

Executing Projects

COMP6204: Software Project Management and Secure
Development

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Overview

- Objectives
- 10 Sub-Processes of Executing Project
- Performing Project Execution
- Common Problems During Execution
- Project Integration Management
- Resource Mobilization & Management
- Resource loading & Resource levelling
- Team management & Leadership styles
- Manage quality and Risk
- Manage Communications, Stakeholders and Procurement

Objectives

- The key learning objectives of this chapter are
 - Discuss what is involved in directing and **managing project work** and managing **project knowledge**
 - Understand how to develop and manage the project team
 - Understand **leadership styles** and project management **principles** that **assist in executing projects**
 - Understand how to ensure that the project quality is up to the mark using audits
 - Learn communications, stakeholders, and procurement-related actions to be taken during project execution

Processes in Executing Process Groups (10 Processes)

1. Direct and Manage Project Work ⇒ Project Integration Management

is the process of using existing knowledge and creating new knowledge to achieve the project's objectives and contribute to organizational learning

2. Manage Project Knowledge (Project Integration Management)

is the process of using existing knowledge and creating new knowledge to achieve the project's objectives and contribute to organizational learning.

3. Manage Quality ⇒ Project Quality Management

is the process of translating the quality management plan into executable quality activities that incorporate the organization's quality policies into the project.

4. Acquire Resource ⇒ Project Resource Management

is the process of obtaining team members, facilities, equipment, materials, supplies, and other resources necessary to complete project work

5. Develop Team (Project Resource Management)

is the process of improving competencies, team member interaction, and overall team environment to enhance project performance.

Source: <https://mudassiriqbal.net/executing-process-group/>

Processes in Executing Process Groups (10 Processes)– Cont.

6. Manage Team (Project Resource Management)

Manage Team is the process of tracking team member performance, providing feedback, resolving issues, and managing team changes to optimize project performance.

7. Manage Communications ⇒ Project Communication Management

is the process of ensuring timely and appropriate collection, creation, distribution, storage, retrieval, management, monitoring, and the ultimate disposition of project information

8. Implement Risk Responses ⇒ Project Risk Management

Implement Risk Responses is the process of implementing agreed-upon risk response plans

9. Conduct Procurements ⇒ Project Procurement Management

Conduct Procurements is the process of obtaining seller responses, selecting a seller, and awarding a contract.

10. Manage Stakeholder Engagement ⇒ Project Stakeholder Management

Manage Stakeholder Engagement is the process of communicating and working with stakeholders to meet their needs and expectations, address issues, and foster appropriate stakeholder involvement

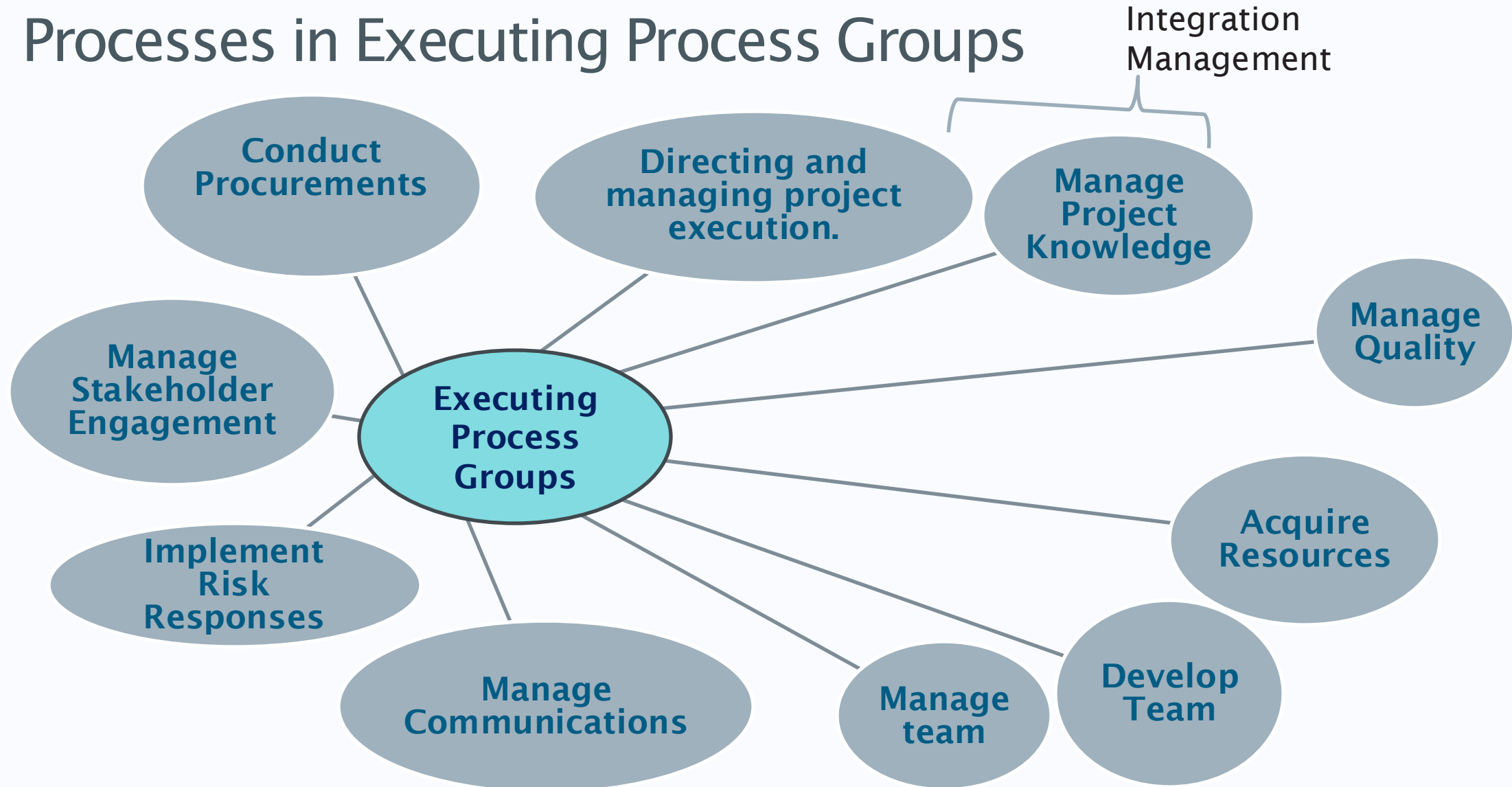
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Processes in Executing Process Groups

It consists of those processes performed to complete the work defined in the project management plan to satisfy the project specifications.



