Project Management 101

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Disclaimer

- While the materials in this workshop reflect Project Management experience both within the State of New Mexico and in the corporate world, they do not necessarily represent official state practices.
- Official project templates and project processes must be obtained from the State of New Mexico OCIO.

Workshop Materials

- Slide hand out for note taking
- Fishbone diagram of project management elements
- OCIO website Project Management Plan template
- IV&V Contract Template – Exhibit A Scope of Work
- Request for Certification and Release of Funds Form

A comment about topic order

- "Project Management 101" is meant to provide a sense of understanding, rather than a detailed how to do manual!
- As an example, vendors and suppliers are only dealt with toward the end of the workshop as the focus moves from identifying and defining business requirements to designing and implementing the solution.
  - The logic is that during identification and defining vendors and suppliers are partnering with the state in that process. With the designing, and building of the solution they are serving a unique function!
- Again, this workshop attempts to provide a logical model!

Introduction

"Project" and "Project Management"

What is a Project?

- Project Characteristics
  - "A project is a temporary endeavor undertaken to create a unique product, service or result" PMBOK©

What is Project Management?

Is about how we create and manage a **temporary organization** to deliver the unique product, service or result!

It is more about the temporary organization than the unique product, service or result. It is more about the interested parties, technical teams and the solution building process!

Key Project Management Questions

- What is the unique product, service or result?
- What do we need to do to accomplish the goal or goals?
- How do we know when we are finished (Temporary Endeavor)?
- Who is doing what for whom?
- How do we know how we are doing?
- How do we handle uncertainty or conflict?

Unique Product, Service or Result

- Product – what are we trying to accomplished and how will we know when we are finished?
  - Scope
    - Objectives-> Business Requirements, System Requirements, Architecture, Solution Design, Build, Pilot, Deploy
    - Trace-ability and Quality Assurance-> Test Cases, Test Planes, Pilot and Deployment Success Criteria
  - Deployment
    - Deploy Plan and "Transition To Operations"
    - Operations and Support
    - Resource Requirements and staffing
  - Cost- What is the estimated cost of creating and implementing?

Who is doing What for Whom?

- Roles and Responsibilities
  - For Whom
    - Project Sponsor
    - Project Funding Source
    - End User
    - Beneficiary of new solution
  - Who
    - Project Team
    - Subject Matter Experts
    - Vendors
    - Operations

The Whom and the Who are all considered stake holders!
Stake Holders – whose interest may be positively or negatively affected!

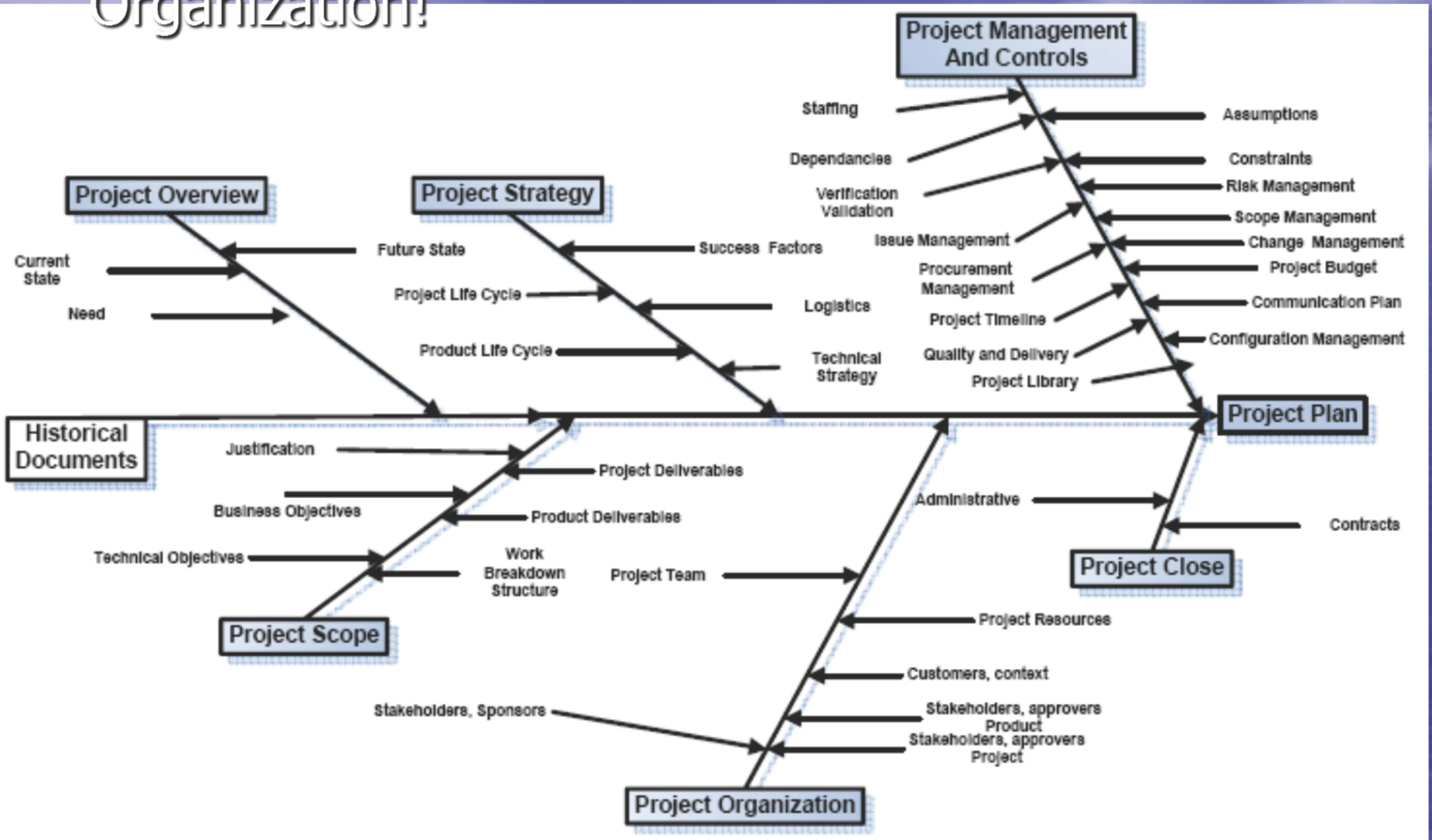
How Are We Doing?

- Calendar of tasks, task targets
  - Work Breakdown Structure – What needs to be done
  - Time estimation – how much time will be needed?
- Budget
  - How much money have we spent?
  - Are we spending the right amount of money for specific tasks?
- Quality and IV&V
  - Are we doing what we have set out to do?
- Metrics
  - How many changes are we making?

How Well Organized Are We?

- Are we meeting with stake holders and team members?
- Have we identified possible roadblocks?
- Do we document disagreements and work towards resolutions?
- Do we secure formal approval of changes and requirements from stakeholders?
- Do we keep stake holders informed?

Project Management Governs the Temporary Organization!



The Temporary Organization needs a lot of definition and clarification!

Capability Maturity Model – Ideally Projects are run in an established Manner!

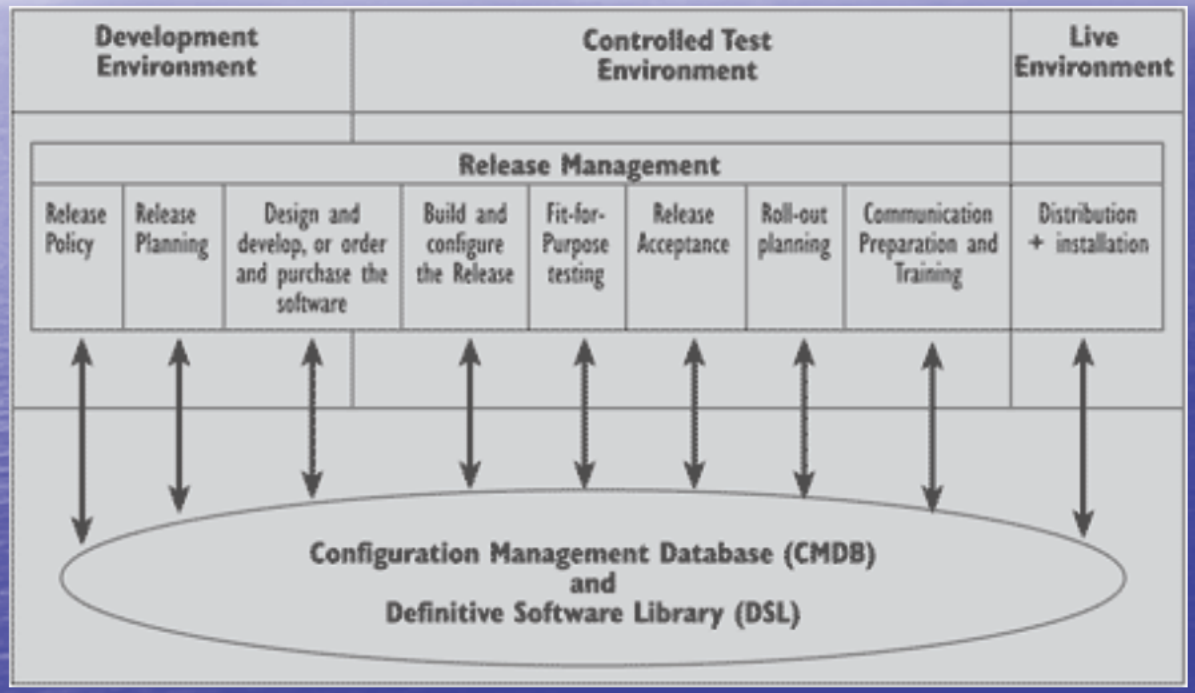
- CMM describes five evolutionary stages (levels) in which an organization manages its processes through maturity.
  - 1 Initial __Processes are ad-hoc, chaotic, or actually few processes are defined
  - 2. Repeatable __Basic processes are established and there is a level of discipline to stick to these processes
  - 3 Defined __All processes are defined, documented, standardized and integrated into each other
  - 4 Managed_-Processes are measured by collecting detailed data on the processes and their quality
  - 5 Optimizing_-_Continuous process improvement is adopted and in place by quantitative feedback and from piloting new ideas and technologies

Project Management Offices are intended to provide templates to enable project managers to followed established processes.

Project Vs. Operations

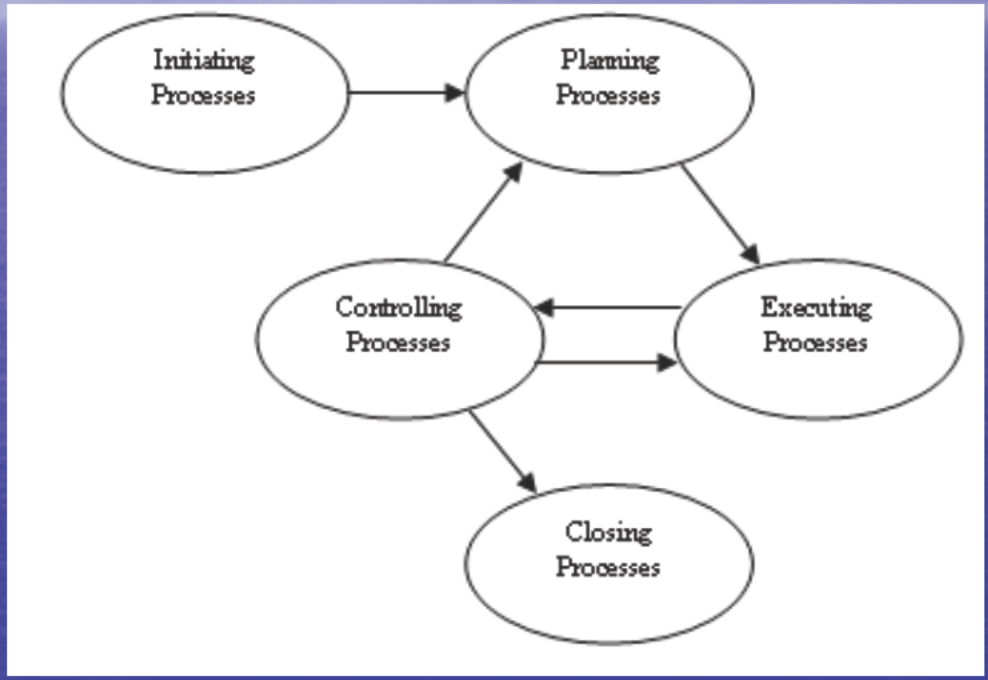
- Project Characteristics
  - "A project is a temporary endeavor undertaken to create a unique product, service or result" PMBOK©
- "Projects and operations differ primarily in that operations are ongoing and repetitive, while projects are temporary and unique." PMBOK©
- ""Projects are different because the project concludes when its specific objectives have been attained, while operations adopt a new set of objectives and the work continues." PMBOK©

IT Project = Release Management



Release Management is a term coming from IT Operations as defined by both ITIL and Microsoft Operational Framework.

Project Life Cycle describes the temporary organization and its processes!



Initiating – Obtaining Authorization to proceed with Planning
Planning – What, How, When
Executing – Actual efforts, Deliverables completion
Controlling – Status, Change Management, Risk and Issue Management
Closing – Deliverables and product acceptance, lessons learned

Product Life Cycle describes the development of the solution!

SDLC – Software Development Life Cycle

- Plan
  - Organizing the requirements gathering including the transition to Operations
- Define
  - Analyzing and fine tuning the requirements
- Design
  - Developing the solution and its deployment specs
- Build
  - Actually doing the work, testing it and doing a pilot
- Deploy
  - Transitions to operations, training, end user implementation
- Close
  - Solution acceptance by stake holders and Operations

Project Management Governance

- New Mexico State Office of the CIO
  - http://cio.state.nm.us/
  - Project Management Rules
  - Project Certification
- Project Management Institute
  - http://www.pmi.org/info/default.asp
  - Project Management Book of Knowledge
  - Project Manager Certification, PMP

OCIO Project Certification Life Cycle

- Phase Zero
- Initial
- Implementation
- Closeout

Project Management Plan

- Is about how we create and manage a **temporary organization** to deliver the unique product, service or result!
- Is not a Microsoft Project© file
  - MS Project © is a scheduling aid

12.9 Project Certification Rule

1.12.9.12 PROJECT PLANS.

A. Plan required. An agency shall prepare, in accordance with the instructions contained in the project management guidelines and best practices document prepared by the office, a project plan for every IT project regardless of its scope or cost. The agency project manager shall document the plan and all revisions to the plan, and shall keep it on file until the system is removed from operation

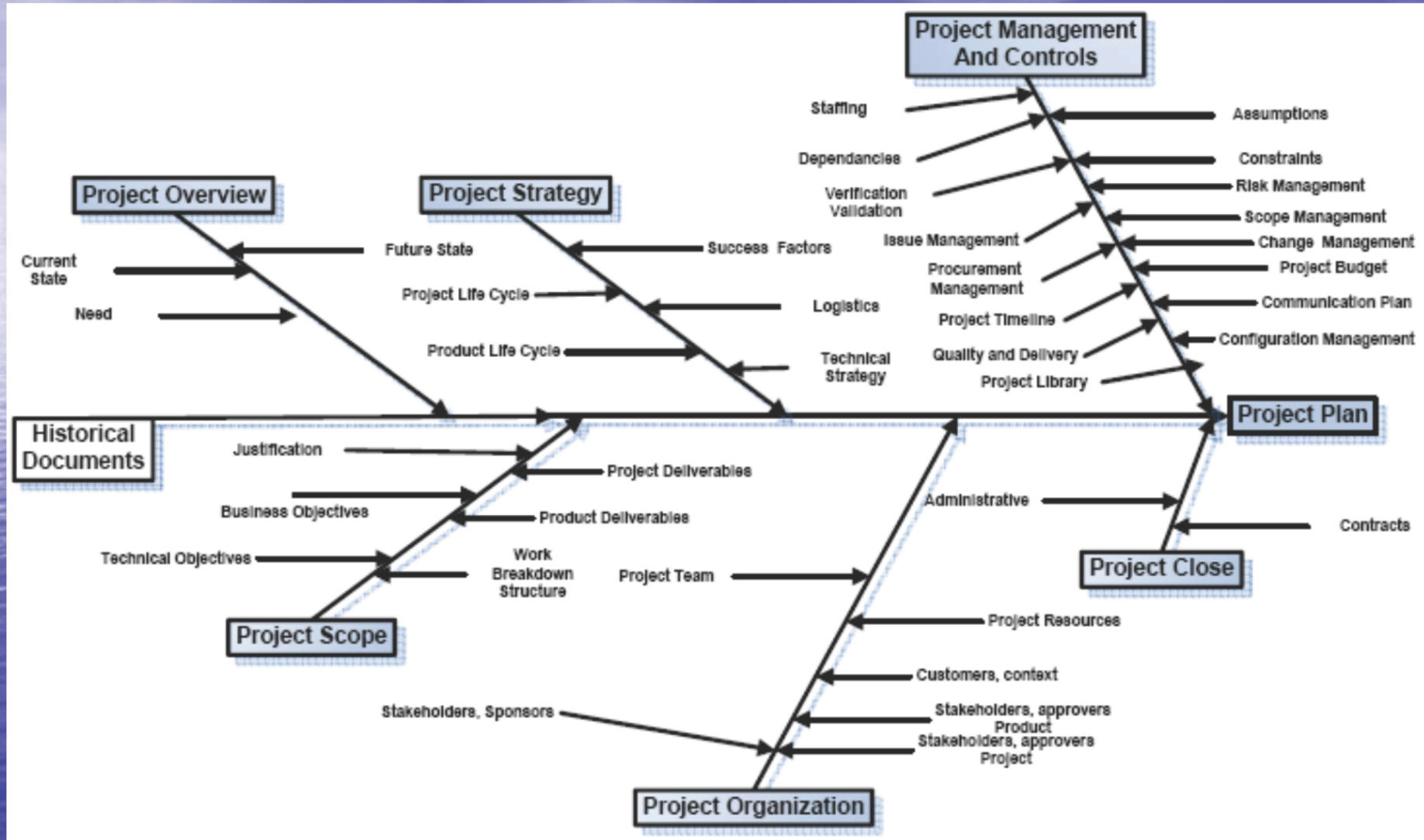
B. Plan contents. The plan shall contain at a minimum:

(1) a description of the project;
(2) a description of the functions the system will provide;
(3) a description of the development lifecycle methodology;
(4) an initial risk assessment;
(5) risk management strategies, including mitigation actions;
(6) quality assurance strategies or plan;
(7) human and financial resource requirements and allocations;
(8) a project review schedule;
(9) IV&V plan and reports;
(10) project deliverables;
(11) a project schedule; and
(12) Appropriate security planning (data, disaster recovery, system back-up).

