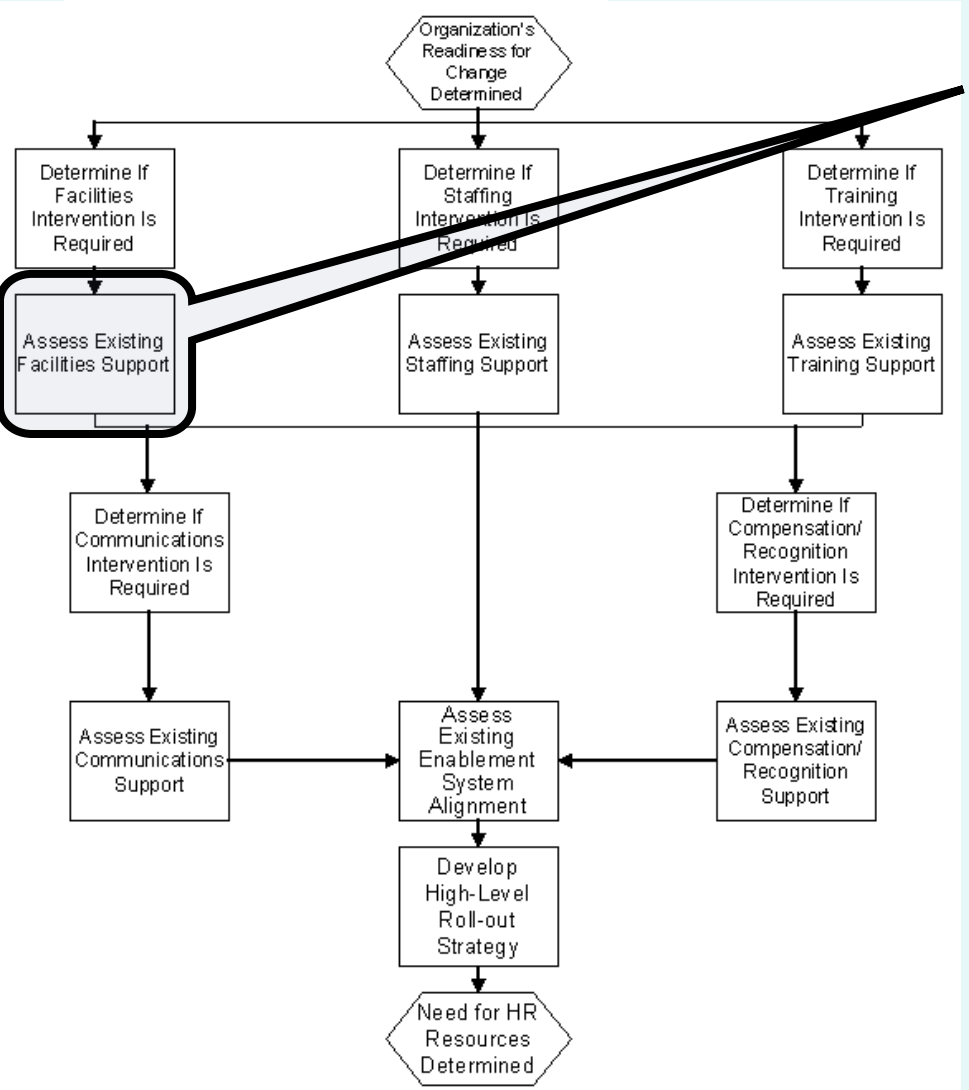
Roles & Responsibilities	
Role	**Responsibility**
Project Manager	Executes this activity. Determines and documents facilities needs for each stakeholder.
Facilities Specialist	Supports this activity. Works with Stakeholder Representatives to determine facilities needs. Provides this information to the Project Manager.
Subject Matter Expert	Supports this activity. Provides input to help the Facilities Specialist determine facilities needs.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Assess Existing Facilities Support



- Gather evidence of the current state of facilities support, examining both formal and informal systems with regard to their positive and negative contribution to the items that are critical to the business change.
- Some potential areas of interest include building maintenance and repair, response time to service requests and quality of service.
- If current facilities support is inappropriate for the situation, negotiate required changes.

Refine
Strategies
Validate
Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Assess Existing Facilities Support

Inputs & Outputs	
Inputs	Stakeholder Facilities Needs section of the Stakeholder Assessment
Outputs	Assessment of Current Facilities Enablement System section of the Stakeholder Assessment

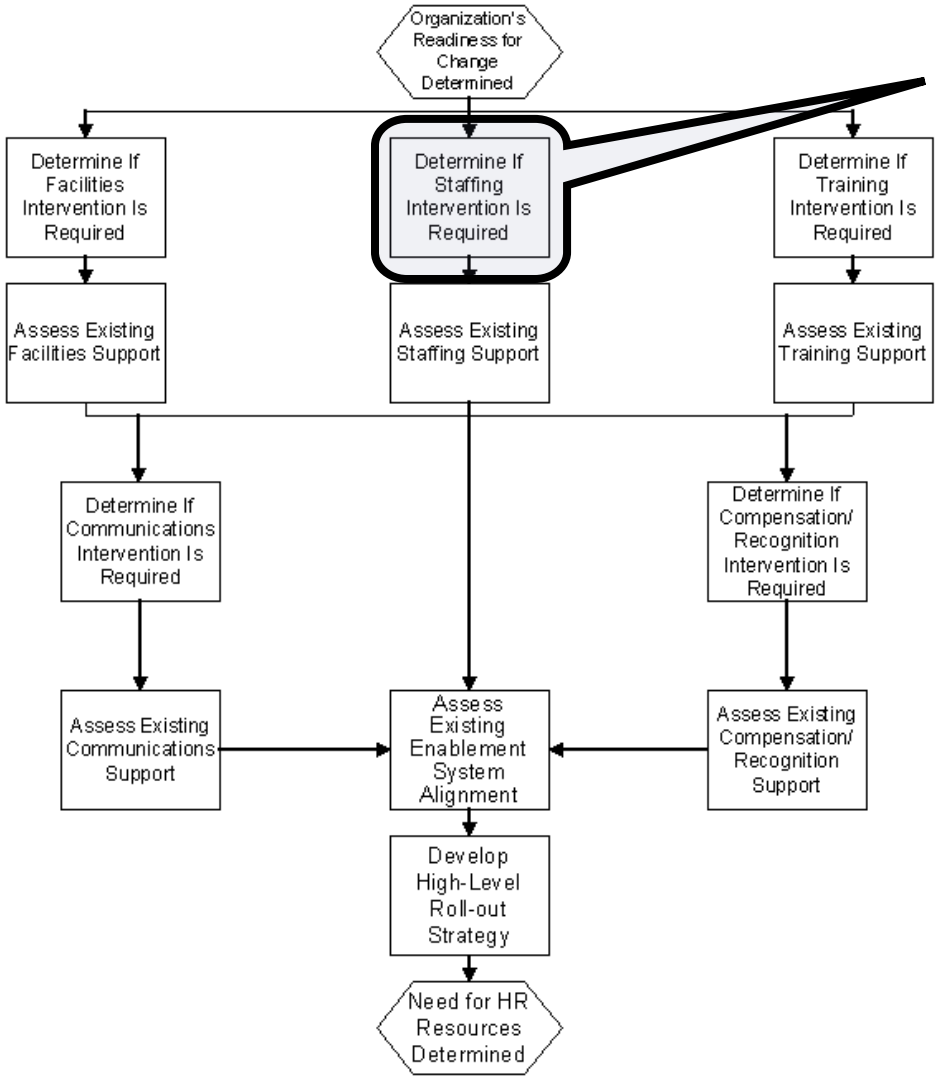
Roles & Responsibilities	
Role	**Responsibility**
Project Manager	Executes this activity. Identifies and documents current state of facilities support and its contribution to the business change.
Facilities Specialist	Supports this activity. Gathers facilities information from the Stakeholder Representative and provides it to the Project Manager.
Subject Matter Expert	Supports this activity. Provides stakeholder input to help the Facilities Specialist determine the current state of facilities support.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Determine if Staffing Intervention Is Required



- Partner with your Staffing Specialist to determine if there is a need for services.
- If job descriptions have to change or new ones must be created, determine if there are enough people in the current organization to fill the necessary roles.
- If there is a significant difference between current stakeholder skills, knowledge, and behaviors and required competencies, decide if it makes more sense to replace existing staff than to train them.
- If there is a significant difference between current stakeholder values, attitudes, and beliefs and the desired culture, decide if it makes more sense to replace existing staff than to educate them.
- If there are existing employees who will no longer be needed in the future organization, determine if they could be reassigned, or if they should be let go.

Refine
Strategies
Validate
Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Determine if Staffing Intervention Is Required

Inputs & Outputs	
Inputs	Organization Design section of Design Specification Stakeholder Assessment
Outputs	Stakeholder Staffing Needs section of the Stakeholder Assessment

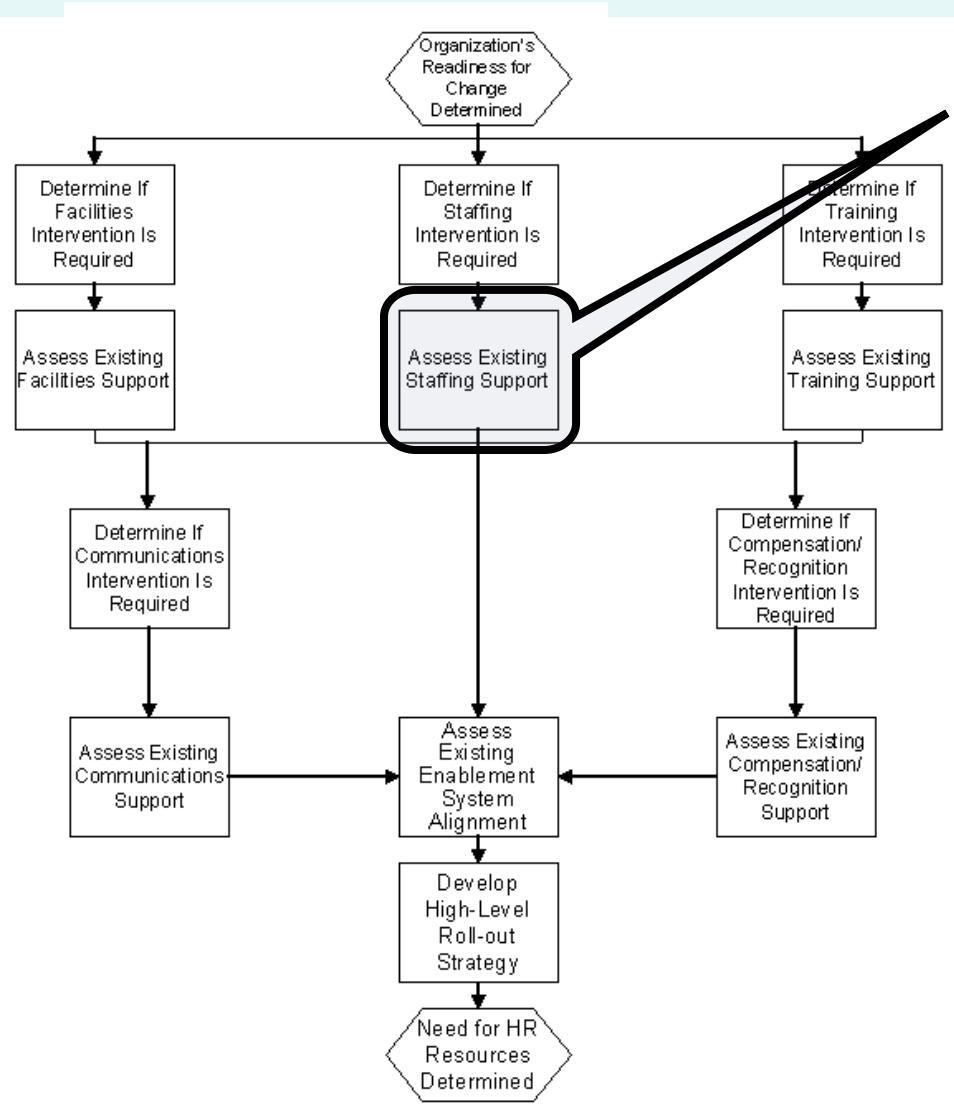
Roles & Responsibilities	
Role	**Responsibility**
Project Manager	Executes this activity. Determines and documents staffing needs for each stakeholder.
Staffing Specialist	Supports this activity. Works with Stakeholder Representatives to determine staffing needs. Provides this information to the Project Manager.
Subject Matter Expert	Supports this activity. Provides input to help the Staffing Specialist determine staffing needs.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Assess Existing Staffing Support



- Gather evidence of current staffing support, paying particular attention to utilization.
- Find out the amount of time and effort expended on career development, hiring, firing, and transferring practices. Note whether the organization tries to fill jobs from within before going outside for staff.
- Use results to assess the current staffing enablement system's positive and negative contributions to the items critical to the business change.
- If current staffing support is inappropriate for the situation, negotiate required changes.

