

PMP® EXAM PREP

PMI Authorized
Training Partner

BOOTCAMP

Session 5

Attendance Alert

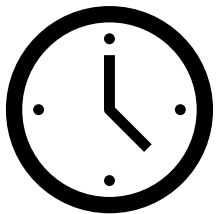
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on your information in
Percipio**

**Using Zoom: Enter your first
and last name**

PMP® Exam Prep

This course will assist learners in preparing
for PMI's PMP Exam (2021 Update)

Scheduled Breaks



Session	Periodic breaks
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For attendance purposes, please stay logged in during all breaks.



House Keeping

- If you haven't attended a previous session, please do the following.
- Please use the Q&A **only** to get help with technical issues, to locate your resources or recordings for the sessions, to ask about attendance requirements and how to get the PMP Learner Kit, to ask questions about the content, or for any other questions. As the session comes to an end the survey link can be provided in the Q&A. The Q&A maybe closed and reopened throughout the session to address posts in a timely manner.
- Use the chat before the session starts for salutations. Once the session begins the chat may be closed throughout the session to minimize disruptions and to provide important information. The chat will be opened periodically to respond to the instructor's questions. As the session comes to an end the survey link can be provided in the chat. The chat may be opened to allow for goodbyes.

IS LIVE ATTENDANCE REQUIRED?

- **YES**, if you are taking this training to register for the PMP exam live attendance is required.
 - However, this is the exception rule for the 8 Day Bootcamp – **You are allowed to miss up to two sessions if you make up the sessions by watching their replays.**
 - A **missed session means** you are logged out of a session for **more than 15mins.**
 - If you miss more than 15 mins at any time (including during breaks) beyond the two sessions allowed, you will need to make it/them up by attending the live session(s) in a different 8-day cohort*.
- ***Please see the Bootcamp calendar at <http://calendar.skillsoft.com/> for information about upcoming sessions.**



IN CASE OF ABSENCE

You can access a replay online for a previous session by following these steps 24 to 48 hours after the session ends.

Step 1. Go to: <https://github.com/Skillsoft-Content/PMPReplay>

Step 2. Click on the PMP Replay Zoom Links file for the year you attended the Bootcamp. And then click the Download option.

Step 3. When the file opens, and you are prompted enter the following password. Those are zero's not the letter O. The password is case sensitive.

pmpB00tcampReplay!

Step 4. Locate the worksheet that corresponds with the Cohort you attended and use the provided link and passcode on the worksheet to access the Replay through your browser.

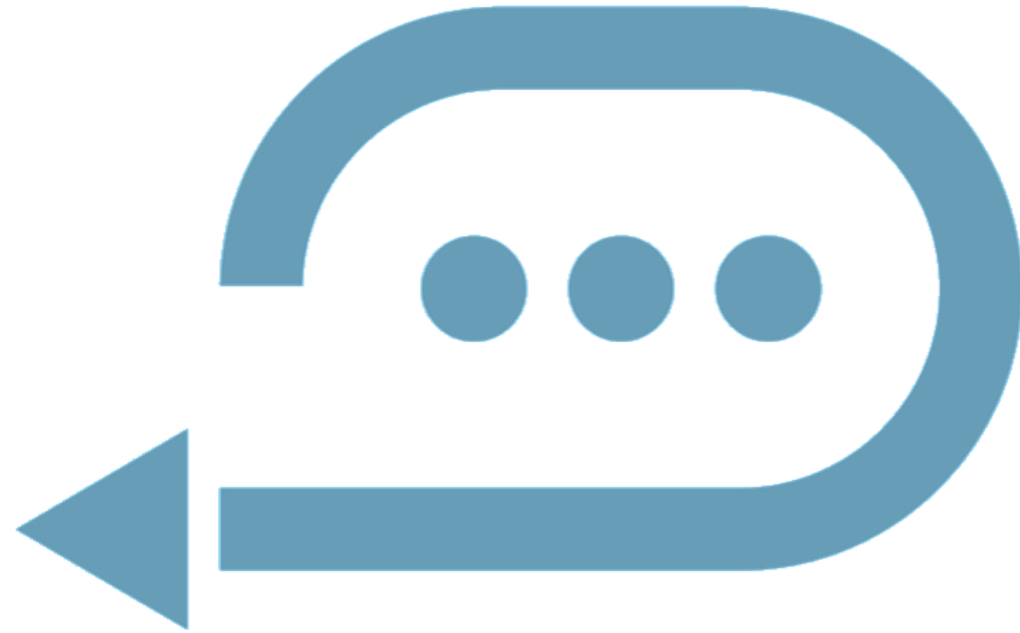
Note: The password to open the Excel file is NOT the passcode to access the replay.

***Replays will be available for 1 year. They are not available for download.**

NO LIMIT FOR REPLAYS:

For the Bootcamp you are attending, there is no limit on accessing the replays for study purposes.

Recap Session 4



Mapping this course to the Student Workbook

	Business Environment Lesson 1	Start the Project Lesson 2	Plan the Project Lesson 3	Lead the Project Team Lesson 4	Support Project Team Performance Lesson 5	Close the Project/Phase Lesson 6
Topic A	(1A) Foundation	(2A) Identify and Engage Stakeholders	(3A) Planning Projects	(4A) Craft Your Leadership Skills	(5A) Implement Ongoing Improvements	(6A) Project Phase/Closure
Topic B	(1B) Strategic Alignment	(2B) Form the Team	(3B) Scope	(4B) Create a Collaborative Project Team Environment	(5B) Support Performance	(6B) Benefits Realization
Topic C	(1C) Project Benefits and Value	(2C) Build Shared Understanding	(3C) Schedule	(4C) Empower the Team	(5C) Evaluate Project Progress	(6C) Knowledge Transfer
Topic D	(1D) Organizational Culture and Change Management	(2D) Project Approach	(3D) Resources	(4D) Support Team Member Performance	(5D) Manage Project Issues and Impediments	
Topic E	(1E) Project Governance		(3E) Budget	(4E) Communicate and Collaborate with Stakeholders	(5E) Manage Project Changes	
Topic F	(1F) Project Compliance		(3F) Risks	(4F) Training, Coaching and Mentoring		
Topic G			(3G) Quality	(4G) Manage Conflict		
Topic H			(3H) Integrate Plans			

LESSON 3

PLAN THE PROJECT

- Planning Projects
- Scope
- Schedule
- **Resources**
- **Budget**
- **Risks**
- Quality
- Integrate Plans



Learning Objectives

- Explain the importance of a project management plan.
- Provide an overview of scope planning in both predictive and adaptive projects.
- Provide an overview of schedule planning in both predictive and adaptive projects.
- **Discuss resource planning for a project, including human and physical resources and the role of procurement.**
- **Determine the budgeting structure/method for a project**
- **Explain the importance of tailoring a budget.**
- **Identify strategies for dealing with risks and risk planning.**
- **Assemble a toolkit of possible responses to risks.**
- Define quality and how it relates to the outcomes and deliveries for a project.
- Discuss the importance of integrating project management plans and tailoring a change management process.



