MCLschool

Introduction to Project Management

This course provides good understanding of the fundamentals of project management

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Module 5

Lesson 5: Planning 3 Cost

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Course Overview

- Estimate Project Costs
- Develop Project Budgets
- Backlog Prioritization
- Agile Estimating

Topics for this Module

- 5.1 Cost Management
  - Plan Cost Management
  - Estimate Costs
- 5.2 Determine Budget
  - Determine Budget
- 5.3 Prioritization
- 5.4 Agile Estimating
- Key Takeaways

Cost Management Plan

- The Cost Management Plan is concerned with the costs of the resources needed to complete project activities.
- It provides details on how to plan, manage, and control the project cost in relation to the cost baseline and manage the cost variances.
- The project cost management plan is a subsidiary of the project management plan.
- The techniques involved in estimating the cost of each project activity is similar to the ones used in estimating project time.
- Expert judgment, analogous estimating, bottom-up estimating, and reserve analysis are some of the techniques used in cost management.

Key Concepts

- Project cost management is primarily concerned with the *cost of the resources needed to complete the project activities.*
- Project cost management should consider the effect of project decisions on the subsequent recurring cost of using, maintaining, and supporting the product, service, or result of the project.

- Another aspect involves recognizing that different stakeholders measure project costs in different ways and at different times.

Trends and Emerging Practices in Project Cost Management

- Within the practice of project cost management, trends include expansion of earned value management (EVM) to include the concept of earned schedule (ES).

- ES theory replaces the schedule variance measures used in traditional EVM (Earned value - Planned value) with ES and Actual Time (AT).

- Schedule Variance (SV) is ES-AT.

- Schedule performance index (SPI) using earned schedule metrics is ES/AT.

Module 5 Section1

Cost Management

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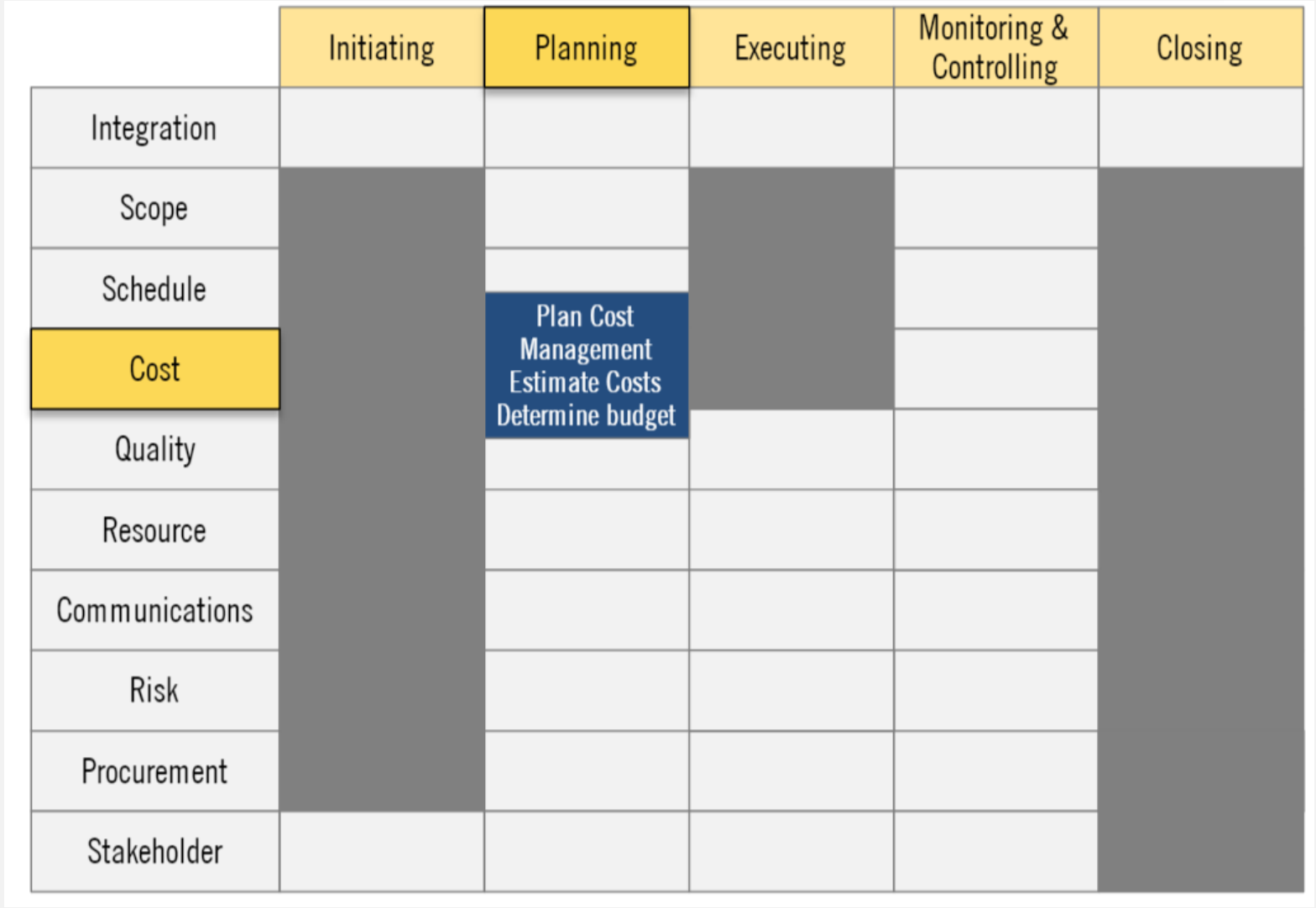
Project Cost Management



