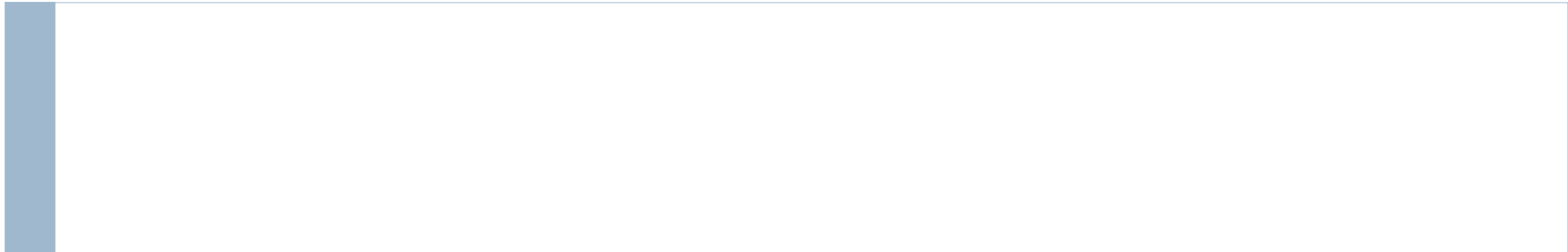# Project Integration Management

Integration Management

- **PMBOK – "**Includes the processes and activities needed to identify, define, combine, unify and coordinate the various processes and project management activities within the PM Process Groups."

Process Name	Process Group
Develop Project Charter	Initiating
Develop Project Management Plan	Planning
Direct and Manage Project Work	Executing
Manage Project Knowledge	Executing
Monitor and Control Project Work	Monitoring and Controlling
Perform Integrated Change Control	Monitoring and Controlling
Close Project	Closing

PROCESS GROUPS & KNOWLEDGE AREAS TABLE *Page 25, PMBOK*

Knowledge Areas	Project Management Process Groups				
	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Project Integration Management	Develop Project Charter	Develop Project Management Plan	Direct and Manage Project Work Manage Project Knowledge	Monitor and Control Project Work Perform Integrated Change Control	Close Project or Phase
Project Scope Management		Plan Scope Management Collect Requirements Define Scope Create WBS		Validate Scope Control Scope	
Project Schedule Management		Plan Schedule Management Define Activities Sequence Activities Estimate Activity Durations Develop Schedule		Control Schedule	
Project Cost Management		Plan Cost Management Estimate Costs Determine Budget		Control Costs	
Project Quality Management		Plan Quality Management	Manage Quality	Control Quality	
Project Resource Management		Plan Resource Management Estimate Activity Resources	Acquire Resources Develop Team Manage Team	Control Resources	
Project Communications Management		Plan Communications Management	Manage Communications	Monitor Communications	
Project Risk Management		Plan Risk Management Identify Risks Perform Qualitative Risk Analysis Perform Quantitative Risk Analysis Plan Risk Responses	Implement Risk Responses	Monitor Risks	
Project Procurement Management		Plan Procurement Management	Conduct Procurements	Control Procurements	
Project Stakeholder Management	13.1 Identify Stakeholders	Plan Stakeholder Engagement	Manage Stakeholder Engagement	Monitor Stakeholder Engagement	

Develop Project Charter

- The process of developing a document to formally authorize a project or a phase

- Outlines the project objectives

- Defines the authority of the project manager

- Provides the project manager with the authority to put the resources together to project activities

- Establishes a direct link between the project and the strategic objectives of the organization and assures the organizational commitment to the project

- The approved project charter formally initiates the project

Develop Project Charter

INPUTS

1. Business Documents
   a. Business Case
   b. Benefits Management Plan
2. Agreements
3. Enterprise Environmental Factors
4. Organizational Process Assets

TOOLS AND TECHNIQUESEXPERT JUDGMENT

1. Expert Judgment
2. Data Gathering
   a. Brainstorming
   b. Focus Groups
   c. Interview
3. Interpersonal and Team Skills
   a. Conflict Management
   b. Facilitation
   c. Meeting Management
4. Meetings

