

INFO6007

Project Management in IT

Lecture 6

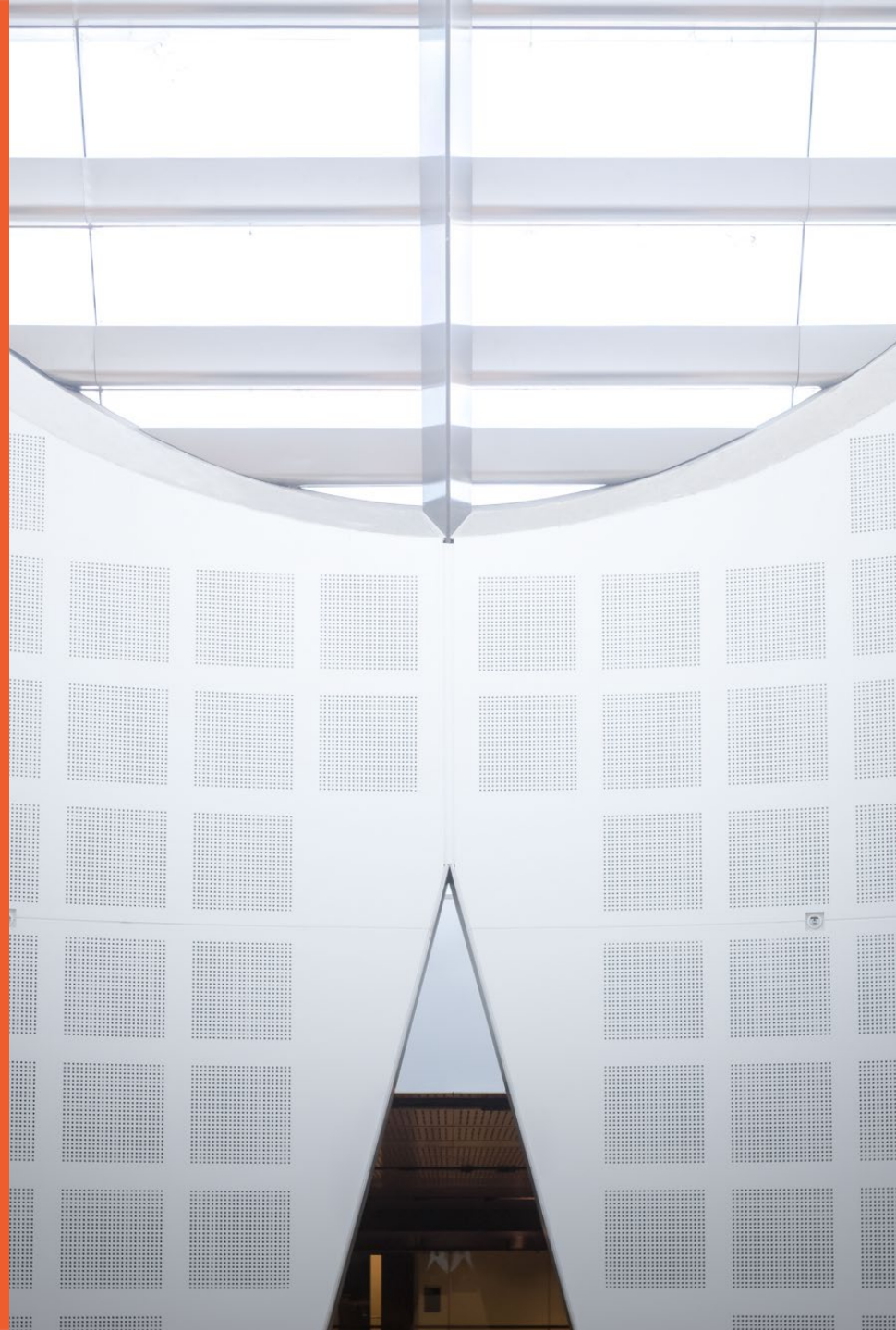
Managing Project Resources

Semester 2, 2020

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THE UNIVERSITY OF
SYDNEY



Recapture From Lecture 5

We discussed **Managing Project Quality**:

- Concept of project quality
- Quality management overview
- Basic tools and techniques for quality control

Tutorial 1&2 solutions available on Canvas under week 2 and 3 module

⋮	Tutorial 1
⋮	 INFO6007 Tutorial 1.pdf
⋮	 INFO6007 Tutorial 1 solutions.pdf

Knowledge Test – Next Week

- Date and time: week 7, 14 October, at 6:00 pm
- Coverage: weeks 1 to 5, including lectures, tutorials and case/scenario analysis
- Five descriptive and analytical questions
- Online knowledge test using Canvas
- Open-book test
- Duration: 90 minutes

- Any questions on the Knowledge Test?

Where Are We Now ? -- Course map

Week	Topics/Activities
Week 1	Introduction to IT Project Management
	Other: Form Assignment Groups
Week 2	Managing Project Scope
Week 3	Managing Project Time
Week 4	Managing Project Cost
Week 5	Managing Project Quality
Week 6	Managing Project Resources
Week 7	Knowledge Test
Week 8	Project Leadership and Communication Management
Week 9	Managing Project Risk Assessment Due: Group Project
Week 10	Managing Project Procurement
Week 11	Presentation
Week 12	Course Review
Exam Period	Assessment Due: Final Exam

What Will We Do Today ?

- Lecture
 - Plan Resource Management
 - Acquire Resources
 - Develop and Manage Team
 - Control Resources

- Class activities
 - **Critical Thinking** / Problem Solving
 - Tools to use: <https://padlet.com>
<https://answer garden.ch>

- Assessment
 - Test: **Knowledge Test in Week 7, next week**
 - Assignment:
- Announcement (if any): ?

Learning Objectives

- Discuss the processes of project resource management
- Explain the concepts of resource assignments, resource loading, and resource leveling
- Discuss key concepts for managing project team

Project Resource Management

- Q1: What does project resource management do?
- Q2: What role resource plays to scope, time, and costs?

- Project Resource Management Processes include:
 - **Plan resource management:** identifying and documenting the method of estimate, acquire, manage, and utilize physical and team resources.
 - **Estimate Activity Resources:** Estimating team resources, type and quantities of material and equipment needed to complete project works.
 - **Acquire Resources:** getting the needed personnel assigned to and working on the project
 - **Develop project team:** building individual and group skills to enhance project performance
 - **Manage project team:** tracking team member performance, motivating team members, providing timely feedback, resolving issues and conflicts, and coordinating changes to help enhance project performance
 - **Control Resources:** Ensuring that resources are available, monitor the utilization and take corrective action wherever necessary.