Resources

TOPIC D

Resources

People and Equipment

- Value and empower internal human resources, yet
- Leverage external sources to ensure you have the best team and equipment possible!



Resource Management Plan*



- **Identify resources** - People and equipment
- **How to acquire them**
- **Peoples' roles and responsibilities**
 - Role – A person's function in a project
 - Authority - Rights to use resources, make decisions, accept deliverables.
 - Responsibility - Assigned duty
 - Competencies and skills required
- **Project Organization Chart** – (Visual with resource categories and reporting relationships)
- **Project team resource management** – Guidance on how to define, select, manage and release resources
- **Training** - Strategies and requirements
- **Team development methods**
- **Resource controls** - Methods for ensuring non-human-resources are available as needed
- **Recognition plan**

Assign Resources and Allocate Responsibilities



-
- Assign team members to project
 - Decide roles and responsibilities
 - Create team directory, organization chart and the schedule



Project schedules, resource assignments and budgets are all interrelated and can be created at the same time.

- Tailor responsibilities according to team, needs and project approach
- Consider technical and “soft” skills:
 - Experience, knowledge, skills
 - Attitude
 - Global/regional factors

Use Resource Calendars*

- Document resource availability (people, equipment, material, etc.) during a planned activity period.
- Use when estimating project activities and understanding dependencies
- Specifies when, and for how long, identified team and physical resources will be available during the project
- Progressively elaborate and update it throughout the project



***Resource calendars** can be used in any kind of project!*

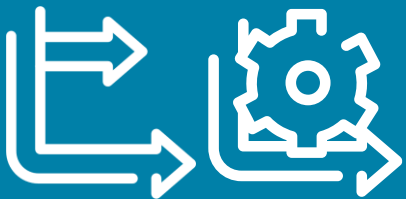


Responsibility Assignment Tools



Responsibility assignment matrix (RAM) or **RACI chart**:

- Designates types of accountabilities assigned to resources or stakeholders
- Keeps information visible



RESPONSIBLE

A team member

- Performs work to complete the task or create the deliverable
- Every task has at least one responsible person

ACCOUNTABLE

*On the team
(leadership/
management)*

- Delegates and reviews the work involved in a project
- Ensures the responsible person/team knows project expectations and completes work on time
- Each task has only one accountable person

CONSULTED

Stakeholders

- Provides input and feedback on project work
- Not every task or milestone needs a consulted party



Consider all stakeholders, but invite only necessary input

INFORMED

*Usually not project
decision makers*

- Needs to be informed of project progress because their work might be affected, but don't need details

Adaptive Resource Planning Quiz



Which of these are true? (Choose several)

- Teams self-organize to distribute work. **TRUE**
- Adaptive teams never have a leader. **FALSE**
- Team members are a mix of generalists and specialists. **TRUE**
- Team members should be T-shaped. **TRUE**

Filling Resource Needs

Make or Buy? Borrow?

External sourcing considerations:

- What is the impact on cost, time or quality?
- Is there an ongoing need for the specific skill set?
- How steep is the learning curve?
- Are required resources available within the organization?
- Would outsourcing allow the team to focus?

Use a **make-or-buy analysis** to make the best decision for your team.

Make-or-buy decisions are part of a procurement strategy.



Plan the Procurement Strategy

- Prerequisite OPAs
- Acquisition method
- Contract types
- Procurement phases

-
- Work with organization's finance or procurement department
 - Use pre-approved vendors before requesting a new vendor
 - Observe purchase amount limits per signatory — i.e. contracts valued over a certain threshold must be co-signed
 - Use defined bidding process and templates
 - Require RFPs for contracts valued over a certain threshold
 - Follow escalation procedures for approval of spending limits
 - Pay contracts at a defined time – e.g., upon completion of work or at the end of a project, with net payment terms

Procurement Management Plan*

- Specifies the types of contracts that will be used
- Describes the process for obtaining and evaluating bids
- Mandates standardized **procurement documents**
- Describes how providers will be managed



Your organization's procurement function will be involved in developing this plan. Work with them closely and use the correct procurement documents to avoid problems.



Procurement Documents

Bid and Proposal Activities

- **Statement of Work (SOW):** Details of work required
- **Request for quotation (RFQ):** Bid/tender or quotation, including only cost
- **Invitation for Bid (IFB):** Buyer requests expressions of interest in work
- **Request for information (RFI):** Buyer requests more information from seller
- **Request for proposal (RFP):** Buyer-issued statement of work required
- **Expression of Interest (EOI):** Seller-issued expression of interest in work



Formal Procurement Processes

RFPs, Bidder Conferences

Organizations in highly regulated industries or government

Or, if a project needs specialist work or wants to find the best quality available.

Use RFPs, **bidder conferences**, and formal processes to ensure **all prospective vendors have a clear and common understanding of the procurement**

Work closely with the procurement officer or department



Source Selection Criteria*

Work with external resources whose values, skills and attributes are aligned with your project's.

- Overall or life-cycle cost
- Understanding of need
- Technical capability
- Management approach
- Technical approach
- Warranty
- Financial capacity
- Production capacity and interest
- Business size and type
- Past performance of sellers
- References
- Intellectual property rights
- Proprietary rights



Qualified Vendors

-
- Are pre-approved by the organization
 - Have a history of work with the organization
 - Are often “preferred” because they are proven, and their accounts are already set up



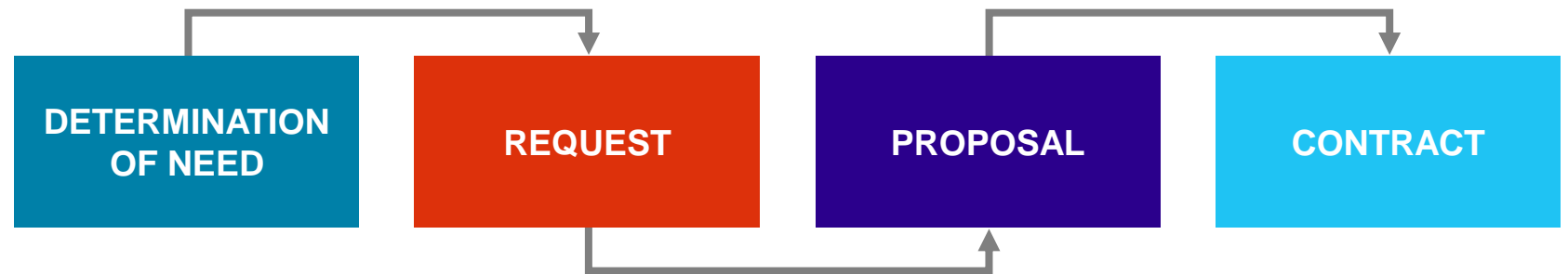
Look in the lessons learned repository to find historical data about vendors.