OUTPUTS

1. Project Charter
2. Assumption Log

Develop Project Charter - Inputs

- **Inputs**
  - **Business Documents -** Contain specific information as to why a project should be initiated. There are two main documents the business case and the benefits management plan.
    - ▸ **Business Case -** Necessary information that determines whether or not the project is worth the required investment
      - ☐ Market Demand, Customer Request, Organizational Need, Legal requirement
    - ▸ **Project Benefits Management Plan**
      - ☐ Describes the main benefits that the project will produce once it is completed and how to measure the benefits. The project benefit could be the product, service, or result.
      - ☐ It maybe created by doing a cost-benefit analysis a project.

Develop Project Charter - Inputs

- **Agreements**
  - Service Level Agreements (SLA)
  - Letters of intent
  - Contract between internal and external customer
  - Work required to be performed for Payment

- **Enterprise Environmental Factors**

- **Organizational Process Assets**

Develop Project Charter - Inputs

- **Project selection Methods**
  - ▸ Benefit Cost Ratio (BCR)
    - ☐ Ratio of Benefits to Cost
  - ▸ Economic Value Add (EVA)
    - ☐ How much value a project has created for its shareholders
  - ▸ Internal Rate of Return (IRR)
    - ☐ The Projects return as an interest rate, %
  - ▸ Opportunity Cost, (Smaller is better)
  - ▸ Payback Period, (Quicker is better)
  - ▸ Present value (time value of money) and Net Present Value (time value of money w/costs factored in)
  - ▸ ROI, (Return on Investment)

Develop Project Charter - Tools

- Expert Judgment
- Meetings
- Data Gathering
    - Techniques such as brainstorming, focus groups, and interviews.
- Interpersonal and Team Skills
    - Guide the development of the project, (Project Meetings, brainstorming, problem solving, & conflict resolution)
    - Meeting management techniques will be needed in order to ensure meetings are run properly.

Develop Project Charter - Output

- **Output**
  - **Project Charter**
    - ▸ Formally authorizes the existence of the project and it assigns the Project Manager and their Authority Level
    - ▸ Signed by the organization Senior Management
    - ▸ High Level requirements & risks
    - ▸ Preliminary Project Budget and Schedule
    - ▸ Project Purpose or justification
  - **Assumption Log**
    - ▸ A list of things that you perceive to be true (assumptions) and things that might constrain the project.

Develop Project Management Plan

- Process of defining, preparing, and coordinating all plan components and consolidating them into an integrated project management plan

- Comprehensive document that outlines the basis of all project work and how the work will be performed

- Either summary or detailed

- Contains baselines and plans

Develop Project Management Plan

INPUTS

1. Project Charter
2. Outputs from other Processes
3. Enterprise Environmental Factors
4. Organizational Process Assets

TOOLS AND TECHNIQUES

1. Expert Judgment
2. Data Gathering
   1.a. Brainstorming
   b. Checklists
   c. Focus Groups
   d. Interview
3. Interpersonal and Team Skills
   1.a. Conflict Management
   b. Facilitation
   c. Meeting Management

OUTPUTS

1. Project Management Plan

Develop Project Management Plan - Input

- Project Charter
  - Previous process (Develop Project Charter)

- Outputs from other Planning Processes
  - Outputs such as baselines and subsidiary management plans from the scope, time, cost, quality, risk, human resource, communication, procurement, and stakeholder planning processes are consolidated to create the Project Management Plan.