Process (1)-- Plan Resource Management

- Identifying and documenting the method of estimate, acquire, manage, and utilize physical and team resources.

Human Resource

- Planning Human Resource Management is the process of identifying and documenting project roles, responsibilities, required skills, reporting relationships, and creating a staffing management plan.

Inputs

- .1 Project management plan
- .2 Activity resource requirements
- .3 Enterprise environmental factors
- .4 Organizational process assets

Tools & Techniques

- .1 Organization charts and position descriptions
- .2 Networking
- .3 Organizational theory
- .4 Expert judgment
- .5 Meetings

Outputs

- .1 Human resource management plan

Why Human Resource Management?

- Most important asset in projects
- People determine the success and failure of organizations and projects

Keys to Managing People

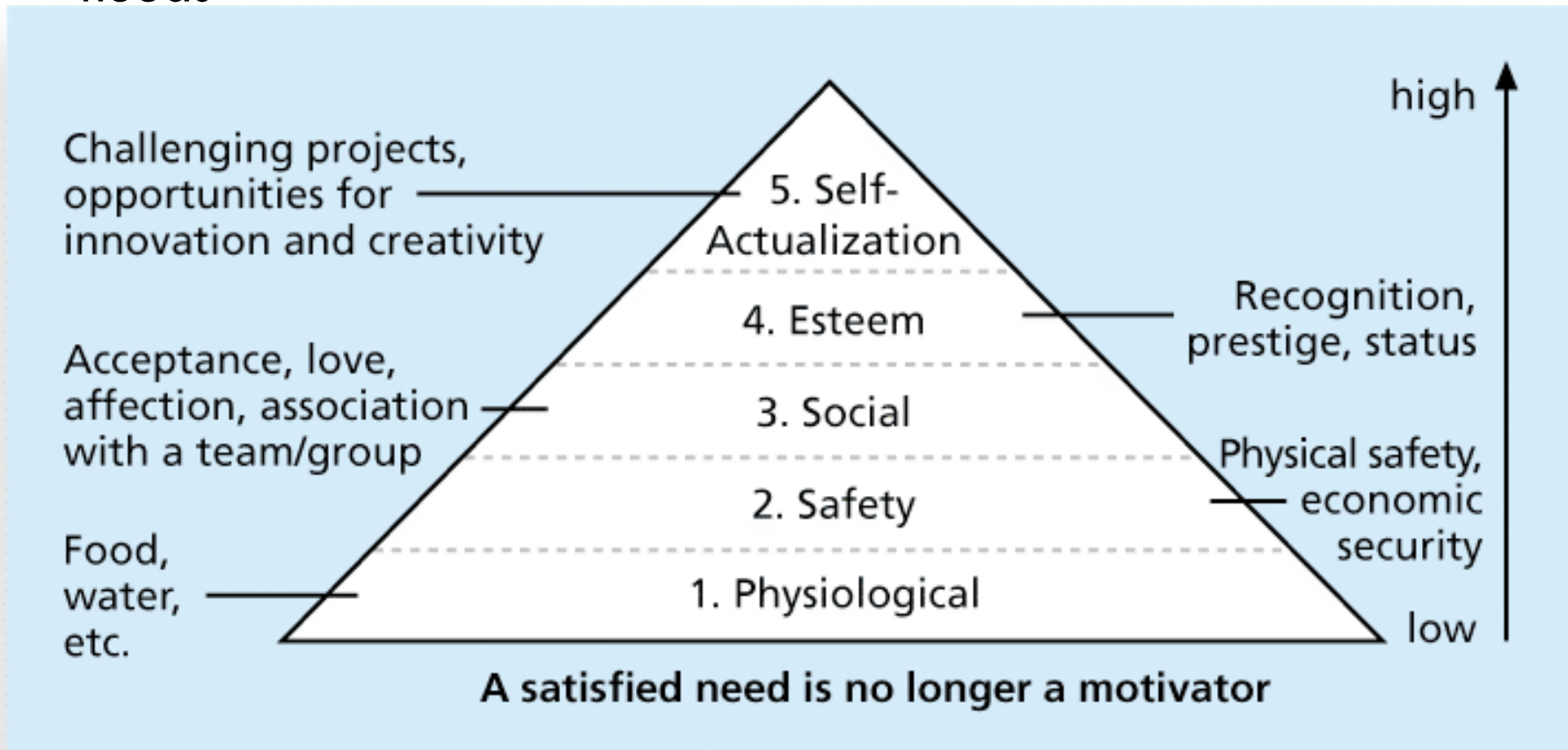
- Psychologists and management theorists have devoted much research and thought to the field of managing people at work
- Important areas related to project human resource management include
 - motivation theories
 - influence and power
 - Effectiveness
 - Emotional intelligence
 - Leadership

Intrinsic and Extrinsic 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
- Q1: Do you use Intrinsic and/or Extrinsic motivation when accomplishing project works, such as your group project ?
- Q2: Which one is more effective in resource utilization?

Hierarchy of Needs

- Maslow developed a **hierarchy of needs** which states that people's behaviors are guided or motivated by a sequence of needs



Motivational and Hygiene Factors

- **Hygiene factors** - factors can cause/create dissatisfaction
- **Motivators** - can create job satisfaction

Examples of **hygiene factors**:

- pay
- quality of supervision
- company rules
- physical working conditions
- co-worker relationships
- job security

Examples of **motivators**:

- chances of promotion
- personal growth
- acknowledgement
- responsibility
- achievement

Influences that Succeed and Fail Projects

- Projects are more likely to *succeed* when project managers influence with
 - expertise
 - work challenge
- Projects are more likely to *fail* when project managers rely too heavily on
 - authority
 - money
 - penalty

Improving Effectiveness on Projects

- Project managers can apply Covey's 7 habits to improve effectiveness on projects
 - Be proactive
 - Begin with the end in mind
 - Put first things first
 - Think win/win
 - Seek first to understand, then to be understood
 - Synergize
 - Sharpen the saw

