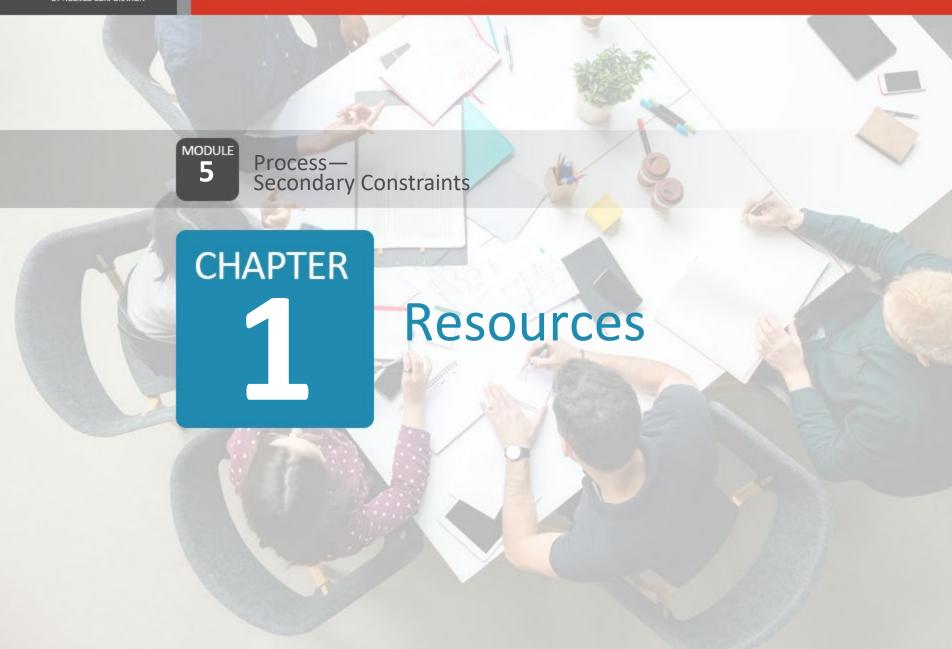






#### THE LEARNING SYSTEM FOR PMP® EXAM PREPARATION





## **Predictive: Project Resource Management**

KNOWLEDGE AREAS	PROCESS GROUPS				
	Initiating	Planning	Executing	Monitoring and Controlling	Closing
Project Resource Management		<ul> <li>Plan Resource Management</li> </ul>	• Acquire Resources	<ul> <li>Control Resources</li> </ul>	
		<ul><li>Estimate Activity Resources</li></ul>	• Develop Team		
			Manage Team		

**Source:** Adapted from Project Management Institute, A Guide to the Project Management Body of Knowledge (PMBOK® Guide)—Sixth Edition, Project Management Institute, Inc., 2017, Table 1-4, Page 25. Material from this publication has been reproduced with the permission of PMI.

- Focused on managing physical and human resources.
- Project manager identifies, acquires, and manages resources.



### Resource Management and PMBOK® Guide—Sixth Edition Processes

**Create WBS** helps define project staffing needs.

Estimate Activity Durations may depend on the ability to acquire staff with the right knowledge to complete the work.

Resource management often intersects with other project management processes.

Manage Stakeholder Engagement may require resolving conflicts between stakeholders and team members.

Control Quality may be affected by team capabilities and motivation.



### Planning Project Resources on Agile/Hybrid Projects

- Mindset: feed projects to stable teams (mature, high velocity).
- Self-organizing, self-managing teams, no central control if feasible.
- Don't remove resources during iteration.
- Generalizing specialists reduce resource constraints.
- Collaborative team environment: productivity and innovative problem solving.
- Total expense planning: salaries/contractors maximum in total.



## **Predictive: Plan Resource Management**

#### Inputs

**Project charter** 

Project management plan

- Quality management plan
- Scope baseline

**Project documents** 

- Project schedule
- Requirements
- Risk register
- Stakeholder register

**EEFs** 

**OPAs** 

# Tools and Techniques

**Expert judgment** 

Data representation

- Hierarchical charts
- Responsibility assignment matrix

Organizational theory

Meetings

#### **Outputs**

Resource management plan

Team charter

Project documents updates

- Assumptions log
- Risk register

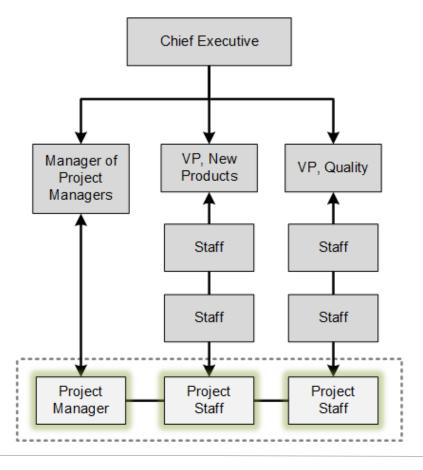
Source: Adapted from Project Management Institute, A Guide to the Project Management Body of Knowledge (PMBOK® Guide)—Sixth Edition, Project Management Institute, Inc., 2017, Figure 9-2, Page 312. Material from this publication has been reproduced with the permission of PMI.