- Enterprise Environmental Factors

- Organizational Process Assets

Develop Project Management Plan -Tools

- Expert Judgment
- Data Gathering
  - Brainstorming
  - Checklists
  - Focus Groups
  - Interview
- Interpersonal and Team Skills
  - Conflict Management
  - Facilitation
  - Meeting Management
- Meetings
  - Kick-off meeting

Develop Project Management Plan - Outputs

- **Outputs**
  - **Project Management Plan**
    - Outlines how the project is executed, monitored and controlled, and closed.
    - 4 Baselines
      - Scope, Schedule, Cost, Performance Measurement
    - 14 Subsidiary plans
    - Approved by either the Project Manager, Sponsor, Functional Manager, Program Manager, or in rare instances Senior Management
    - Provides Guidance on project execution
    - Formal Written piece of communication
    - Only changed when a change request is generated and approved by the change control board

Project Plan	Process where made
Scope Management Plan	Plan Scope Management
Requirement Management Plan	Plan Scope Management
Schedule Management Plan	Plan Schedule Management
Cost Management Plan	Plan Cost Management
Quality Management Plan	Plan Quality Management
Resource Management Plan	Plan Resource Management
Communication Management Plan	Plan Communications Management
Risk Management Plan	Plan Risk Management
Procurement Management Plan	Plan Procurement Management
Stakeholder Management Plan	Plan Stakeholder Management
Change Management Plan	Develop Project Management Plan
Configuration Management Plan	Develop Project Management Plan
Scope Baseline	Create WBS
Schedule Baseline	Develop Schedule
Cost Baseline	Determine Budget
Performance Measurement Baseline	Develop Project Management Plan
Project Life Cycle Description	Develop Project Management Plan
Development Approach	Develop Project Management Plan

Project Management Plan

- **Process Improvement Plan:** Defines how processes that are used on the project will be evaluated and improved
- **Change Management Plan:** Defines how change requests will be managed, controlled, and formally authorized
- **Configuration Management Plan:** Defines how documentation changes concerning the project's deliverables and processes will be managed
- **Performance Measurement Baseline:** This is a record of what the project had planned, scheduled, and budgeted in terms of scope, schedule, and cost performance
- **Project Life Cycle:** A representation of the generally sequential and sometimes overlapping project phases that a project typically goes through.
- **Management Review:** A review by the project manager, stakeholders, and management to evaluate whether the project has the expected performance or there is a necessity to take preventive or corrective actions
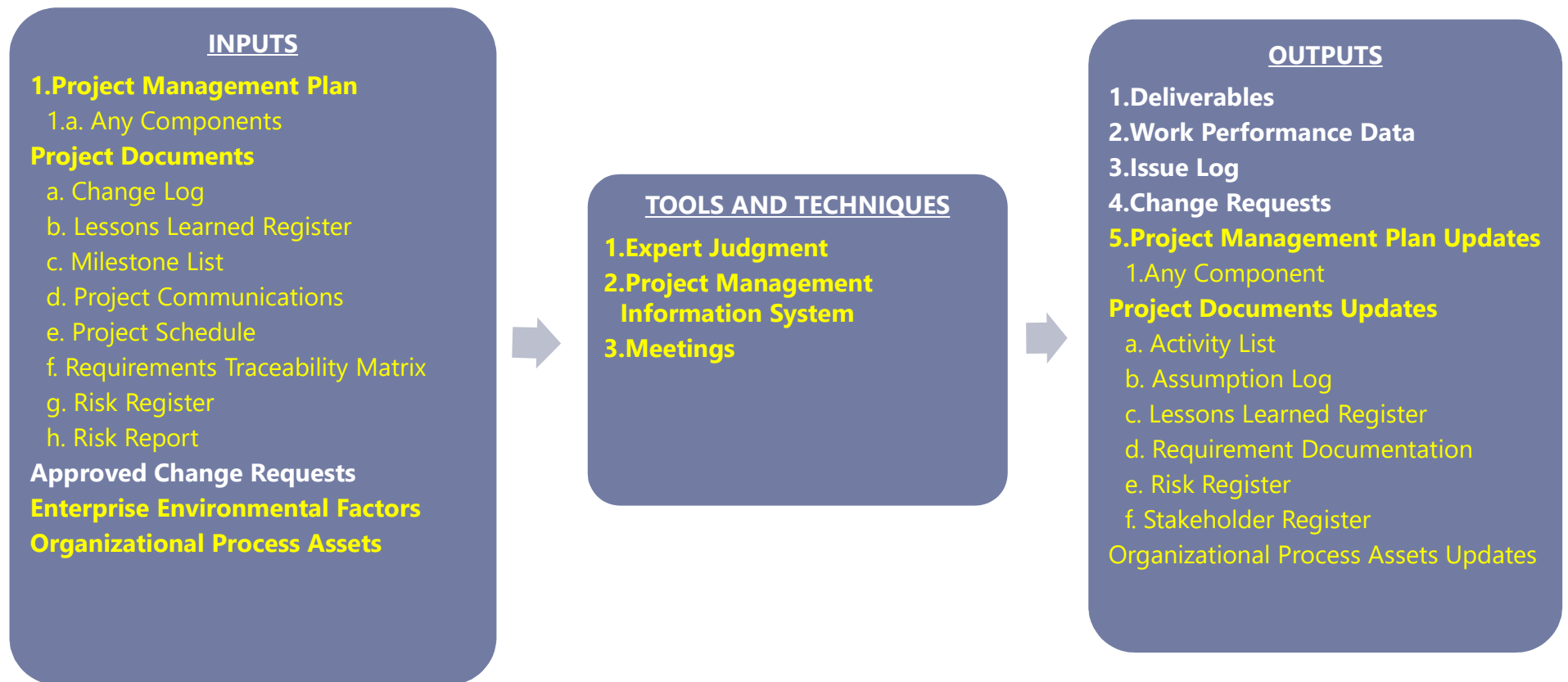
Direct and Manage Project Work