Refine
Strategies
Validate
Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Assess Existing Staffing Support

Inputs & Outputs	
Inputs	Stakeholder Staffing Needs section of the Stakeholder Assessment
Outputs	Assessment of Current Staffing Enablement System section of the Stakeholder Assessment

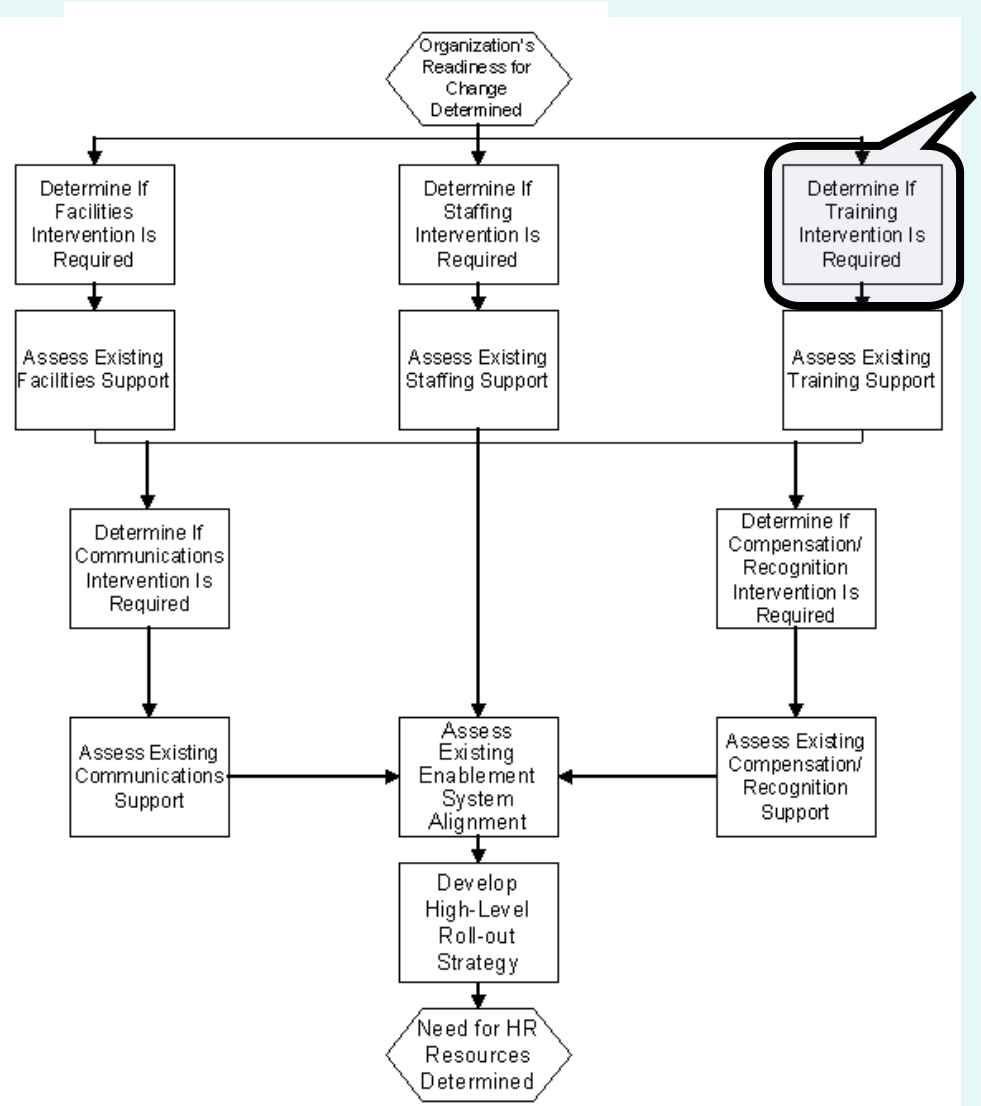
Roles & Responsibilities	
Role	**Responsibility**
Project Manager	Executes this activity. Identifies and documents current state of staffing support and its contribution to the business change.
Staffing Specialist	Supports this activity. Gathers staffing information from the Stakeholder Representative and provides it to the Project Manager.
Subject Matter Expert	Supports this activity. Provides stakeholder input to help the Staffing Specialist determine the current state of staffing support.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Determine if Training Intervention Is Required



- Partner with your Training Specialist to determine if there is a need for services.
- If there is a significant difference between current stakeholder skills, knowledge, and behaviors and required competencies, decide if it makes more sense to train existing staff than to replace them.
- If not, determine the extent to which you need to train new hires.
- Finally determine if there is training already available for bridging the gap between current and future competency requirements.

Refine
Strategies
Validate
Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Determine if Training Intervention Is Required

Inputs & Outputs	
Inputs	Stakeholder Assessment
Outputs	Stakeholder Training Needs section of the Stakeholder Assessment

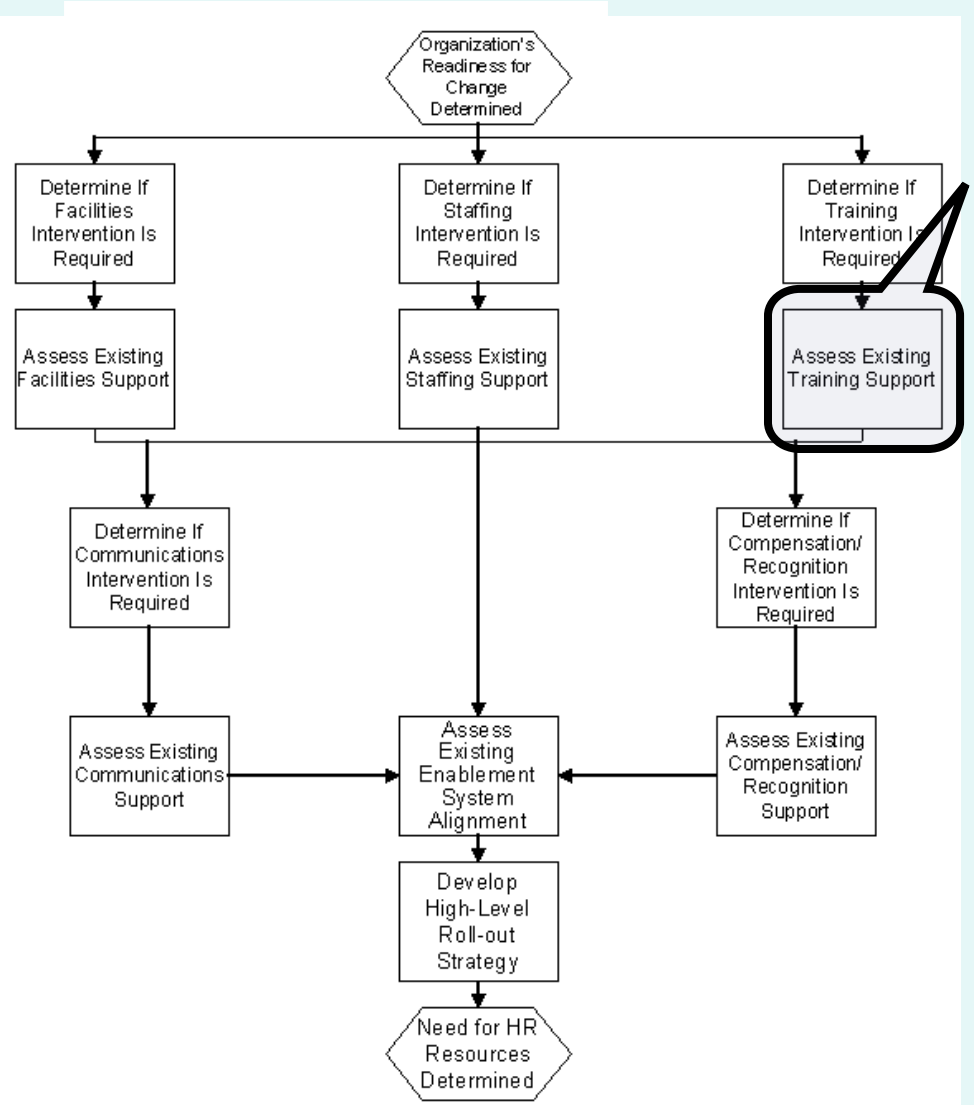
Roles & Responsibilities	
Role	**Responsibility**
Project Manager	Executes this activity. Determines and documents training needs for each stakeholder.
Training Specialist	Supports this activity. Works with Stakeholder Representatives to determine training needs. Provides this information to the Project Manager.
Subject Matter Expert	Supports this activity. Provides input to help the training Specialist determine training needs.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Assess Existing Training Support



- Gather evidence of the current state of training support, examining both formal and informal systems with regard to their positive and negative contribution to the items that are critical to the business change.
- Find out whether stakeholder training is treated as a formality, a reward, or a necessity, noting if and how company time is allotted and if some or all staff must learn on their own time.
- Also determine relative proportions of training methods used, including instructor-led training, e-learning, on-the-job training, coaching, procedures documentation, on-line help facilities and quick reference help aids.
- Finally, determine the purpose and effectiveness of training tracking, noting how records are maintained, by whom, and how the data is used.
- If current training support is inappropriate for the situation, negotiate required changes.

Refine
Strategies
Validate
Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Assess Existing Training Support

Inputs & Outputs	
Inputs	Stakeholder Training Needs section of the Stakeholder Assessment
Outputs	Assessment of Current Training Enablement System section of the Stakeholder Assessment

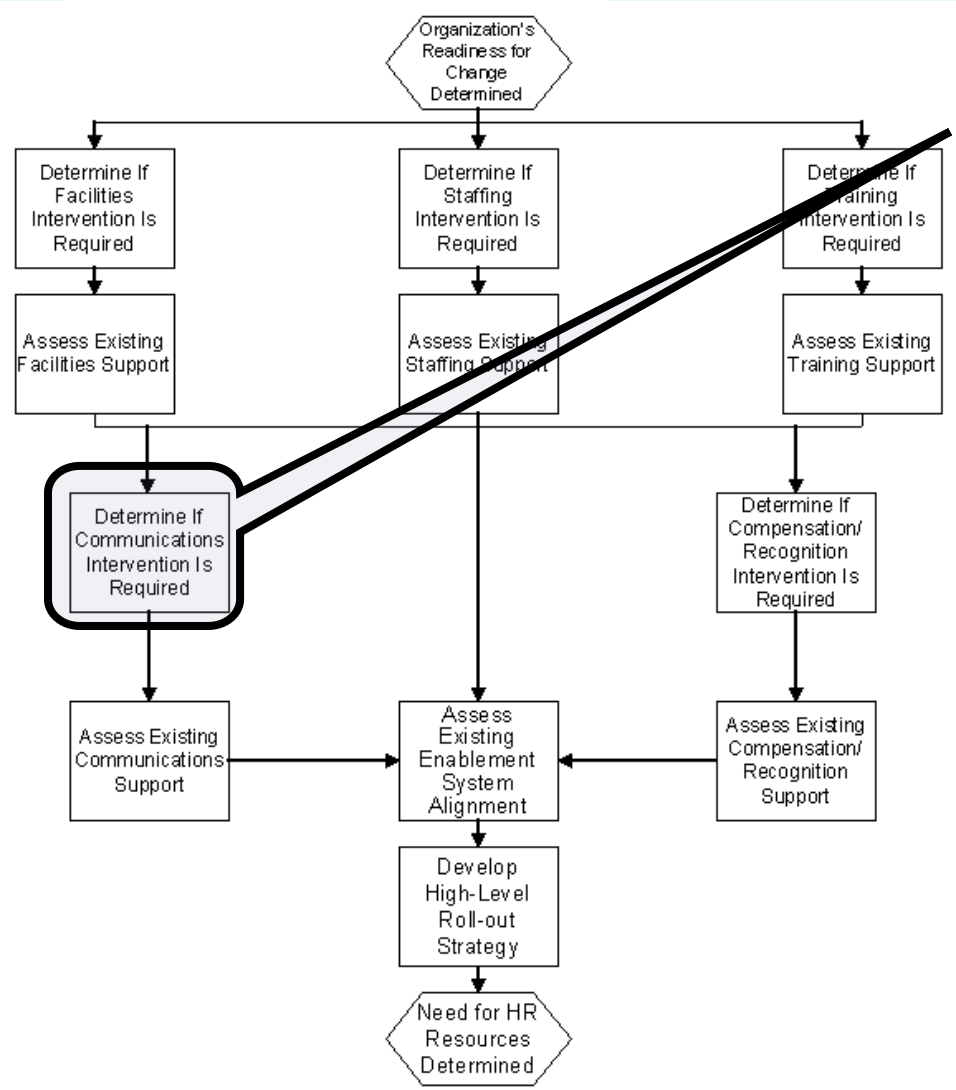
Roles & Responsibilities	
Role	**Responsibility**
Project Manager	Executes this activity. Identifies and documents current state of training support and its contribution to the business change.
Training Specialist	Supports this activity. Gathers training information from the Stakeholder Representative and provides it to the Project Manager.
Subject Matter Expert	Supports this activity. Provides stakeholder input to help the Training Specialist determine the current state of training support.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Determine If Communications Intervention Is Required



