

THINKING/WORKING FORWARD FROM BUSINESS OBJECTIVES TO REQUIREMENTS TO DEPLOYMENT

WORK BREAKDOWN STRUCTURE –REQUIREMENTS HIGH LEVEL:

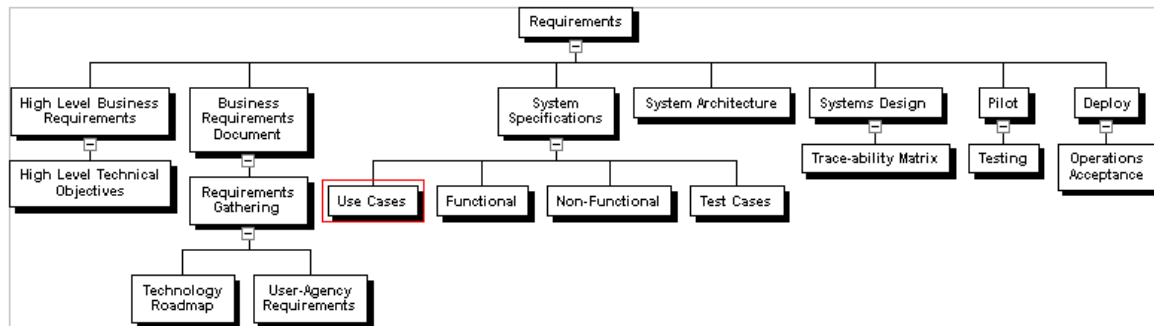


Figure 1 Requirements Work Breakdown Schedule

This provides a simplified picture of the workflow for requirements. The High-level Business Requirement and its related technical objectives will come from the IT Consolidation Master Plan that introduces the highest-level business requirement:

1. High Level Business:

Bus. Objective 2	Reduce cost of IT operations through an enterprise Model
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2. High Level Technical Objectives:

Tech. Objective 9	Implement an efficient and cost effective network architecture that supports high bandwidth links across State of New Mexico that is based on enterprise standards that apply to all agencies internally and the enterprise.
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3. Business Requirements Document -Requirements Gathering:

Requirements gathering will be based on a technology roadmap, an analysis of what exists, and an analysis of agency requirements. Requirements will be collected using the following form:

Requirement ID	<Unique id #>		Reqmnt. Type			Use Case #	
Status	New <x>	Agreed-to <x>	Baselined <x>	Rejected <x>			
Parent Requirement #	<Enter the unique id #(s) for each requirement that this requirement supports (This field will be empty for high level requirements e.g., business requirements)>						
Description	<Enter concise description of requirement>						
Rationale	<Provide a brief rationale, and or business value for the requirement.>						
Source	<Name of Reqmnt. Provider>			Source Document	<filename>		
Acceptance/Fit Criteria	<Provide a target that makes it possible to test if requirement was satisfied>						
Dependencies	<List other requirement. Id#s that this requirement is dependent on>						
Global/Local	Global <x>	Local <x>	Specify Business Unit				
Priority	Essential <x>	Conditional <x>	Optional <x>				
Change History	<List history of changes to this requirement>						

Figure 2 Requirements Collection Form

Additional Requirements:

IT Projects are also subject to State of New Mexico requirements such as:

- IT Consolidation compliance
- IT Enterprise Architecture
- Network, Information and Data Security

5. System Specifications:

This takes the business requirements and re-writes them as system specifications, distinguishing between Function (what needs to be done) and Non-Functional (how it needs to be done). It should include the equipment required to be procured or re-assigned/reused to build the solution. It might start with Use Cases and it will include test plans that will enable us to know if we have been successful.

5. System Architecture:

Based on the requirements gathering, this is an architectural view of what the environment should look like and the principles followed to be followed to design the proposed environment

6. System Design Documents

These are the documents the implementers will need to connect the pieces, with all the appropriate system settings, IP addresses, next router etc.

For this project, this will take the form of the **Telecommunications Architecture Plan**.

A key element of this design is how the design traces back to the High Level Requirements

7. Pilot

The success or failure of the pilot is determined by the test cases that have been developed in the system specifications phase.

