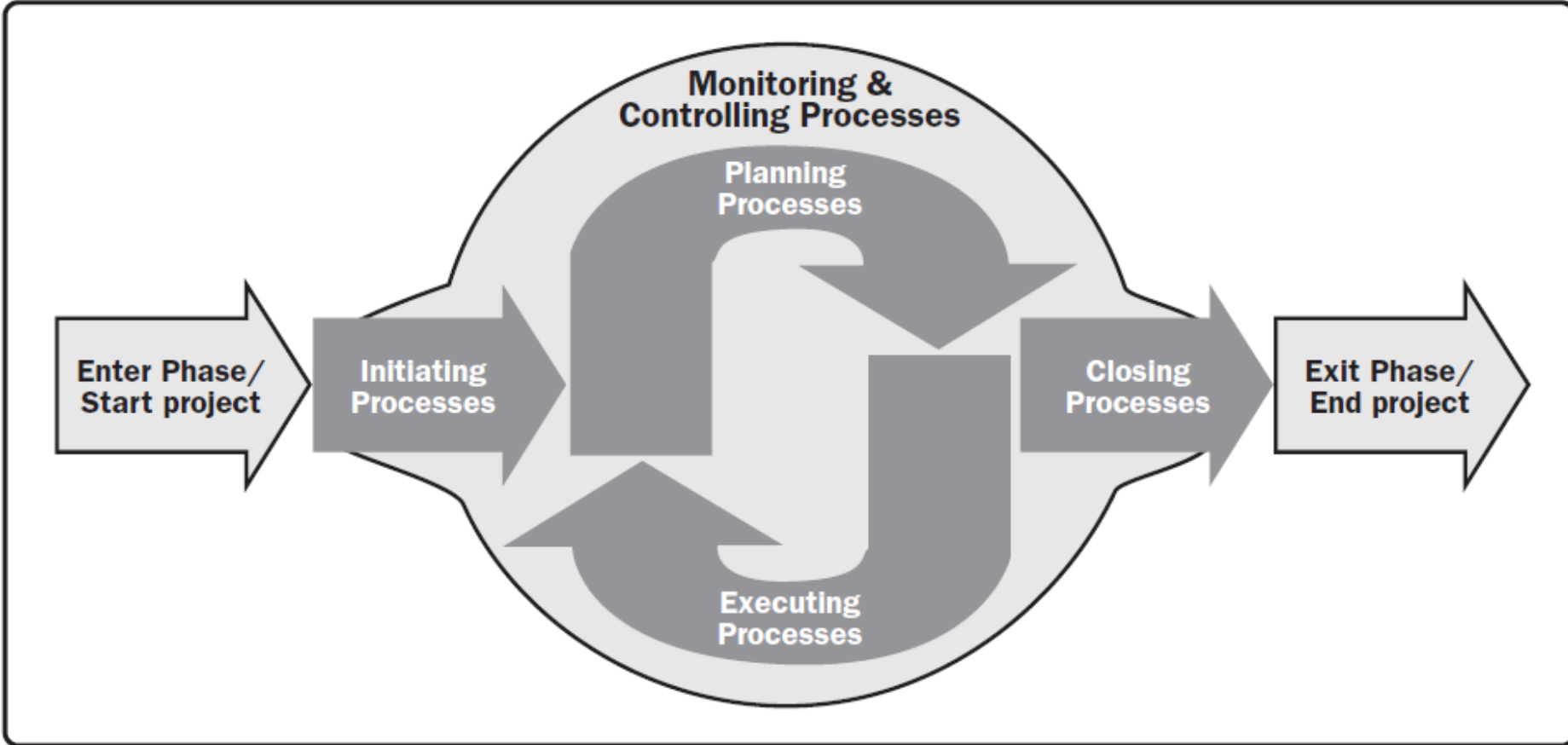# Software Project