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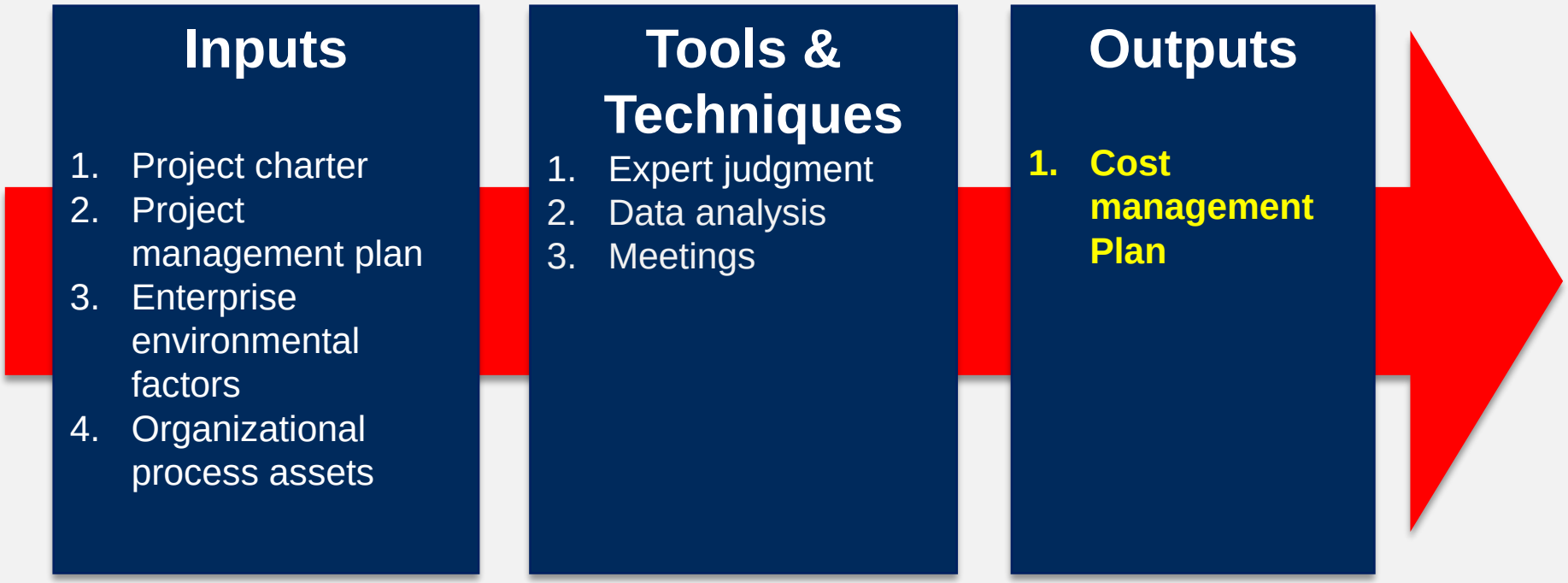
Plan Cost Management

Processes of defining how the project costs will be estimated, budgeted, managed, monitored, and controlled



PMBOK® GUIDE 6th Ed. 5.1

Adapted from Part I Figure 5-2, *A Guide to the Project Management Body of Knowledge (PMBOK® Guide) - Sixth Edition*, Project Management Institute, Inc., 2015. Copyright and all rights reserved. Material from this publication has been reproduced with the permission of PMI. Page 224.

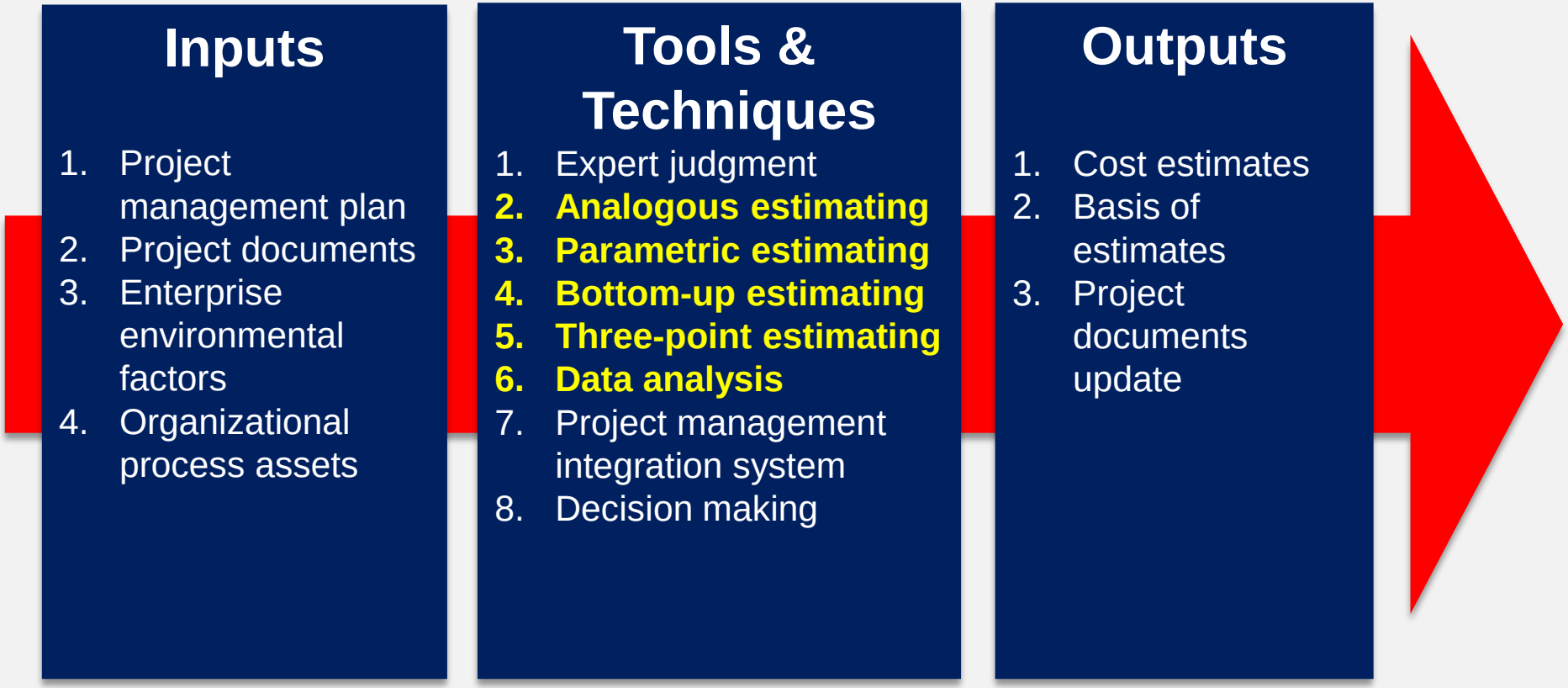
Cost Management Plan

Includes:

- Unit of measure (e.g. US or Canadian dollars, staff hours/weeks)
- Level of precision (e.g. rounded up to hundreds, thousands of dollars)
- Level of accuracy (e.g. within 5%, 10% up or down)
- Financial controls and thresholds
- Rules for performance measurement (EVM)
- Budget reporting formats and frequency
- Additional info
  - Market conditions
  - Funding choices
  - Foreign exchange rates
  - Procedures for cost recording

Estimate Costs

Process of developing an approximation of the cost of resources needed to complete the project work



Estimate Costs (cont'd)

- **Inputs and Factors Affecting Cost Estimating**

Enterprise Environmental Factors

- Market Conditions
- Published commercial information
- Cost of Money
- Government Regulations
- Partnerships and Contractual Arrangements
- Org. HR Policies
- Org. Procurement Policies
- Org. Budget Practices