- Every change program requires some level of communication to make stakeholders aware of the change and to ensure that all are working toward a common end. The part that communication must play, however, varies, depending on the number of obstacles stakeholders face. Review the organization's current readiness for change to gain a feel for the amount of resistance faced. Also, review which stage of the change life cycle each stakeholder is currently in. The degree of communication appropriate to each stage varies.
  1. During the awareness stage, convey intent, provide facts, and show examples. Have leaders demonstrate their commitment by personally sharing their views of the business vision, the future business area, and the founding policies and principles.
  2. During the self-concern stage, be candid about changes to power structure, status, and visibility, but temper the effect by citing actions stakeholders can take in order to adapt.
  3. During the mental try-out stage, manage expectations and mentally construct a framework that gives shape to the change and allows stakeholders to compartmentalize new things learned.
  4. During the involvement stage, sway stakeholder opinions in a positive direction, align and inspire, elicit enthusiasm, and celebrate victories.
  5. During the acceptance stage, increase enthusiasm, maintain alignment, reduce stress, and keep change in the forefront.
- After change occurs, the acceptance level must be sustained to keep stakeholders from returning to their old ways, values, and beliefs.

Refine
Strategies
Validate
Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Determine If Communications Intervention Is Required

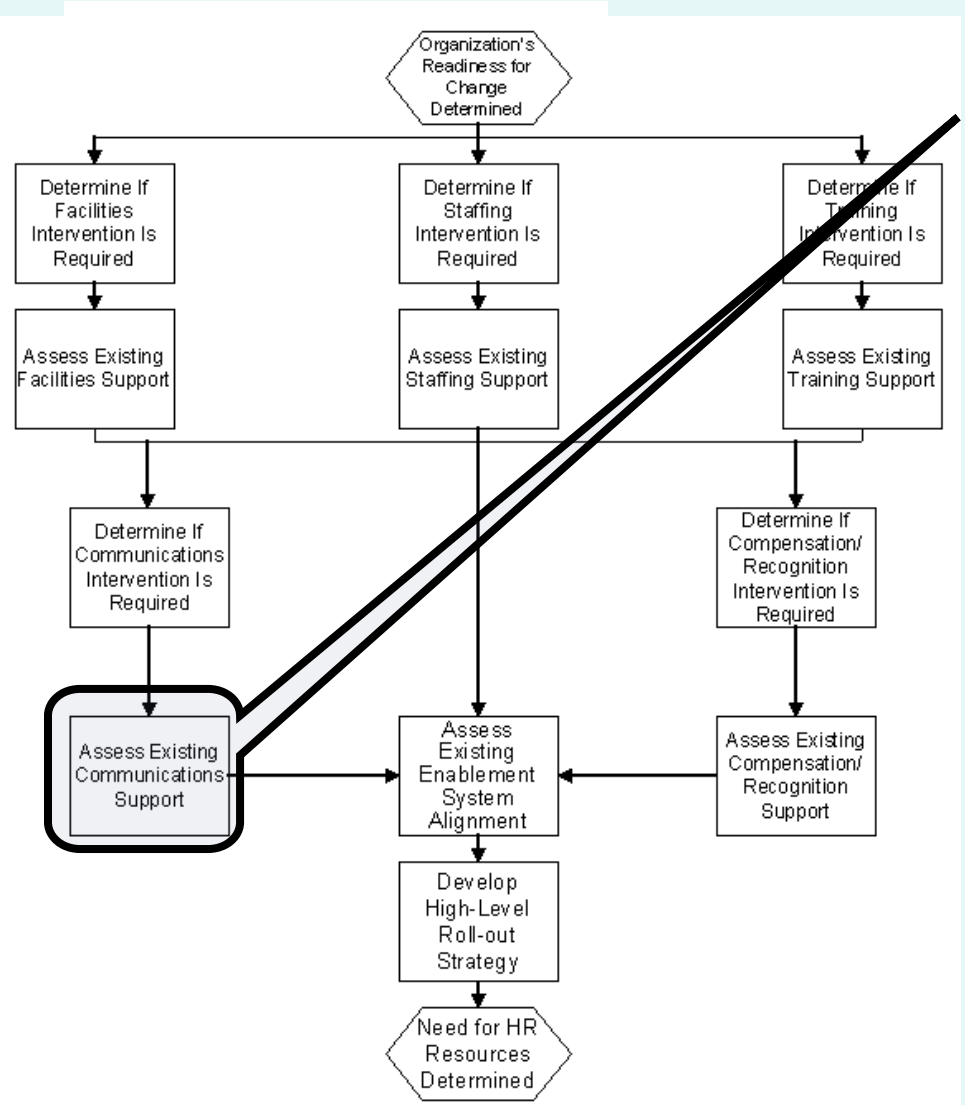
Inputs & Outputs	
Inputs	Stakeholder Assessment
Outputs	Stakeholder Information Needs section of the Stakeholder Assessment
Roles & Responsibilities	
Role	**Responsibility**
Project Manager	Executes this activity. Determines and documents information needs for each stakeholder based on that individual's stage in the change life cycle.
Communications Specialist	Supports this activity. Works with Stakeholder Representatives to determine communications needs. Provides this information to the Project Manager.
Subject Matter Expert	Supports this activity. Provides stakeholder input to help the Communications Specialist determine where individual stakeholders fall in the change life cycle.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Assess Existing Communication Support



- Communication enablement systems ensure that stakeholders receive relevant and timely change-related information. Examine both formal and informal systems with regard to their positive and negative contribution to the items that are critical to the business change. Determine whether information, in general, is currently communicated to the appropriate stakeholders, paying particular attention to sources of information and their relationships to the stakeholders who need to know that information. If communication follows a chain of command, determine whether it is collaborative (group members communicating with group members), interactive (managers communicating with managers), or advisory (managers communicating with direct reports). Also evaluate the effectiveness of existing communication vehicles, such as email, newsletters, and voicemail. If current communications support is inappropriate, negotiate required changes.
- During this process, pay particular concern to stakeholders for whom a gap exists in terms of acceptance of the changes that will occur with implementation of the project. Communication strategies for addressing the needs of these stakeholders may be required above and beyond the general communication plan for the project.

Refine
Strategies
Validate
Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Assess Existing Communication Support

Inputs & Outputs	
Inputs	Stakeholder Information Needs section of the Stakeholder Assessment
Outputs	Assessment of Current Communications Enablement System section of the Stakeholder Assessment

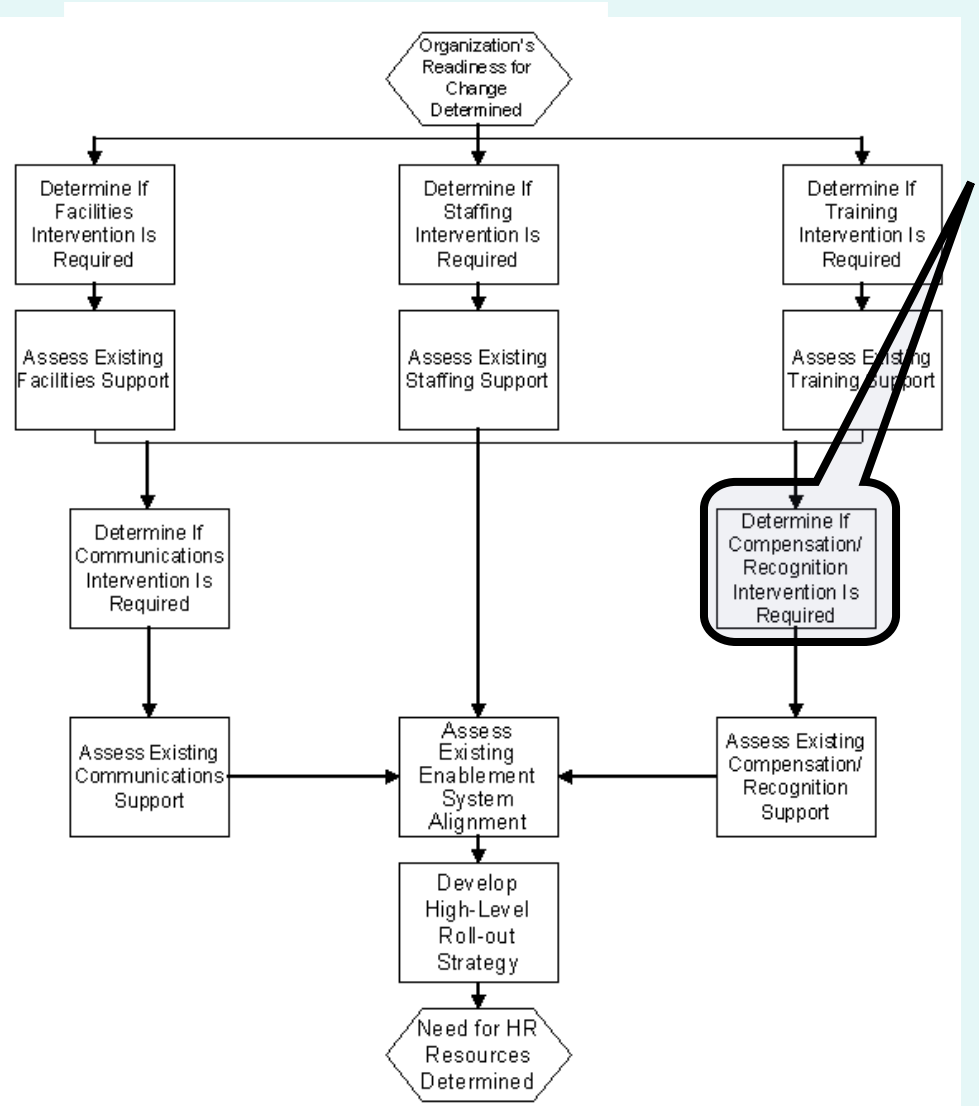
Roles & Responsibilities	
Role	**Responsibility**
Project Manager	Executes this activity. Identifies and documents current state of communications support and its contribution to the business change.
Communications Specialist	Supports this activity. Gathers communications systems information from the Stakeholder Representative and provides it to the Project Manager.
Subject Matter Expert	Supports this activity. Provides stakeholder input to help the Communications Specialist determine the current state of communications systems support.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Determine if Compensation or Recognition Intervention Is Required



- Partner with your Compensation Specialist to determine if there is a need for services. If job descriptions have to change or new ones must be created, determine
- if there is a significant expansion of job responsibilities requiring incumbents to demonstrate increased competency levels.
- If so, job grades will need to be reevaluated in order to attract and retain the best-qualified individuals. Similarly, determine if there will be a significant reduction of job responsibilities requiring incumbents to demonstrate lower competency levels.
- If so, job grades will need to be reevaluated in order to appropriately align compensation with other jobs (as well as with the external market).
- Finally, determine if there will be changes in job responsibilities requiring a review of the exemption status for the incumbents.