8. Deployment

Building Requirements Traceability Matrix

WE NEED TO BUILD A TOP-DOWN REQUIREMENTS TREE THAT WILL BE USED TO TRACK THE PROJECT AND ITS SCOPE. EACH ELEMENT OF THE DESIGN NEEDS TO BE TRACED BACK TO THE SPECIFIC REQUIREMENTS.

Business Objective

Technical Objective

Business Requirement

System Requirements –Functional and Non-Functional

Test Cases – How do we test the system?

System Design

Figure 3 Requirements Traceability Matrix

Requirements from GSD Consolidation Business Plan, provided as Appendix V, IT Consolidation Plan dated May 1, 2004

These are as stated in the document and presented here only as a list of requirements, to be dealt with in the project, and presented in a more structured manner.

1. Reduce the number of 45 standalone networks that share no significant resources in common. (Page 83 of appendix V)

Bus. Objective 2		<i>Reduce cost of IT operations through an enterprise Model</i>
Tech. Objective 11		Elimination of duplication in network infrastructure capacity where enterprise network infrastructure provides bandwidth usable by agencies who have had their own bandwidth and support staff
	Req XX	Reduce the number of 45 standalone networks that share no significant resources in common

2. Within the cities that contain the greatest concentration of state facilities and employees, provision high-speed backbone networks. (Page 87 of appendix V)

Bus. Objective 2		<i>Reduce cost of IT operations through an enterprise Model</i>
Tech. Objective 9		Implement an efficient and cost effective network architecture that supports high bandwidth links across State of New Mexico that is based on enterprise standards that apply to all agencies internally and the enterprise.
	Req XX	Aggregate the bandwidth requirements and delivery of these bandwidth requirements within each of the cities of Santa Fe, Albuquerque and Las Cruces, each of which contain the largest concentration of state facilities and employees
		<i>How</i> A Typical Metropolitan Area Networks would provide shared citywide backbone connection of sufficient bandwidth to carry all intra-

			city voice and data traffic.
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WHAT

Requirement:

Aggregate the bandwidth requirements and delivery of these bandwidth requirements into Santa Fe, Albuquerque and Las Cruces, which contain the greatest concentration of state facilities and employees

Rationale:

Sufficient activity exists to justify high-speed backbone networks that tie large geographic clusters (of state offices and employees)

HOW

A Typical Metropolitan Area Networks would provide shared citywide backbone connection of sufficient bandwidth to carry all intra-city voice and data traffic.

3. For those small cities and towns that house a substantial number of state agency offices aggregate their network to shape and control the traffic at a local level before the data is transported.

Bus. Objective 2		Reduce cost of IT operations through an enterprise Model	
Tech. Objective 9		Implement an efficient and cost effective network architecture that supports high bandwidth links across State of New Mexico that is based on enterprise standards that apply to all agencies internally and the enterprise.	
	Req XX	For those small cities and towns that house a substantial number of state agency offices aggregate their network to shape and control the traffic at a local level before the data is transported.	
		How	

4. Mesh the small city aggregations and large city backbones (Appendix V, Page 91)

Bus. Objective 2		<i>Reduce Cost of IT operations through an enterprise model</i>	
Tech. Objective 8		Statewide approach for business continuity and disaster recovery	
	Req XX	Mesh the small city aggregations and large city backbones to function in times of crisis	
		How	

5. Centrally managed network as the foundation for server consolidation.

Bus. Objective 2		<i>Reduce Cost of IT operations through an enterprise model</i>	
Tech Objective 12		Platform reduction solution eliminating duplication and wasted resources such as unused storage capacity through consolidation of common enterprise solutions, services, applications, servers and databases	
	XXX	Server Consolidation	
	XXX	Storage Consolidation and sharing	
Tech. Objective 6		Common Hosting/data center model with standards for power protection, physical access, weather and other best practices operational standards.	
	XXX	Create Mini-Data centers in aggregated small city locations	
	XXX	Create Data Centers in Albuquerque	