Contracts*

Negotiate Productive Relationships

Contracts:

- Legalize working agreements
- Give structure to working relationships
- Further collaboration with partners
- Consider risks associated with contract types
- Deliver benefits to the buyer - different benefits by type
- Can be tailored for the partnership



Contract Types (1 of 3)

Cost-reimbursable contracts - *For projects with expected, significant scope changes*

Involves payments (cost reimbursements) to the seller for all legitimate actual costs incurred for completed work, plus a fee (seller profit)

Cost plus fixed fee (CPFF)

- Reimburses seller for all allowable costs for performing contract work; fixed-fee payment calculated as a percentage of the initial estimated project costs.
- Fee amounts do not change unless the project scope changes.

Cost plus incentive fee (CPIF)

- Reimburses seller for all allowable costs for performing contract work; predetermined incentive fee based for achieving contract-specified performance objectives.
- Shares costs between buyer and seller if final costs are less or greater than the original estimated costs
- Bases cost sharing on a pre-negotiated cost-sharing formula — e.g., an 80/20 split over/under goal costs

Cost plus award fee (CPAF)

- Reimburses seller for all legitimate costs
- Bases majority of fee on satisfying subjective performance criteria defined and incorporated into the contract
- Determines fee based on buyer's assessment of seller performance and not subject to appeals

Contract Types (2 of 3)

Fixed-price contracts — sets a fixed total price for a defined product, service, or result; used when requirements are well defined and no significant scope changes are expected.

Firm fixed price (FFP)

Price of goods set at beginning; won't change unless scope changes

Fixed price incentive fee (FPIF)

- Gives buyer and seller flexibility
- Allows for deviation from performance — i.e., financial incentives tied to achieving agreed-upon metrics (cost, schedule, awesomeness)
- Sets price ceiling; any further costs charged to seller

Fixed price with economic price adjustments (FPEPA)

- Allows for special provisions for predefined final adjustments to the contract price — e.g., inflation, cost increases (or decreases) for specific commodities

Pre-approved vendors or international payments

Contract Types (3 of 3)

Time and materials contracts

- Also called “time and means”
- Combine aspects of both cost-reimbursable and fixed-price contracts
- Used when a precise scope or statement of work is unavailable
- Used often for augmenting staff, acquiring experts or gaining external support

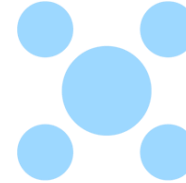
“Agile” Contract Types

Multi-tiered structure	<ul style="list-style-type: none">• Create a master service agreement to capture fixed items - e.g., warranties, arbitration• List variable items in a schedule of services - e.g., service rates, product descriptions• Use a SOW to itemize dynamic items - e.g., scope, schedule, budget
Emphasize value delivered	<ul style="list-style-type: none">• Structure milestone and payment terms based on value derived at milestones• Focus on the value of feedback in product development
Fixed-price increments	Decompose scope into smaller, fixed-price micro-deliverables (user stories), giving customer more control over how the money is spent and limiting the supplier’s financial risk.
Not-to-exceed time and materials	<ul style="list-style-type: none">• Limit budget to fixed amount, allowing customer to add ideas by removing existing ones• Monitor work to avoid overage (or add contingency hours)
Graduated time and materials	<ul style="list-style-type: none">• Connect quality and timely delivery of work (use DoD) to financial award – reward for early and reduce for late delivery
Early cancellation option	<ul style="list-style-type: none">• Enable flexible delivery of scope, using DoD - e.g., if partial scope delivery satisfies customer, contract can be cancelled for a fee
Dynamic scope option	<ul style="list-style-type: none">• Gives option to vary scope and fund innovation at specific points while limiting supplier risk• Vary scope at specific points to adjust features and innovate
Team augmentation	<ul style="list-style-type: none">• Embed supplier’s services directly into the customer organization; fund team instead of scope

Components of Contracts

- Description of work - deliverables and scope
- Delivery date and schedule information
- Identification of authority, where appropriate
- Responsibilities of both parties
- Management of technical and business aspects
- Price and payment terms
- Provisions for termination
- Applicable guarantees and warranties
- Intellectual property
- Security, confidentiality, data privacy

ECO Coverage

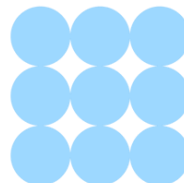


1.6 Build a team

- Deduce project resource requirements (1.6.2)

2.11 Plan and manage procurement (resources)

- Define resource requirements and needs (2.11.1)
- Communicate resource requirements (2.11.2)
- Manage suppliers/contracts (2.11.3)
- Plan and manage procurement strategy (2.11.4)
- Develop a delivery solution (2.11.5)





Budget

TOPIC E

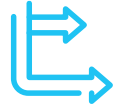
Budget Planning Overview

Consider:

- Cost as well as value
- Organization and stakeholder attitudes towards budget and costs



Create budget in accordance with project life cycles:



Begin with fixed budget and amend with change control process



Hybrid approaches add adaptability around surety



Use *burn rate*



Agile teams collaborate with stakeholder partners and finance stakeholders to suggest incremental budgeting approaches (agile mindset)

Predictive Budget Planning

- Create a **cost management plan**
- Employ **estimating techniques** to assign costs to activities
- Tailor a **cost baseline**
 - Is used to monitor and measure cost performance throughout the project (compares with actual results)
 - Includes budget contingencies to address identified risks
 - Can be changed only through formal change control procedures