Project Certification 12.9 Rule Definitions

- **independent verification and validation**
  - means the process of evaluating a system to determine compliance with specified requirements and the process of determining whether the products of a given development phase fulfill the requirements established during the previous stage, both of which are performed by a organization independent of the development organization;
- **quality**
  - means the degree to which a system, system component, or process meets specified requirements, customer needs, and user expectations;
- **quality assurance**
  - means a planned and systematic pattern of all actions necessary to provide adequate confidence that an product or system component conforms to established requirements;

Project Management Plan Elements



Project Management and Controls

Is about how we create and manage a **temporary organization** to deliver the unique product, service or result!

Project Management and Controls

- Because the project involves a temporary organization it needs to:
  - Make the environment explicit to its participants – they have no time to learn the organizational culture.
  - Encourage active participation of stakeholders and team members in navigating the development of a workable, reliable solution
  - Measure the activities of the project to contribute to provide feedback to the team and the stake holders and to add to the knowledge of the sponsoring organization
  - Manage its documents in an orderly way for others to read during and after the project
  - Provide communications to stakeholders

Risk Management

Projects by their Temporary Nature and Unique Outcomes are Risky. Project Management reduces the impact of the threats by making them explicit and then working on reducing their impacts or by eliminating them!

Project Management IS Risk Mitigation

- Is about how we create and manage a **temporary organization** to deliver the unique product, service or result!
- By providing structure to the temporary organization and the solution development/deployment process we reduce the risk of counterproductive Chaos.
- By communicating with stakeholders we keep them in the loop, and often involve them in risk mitigation or lessening its impact
- By acknowledging that there is risk, we can structure ways of avoiding or effectively dealing with specific risk.

Make the environment explicit to its participants – they have no time to learn the organizational culture!

Three Critical Project Factors that if ignored can shipwreck a project:

- Assumptions
- Constraints
- Dependencies

- As part of the planning process each of these need to be identified, and adjusted as the project moves forward.

Assumptions

- "Assumptions are factors that, for planning purposes, are considered to be true, real, or certain with out proof or demonstrations" PMBOK©
- "Assumptions generally involve a degree of risk." PMBOK©
- Documented Assumptions Make the environment explicit to its participants – they have no time to learn the organizational culture!

Constraints

- "An applicable restriction or limitation, either internal or external to the project that will affect the performance of the project." PMBOK©
  - Schedule – start or end
  - Cost - $ or Budget Year
  - Resources – staff numbers or skill sets
  - Technology – Is there a commercial off the shelf solution or must it be developed?
- A constraint can be seen as a risk

Dependencies

- A dependency is something that is known about that has a logical connection to the outcome of the project.
  - Training is a dependency for application deployment
  - Windows XP is a dependency for rolling out Outlook for Exchange 2003
- A dependency is an identified risk
- Dependencies are identified for the purpose of making sure the project accounts for them in planning and scheduling.

Encourage active participation of stakeholders and team members in navigating the development of a workable, reliable solution

- Yes, But or Yes, And!
  - Acknowledge and work toward mitigation
- Structure the identification of Risks and Issues that may impact the success of the project and its solutions!
- Structure the mitigation of these Risks and Issues, which includes bringing them to the attention of appropriate stake holders!
- Develop a change management process that reviews change requests arising from this openness to problems and their resolutions!

Projects are usually understaffed and therefore every set of eyes and ears are valuable assets. Risk and Issue resolution processes also address the perennial complainer, by an acknowledgement and review/decision process!

Risk Identification

- Organizational
  - Project Organization
- Resource
  - Staff, Skills, Etc
- External Risks
  - Vendors, suppliers
- Planning Risks
  - Uncertainty, Complexity
- Technical Risks
  - Requirements, Reliability

Organizational Risks

- Poor Initiation
- Sponsor Changes
- Priorities Change
- Unrealistic Deadline
- Funding
- Lack of internal stakeholder support
- Delayed Approval/Decisions
- Lack of Technical or business direction
- Project Manager Experience or inexperience
- No organization history
- No established project templates or processes
- No organizational understanding of RISK

Resource Risks

- Lack of Resources
- Staff Availability
- Staff Inexperience
- Holiday and Vacation
- Personal or Family Illness
- Retirement or resignations
- Overbooking
- Personalities
- Ineffective training
- Contractor or Consultant
- Team Morale
- Ineffective Communication

External Risks

- Vendor/Supplier
  - Timing
  - Quality
  - Lack of incentive or penalty
- Misunderstood requirements
- Statement of Work
- Too Many External vendors or suppliers
- Weather Issues
- Key Staff issues or sickness
- Dependencies on other projects
- Purchasing or hiring

Planning Risks

- Lack of Planning
- Lack of Anticipation
- Poor Estimation
- Lack of stakeholder involvement
- Lack of end customer involvement
- Poor Project Definition
- Unrealistic expectations
- Number of implementation sites
- Training process
- Government or Regulatory Changes
- Poor Communications
- Poorly Run or attended meetings
- No record keeping

Technical Risks

- Incomplete Requirements
- Scope Creep
- No or Poor Change Management Process
- Complex or Overly Complex Designs
- Technology Readiness
- Technical Dependencies
- No Test Environment
- Cutting Edge Components
- Inadequate Documentation
- Vendor Technical Support
- Code or Patch directly to Production Environment
- No Pilot

Risk Management Process

Reported By:	Reported Date:
Description:	
Probability of Occurrence:	
Severity of Impact on Project:	
Mitigation Strategy:	

Initial Criticality: (Mark One)				
Low Risk, Green		Medium Risk, Yellow		High Risk, Red

Project Managers must ensure risks are:

- Identified
- Evaluated
- Planned
- Documented
- Reviewed
- Tracked
- Monitored

Risk Management Process

Risk Processes	Risk Planning	Risk Identification	Risk Qualification	Risk Quantification	Risk Response	Risk Monitoring & Control
Definition	Deciding how to approach and plan risk management activities	Determining which risk might affect the project	Analysis of risks and conditions to prioritize their effects	Measuring the probability and consequences of risks and estimating their implications	Developing procedures and techniques to enhance opportunities and reduce threats	Monitoring residual risks, identifying new risks, executing risk reduction plans, and evaluating their effectiveness
Inputs	Organization Policies Risk Tolerances WBS	Risk Management Plan Risk categories Historical information Business Case Risk Assessment Project Estimation	Risk Management Plan Identified Risks Assumptions Scales of probability and impact	Risk Management Plan Identified Risk List of prioritized risks Expert judgment	Risk Management Plan List of prioritized risk Risk rankings Probabilistic analysis Probability of achieving cost and time objectives	Risk Management Plan Risk Response Plan Project Communication Progress Reviews Scope changes
Tools & Techniques	Planning Meetings	Document reviews Assumption analysis Checklist	Precision ranking Probability / impact risk rating matrix	Interviewing	Avoidance Mitigation Acceptance Transference	Risk Response Audits Risk Review Meeting
Outputs	Risk Management Plan	Identified Risks Triggers	Overall risk ranking List of prioritized risks – high, medium, low	Prioritized list of quantified risk Probabilistic analysis Probability of achieving the cost and time objectives	Risk Response Plan – mitigation and contingency	Workaround Plans Corrective action Change Request Updated Project Log Updated Risk Form

RISK Management Log
PROJECT:

AGENCY:		DATE:	
PROJECT MANAGER:		PROJECT #:	

ID:	DESCRIPTION:	OCCURRENCE DATE:	OWNER:	SEVERITY:	COMMENTS:	STATUS:	RESOLVED DATE:

Risk Vs Issue?

Risk Deals with Anticipated Issues or Problems.

Issues are Actualized Problems

Risks, Issues and Change Requests are part of Project Governance. Project Governance spells out how these get attention of appropriate decision makers!

Issue Management

Forming, Storming, Norming, Performing – Characteristics of project teams

- As a project moves forward, technical, organization, resource, vendor, requirement and other areas generate problems. That's not the problem!
- Issue Management is about the recognition and resolution of the problems.
- Is an event that has occurred and requires an immediate response
- Has an initiator and an assigned resource for resolution
- Has the potential to adversely or seriously impact the outcome of a Project - if not addressed and resolved

Issue Management Template

ISSUE ID #:		DATE:		RAISED BY:	
ISSUE PRIORITY:	CRITICAL	IMPORTANT	NEEDS RESOLUTION		

Issue Description:

Approach/Recommendations:

Functional Areas Affected:
Issue Resolution Discussion - Parties Involved:

Decisions Made:

CHANGE REQUEST ID #:	

Base Lined

Project Management Term

Refers to project item or document that has been accepted by stakeholders!

Changes can only be made through project change control

Change Management

- Change Management in the most narrow sense deals with cost, scope or schedule.
- Change Management in the broadest sense is how change is structured and approved:
  - Change Request
  - Change Review
  - Change Acceptance or Rejected
- Change Management includes a Change Review Board
- Change Management is about recording all decisions – Recording all changes!

Change Request Factors

- **Description of Change: Description of Change**
- *[Clearly define the change request details. Provide all relevant documentation and specifications.]*
- **Reason for Change**
- *[Define the reason for the change, the history of the change, and the expectations for the component / deliverable being changed.]*
- **Scope/Quality Impact**
- *[Describe the cause for the report and the configuration items (deliverables, programs, documents, or files) impacted by the reported item. Include quality activities, i.e. reviews, testing, or checks. Include updated scope statement and business case if applicable as an attachment to this document.]*
- **Schedule Impact**
- *[Describe how the project schedule and project deliverables will be impacted by this change. Include updated project schedule as an attachment to this document.]*
- **Cost Impact**
- *[Describe how the project cost will be impacted by this change. Note that a schedule slippage almost always increases cost due additional carrying costs for project resources. Include updated financial spreadsheet as an attachment to this document.]*
- **References / Attachments**
- *[List any attachments or references to accompany this report.]*

Change Request Log

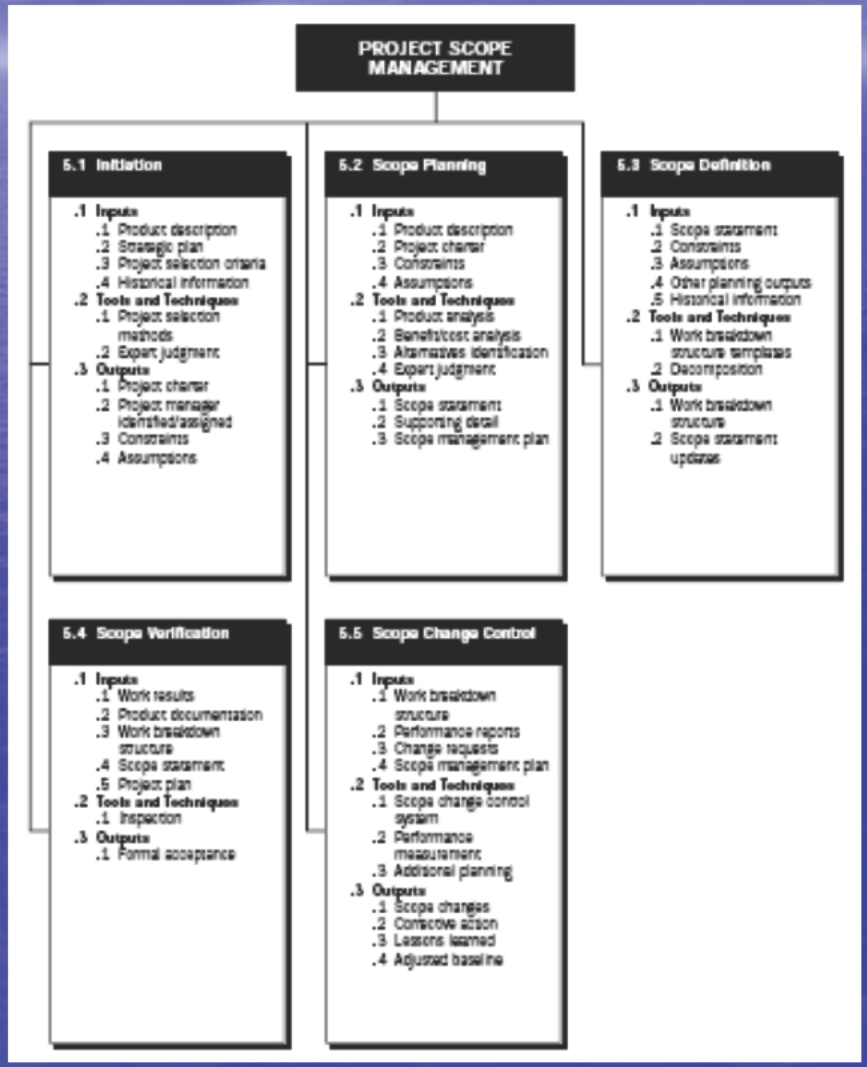
AGENCY:		DATE:	
PROJECT MANAGER:		PROJECT #:	

ID:	DESCRIPTION:	OCCURRENCE DATE:	OWNER:	SEVERITY:	COMMENTS:	STATUS:	RESOLVED DATE:

Scope Management

- "Project Scope Management includes the processes to ensure that the project includes all the work required, and only the work required, to complete the project successfully." As quoted in PMBOK©
- Project Requirements
  - Describes the conditions or capabilities that must be met or possessed by the deliverables of the project to satisfy a contract, standard, specification or other formally imposed documents. Stakeholder analyses of all stakeholder needs, wants, and expectations are translated into prioritized requirements. PMBOK©

Project Scope Management



Scope Management

- As more is known about the project, as risks and issues are identified and resolved, there may arise changes in Scope, but:
  - These changes must be subject to a change management process.

Project Management Plan SCOPE

- 2.1 Project Justification
- 2.2 Project Objectives
  - 2.2.1 Business Objectives
  - 2.2.2 Technical Objectives
- 2.3 Deliverables
  - 2.3.1 Project Management Deliverables
  - 2.3.2 Product Deliverables
- 2.4 Work Breakdown Structure

Project Communications

Because the project involves a temporary organization its communication infrastructure is critical the project's success

Communications Success Factors

- Feedback to team members and stakeholders through project Metrics
  - On Time? Within Budget?
  - Are we experiencing "Churn" in change management?
- Team Members and Stakeholders having access to the latest version of a project document
- Do Team Members and Stake Holders know enough about the project and their parts or the impacts the solution will have on their professional activities?

Measure the Activities of the Project

- To provide feedback to the team and the stake holders
  - Schedule
  - Budget
  - QA and following requirements
- To add to the knowledge of the sponsoring organization
  - Add to the historical documents of the organization
  - Contribute to collective lessons learned for other projects

Quality Assurance and IV&V

- **independent verification and validation**
  - means the process of evaluating a system to determine compliance with specified requirements and the process of determining whether the products of a given development phase fulfill the requirements established during the previous stage, both of which are performed by a organization independent of the development organization;
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OCIO IV&V Scope of Work *

- Project Management
- Planning Oversight
- Quality Management
- Training
- Requirements Management
- Operating Environment
- Development Environment
- Software Development
- System and Acceptance Testing
- Data Management
- Operations Oversight

* IV&V Contract Template – Exhibit A; Note this is a checklist as not all items may apply

Manage its documents in an orderly way for others to read during and after the project

- Configuration Management
  - Project Plan – references naming conventions for project documents
  - IT Operations – references a catalog of Hardware, software, network equipment etc.
- Project Library
  - How and where are project documents stored and made accessible to project team

Provide Communications to Stakeholders

- Communication planning involves determining the information and communication needs of the stakeholders, executive sponsors, project team and others as needed. The communication plan needs to address who needs what information, when they will need it, how it will be given to them, and by whom.
  - Communication Matrix
  - Status Meetings
  - Status Reports

Creating a Communication Matrix

- **Determine Project Stakeholders**
- There can be many types of customers, users, vendors, managers, and stakeholders. First determine what people or groups of people you want to include in the Communication Matrix.
- **Determine the Communication Needs of Each Stakeholder**
- For each of the stakeholders identified above, determine what are their communications needs. For instance, certain managers have a need for ongoing status information. Steering committee members need ongoing status, plus a dialog on strategy and vision. Your users might need awareness communication, mentoring, question-and-answer sheets, promotional information to build enthusiasm, etc. For large projects especially, the project team should be creative in determining how, what, to whom, where, and how frequently the communication takes place.
- *Determine How to Fulfill the Communication Needs of Each Stakeholder*
- Project communication can take many shapes and forms. In this step, brainstorm how you will fulfill the communication needs for each stakeholder. When possible, look for types of communication that can cover more than one stakeholder's needs.
- **Mandatory:** The types of communication are required by your agency, OCIO, ITC, ITOC, or by law. This information is pushed to recipients.
- Project Status Reports
- Regular voicemail updates (of status)
- Status meetings
- Meetings with steering committee
- Regular conference calls and videoconferences with remote stakeholders
- Government-required reports and other information
- Financial reporting such as budget vs. actual, or any other required financial information