Refine
Strategies
Validate
Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Determine if Compensation or Recognition Intervention Is Required

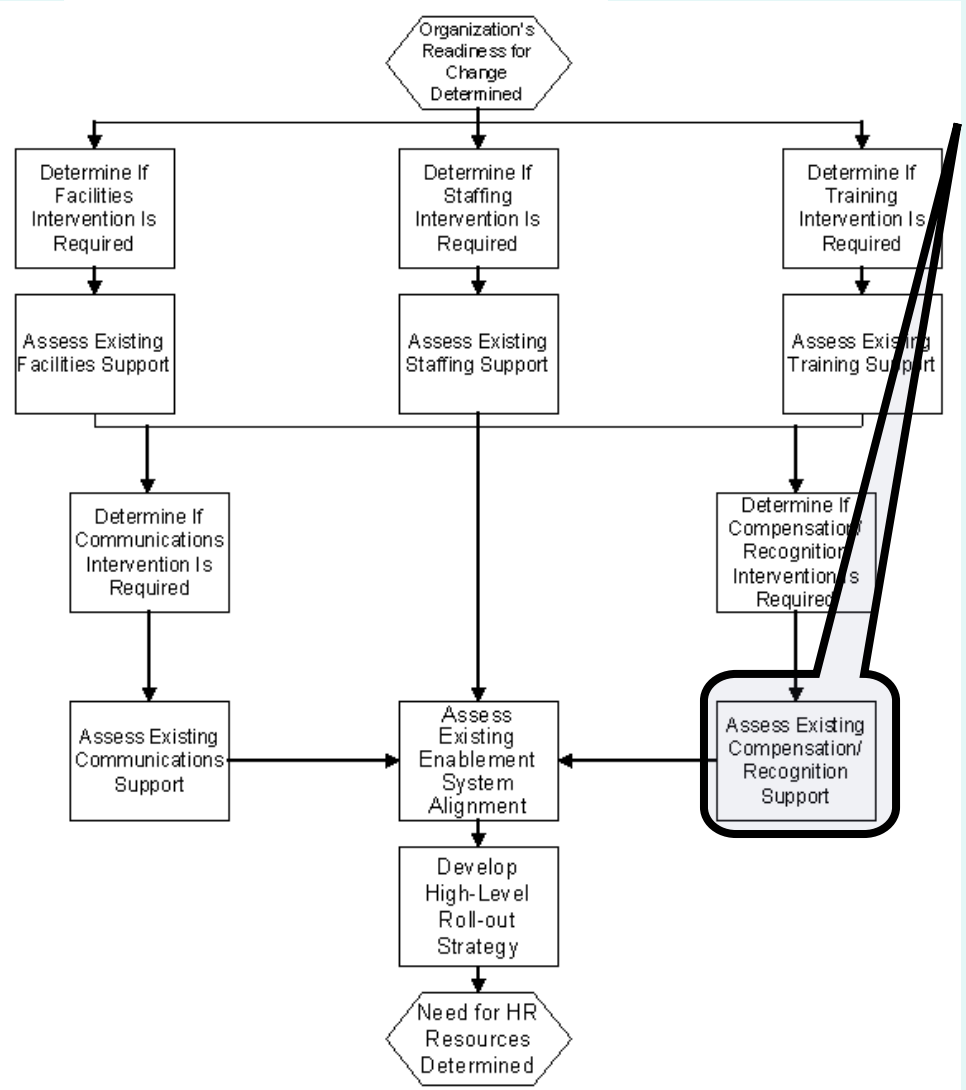
Inputs & Outputs	
Inputs	Stakeholder Assessment
Outputs	Stakeholder Incentive Requirements section of the Stakeholder Assessment
Roles & Responsibilities	
Role	**Responsibility**
Project Manager	Executes this activity. Determines and documents compensation needs for each stakeholder.
Compensation & Recognition Specialist	Supports this activity. Works with Stakeholder Representatives to determine compensation needs. Provides this information to the Project Manager.
Subject Matter Expert	Supports this activity. Provides input to help the Compensation & Recognition Specialist determine compensation needs.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Assess Existing Compensation & Recognition Support



- Gather evidence of current compensation & recognition support. Examine both formal and informal structures with regard to their positive and negative support of items critical to the business change.
- Determine whether employees are held accountable for business process outcomes or for just the particular tasks they are assigned.
- Explore how well they understand their roles and how their job performance will be rewarded.
- Observe the appropriateness of rewards and recognition for currently desirable behaviors, and explore existing reward and recognition options.
- Finally, determine whether compensation and recognition are appropriately aligned with that for other jobs and in the existing job market. If current compensation & recognition support is inappropriate for the situation, negotiate required changes.

Refine
Strategies
Validate
Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Assess Existing Compensation & Recognition Support

Inputs & Outputs	
Inputs	Stakeholder Incentive Requirements section of the Stakeholder Assessment
Outputs	Assessment of Current Compensation & Recognition Enablement System section of the Stakeholder Assessment

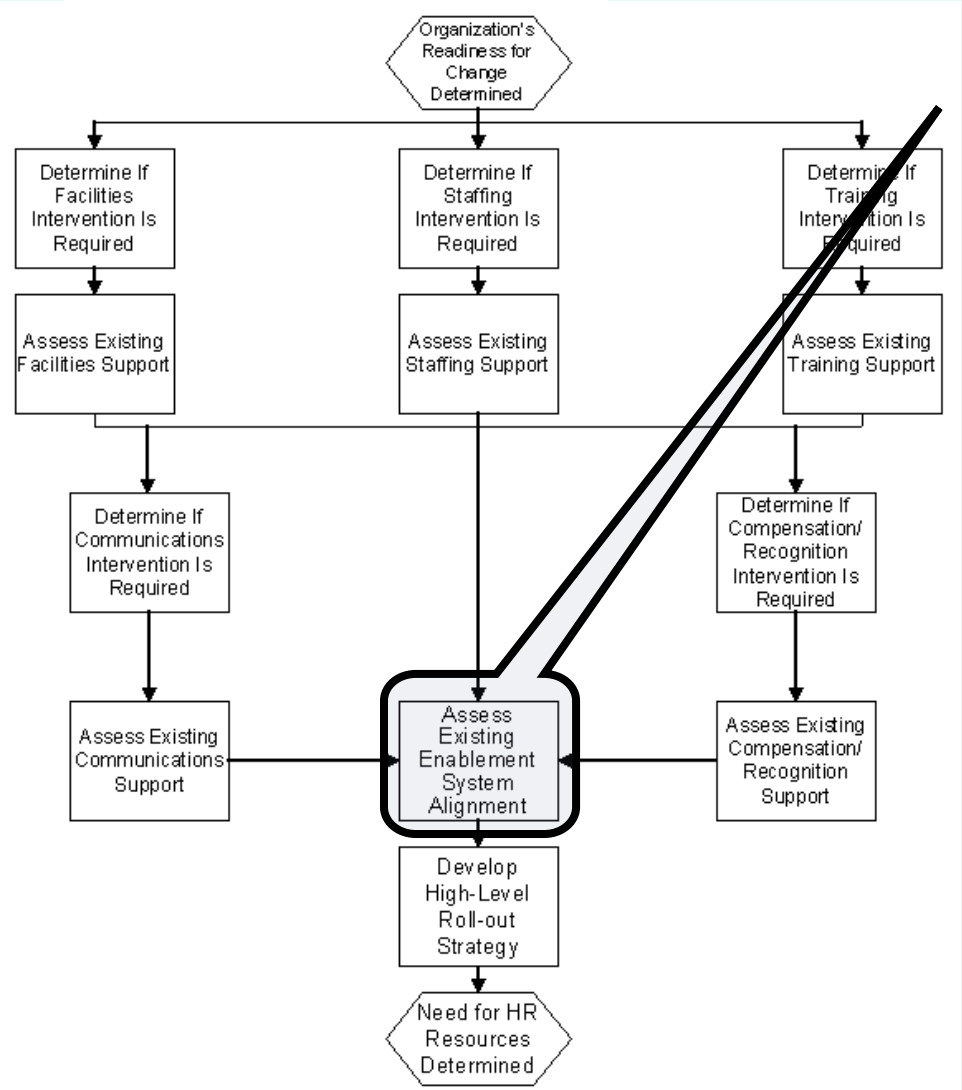
Roles & Responsibilities	
Role	**Responsibility**
Project Manager	Executes this activity. Identifies and documents current state of compensation and recognition support and its contribution to the business change.
Compensation & Recognition Specialist	Supports this activity. Gathers staffing information from the Stakeholder Representative and provides it to the Project Manager.
Subject Matter Expert	Supports this activity. Provides stakeholder input to help the Compensation & Recognition Specialist determine the current state of compensation and recognition support.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Assess Existing Enablement System Alignment



- People enablement systems fortify stakeholders' ability to execute future business processing. Ideally, they work together to achieve and sustain required organizational characteristics. It is apparent that exploring each enablement system as a stand-alone entity provides you with only a partial picture of the current environment. You must also evaluate enablement system interrelationships. For instance, education alone is insufficient for supplanting new behaviors. Reinforcement of these new behaviors is also needed; it therefore makes sense for you to determine how well existing compensation and recognition systems support learning.
- To determine how well existing enablement systems are aligned with one another, determine whether: training programs teach the same behaviors that are reinforced by compensation and recognition programs; managers and direct reports are trained together; the company celebrates work group accomplishments; company publications facilitate stakeholder alignment; communication vehicles reach the right people; and career planning procedures support current role requirements.
- Finally, determine what needs to be done to ensure that organization enablement systems. At best, support and, at least, do not work against organizational change objectives. Update related stakeholder assessment to reflect solutions to alignment issues.

Refine
Strategies
Validate
Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Assess Existing Enablement System Alignment

Inputs & Outputs	
Inputs	Following sections of the Stakeholder Assessment: Assessment of Current Communications Enablement System Assessment of Current Staffing Enablement System Assessment of Current Facilities Enablement System Assessment of Current Training Enablement System Assessment of Current Compensation & Recognition Enablement System
Outputs	Assessment of Current Enablement System Alignment section of the Stakeholder Assessment

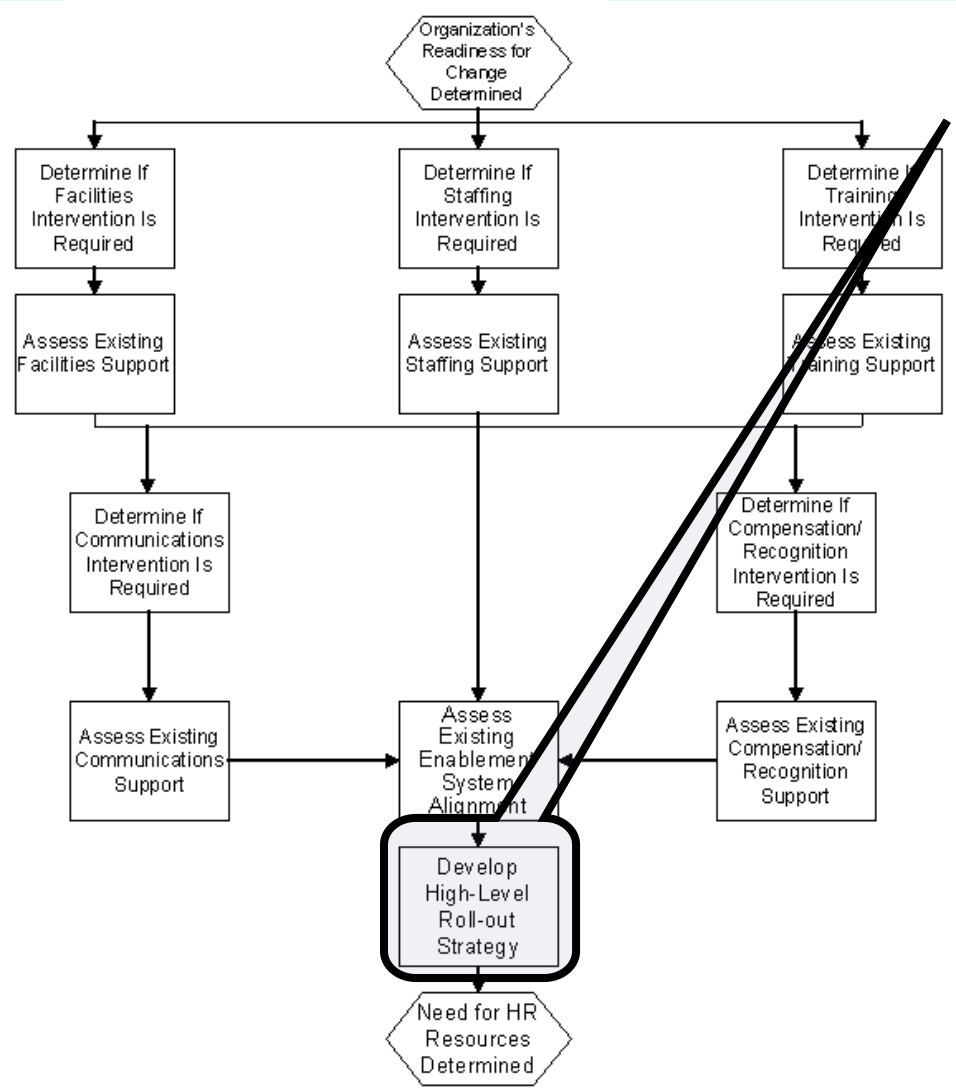
Roles & Responsibilities	
Role	**Responsibility**
Project Manager	Executes this activity. Looks at the various enablement systems as a whole, determining and documenting how well they are aligned to support the business change.
Subject Matter Expert	Supports this activity. Provides Project Manager with information required to develop the Assessment of Current Enablement System Alignment.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Update Work Force Enablement Strategy