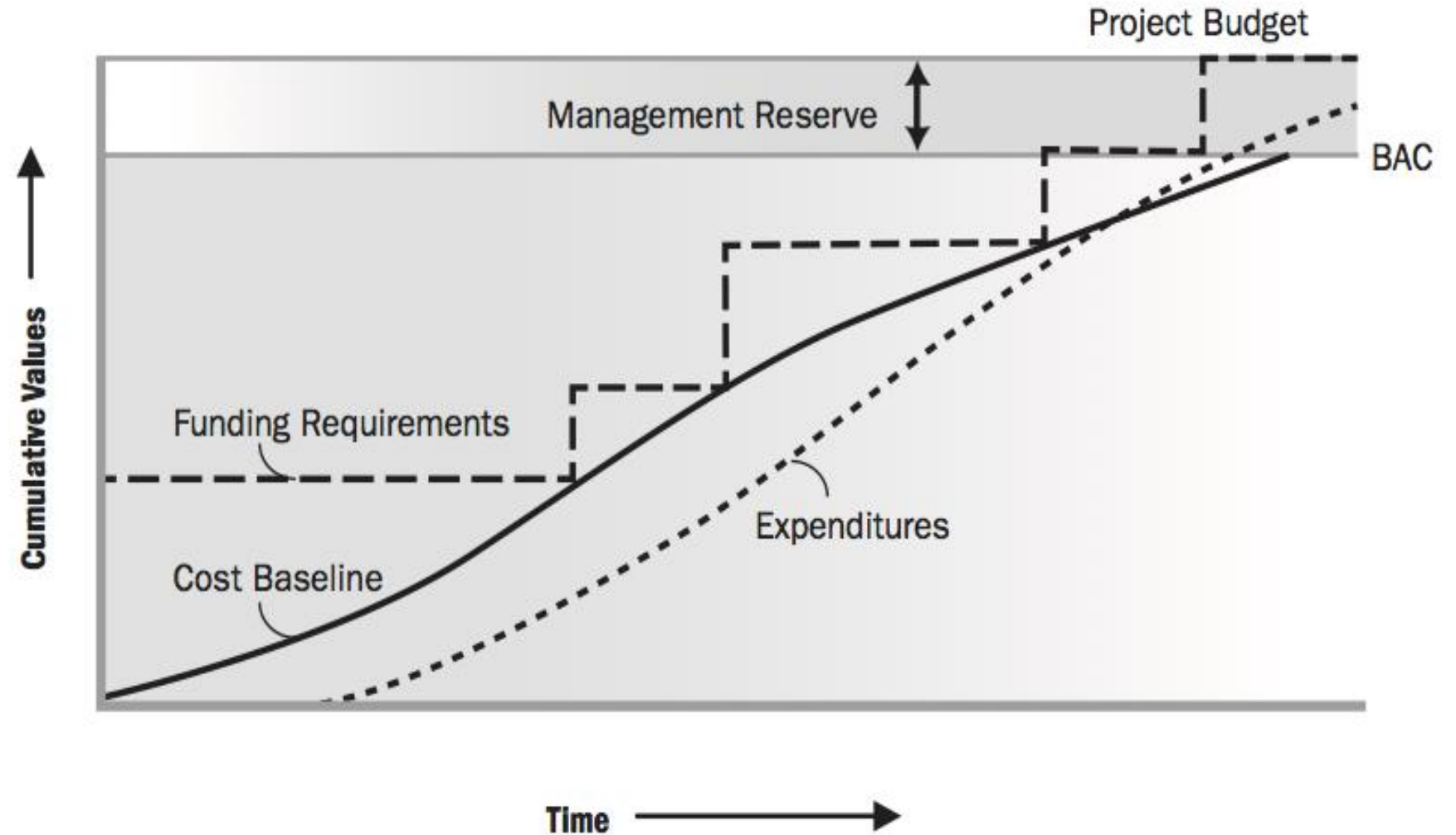
The **budget at completion (BAC)** is the highest point on the cost baseline. The BAC is the sum of all budgets established, or the value of total planned work.



Check with Organization

Funding Limit Reconciliation

- Compare planned project expenditure against funding limits
- Align work/expenditures on the schedule to level the rate of expenditures



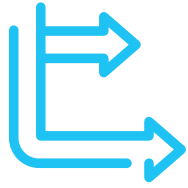
Historical Data

Start with What's Known

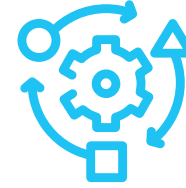
- Check lessons learned repository for budgets, estimates from previous, similar projects or data from the last iteration
- Look for valuable cost-estimating information - both successes and shortcomings
- Use analogous and estimating techniques, based on similar situations



Resource Costs

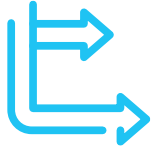


- Match project need to resource attributes (availability, experience, knowledge/skills, attitude)
- Create initial estimate based on average rate
- Modify as needed



- Assign a blended rate
- Estimate points (effort) using planning poker or affinity diagram to find the number of user stories that can be completed based on team velocity
- Use a simple formula to estimate the cost per point:
 - Σ (loaded team salaries for period n) / points completed in interval n
- Use a formula to estimate budget:
 - (Cost per point * total point value of items to be completed) + other expenses = forecast budget

Estimate Costs



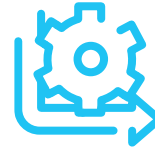
Estimate the cost for each activity or work package in a project.

Cost estimates should include:

- Direct labor
- Materials
- Equipment
- Facilities
- Services
- Information technology
- **Contingency reserves**

Use:

- Rough order of magnitude (-25 to +75%)
- Definitive Estimate (-5 to +10%)
- Phased estimate



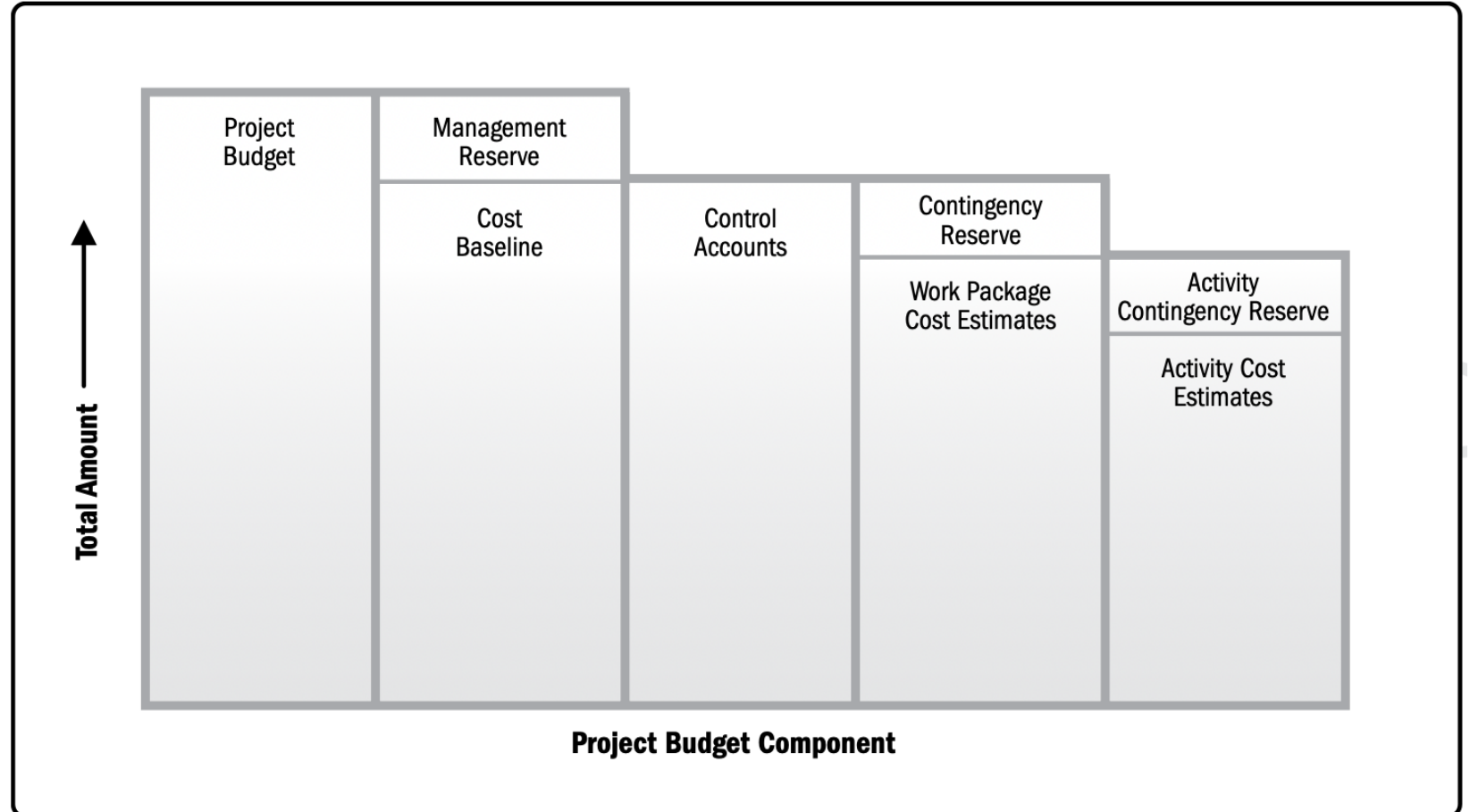
Expecting the scope to change?

