Project Integration Management

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Project Integration Management

Project Integration Management Spans the 5 PM Process Groups of:

1. Initiating
2. Planning
3. Executing
4. Monitoring & Controlling
5. Closing

It is the first of the 10 PM Knowledge Areas that we will cover.

Develop Project Charter

The Project Charter is the document that formally authorises the project.
The Project Manager should be appointed at this stage
Projects are usually chartered and authorised external to the project organisation by an enterprise, government agency, a program organisation, or a portfolio organisation due to:

- Market Demand (e.g. Housing Projects)
- Business Need (e.g. New Offices, New IT system)
- Customer Request (e.g. Construction Contracting)
- Technological Advance (e.g. Broadband Cabling)
- Legal Requirement (e.g. change in air emissions regulations.)
- Social Need (e.g. Water Treatment Plant)

Develop Project Charter

Developing a charter links the project with the overall goals and strategy of the company (if you can't link it, why do it?)
Project Charter is primarily concerned with:

- Documenting business need
- Project justification
- Current understanding of customers requirements
- Product, service, or result to satisfy the above

Develop Project Charter

The project charter should address the following:

- Requirements that satisfy customer, sponsor, and other stakeholders needs, wants and expectations
- Business Needs, high level project description
- Project purpose or justification
- Assigned Project Manager and authority level
- Summary milestone schedule
- Stakeholder influences
- Functional organisation & their participation
- Organisational, Environmental and External assumptions and constraints
- Business Case justifying project; ROI etc
- Summary Budget

Develop Project Charter

Inputs: Refer to Book for details of:

- Contract
- Project Statement of Work
- Enterprise Environmental Factors
- Organizational Process Assets

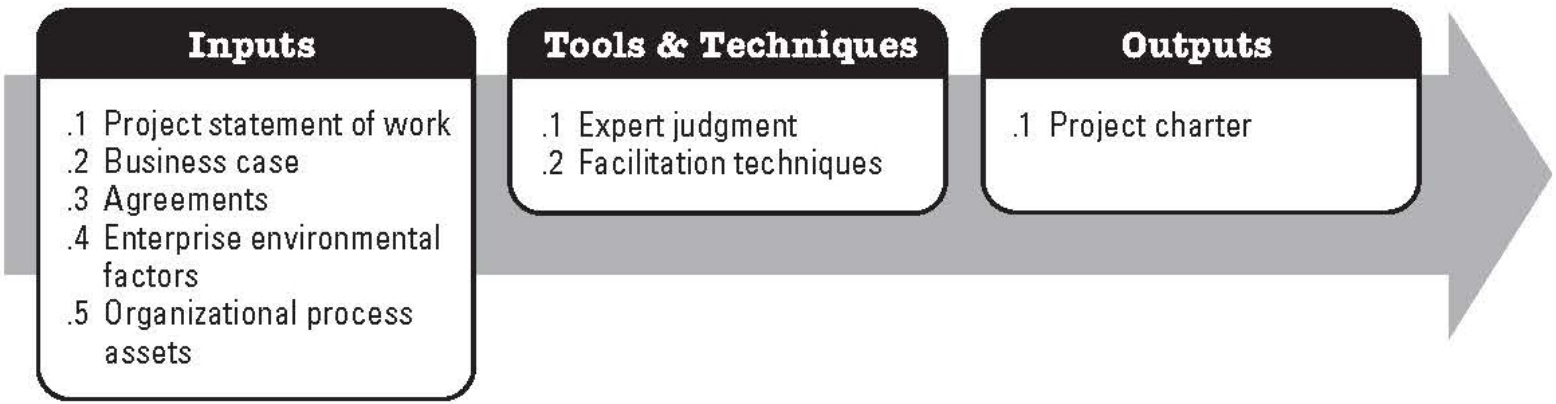

Figure 4-2. Develop Project Charter: Inputs, Tools and Techniques, and Outputs

Other Tools for Project Charter

Tools:

- Project Selection Methods: Allows reader to understand why a particular project was selected
- Project Management Methodology: How will be project be managed and controlled
- Project Management Information Systems: How will information be distributed and controlled

Project Selection Methods

Most companies cannot execute all project proposals; selection methods help to select one project over another in a logical, rational and unbiased manner.
They can be:

1. Mathematical models
2. Benefit measurement methods
   - Scoring Models
   - Cash Flow Analysis Techniques
     - Payback Period
     - Discounted Cash Flow
     - NPV
     - IRR
   - Cost-Benefit Analysis

PM Methodology & PM Information System

May look similar, but very different
Methodologies are PMBOK or similar: May be formal (PMBOK) or an informal technique
Information Systems are generally software tools and techniques that provide details of resources & activities; allow the distribution of information; and assist in scheduling and tracking. Methodologies utilize information systems.