Empathic Listening and Rapport

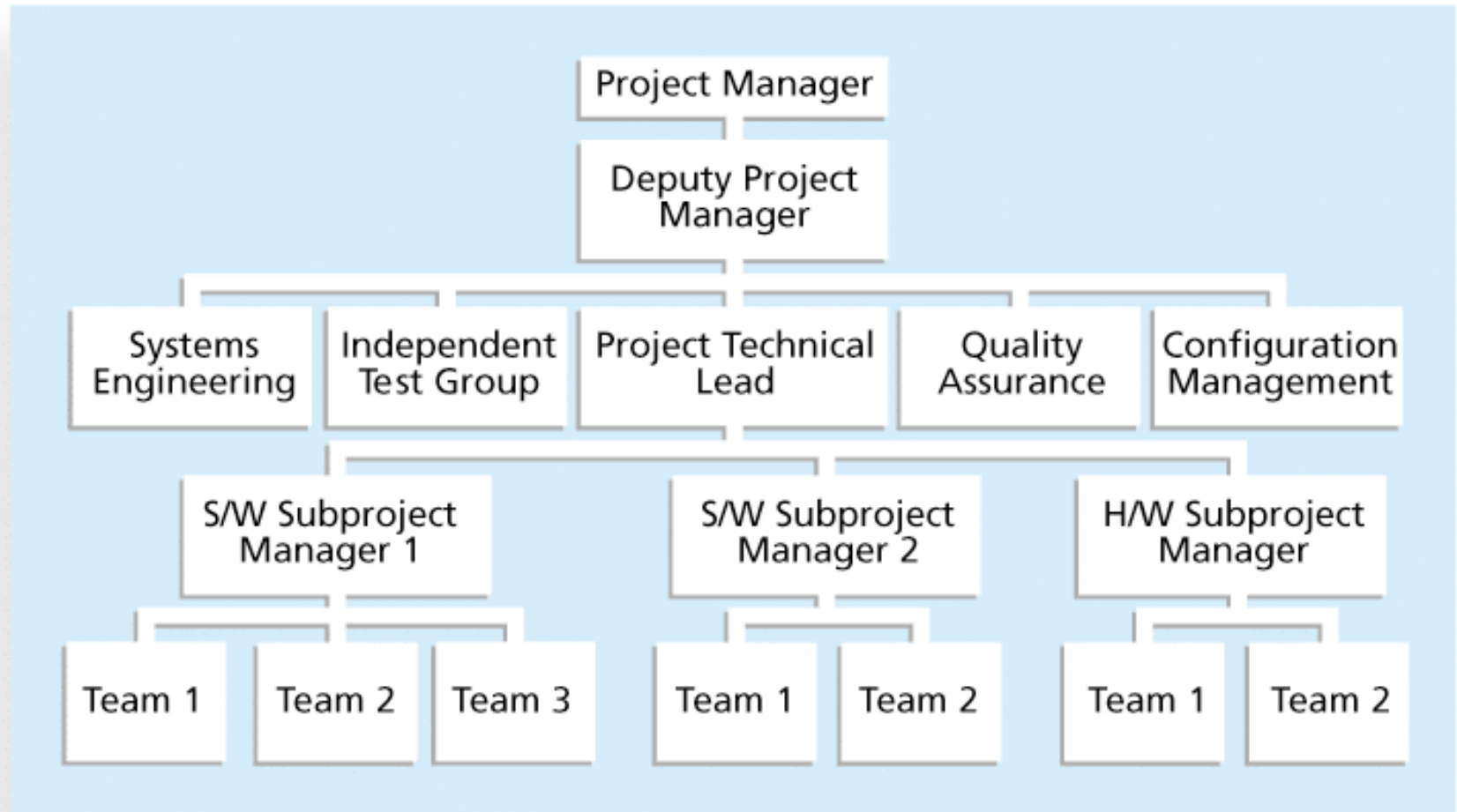
- Good project managers are **empathic listeners** - they listen with the intent to understand
- Before you can communicate with others, you have to have **rapport** – a relation of harmony
- **Mirroring** is the matching of certain behaviors of the other person, a technique to help establish rapport

Q: Who to mirror certain behaviors to improve relationships with users and other stakeholders?