- Review the Requirements Specification, Logical Solution Architecture, and Stakeholder Assessment. List all people enablement activities needed to achieve those objectives, grouping related enablement activities. Identify common themes and characteristics of and between stakeholders, using results to recommend how they may be grouped for strategic purposes.
- Determine the dependencies between people enablement activities and other project deliverables, updating the Work Force Enablement Strategy to reflect new or changed dependencies. Note which activities need to occur ahead of the first project release. For instance, stakeholder alignment should be achieved well in advance of rolling out significant workflow changes. Finally, modify the Project Charter and Project Workplan, identifying what people enablement activities must occur and relative timing of each to other project deliverables.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Need for HR Resources

Update Work Force Enablement Strategy

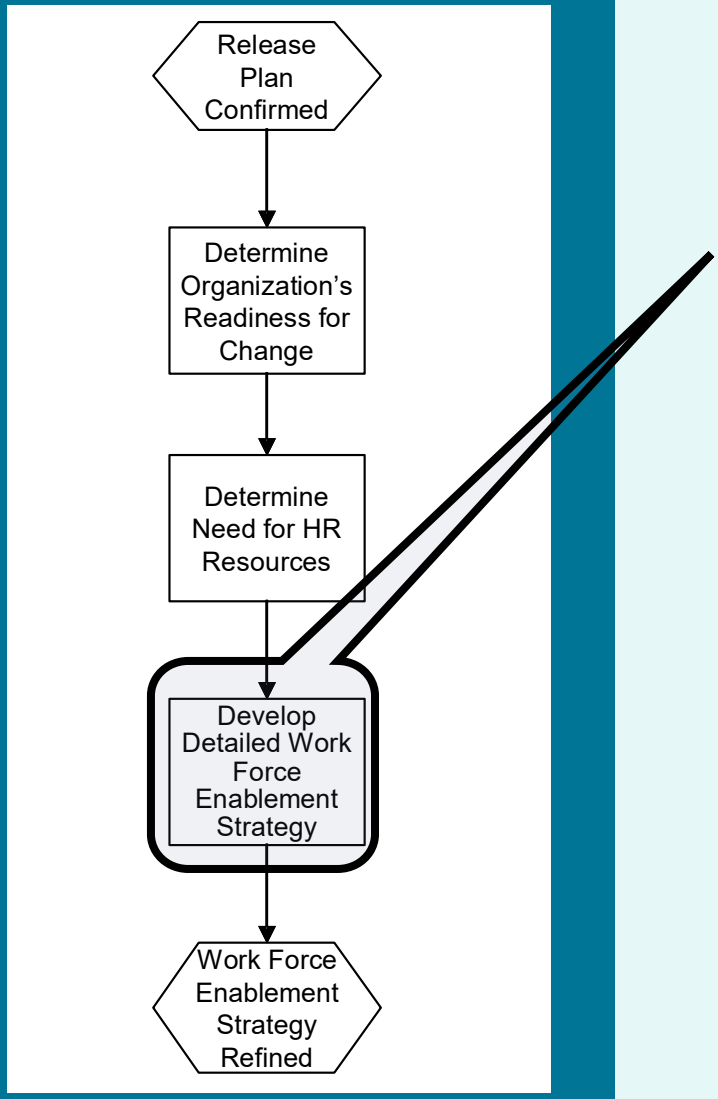
Inputs & Outputs	
Inputs	Requirements Specification Logical Solution Architecture Stakeholder Assessment
Outputs	Project Charter Project Workplan Work Force Enablement Strategy

Roles & Responsibilities	
Role	**Responsibility**
Project Manager	Executes this activity. Uses input from the Organization Design Specialist to develop and document the high-level Change Program Strategy for rolling out the business change.
Organizational Design Specialist	Supports this activity. Based on studies of various stakeholder needs documentation and with input from the Subject Matter Experts, identifies elements of the high-level rollout strategy and provides this information to the Project Manager.
Subject Matter Expert	Provides Organizational Design Specialist with information required to develop the Change Program Strategy.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Develop Detailed Work Force Enablement Strategy



This process orchestrates relevant organization support activities by producing a detailed plan for each enablement element and integrating them into the overall project workplan.

This process is broken out into 7 sub-processes:

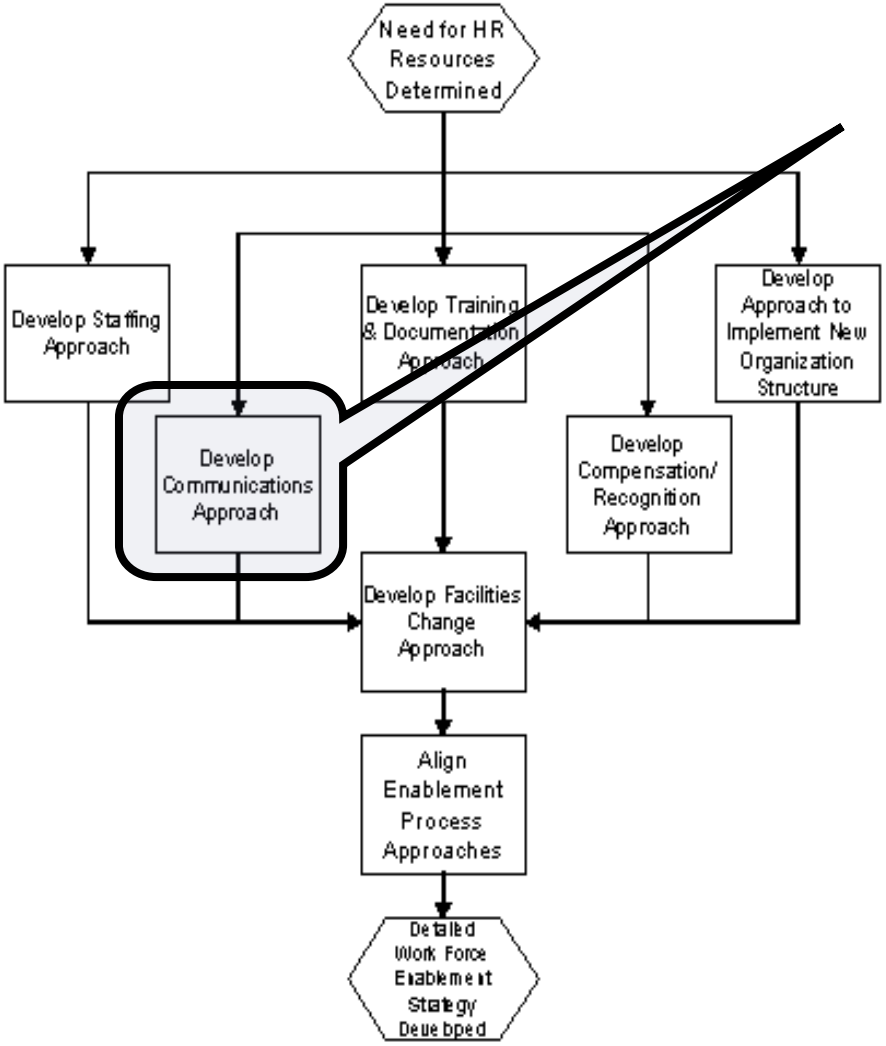
- Develop Communications Approach
- Develop Staffing Approach
- Design Approach for Implementing New Organizational Structure
- Develop Training and Documentation Approach
- Develop Compensation and Recognition Approach
- Develop Facilities Change Approach
- Align Enablement Process Approaches

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Develop Communications Approach



- Review the Project Charter and Work Force Enablement Strategy to understand how communications will be used to roll out the project solution.
- Work with a Communications Specialist to develop a plan for communicating throughout the project life cycle and beyond.
- Keep in mind that early and consistent stakeholder communication creates awareness and understanding of the business change program and provides a necessary condition for gaining stakeholder commitment to the change.
- However, keep your initial Stakeholder Communication tactics focused on a limited number of scheduled communications.
- Repetition of messages during the early days of program launch is key.
- Enrollment communications should focus on eliciting more active stakeholder involvement and should occur early after initial communications are complete.
- Integrate the Communications Plan into the overall Project Workplan.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Develop Communications Approach

Inputs & Outputs	
Inputs	Work Force Enablement Strategy Requirements Specification Stakeholder Assessment Logical Solution Architecture Project Charter Project Workplan
Outputs	Communications section of the Work Force Enablement Strategy Project Workplan

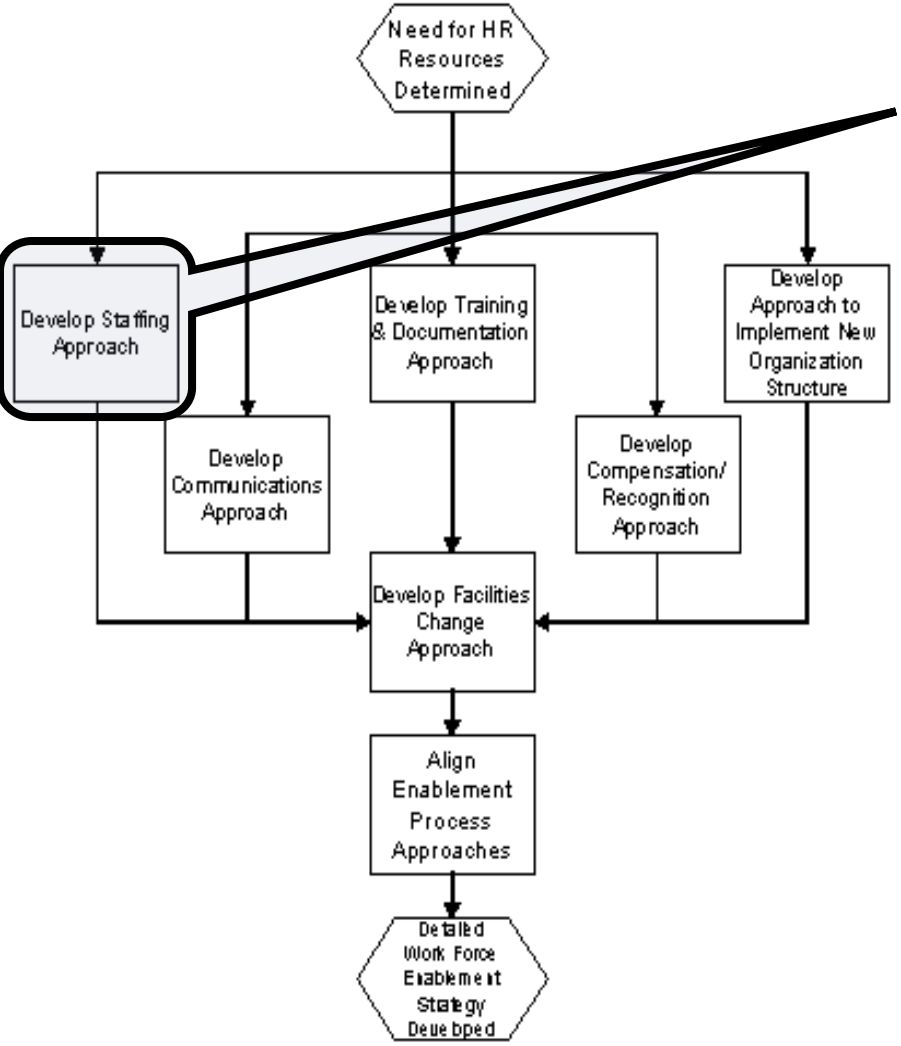
Roles & Responsibilities	
Role	**Responsibility**
Communications Specialist	Executes this activity. Develops the plan for communicating throughout the project life cycle.
Project Manager	Supports this activity. Assists Communications Specialist with updating the Work Force Enablement Strategy and planning related activities.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Develop Staffing Approach