Processes in Executing Process Groups



Performing Project Execution

- Most of the project's **time** and **costs** are spent during the **execution** phase.
 - Resources perform the work as planned and produce **deliverables**.
 - **Data** related to the **efforts spent** on the deliverable, **start** and **finish** dates, and **costs** incurred, are also collected.
 - This data is used to measure **project variances** for tracking the project against its **baseline**.
 - While a project is being executed, the original **plan** might **require changes**.
 - These are raised as **Change Requests** and go for approval.
 - **Process** for **handling changes** should be defined during **project planning** phase.

Common Problems During Execution

- Change might become necessary due to uncovering some problems
 - The project **objectives/scope** are **unclear**.
 - **Estimates** for **time** and **cost** goals are **unreliable** or **unrealistic**.
 - Business needs/**technology changes** have impacted the project.
 - People working on the project are **incompetent** or **unmotivated**.
 - There are **poor conflict-management** procedures.
 - Communications are poor.
 - **Suppliers** are **not delivering** as promised.
- Some problems can be **avoided** by doing a good job of **initiating**, **planning**, or **monitoring and controlling** the project, but other problems cannot be avoided.

Project Integration Management

- Main outputs during execution are:
 - Deliverables,
 - Work performance data,
 - Issue logs,
 - Change requests,
 - Project management plan updates,
 - Project documents updates,
 - Organisational process assets updates

Sample Milestone for Reporting Work Performance Data

Milestone	Date	Status	Responsible	Issues/Comments
Researched existing training	8/13	Complete	Jamie (replaced by Abner)	Many basic courses available, but not much advanced/tailored training. (Note: Replaced Jamie with better candidate for project after Jamie completed this task)
Presented supplier management training survey results to steering committee	8/24	Complete	Kristin	Great feedback. Many people stressed the need to have instructor-led training and mentors for soft skills development
Meetings with potential partners	9/21	In progress	Kristin/ Contracting	May need more time for meetings

Issue Logs

- An *issue log* helps to **document**, **monitor**, and **track issues** that need to be **resolved** for effective work to take place.
- An *issue* is a matter under **question** or **dispute** that could **impede** project **success**.
- Issues can **hurt** team **performance**, so it is important to take action to resolve them.
- A **critical issue** is anything that prevents progress on scheduled activities.
 - If the activity is on the **critical path**, resolution is **urgent**.
 - There should be an **issue escalation process** that ensures issue resolution action.

Sample issue log

Issue #	Issue Description	Impact on Project	Date Reported	Reported By	Assigned To	Priority (H/M/L)	Due Date	Status	Comments/ Follow-up
1	Key project team member is not working out	Can severely hurt project because Jamie is our supplier management expert	Aug 2	Kristin	Kristin	H	Sep 2	Open	Working with Jamie and appropriate managers to find a replacement
2	IT staff that is performing survey is over allocated	Delaying the survey will delay the entire project because it is a critical task	Sep 26	Mohamed	Kristin	H	Aug 5	Closed	Paid overtime was approved
Etc.									