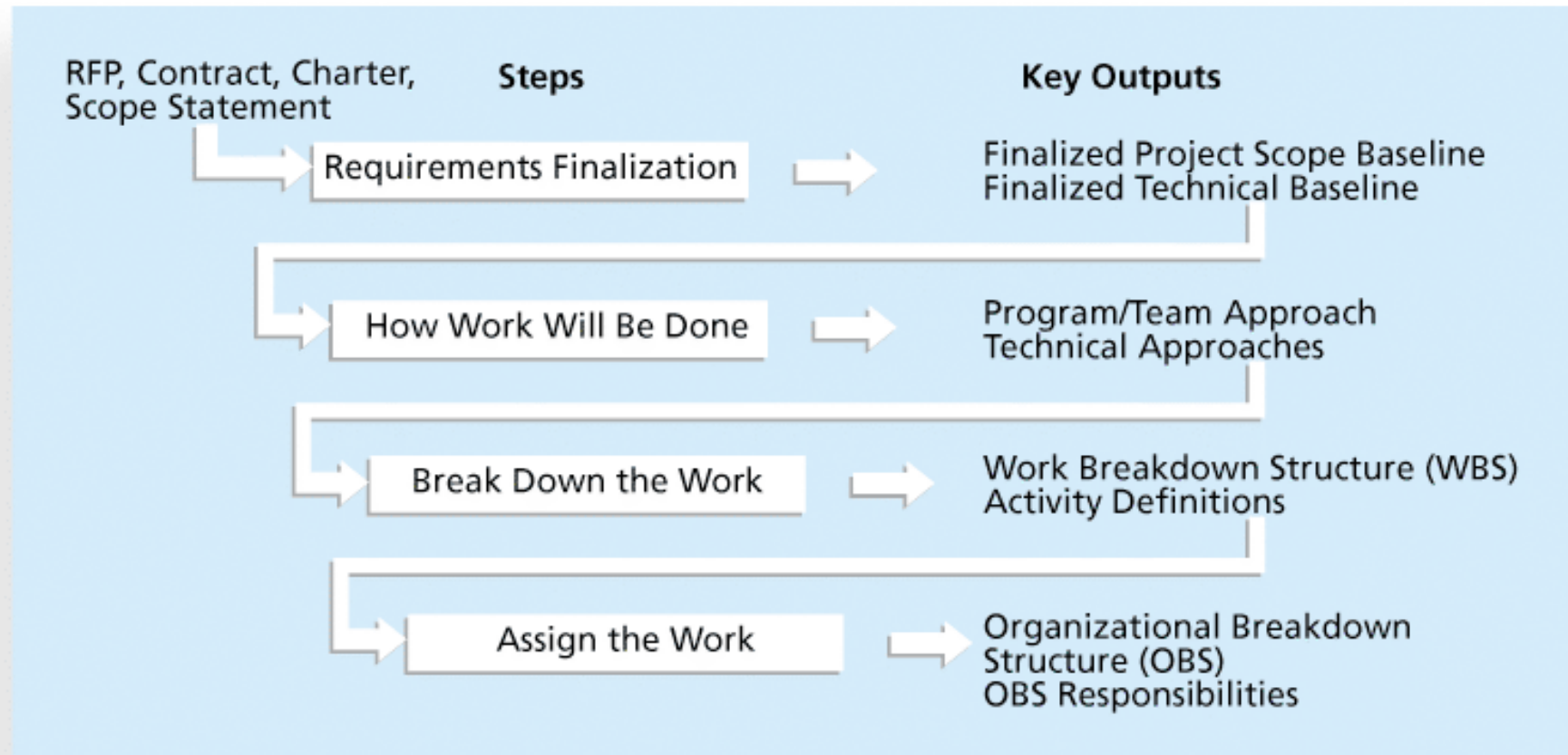
Emotional Intelligence

- **Emotional intelligence** (EI) is knowing and managing one's own emotions and understanding the emotions of others for improved performance
- EI is more valued than IQ (intelligence quotient) in project recruitment

Organizational Chart for a Large IT Project



Work Assignment Process



Responsibility Assignment Matrices

- A matrix that maps the work of the project as described in the WBS to the people responsible for performing the work as described in the OBS
- Can be created in different ways to meet unique project needs

WBS activities →

OBS units ↓

	1.1.1	1.1.2	1.1.3	1.1.4	1.1.5	1.1.6	1.1.7	1.1.8
Systems Engineering	R	R P					R	
Software Development			R P					
Hardware Development				R P				
Test Engineering	P							
Quality Assurance					R P			
Configuration Management						R P		
Integrated Logistics Support							P	
Training								R P

R = Responsible organizational unit
P = Performing organizational unit

RACI Chart (is an example of RAM)

RACI Chart	Person				
Activity	Ann	Ben	Carlos	Dina	Ed
Create charter	A	R	I	I	I
Collect requirements	I	A	R	C	C
Submit change request	I	A	R	R	C
Develop test plan	A	C	I	I	R

R = Responsible A = Accountable C = Consult I = Inform

RACI ensures that there is **ONLY** one person accountable for any task to avoid confusion of responsibility.

Q1: What else RACI does?

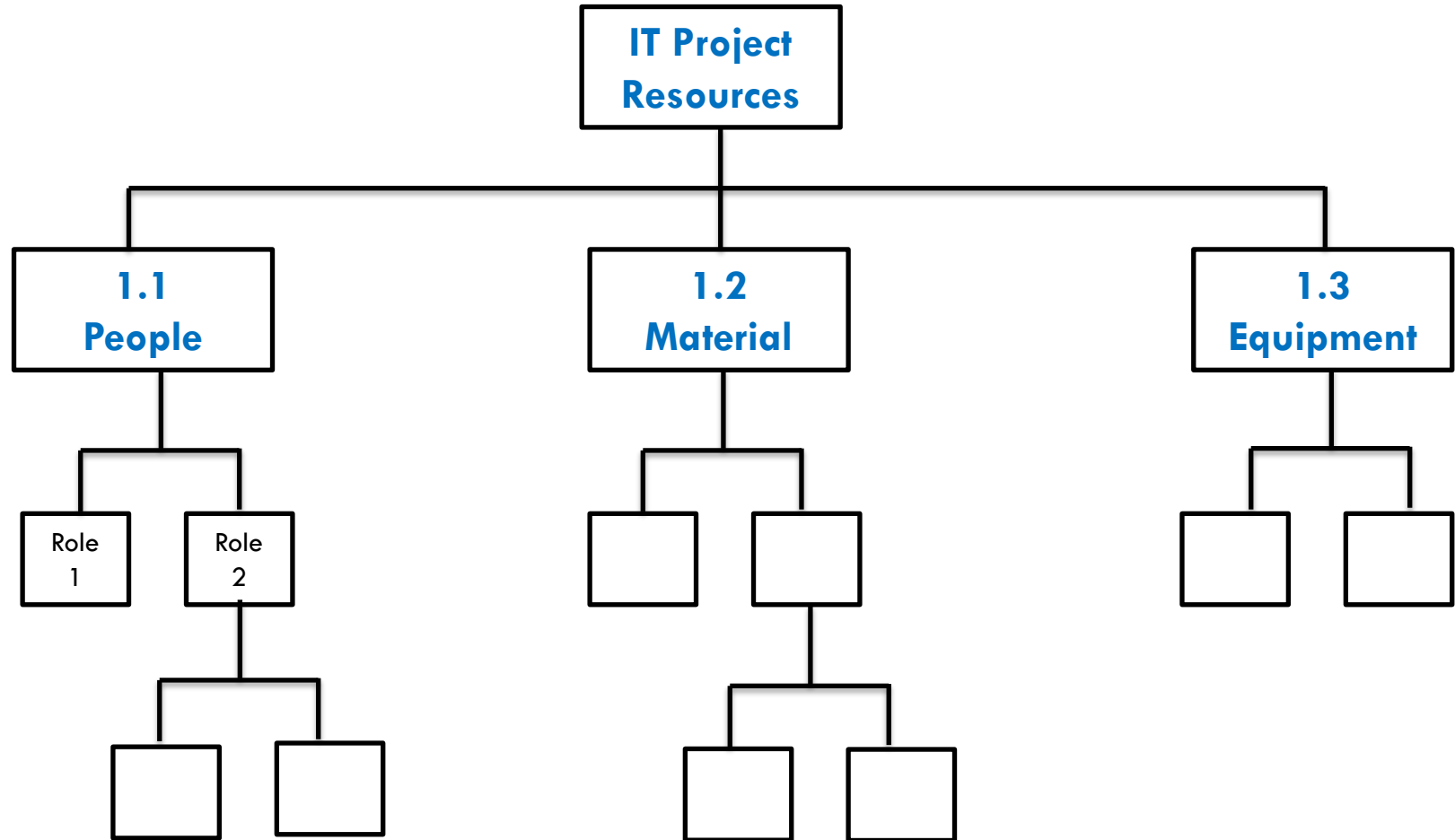
Responsibility VS Accountability

- *“Responsibility may be bestowed, but accountability must be taken. In other words, responsibility can be given or received, even assumed, but that doesn’t automatically guarantee that personal accountability will be taken. Which means that it’s possible to bear responsibility for something or someone but still lack accountability.”*
- The *accountable person* is the individual who is ultimately answerable for the activity or decision.
- The *responsible person* is the individual(s) who actually complete the task.