- Performing the work defined in the project management plan

- Involves managing people and keeping them engaged, improving the processes, requesting changes, and implementing approved changes

- Summary of all other executing processes

Direct and Manage Project Work - ITTO

INPUTS

1.Project Management Plan
  1.a. Any Components
Project Documents
  a. Change Log
  b. Lessons Learned Register
  c. Milestone List
  d. Project Communications
  e. Project Schedule
  f. Requirements Traceability Matrix
  g. Risk Register
  h. Risk Report
Approved Change Requests
Enterprise Environmental Factors
Organizational Process Assets

TOOLS AND TECHNIQUES

1.Expert Judgment
2.Project Management Information System
3.Meetings

OUTPUTS

1.Deliverables
2.Work Performance Data
3.Issue Log
4.Change Requests
5.Project Management Plan Updates
  1.Any Component
Project Documents Updates
  a. Activity List
  b. Assumption Log
  c. Lessons Learned Register
  d. Requirement Documentation
  e. Risk Register
  f. Stakeholder Register
Organizational Process Assets Updates

Direct and Manage Project Work - Inputs

- Project Management Plan

- Project Documents

- Approved Change Requests

- Enterprise Environmental Factors

- Organizational Process Assets

Direct and Manage Project Work - Tools

- Expert Judgment
- PMIS
- Meetings

Direct and Manage Project Work - Output

- Deliverables
  - Any product, service, or result required to complete the project

- Work Performance Data
  - Information on the status of these deliverables
  - Is it tracking Positive or Negative against the plan/baselines, (cost/durations)
  - Work completed, start/end dates of activities, # of changes requests, # of defects,

- Issue Log
  - A record of all the issues/problems you have encountered on the project
  - All issues are described, assigned, prioritized, and addressed.

Direct and Manage Project Work - Output

- Change Requests
  - Corrective Action
    - Fixing past errors
    - Realigns the project performance
  - Preventive Action
    - Fixing future errors
    - Questions if everything is aligned with the project plan
  - Defect Repair
    - Modify a nonconforming product or result

- Project Management Plan updates

- Project Document updates

- Organizational Process Assets Updates

Manage Project Knowledge

- Using existing knowledge and creating new knowledge

- Contribute to organizational learning

- Knowledge created by the project will be made available to support organizational operations and future projects or phases

- Commonly split into explicit and tacit.