- Review the Project Charter and Work Force Enablement Strategy.
- Work with your Staffing Specialist to determine how new roles will be filled, unnecessary roles eliminated, and changed roles accommodated.
- For staffing increases, including needs for new or specialized skills, provide strategic overview of changes, staffing models (numbers, locations), approved budget for staffing effort (agency fees, job fairs, relocations, etc.), job descriptions and related competencies.
- If staffing levels will decrease, provide a strategic overview of changes in an effort to retain top performers in other enterprise areas, staffing models, and employee profiles.
- Integrate the Staffing plan into the overall project workplan.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Develop Staffing Approach

Inputs & Outputs	
Inputs	Work Force Enablement Strategy Requirements Specification Stakeholder Assessment Logical Solution Architecture Project Charter Project Workplan
Outputs	Staffing section of the Work Force Enablement Strategy Project Workplan

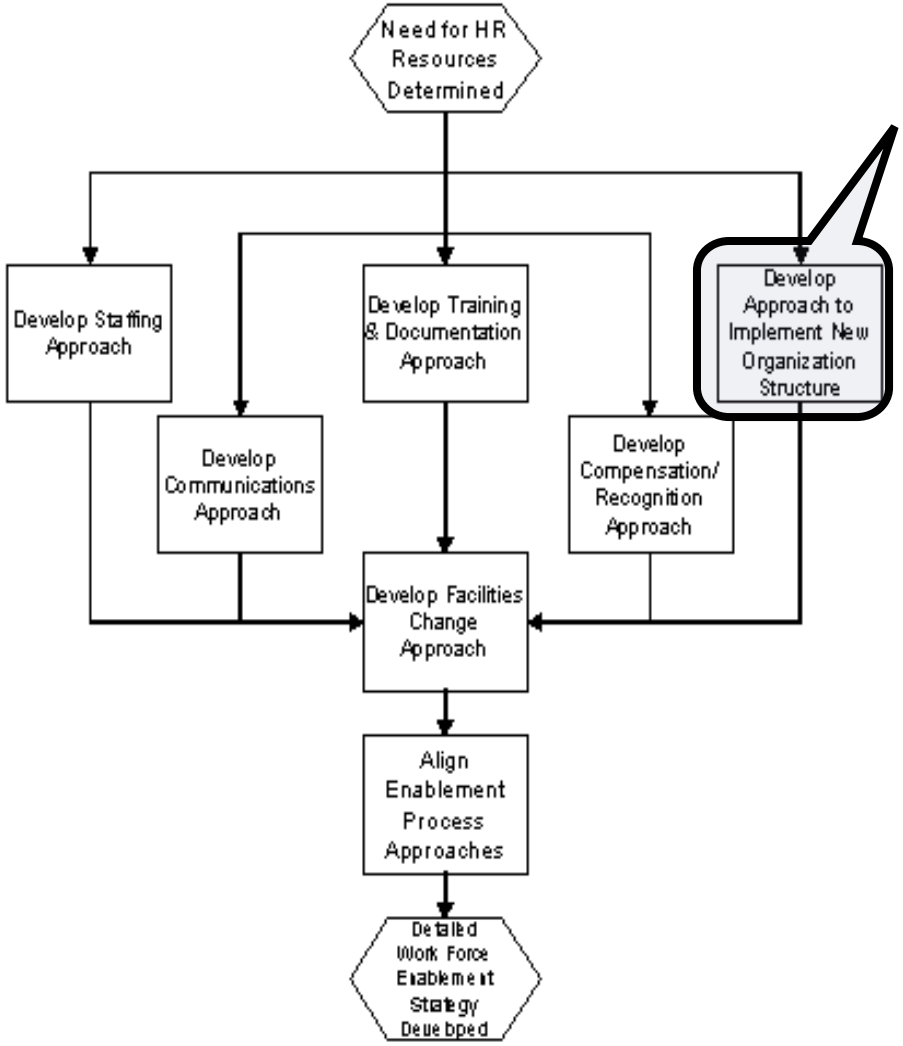
Roles & Responsibilities	
Role	**Responsibility**
Staffing Specialist	Executes this activity. Determines how to fill new roles, eliminate unnecessary roles, and accommodate changed roles.
Project Manager	Supports this activity. Assists Staffing Specialist with updating the Work Force Enablement Strategy and planning related activities.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Design Approach for Implementing New Organizational Structure



- Work with the Organization Design Specialist to produce a plan for achieving the desired organization structure.
- Be sure to consider the organization's place in the value stream, workflow, and the best sequence for transitioning.
- For complex changes, plan to achieve interim structures along the way.
- Integrate the structured transition plan into the overall project workplan.

Refine
Strategies
Validate
Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Design Approach for Implementing New Organizational Structure

Inputs & Outputs	
Inputs	Work Force Enablement Strategy Requirements Specification Stakeholder Assessment Logical Solution Architecture Project Charter Project Workplan
Outputs	Organization section of the Work Force Enablement Strategy Project Workplan

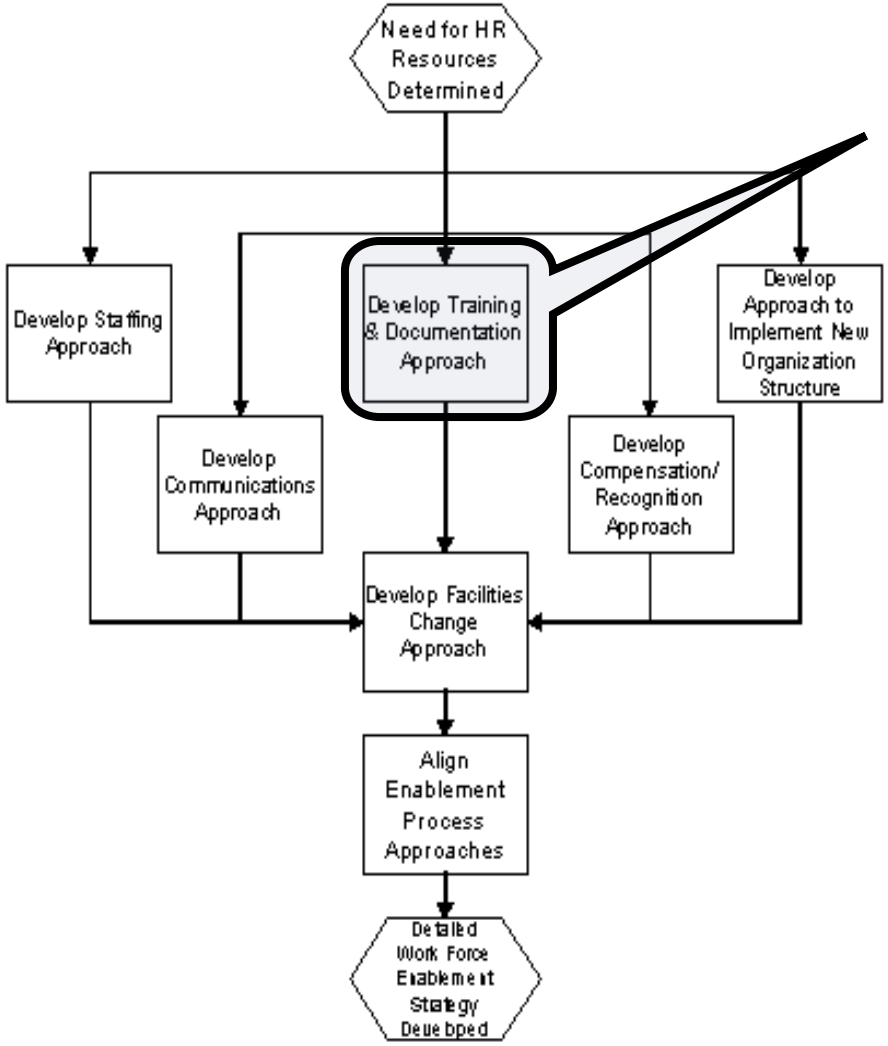
Roles & Responsibilities	
Role	**Responsibility**
Organizational Design Specialist	Executes this activity. Produces a strategy for achieving the desired organization structure.
Project Manager	Supports this activity. Assists Organizational Design Specialist with updating the Work Force Enablement Strategy and planning related activities.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Develop Training and Documentation Approach



- Review the Project Charter and Work Force Enablement Strategy.
- Work with a Training Specialist to develop a curriculum for each target population.
- Determine high-level structure and content for each course and related delivery mechanisms, such as stand-up instruction, computer-based instruction, help aids, standard operating procedures documentation, and coaching.
- Where possible, provide quantitative guidelines to aid decisions about the level of investment to be made in any category.
- Finally, define Education Development and Delivery Roles, a high-level view of how you will roll out courses, and a high-level view of how you will gather and react to feedback about course effectiveness.

Refine
Strategies
Validate
Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Develop Training and Documentation Approach

Standard Operating Procedures (SOP)

For each set of standard operating procedures, determine whether procedures will be documented with a functional or cross-functional approach. (A functional approach tells everything one needs to know within a particular scope; functional interdependencies are either ignored or only alluded to. A cross-functional approach addresses an end-to-end process, even if multiple functions and/or organizations are involved.)

Develop an outline using a format aligned with the selected approach. For each section, write a brief summary describing the section's objectives. Describe any exhibit that will be used to illustrate each point.

Walk through the outline in storyboard fashion to help content experts validate sequence and logic. Make changes accordingly.

For each section of the SOP, review the outline to understand related objectives, target audience level of proficiency and prior understanding gained from previous sections. Produce text and supporting graphics. Consider the following options for graphics:

- Diagrams (flowcharts, networks, process or data flow diagrams, structure charts)
- Displays (screen/window/panel layouts, worksheets, forms)
- Pictures (illustrations, photographs, clip art)
- Verbals (work tables, structured English, decision tables and trees)
- Mathematics (statistical plots, pie/bar/line graphs, equations)

Update the Work Force Enablement Strategy as appropriate. Integrate activities into the overall project workplan.

Refine
Strategies
Validate
Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Develop Training and Documentation Approach

Inputs & Outputs	
Inputs	Work Force Enablement Strategy Requirements Specification Stakeholder Assessment Logical Solution Architecture Project Charter Project Workplan
Outputs	Training section of the Work Force Enablement Strategy Project Workplan

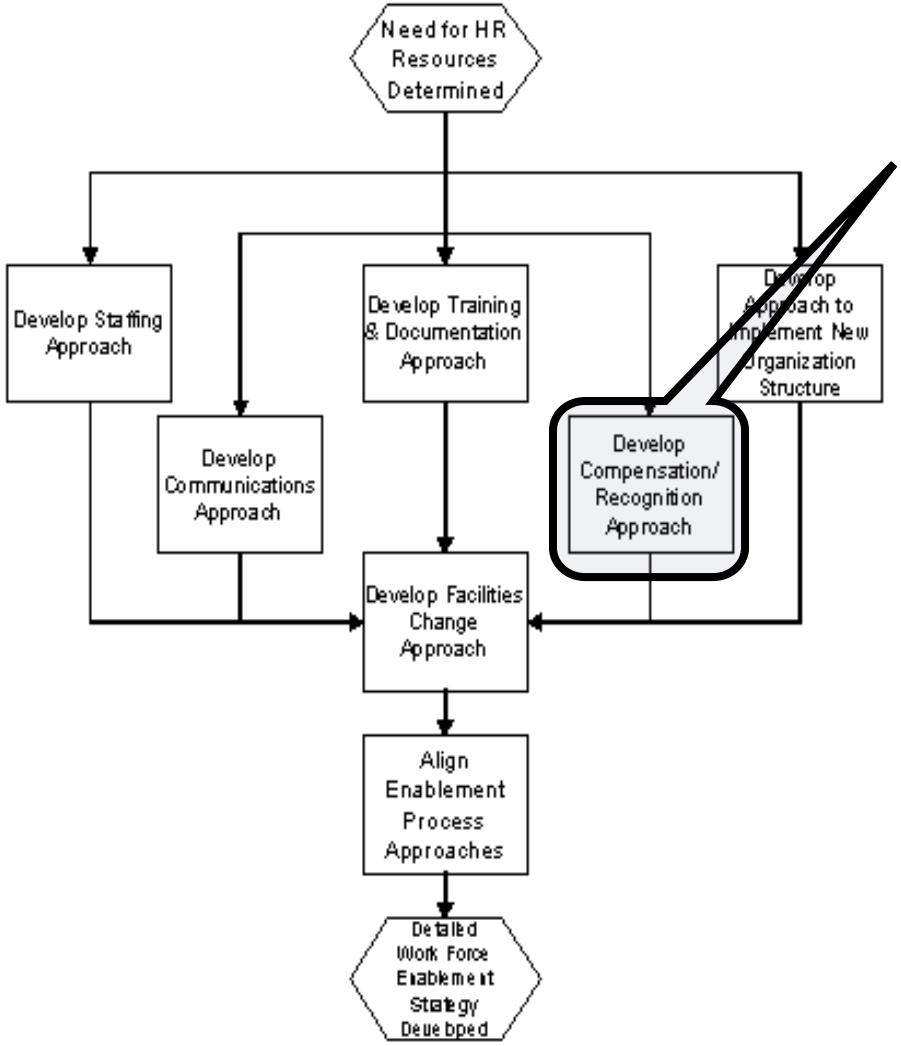
Roles & Responsibilities	
Role	**Responsibility**
Training Specialist	Executes this activity. Develops a curriculum, specifications, and a plan for delivering training for each target population, determining high-level structure and content for each course as well as related delivery mechanisms.
Project Manager	Supports this activity. Assists Training Specialist with updating the Work Force Enablement Strategy and planning related activities.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Develop Compensation and Recognition Approach