Process (2)-- Estimate Activity Resources

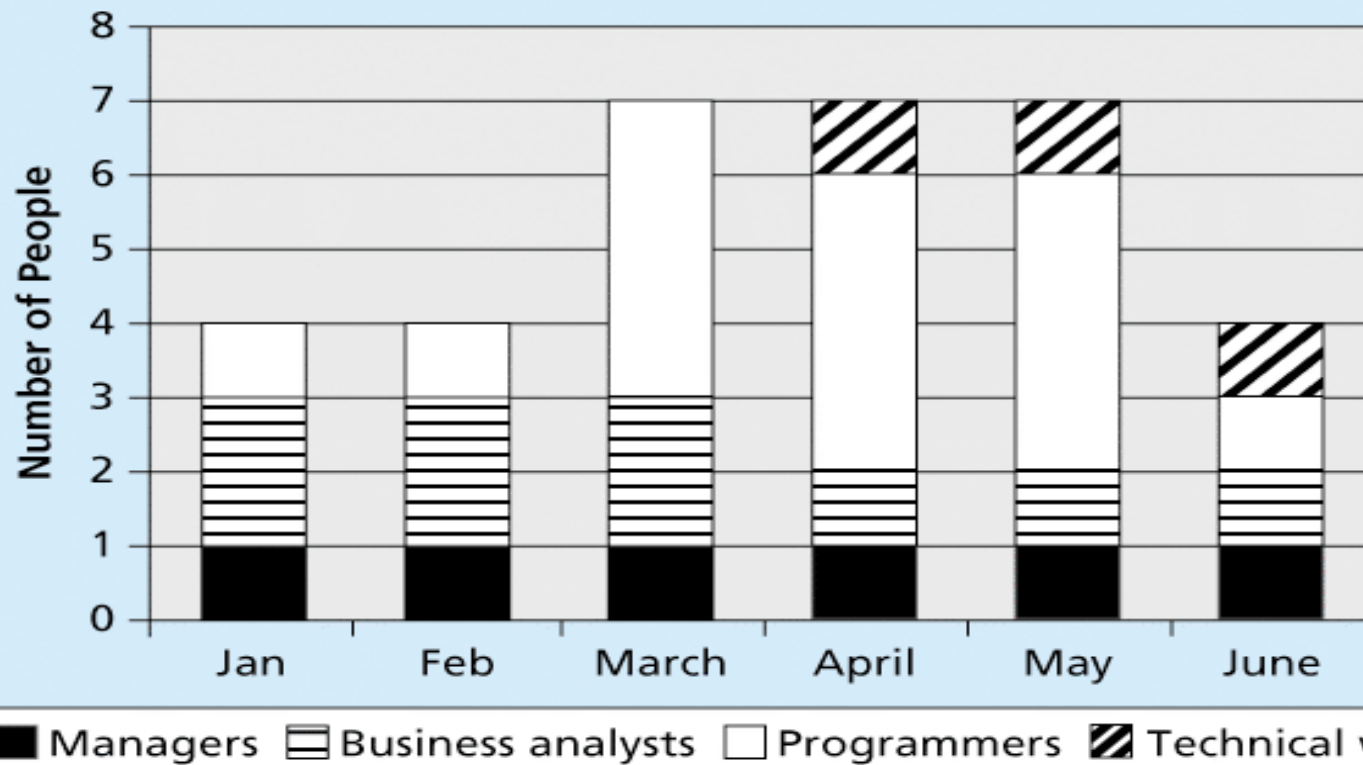
- Estimating team resources, type and quantities of material and equipment needed to complete project works.

Resource Breakdown Structure (RBS)