Communications Matrix # 2

- **Informational:** This is information people want to know, or that they may need for their jobs. This information is made available for people to read, but requires them to take the initiative, or pull the communication.
- Awareness-building sessions that people are invited to attend (These are not meant as training, just to build awareness.)
- Project paper-based deliverables placed in a common repository, directory, or library that people can access
- Project information on a Web site
- **Marketing:** These are designed to build buy-in and enthusiasm for the project and its deliverables. This type of communication is also pushed to the readers.
- Project newsletters, with positive marketing spin
- Meeting one-on-one with key stakeholders on an ongoing basis
- Traveling road shows to various locations and departments to explain project and benefits
- Testimonials from others where value was provided
- Contests with simple prizes to build excitement (corny but it works)
- Project acronyms and slogans to portray positive images of the project
- Project countdown till live date (this is affective)
- Informal (but purposeful) walking around to talk up the project to team members, users, and stakeholder
- Celebrations to bring visibility to the completion of major milestones
- Project memorabilia with project name or image portrayed, such as pins, pencils, Frisbees, cups, T-shirts, etc.
- Publicizing accomplishments

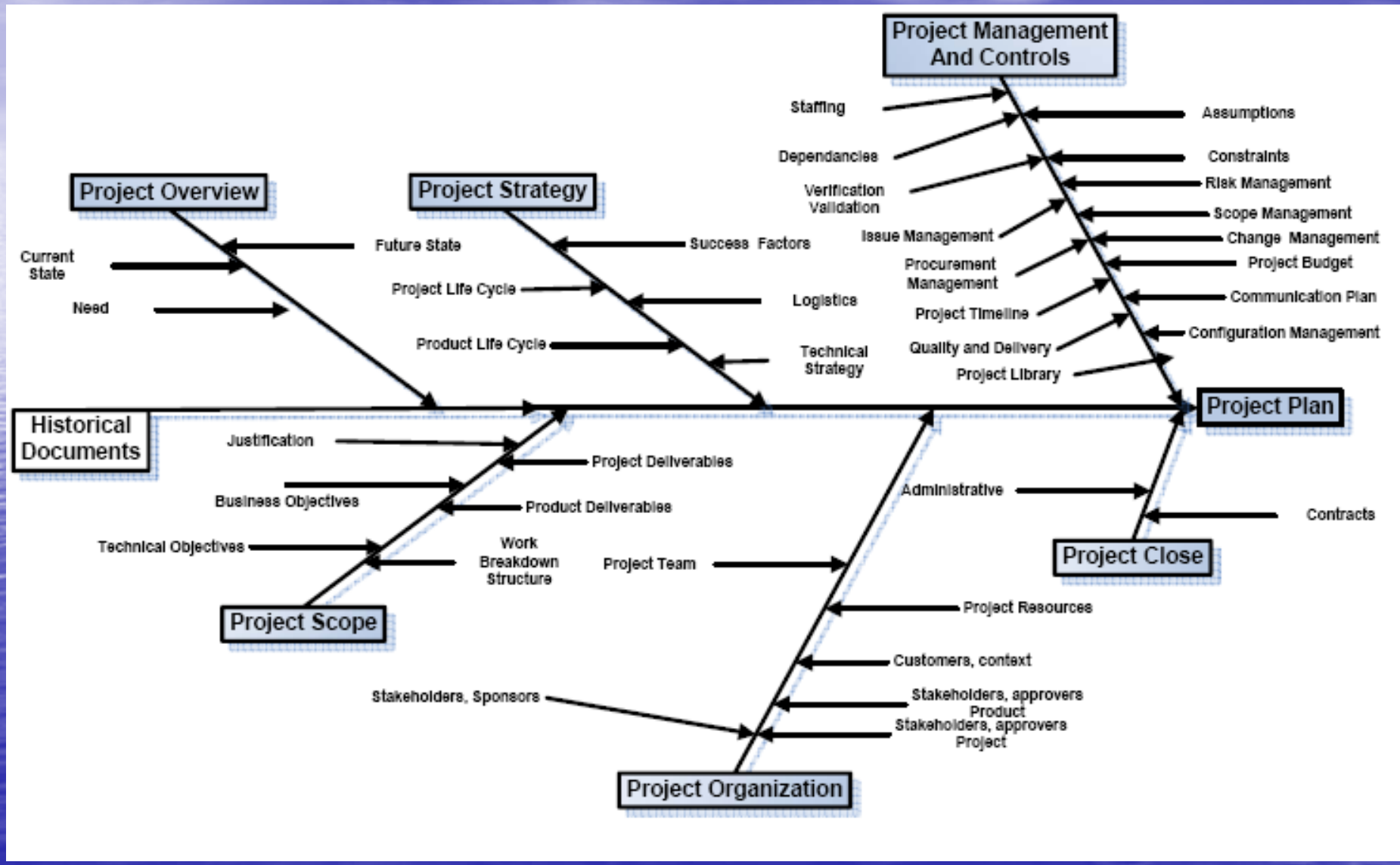
Meeting Management

- Agenda
- Minutes
- Action Items Tracking

Project Plan as a Communications Device

- The Project Plan is both the Project's Constitution and its Public Relations Piece
- The Project Plan Develops and Adjusts during the life of the project – under change management
- Caveat
  - On a Practical note – The Plan should have summary detail only! Where there is a great deal of detail in the various areas reference external document. This makes it easier to make specific changes to specific areas such as communication plans etc.

Project Management Plan Elements



The OCIO refers to this as PHASE ZERO!

Project Initiation

"A project is a temporary endeavor undertaken to create a unique product, service or result" PMBOK©

When does a need become a project? At the beginning of Project Initiation or at the end of project Initiation?

Is This a Project?

- Elements for determining if a project exists:
  - Is there a need that is not being met?
  - Is there an executive sponsor who can allocate resources?
  - Is there a budget? Whether $s or resources to bring the idea to project formation!
  - Is there an ability along the way to say NO!
  - Is there a project manager assigned?

Is there a Need that is not being met?

- "A project is .. undertaken to create a unique product, service or result" PMBOK©
- An agency shall prepare,.., a project plan for every IT project regardless of its scope or cost.
- Is the need truly unique, or..
  - Operational Frameworks distinguish between change management and Release Management.

Is there an Executive Sponsor who can Allocate Resources?

- Project Initiation involves convincing an Executive Sponsor to commit resources at least to prepare the case for doing a workup for the project
  - The idea may come from the Executive who wants someone to do a solution rationale
  - The need may come from Federal Government in which case a state sponsor is needed
  - The need may come from anywhere with the goal of obtaining sponsorship

Is there a budget?

- Whether $s or resources to bring the idea to project formation!
  - Project initiation takes time to develop, whether that is staff time or consultant time

Is there an ability along the way to say NO!

- Effective Project Management builds in a series of "Go No-Go" decision points
  - Of course, these points should have "corrective action" clauses.
  - Funding points are effectively such decision points.

Is there a project manager assigned?

- The PM field preaches this assignment from the outset, but..
- Project Initiation is, however, more about sales and persuasion than project management.

Identifying a unique need

Pick a problem in your work and fill in the blanks!

Problem Statement	
Root Causes	
Recommendations	
Benefits	

Fill-in Handout – "Project Recommendation"

Exercise – Part 2

Identify the steps toward solution!

Plan: Actions to Implement*	**Owners**	Resources required

Project Management Plan Items

- Project Overview –
  - The Project Overview sets the stage for the details of the project and begins the "story" of the project and plan. It states the vision for the project (and larger effort, if applicable) in terms of a business need – not a solution.
  - It answers "What is the specific answer that will move the business owner from the current state to a valuable future state?"
  - The Project Overview describes the difference (gap) between the current state and future state in terms of the business need.
- The content structure order is the introduction, which provides background, the current state, the future state, and the need.
  - Introduction
  - Current State
  - Future State
  - Need
- Project Justification

Goal Model – "KISS" Project Overview for Executive Sponsor – Paint a Picture!

Goal

Enterprise and Data Center Process Improvement

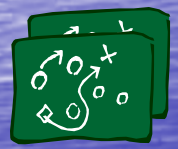
Objectives/ Targets

Project Management

ITIL/MOF Operational Framework

Financial Cost and Charge back billing

Strategies



Requirements Management for Agency services Intake

Change Management

Configuration Database – HW/SW inventory

Customers /Services

Costs /Rates

Standardize Services – services catalogue

Process Critical Success Factors

More timely and smoother acquisition of Agency business

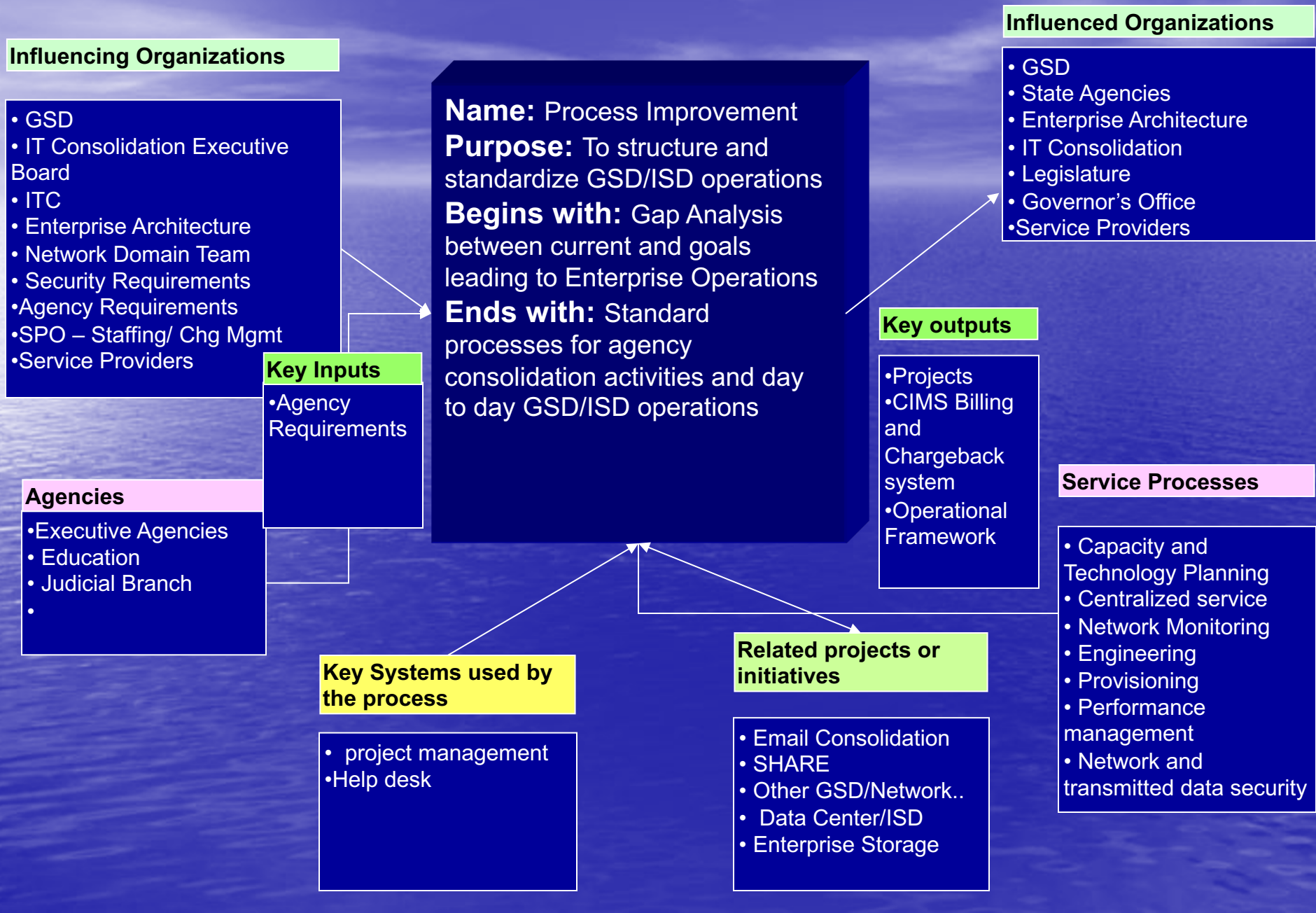
More responsible And responsive Operations

Better capacity and data center management

More accurate cost structure

Easier to read billing

"Context of the project – How it fits into the big picture"



Resources Required to Move Forward

- "Good Idea" nod from Executive Sponsor is nice but not enough!
- What will it take to create a project plan?
  - Requirements gathering
  - Preliminary estimating of time and cost of solution
- If you can't get resources for project planning that is a "no-go" decision!

Some Clarifying Terms

- Pilot vs. "Proof of Concept"
  - Pilot – field testing the solution
    - Is it technically ready?
    - Are the users prepared?
    - What unforeseen exists in the environment?
  - "Proof of Concept"
    - Usually before project starts – will it work, do we like the look feel…and other questions – some times helps to sell project

Project Certification Is a Form of Toll gate *

- IV&V Approach
- Significant Risks and Mitigation
- Security Strategy
- Consolidation Strategy

A Toll Gate requires a payment to pass through – for projects this is usually a set of documents providing project thought, planning and some detail.

Process Documents

- Story Board or PowerPoint Presentation
- Business Case
- Project Charter

OCIO "Initial" Phase

Project Planning

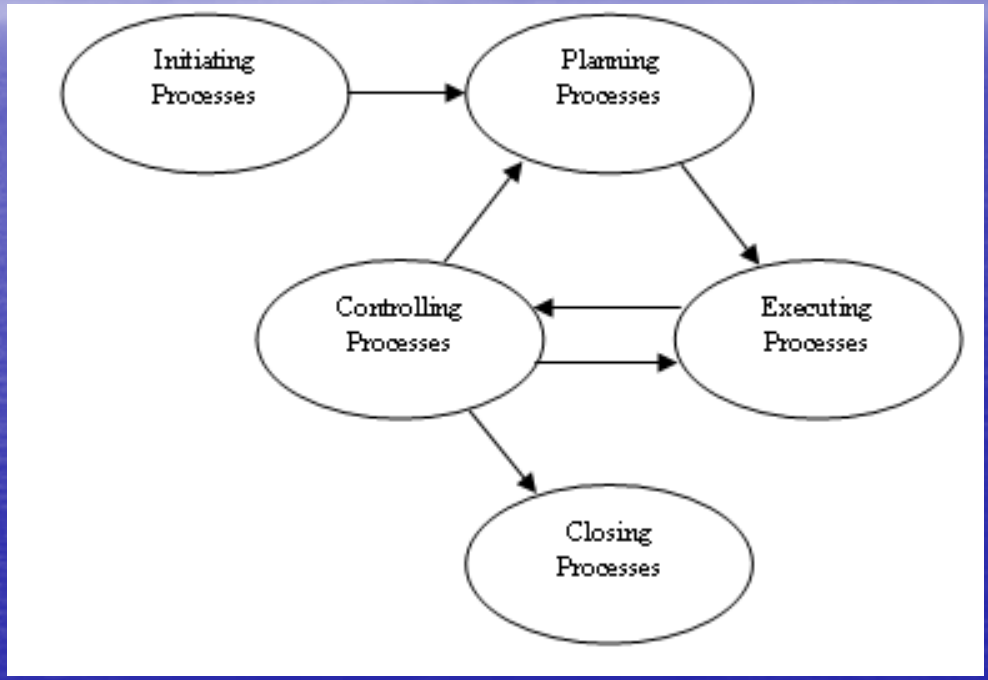
Requesting Informed Approval to Actualize the Project

Project Planning!

Is about how we create and manage a **temporary organization** to deliver the unique product, service or result

Is about how we develop requirements that define the unique product, service or result

Project Life Cycle describes the temporary organization and its processes!



Initiating – Obtaining Authorization to proceed with Planning
Planning – What, How, When
Executing – Actual efforts, Deliverables completion
Controlling – Status, Change Management, Risk and Issue Management
Closing – Deliverables and product acceptance, lessons learned

Product Life Cycle describes the development of the solution!

SDLC – Software Development Life Cycle

- Plan
  - Organizing the requirements gathering including the transition to Operations
- Define
  - Analyzing and fine tuning the requirements
- Design
  - Developing the solution and its deployment specs
- Build
  - Actually doing the work, testing it and doing a pilot
- Deploy
  - Transitions to operations, training, end user implementation
- Close
  - Solution acceptance by stake holders and Operations

There would be a toll gate at the end of each phase!

Planning

Overlap of Project Life Cycle and Product Life Cycle

Questions for Informed Approval

- What are the detailed requirements for the project?
- How Long will the project take?
  - Consider both overall estimate and estimate to decision point!
- What financial and personnel resources will be required
- Who are the stakeholders in the project
- What risks are there which could impact the project

Informed Approval -The Importance of Stakeholder Involvement

- Who owns the problem?
- Who funds the project?
- Who must support the solution?
- Who must not be surprised?
- Who will be impacted, positively or negatively by the solution?

- These are the stakeholders!
  - They should be approving the requirements!

Business Stakeholders make/ratify “Scope”, “Cost” and “Schedule” decisions!

Project Governance – "IT Professional Services Agreement - OCIO"

- "Governance Board" shall mean the body of stakeholders and subject matter experts responsible for the Project or administration of this Agreement.
- In addition to other responsibilities..the governance board shall be responsible for approving all change requests and accepting all deliverables.

Stake Holder Involvement

- Stake Holders – emphasis will change during project
  - Sponsors
  - Users
  - Technical teams
  - vendor
- Scope Management - Sponsors
- Requirements Management
  - Business – sponsors
  - System – technical teams
  - Operations –technical teams within end user requirements
- Design Management – technical teams
- Change Management – project management
- Requirement Form
  - Status
  - Priority
  - Change History

Care and Feeding of Stake Holders!

- While the Governor is ultimately responsible for IT projects, He is an impractical stake holder!
- Stake Holder roles need to be defined
- Stake Holders should agree in writing – Email is okay

Stake Holder and Approvals

- There needs to be a defined process for approvals!
  - Per document or at regularly scheduled meetings?
- Schedule time need to account for getting these approvals!