- Review the Project Charter and Work Force Enablement Strategy.
- Work with your Compensation Specialist to determine how new and revised roles will be recognized and compensated.
- For staffing increases, requiring needs for new or specialized skills, review changes, staffing models (numbers, locations), job descriptions and competencies.
- For each new or revised job description, determine if compensation levels, performance objectives, and career paths for the future business area are still suitable.
- Determine future requirements for compensation and recognition initiatives, including not only desirable behaviors required to support the business change, but also significantly undesirable behaviors currently in evidence and likely to occur.
- Finally, develop a motivational compensation and recognition plan flexible enough to allow for variations among stakeholders.
- Update the Work Force Enablement Strategy as appropriate. Integrate related activities into the overall project workplan.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Develop Compensation and Recognition Approach

Inputs & Outputs	
Inputs	Work Force Enablement Strategy Requirements Specification Stakeholder Assessment Logical Solution Architecture Project Charter Project Workplan
Outputs	Compensation and Recognition section of the Work Force Enablement Strategy Project Workplan

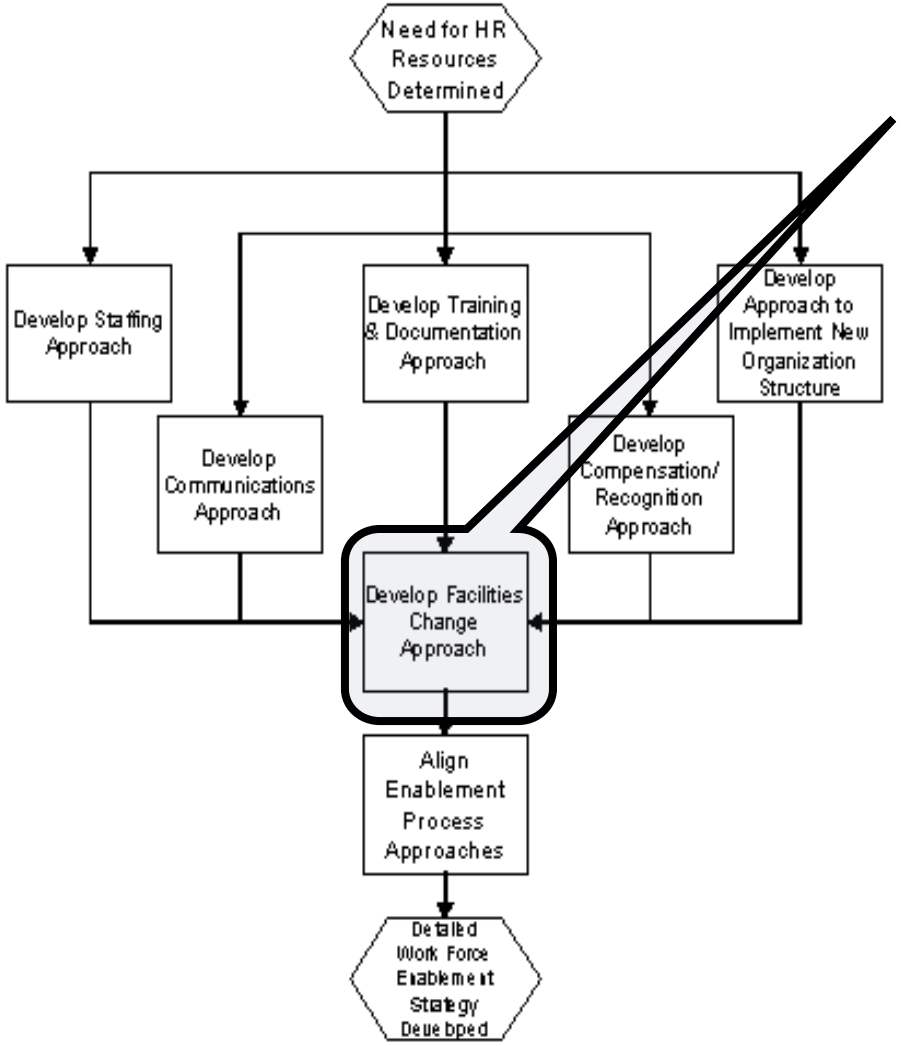
Roles & Responsibilities	
Role	**Responsibility**
Compensation & Recognition Specialist	Executes this activity. Determines how new and revised roles will be compensated.
Project Manager	Supports this activity. Assists Compensation & Recognition Specialist with updating the Work Force Enablement Strategy and planning related activities.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Develop Facilities Change Approach



- Review the Project Charter and Work Force Enablement Strategy to determine impact on facilities.
- Work with a Facilities Management Specialist to do the following:
- If an increase in staff is planned, review where they will be located and their workstation needs. If a decrease in staff is planned, review impacts on specific locations and work areas.
- If a change in business process workflow warrants redesign of assigned locations and work areas, review related requirements.
- Develop a plan for implementing facilities changes in time for the occurrence of related project impacts.

- Update the Work Force Enablement Strategy as appropriate. Integrate related activities into the overall project workplan.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Develop Facilities Change Approach

Inputs & Outputs	
Inputs	Work Force Enablement Strategy Requirements Specification Stakeholder Assessment Logical Solution Architecture Project Charter Project Workplan
Outputs	Facilities section of the Work Force Enablement Strategy Project Workplan

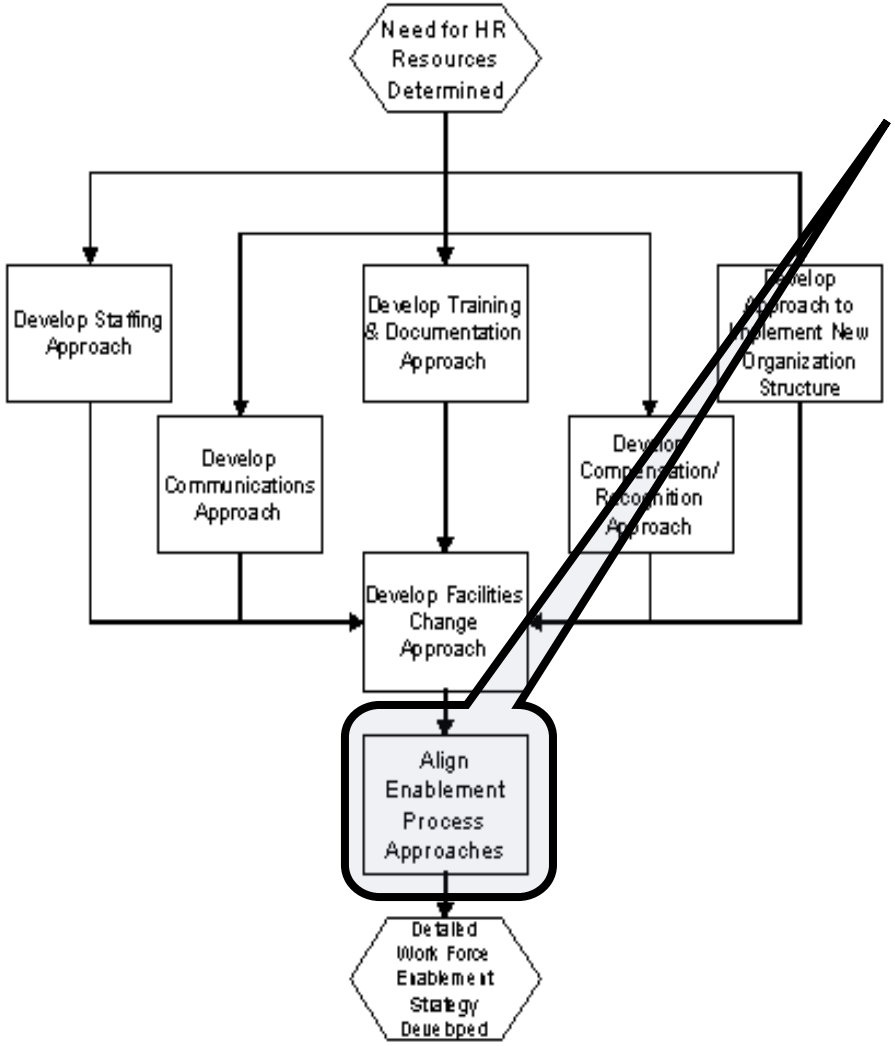
Roles & Responsibilities	
Role	**Responsibility**
Facilities Specialist	Executes this activity. Determines how facilities will accommodate staffing and workflow changes.
Project Manager	Supports this activity. Assists Facilities Specialist with updating the Work Force Enablement Strategy and planning related activities.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

Align Enablement Process Approaches



- Review all relevant enablement strategies and plans to understand interdependencies and to resolve content and timing issues.

Refine Strategies Validate Release

Refine Work Force Enablement Strategy

Determine Organization's Readiness for Change

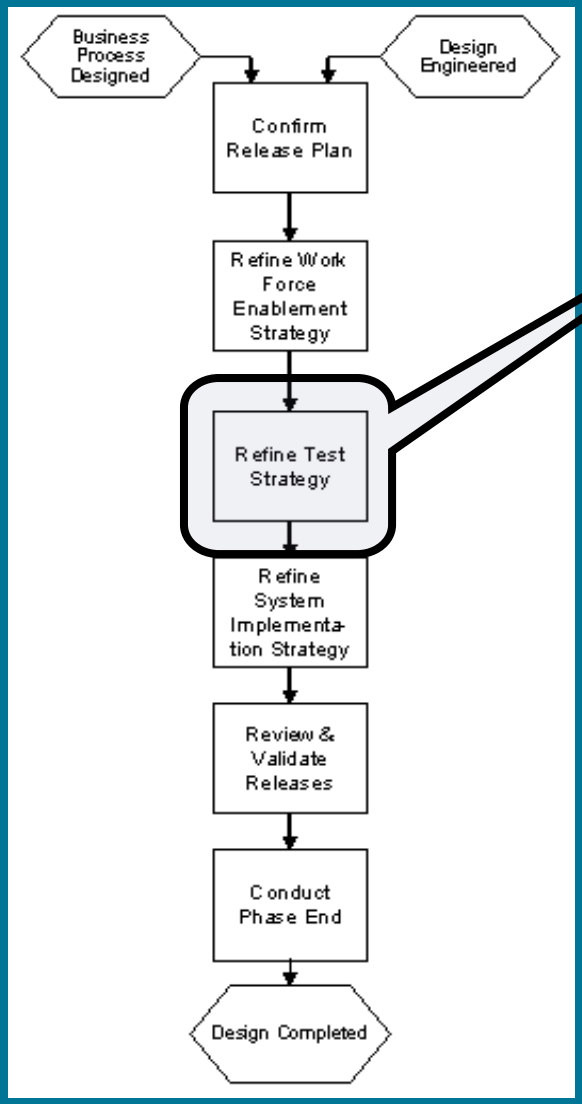
Align Enablement Process Approaches

Inputs & Outputs	
Inputs	Work Force Enablement Strategy Project Charter Project Workplan
Outputs	Work Force Enablement Strategies Project Workplan

Roles & Responsibilities	
Role	**Responsibility**
Organizational Design Specialist	Executes this activity. Expands Work Force Enablement Strategy to ensure consistency and alignment among enablement system deliverables.
HR Generalist	Supports this activity. Assist Organizational Design Specialist in creating the Design Coordination Procedures.
Subject Matter Expert	Supports this activity. Provides domain-specific input.
Project Manager	Supports this activity. Reviews relevant enablement process strategies to understand process and data interdependencies.