Management
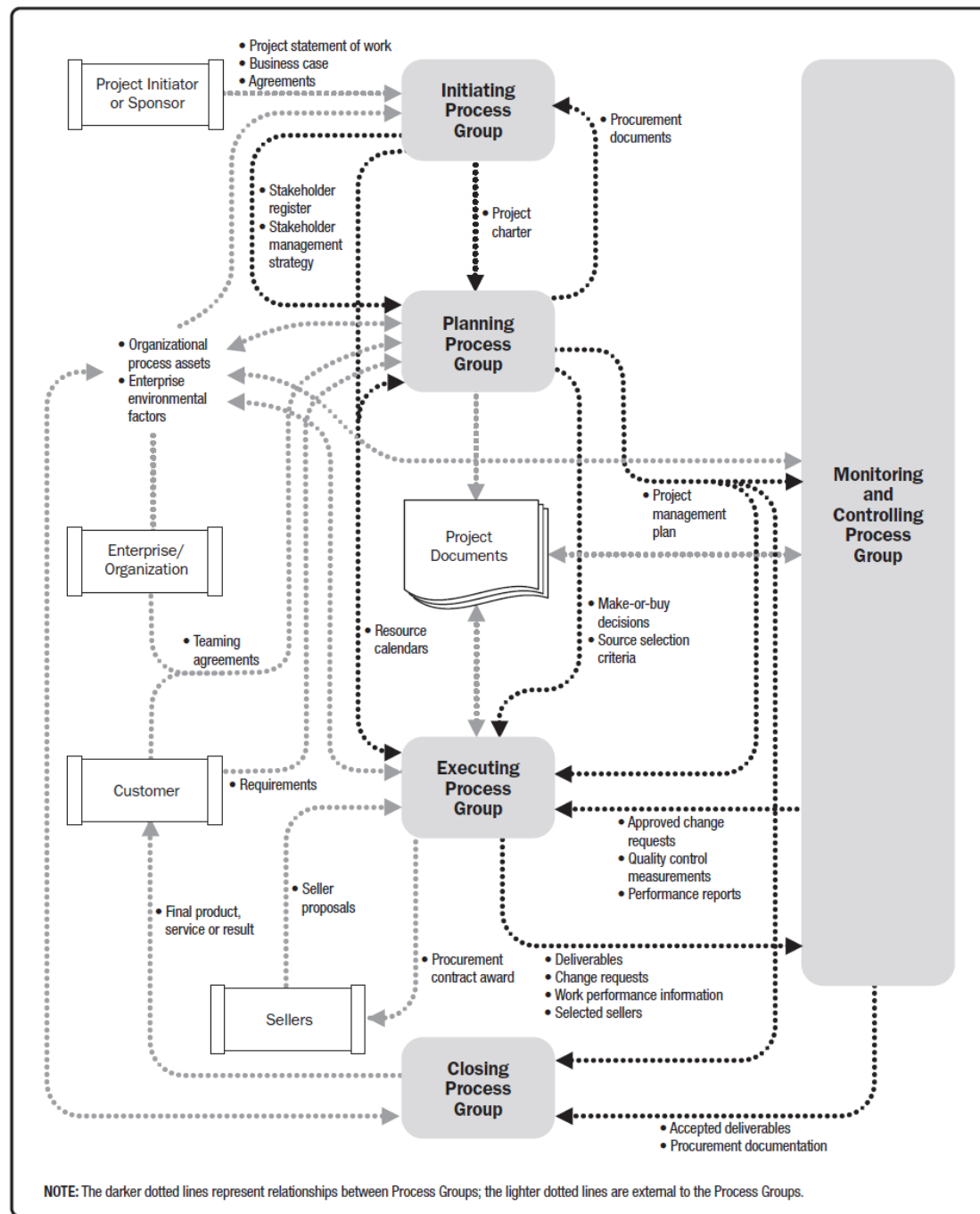
IIT 2023