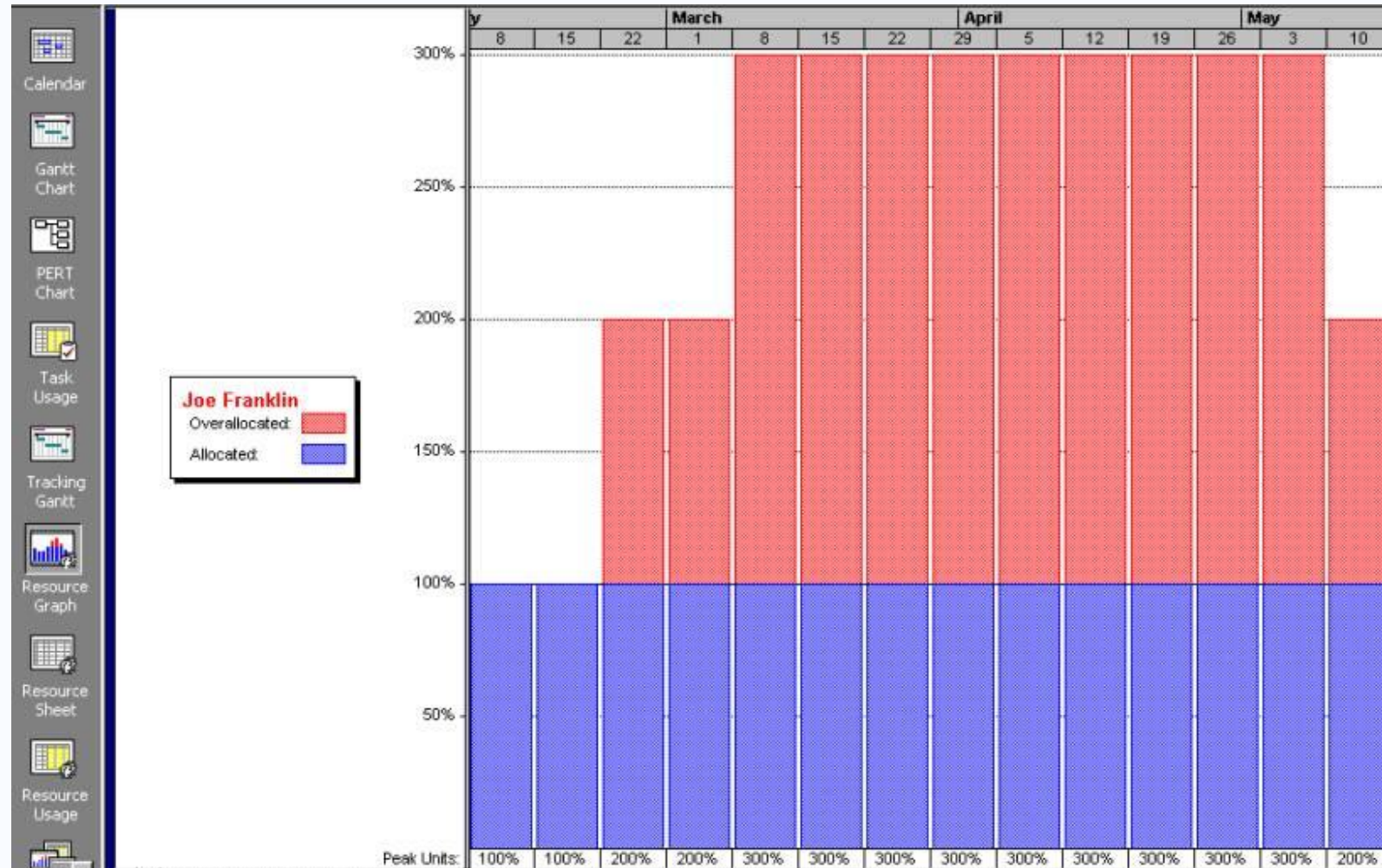
Resource Mobilisation & Management

- Projects require **resources**, that include **human resources** and machines.
 - The project plan states **how many resources** of **what type** are required at **different times** (resource histogram).
 - Some projects require work to be done in **multiple locations** and, hence, have **virtual teams** (teams spread across geographies).
- All these factors need to be kept in mind while **mobilising** the **right number** of **resources** possessing the **right skills** at the **right location**.
- **Holding resources** would be a ***cost on the project***, hence projects hold on to them only for the required duration.
 - What if we cannot get the resources when we need them.

Resource Loading

- **Resource loading** refers to the number of individual resources an **existing schedule** requires during **specific time periods**.
- Helps project managers to develop a general understanding of the **demands** a project will make on the organisation's **resources** and **individual people's schedules**
 - **Overallocation** is one of the **major issues** when it comes to **resource loading**
 - **Overallocation** means more resources than what are available assigned to tasks
- Project managers often use **resource histograms**, as described in the project planning lectures.

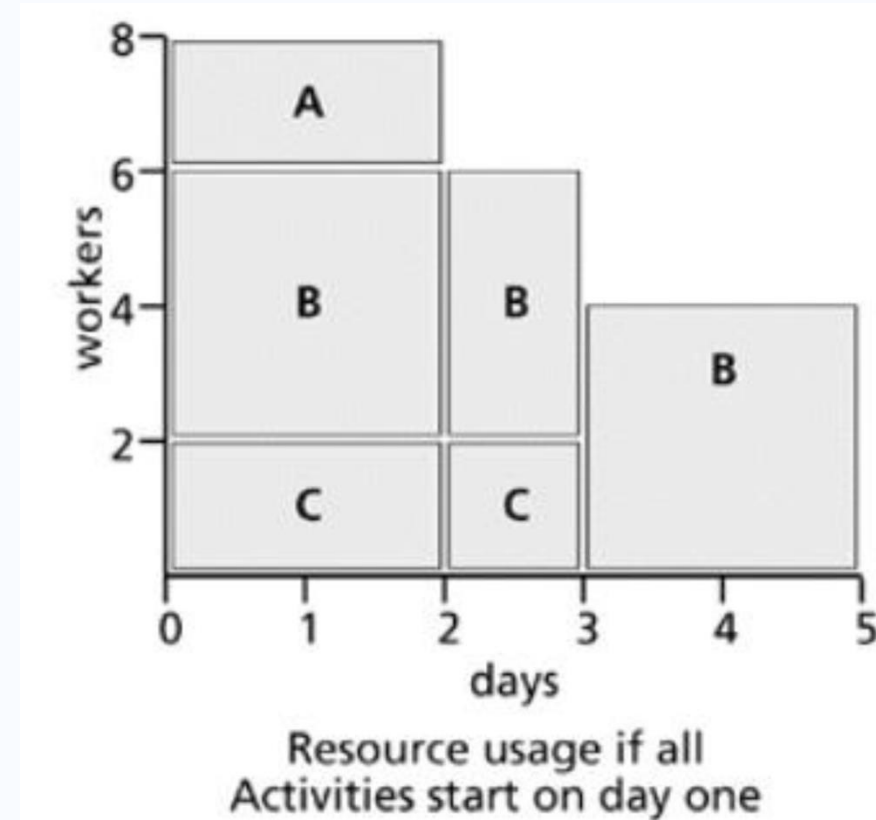
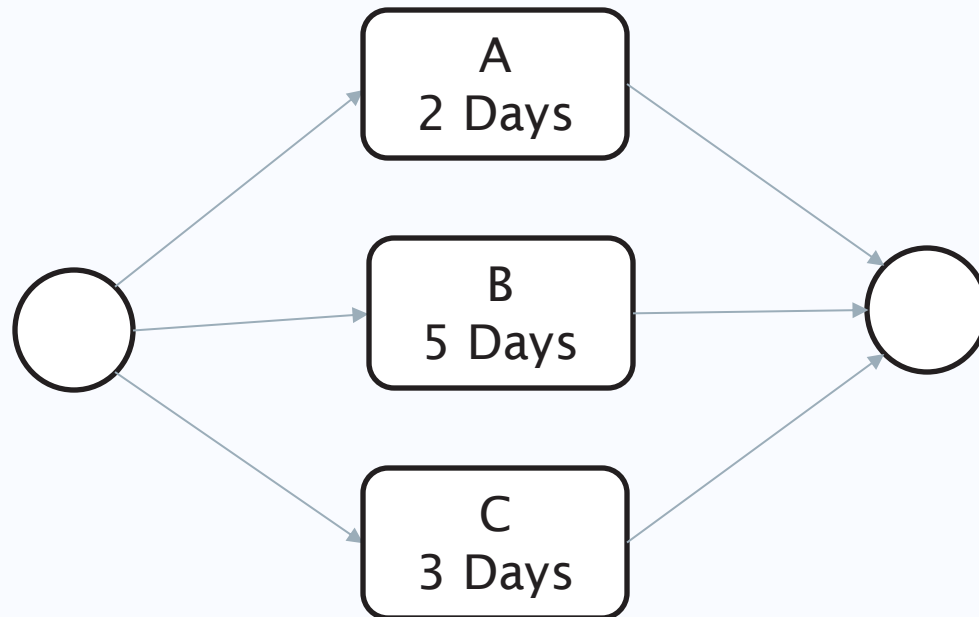
Sample Resource Histogram Showing an Overallocated Individual