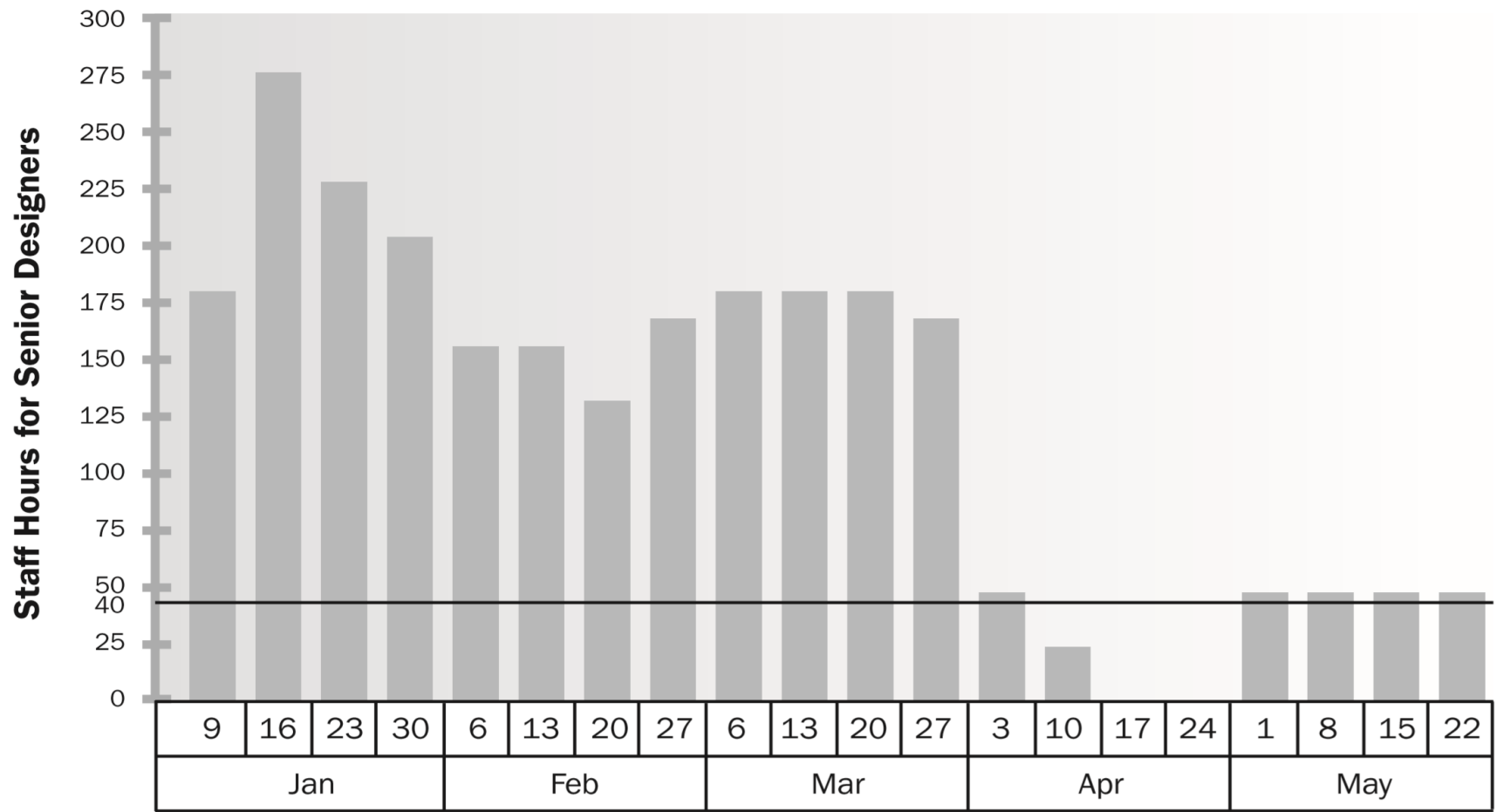


Resource Histogram

- A **resource histogram** is a column chart that shows the number of resources assigned to a project over time

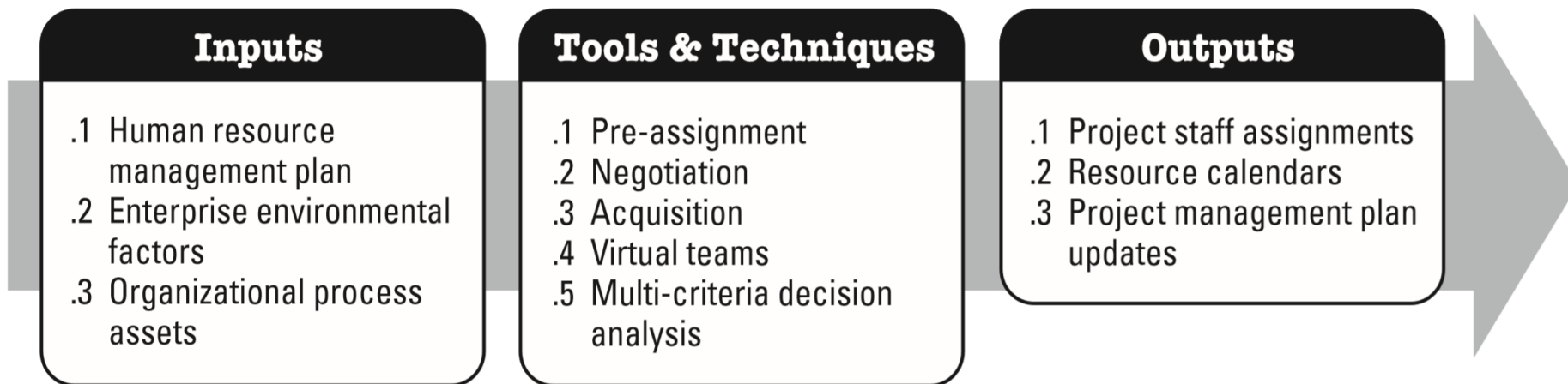


Resource Histogram



Process (3)-- Acquire Project Team

- Acquire Project Team is the process of confirming human resource availability and obtaining the team necessary to complete project activities.



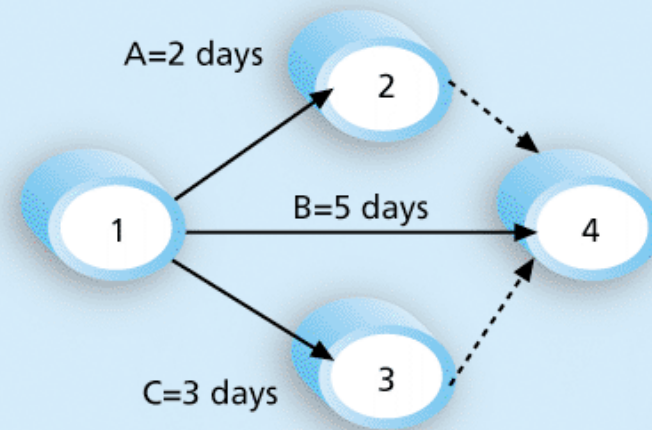
Resource Loading

- **Resource loading** refers to the amount of individual resources an existing schedule requires during specific time periods
- **Overallocation** means more resources than are available are assigned to perform work at a given time

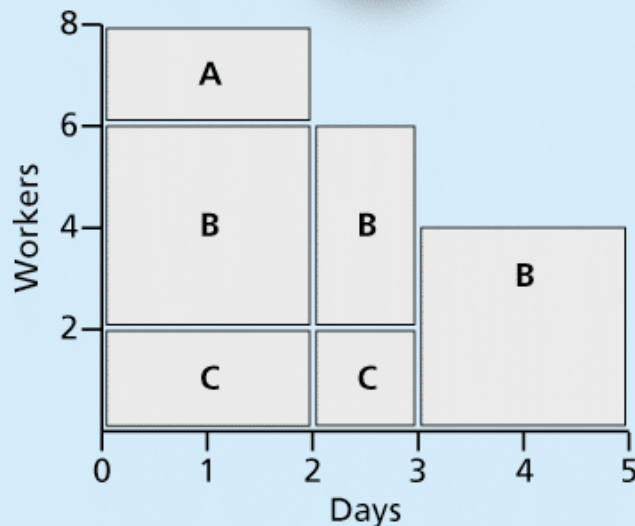
Resource Leveling

- **Resource leveling** is a technique for resolving resource conflicts by delaying tasks
- The main purpose of resource leveling is to create a smoother distribution of resource usage and reduce overallocation

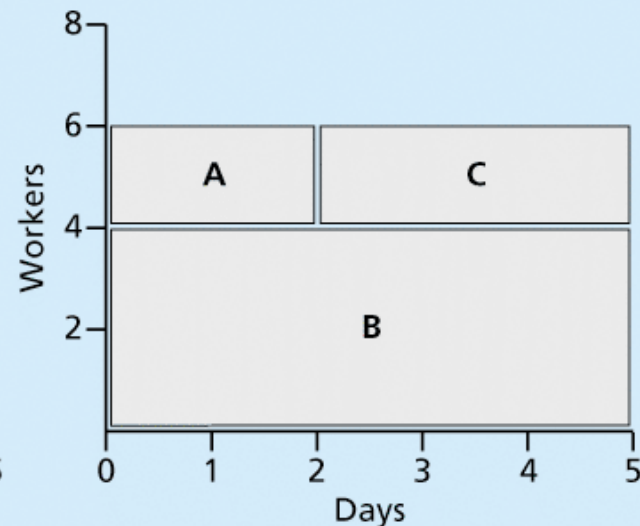
Resource Leveling



Project network with Activities A, B, and C and durations as shown. Activity A has 3 days of slack, and Activity C has 2 days of slack. Assume Activity A has 2 workers, B has 4 workers, and C has 2 workers.