Organizational Process Assets

- Cost Estimate Policies and Templates
- Historical Database
- Lessons Learned

Relevant Project Plan Elements

- Project Scope Statement
- WBS
- Project Schedule & CP
- Risk Register
- HR Plans

Estimate Costs (cont'd)

- **Cost Basics**

- Direct Costs: Readily identified costs incurred directly by the project
- Indirect Costs: Cost of doing business; allocated to the project by the organization
- Fixed Costs: Constant costs regardless of the size of the project
- Variable Costs: Costs related to specific project parameters and vary with the size of the project

- Sunk Costs: Costs already expended that cannot be recovered
- Opportunity Costs: Not a true cost. Difficult to confirm but represent foregone benefits associated with choosing a particular alternative
- Capital Costs: Costs related to depreciable capital expenditures in projects

Estimate Costs (cont'd)

- **Cost estimates are a prediction based on information known at the time**
- **Can be expressed in units of currency or other units of measure (staff hours, days)**
- **Types of Cost Estimates:**

Type of Estimate	When is this used?	Why is this used?	Accuracy
Rough Order of Magnitude (ROM)	Before the start of the project and initiation	Provides estimate of cost for selection decisions	-25% to +55%
Budgetary	Early to mid planning	Puts dollars in the budget plans	-10% to +25%
Definitive	Late planning, just before start of execution	Provides details for purchases, estimates actual costs	-5% to +10%

Estimate Costs – Tools

- Analogous estimating
  - Develops cost estimates in comparison to total costs for similar projects
  - Advantages
    - Fast, logical, and inexpensive
    - Information is usually readily available
    - Based on lessons learned from real projects
  - Disadvantages
    - Lack of similar projects in some sectors
    - Lack of reliable information if record documentation of other projects is not available
  - Also known at Top-Down estimating

Estimate Costs – Tools (cont'd)

- Parametric estimating
  - Uses project characteristics (parameters) in a mathematical model to estimate project costs
  - Use historical, statistical or logical methods and rates derived from similar projects
    - Wedding
      - Hotel average cost of $100 per person x 150 people
      - Total projected hotel cost $15,000
    - Construction: Corporate Headquarters
      - 20 Floor with an average floor space of 5000 sq. meters. Average cost is $2000/ sq. metres
      - Total projected cost $200 million

Estimate Costs – Tools (cont'd)

- **Bottom-up estimating**
  - **Involves estimating individual work items or activities and summing them to get a project total**
  - **Requires detailed measurement of all components (e.g. quantity surveying)**
  - **Uses established rates for each part, based on industry standards, known labour input and supplier costs**
  - **Possible only when the design and specifications are complete**
  - **Also known as Detailed estimating**

Estimate Costs – Process

- Detailed cost estimating process
  - Determine project scope and timing
  - Measure quantities of components
  - Prepare estimate from existing unit rates
  - Obtain quotes
  - Find actual total and component costs
  - Analyse costs and obtain rates
  - Adjust unit rates due to new information

Estimate Costs – Tools (cont'd)

- Three-point estimating
  - Similar to duration estimating
    - cE = the estimated cost
    - cO = optimistic cost
    - cM = most likely cost
    - cP = pessimistic cost
    - Triangular distribution cE = (cO + cM + cP) / 3
    - Beta distribution cE = (cO + 4cM + cP) / 6
- Data analysis
  - Alternatives analysis
    - Evaluate options and/or approaches (e.g. make or buy)
  - Reserve analysis
    - Contingency reserves to account for uncertainty
- Agile estimating
  - Story point
  - Ideal days

Cost Management – Questions

1. **Good Earth, a company manufacturing packaged food products, sets up a store in Baltonia. However, a year later, the company closes the store down due to high operating costs. In such a scenario, the money spent on the rent of the store in Baltonia would be an example of a(n)_____ cost.**

   a. recurring
   b. direct
   c. sunk
   d. intangible

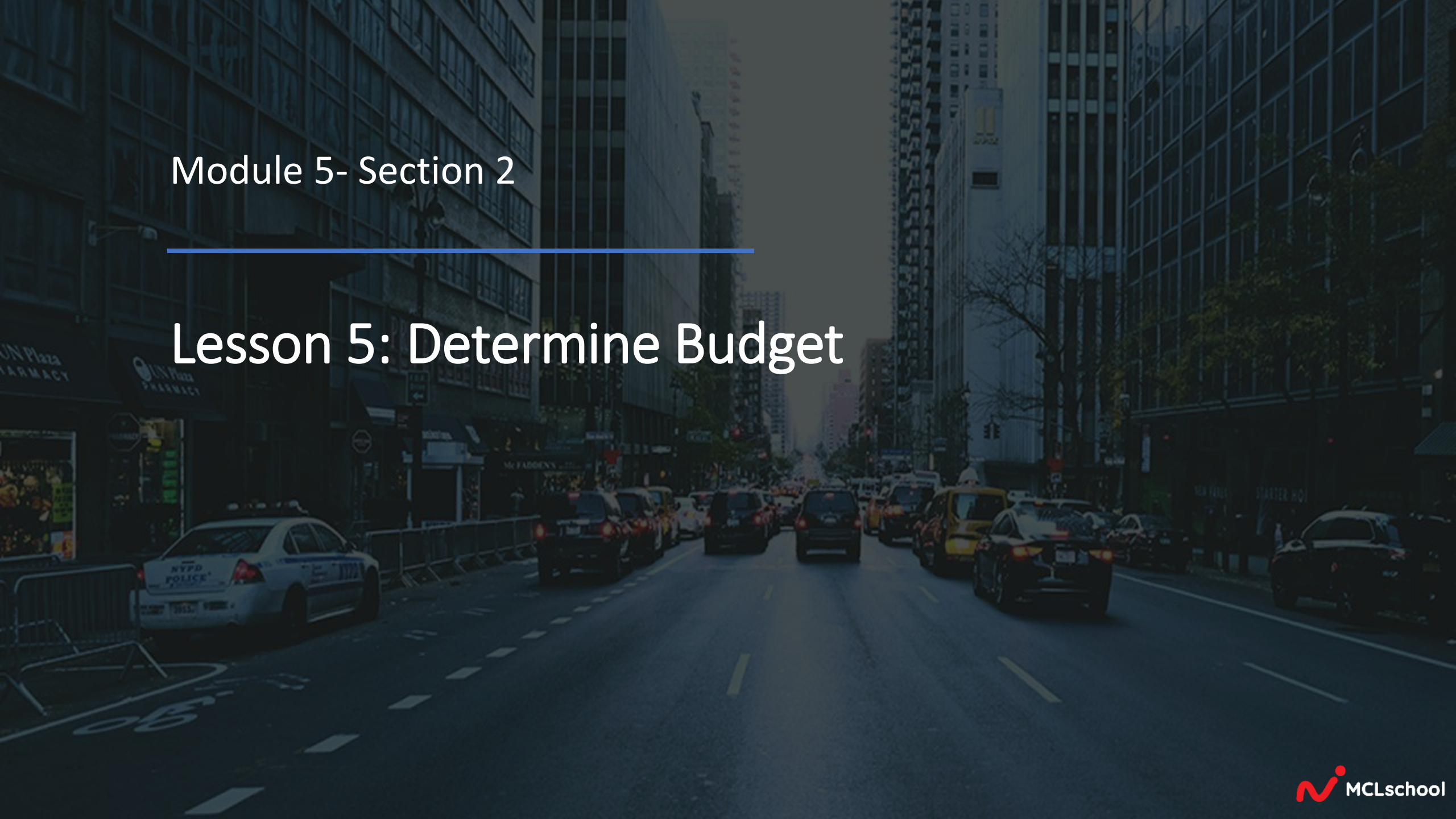
2. **A cost estimation tool that is used to allocate money into an organization's budget is known as a _____estimate.**