Project Organization - Project Management Plan

- 4.0 Project Organization
  - 4.1 Stakeholders
    - Name, Stake in Project, Organization, Title
  - 4.2 Customers
    - How will they be represented?
  - 4.3 Project Team
    - 4.3.1 Project Team Organizational Breakdown Structure
    - 4.3.2 Project Team Roles and Responsibilities
      - Role, Responsibility, Name, Contact Information

Project Logistics

- Logistics describes how the project manager, project team, the business owner/customer and any vendor resources will physically work together. Include anything to do with moving or starting resources. Identify a role to coordinate logistics with the business owner/customer and vendors.
- Logistics includes factors, issues, notes, etc. relating to operational details (space, materials, access, etc.) at the customer or vendor site. It can also be used to describe the need and use of a forthcoming logistics document. Cross-reference any risk, assumption or exclusion that is related to logistics.

Project Vs Product Deliverable

"A project is a temporary endeavor undertaken to create a unique product, service or result" PMBOK©

"Deliverable" shall mean any unique, measurable, tangible, verifiable, outcome, result or capability that must be produced to complete an end result, goal, expectation, process, phase or project."

"Deliverable" definition from OCIO "IT Professional Services Agreement Template

Project Vs Product Deliverables -Examples

- Project
  - Project Plan
  - Project Management and Controls
    - Risk Management Plan
    - Issue Management Plan
    - Change Management Plan
    - Communications Plan
    - IV&V
    - Schedule
    - Budget
    - Work Breakdown
  - Project Governance
- Product
  - Business Requirements
  - System Requirements
  - System Architecture
  - Training Plans
  - Transition to Operations
  - Pilot Plans
  - Operations and Support Plan

Determination of Project and Product Life Cycle is also a project Deliverable

Project and Product Deliverables

2.3 Deliverables

2.3.1 Project Management Deliverables

2.3.1.1 [Deliverable 1 Name]

Description -	Deliverable Acceptance Criteria -
	Standards for Content and Format -
	Quality Review -

2.3.1.2 [Deliverable 2 Name]

Description -	Deliverable Acceptance Criteria -
	Standards for Content and Format -
	Quality Review -

2.3.2 Product Deliverables

2.3.2.1 [Deliverable 1 Name]

Description -	Deliverable Acceptance Criteria -
	Standards for Content and Format -

2.3.3 Deliverable Approval Authority Designations

Deliverable Number	Deliverable	Approvers (Who can approve)	Date Approved
PRJ-DEL-001	Project Management Plan (PMP)		

2.3.4 Deliverable Acceptance Procedure

RASIC – Project and Product Deliverables!

- Roles and Responsibilities
  - R = Responsible (responsible to initiate/create)
  - A = Approval (deliverable is to be reviewed by the role, approval must be documented)
  - S = Support (provide support in the creation of the deliverable)
  - I = Inform (must be informed, the deliverable must be sent to the role)
  - C = Consult (consulted for input/suggestions)

These Roles and Responsibilities may vary by deliverable!

Rasic Chart Example

Key Review Area (by phase)						Work Products
Plan	Define	Design	Build	Deploy	Close	
C	U	U	U	U	U	4up Report
C	U	U	U			Business Case
C	U					Business Requirement Document
	C					Buy/Build/Reuse Study
C	U	U	U			Configuration Management Plan
	C					Disaster Recovery Risk Assessment
			C	U		Disaster Recovery Plan (no template)

Who?

Project Champion (name)
Project Manager (name)
Development Team
Deployment Team
Technical Architect - SME (nam
Operations & Support Te
Requirements Anal
Test Team
Europ

(C=Create; U=Update)

R = Responsible
A = Approval
S = Support (Optional)
I = Inform (Optional)
C = Consult (Optional)

Work Breakdown Structure - WBS

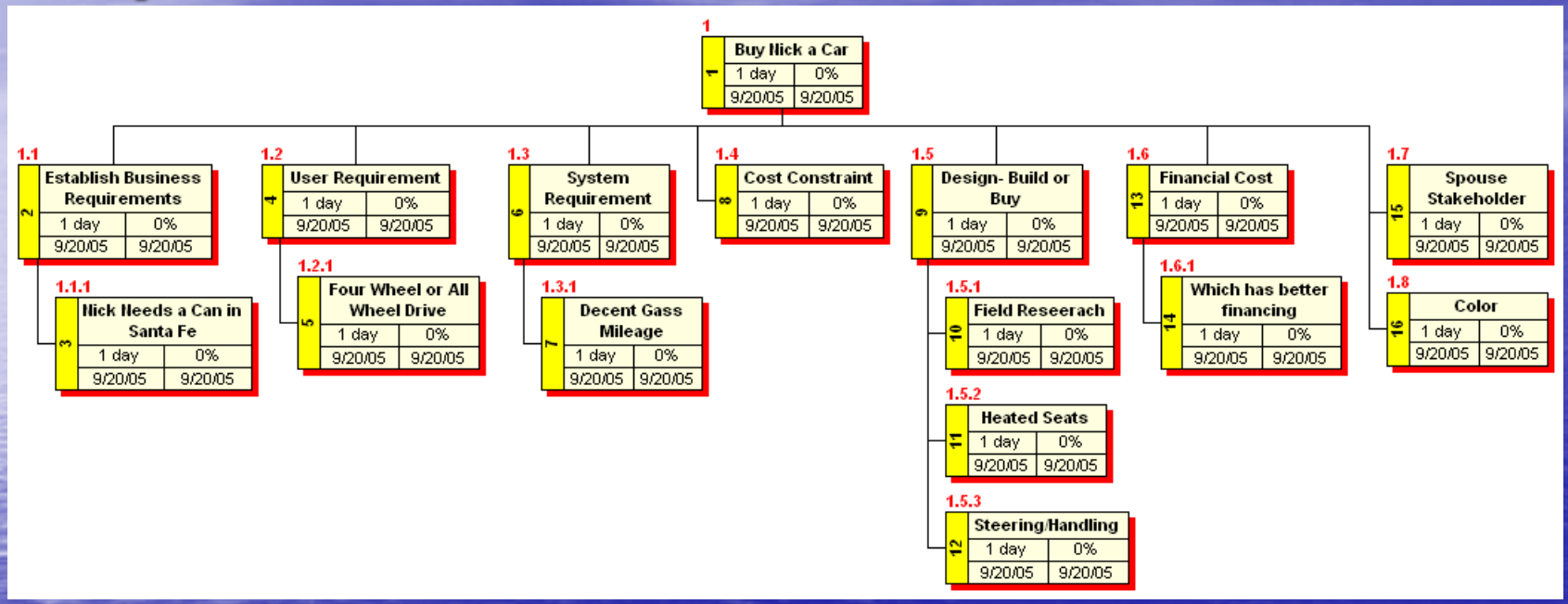
"A deliverable-oriented grouping of project elements that organizes and defines the total work scope of the project. Each descending level represents and increasingly detailed definition of the project work" PMBOK©

After a first cut at the WHO, we look at WHAT the WHO must do to produce the project and the product deliverables!

The Work Breakdown Structure

- Lists all the task collections or "work packages" required to create the deliverables!
- Organizes the "work packages"
- Answers
  - Time Required
  - Resources Required
  - Costs of the project and solution

Buy Nick a Car - WBS

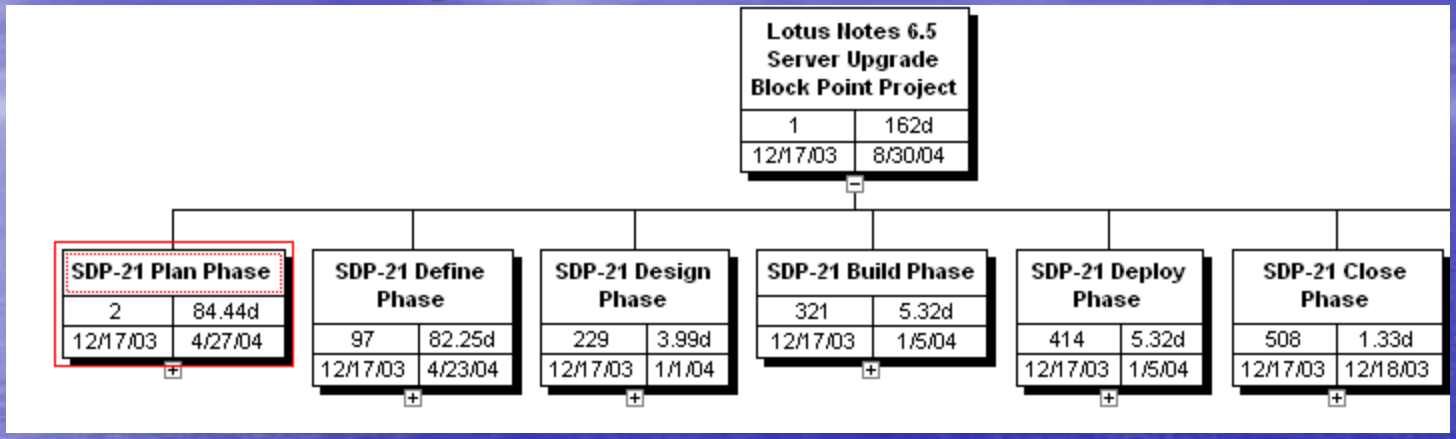


Lots of information – 16 work packages; hierarchical organization; Days or time required; % of completion; Date started; Date completed!

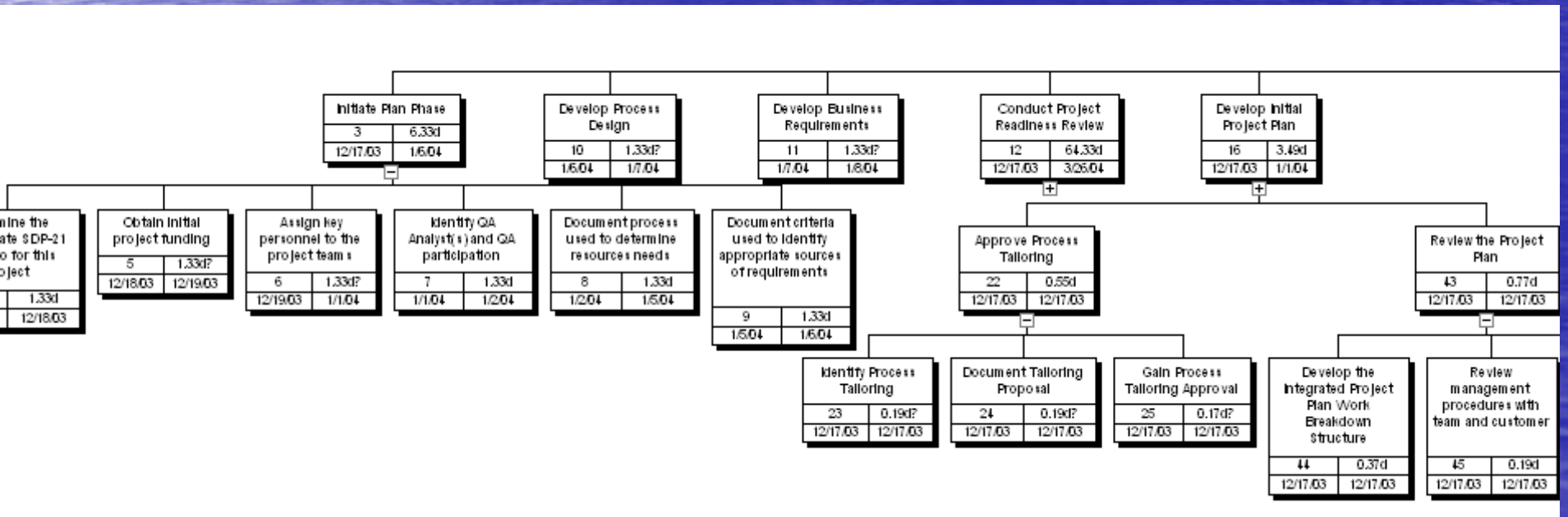
Following this model, we could also assign resources and calculate costs!

A WBS Example

High Level



More Detailed:



WBS into Project Schedule

WBS	Task Name	Duration	Start	Finish	Predecessors	Resource Names
1	**SDP-21 Plan Phase**	**193.13 days?**	**Mon 6/2/03**	**Mon 3/29/04**		
1.1	**Plan Phase Initiation**	**0 days**	**Mon 3/1/04**	**Mon 3/1/04**		
1.1.1	Project Start	0 days	Mon 3/1/04	Mon 3/1/04		
1.1.2	***Prepare Project Readiness Review Documentation per the GCTS Project Initiati***	**0 days**	**Mon 3/1/04**	**Mon 3/1/04**		
1.1.2.1	Plan Phase Schedule Complete	0 days	Mon 3/1/04	Mon 3/1/04		
1.1.2.2	Roles and Responsibilities Identification Draft Complete	0 days	Mon 3/1/04	Mon 3/1/04		
1.2	**Process Design**	**0 days**	**Mon 3/1/04**	**Mon 3/1/04**		
1.2.1	***Develop Process Design Summary Work-package***	**0 days**	**Mon 3/1/04**	**Mon 3/1/04**		
1.2.1.1	Process Design Summary Complete	0 days	Mon 3/1/04	Mon 3/1/04		
1.3	**Business Requirements**	**1 day?**	**Mon 3/1/04**	**Mon 3/1/04**		
1.3.1	***Develop Business Requirements Work-package***	**1 day?**	**Mon 3/1/04**	**Mon 3/1/04**		
1.3.1.1	Review Business Requirements	1 day?	Mon 3/1/04	Mon 3/1/04		
1.3.1.2	Business Requirements Signoff	0 days	Mon 3/1/04	Mon 3/1/04		
1.3.1.3	Baseline Business Requirements	0 days	Mon 3/1/04	Mon 3/1/04		
1.4	**Project Readiness Review**	**1 day**	**Mon 3/1/04**	**Mon 3/1/04**		
1.4.1	***Project Readiness Review Documentation (per the GCTS Project Initiation Proc***	**1 day**	**Mon 3/1/04**	**Mon 3/1/04**		
1.4.1.1	Project Readiness Review Documents Complete	0 days	Mon 3/1/04	Mon 3/1/04		
1.4.1.2	Conduct Project Readiness Review Meeting	1 day	Mon 3/1/04	Mon 3/1/04		
1.4.1.3	Project Readiness Review Report Completed	0 days	Mon 3/1/04	Mon 3/1/04		
1.4.1.4	Project Readiness Approval	0 days	Mon 3/1/04	Mon 3/1/04		
1.4.1.5	Conduct Kick-Off meeting or Project Launch	1 day	Mon 3/1/04	Mon 3/1/04		
1.5	**Initial Project Plan**	**1 day?**	**Mon 3/1/04**	**Mon 3/1/04**		

Terms

- Critical Path – Technical Definition
  - "Generally, but not always, the sequence of schedule activities that determines the duration of the project. Generally it is the longest path through the project." PMBOK©
- Critical Path – Practical Definition
  - Refers to items that are tied together with dependencies within a time frame:
    - Electric power is required for application servers. Ordering appropriate installation is on the critical path for bringing up the application!

Terms

- Milestone
  - "A significant event in the project, usually completion of a major deliverable" PMBOK©
- WBS Dictionary
  - A collection of WBS task or work package detail:
    - Description, quantified goals and objectives, acceptable criteria, deliverables, resources assigned, duration, cost, due date, interdependencies and approver.

Interrelated Project Deliverables

- Work Breakdown Structure
  - What are the work tasks that need to be done to deliver the solution and project monitoring and control?
- Project Schedule and Time Line
  - Estimating time required to complete each work task!
- Project Cost Estimation
  - Calculating costs attributable to resources assigned to each task based on the estimated time to complete each task per resource.

Key Risks Associated with WBS

- In the Plan or Initial Phase there are a lot of unknowns!
- Lack of sufficient detail in WBS
- Lack of historical basis for calculating time and resource capability
- Inadequate cost estimate based on time resources will use to finish tasks

Project and Product Deliverables – Plan or Initial Phase*

- Project
  - Project Plan *
  - Project Management and Controls *
    - Risk Management Plan*
    - Issue Management Plan*
    - Change Management Plan*
    - Communications Plan*
    - IV&V*
    - Schedule*
    - Budget*
    - Work Breakdown*
  - Project Governance*
- Product
  - Business Requirements*
  - System Requirements
  - System Architecture
  - Design Specifications
  - Training Plans
  - Transition to Operations*
  - Pilot Plans
  - Operations and Support Plan*

First The Requirements

Then the SOLUTION (s)

If you know the solution, do you need a project?
On the other hand don't underestimate the task of implementing even a "COTS" Commercial Off the Shelf" solution

Project Planning Starts with Business Requirements

- This is not the how – this the what!
- Create as many requirement forms as is necessary and that can be completed as fully as possible
- Review the requirements
  - Sort to determine high level requirements vs. how to!
  - Sort to determine high level vs. user requirements
    - Hint look for organization and business function phrases as opposed to "should be ease for users"

Elements of a Requirement

Requirement ID	<Unique id #>		**Requirement. Type**	Business					
Status	***New***	<x>	***Agreed-to***	<x>	***Base lined***	<x>	***Rejected***	<x>	
Description	<Enter concise description of requirement>								
Rationale	<Provide a brief rationale, and or business value for the requirement.>								
Source	<Name of Requirement. Provider>			**Source Document**			<filename>		
Acceptance/Fit Criteria	<Provide a target that makes it possible to test if requirement was satisfied>								
Dependencies									
Priority	***Essential***	<x>	***Conditional***	<x>	***Optional***	<x>			
Change History	<List history of changes to this requirement>								

Review Handout – "Requirements Information Collection Template"

Types of Requirements *

- Business Requirements: Why the project is being undertaken!
- User Requirements: What the end users will be expecting!
- Systems Requirements: What will be required for the solution to work!
- Functional Requirements: What the solution must accomplish
- Behavioral Requirements: How the solution should look and feel!
- Operational Requirements: Defining how the solution should be available and supported
- Training Requirements: What must the end user learn to successfully use the solution; what must the support staff learn in order to run the system or support the end user?