Manage Project Knowledge - ITTO

INPUTS

1. **Project Management Plan**
   a. All Components
2. **Project Documents**
   a. Lessons Learned Register
   b. Project Team Assignments
   c. Resource Breakdown Structure
   d. Source Selection Criteria
   e. Stakeholder Register
3. **Deliverables**
4. **Enterprise Environmental Factors**
5. **Organizational Process Assets**

TOOLS AND TECHNIQUES

1. **Expert Judgment**
2. **Knowledge Management**
3. **Information Management**
4. **Interpersonal and Team Skills**
   a. Active Listening
   b. Facilitation
   c. Leadership
   d. Networking
   e. Political Awareness

OUTPUTS

1. **Lessons Learned Register**
2. **Project Management Plan Updates**
   a. Any Component
3. **Organizational Process Assets Updates**

Manage Project Knowledge - Inputs

- Project Management Plan
- Project Documents
- Deliverables
- Enterprise Environmental Factors
- Organizational Process Assets

Manage Project Knowledge - Tools

- Expert Judgment

- Knowledge Management
  - The sharing of knowledge between stakeholders on a project. Used to foster project interaction. Sure as:
    - Networking
    - Workshops
    - Meetings

- Information Management
  - The collection, storage, dissemination, archiving and destruction of information

- Interpersonal and Team Skills

Manage Project Knowledge - Outputs

- Lessons Learned Register
  - Gathered throughout the project, not just at the end
  - Updated whenever new knowledge within the project is discovered by any stakeholder

- Project Management Plan Updates

- Organizational Process Assets Updates

Monitor and Control Project Work

- Process of tracking, reviewing, and recording the progress to meet the performance defined in the PM Plan.

- Ensures that the plan is working, identifies any areas in which changes to the plan are required, and initiates the corresponding changes

- Takes all the Work Performance Information and creates the Work Performance Reports.

Monitor and Control Project Work - ITTO

INPUTS

1.Project Management Plan
 a.Any Component
2.Project Documents
 a.Assumption Log
 b.Basis of Estimates
 c.Cost Forecasts
 d.Issue Log
 e.Lessons Learned Register
 f.Milestone List
 g.Quality Reports
 h.Risk Register
 i.Risk Report
 j.Schedule Forecasts
3.Work Performance Information
4.Agreements
5.Enterprise Environmental Factors

TOOLS AND TECHNIQUES

1.Expert Judgment
2.Data Analysis
 a.Alternative Analysis
 b.Cost-Benefit Analysis
 c.Earned Value Analysis
 d.Root Cause Analysis
 e.Trend Analysis
 f.Variance Analysis
3.Decision making
4.Meetings

OUTPUTS

1.Work Performance Reports
2.Change Requests
3.Project Management Plan Updates
 a.Any Component
4.Project Documents Updates
 a.Cost Forecasts
 b.Issue Log
 c.Lessons Learned Register
 d.Risk Register
 e.Schedule Forecasts

Monitor and Control Project Work - Inputs

- Project Management Plan
- Project Documents
  - e.g. Issue log, Assumption log, Risk Report, Schedule forecasts
- Work Performance Information
  - Status of the deliverables, project forecasts, status of change request
- Agreements
- Enterprise Environmental Factors
- Organizational Process Asset

Monitor and Control Project Work - Tools

- Expert Judgment

- Data Analysis

- Meetings

- Decision Making

Monitor and Control Project Work - Outputs

- Change request
- Work Performance Reports
- Project Management Plan updates
- Project Document updates

Perform Integrated Change Control

- Review all change requests; approving changes and managing changes to deliverables, project documents, and the project management plan

- Communicating the decisions.

- Process where you assess the change's impact on the project

- PM ultimately responsible for all changes

- Any Stakeholder may request a change

- Should be submitted in written form

- Change Control Board – Group responsible for reviewing, evaluating, approving, deferring, or rejecting changes to the project and for recording and communicating such decisions.