6. Provide Security as an enterprise service to eliminate redundant devices and confusion (Appendix V, Pages 96,97)

Bus. Objective 2		<i>Reduce Cost of IT operations through an enterprise model</i>	
Tech		Common Security Management including comprehensive	

Objective 5		security standards, network, data, application, internet.
	XX	True Security requires continuous end to end sweeps, changing network topology and providing network security as an enterprise service will eliminate hundreds of security appliances and confusion

THINKING BACKWARDS

While the Product Development process works forward from the high level business and technical objectives through to detailed specifics including test cases and acceptance criteria, Deployment, Organizational Change and Operations/Support planning works backwards from speculation about the end, and fine-tunes the pictures of each though the project.

OVERVIEW OF DEPLOYMENT, ORGANIZATIONAL CHANGE AND OPERATIONS PLANNING

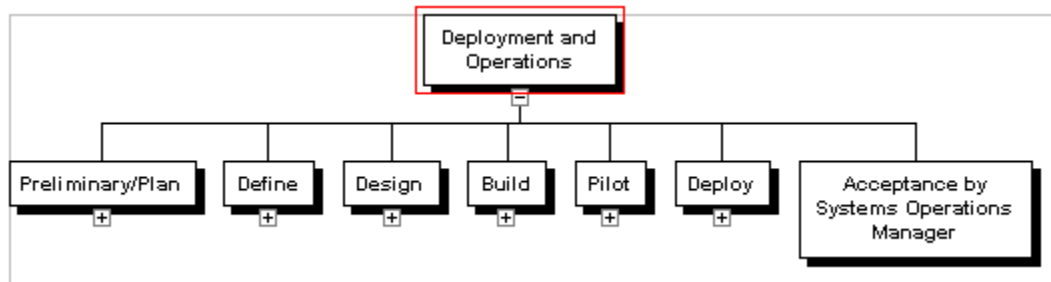


Figure 4 Deployment and Operations Planning

The product life cycle of the IT Consolidation projects passes through phases in which we move from high level, through a more specific set of requirements that trace back up to these initial business needs or objectives. A high level architecture plan or standards document sets forth the approaches to be taken and the technologies to be applied. The specific requirements and architecture plan are used then to design the solution. Following approval of the design, the process of building the solution or laying it out meets up with a pilot of the solution. After the evaluation of the success of the pilot, the rest of the deployments begin, with the beginning of the acceptance process by the systems operations manager.

The deployment, organizational change and operations planning processes also follows the same phased approach, but deal with the changes that need to occur along the way to accommodate the technical solution. The success of an IT project is dependant on both

the technical solution and the anticipation of the impacts to the end users, the organization, the support and IT administration organization.

1. Preliminary Planning

Starting with the preliminary or planning phase, three discipline paths are initiated to anticipate impacts:

- Deployment with transition to operations
- Operations and Support
- Organizational Change

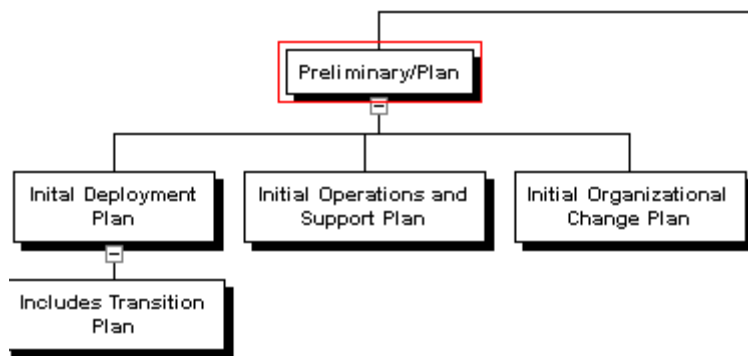


Figure 5 Preliminary Operations and Support Planning

DEPLOYMENT WITH TRANSITION TO OPERATIONS

Deployment Scope – Time Frame, Populations/agencies, locations, Nature of Deployment (Hardware, Software, Services, Contracts)

Deployment Strategy – At all once, phased, what constraints are placed on deployment by agency business needs, Federal or other funding requirements, what are the dependencies on deployment –service provider readiness etc.