Develop Project Management Plan

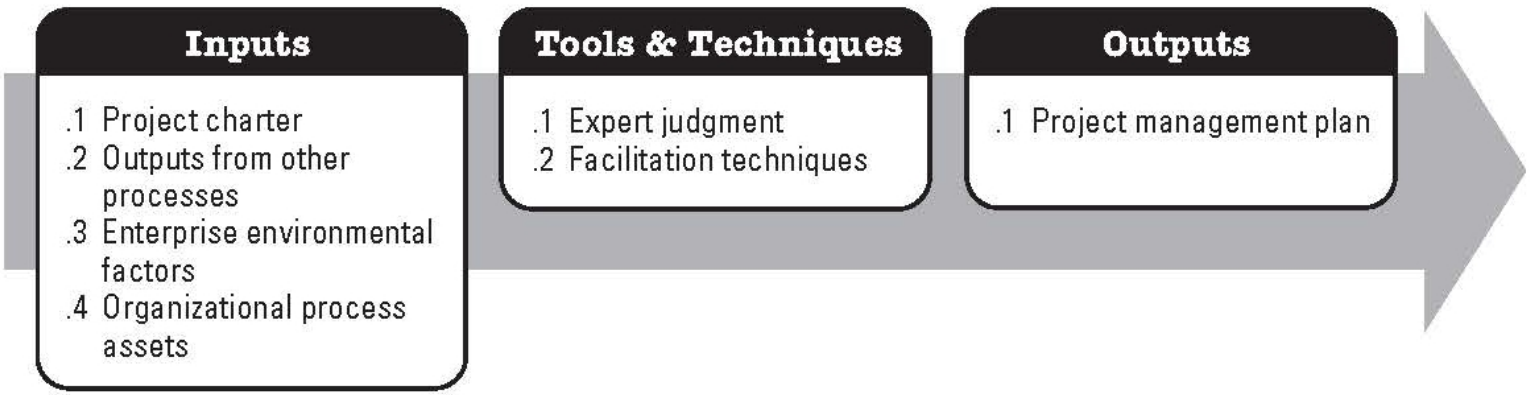

Figure 4-3. Develop Project Charter Data Flow Diagram

Develop Project Management Plan

Output is the Project Management Plan

- The PM Plan is a top level document that details how the project will be managed.
- The PM plan is managed throughout the Project

It is a ‘live’ document. (Version Control is vital)
Changes to the PM plan are made through the Integrated Change Control Process
The level of information contained within the plan will vary with the complexity of the project
The Project Plan is likely to contain processes and procedures that are common to a company’s project portfolio or project programme

Project Management Plan

The Project Management Plan defines how the project is executed, monitored & controlled, and closed.

- PM plan can be summary level or detailed and can be comprised of one or more subsidiary plans and/or other components.
- For construction projects, the PM Plan usually does comprise of subsidiary plans

Project Management Plan

- Defines the processes that will be used for the project
  - States the degrees of execution of each process; the tools & techniques from each process; Essential Inputs & Outputs
- Documents the dependencies and interactions of the PM processes used to manage the project
- Methods for executing the work to fulfill objectives
- Methods of monitoring and controlling change
- Methods to perform configuration management
- Methods for determining and maintaining the validity of performance baselines
- Communication needs of the stakeholders
- Project Life Cycle, Phases for multi-phase projects
- Management reviews of issues and pending decisions

Project Management Plan Subsidiary Plans

Typically:

- Project Scope Management Plan
- Schedule Management Plan
- Cost Management Plan
- Quality Management Plan
- Process Improvement Plan
- Staffing Management Plan
- Communication Management Plan
- Risk Management Plan
- Procurement Management Plan

Project Management Plan — Other Elements

- Milestone List
  - Vital on construction projects
- Resource Calendar
  - Identifies working/non-working days in general and for individual resources
- Schedule Baseline
- Cost Baseline
- Quality Baseline
- Risk Register

Project Management Plan Dependencies

The top level Project Management Plan contains elements of each of the individual subsidiary plans.
One of the key elements of the top-level plan is that it ‘maps out’ the dependencies between the various processes.

- i.e. if you identify a schedule overrun (Schedule Management) you can quickly ascertain the impacts in other plans and processes such as the cost management plan, procurement management plan etc.
- Any and all changes must be run through the change control process.