Use lightweight estimation methods for high-level estimating.



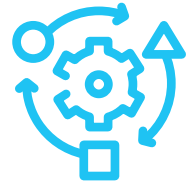
Project Budget

- Use the bottom-up approach to aggregate activity costs, work package costs and cost baseline
- Include **contingencies** to support risk management

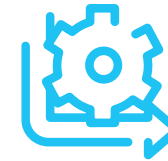


Adaptive and Hybrid Budget Planning

Guidelines/Example



- Focus on short-term budgeting and metrics versus long-term
- Set time periods for work and prioritize work within those time periods.
- Base cost on the resources used for that time period



Examples

- Estimate budget based on current data, plus a forecast algorithm that is based on historic data or expert guidance — e.g., lean or Kanban
- Use a “top-down” approach, using gross-level estimation techniques such as planning poker and affinity grouping on feature sets, then employing progressive elaboration and rolling-wave planning methods to drill down to the task level on a just-in-time basis (iteratively)
- Revise budget at sprint planning intervals

Budget Considerations

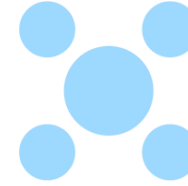


- Estimate budget based on the length of time of the project
- Burn rate includes:
 - Number of team members
 - Blended or actual team member rates
 - Time of involvement
- Assumption of full-time team involvement
- If additional equipment or supplies are required, add them to the estimated cost



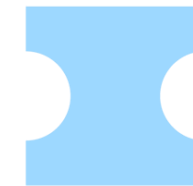
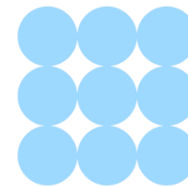
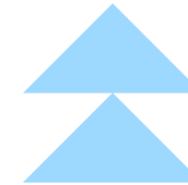
Product owner may control the budget, depending on team composition.

ECO Coverage



2.5 Plan and manage budget and resources

- Estimate budgetary needs based on the scope of the project and lessons learned from past projects (2.5.1)
- Anticipate future budget challenges (2.5.2)
- Plan and manage resources (2.5.4)





Risks

TOPIC F

Risk

Conditions of Uncertainty

-
- Risk originates from a wide range of known and unknown causes within and outside the business environment.
 - Risk development is indicated by a **trigger condition**.
 - Risks can be positive (**opportunities**) or negative (**threats**).
 - If a risk becomes an **issue**, you must act!



Project Risks

SLC Examples



Project Risks

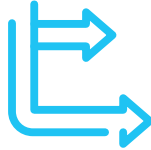
- **Working with new vendors and building processes**
- **Supply chain issues for correct bricks**
- **Building code compliance**
- **Key stakeholder conflict**
- **Retail market changes – decline of in-store shopping**
- **Site survey shows risk of slippage from coastal erosion < 25 years**

Risk

Business Context

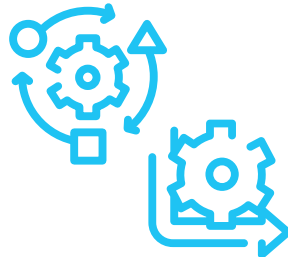


- *Likelihood of a risk event vs. the potential impact*
- *Opportunity vs. threat*



Business risks represent an opportunity for gain or loss.

Project risk management systematically maximizes the probability of positive events and minimizes the probability and consequences of negative events.

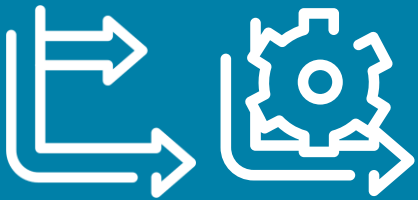


As project uncertainty increases, the risk of rework increases; adaptive life cycles use smaller increments of work to enable **feedback** and **progressive elaboration** of scope.



Create Risk Strategy

First, understand risk parameters for the organization and the project!



How would you describe the organization/ project's **risk appetite**?

- Risk-seeking?
- Risk-neutral?
- Risk-averse?

The **risk threshold** is tied to individual and organizational risk appetites. Do you know:

- Which are too high to accept?
- Which are low enough to just be accepted?



- What criteria determines inclusion in the **risk register**?

Management Guidelines

- *Use qualitative (high, medium, low, etc.) or quantitative (numerical) ratings*
- *Set a maximum risk exposure level that can be managed without escalation*

Define/Refine Risk Management Approach

Set initial risk strategy, then define and refine it!

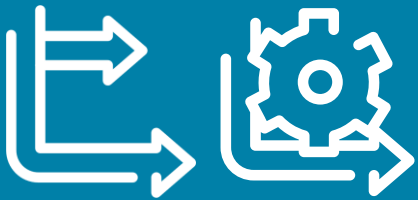
Factor in project characteristics:

- Size
- Complexity
- Importance
- Development approach

Create a **risk management plan**!