   a. budgetary
   b. definitive
   c. rough order of magnitude
   d. ballpark

3. **You are working on a small renovation project and are using parametric estimating. The remaining work package to complete the interior finishing will take 30 hours to do. You need your plaster for 10 hours at $55/hour, your painter for 15 hours at $50/hour and the rug installation company will need another 5 hours at $100/hour. What cost estimate should you provide?**

   a. $1,500
   b. $2,000
   c. $2,500
   d. $3,000

1. C
2. A
3. B



Module 5- Section 2

Lesson 5: Determine Budget

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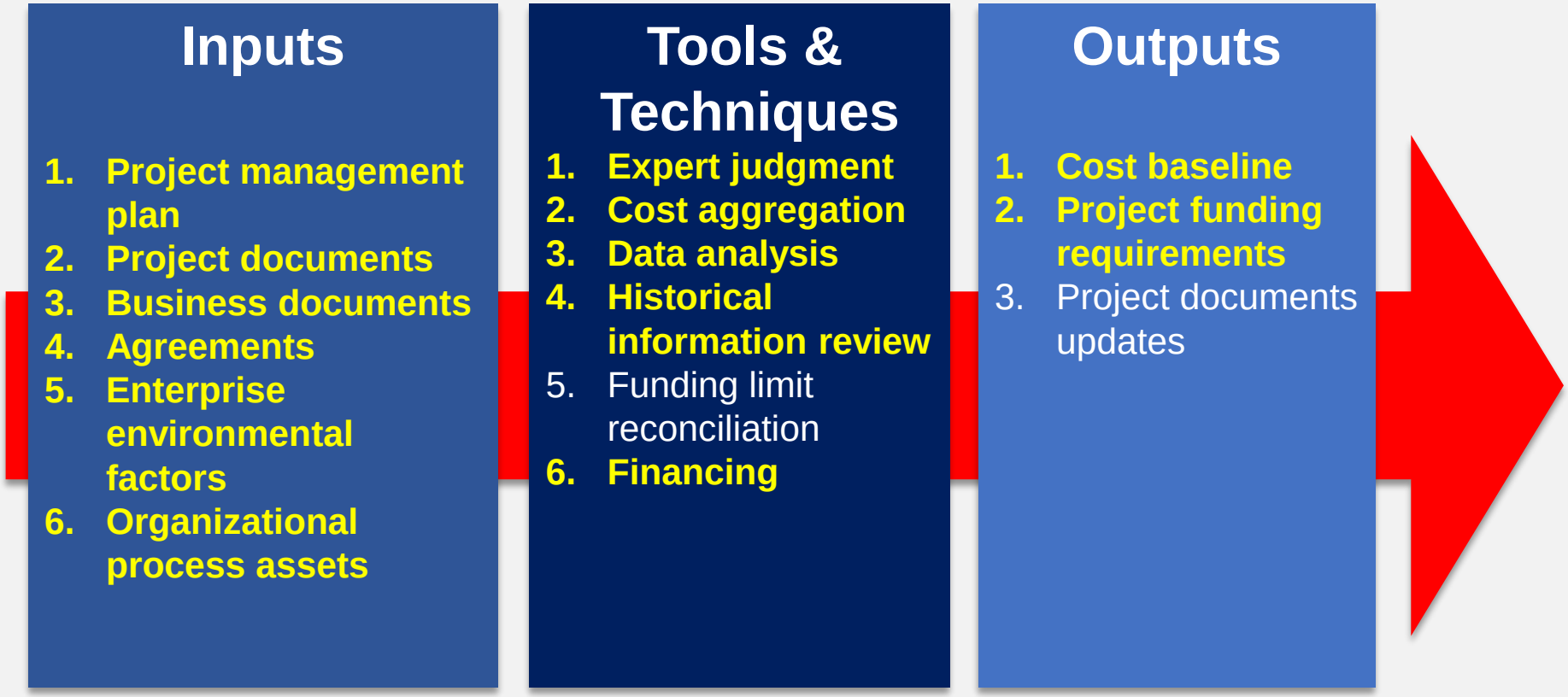
Determine Budget

Process of aggregating the estimated costs of individual activities or work packages to establish an authorized cost baseline



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5.3

Determine Budget – Inputs

- Project management plan
  - Cost management plan
  - Resource management plan
  - Scope baseline
- Project documents
  - Basis of estimates
  - Cost estimates
  - Project schedule
  - Risk register
- Business documents
  - Business case
  - Benefits management plan
- Agreements
- Enterprise environmental factors
- Organizational process assets

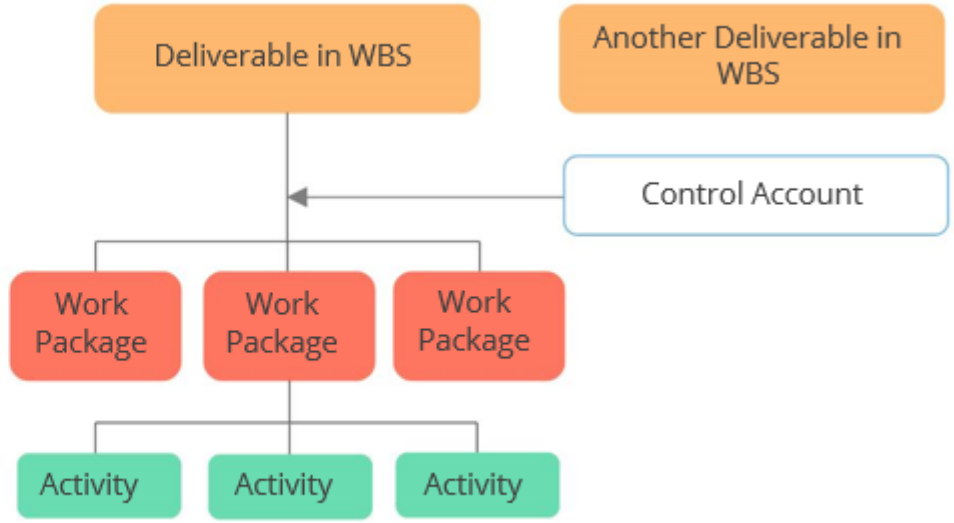
Determine Budget – Tools

- **Expert judgment**
  - Judgment provided by professional institutions, consultants, and stakeholder
- **Cost aggregation**
  - Cost estimates are aggregated by Work Packages and further “rolled up” to higher levels, e.g. control accounts
- **Data analysis**
  - Contingency reserves for risks vs. management reserves for change requests and unknown/unknowns
- **Historical information review**
  - Mathematical models created as a result of parametric and analogous estimates
- **Funding Limit Reconciliation**
  - Expenditure of funds with the funding limits