Develop PMP — Tools and Techniques

Expert Judgment:

- Tailor the process to meet project needs
- Develop technical and management details to be included in the plan
- Determine resources and skill levels needed
- Define the level of configuration management to apply
- Determine which project documents will be subject to change control processes
  - Drawings, specs, minutes of meetings

Configuration Management System and Change Control System

Both are subsets of the overall PM information system.
Configuration Management System consists of processes:

- for submitting proposed changes
- that include a tracking system for reviewing and approving or rejecting changes
- that define approval levels for authorising changes
- that define a method of validating approved changes

Normally the Configuration Management System includes the change control system - however sometimes (rarely) it is separated

Configuration Management System

The Configuration Mgt System is a collection of formal procedures used to apply technical and administrative direction and surveillance to:

- Identify and document the functional and physical characteristics of a product or component
  - Design Drawings, Specs, etc.
- Control any changes to these characteristics
  - Changes to design (move a door) or changes to spec (change the door handles being used)
- Record and Report each change and its implications
  - Necessary for final accounts (read the contract)
  - May have cost, safety or schedule implications
- Support the audit of the products or components to verify conformance to requirements

Change Control System

Change Control System is a collection of documented procedures that define how project deliverables and documentation are:

- Controlled, Changed, and Approved.

Control

- Who has the documents and ensuring the correct version is where it should be.
- Normally controlled documents have a formal list of recipients - ‘Controlled Copies’ are normally marked as such.
- May define a requirement that all controlled copies of superseded drawings and specs are returned to the main contractor or employer for destruction;

Documentation Control

Documentation Issue and Approval

PROJECT NUMBER: 2148			DOCUMENT REF: 2148 Mutton Island EIS D - Non-Technical Summary.doc		
D	Final	P Salmon	H Watson / P Fogarty	P Fogarty	1/03/2006
C	Third Draft to Client	P Salmon	H Watson / P Fogarty	P Fogarty	01/02/2006
B	Second Draft to Client	P Salmon	H Watson/ P Fogarty	P Fogarty	03/10/2005
A	First Draft to Client	P Salmon	H Watson / MF Garrick/ P Fogarty	P Fogarty	16/09/2005
Revision	**Purpose / Description**	**Originated**	**Checked**	**Authorised**	**Date**
		TOBIN / NICHOLAS O'DWYER and ENTEC			

Extracted from Environmental Impact Statement, Mutton Island Upgrade Project

Monitor and Control Project Work

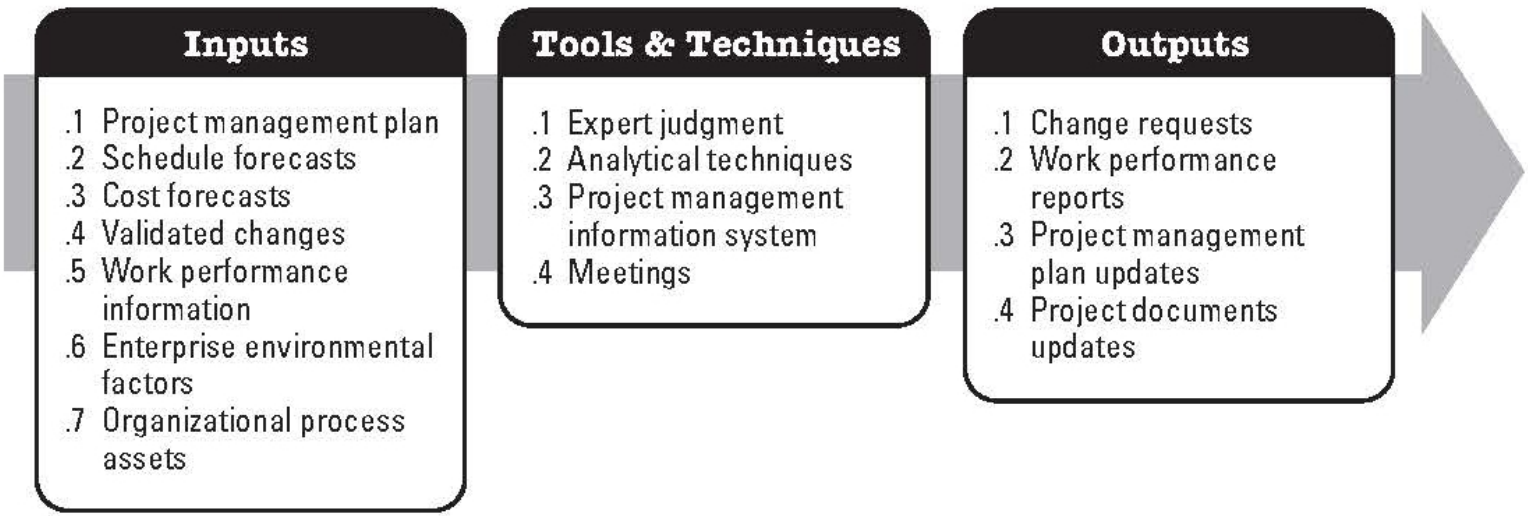

Figure 4-8. Monitor and Control Project Work: Inputs, Tools & Techniques, and Outputs