* These are deliverables either as distinct documents or sections of documents!

Types of Requirements – By Phase!

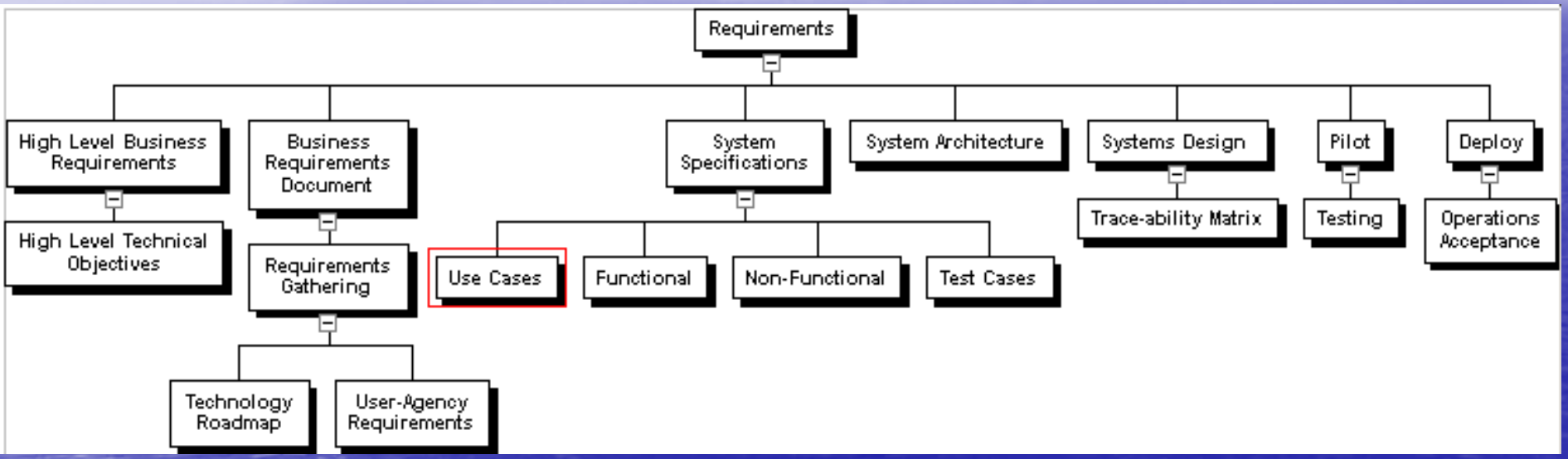
- Plan
  - Business Requirements: Why the project is being undertaken!
  - User Requirements: What the end users will be expecting!
- Define
  - Systems Requirements: What will be required for the solution to work!
  - Functional Requirements: What the solution must accomplish
  - Behavioral Requirements: How the solution should look and feel!
  - Operational Requirements: Defining how the solution should be available and supported
- Design
  - Design Specifications – based on Define Phase Requirements
  - Training Requirements: What must the end user learn to successfully use the solution; what must the support staff learn in order to run the system or support the end user?

Project Deliverables – "Transition to Operations"

- Transition to Operations and Support Plan
  - Creating environment for solution
- Organizational Change Management Plan
  - Impacts on people and process
  - Staffing Requirements
- Systems/Solution Deployment Plan
  - Implementing solution to organization
- Operations and Support Plan
  - System administration and end user support
  - System Administration documents and end user manuals
- Training Requirements Plan
  - Training for implementers, administrators and help desk and end users

There is overlap between these different focused elements – "copy and paste"

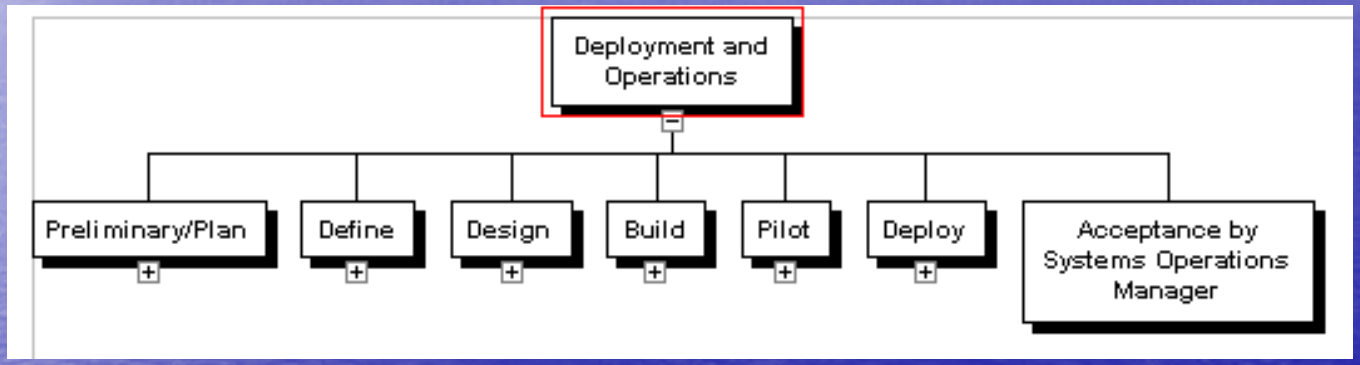
Requirements WBS- simplified

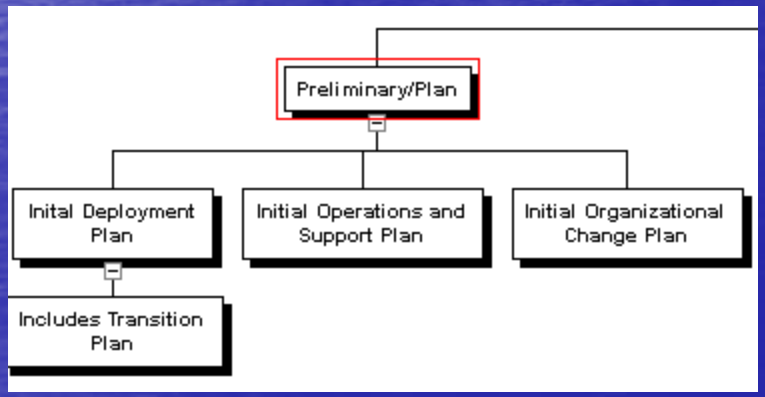


OCIO Project Plan "Product Life Cycle"
Industry variations on "Software Development Life Cycle"

Requirements are developed and refined as we move from left to right

"Transition to Operations" - Requirements avoid and anticipate problems!





Requirements are anticipated from the right and refined as we move from left to right

OCIO - Business and Technical Objectives

- OCIO Project Management Plan requires business and technical objectives
- Think about the relationship between the business and technical objectives
  - Trace-ability
- Business Objective 1
  - Technical Objective 1 – traces back to Bus Obj1
  - Technical objective 2 - traces back to Bus Obj1

IT Consolidation as example of hierarchical requirements development

Business Objective 2	***Reduce cost of IT operations through an enterprise Model***	
	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
		Requirement XX Reduce the number of 45 standalone networks that share no significant resources in common

Note that we move from high level through an indented process as we get more specific

Before Leaving Requirements Some Clarifying Terms

- Use Case
  - What is the response the solution will provide to a given user action under certain conditions!
    - Elaboration of a requirement and is used to build solution
- Test Case
  - Describes testing criteria related to a use case/requirement

State of New Mexico/Federal Business Requirements

- Security Requirements
  - System Physical and Data Security
  - Back-up and Recovery
- Disaster Recovery
- Business Continuity

Toll Gates

Project Certification is a variation on a Toll Gate!

- Approvals
  - Stakeholder review of IV&V
  - Stakeholder Approval to move from one phase of solution development to the next
  - Stakeholder Approval for documents
- Corrective Actions
  - Feedback from IV&V
  - Stakeholder Items
    - Including Change Management Items

Product Life Cycle describes the development of the solution!

SDLC – Software Development Life Cycle

- Plan
  - Organizing the requirements gathering including the transition to Operations
- Define
  - Analyzing and fine tuning the requirements
- Design
  - Developing the solution and its deployment specs
- Build
  - Actually doing the work, testing it and doing a pilot
- Deploy
  - Transitions to operations, training, end user implementation
- Close
  - Solution acceptance by stake holders and Operations

There would be a toll gate at the end of each phase!

Toll Gate Items – Plan or Initial Phase*

- Project
  - Project Plan *
  - Project Management and Controls *
    - Risk Management Plan*
    - Issue Management Plan*
    - Change Management Plan*
    - Communications Plan*
    - IV&V*
    - Schedule*
    - Budget*
    - Work Breakdown*
  - Project Governance*
- Product
  - Business Requirements*
  - System Requirements
  - System Architecture
  - Design Specifications
  - Training Plans
  - Transition to Operations*
  - Pilot Plans
  - Operations and Support Plan*

Sample IV&V Considerations

- "Assess and recommend improvement, as needed, to assure continuous executive stakeholder buy-in, participation, support and commitment, and that open pathways of communication exist among all stakeholders."
- "Verify that a Project Management Plan is created and being followed. Evaluate the project management plan and procedures to verify that they are developed, communicated, implemented, monitored and complete."

Sample IV&V Considerations

- "Evaluate and make recommendations on the project's process and procedures for managing requirements."
- "Verify that all stakeholders have been consulted to the desired functionality of the system."
- Verify that a X project plan is created and being followed:
  - Risk management
  - Change management
  - Communication management
- Evaluate and make recommendations on the estimating and scheduling process of the project to ensure the Project budget and resources are adequate for the work-breakdown structure and schedule

Toll Gate Readiness Review

- Project Team
  - Checklist of documents – part of planning process.
  - Review of these documents for readiness
    - Have these documents been approved?
  - Review of IV&V comments
  - Are there items that need correction?
- Stakeholders
  - Is there a formal review process?

Into the Execution and Control Phases of PMI – The Implementation Phase of the OCIO!

Define Phase

Analyzing and fine tuning the requirements

Define or Implementation Phase**

- Project
  - Project Plan *
  - Project Management and Controls *
    - Risk Management Plan*
    - Issue Management Plan*
    - Change Management Plan*
    - Communications Plan*
    - IV&V*
    - Schedule*
    - Budget*
    - Work Breakdown*
  - Project Governance*
- Product
  - Business Requirements*
  - System Requirements**
  - System Architecture**
  - Design Specifications
  - Training Plans**
  - Transition to Operations*
  - Pilot Plans
  - Operations and Support Plan*

WE RE-VISIT ALL THE PROJECT MONITORING & CONTROL DOCUMENTS

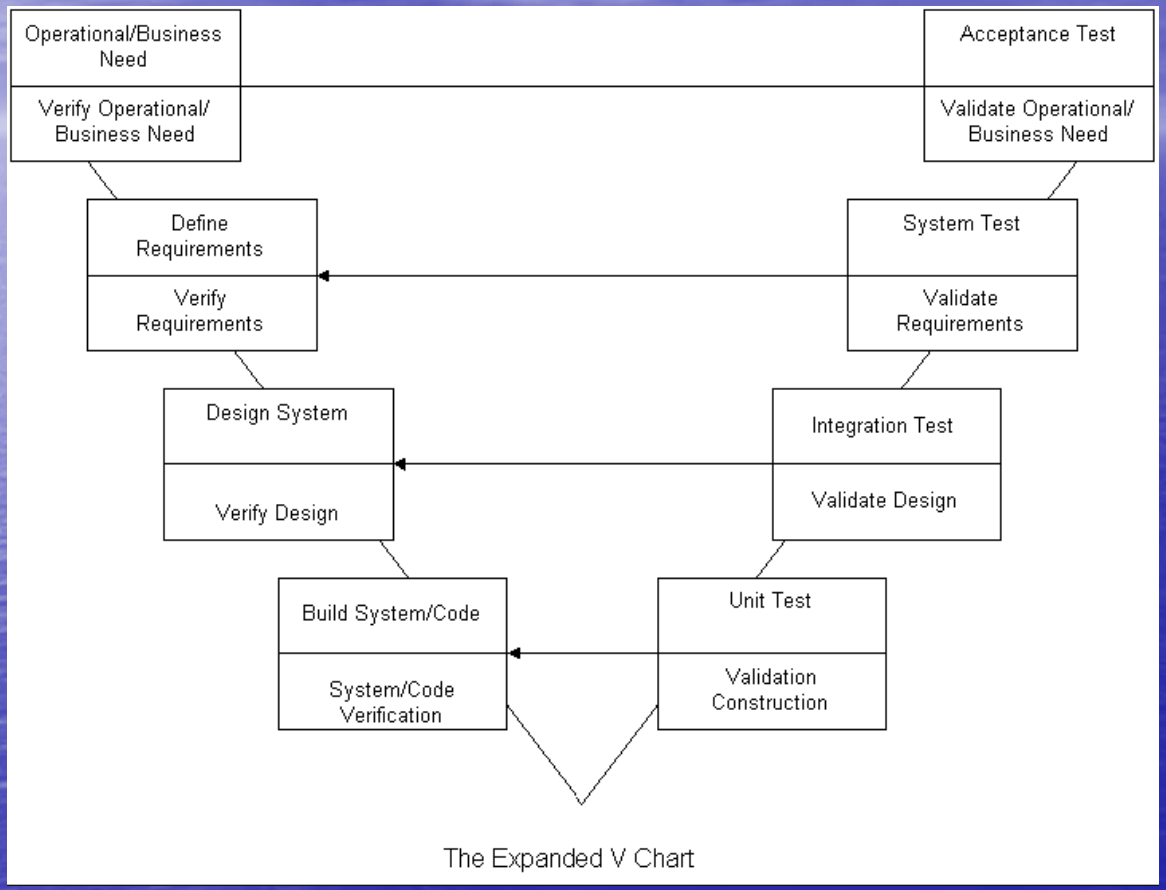
IV&V Requirements Management

Task Item	Task #	Task Description	Applicable (X)
Requirements Management	**RM-1**	Evaluate and make recommendations on the Project's process and procedures for managing requirements.	
	RM-2	Verify that system requirements are well-defined, understood and documented.	
	RM-3	Evaluate the allocation of system requirements to hardware and software requirements.	
	RM-4	Verify that software requirements can be traced through design, code and test phases to verify that the system performs as intended and contains no unnecessary software elements.	
	RM-5	Verify that requirements are under formal configuration control.	

IV&V Requirements Analysis

Requirements Analysis	**RM-10**	Verify that an analysis of client, State and federal needs and objectives has been performed to verify that requirements of the system are well understood, well defined, and satisfy federal regulations.	
	RM-11	Verify that all stakeholders have been consulted to the desired functionality of the system, and that users have been involved in prototyping of the user interface.	
	RM-12	Verify that all stakeholders have bought-in to all changes which impact Project objectives, cost, or schedule.	
	RM-13	Verify that performance requirements (e.g. timing, response time and throughput) satisfy user needs	
	RM-14	Verify that user's maintenance requirements for the system are completely specified	

Trace-Ability



The Expanded V Chart

"all the work required, and only the work required"

OCIO - Business and Technical Objectives

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- Think about the relationship between the business and technical objectives
  - Trace-ability
- Business Objective 1
  - Technical Objective 1 – traces back to Bus Obj1
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		Requirement XX Reduce the number of 45 standalone networks that share no significant resources in common

Note that we move from high level through an indented process as we get more specific

Requirements Life Cycle and Tracking (Naming Conventions)

- BR1 -Business Requirement
  - USR1-User Requirements
    - UCUSR! -Use cases
    - SR1-System Requirements
      - TCSR1-Test Cases
    - DS1-Design Specifications

Requirement ID	<Unique id #>	Reqmnt. Type	<See List Below>	Use Case #	<Unique id #>
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)>				

Moving through Solution Life Cycle

- As we move through the project from Plan to Define to Design to Build to Deploy:
  - We ask questions appropriate to the project phase.
  - We add or refine requirements
  - We might even reject requirements (but not delete them!)
  - We add depth to the requirements hierarchy
  - Trace-Ability becomes more crucial

From Plan to Define to Design to Build to Deploy:

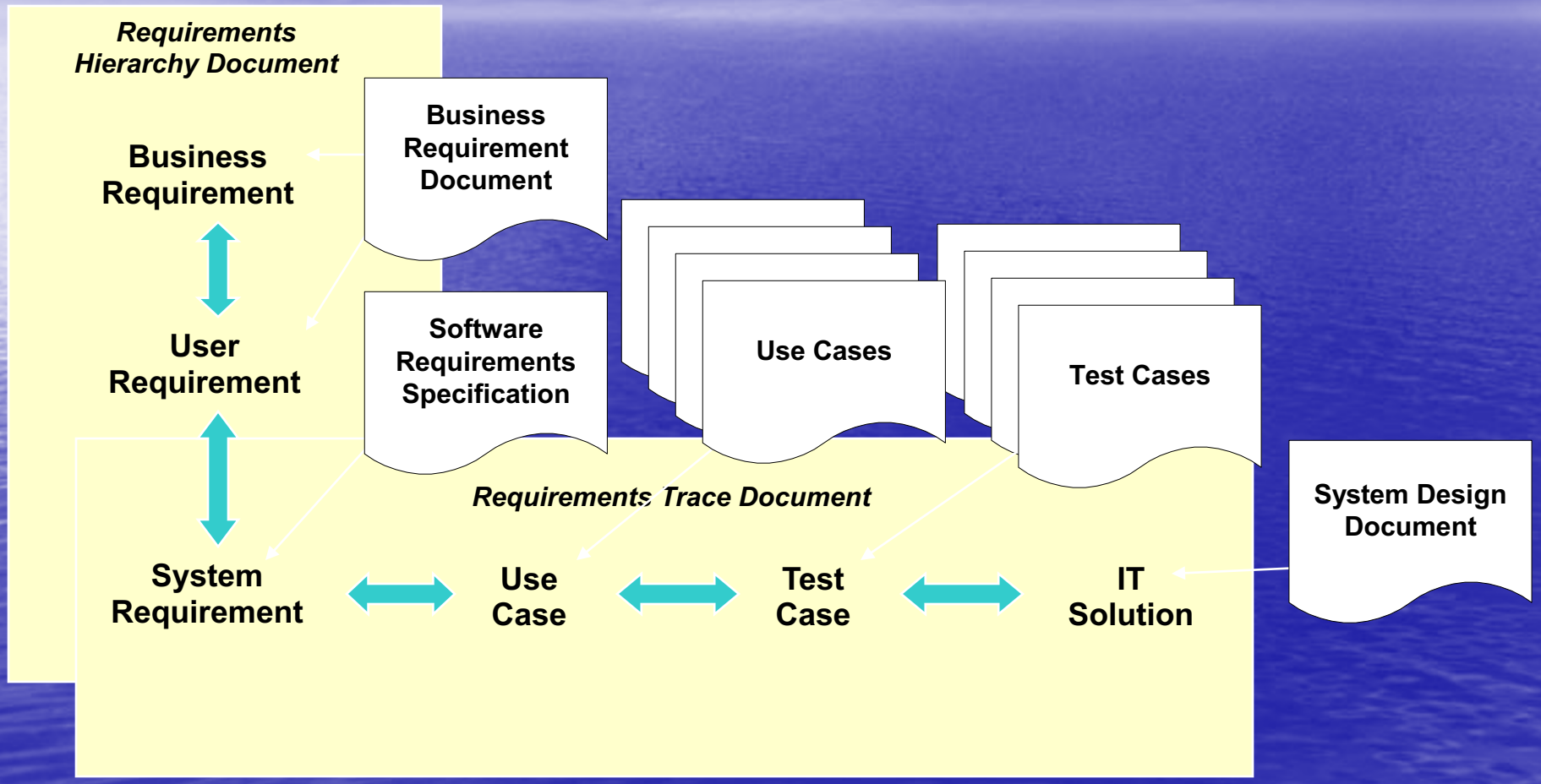
- BR1 -Business Requirement
  - USR1-User Requirements
    - UCUSR! -Use cases
  - SR1-System Requirements
    - TCSR1-Test Cases
  - DS1-Design Specifications

Hand Out – "4 User Requirements"

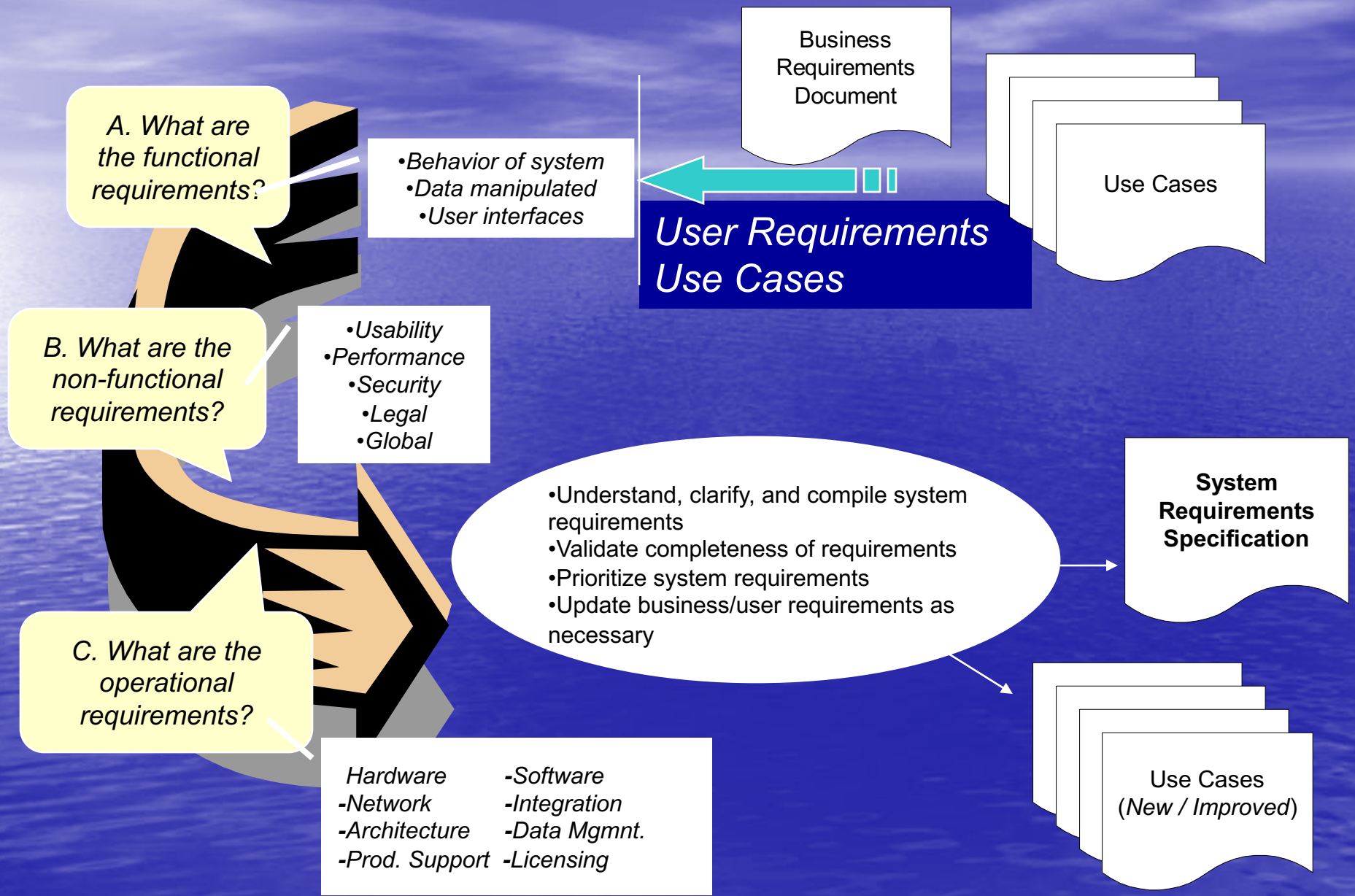
Caveat – Observation about State Projects

- We often have to deal with "mandated" projects where we are not starting from scratch.
- A key problems is that we are not handed "project documents"
- We neglect this pain staking "requirements" process at our project peril!
- There maybe a build or buy decision process!
- We must make the project our own!

Summary of Key Activities – Requirements to Deployment



Developing System Requirements



Evaluation Criteria for Requirements!

- Is your Requirement SMART?
  - Specific?
  - Measurable?
  - Attainable?
  - Realistic?
  - Timely or time framed?

Can a non expert read and understand the requirement?

Common Requirements problems

- Paragraphs or sections are written without numbering them for identification.
- Paragraph or section numbering is done but is inconsistent.
- Requirements are not adequately grouped into functional areas and categories.
- Ambiguous requirements are written, using terms such as "could", "should", "might", and "may" in place of "shall", "must", and "will".
- Multiple requirements are merged into single paragraphs.
- Requirements are identified using bullets or tables.
- Redundant requirements are placed into different but related sections of the document.
- Deliverables or program management tasks are mixed in with the system requirement paragraphs.
- The requirements do not correctly describe the desired system behavior, resulting in ambiguous interpretation by designers and coders.
- Conceptual design requirements are mixed in with the system requirements

List Courtesy of **Mike Ricklin** Human Services Department

Not Well Written Requirements

Poorly Written Sample:	Comments:
Exchange Server Requirements A. The mainframe interface to the XYZ server will use an interface server that uses C:D. B. The server will also be used for temporary storage of data and logging of transactions. C. User friendly interface D. An archive and an error log should be maintained. E. Performance: • This server should have 24x7 availability • Five-second response times are required • Backup power will be provided.	There are numerous problems with this specification: • What is meant by "temporary"? • What data is to be stored or logged? • What is a user-friendly interface? • Is the archive requirement D redundant with B? • What errors are logged? • Does 24x7 mean continuously up? • Which transaction does the five-second response time refer to? • Is the exchange server on a UPS battery, or is there a redundant power supply unit, or both? • The requirement numbering is poor.

Courtesy of **Mike Ricklin** Human Services Department

Better Written Requirements

Written Better:	Comments:
Exchange Server Requirements: ES-1: The mainframe shall interface to the remote site via a data exchange server ES-2: The data exchange server shall use C:D (Connect Direct) transfer protocols for transfers to and from the remote site. ES-3.1: Data sent and received shall be archived for 5 days. ES-3.2: The archived files shall be given file names that reflect the date and time of the file transfer. ES-4.1: A pass/fail history log will be maintained with 30 days of history. ES-4.2: The history log will show the success or failure of each transaction attempt with a time tag. ES-5: The directory structure shall be organized so the user can easily inspect the logs. ES-6.1: The exchange server must have a 99.99% availability for any contiguous 30-day period, for the 24x7 operation, excepting external power outages.	• The requirement identification method uses the "ES" prefix to identify the Exchange Server subsystem, very helpful for later reference. • Each "shall statement" is a requirement, and is uniquely identified. • The ambiguity has been removed. The words "shall" and "must" are used often. The word "should" is never used. • The user-friendly requirement is specified in requirements ES-3.2 and ES-5. • The availability requirement clearly shows the required up-time. • The response time requirement shows exactly which transaction is referred to. • Power supply redundancy is required. And a UPS is required in the event of failure of the external power.

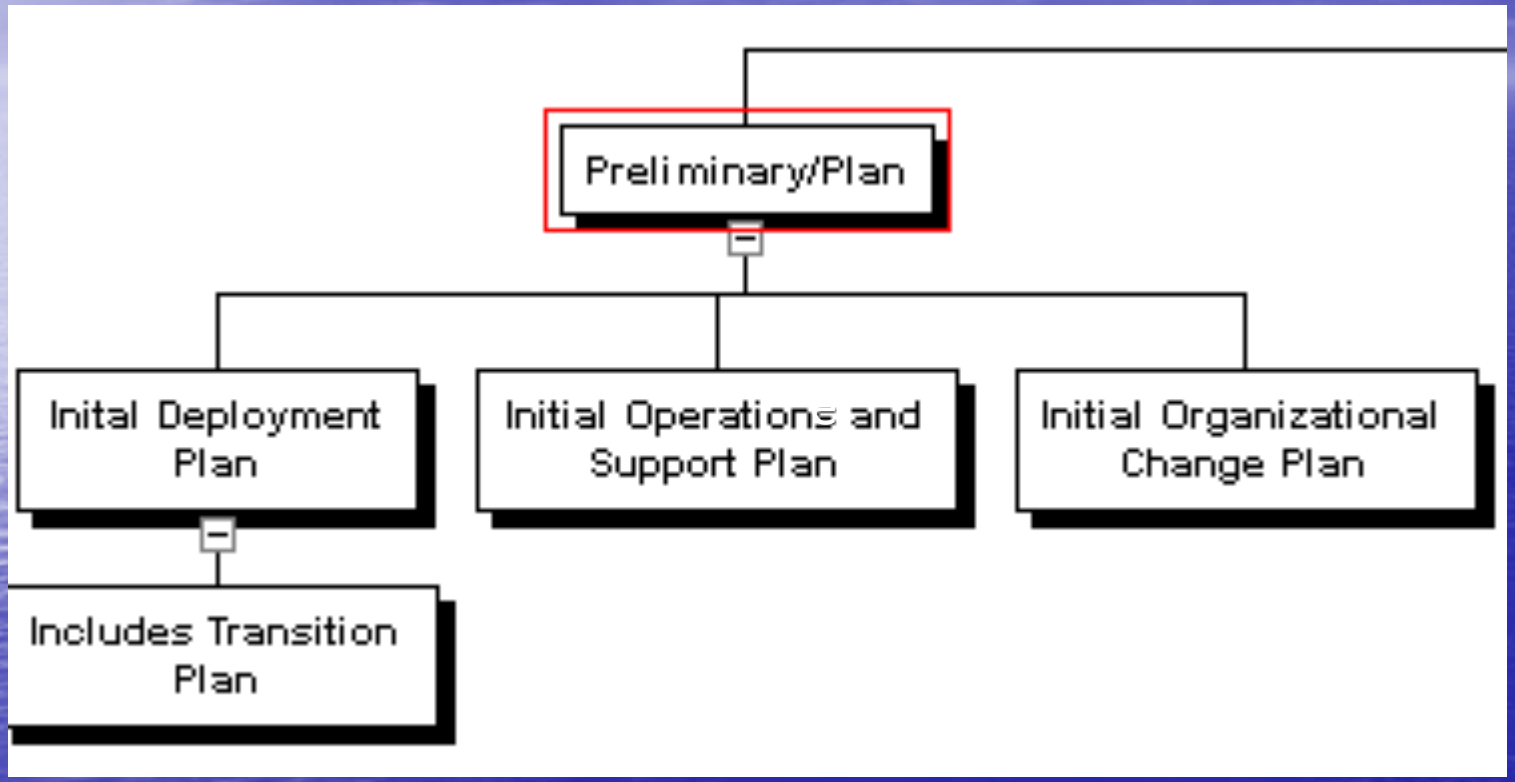
Courtesy of **Mike Ricklin** Human Services Department

Project Deliverables – "Transition to Operations"

- Transition to Operations and Support Plan
  - Creating environment for solution
- Organizational Change Management Plan
  - Impacts on people and process
  - Staffing Requirements
- Systems/Solution Deployment Plan
  - Implementing solution to organization
- Operations and Support Plan
  - System administration and end user support
  - System Administration documents and end user manuals
- Training Requirements Plan
  - Training for implementers, administrators and help desk and end users

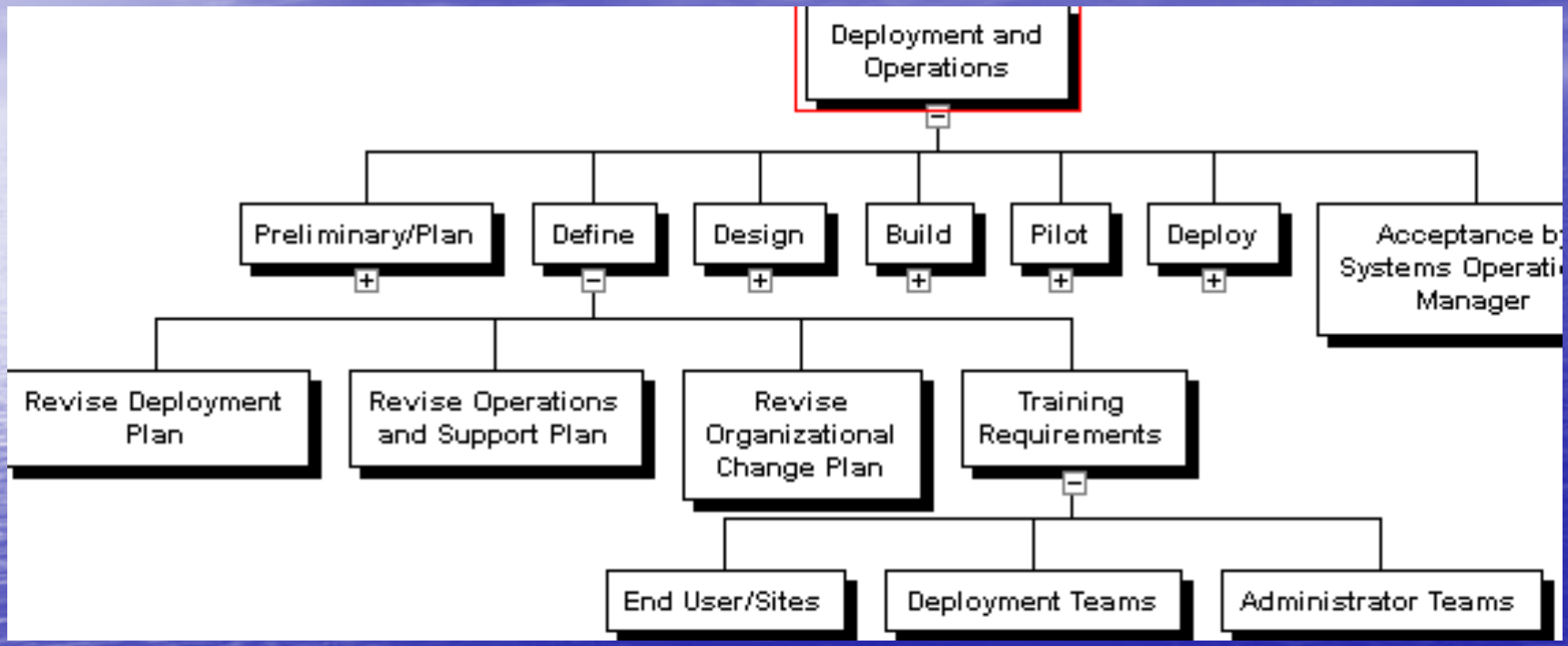
There is overlap between these different focused elements – "copy and paste"

Preliminary/Plan Phase



While we may not know very much about the solution, we can begin to anticipate Operational aspects. We can accumulate names of key stakeholders or groups Involved with training and implementation.