Perform Integrated Change Control - ITTO

INPUTS
1. **Project Management Plan**
   a. Change Management Plan
   b. Configuration Management Plan
   c. Scope Baseline
   d. Schedule Baseline
   e. Cost Baseline
2. **Project Documents**
   a. Basis of Estimates
   b. Requirements Traceability Matrix
3. **Risk Report**
4. **Work Performance Reports**
5. **Change Requests**
6. **Enterprise Environmental Factors**
7. **Organizational Process Assets**

TOOLS AND TECHNIQUES
1. **Expert Judgment**
2. **Change Control Tools**
3. **Data Analysis**
   a. Alternative Analysis
   b. Cost-Benefit Analysis
4. **Decision making**
   a. Voting
   b. Autocratic Decision Making
   c. Multicriteria Decision Analysis
5. **Meetings**

OUTPUTS
1. **Approved Change Requests**
2. **Project Management Plan Updates**
   a. Any Component
3. **Project Documents Updates**
   a. Change Log

Perform Integrated Change Control

- **Process for making change**
    1. A stakeholder needs to identifies a need for a Change request
    2. A written change request is submitted it to the Project Manager
    3. The Project Manager assess the change and looks for any other options for the Change Request. Looks at the impact of the change request
    4. The Change request is submitted to the Change Control Board
    5. The Change request is either approved or rejected by the Change Control Board
    6. If approved, The PM will adjust the Project Management Plan
        - Then manage the project to the new plan
    7. If it is not approved, the team goes back to the issue and develop a new change request, repeat step 1

Perform Integrated Change Control - Inputs

- Project Management Plan
- Project Documents
- Work Performance Reports
- Change requests
- Enterprise Environmental Factors
- Organizational Process Assets

Perform Integrated Change Control - Tools

- Expert Judgment

- Meetings

- Data Analysis

- Decision Making

- Change Control Tools
  - To manage the change requests, status, and resulting decisions
  - Update the Stakeholders with current information

Perform Integrated Change Control - Outputs

- Approved Change Requests
    - Once the change control board members approve a change request, it will be implemented in the Direct and Manage Project Work process
- Project Management plan updates
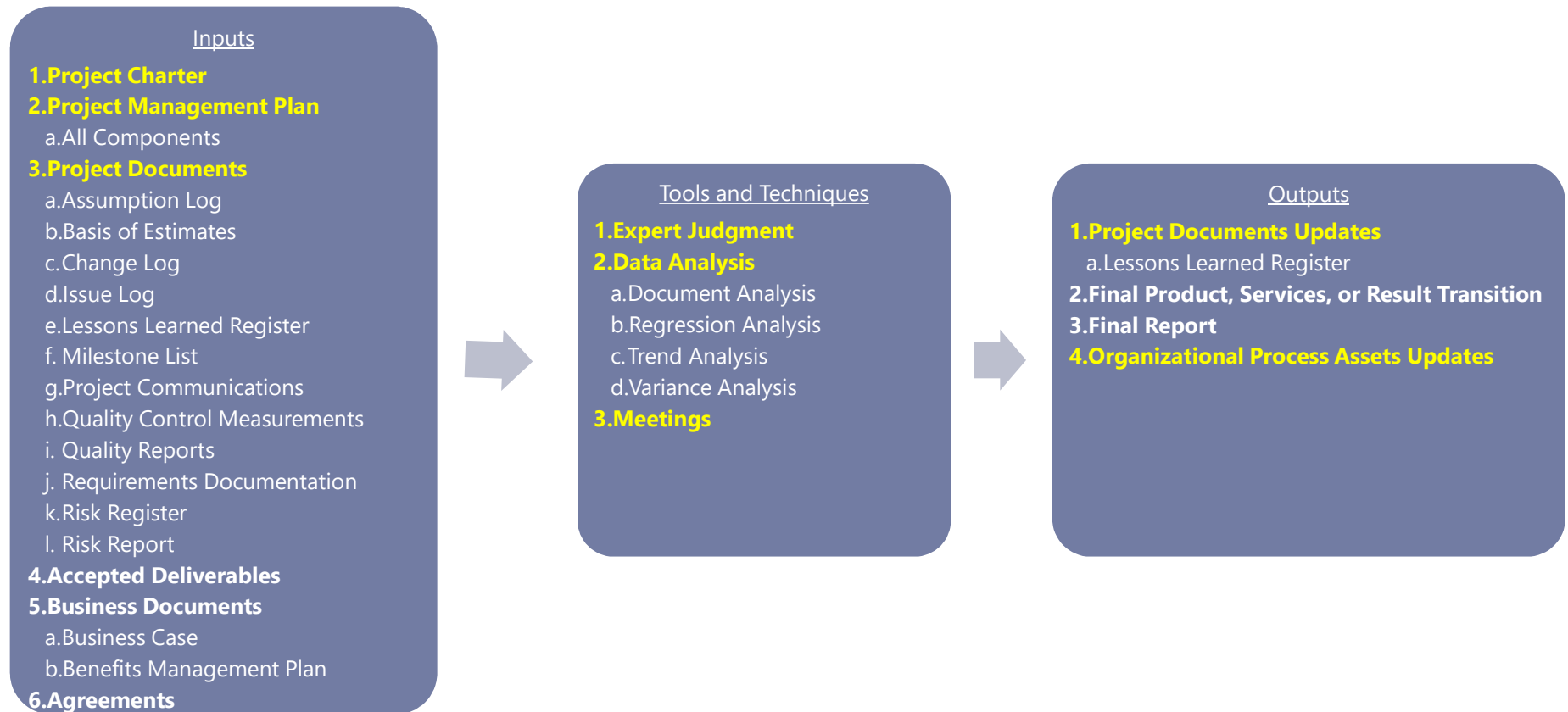- Project Document updates
    - Change log