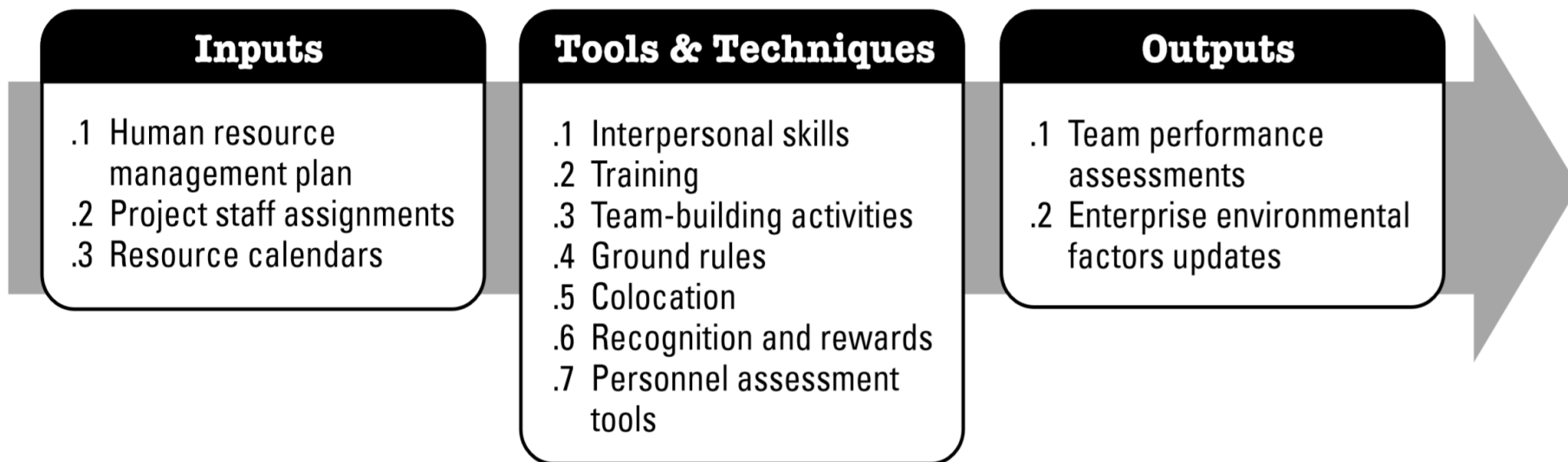
Resource usage if all activities start on day one



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

Process (4)-- Develop Project Team

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



Tuckman Model of Team Development

Forming

Team acquaints and establishes ground rules. Formalities are preserved and members are treated as strangers.



Storming

Members start to communicate their feelings but still view themselves as individuals rather than part of the team. They resist control by group leaders and show hostility.



Norming

People feel part of the team and realize that they can achieve work if they accept other viewpoints.



Performing

The team works in an open and trusting atmosphere where flexibility is the key and hierarchy is of little importance.



Adjourning

The team conducts an assessment of the year and implements a plan for transitioning roles and recognizing members' contributions.

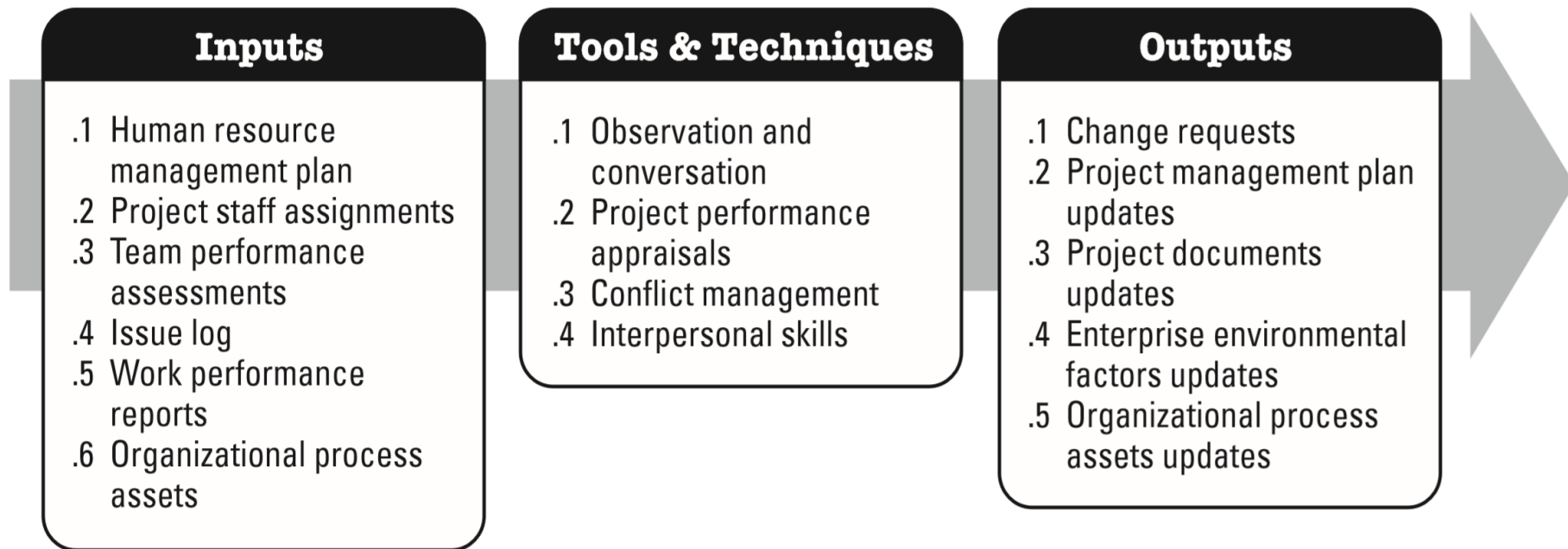


Reward and Recognition Systems

- Team-based reward and recognition systems can promote teamwork
- Focus on rewarding teams for achieving specific goals
- Allow time for team members to mentor and help each other to meet project goals and develop human resources