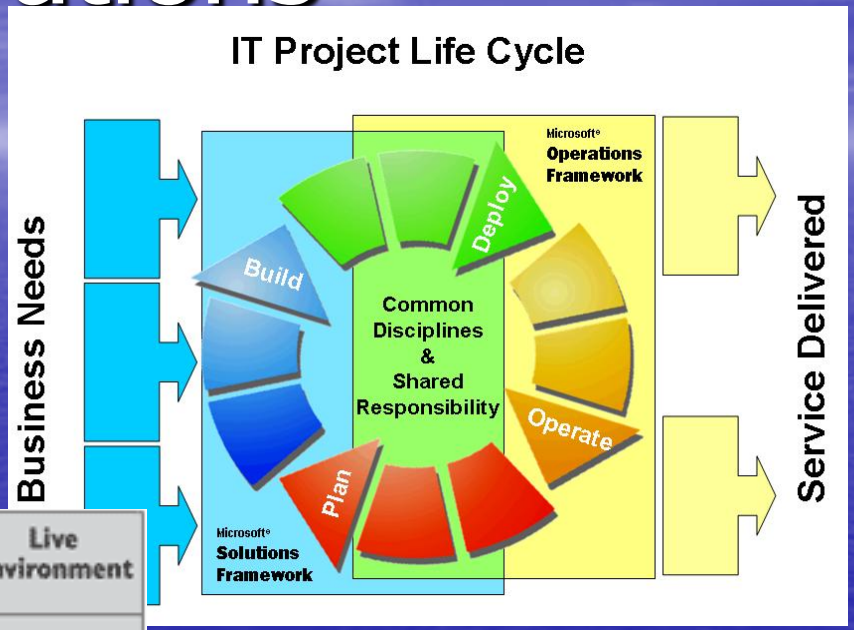
Define Phase

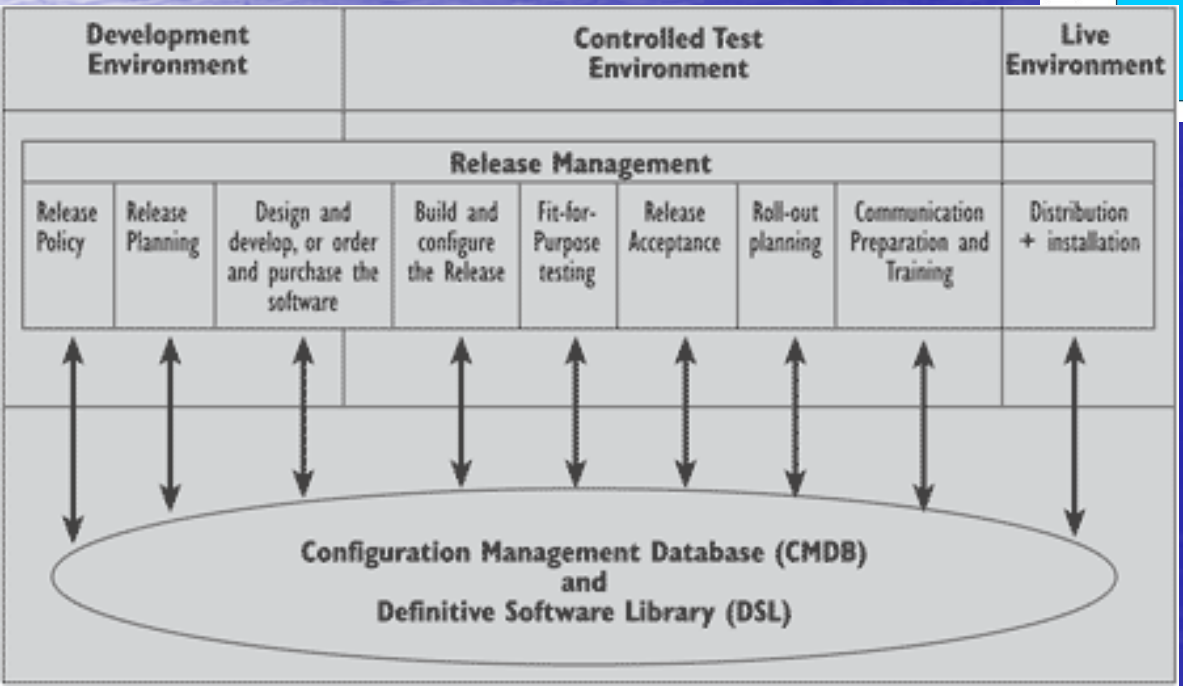


As we learn more we can revise plans. Based on the defined requirements, we can start mapping out the training needs for the various populations. We can begin to gather information about our deployment sites, examine our operational requirements, discuss how we will support a solution, and what we need to do to staff solution.

Projects and Operations

If "Operational Framework" were in place, "Transition to Operations" would be part of Release Management





Define or Implementation Phase**

- Project
  - Project Plan *
  - Project Management and Controls *
    - Risk Management Plan*
    - Issue Management Plan*
    - Change Management Plan*
    - Communications Plan*
    - IV&V*
    - Schedule*
    - Budget*
    - Work Breakdown*
  - Project Governance*
- Product
  - Business Requirements*
  - System Requirements**
  - System Architecture**
  - Design Specifications
  - Training Plans**
  - Transition to Operations*
  - Pilot Plans
  - Operations and Support Plan*

WE RE-VISIT ALL THE PROJECT MONITORING & CONTROL DOCUMENTS

Toll Gates

Project Certification is a variation on a Toll Gate!

- Approvals
  - Stakeholder review of IV&V
  - Stakeholder Approval to move from one phase of solution development to the next
  - Stakeholder Approval for documents
- Corrective Actions
  - Feedback from IV&V
  - Stakeholder Items
    - Including Change Management Items

Toll Gate Readiness Review

- Project Team
  - Checklist of documents – part of planning process.
  - Review of these documents for readiness
    - Have these documents been approved?
  - Review of IV&V comments
  - Are there items that need correction?
- Stakeholders
  - Is there a formal review process?

Design, Build, Pilot and Deploy

In PMI terms these are part of the Execution and Control Project Phase, or in OCIO terms the Implementation phase

Project Monitoring and Control Functions Continue!

From Defined Requirements to Implementation – Project Shifts Emphasis!

- Design
- Build
- Pilot
- Deploy

We move from business Needs to Technical Implementation – The project team changes in composition or there is more reliance on vendors!

Mitigating Risks

Built In Project and Product tools to mitigate the risk of transition to technical teams

Project Logistics – Part of the OCIO Project Management Plan*

- Logistics describes how the project manager, project team, the business owner/customer and any vendor resources will physically work together. Include anything to do with moving or starting resources. Identify a role to coordinate logistics with the business owner/customer and vendors.
- Logistics includes factors, issues, notes, etc. relating to operational details (space, materials, access, etc.) at the customer or vendor site. It can also be used to describe the need and use of a forthcoming logistics document. Cross-reference any risk, assumption or exclusion that is related to logistics.

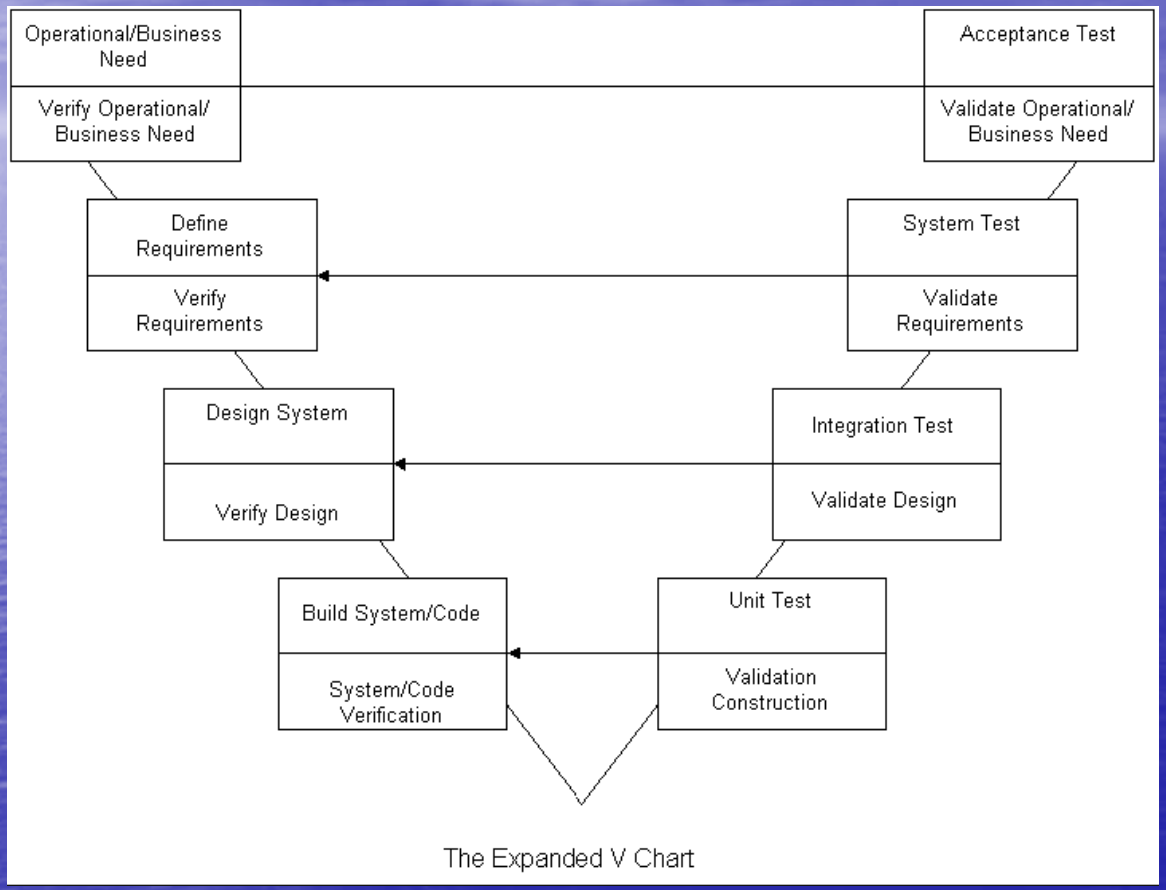
* usually also part of the Vendor agreements

Project Management Plan – Staffing and Procurement *

- 5.1 Staffing Planning and Acquisition
- 5.9 Procurement Management Plan
- OCIO Website
  - Purchasing
    - IT Professional Services Contract Template
    - IT IV&V Contract Template

There are legal ways of mitigating risks by holding vendors with contract terms and penalties – a whole different workshop!

Trace-Ability



The Expanded V Chart

"all the work required, and only the work required"

Requirement Traceability Matrix

Req ID	Requirement (abbreviated title)	Req Owner *	Design Ref	Design Owner	Test Case	Test Owner	Revision Reference
ES-1	Mainframe interface	DM					
ES-2	Use C:D	DM	TD-1	IBM / TH	TC-1	IBM / TH	
ES-3.1	Data archived 5 days	DM	TD-2	IBM / TH	TC-2	IBM / TH	
ES-3.2	Archived file names	DM	TD-3	IBM / TH	TC-2	IBM / TH	
ES-4.1	Pass/fail history 30 days	DM	TD-4	IBM / TH	TC-3	IBM / TH	
ES-4.2	History log success / failure	DM	TD-4	IBM / TH	TC-4	IBM / TH	
ES-5	User can easily inspect the logs	DM	TD-4	IBM / TH	TC-4	IBM / TH	Added 2/3/5

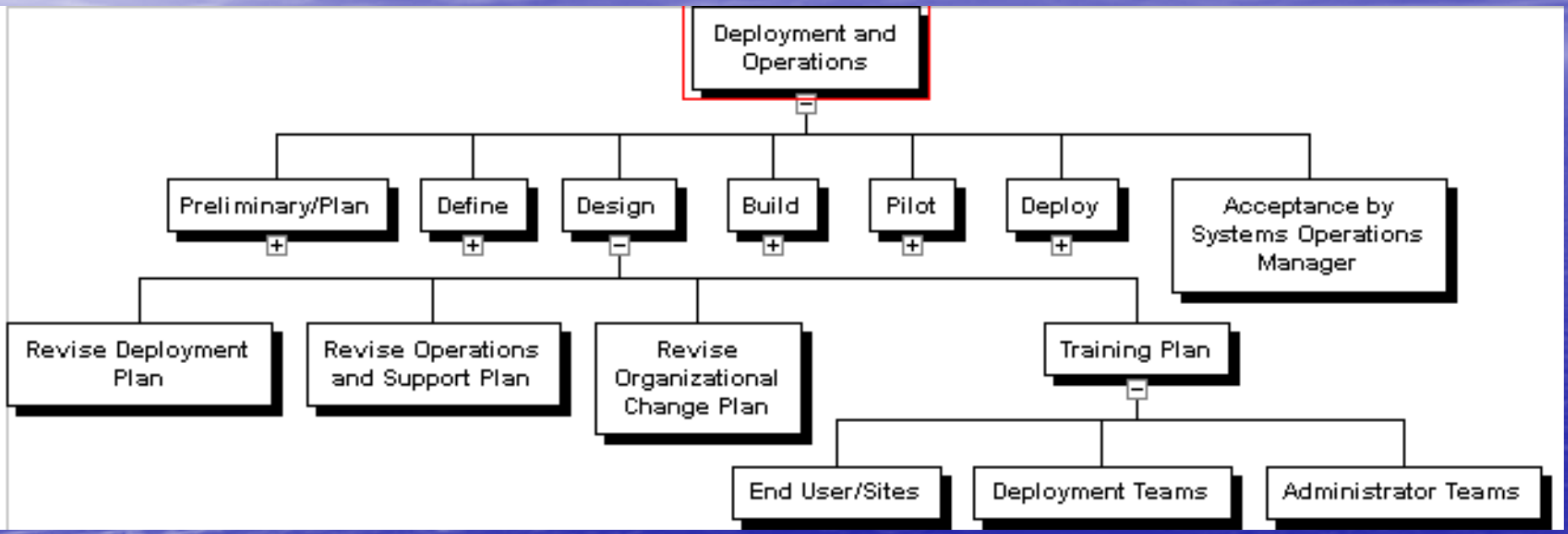
Sample Courtesy of **Mike Ricklin** Human Services Department

Implementation and Deployment Risk Mitigation

The transition to operations and end user deployment is an opportunity:

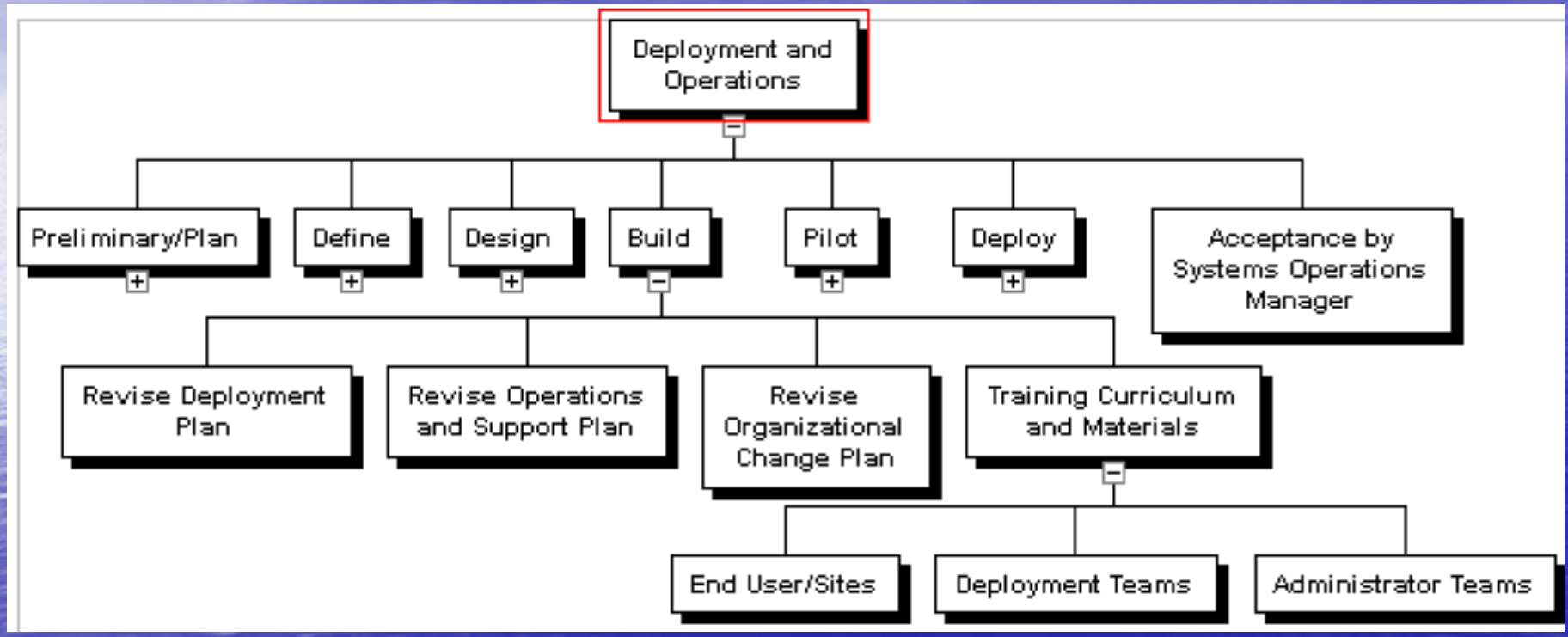
To wrest defeat from the arms of Victory!