Control Account

In larger projects, costs are managed at a higher level rather than at an individual activity level. Under control account technique, related activities are grouped and their costs are managed as one unit.

The scope of a project is decomposed through a Work Breakdown Structure (WBS). The lowest level deliverable in the WBS is called a work package.

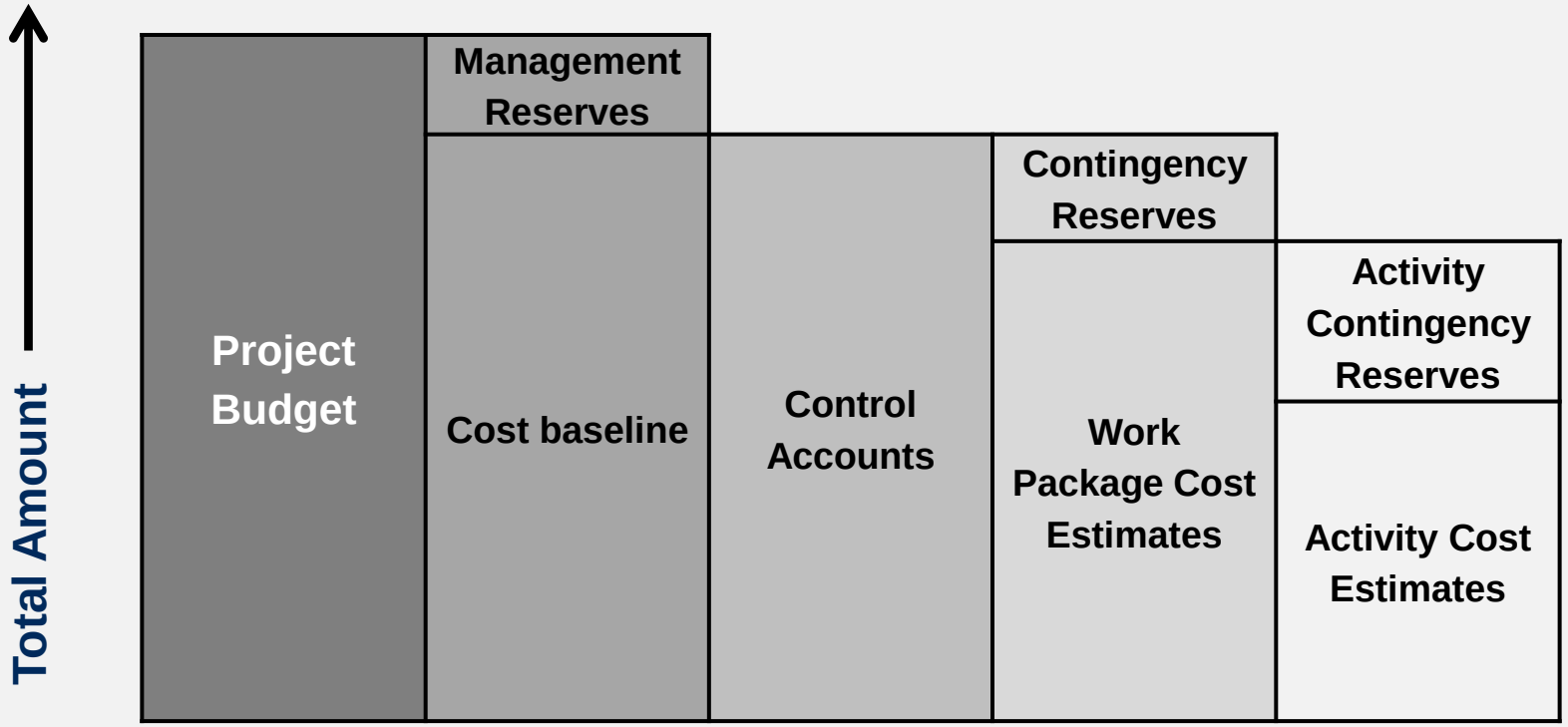


Determine Budget – Outputs

- **Cost baseline**
  - Typically displayed in the form of an S-curve
  - An authorized version of the time-phased budget
  - Used to measure, monitor, and control overall cost performance on the project
    - Graph of the cumulative Planned Value (PV)
    - Budget At Completion (BAC) is the total planned value at the end of the project
- **Project Funding Requirements**
  - Total funding, and periodic funding requirements
  - Funding occurs in incremental amounts