Refine Strategies Validate Release

Refine Test Strategy

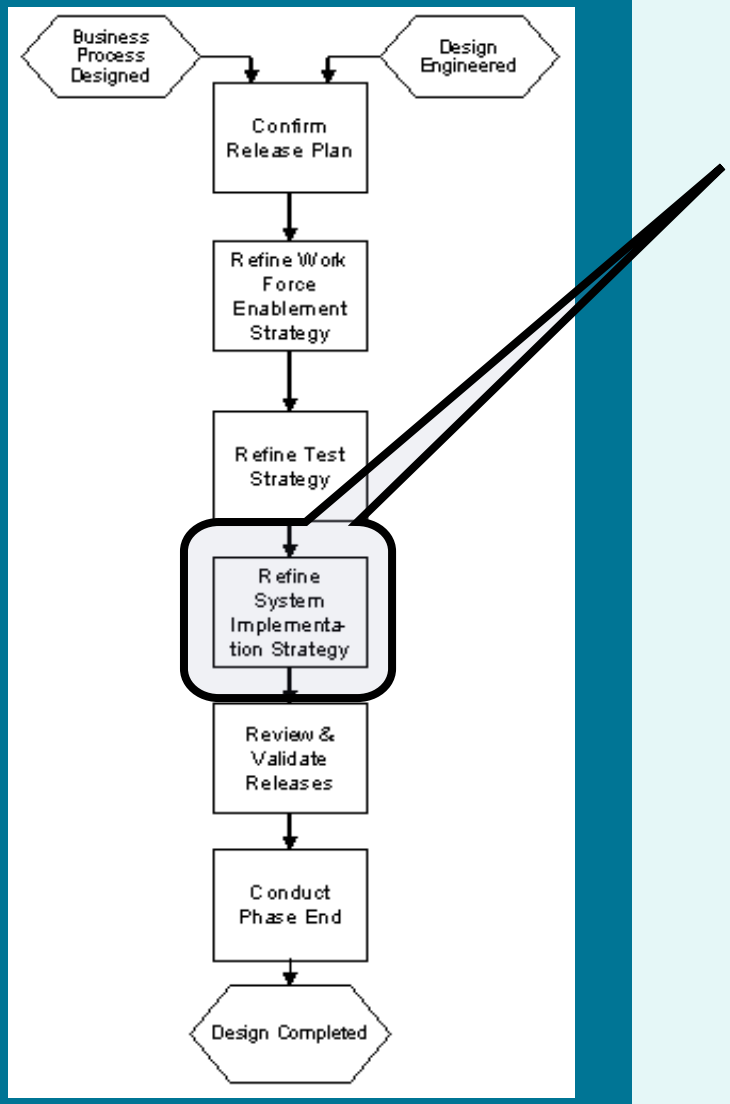


This process updates the Test Strategy and the Requirements Traceability Matrix initially defined in the Requirements Sub-Phase to reflect:

- New or revised Project Charter
- Work Force Enablement Strategy
- Implementation Strategy.

Refine Strategies Validate Release

Refine System Implementation Strategy



The System Implementation Strategy is reviewed to confirm/update ties of the following to releases:

- Application
- Data
- Technology elements.

The Project Workplan is modified/updated to reflect additional detail.

Refine
Strategies
Validate
Release

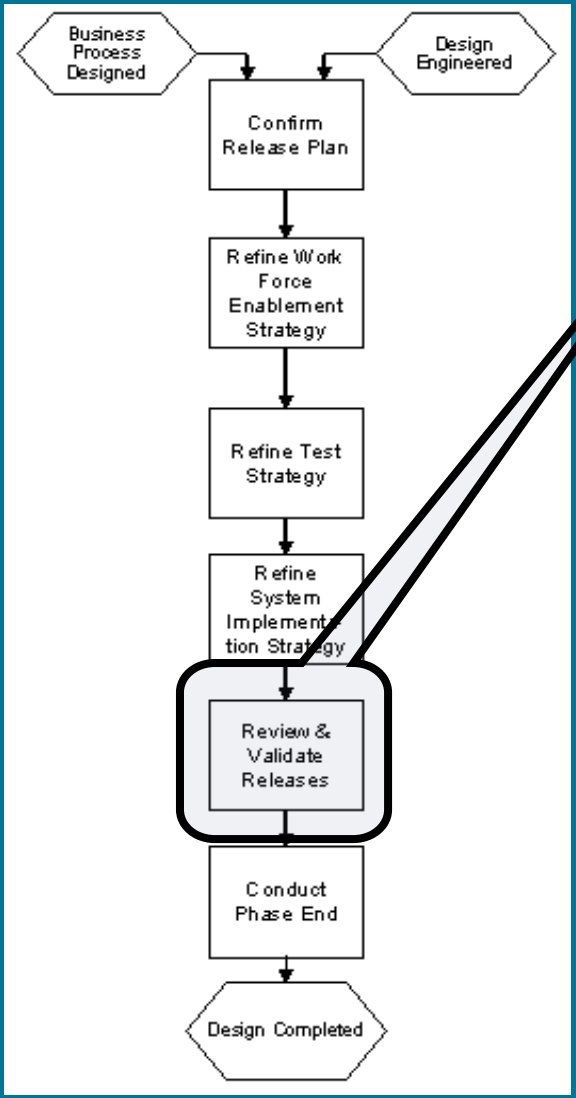
Refine System Implementation Strategy

Inputs & Outputs	
Inputs	Design Specification Logical Solution Architecture System Implementation Strategy Project Charter Project Workplan
Outputs	System Implementation Strategy Project Workplan

Roles & Responsibilities	
Role	**Responsibility**
Project Manager	Executes this activity. Reviews documentation to understand impacts on the System Implementation Strategy and the Project Workplan and then updates these documents.

Refine Strategies Validate Release

Review and Validate Releases



The following are reviewed to better understand the relationships between system releases and enabling organizational activities:

- Work Force Enablement Strategy
- System Implementation Strategy
- Test Strategy.

The consolidated milestone dependency diagram (depicting the scheduling prerequisites that must be taken into account when planning/validating solution releases) is produced/refined.

The Requirements Attainment Strategy is updated as necessary.

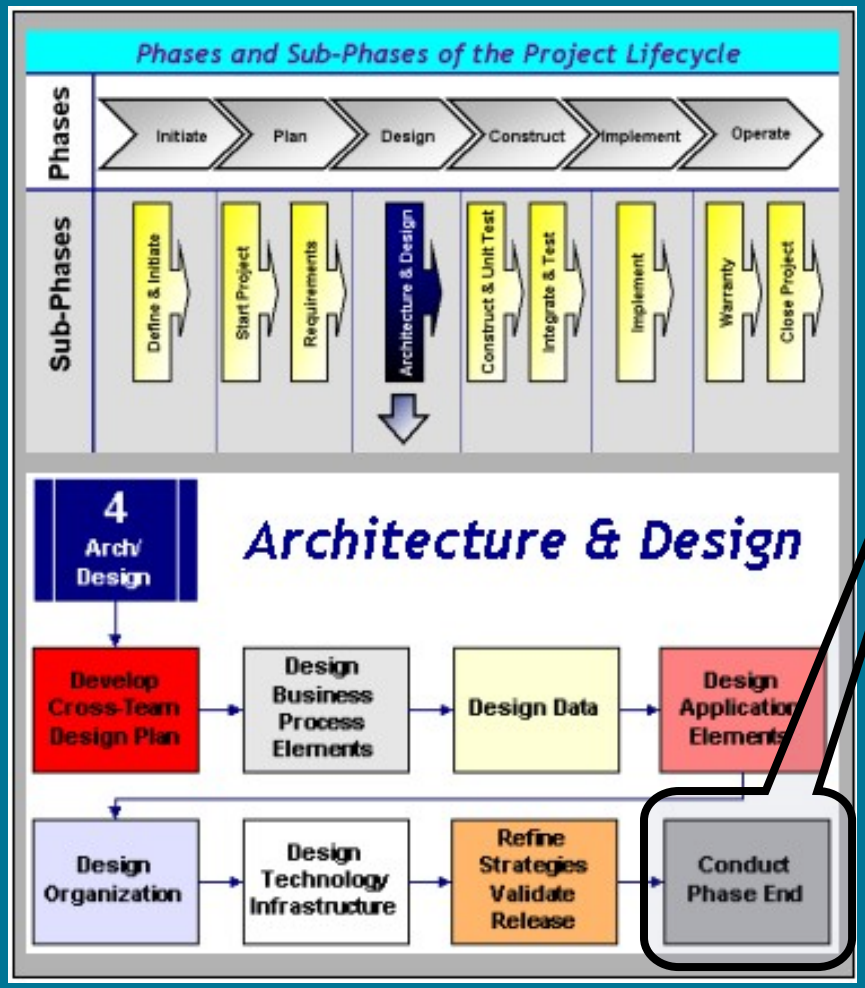
Refine Strategies Validate Release

Review and Validate Releases

Inputs & Outputs	
Inputs	System Implementation Strategy Test Strategy Work Force Enablement Strategy Requirements Management Strategy
Outputs	Requirements Attainment Strategy

Roles & Responsibilities	
Role	**Responsibility**
Project Manager	Executes this activity. Reviews documentation to understand relationships among system releases and enabling organizational activities. Documents results in the Requirements Attainment Strategy.

Details - Conduct Phase End



- The standard project phases, as defined in the project lifecycle, incorporate phase end gates or "decision points" to allow for a senior management review.
- Just as a Business Case (with Cost Benefit Analysis) is presented to senior management for funding in the Define & Initiate Sub-Phase, additional validations of the project are performed at the subsequent phase end gates (e.g. Plan, Design, Construct).

Conduct Phase End

Conduct Phase End

- To prepare for this review, a Project Manager would ensure the quality of their key deliverables produced during the sub-phase (see Quality Management), confirm the required Information Protection deliverables, update their project workplan for the next phase (see Planning & Estimating) and re-calculate the project costs and benefits (see the Define & Initiate sub-phase).
- These phase end gates or "decision points" enable Project Managers and leaders to the review and evaluate the project to ensure continued alignment with business objectives; project financial and task progress, and provide guidance and funding for the remaining phases. After review of the project status, if it is determined by management that at this point, the project should be cancelled, the Project Manager should reference the Close Project Sub-Phase for help in closing the project.

Conduct Phase End

Conduct Phase End

Inputs & Outputs	
Inputs	All Phase deliverables Business Case Project Charter Project Workplan
Outputs	Updated Business Case Updated Project Workplan “Go” or “No Go” project decision

Roles & Responsibilities	
Role	**Responsibility**
Project Manager	Update Business Case, Project Charter, and workplan. Prepare documentation and a presentation of project status, and present at Phase End Review.
Project Sponsor	Provide guidance to the Project Manager in preparation for Phase End Review.
Steering Committee	Participant in Phase End Review, provide direction when necessary, and provide a “go” or “no go” decision for project to enter the next phase.

Architecture & Design Summary

Purpose

- **Determine "how" a solution will be structured to achieve targeted business objectives.**

Team Roles

- **Steering Committee, Project Sponsor, Project Manager, Support Areas, Project Office, Process and Application Team, Testing Team, Technical and Infrastructure Team, Data Design and Integration Team, Organization Design and Enablement Team, Training and Documentation Team, Implementation Team.**

Major Inputs

- **Requirements Specification**
- **Conceptual Solution Architecture**
- **Requirements Attainment Strategy.**

Major Outputs

- **Development Coordination Procedures**
- **Logical Solution Architecture**
- **Design Specification**
- **Detailed Requirements Attainment Strategy.**

Processes

- **Develop Cross-Team Design Plan**
- **Design Business Process Elements**
- **Design Data**
- **Design Application Elements**
- **Design the Organization**
- **Design Technology Infrastructure**
- **Refine Strategies & Validate Release**
- **Conduct Phase End.**

Architecture & Design Sub-Phase

Thank You