4th year

Raisul Kabir

Figure 3-1. Project Management Process Groups
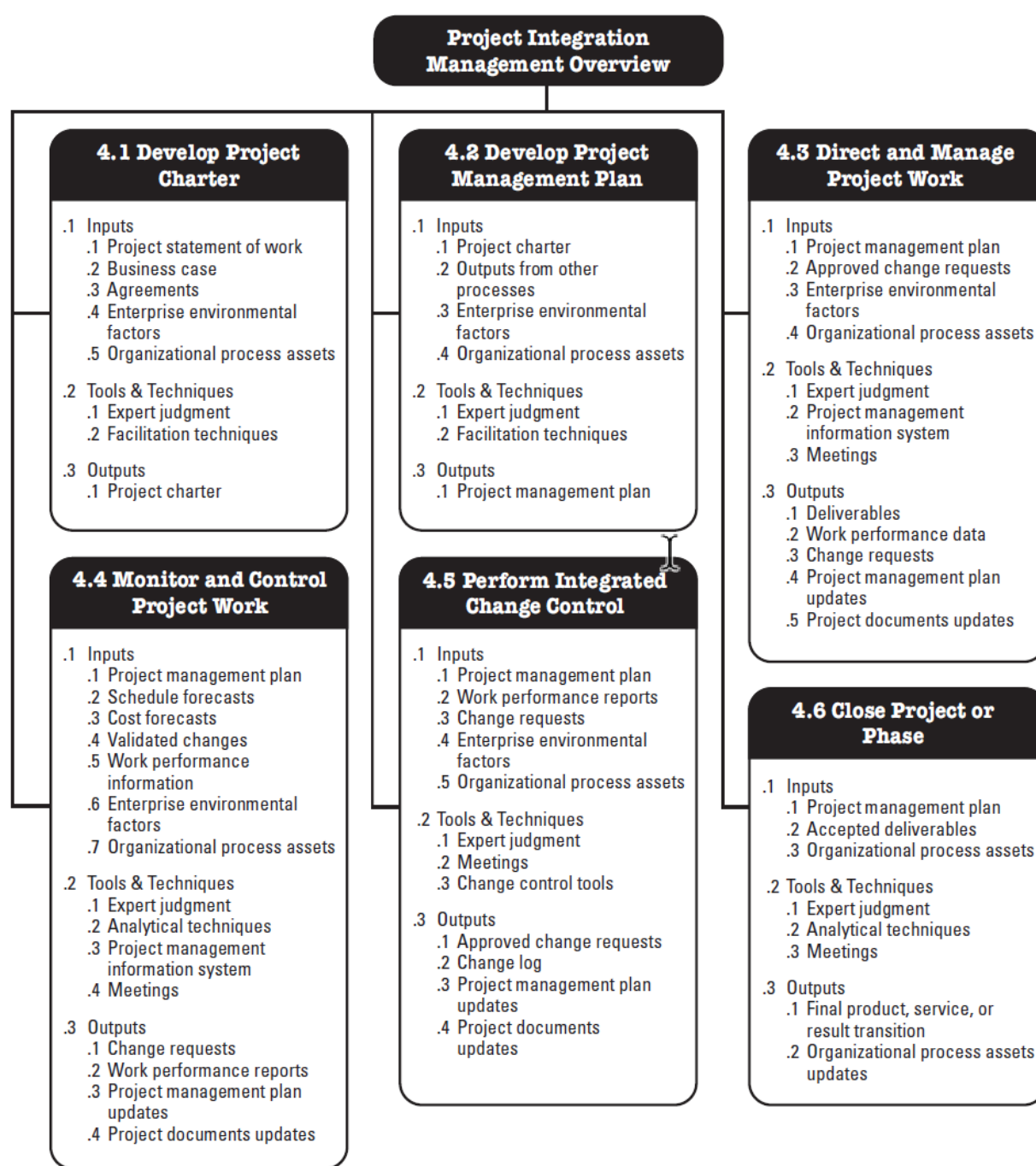
Figure 3-3. Project Management Process Interactions
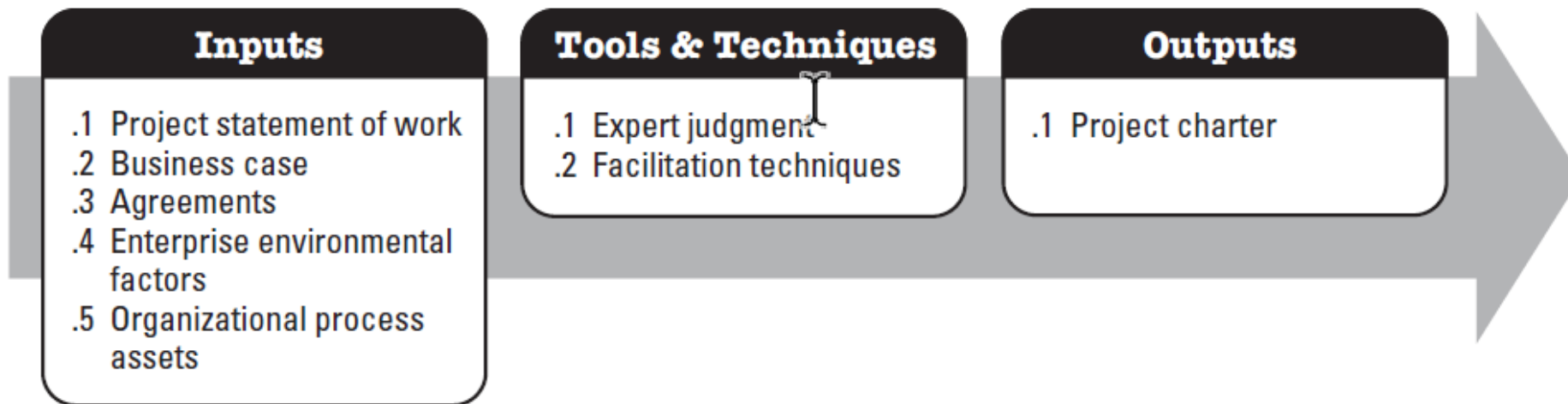
Diagram labels:

Project Initiator or Sponsor
- Project statement of work
- Business case
- Agreements

Initiating Process Group
- Procurement documents

- Stakeholder register
- Stakeholder management strategy

- Project charter

Planning Process Group

- Organizational process assets
- Enterprise environmental factors

Enterprise/Organization

Project Documents

- Project management plan

Monitoring and Controlling Process Group

- Make-or-buy decisions
- Source selection criteria

- Resource calendars

- Teaming agreements

Customer
- Requirements

Executing Process Group

- Approved change requests
- Quality control measurements
- Performance reports

- Final product, service or result

- Seller proposals

- Procurement contract award

- Deliverables
- Change requests
- Work performance information
- Selected sellers

Sellers

Closing Process Group

- Accepted deliverables
- Procurement documentation

NOTE: The darker dotted lines represent relationships between Process Groups; the lighter dotted lines are external to the Process Groups.

Table 3-1. Project Management Process Group and Knowledge Area Mapping

Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work	4.4 Monitor and Control Project Work 4.5 Perform Integrated Change Control	4.6 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Time Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Resources 6.5 Estimate Activity Durations 6.6 Develop Schedule		6.7 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	

8. Project Quality Management		8.1 Plan Quality Management	8.2 Perform Quality Assurance	8.3 Control Quality	
9. Project Human Resource Management		9.1 Plan Human Resource Management	9.2 Acquire Project Team 9.3 Develop Project Team ==9.4 Manage Project Team==		
10. Project Communications Management		10.1 Plan Communications Management	==10.2 Manage Communications==	10.3 Control Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses		11.6 Control Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	12.4 Close Procurements
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Management	==13.3 Manage Stakeholder Engagement==	13.4 Control Stakeholder Engagement	