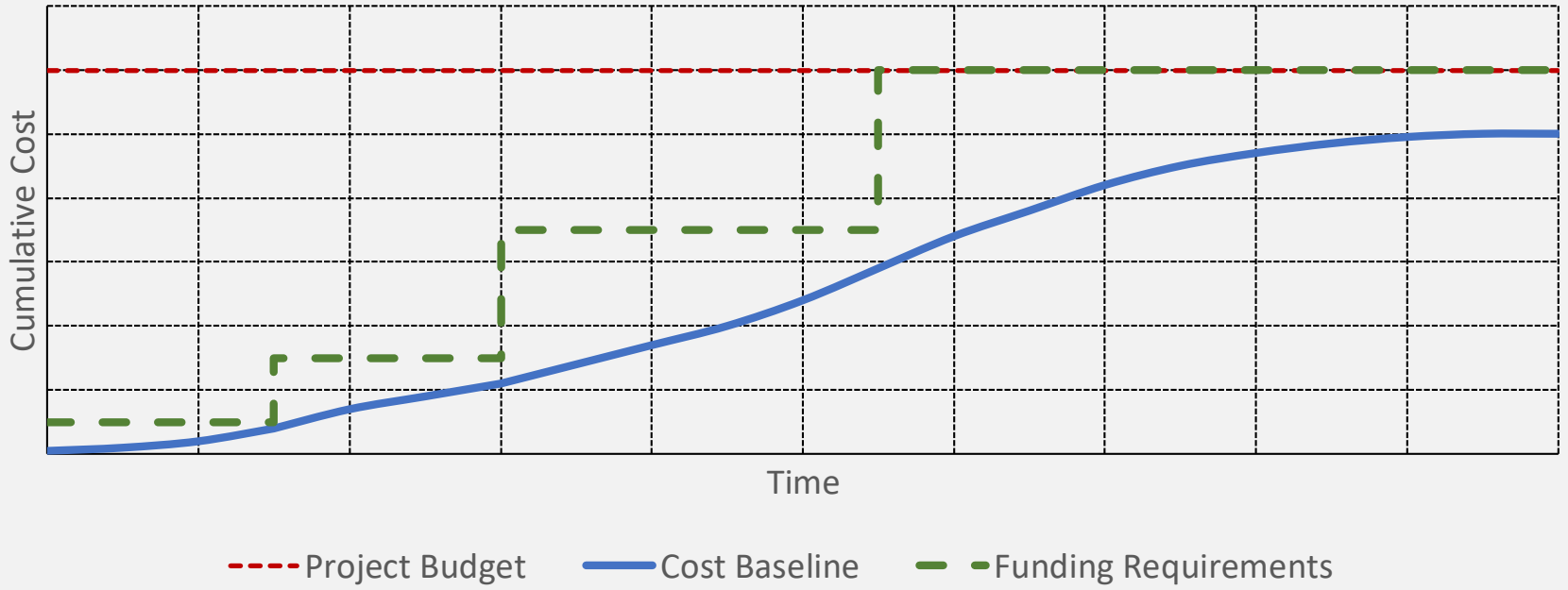
Determine Budget – Outputs

- **Project Budget Components**



Determine Budget – Outputs

- **Cost Baseline (S-Curve) and Funding Requirements**



The Cost Baseline (S-Curve)

- S-curve consists of “a display of cumulative cost, labour hours or other quantities plotted against time”
- Name derives from the S-like shape of the curve which is flatter at beginning and end and steeper in middle where more of the resources are used
- There can be multiple S-curves to represent planned or target values, and actual progress completed
- The cost baseline can change throughout the project due to approved change requests

Determine Budget – Questions

1. **_____ allow for future situations that are unpredictable.**
   a. Contingency reserves
   b. Management reserves
   c. Known unknowns
   d. Cost baseline reserves
2. **_____ process involves allocating the overall cost estimate to individual work items to establish a baseline for measuring performance.**
   a. Determine Budget
   b. Plan Cost Management
   c. Control Costs
   d. Estimate Costs
3. **A _____ is a time-phased budget that project managers use to measure and monitor cost performance.**
   a. cost baseline
   b. cost estimate
   c. life cycle budget
   d. cash flow analysis

1. A
2. A
3. A

Module 5 Section 3

Backlog Prioritization

What Is A Product Backlog?

- A product backlog is:
  - A list of new features or changes to existing features that the team gathers to achieve a specific outcome
  - The single authoritative source for things that a team works on
- The presence of product backlog items does not guarantee that the items will be delivered

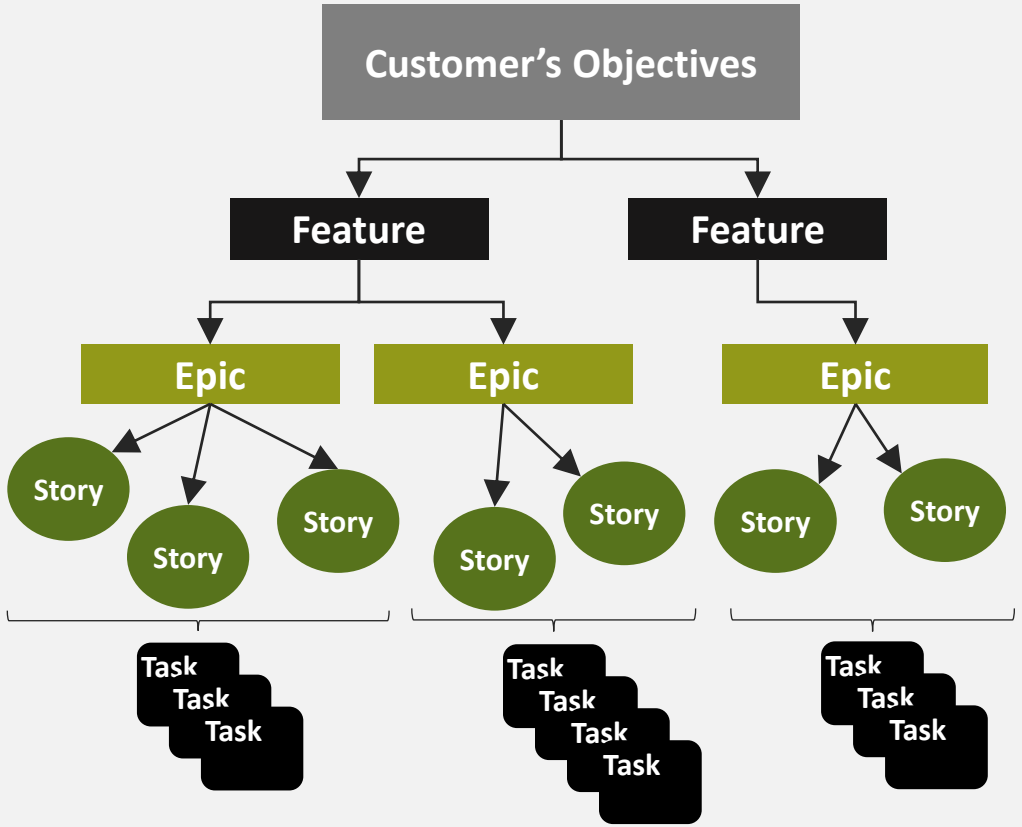
Source: Agile Project Management (Jim Highsmith)

Product Backlog – Example

- Your team has decided to use an agile approach for the development of the registration website
- The project team talked to stakeholders and have developed the following list of features

Feature
• Create user id
• Additional pages
• Allow users to provide feedback
• Registration payment process
• Allow users to tag speakers and events
• Allow SMEs to post messages
• Load speakers and events
• Delete users
• Add promotions material and ads
• Create home page
• Registrant agenda
• Sent emails to registrants

Story Map – Website Example



Level	Simple Example
Objective	Attendees find session quickly
Feature	Search function on the website
Epic	As a conference attendee I need a searchable website in order to find the sessions I am interested in
Story	As a conference attendees I need updated speaker bio in order to select a session
Task	Update speaker bios on website

Building the Product Backlog – Story Map

- A story map is an effective tool to build product backlogs in a structural, visual way, engaging the right stakeholders
- Features are further decomposed into epics
- Epics are further decomposed into user stories
- User stories are further decomposed into tasks

Benefits of Product Backlogs

- Placeholder for future discussions on options to deliver a desired outcome
- Manage team's learning about the desired outcome and the potential ways to deliver it
- The backlog does not have to be complete when the team starts working; items can be added as product teams learn more about the product
- An item can be removed or replaced easily, based on value add
- Items are prioritized based on the value they add to the product

Backlog Prioritization

- Helps product owners determine what backlog items the team should work on next
- Allows the product team to select the items with the most value to customers first
- Provides communication between the product owner and the team to define the items with more value and less effort
- Uses different techniques that can be adjusted depending on the sprint duration

Factors in Prioritization

- The following main factors are considered during prioritization:
  - **Customer value** associated to the outcome for the features being delivered
  - **Necessity** (need) of feature for the customer using it
- Other factors:
  - The amount of **Knowledge Transfer** created by building the feature by the product team
  - The amount of **Risk** being removed by building the feature (operational, security, regulatory, functional, etc.)