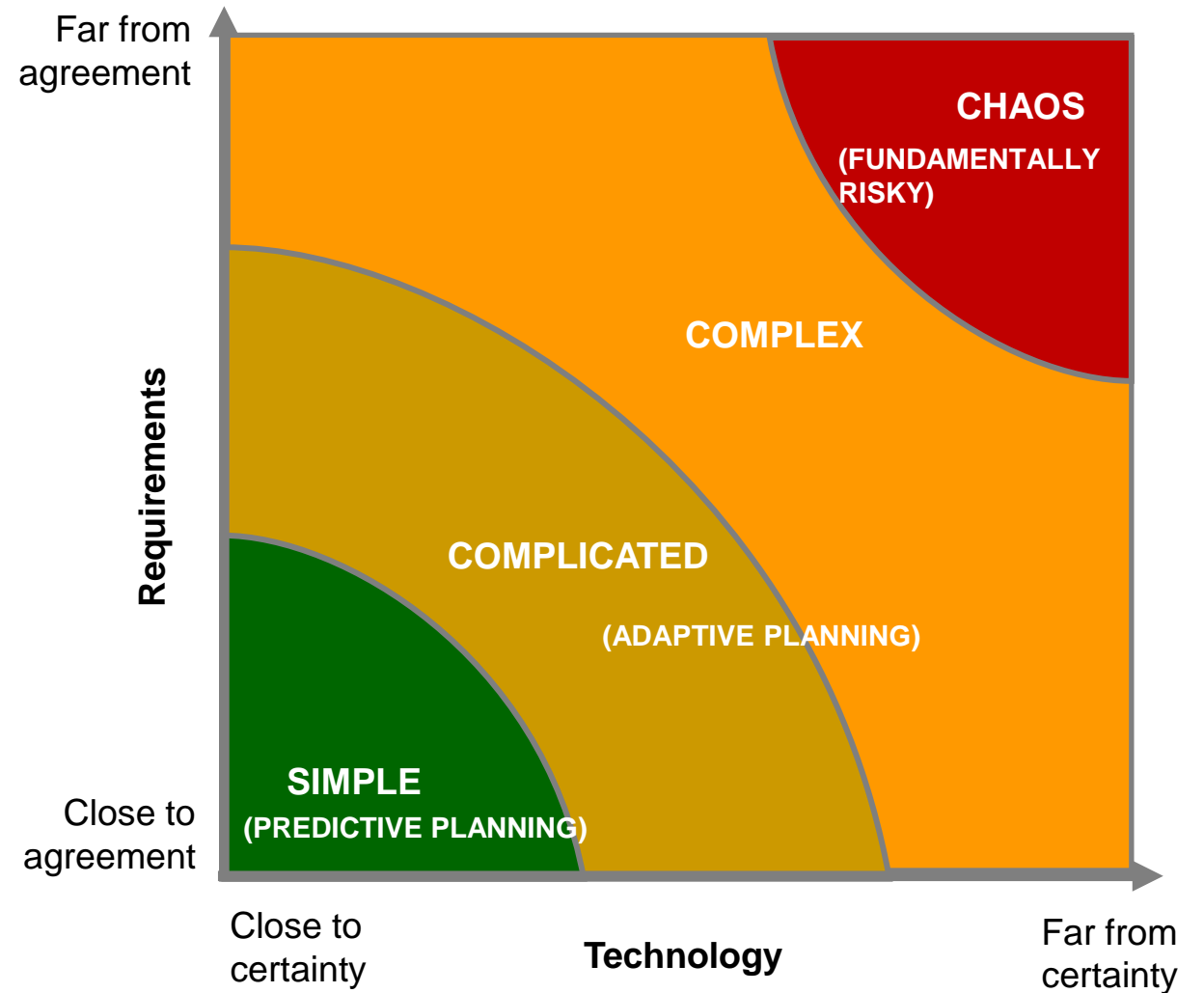
In the plan:

- Risk strategy
- Methodology
- Roles and responsibilities
- Funding
- Timing
- Risk categories
- Stakeholder risk appetite
- Definition of risk probability and impact
- Probability and impact matrix
- Reporting formats
- Tracking documents



Inherent Risk

- Agile projects include risks in user stories and as part of backlog work items
- Teams discuss risks at planning meetings, during the normal course of work
- Teams place risks in a **risk register**, use **information radiators** to ensure visibility and a **backlog refinement** process that includes constant risk assessment



Risk Identification Techniques



Use a **prompt list** to evaluate the external environment for risks.

Data Gathering and Analysis

- **Risk breakdown structure (RBS)**
- Brainstorming
- Nominal group technique
- SWOT analysis
- **Affinity diagram**
- Assumption analysis
- Document review
- **Delphi technique**
- Monte Carlo simulation (larger organizations)



Risk Breakdown Structure

Uses typical categories, such as:

- Technical
- Management
- Commercial
- External



RBS Level 0	RBS Level 1	RBS Level 2
0. All Sources of Project Risk	1. Technical Risk	1.1 Scope definition
		1.2 Requirements definition
		1.3 Estimates, assumptions, and constraints
		1.4 Technical processes
		1.5 Technology
		1.6 Technical interfaces
	2. Management Risk	2.1 Project management
		2.2 Program/portfolio management
		2.3 Operations management
		2.4 Organization
		2.5 Resourcing
		2.6 Communication
	3. Commercial Risk	3.1 Contractual terms and conditions
		3.2 Internal procurement
		3.3 Suppliers and vendors
		3.4 Subcontracts
		3.5 Client/customer stability
		3.6 Partnerships and join ventures
	4. External Risk	4.1 Legislation
		4.2 Exchange rates
		4.3 Site / facilities
		4.4 Environmental / weather
		4.5 Competition
		4.6 Regulatory

Example RBS

Assess Risks

Qualitative *then* Quantitative

Perform the subjective **qualitative assessment** first.

Prioritize risks for further analysis by assessing and combining their probability of occurrence and impact in a **probability/impact matrix**.

Then, if further support is required, use a **quantitative assessment**.



Not every risk needs quantitative assessment.



Create Risk Probability and Impact Definitions

Example

+ / - IMPACT ON PROJECT OBJECTIVES

SCALE	PROBABILITY	TIME	COST	QUALITY
VERY HIGH	>70%	>6 months	>\$5m	Very significant impact on overall functionality
HIGH	51-70%	3-6 months	\$1m-\$5m	Significant impact on overall functionality
MEDIUM	31-50%	1-3 months	\$501k - \$1m	Some impact in key functional areas
LOW	11-30%	1-4 weeks	\$100k-\$500k	Minor impact on overall functionality
VERY LOW	1-10%	1 week	<\$100k	Minor impact on secondary functions
NIL	<1%	No change	No change	No change in functionality

Probability and Impact Matrix

- Use numeric values and/or colors
- If using numbers, multiply them to give a probability impact score – this makes evaluating relative priority easier!



This is NOT a quantitative evaluation.

