ICT Project Management

Chapter 3: Project Planning Phase & Scope Management

3.1. Planning and Design

After initiation, the project is planned to an appropriate level of detail. The main purpose is to plan time, cost and resources adequately to estimate the work needed and to manage risk effectively during project execution. This is recorded in the project management plan, a document to help guide the team throughout the project delivery. As with the initiation phase, a failure to plan adequately lessens the project's chances of success.

3.2. Project Plan Document

Project management plan document: should be dynamic, flexible and subject to change when the project environment or project changes. Functions;

- used to coordinate and integrate information across project management knowledge area and across the organization.
- help guide project execution and control
- documents project planning assumptions and decisions regarding choices
- facilitates communication among stakeholders
- define content, extent and timing of key management reviews
- provide a baseline for progress measurements and project control

Project plan contents;

1. Introduction and overview of the project; Name, Project description and need addressed, sponsor name, deliverables of the project, project manager and team members etc.
2. Project organization: organization charts, project responsibilities, other organization or process-related information
3. Management and technical approaches; management objectives, project controls, risk management, project staffing, and technical processes.
4. Work to be performed , project schedule and budget: major work packages, key deliverables, summary schedule, detailed schedule, summary budget and details budget

Supplementary Project Plans

Supplementary plans that focus on particular aspects of the project should be produced for incorporation into the Project Plan. These should be planned from the outset and updated as more detailed information is obtained. Apart from the Project Business Plan and the Project Quality Plan, for which there are specific formats, the supplementary plans should follow the format of the Project Plan where appropriate, but without duplicating information.

These include the following:

a) **Contingency Plan;** This is only likely to be a separate plan when the contingency arrangements are so complex to warrant this. The plan is specifically aimed at continuing the project in the event of one or more risks occurring. It is to be hoped that it will not need to be used.

b) **Business Plan;** This plan contains all the relevant internal business information regarding the Project. Information in the Business Plan is highly sensitive and should be available for company internal use only on a restricted distribution basis.

c) **Quality Plan;** The Project Manager is responsible for the quality of the project a s well as for the quality of the solution components produced by the project. Quality should be a priority throughout the project life cycle and should be planned from the outset.

d) **Test Plan;** It is the Project Manager's responsibility to integrate the planning of testing. The activities should identify the overall scope, approach, resources, schedule and risks of the testing tasks over the entire project life cycle and document them in the Test Plan. The Test Plan should define the generic levels of testing and the basic test environment and structure needed to support the required levels of testing. It should be clearly understood that the test plan acts as a contractual and legal document and unless otherwise approved by the management must covers the following:

- An **Acceptance Test Specification (ATS)** that matches the structure of the Requirements Specification. The ATS is usually delivered together with the Requirements Specification describing WHAT tests must be carried out to verify to the user(s) that the Requirements specified have been met
- The **Acceptance Test Procedures (ATP)** is usually produced during the Physical Design stage/phase. The ATP converts what was specified in the ATS and describes HOW the tests will be performed, including the steps, data to be used and results to be obtained.

Tests should be independent where-ever possible and must be signed by both Customer and User Project Manager after successful execution. In principal the Test Plan should:

Identify:

- The items to be tested
- The requirements or features to be tested
- The test pass/fail criteria based on the Requirements Specification.

Include:

- Test coverage
- The tools and approaches to be applied
- The environmental needs
- The testing tasks to be performed
- The organisational structure
- The management controls and reporting procedures
- The risks and contingencies

The plan to integrate the solution components and the Quality plan should be coordinated, and may be combined, with the Test Plan. Included in the Test Plan, the customer will expect the Project Manager to establish a test and evaluation program that verifies that the solution meets the technical and operational requirements as stated in the agreed specifications. The method of verification could include analysis, inspections, demonstrations, and/or tests. The extent in which the customer is involved in the Test Plan, will be determined by the contract requirements and the relationship between the project and the customer.

e) **Solution Introduction Plan:** This Plan is concerned with all aspects of introducing the solution into the customer's environment so that the solution becomes fully operational with minimal disruption to the customer's business. The plan covers many activities that are the responsibility of the customer.

f) **Service Delivery Plan:** The plan is concerned with all aspects of providing services as part of the project. As appropriate, it includes the:
   - Delivery Plan
   - Installation Plan
   - Support Plan
   - Training Plan
   - Consultancy Plan

g) **Configuration Management Plan:** This plan focuses on all the activities necessary to control the versions of the solution components, so that consistency between them is maintained.