Part of the Monitoring and Controlling Process Group

Monitor and Control Project Work

Involves:

- Comparing Actual Performance against Planned Project Performance and PM Plan
- Assessing Performance to determine if corrective or preventative actions are required
- Analysing, Tracking and Monitoring Project Risks; and documenting findings
- Maintaining Accurate Information and ensuring that it can be retrieved in a timely manner
- Providing Information for Status Reporting
- Providing Forecasts to cost and schedule models and plans
- Monitoring the implementation of approved changes

Monitor and Control Project Work

Inputs:

- Project Management Plan
- Performance Reports
- Enterprise Environmental Factors
- Organisational Process Assets
  - Financial Systems (Purchasing, et al)

Monitor and Control Project Work

Tools and Techniques:

- Expert Judgement
- Project Management Methodology
  - Methodology used by the PM team to ensure that the project is being executed in accordance with the PM Plan
- Project Management Information System
  - Also used for forecasts
- Earned Value Management System
  - Used to determine current project status, past performance and likely future performance

Monitor and Control Project Work

Outputs:

- Change Requests
  - Corrective Actions - Documented recommendations required to bring expected future project performance into conformance
  - Preventative Actions - Documented recommendations that reduce the probability of non-conformance events
  - Recommended Defect Repair - Repair of Defects or non-conformances identified during Quality Management
- Project Document Updates - Forecasts
  - ECT, EAC, Projected Completion Date etc.
- Project Management Plan Updates

Perform Integrated Change Control

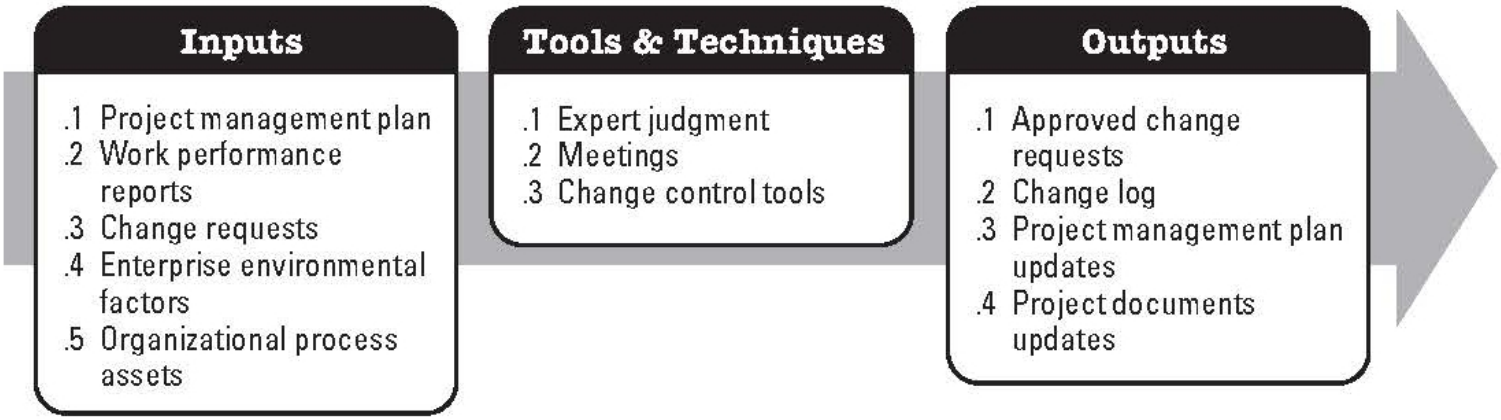

Figure 4-10. Perform Integrated Change Control: Inputs, Tools & Techniques, and Outputs

Part of the Monitoring and Controlling Process Group

Perform Integrated Change Control

Integrated Change Control is required throughout the project lifecycle
PM Plan, Scope Statement, Specifications need to be controlled and maintained throughout the course of the project.