Resource Levelling

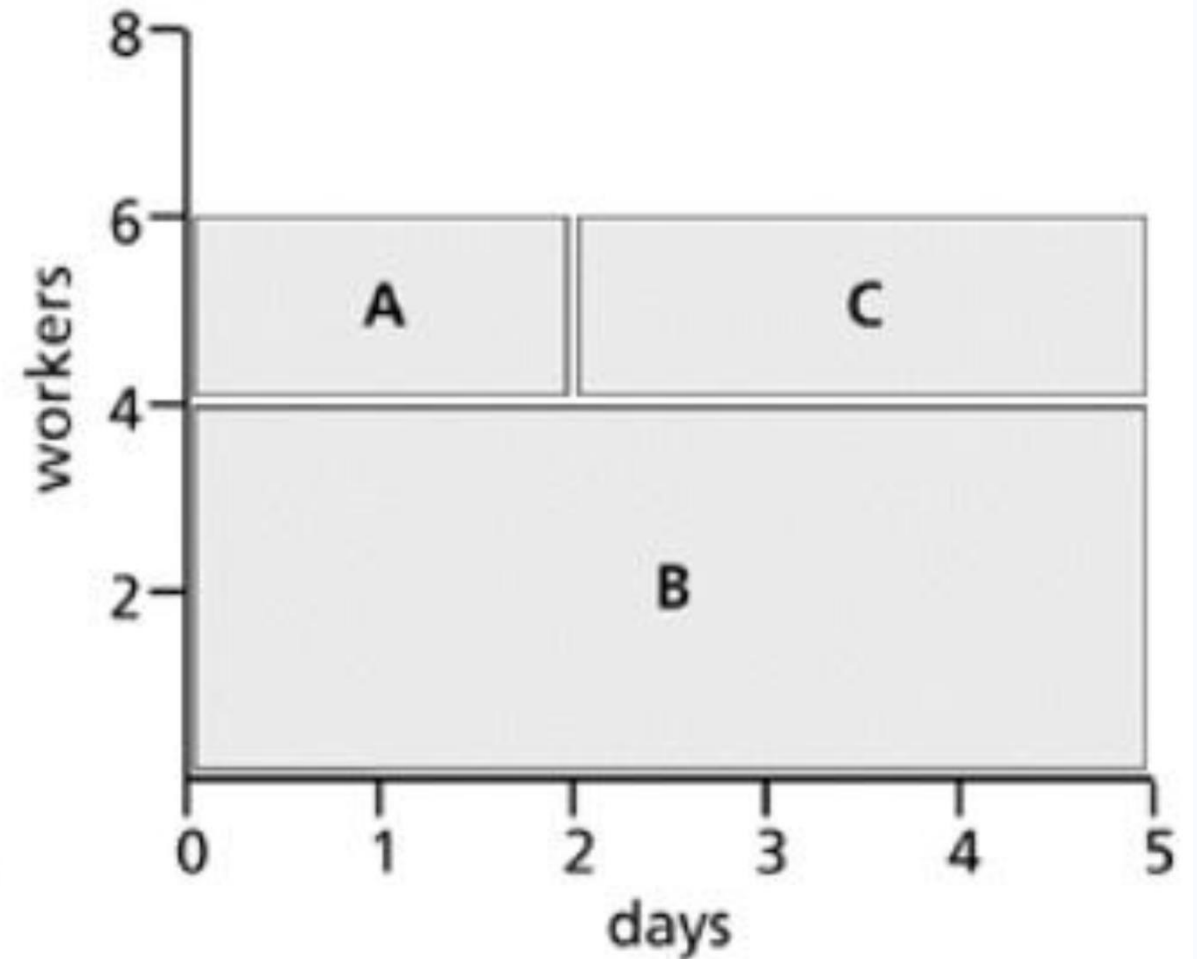
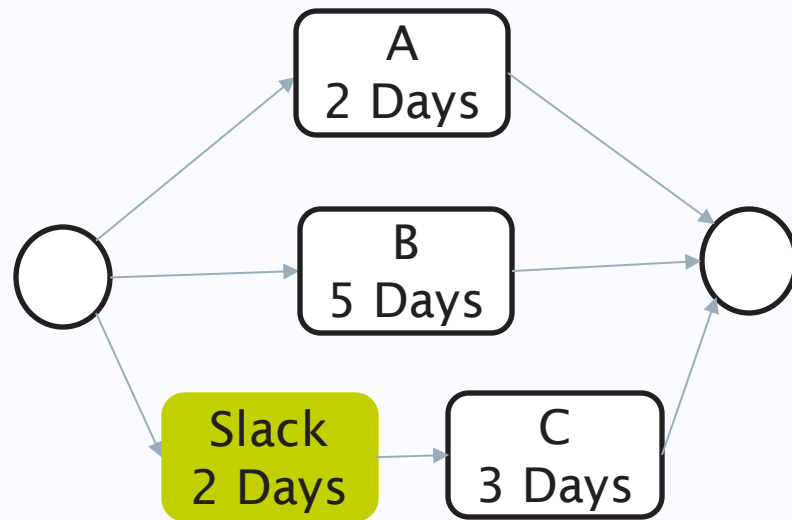
- Resource leveling is a technique to help you better accommodate resource constraints by adjusting the *start* and *finish dates* of a project.
- In doing so, you can make *realistic project deadlines* without *overworking* your team and *increasing* the *total cost* of the project.
- The main purpose of *resource leveling* is to create a *smoother distribution* of resource usage and reduce overallocation