Project Integration Management Overview

4.1 Develop Project Charter

.1 Inputs
  .1 Project statement of work
  .2 Business case
  .3 Agreements
  .4 Enterprise environmental factors
  .5 Organizational process assets

.2 Tools & Techniques
  .1 Expert judgment
  .2 Facilitation techniques

.3 Outputs
  .1 Project charter

4.2 Develop Project Management Plan

.1 Inputs
  .1 Project charter
  .2 Outputs from other processes
  .3 Enterprise environmental factors
  .4 Organizational process assets

.2 Tools & Techniques
  .1 Expert judgment
  .2 Facilitation techniques

.3 Outputs
  .1 Project management plan

4.3 Direct and Manage Project Work

.1 Inputs
  .1 Project management plan
  .2 Approved change requests
  .3 Enterprise environmental factors
  .4 Organizational process assets

.2 Tools & Techniques
  .1 Expert judgment
  .2 Project management information system
  .3 Meetings

.3 Outputs
  .1 Deliverables
  .2 Work performance data
  .3 Change requests
  .4 Project management plan updates
  .5 Project documents updates

4.4 Monitor and Control Project Work

.1 Inputs
  .1 Project management plan
  .2 Schedule forecasts
  .3 Cost forecasts
  .4 Validated changes
  .5 Work performance information
  .6 Enterprise environmental factors
  .7 Organizational process assets

.2 Tools & Techniques
  .1 Expert judgment
  .2 Analytical techniques
  .3 Project management information system
  .4 Meetings

.3 Outputs
  .1 Change requests
  .2 Work performance reports
  .3 Project management plan updates
  .4 Project documents updates

4.5 Perform Integrated Change Control

.1 Inputs
  .1 Project management plan
  .2 Work performance reports
  .3 Change requests
  .4 Enterprise environmental factors
  .5 Organizational process assets

.2 Tools & Techniques
  .1 Expert judgment
  .2 Meetings
  .3 Change control tools

.3 Outputs
  .1 Approved change requests
  .2 Change log
  .3 Project management plan updates
  .4 Project documents updates

4.6 Close Project or Phase

.1 Inputs
  .1 Project management plan
  .2 Accepted deliverables
  .3 Organizational process assets

.2 Tools & Techniques
  .1 Expert judgment
  .2 Analytical techniques
  .3 Meetings

.3 Outputs
  .1 Final product, service, or result transition
  .2 Organizational process assets updates

Figure 4-1. Project Integration Management Overview

Inputs

- .1 Project statement of work
- .2 Business case
- .3 Agreements
- .4 Enterprise environmental factors
- .5 Organizational process assets

Tools & Techniques

- .1 Expert judgment
- .2 Facilitation techniques

Outputs

- .1 Project charter

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

Project Charter

- Project purpose or justification,
- Measurable project objectives and related success criteria
- High-level requirements,
- Assumptions and constraints,
- High-level project description and boundaries,
- High-level risks,
- Summary milestone schedule
- Summary budget
- Stakeholder list
- Project approval requirements (i.e., what constitutes project success, who decides the project is successful, and who signs off on the project)
- Assigned project manager, responsibility, and authority level, and
- Name and authority of the sponsor or other person(s) authorizing the project charte