3.3. Stake holders analysis

It involves: Identification of the key stakeholders, names and organization, their roles on the project, unique facts about each stakeholder, their level of interest in the project, their influence on the project, managing relationships with each stakeholder.

Sample Stakeholders Analysis report

Stakeholders Analysis					
	Name1	**Name2**	**Name3**	**Name4**	**Name5**
Organization					
Role in Project					
Unique facts					

Level of interest					
Level of Influence					
Suggestions on managing relationship					

Project planning includes:

- Developing the scope statement
- Developing the schedule (Gantt chart)
- Developing the budget
- Selecting the planning team
- Allocating stakeholders and project team roles and responsibilities
- Creating a work breakdown structure
- Identifying deliverables
- identifying the activities needed to complete those deliverables and networking the activities in their logical sequence
- estimating the resource requirements for the activities;
- estimating time and cost for activities;
- Risk planning
- Communication planning

This information forms the project contract, used to gain formal approval to begin work.

3.4. Project Scope Management Planning

Scope: all the works involved in creating the products of the project and the processes used to create them.

Scope management: the processes involved in defining and controlling what is or is not included in the project. It ensures that the project team and stakeholders have the same understanding of what products the project will produce and what processes the project team will use to produce then. Process involved in project scope management includes; Scope Planning, Scope definition, Creating Work Breakdown Structures (WBS), Scope Verification and Scope control;

3.5. Scope planning

Involves deciding how the scope will be defined, verified and controlled and how the Work break down structures (WBS) will be created

3.6. Scope definition

Involves reviewing project charter and producing project scope statement, requested and updating the project management plan.

- ✓ Good scope definition is important in project management for it helps improve the accuracy of time, cost and resource estimates, defines baseline for performance measurements and project control
- ✓ Product: Project scope statement

3.7. Work Breakdown Structure (WBS)

Definition

- A **Work Breakdown Structure (WBS)** is **a** deliverable-oriented grouping of the work involved in a project that defines the total scope of the project. It is a project management tool designed to capture project tasks in a visual, organized manner.
- A work breakdown structure (WBS) is a chart in which the critical work elements, called tasks, of a project are illustrated to portray their relationships to each other and to the project as a whole. The graphical nature of the WBS can help a project manager predict outcomes based on various scenarios, which can ensure that optimum decisions are made about whether or not to adopt suggested procedures or changes.

- It involves sub-dividing the major project tasks / deliverables into smaller, logical or more manageable components. Task in the WBS represents work that needs to be done to complete the project.

- Tasks should be clear and simply stated. If a task cannot be described in a sentence or two or completed between two hours and two weeks, you might want to break it up into two or more smaller tasks. Each WBS element should be identified by title and by a numbering system that performs the following functions:
  - Identifies the level of the WBS element.
  - Identifies the higher-level element into which the element will be integrated.

These tasks are usually presented in a hierarchical form showing levels of each task.
Example

A Web-site development project	**Level 0**
1.0. Concept	**Level 1**
1.1. Evaluate current systems	**Level 2**
1.2. Define requirements	
1.2.1 Define user requirements	**Level 3**
1.2.2 Define content requirements	
1.2.3 Define system requirements	
1.2.4 Define server owner requirements	
1.3. Define specific functionality	
1.4. Define risks and risk management approach	
1.5. Develop project plan	
1.6. Brief Web development team	
2.0. Web Site Design	
3.0. Web Site Development	
4.0. Roll-out	
5.0. Support	

WBS Common templates dictates also capturing the following attributes about a WBS element;

- Task ID field
- Task Description field
- Predecessor task ID
- Task Owner
- Role
- % Complete
- Start Date
- Finish Date
- Deliver To

This attributes are useful in **Project time management** Process and are critical when representing the project tasks in a Gantt chart.