		IMPACT (SEVERITY)				
		1	2	3	4	5
PROBABILITY (LIKELIHOOD)	1	VERY LOW 1	2	3	4	5
	2	2	LOW 4	6	8	10
	3	3	6	MEDIUM 9	12	15
	4	4	8	12	HIGH 16	20
	5	5	10	15	20	VERY HIGH 25

Risk Register*



Risk Description	Impact Description	Impact Level Score	Probability Level Score	Risk Score (probability and impact multiplied)	Trigger Condition	Planned Response	Owner
	<i>What will happen if the risk is not mitigated or eliminated</i>	<i>Rate 1 (LOW) to 5 (HIGH)</i>	<i>Rate 1 (LOW) to 5 (HIGH)</i>	<i>(IMPACT X PROBABILITY) Address highest first.</i>	<i>What indicates the risk will occur.</i>	<i>Action plan</i>	<i>Who's responsible</i>
Supply chain issues for correct bricks		5	1	5	Supplier notification		L. De Souza
Building code compliance		5	2	10	Pre-checks fail		K. Ayoung
Working with new vendors and building processes		3	3	9	Delays or conflict		K. Ayoung

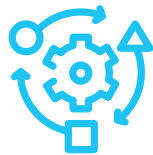
Risk List



Risk	Probability (1-10)	Impact (1-10)	Magnitude
• Working with new vendors and building processes	5	6	30
• Supply chain issues for correct bricks	5	10	50
• Building code noncompliance	5	10	50
• Key stakeholder conflict (Josie Bynoe)	4	6	24
• Retail market declining	8	10	80
• Site survey shows risk of slippage from coastal erosion < 25 years	5	3	15

Teams can add (tailor) columns for:

- Owner
- Status
- Date identified
- Date resolved
- Days active
- Resolution strategy



In addition to a risk list or a risk register, teams use information radiators and a backlog refinement process with risks added, which are discussed at various planning meetings.

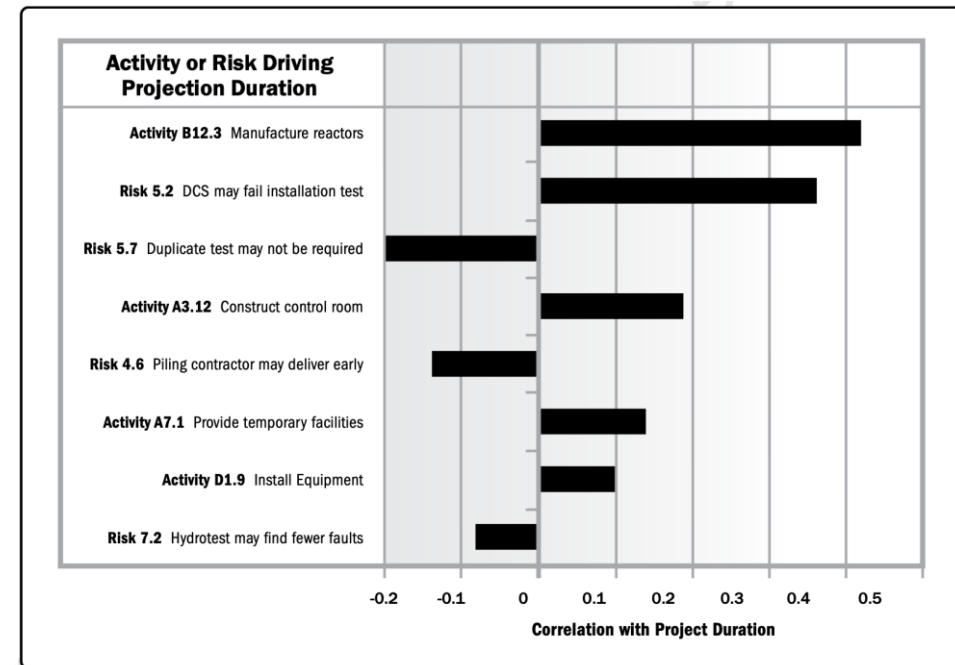
Quantitative Risk Analysis Methods

(1 of 2)

- Simulations
- Sensitivity analysis
- Decision tree analysis
- Influence diagrams
- Expected monetary value (EMV)



- **Simulations** - Use computer models to determine risk factors
- **Monte Carlo simulations** produce a quantitative risk analysis model by using schedule and/or cost inputs to produce an integrated quantitative cost-schedule risk analysis
- **Sensitivity analysis** -
 - Output is the **Tornado diagram**, a horizontal bar chart comparing relative importance of various risks, highest on top



Quantitative Risk Analysis Methods

(2 of 2)

- Simulations
- Sensitivity analysis
- Decision tree analysis
- Influence diagrams
- Expected monetary value (EMV)

Decision tree analysis

- Branches represent decisions or events, each with associated costs and risks
- The end-points of branches represent the outcome (negative or positive)

Influence diagrams

- Quality management graphical aid
- Shows elements of uncertainty caused by risks using ranges or probability distributions



Used when decision trees are too complex.

Expected Monetary Value (EMV)

- Multiply the monetary value of a possible outcome with its probability of occurrence to calculate the EMV of each branch
- Select the optimal one

Risks

Time, Cost and Life Cycle



“Predictive projects are most often affected by the impact of cost-related risks, whereas adaptive projects are affected by the impact of time-related risks.”



*Do you agree or disagree?
Why?*



*Do you think each of these
typical risks is more typical of
predictive or adaptive project?
Can you explain why?*

Typical Risks

- Delivery date slips
- Stretched resources
- Lack of clarity
- Scope creep

Risk Response

Good Practice

Risk responses should be:

- Appropriate for the significance of the risk
- Cost effective
- Realistic within the project context
- Agreed to by relevant stakeholders
- Owned by a responsible person



Plan Risk Response

Guidelines and Terminology

- A trigger condition signals a risk can develop
- Team implements a risk response
- A **secondary risk** can arise as a direct result of the risk response implementation
- **Residual risk** can remain after risk responses have been implemented
- Have a **contingency (fallback) plan** ready in case the primary risk response fails
- The **contingency reserve (or allowance)** is the budget within the cost baseline that is allocated for identified risks and their response strategies



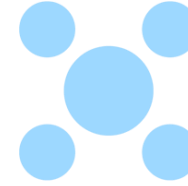
Risk Response Strategies

Prepare strategies for threats (negative) as well as opportunities (positive) and for individual project risks and overall project risk.



THREAT	OPPORTUNITY
ESCALATE	ESCALATE
AVOID	EXPLOIT
TRANSFER	SHARE
MITIGATE	ENHANCE
ACCEPT	ACCEPT

ECO Coverage

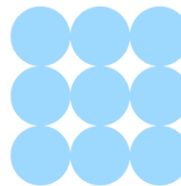
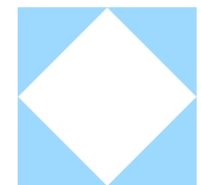
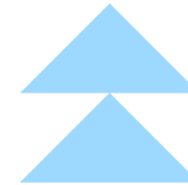


2.3 Assess and manage risks

- Determine risk management options (2.3.1)
- Iteratively assess and prioritize risks (2.3.2)

3.1 Plan and manage project compliance

- Determine necessary approach and action to address compliance needs (risk, legal) (3.1.6)
- Determine potential threats to compliance (3.1.3)



DAILY PMP BOOTCAMP SURVEY



Our goal is to provide the best possible Bootcamp experience for a live streaming webinar, with hundreds of participants.