Deployment Schedule – time estimates for setting up new operations, co-existence requirements. Initially this may not be calendarized, or it may be a reflection of projected start and estimated finish. Any local change control processes that may impact schedule need to be identified as early as possible.

Deployment Costs and deployment staffing requirements

Deployment Communications Plans – how will impacted populations be communicated with and how will impacted populations communicate with project. What approvals will be needed by/from the impacted agencies etc.

Transition to Operations and Support – From a project perspective what will the operations entity need to have in place to accept initial and then full operations responsibility, Staffing, electrical, network, SLA and operational procedures. From an operations center perspective what will the project need to supply, such as operations manuals, staff training, in order for the operations manager(s) to sign off on acceptance of the product deliverables? What support will operations need especially in the shake down period of operations/support?

OPERATIONS AND SUPPORT

The project needs to identify the support that will be need by the end users, the system operations teams and facilities, and on going technical support will be provided for on going operations.

In the define phase, some of these needs will be transferred into Training requirements documents.

What are the projected service level agreements? Will there be standard change windows? What will be the escalation process from agency to service provider or equipment/software vendor? What will be the staffing requirements?

ORGANIZATION CHANGE

This focus of organizational change is on personal and professional productivity of the populations impacted by the changes being imposed by the project and its delivery of a product/solution. This analysis starts by identification of the changes that the project will bring, not the specific technical solution itself that may not be fully understood until the design phase.

Is the change a new version of software or a new application? Will the application be customized to the work patterns of the organizations or will the organizations need to establish new processes to accommodate a common platform? Will

administrators need to learn new technology or adapt to larger populations being serviced? Is it anticipated that staff may be re-assigned to a central group? Will this reassignment mean the loss to the agency of expertise provided or assistance provided on a “by the way” or as a special interest of staff? Will a centralized entity have to become a different style organization to accommodate more staff and different focus or levels of service?

Phase Approval Process

Both the project and the IT consolidation program with its respective team members and stakeholders will need to approve the supporting documents at key points in the project. It also will be necessary to engage subject matter experts in the review of the supporting documents.

Risk Management

It is key to the success of the project for risks to be identified as early and as often as necessary in these three areas. A major criterion for acceptance of the supporting plan documents is their identification of risks to the success of the project from the point of view of deployment, operations/support, and impact to organizations.

2. Defining

The review of the initial planning in the three areas in iterative, meaning that as we learn more about the solution and its impacts and environment requirements, we will understand more and more about what is necessary to support the new solution from the deployment, operations and organizational change perspectives.