Resource Levelling Example



The Project Network Activities A, B, and C and duration as shown.
 Activity A has 3 days slack, and Activity C has 2 days of Slack.
 Assume Activity A has 2 workers, B has 4 workers and C has 2 workers.

Resource Levelling Example



Resource usage if Activity C
is delayed 2 days, its total slack

Team Management

- During project execution the project manager needs to **develop** a **team** and **manage** the **team members**.
- Taking actions that improve the effectiveness of the entire team as a single unit.
 - Setting team culture
 - Imparting training to team members
 - Organizing team building activities
 - Distributing rewards and recognition

Tuckman Model of Team Development

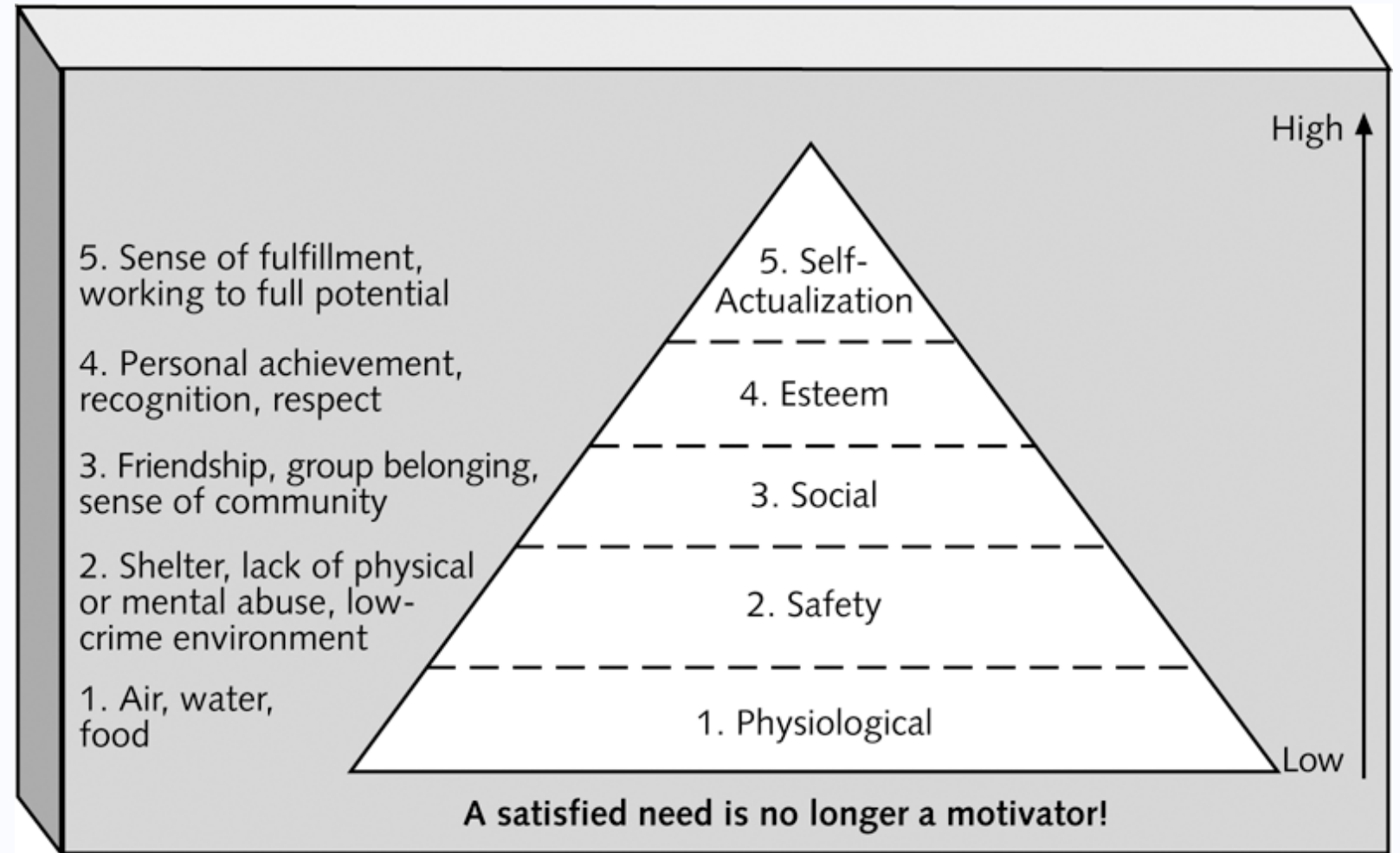
- *Forming* – involves the introduction of team members
- *Storming* – occurs as team members have different opinions as to how the team should operate – conflict within the team
- *Norming* – is achieved when team members have developed a common working method, and cooperation and collaboration replace the conflict and mistrust of the previous phase.
- *Performing* – occurs when the emphasis shifts to reaching the team goals rather than working on team process.
- *Adjourning* – involves the breakup of the team after they successfully reach their goals and complete the work. Teams might also adjourn due to poor performance or project cancellation.