For each Bootcamp session,

- Let us know **what you liked** about the experience – your comments really matter.
- Please include a thank you **to the mentor(s)** working off camera.
- If you have **recommendations**, share those too!

We sincerely value your opinion!

LOOK FOR THE SURVEY LINK IN THE CHAT

Survey Scale

This Scale: 0 not at all likely- 10 extremely likely



On a scale of 0-10, how likely are you to recommend this bootcamp to someone else?

This Scale: 0 not at all likely - 10 extremely likely

[illegible]



RESOURCE MANAGEMENT PLAN

A component of the project management plan that describes how project resources are acquired, allocated, monitored, and controlled.

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RESOURCE CALENDAR

A calendar that identifies the working days and shifts for which each specific resource is available.



RACI CHART

Stands for Responsible, Accountable, Consult, and Inform. A common type of responsibility assignment matrix (RAM) that uses responsible, accountable, consult, and inform statuses to define the involvement of stakeholders in project activities.



MAKE-OR-BUY ANALYSIS

The process of gathering and organizing data about product/service requirements and analyzing data against available alternatives including the purchase or internal manufacture of the project.



MAKE-OR-BUY DECISIONS

Decisions made regarding the external purchase versus internal manufacture of a product.



PROCUREMENT MANAGEMENT PLAN

A component of the project or program management plan that describes how a project team will acquire goods and services from outside the executing organization.



PROCUREMENT DOCUMENTS

Documents used in bid and proposal activities, which include the buyer's invitation for bid, expression of interest (EOI); invitation for negotiations; request for information (RFI); request for quotation (RFQ); request for proposal (RFP); and seller's responses.



STATEMENT OF WORK (SOW)

A narrative description of products, services, or results to be delivered.



REQUEST FOR PROPOSAL (RFP)

A type of procurement document used to request proposals from prospective sellers of products or services. In some application areas, it may have a narrower or more specific meaning.



BIDDER CONFERENCES

The meetings with prospective sellers prior to the preparation of a bid or proposal to ensure all prospective vendors have a clear and common understanding of the procurement. Also called vendor conferences, pre-bid conferences, or contractor conferences.



SOURCE SELECTION CRITERIA

A set of attributes, desired by the buyer, which a seller is required to meet or exceed to be selected for a contract.



CONTRACT

A mutually binding agreement that obligates the seller (supplier) to provide the specified project or service or result and obligates the buyer to pay for it.



BURN RATE

The rate at which the project consumes financial resources, representing negative cash flow. Burn rates are often used by agile projects to budget costs for planned iterations / sprints / increments.



COST MANAGEMENT PLAN

A component of a project or program management plan that describes how costs will be planned, structured, and controlled.



COST BASELINE

The approved version of the time-phased project budget, excluding any management reserves, which can be changed only through formal change control procedures and is used as a basis for comparison to actual results.



BUDGET AT COMPLETION (BAC)

The sum of all budgets established to provide financial support for the work to be performed.



CONTINGENCY RESERVE

Time or money allocated in the schedule or cost baseline for known risks with active response strategies.



TRIGGER CONDITION

An event or situation that indicates that a risk is about to occur.



OPPORTUNITY

A risk that, if developed, would create a positive effect on one or more project objectives.



THREAT

A risk that would have a negative effect on one or more project objectives.



ISSUE

A current condition or situation that may have an impact on the project objectives.



BUSINESS RISK

The inherent risk in any business endeavor that carries the potential for either profit or loss. Types of business risks are competitive, legislative, monetary, and operational.



RISK APPETITE

The degree of uncertainty an organization or individual is willing to accept in anticipation of a reward.



RISK THRESHOLD

The level of risk exposure above which risks are addressed and below which risks may be accepted.



RISK MANAGEMENT PLAN

A component of the project, program, or portfolio management plan that describes how risk management activities will be structured and performed.



PROMPT LIST

A checklist for a specific category of risk. This tool is a simple series of broad risks, for example environmental or legal, rather than specific risks, such as flooding or regulatory changes. The idea is to push (prompt) the team to think and brainstorm the risks in groups and eventually prioritize the same.



RISK BREAKDOWN STRUCTURE (RBS)

A hierarchical representation of potential sources of risk.



AFFINITY DIAGRAM

A technique that allows large numbers of ideas to be classified into groups for review and analysis.



DELPHI TECHNIQUE

A form of gathering expert opinions in which members of a group are asked or polled anonymously.



PROBABILITY AND IMPACT MATRIX

A grid for mapping the probability of occurrence of each risk and its impact on project objectives if that risk occurs.



RISK REGISTER

A repository in which outputs of risk management processes are recorded. As the central planning document for project risk analysis and control, the risk register contains a list of the most important risks to the project's completion. For each risk, it identifies the likelihood of occurrence, the impact to the project, the priority, and the applicable response plans.

SIMULATION



SIMULATION

An analytical technique that models the combined effect of uncertainties to evaluate their potential impact on objectives.



MONTE CARLO SIMULATION (RISK ANALYSIS)

A risk management technique, which project managers use to estimate the impacts of various risks on the project cost and project timeline. Using this method, one can easily find out what will happen to the project schedule and cost in case any risk occurs. It is used at various times during the project life cycle to get the idea on a range of probable outcomes during various scenarios.



SENSITIVITY ANALYSIS

An analysis technique to determine which individual project risks or other sources of uncertainty have the most potential impact on project outcomes, by correlating variations in project outcomes with variations in elements of a quantitative risk analysis model.



DECISION TREE ANALYSIS

A diagramming and calculation technique for evaluating the implications of a chain of multiple options in the presence of uncertainty.



INFLUENCE DIAGRAM

Used in quality management decisions. A graphical representation of situations showing causal influences, time ordering of events, and other relationships among variables and outcomes.



EXPECTED MONETARY VALUE (EMV)

A quantitative method of calculating the average outcome when the future is uncertain. The calculation of EMV is a component of decision tree analysis. Opportunities will have positive values and threats will have negative values.



SECONDARY RISK

A risk that arises as a direct result of implementing a risk response.



RESIDUAL RISK

The risk that remains after risk responses have been implemented.



CONTINGENCY PLAN

A risk response strategy developed in advance, before risks occur; it is meant to be used if and when identified risks become reality.



CONTINGENCY RESERVE

Time or money allocated in the schedule or cost baseline for known risks with active response strategies.