## **Organizational Breakdown Structure (OBS) Chart**

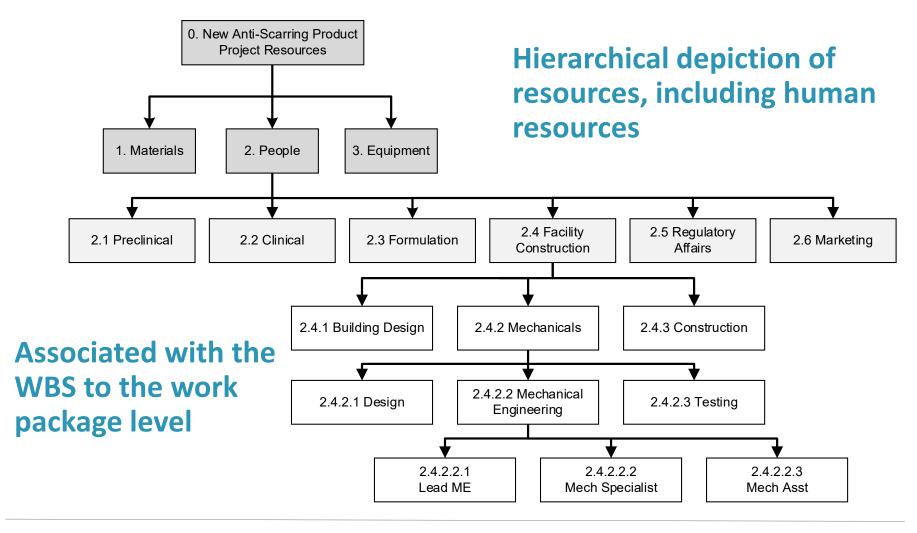
 Key to understanding organizational reporting lines and project manager's authority

#### Strong Matrix Organizational Structure





## Resource Breakdown Structure (RBS) Chart





### **Resource Management Plan**

Roles and responsibilities

- Function to be performed
- Authority
- Responsibility
- Required competencies

Project organizational charts

• Graphic visualization of reporting lines

Project team resource management

- Time-phased
- Staff acquisition, duration, and release
- Resource calendars
- Training needs for individuals
- Team-building and reward strategies



v7

# **Agile/Hybrid Task Resource Estimation**

Discuss required resources for story and select best persons.

Discuss experience level relative to the story.

Estimate or revise story points.

Iteration-based: Team commits to certain stories, etc.

Flow-based: Team commits to release iteration duration.

Ask for help from rest of team if behind.

Track velocity and capacity (vacations, etc.); consider backlog scrubbing.



### **Predictive: Estimate Activity Resources**

#### **Inputs** Tools and **Outputs Techniques** Resource requirements Project management plan Basis of estimates Resource management **Expert judgment** plan Bottom-up estimating Resource breakdown Scope baseline structure Analogous estimating **Project documents Project documents** Parametric estimating Activity attributes updates Activity list Data analysis Activity attributes Assumptions log Alternatives analysis Assumptions log Cost estimates Project management · Lessons learned register Resource calendars information system Risk register Meetings **EEFs OPAs**

**Source:** Adapted from Project Management Institute, *A Guide to the Project Management Body of Knowledge (PMBOK\* Guide)—Sixth Edition*, Project Management Institute, Inc., 2017, Figure 9-6, Page 321. Material from this publication has been reproduced with the permission of PMI.

Resource estimates and activity duration are directly related.



#### **Resource Calendars**

- Used to identify the availability of specific resources (human, material, equipment)
- Will be a critical input into Estimate Activity Durations and Develop Schedule





## **Resource Estimating Tools**

How do you estimate what resources will be required?

- Alternatives analysis: Comparing time required to perform inhouse or by contractor, to build a component or tool or to purchase it.
- Bottom-up estimating: Requirements for each work package are assessed and then rolled up to determine resources needed for each higher level.
- Software tools: Scheduling component can be leveraged to manage resource pools and speed estimation of resource needs.



## **Acquiring Resources for Agile/Hybrid Projects**

Team can handle all work without needing outside resources.

If team members need help, they will ask for it.