Design Phase



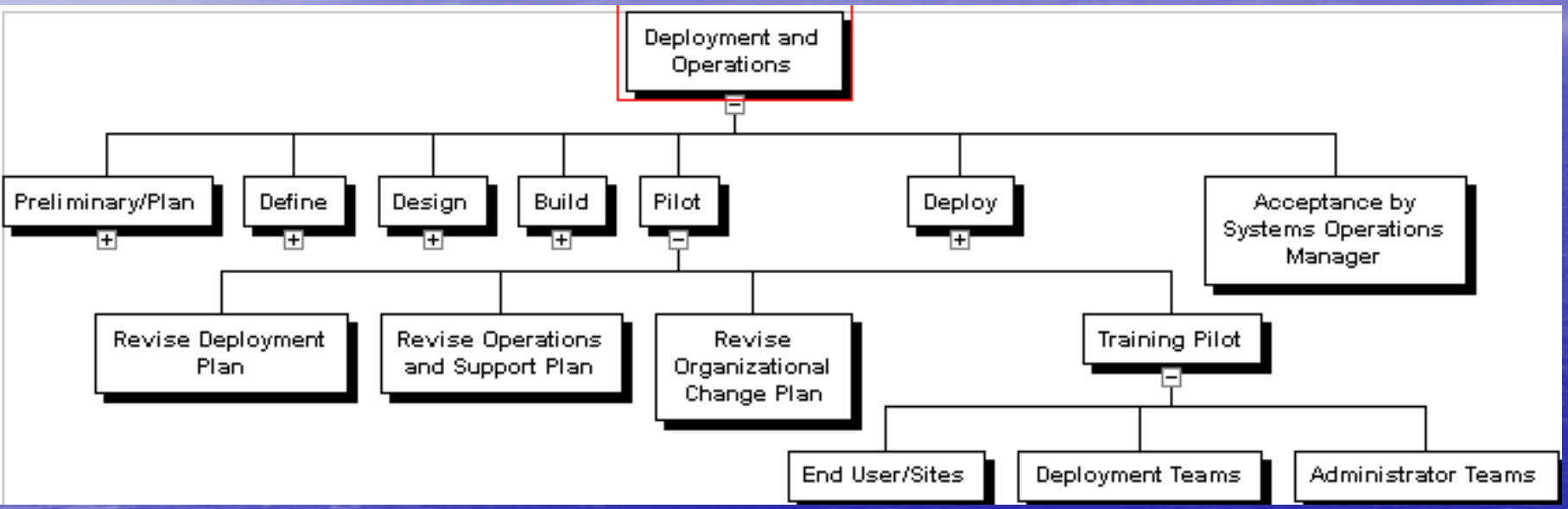
As we move through the solution design, our knowledge of transition to operations increases. The training plan is the training design. As we design platform, end user client access, deployment process we can further fill in the blanks. As we design the solution, we can design the over all training plan including specifics that the three populations will need to know. “Key strokes” come in the Build phase.

Build Phase



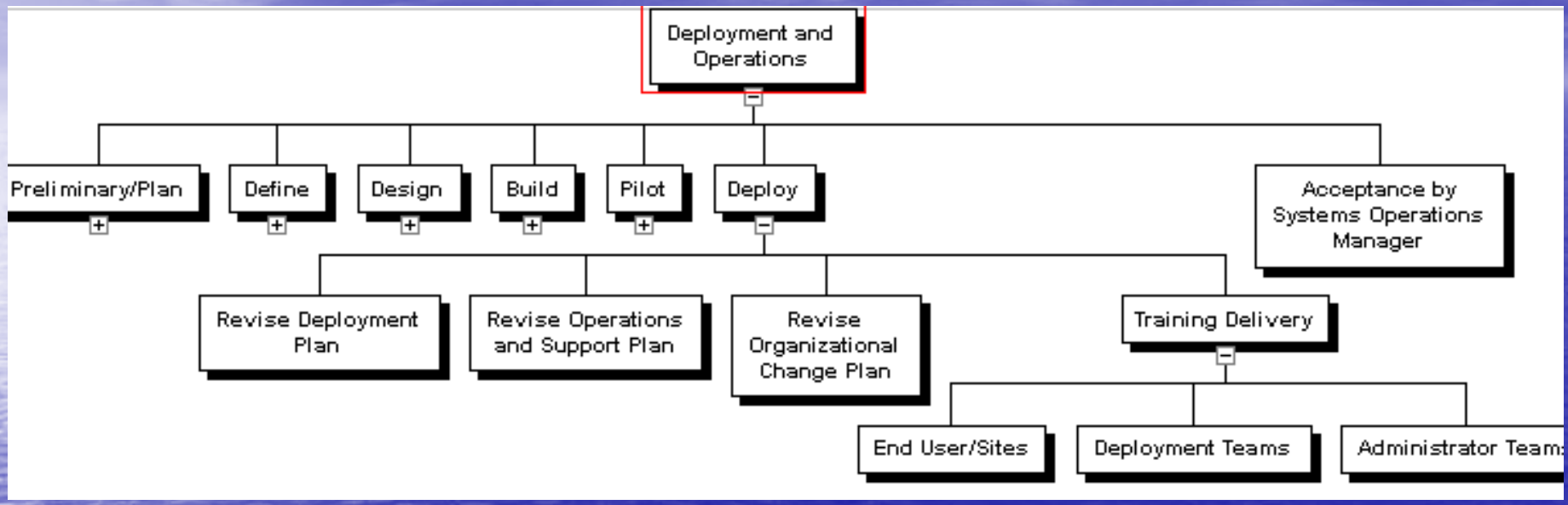
As we build solution, we build training materials including “key strokes”. The build phase should include UAT- User Acceptance Testing. The solution is not complete without fully developed deployment plans, operational and support plans, and organization change accounted for.

Pilot Phase



Pilots allow us to test our assumptions and field test our efforts, and our training materials. We should also have a pilot plan, including objectives, and Pilot User tasks. We need to know how to declare a pilot a success! How long should a pilot run? How much time should be built into schedule between pilot and deploy?

Deploy Phase



Following successful pilot(s), there should be a readiness checklist based on the various plans presented to stakeholders with go-no-go recommendations.

Care should be given to determine rate of deployment as not all issues come out of the woodwork during a pilot.

Acceptance by Operations Manager

- Operations must be a key stakeholder in the project process
- Operations must be involved from the planning forward
- The project must seek operational requirements from the start as well
- Operations provides its own set of standards (Hopefully)

Transition to Operations

The success of a solution is not restricted to its ability to meet technical specifications!

The transition to operations and end user deployment is an opportunity:
To wrest defeat from the arms of Victory!

Transition to Operations

- What is the strategy for transferring ownership to ongoing operations and support groups?
  - Does such a group exist?
  - What are its processes if any for accepting new solutions?
- Is there a back-out plan?
  - Transitions are always risky!

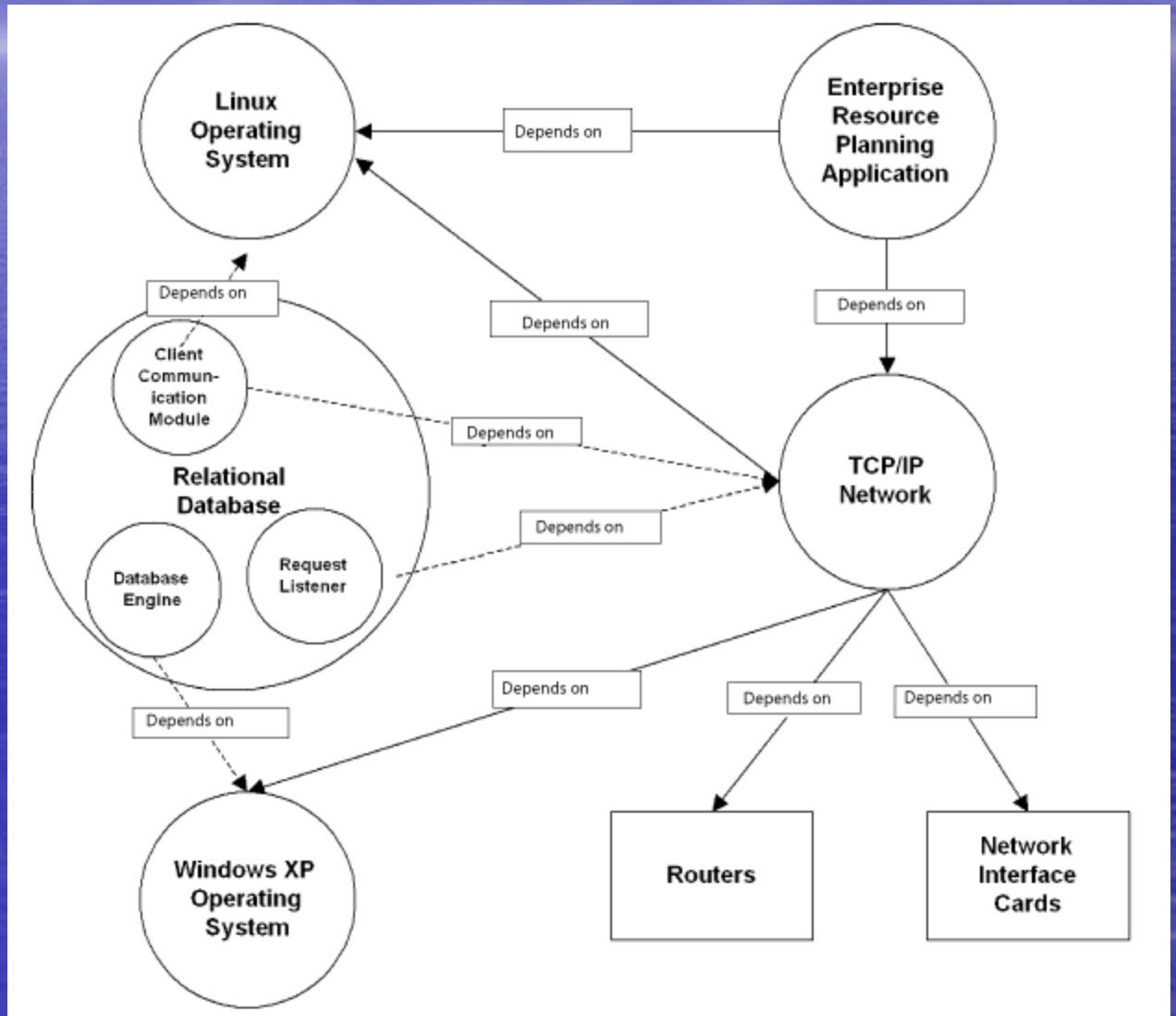
Transition to Operations

- Does the solution have a development, test and or pre-production environment?
  - Has it established processes and procedures for moving from these into production?
    - Does it have governing rules for making/applying changes to production?

Transition to Operations

- Actualizing or fulfillment of requirements approach
  - Hardware and Software acquisition
  - Preparation of hosting location
  - Delivery and Installation of HW/Software
  - Establishing network connectivity
- Operations Staff and time to staff-up
- End User and Support Staff preparation
  - Training Materials
  - Communication Process

“Transition to Operations” Accounts for Dependencies



Project Deliverables

- Transition to Operations Plan
- * Organizational Change Management Plan
- Systems/Solution Deployment Plan
- Operations and Support Plan
- Training Requirements Plan

These are steps towards operational acceptance.
They should undergo changes depending on phase of the solution development.
They should have stakeholder approval.

* This had been discussed as a requirement under IT consolidation

Organizational Change Management Plan

- 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.

Organizational Change Management Plan

- 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 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?

System/Solution Deployment

- Deployment Scope – who, what, where?
- Range of operations – departments and locations
- Deployment Strategy
  - All at once or by location or function?
- What roadblocks or constraints exist for deployment?
  - Calendar, work loads, network, resistance, etc.
- Is there a back-out plan?

System/Solution Deployment

- Are there change control or maintenance windows that need to be factored in the schedule?
- What are the deployment dependencies?
  - Does a server need to be upgraded?
  - Do end user workstations need upgrading
  - Is there a network firewall change required?
  - Have the change control or maintenance windows for these dependences been factored into the schedule?
- Is there a training plan in place
  - end users and system administrators

System/Solution Deployment 2

- If multi-location
  - Has travel time and expense been factored in?
- Is there a generic location or function implementation plan?
- Do deployment plans need to be tailored to specific locations or functions?
- Are their special considerations such as needing a specific manager and her support staff deployed simultaneously?

Deployment Communications Plan

- Is there a communications plan for the project? Does it incorporate deployment communications?
- Is there some one outside of the project that needs to approve end user communication? What is the lead time?
- Communications could be bi-directional – letting users know of a change and getting information from them
- Ready, Set, Go?
  - If the users have to do something, simple step by step communications are in order
- Dates to be communicated?

Pilot Plan Considerations

- To test the known and discover the unknown! (Not a proof of concept)
- Pilots are not to determine if a solution is ready for prime time – they should be done to confirm such readiness!
- Pilots should ask specific tasks of the participants!
  - Participants should be asked or their managers approve their participation if by function or location

Operations and Support Plan

- What are the staffing requirements?
- What processes and procedures need to be documented?
- What is the solution escalation process?
- What is the operational change management process?

Operations and Support Plan

- Is there an operational framework into which this solution will be introduced?
  - More on this to come!
- What are the operational requirements of the solution?
  - Have these been conveyed to “operations”?
- What are the Back-up and Restore requirements?
  - Do these include periodic testing of back-up and restore?

Operations and Support Plan

- End user
  - Objectives
    - What are we promising our users?
  - Strategy
    - Are the objectives part of the solution or a local or departmental burden?
  - Development schedule
    - When will end user materials be ready?
  - Communications Plan
    - What will end user need to know (Other than training, but including training schedules)
  - Cost Estimates
- End user Support Manuals?
  - End user instructions
  - Help desk Q&A

Operations and Support Plan

- Operational Support –Help Desk and System Administrators
  - Objectives
    - Roles and responsibilities
  - Strategy
    - Central or local/departmental help desk?
    - Levels of help desk?
    - Does help desk have knowledge base of end user tips?
    - Is there back-up for staffing?
  - Development schedule
    - When will materials be required?
  - Communications Plan
    - What will Support staff need to know (Other than training, but including training schedules)
  - Cost Estimates
    - Training Materials
    - Additional tool sets
    - Staff hours
- Operational Support Manuals?
  - Are the vendor supplied manuals sufficient
  - Are specific agency required processes documented?

Operations and Support Plan

- Technical Support and Maintenance
  - Objectives
    - How do we keep system operational?
    - How do we deal with updates/patches?
  - Strategy
    - How do we test patches and updates?
    - Is there a knowledgebase available from the vendor?
  - Development schedule
  - Communications Plan
    - Are there established change control/maintenance windows and are they published for users?
  - Cost Estimates
    - Costs of maintenance/patch releases from vendors
    - Costs of support calls to vendors?
- SLA and Vendor Maintenance agreements
- Technical Support and Maintenance Manuals?

Training PLAN

- Basic training resource and timing requirements and performance objectives to be achieved.
- Training encompasses varied audiences
  - End Users
  - Installers and Operational Support
  - Help Desk staff

Phased Approach to Training Planning

- Training Requirements are established in the Define Phase as we define the solution requirements:
  - Description of model or functional requirements
  - Use cases capturing user scenarios and system behaviors
  - Descriptions of user interfaces

Phased Approach to Training Planning

- Training Plan and Curriculum are defined in the design phase
  - The training plan and curriculum are the design of the training required to get users ready for the system requirements.
    - This is necessary to frame the training, but not yet to provide the "key strokes" or solution specific set of instructions.

Phased Approach to Training Planning

- Training materials are developed during the build phase
  - The specific materials and "keystroke" or process steps are built and the training instructions can be specified.

Phased Approach to Training Planning

- User Acceptance Testing
  - Training materials should be used as part of the user acceptance testing for the solution
  - User acceptance testing should be part of the requirements for the development of the solution!
- Pilot use of training materials
  - Training materials development should include allowing for changes based on responses during the pilot process. (If appropriate effort has gone into the materials based on training requirements, pilot based changes should not be extensive!)

Transition to Operations – Summary Points

- Anticipate, Anticipate, Anticipate.
- Team participation in walk through Transition to operations!
- Who or what are we forgetting?
- Who needs to know what?
- What needs to be written in documents?
- Deliverables Acceptance!

IV&V Training

Training			
Task Item	**Task #**	**Task Description**	**Applicable (X)**
User Training and Documentation	**TR-1**	Review and make recommendations on the training provided to system users. Verify sufficient knowledge transfer for maintenance and operation of the new system.	
	TR-2	Verify that training for users is instructor-led and hands-on and is directly related to the business process and required job skills.	
	TR-3	Verify that user-friendly training materials and help desk services are easily available to all users.	
	TR-4	Verify that all necessary policy and process and documentation are easily available to users.	
	TR-5	Verify that all training is given on-time and is evaluated and monitored for effectiveness, with additional training provided as needed.	
Developer Training and Documentation	**TR-6**	Review and make recommendations on the training provided to system developers.	
	TR-7	Verify that developer training is technically adequate, appropriate for the development phase, and available at appropriate times.	
	TR-8	Verify that all necessary policy, process and standards documentation is easily available to developers.	
	TR-9	Verify that all training is given on-time and is evaluated and monitored for effectiveness, with additional training provided as needed.	

IV&V Pilot

Pilot Test	**ST-5**	Evaluate the plans, requirements, environment, tools, and procedures for pilot testing the system.	
	ST-6	Verify that a sufficient number and type of case scenarios are used to ensure comprehensive but manageable testing and that tests are run in a realistic, real-time environment.	
	ST-7	Verify that test scripts are complete, with step-by-step procedures, required pre-existing events or triggers, and expected results.	
	ST-8	Verify that test results are verified, that the correct code configuration has been used, and that the tests runs are appropriately documented, including formal logging of errors found in testing.	
	ST-9	Verify that the test organization has an appropriate level of independence from the development organization.	

IV&V Operations

Operations Oversight			
Task Item	**Task #**	**Task Description**	**Applicable (X)**
Operational Change Tracking	**OO-1**	Evaluate statewide system's change request and defect tracking processes.	
	OO-2	Evaluate implementation of the process activities and request volumes to determine if processes are effective and are being followed.	
Customer & User Operational Satisfaction	**OO-3**	Evaluate user satisfaction with system to determine areas for improvement	
Operational Goals	**OO-4**	Evaluate impact of system on program goals and performance standards.	
Operational Documentation	**OO-5**	Evaluate operational plans and processes.	
Operational Processes and Activity	**OO-6**	Evaluate implementation of the process activities including backup, disaster recovery and day-to-day operations to verify the processes are being followed.	

Project Closure

Lessons Learned