Source: Agile Estimating & Planning (Mike Cohn)

Techniques for Prioritization

- Some teams prefer the bucket technique, putting all features in a large backlog bucket and then using the techniques for prioritization
- Other teams start by prioritizing the techniques once identified
- There are four major techniques for prioritization:
  - Stack Ranking
  - Kano Model
  - MoSCoW Method
  - Cost of Delay

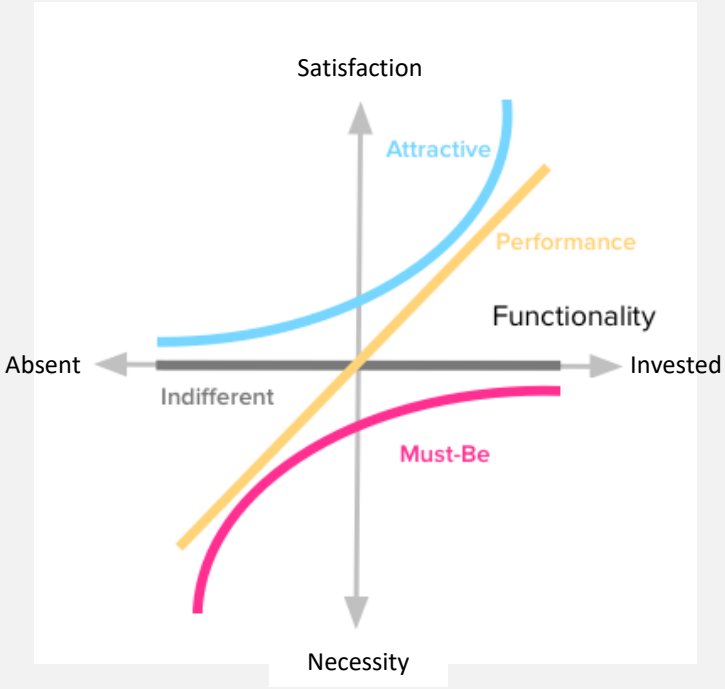
Source: Agile Estimating & Planning (Mike Cohn)

Stack Ranking

- With this technique, each backlog item is placed in order of priority
- There can only be one number one, two, three, etc. and continue to *n*
  - This will avoid the team to consider everything a priority
- It is often more accurate, less confusing
  - Prioritize the items in comparison with all other items
  - It is concrete given items need to follow in order

Kano Model

- Customer satisfaction depends on level of functionality provided
- Kano proposes two dimensions to represent how customers feel:
  - Satisfaction (delight, excitement)
  - Investment (sophistication)
- Features can be classified into four categories:
  - Performance
  - Must be
  - Attractive
  - Indifferent



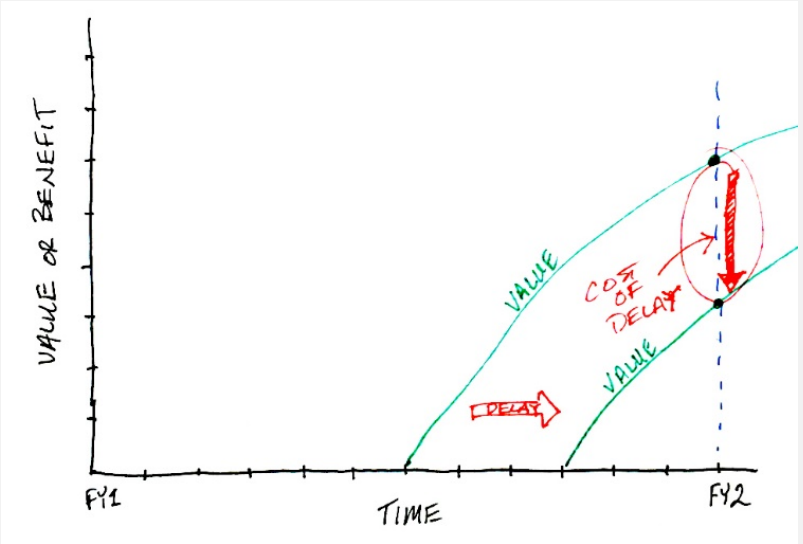
Source: https://foldingburritos.com/kano-model/

MoSCoW Model

- MoSCoW is a prioritisation technique used to manage backlog item priorities:
  - **M**ust have this requirement to meet the business needs, or;
  - **S**hould have if possible, but not mandatory for project success;
  - **C**ould have if it doesn't affect Must or Should items, or;
  - **W**ould like to have, but not this time
- The must requirements are non-negotiable
- Failure to deliver them will likely mean the sprint will fail