If a requirement is beyond the team's capability, either expand team or contract.



### **Predictive: Acquire Resources**

#### Inputs

Project management plan

- Resource management plan
- Procurement management plan
- Cost baseline

**Project documents** 

- Project schedule
- Resource calendars
- Resource requirements
- Stakeholder register

**EEFs** 

**OPAs** 

## Tools and Techniques

**Decision making** 

 Multi-criteria decision analysis

Interpersonal and team skills

Negotiation

Pre-assignment

Virtual teams

#### **Outputs**

Physical resource assignments

Project team assignments

Resource calendars

Change requests

Project management plan updates

- Resource management plan
- Cost baseline

Project documents updates

- Lessons learned register
- Project schedule
- Resource breakdown structure
- Resource requirements
- Risk register
- Stakeholder register

EEFs updates

**OPAs** updates

Source: Adapted from Project Management Institute, A Guide to the Project Management Body of Knowledge (PMBOK® Guide)—Sixth Edition, Project Management Institute, Inc., 2017, Figure 9-8, Page 328. Material from this publication has been reproduced with the permission of PMI.



### **Predictive: Develop Team**

#### **Inputs**

Project management plan

 Resource management plan

**Project documents** 

- Lessons learned register
- Project schedule
- Project team assignments
- Resource calendars
- Team charter

**EEFs** 

**OPAs** 

## Tools and Techniques

Colocation

Virtual teams

Communication technology

Interpersonal and team skills

- Conflict management
- Influencing
- Motivation
- Negotiation
- Team building

Recognition and rewards

**Training** 

Individual and team assessments

Meetings

#### **Outputs**

Team performance assessments

Change requests

Project management plan updates

 Resource management plan

Project documents updates

- Lessons learned register
- Project schedule
- Project team assignments
- Resource calendars
- Team charter

EEFs updates

OPAs updates

Source: Adapted from Project Management Institute, *A Guide to the Project Management Body of Knowledge (PMBOK\* Guide)— Sixth Edition,* Project Management Institute, Inc., 2017, Figure 9-10, Page 336. Material from this publication has been reproduced with the permission of PMI.



# **Managing Agile/Hybrid Teams**

- Teams manage themselves.
- Servant leaders provide performance data during retrospectives to assist self-management.
- Some management may still be necessary such as removing a team member who is unable to self-manage.



### **Predictive: Manage Team**

#### Tools and **Outputs** Inputs **Techniques** Project management plan Change requests Resource management Interpersonal and team Project management plan plan skills updates Conflict management **Project documents** Resource management Decision making Issue log plan · Emotional intelligence Lessons learned register Schedule baseline Influencing · Project team Cost baseline Leadership assignments Project documents updates Team charter Project management Issue log information system Work performance reports Lessons learned register Project team assignments Team performance assessments EEFs updates **EEFs OPAs**

Source: Adapted from Project Management Institute, A Guide to the Project Management Body of Knowledge (PMBOK® Guide)—Sixth Edition, Project Management Institute, Inc., 2017, Figure 9-12, Page 345. Material from this publication has been reproduced with the permission of PMI.

 Requires a variety of management skills to create highperformance teams



# **Controlling Resources on Agile/Hybrid Projects**

- Scrum master ensures that team has what it needs to succeed:
  - Central meeting space with kanban board
  - Colocated workspaces
  - IT and software/cloud-based systems



#### **Predictive: Control Resources**

#### Inputs

Project management plan

 Resource management plan

**Project documents** 

- Issue log
- · Lessons learned register
- Physical resource assignments
- · Project schedule
- Resource breakdown structure
- Resource requirements
- Risk register

Work performance data

Agreements

**OPAs** 

### Tools and Techniques

Data analysis

- Alternatives analysis
- Cost-benefit analysis
- Performance reviews
- · Trend analysis

Problem solving

Interpersonal and team skills

- Negotiating
- Influencing

Project management information system

#### **Outputs**

Work performance information

Change requests

Project management plan updates

- Resource management plan
- Schedule baseline
- Cost baseline

Project documents updates

- · Assumptions log
- Issue log
- · Lessons learned register
- Physical resource assignments
- Resource breakdown structure
- Risk register

Source: Adapted from Project Management Institute, A Guide to the Project Management Body of Knowledge (PMBOK® Guide)—Sixth Edition, Project Management Institute, Inc., 2017, Figure 9-14, Page 352. Material from this publication has been reproduced with the permission of PMI.

#### Focus on physical resource assignment and allocation



#### **Resource Problems**

#### Internal

Poor storage conditions

#### **External**

- Supplier goes out of business
- Political upheaval
- Environmental disaster
- Pandemic