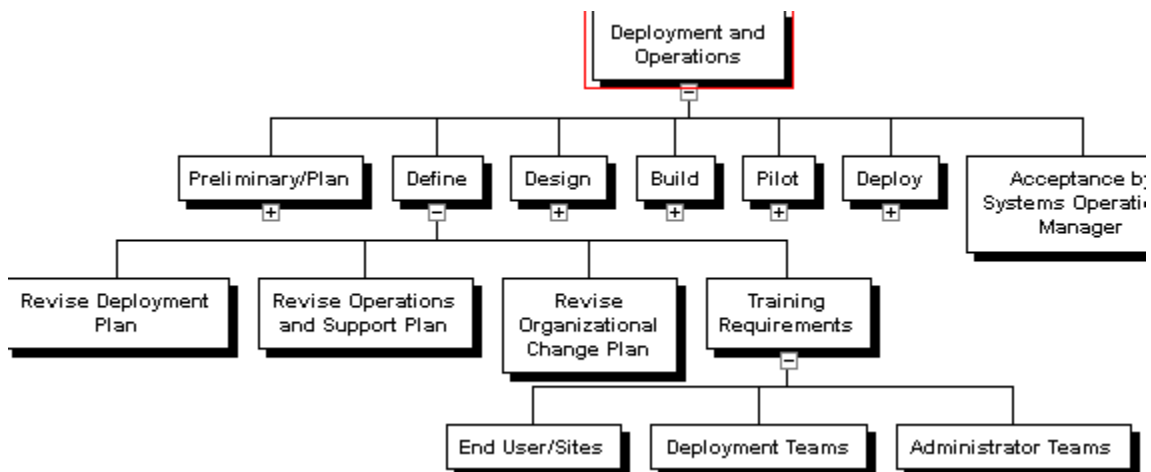


Figure 6 Defining Deployments and Operations Support Including Training

In the define phase as solution requirements become more detailed and specific, we not only review and revise our approaches, but we introduce a specific new category of requirements and planning and that is the area of training. Here and for the rest of the project planning, execution and control, training needs to be accounted for end users/agencies, deployment teams and operational/support staff.

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3. Design

As the requirements specifications are moved into the actual design of the solution, the design work is not complete without a review and approval of the four areas:

- Deployment with transition to operations
- Operations and Support
- Organizational Change
- Training

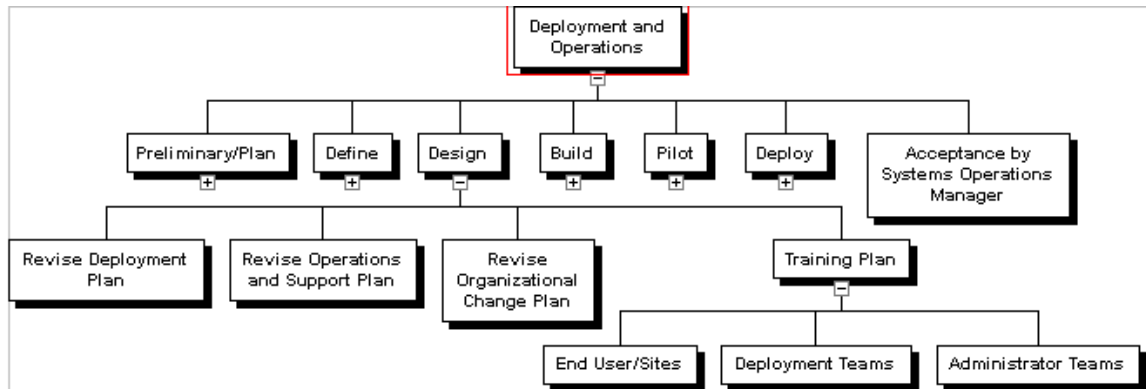


Figure 7 Designing Deployments, Operations and Training

Phase Approval Process

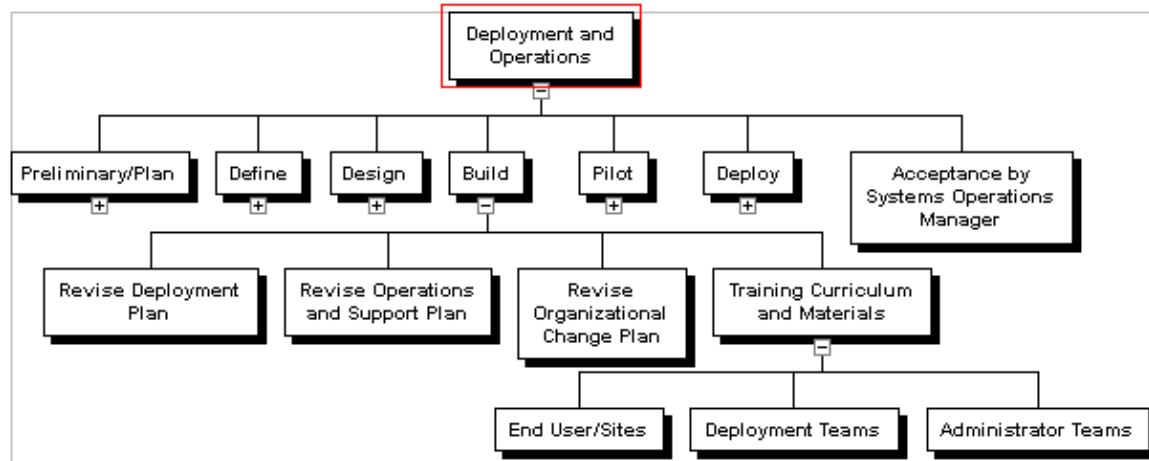
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4. Build

Just as in this phase the solution design begins to get practically applied, so also do the plans for the deployment, operations, organizational change and training.