Motivation

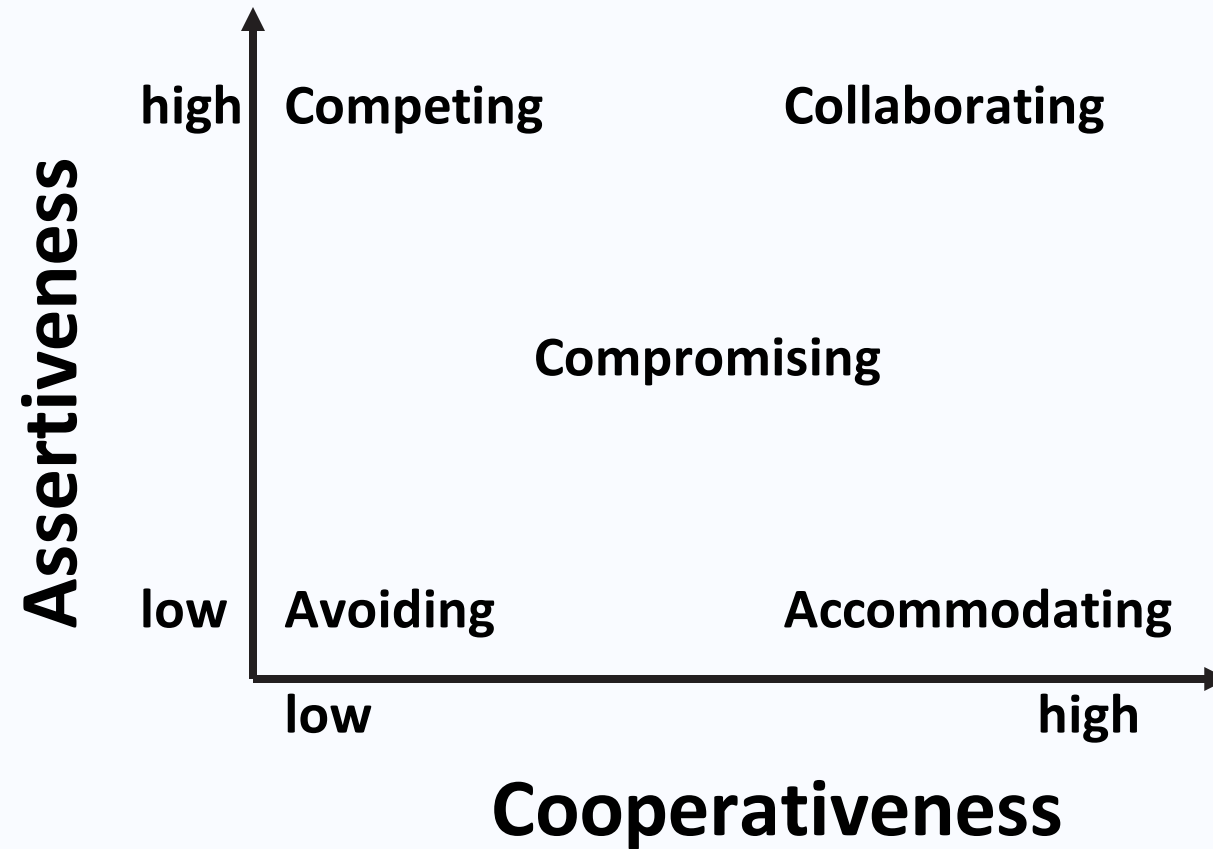
- Project managers must understand **motivation theories** to effectively execute projects
- There are two general categories of Motivation
 - **Intrinsic motivation** causes people to participate in an activity for their own **enjoyment**
 - **Extrinsic motivation** causes people to do something for a **reward** or to avoid a **penalty**

Maslow's Hierarchy of Needs

Maslow suggested that people's behaviors are guided or motivated by a *sequence of needs*



Conflict Handling approaches



Conflict Handling Modes

- **Competing** is *assertive* and *uncooperative*, when people pursue their own concerns at other people's expense.
- **Accommodating** is *unassertive* and *cooperative*, when people neglect their own concerns to satisfy the concerns of other people.
- **Avoiding** is *unassertive* and *uncooperative*, when people neither pursue their own concerns nor those of others by simply not dealing with the conflict.
- **Collaborating** is both *assertive* and *cooperative*, when people attempt to work with others to find some solution that fully satisfies their concerns.
- **Compromising** is *moderate* in both *assertiveness* and *cooperativeness*, where the objective is to find a mutually acceptable solution that partially satisfies both parties.

More on Conflict

- Conflict can be *good*; it often produces **important results**, such as **new ideas**, **better alternatives**, and **motivation** to work harder and more collaboratively
- Project team members might become stagnant or develop **groupthink**—**conformance** to the values or ethical standards of a group—if there are no conflicting viewpoints on various aspects of a project
- Research suggests that:
 - *Task-related conflict*, which is derived from differences over team objectives and how to achieve them, often improves team performance
 - *Emotional conflict*, however, which stems from personality clashes and misunderstandings, often depresses team performance

Leadership Styles

- **Laissez-faire**: Meaning “let go,” this hands-off approach lets teams determine their own goals and how to achieve them.
- **Transactional**: This management by exception approach focuses on achieving goals or compliance by offering team members appropriate rewards and punishments.
- **Servant leader**: People using this approach focus on relationships and community first and leadership is secondary.
- **Transformational**: By working with others to identify needed changes, these leaders empower others and guide changes through inspiration.
- **Charismatic**: These people can inspire others based on their enthusiasm and confidence.
- **Interactional**: This leadership style is a combination of transactional, transformational, and charismatic.