Close Project or Phase

- Finalizing all activities for the project, phase, or contract.

- Making certain that all documents and deliverables are up-to-date and that all issues are resolved

- Confirming the delivery and formal acceptance of deliverables by the customer

- Closing project accounts

- Reassigning personnel

- Confirming the formal acceptance of the seller's work and finalizing open claims

- Audit project success or failure

- Identify lessons learned, and archive project information for future use by the organization.

- Transfer the project's products, services, or results to the next phase or to production and/or operations

- Investigate and document the reasons for actions taken if the project is terminated before completion.

Close Project or Phase - ITTO

Inputs

1. Project Charter
2. Project Management Plan
  a. All Components
3. Project Documents
  a. Assumption Log
  b. Basis of Estimates
  c. Change Log
  d. Issue Log
  e. Lessons Learned Register
  f. Milestone List
  g. Project Communications
  h. Quality Control Measurements
  i. Quality Reports
  j. Requirements Documentation
  k. Risk Register
  l. Risk Report
4. Accepted Deliverables
5. Business Documents
  a. Business Case
  b. Benefits Management Plan
6. Agreements

Tools and Techniques

1. Expert Judgment
2. Data Analysis
  a. Document Analysis
  b. Regression Analysis
  c. Trend Analysis
  d. Variance Analysis
3. Meetings

Outputs

1. Project Documents Updates
  a. Lessons Learned Register
2. Final Product, Services, or Result Transition
3. Final Report
4. Organizational Process Assets Updates

Close Project or Phase - Inputs

- Project Charter

- Project Management Plan

- Project Documents

- Accepted Deliverables

- Business Documents

- Agreements

- Procurement Documentation

- Organizational Process Assets

Close Project or Phase - Tools

- Expert Judgment

- Analytical Techniques
  - Document Analysis
  - Trend Analysis
  - Variance Analysis

- Meetings

Close Project or Phase - Outputs

- Final Product service, or result Transition
  - The transition of the deliverable to organization.

- Final report
  - A summary of what took place in the project
  - How successful was the project?
  - Any variations in the Baselines

- Project Document Updates

- Organizational Process Assets Updates