3.7.1. Reasons for creating WBS

Some widely used reasons for creating a WBS include:

- Assists with accurate project organization
- Helps with assigning responsibilities
- Shows the control points and project milestones
- Allows for more accurate estimation of cost, risk and time
- Helps explain the project scope to stakeholders

3.7.2. Approaches to WBS Development

There are several approaches to developing WBS and these includes;

1. Using guidelines: use predefined guidelines for the organization. Many organizations provide guidelines and templates from developing WBS
2. Analogy Approach: using a similar WBS as the starting point. Some organizations keep a repository of WBS and other project documentations on file to assist future project managers.

3. Top-Down and Bottom-Up Approach: **Top-down approach** start with the largest task (higher level tasks) and break them into their sub-tasks. It thus involves refining the tasks into greater and greater levels of details. Used by project managers with vast technical insight and big-picture perspective.
   Bottom-up approach involves the project team first identifying as many as possible all the task related to the project. They then aggregate the specific tasks and organize them into summary activities, or higher level in the WBS.

3.7.3. WBS Dictionary and Scope Baseline

A WBS dictionary is a document that describes detailed information about each WBS item
Scope Baseline: consists of the approved project scope statement and its associated WBS and WBS dictionary. Performance in meeting project scope goals is based on this scope baseline.

A well-organized, detailed WBS can assist key personnel in the effective allocation of resources, project budgeting, procurement management, scheduling, quality assurance, quality control, risk management, product delivery and service oriented management.

3.8. Scope Verification

Involves formalizing acceptance of the project scope. It is difficult to create a good project scope statement WBS, verify and minimize scope changes for an IT project. Many IT projects suffer Scope creep: the tendency for the project scope to keep getting bigger and bigger. Scope verification involves the project stakeholders inspecting the project; scope statement, WBS dictionary, project scope management plan and documented project deliverables and then signing-off accepting the scope.

3.9. Scope Control

It involves controlling changes to project scope, which is usually a challenge in ICT projects.
Strategies for reducing scope changes in IT projects

- Develop and follow a requirements management process that includes procedures for initial requirements determination.
- Employing Prototyping techniques, use case modeling, Joint Application Development(JAD) to understand user requirements thoroughly
- Put all requirements in writing and keep them current and readily available.
- Create a requirement management database for documenting and controlling requirements
- Provide adequate testing to verify that the project products perform as expected.
- Use a system for reviewing requested requirements changes from a systems perspective.
- Emphasize on completion dates

3.10. Success Factors part of Scope Management

1. User involvement
2. Executive support management
3. Clear statement of requirements
4. Realistic expectations
5. Smaller project milestone
6. Clear vision and objectives

Table **1.2** Summary of Factor Rankings for Successful, Challenged, and Impaired Projects

Rank	***Factors for Successful Projects***	***Factors for Challenged Projects***	***Factors for Impaired Projects***
1	User involvement	Lack of user input	Incomplete requirements
	Executive management support	Incomplete requirements	Lack of user involvement
3	Clear statement of requirements	Changing requirements & specifications	Lack of resources
4	Proper planning	Lack of executive support	Unrealistic expectations
5	Realistic expectations	Technology incompetence	Lack of executive support
6	Smaller project milestones	Lack of resources	Changing requirements specifications
7	Competent staff	Unrealistic expectations	Lack of planning
8	Ownership	Unclear objectives	Didn't need it any longer
9	Clear vision & objectives	Unrealistic time frames	Lack of IT management
10	Hard-working, focused team	New technology	Technology illiteracy