Daniel Goleman on Situational Leadership

1. **Visionary**: Needed when an organization needs a new direction, and the goal is to move people towards a new set of shared dreams.
2. **Coaching**: One-on-one style that focuses on developing individuals, showing them how to improve their performance.
3. **Affiliative**: Emphasizes the importance of teamwork and creating harmony by connecting people to each other.
4. **Democratic**: Focuses on people's knowledge and skills and creates a commitment to reaching shared goals.
5. **Pacesetting**: Used to set high standards for performance.
6. **Commanding**: Most often used, also called autocratic or military style leadership.

Leadership – Some advice

- Demonstrate leadership behaviors.
- Be a diligent, respectful, and caring steward.
- Effectively engage with stakeholders.
- Recognise, evaluate, and respond to system interactions.

Managing Quality

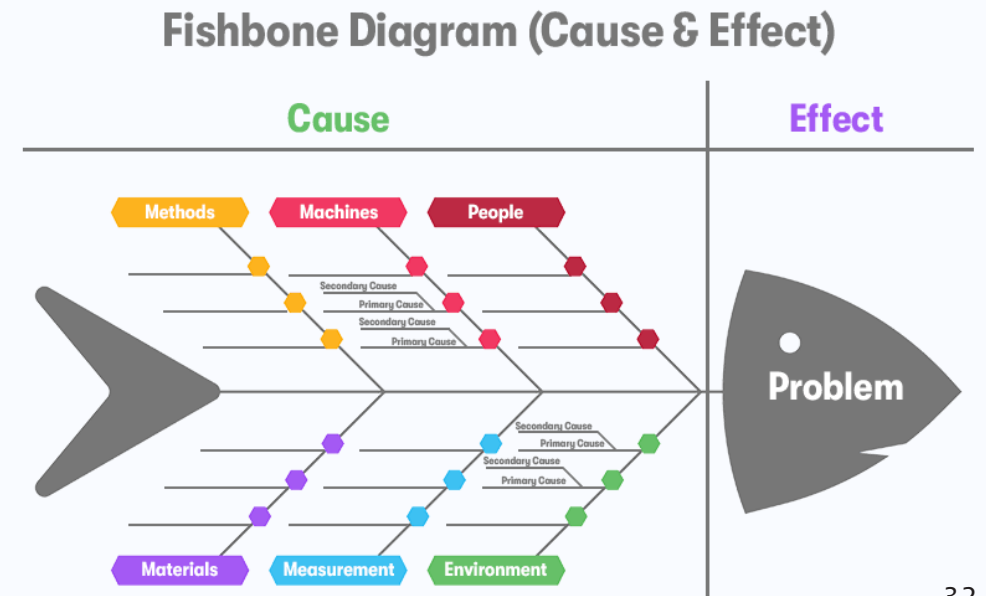
- **Quality assurance** includes all the activities related to satisfying the relevant quality standards for a project
- Another goal of quality assurance is **continual quality improvement**.
- **Key outputs** of managing quality include a **quality report**, **test and evaluation documents**, **change requests**, **project management plan updates**, and **project documents updates**

Quality Improvement Tools and Techniques

1. **Benchmarking** generates ideas for quality improvements by *comparing* specific project practices or product characteristics to those of other projects or products within or outside of the organization itself (for example, *training costs per employee* and *course ratings* are benchmarks)
2. A **quality audit** is a structured **review** of specific quality management activities that helps identify *lessons learned*, which could *improve performance* on current or future projects

Quality Improvement Tools and Techniques

3. **Process analysis** involves analysing how a process **operates** and determining **improvements**.
 - You can use a simple task board or **kanban board** to visually display work in columns labelled **To Do**, **In Progress**, and **Done**.
 - **Cause-and-effect diagrams**—also called ***fishbone*** diagrams (because their structure resembles a fishbone) or Ishikawa diagrams (named after their founder)—can assist in ensuring and improving quality by finding the **root causes** of quality problems



Project Risk Management

- The main executing task performed as part of project risk management is **implementing risk responses** as defined in the process to plan risk responses
- Key outputs include **change requests** and project **documents updates** (i.e., issue log, **lessons learned register**, project team assignments, **risk register**, and risk report)

Project Communications Management

- Good communications management is also crucial to project execution
- The process of managing communications involves **gathering information** to create, **distribute**, **store**, **retrieve**, and **dispose** of project communications in accordance with the communications management plan
 - **Disposal** does not mean discarding. It means putting documents in a defined place, and document retention regulations may determine document disposal policies.
- The main outputs of the manage communications process are **project communications** and **updates** to **project documents**, the project management plan, and **organizational process assets**

Important Project Communications Concepts

- Project managers should be aware of important aspects related to improving project communications
- Key concepts include:
 - Formal and informal communications
 - Nonverbal communications - such as a person's tone of voice and body language
 - Using the appropriate communications medium
 - Understanding individual and group communication needs
 - The impact of team size on project communications

Project Stakeholder Management

- The process of **managing stakeholder engagement** involves working with various project stakeholders to meet their **needs** and **expectations**, addressing stakeholder **issues** as they occur, and **fostering engagement** in project decisions and activities
- The key **benefit** of managing **stakeholder engagement**, if done well, is that it allows the project manager to **increase support** and **minimize resistance** from stakeholders, significantly **increasing** the chances to achieve project **success**