4.2 Develop Project Management Plan
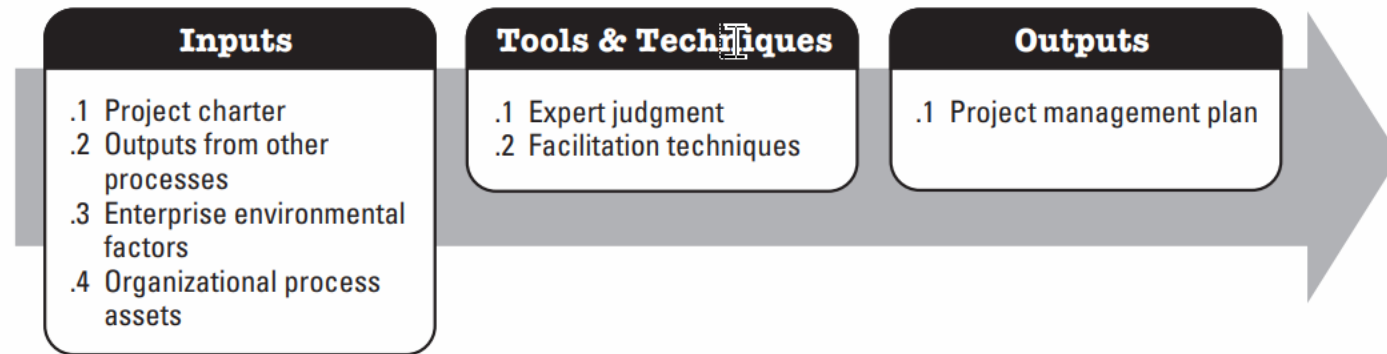
Figure 4-3. Develop Project Charter Data Flow Diagram

4.2.3.1 Project Management Plan

• Scope baseline (Section 5.4.3.1),
• Schedule baseline (Section 6.6.3.1), and
• Cost baseline (Section 7.3.3.1)

• Scope management plan (Section 5.1.3.1),
• Requirements management plan (Section 5.1.3.2),
• Schedule management plan (Section 6.1.3.1),
• Cost management plan (Section 7.1.3.1),
• Quality management plan (Section 8.1.3.1),
• Process improvement plan (Section 8.1.3.2),
• Human resource management plan (Section 9.1.3.1),
• Communications management plan (Section 10.1.3.1),
• Risk management plan (Section 11.1.3.1),
• Procurement management plan (Section 12.1.3.1), and
• Stakeholder management plan (Section 13.2.3.1).

4.3 Direct and Manage Project Work

Direct and Manage Project Work is the process of leading and performing the work defined in the project management plan and implementing approved changes to achieve the project's objectives. The key benefit of this process is that it provides overall management of the project work. The inputs, tools and techniques, and outputs of this process are depicted in Figure 4-6. Figure 4-7 depicts the data flow diagram of the process.

Inputs	Tools & Techniques	Outputs
.1 Project management plan .2 Approved change requests .3 Enterprise environmental factors .4 Organizational process assets	.1 Expert judgment .2 Project management information system .3 Meetings	.1 Deliverables .2 Work performance data .3 Change requests .4 Project management plan updates .5 Project documents updates
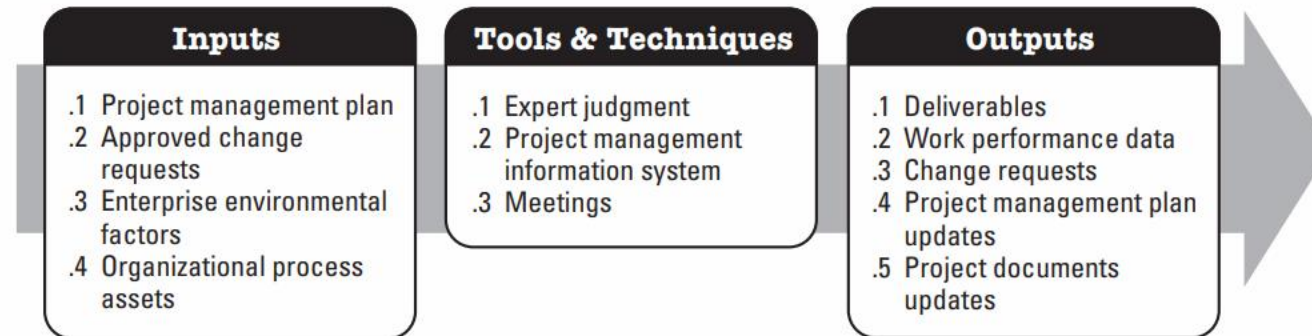
Figure 4-6. Direct and Manage Project Work: Inputs, Tools and Techniques, and Outputs