Process (5)-- Manage Project Team

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



Manage Conflict within the Team

- Conflict often produces important results, such as new ideas, better alternatives, and motivation to perform better and collaboration opportunities.
- How to manage conflict within the team ? Let's watch a video clip

<https://www.youtube.com/watch?v=f3NmLUINP80>

Conflict Handling Modes

1. **Confrontation:** Directly face a conflict using a problem-solving approach
2. **Compromise:** Use a give-and-take approach
3. **Smoothing:** De-emphasize areas of difference and emphasize areas of agreement
4. **Forcing:** The win-lose approach
5. **Withdrawal:** Retreat or withdraw from an actual or potential disagreement
6. **Collaborating:** Decision makers incorporate different viewpoints and insights to develop consent and commitment

Dysfunctions of a Team

- The five dysfunctions of teams are
 1. Absence of trust
 2. Fear of conflict
 3. Lack of commitment
 4. Avoidance of accountability
 5. Inattention to results

Strategies of Managing Project Teams

- Be patient and kind with your team
 - Fix the problem instead of blaming people
 - Establish regular, effective meetings
 - Allow time for teams to go through the basic team-building stages
-
- Limit the size of work teams to three to seven members
 - Plan some social activities to help project team members and other stakeholders get to know each other better
 - Emphasize team identity
 - Nurture team members and encourage them to help each other
 - Take additional actions to work with virtual team members

Process (6)-- Control Resources

- Ensure that the physical resources assigned and allocated to the project are available as planned
- Monitor the planned versus actual utilization of resources
- Take corrective action as necessary.

Class Quiz

- Q1: What is the name of a technique for resolving resource conflicts by delaying tasks?
- Q2: What refers to matching certain behaviors of the other person to establish rapport?

Scenario Analysis— Transport For NSW Case Study

- The Third Horizon report does not mention the revised scope last year but has made a series of recommendations, including the need for “stronger leadership” and changes to the **IT team's “structure and capacity”**.
- Q1: What do you understand by team structure?
- Q2: What could be possible issues with team capacity?
- Q3: How do you relate team capacity to project resource management?
- Q4: What criteria would you use to allocate human resources to a task/work – cost, availability, or capacity (productivity), etc.?

Write your response here:

<https://docs.google.com/document/d/1qR5XPyPwqQDHP3HCml9mSXXKtej7-dSoOYwxfpErhrjg/edit>

Scenario Analysis— Productivity, Availability, Cost

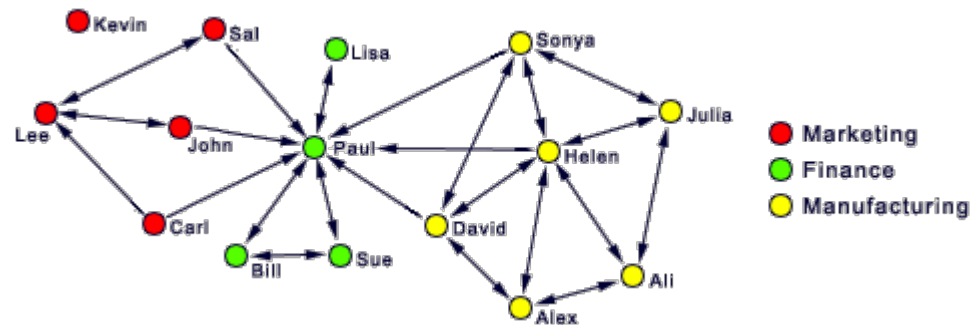
- You have the option of using any one of three team members for a project assignment. Your subject matter expert estimated that the task will take 90 effort hours.
- The following resource matrix provides individual productivity, availability, and unit cost for each of the team members.

Task	Bill			Mary			Minh		
	Prod	Avail	\$/Hr	Prod	Avail	\$/Hr	Prod	Avail	\$/Hr
Design prototype	60%	50%	\$45	120%	40%	\$80	100%	40%	\$60

- Q5: If cost is the primary consideration, who should be assigned to the task?
- Q6: If schedule is the primary consideration, who should be assigned to the task?
- Q7: Would you use productivity? Any risk there?

Additional Class Exercise

- Q1: Why/How would you use “project organizational chart” in IT projects?
- Q2: Is there any alternative to the use of “project organizational chart” in IT projects?



Write your response here:

<https://docs.google.com/document/d/1xB51JF5baq5E7nVnCnIQ71w2yKLtkOafGlrjXz7nl30/edit?usp=sharing>

Lecture Summary

- Project Resource Management Processes include:
 - Plan resource management
 - Estimate Activity Resources
 - Acquire Resources
 - Develop project team
 - Manage project team
 - Control Resources

Group Assignment

Assessment Element	Sub-Elements	Weight
1. Project Charter	<ul style="list-style-type: none"> Project details (Brief background and objectives) Project deliverables Project cost (Total cost) Project time (Total time) Roles and responsibilities of each student 	/10
2. Scope	<ul style="list-style-type: none"> Project scope statement Deliverables Milestones 	/10
3. Literature Review	<ul style="list-style-type: none"> Appropriate literature selection Identification of knowledge gaps Analysis and consolidation Summary of literature review Citation (appropriate, extensive use) 	/15
4. Work Breakdown Structure (3 level)	<ul style="list-style-type: none"> Work Packages/ Activities/Tasks Provide a brief description of each of the activities 	/15
5. Project Schedule/Time Modeling	<ul style="list-style-type: none"> Detailed schedule (Gantt chart) Proper sequencing and task Dependencies 	/10
6. Cost Modeling	<ul style="list-style-type: none"> Detailed budget table Identify cost types and briefly describe them Direct or indirect project costs Detailed cost baseline 	/10
7. Communication	<ul style="list-style-type: none"> Communication plan 	/10
8. Quality Management	<ul style="list-style-type: none"> Quality management plan 	/10
9. Risk Management	<ul style="list-style-type: none"> A brief risk register, see the example provided on Canvas 	/10
Total		/100

Announcement (if any)

Q &A?

Thanks everyone !