Managing Stakeholder Engagement

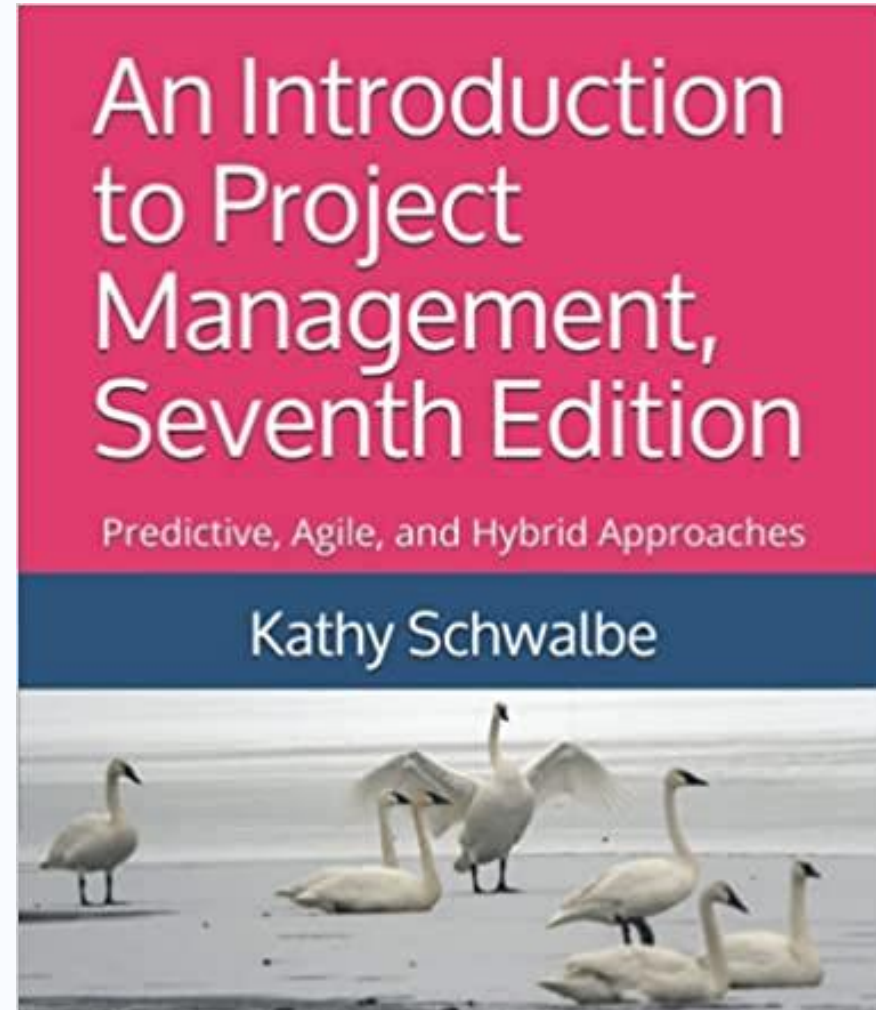
- Good teachers use several techniques to engage students; project managers also need to actively engage project stakeholders
 - They need to set the stage early so stakeholder engagement is expected and welcomed
- Many of the outputs are similar to other knowledge areas, such as **change requests** and **updates** to the **project management plan** and **project documents**

Project Procurement Management

- The main executing process is conducting procurements, which involves obtaining seller responses to **requests for proposals** or bids, **selecting sellers**, and **making agreements**, often by awarding contracts
- Prospective sellers do most of the work in this process by preparing their proposals and bids, normally at no cost to the buyer
- The buying organization is responsible for deciding how to approach sellers and providing required procurement documents
- Important documents created as a result of conducting procurements include **contracts**

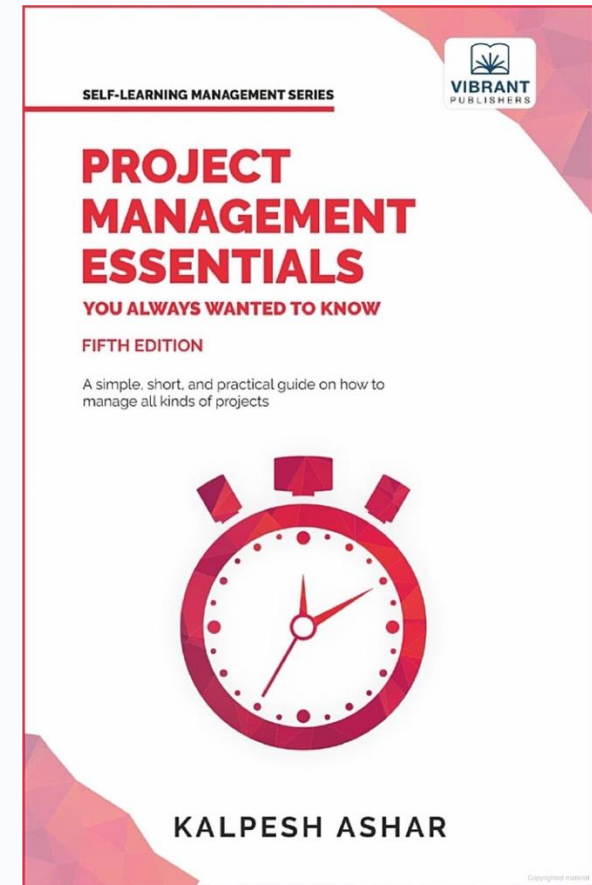
Reference

- Chapter 7: Executing Projects



Reference

- Chapter 5 of:
Project Management Essentials You Always Wanted To Know, 5ed



YOUR QUESTIONS