It is in the build phase that the forward effort of the solution development itself and the backward development of the deployment, operations, organizational change and training meet. The challenge in the build phase is to assure that these two planning directions meet and match up.

Phase Approval Process

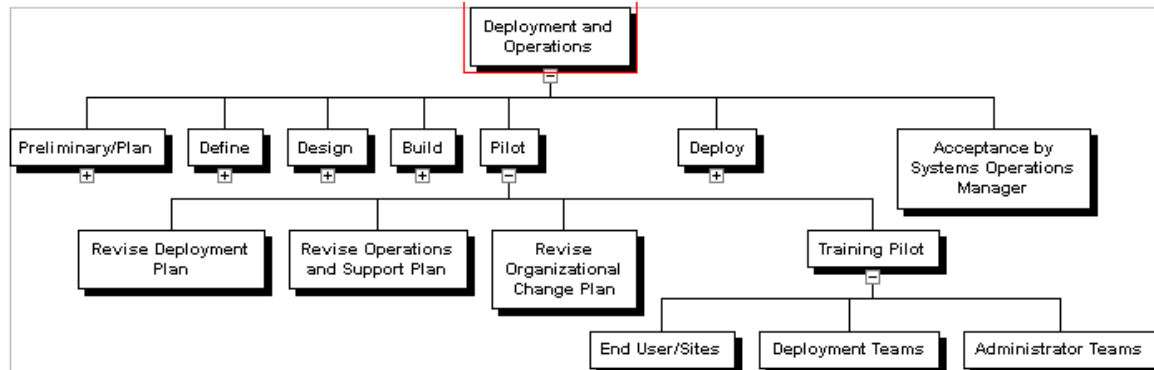
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5. Pilot

The pilot process can be seen as either a test of the build phase or as an initial deployment. Regardless of how projects see the pilot it is still the field test for both the solution and the deployment, operations, organizational change and training deliverables that have been planned for.



Each of these areas must contribute to the pilot planning, execution, monitoring and evaluation. Once again the approval and risk management processes are key to forward motion.

Phase Approval Process

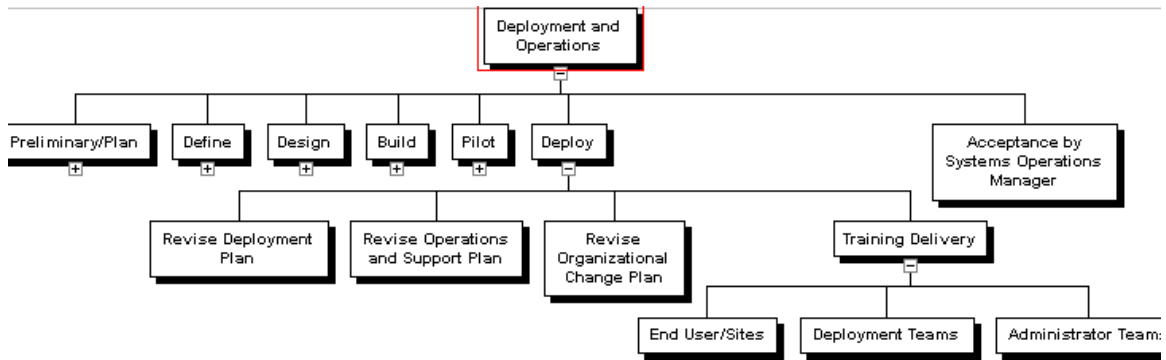
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6. Deploy

A successful project should lead to approval to deploy. Project leadership and stakeholders may make deployment approval conditional on corrective action, including in the areas of deployment, operations, organizational change or training.



Before a deployment can be complete, there is a need for an official acceptance by the systems operations manager. This approval becomes a key to the project approval as in earlier phases:

Phase Approval Process

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