- **Progressive Elaboration**

Changes requests can be either **rejected** or **approved**

Perform Integrated Change Control

Change Management Activities:

- Identifying that a change needs to occur or has occurred
- Influencing the factors that circumvent integrated change control so that only approved changes are implemented
  - Scope Creep
- Reviewing and approving requested changes
- Managing the approved Changes when and as they occur
- Maintaining the integrity of baselines by releasing only approved changes
  - Approved changes typically modify baseline information
- Reviewing and Approving all recommended corrective and preventative actions

Perform Integrated Change Control

Change Management Activities:

- Coordinating change across the entire project
  - Controlling and Updating Scope, Cost, Budget, etc., based upon approved changes
- One change can effect a multitude of documents
- Documenting the complete impact of requested changes
  - It is not always possible to predict ahead of time what the exact impact of a change may be. An initial estimate of 2 weeks delay may prove to be inaccurate.

Perform Integrated Change Control

Proposed Changes can require new or revised:

- Cost estimates
- Schedule activity
- Schedule dates
- Resource requirements
- Risk analysis and response

Also may require modification to:

- Scope
- Deliverables
- Etc.

Perform Integrated Change Control

Every documented requested change must be either accepted or rejected.:

- Requires persons in authority
- Change Review Boards may be formed

Perform Integrated Change Control

Inputs:

- Project Management Plan
- Work Performance Information
- Change Requests
- Enterprise Environmental Factors
- Organisational Process Assets
  - Procedures for change control, etc.

Perform Integrated Change Control

Tools and Techniques:

- Expert Judgement
  - Approval Authorities are assumed to posses expert judgement. . . .
- Change Control Meetings
- Both Will normally require Information Systems

Perform Integrated Change Control

Outputs:

- Change Request Status Updates
  - Approved Change Requests
  - Rejected Change Requests
  - Approved Corrective Actions
  - Approved Preventative Actions
  - Approved Defect Repair
- Project Management Plan Updates
- Project Document Updates

Close Project or Phase

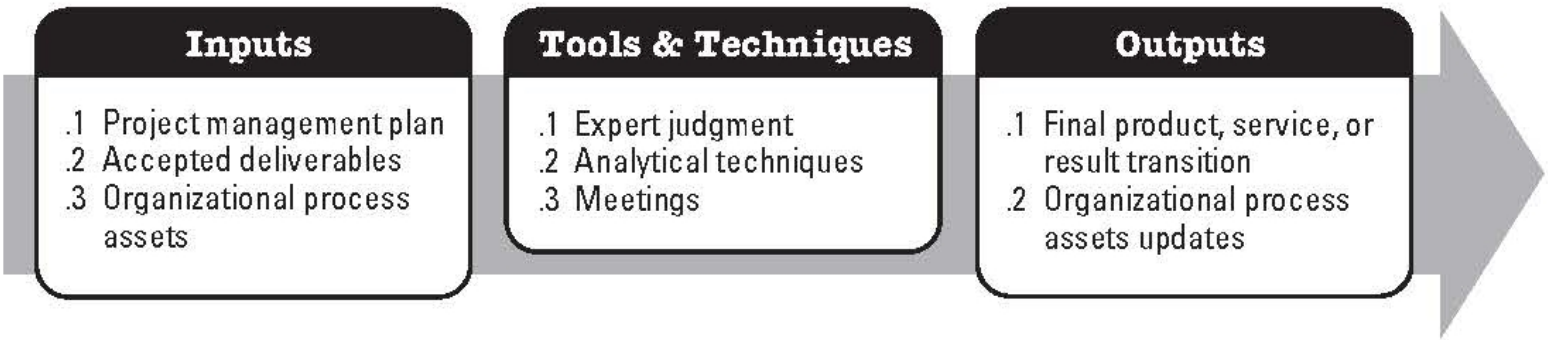

Figure 4-12. Close Project or Phase: Inputs, Tools & Techniques, and Outputs

Part of the Closing Process Group

Close Project

Close Project involves performing the project closure portion of the PM Plan.
The ‘Close Project’ process can be applied to the project as a whole but may also be applied to a project phase
Usually involves verifying and documenting project deliverable acceptances
However sometimes it involves documenting why a project was terminated before completion
Two main activities

- Administrative Closure Procedure
- Contract Closure Procedure

Close Project

Administrative Closure

- Collection of Project Records
- Success/Failure Analysis
- Lessons Learned
- Archiving of Project Information

Contract Closure

- Activities required to settle or close the contract
  - TOC; Completion Cert; Defects Liability Period, etc.
- Requires verification of project (product) acceptance