Cost of Delay

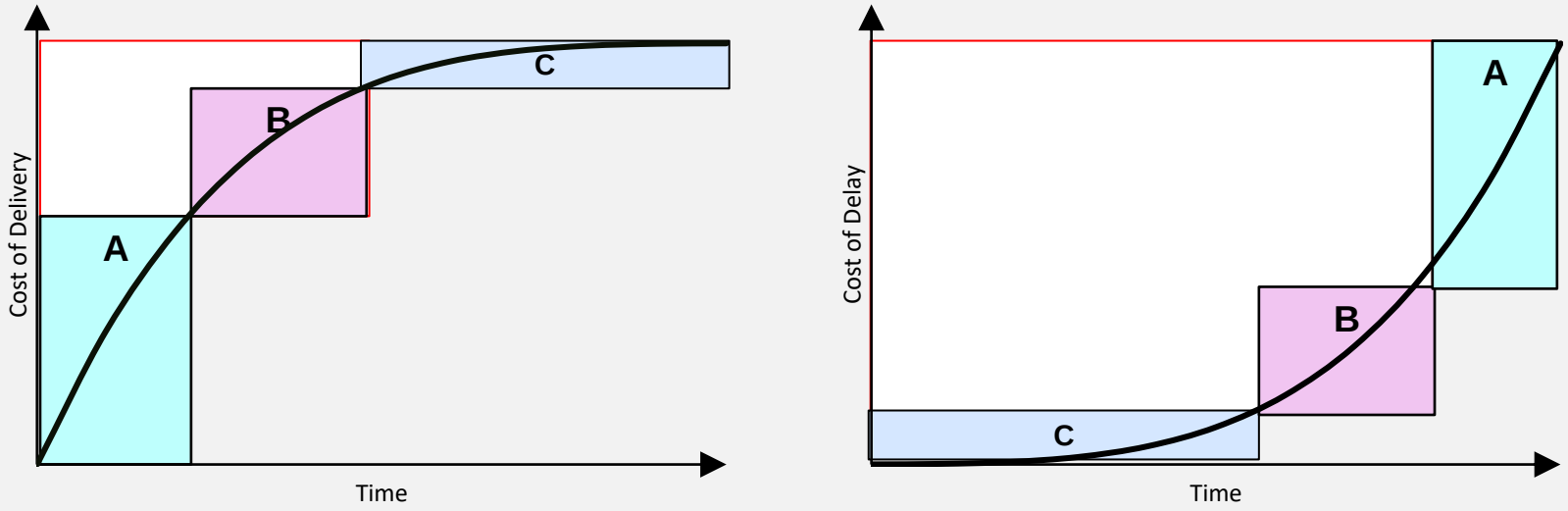
- *Cost of Delay helps understand and quantify the impact of time on outcomes*
- Calculates how long it takes to develop a new feature, including any time spent waiting in a backlog, which will end up costing your business
- It takes into account both value and urgency
- For example, in Toronto, a 15-minute delay getting out of the house could result in a 30 minute commute becoming 60 minutes



Source: www.leadingagile.com

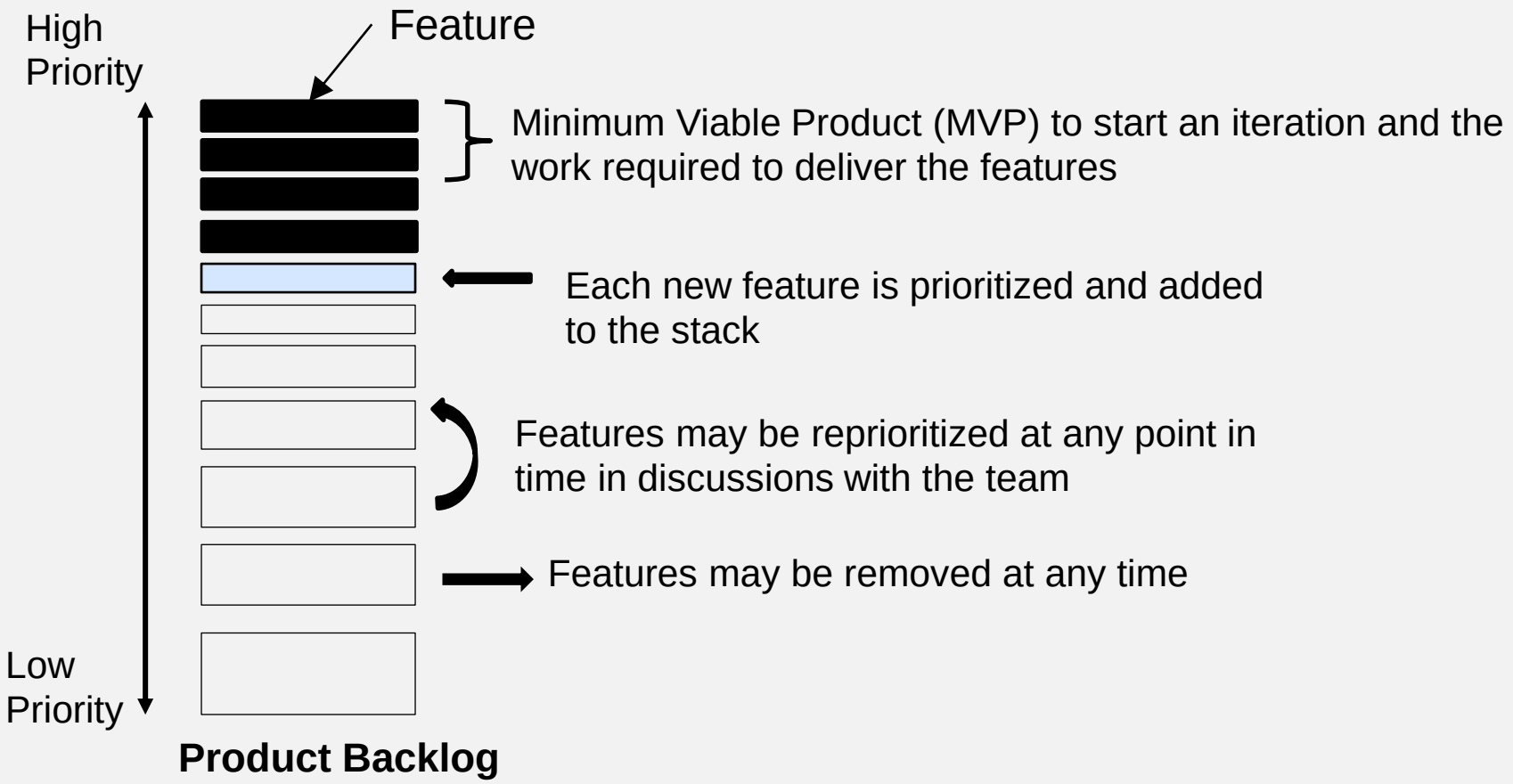
Cost of Delay – Example

- Projects are rectangles with their vertical axis as the Cost of Delay and their horizontal as the time it takes to implement them:
  - The Project A incurs zero Cost of Delay because it was begun immediately
  - The Project B's Cost of Delay can be visualized as it waits to begin
  - The Project C's Cost of Delay grows as it waits for the others to complete
- Doing the projects in the order on the left diagram incurs less cumulative Cost of Delay than the order indicated on the right diagram



Source: www.leadingagile.com

Outcome of Prioritization



Minimum Viable Product (MVP)

- *The smallest product or solution release that successfully achieves the desired outcomes*
- It is a Lean Startup concept based on *build-measure-learn feedback loop*
  - Define the problem that needs to be solved
  - Develop a minimum viable product
  - Learn as quickly as possible
  - Tune the engine and measure to demonstrate cause and effect
- Based on the "Five Whys“ method, asking simple questions to study and solve problems along the way
- Demonstrate the business model is moving in the right direction
- Or, make changes to test a new fundamental hypothesis about the product, strategy and engine of growth

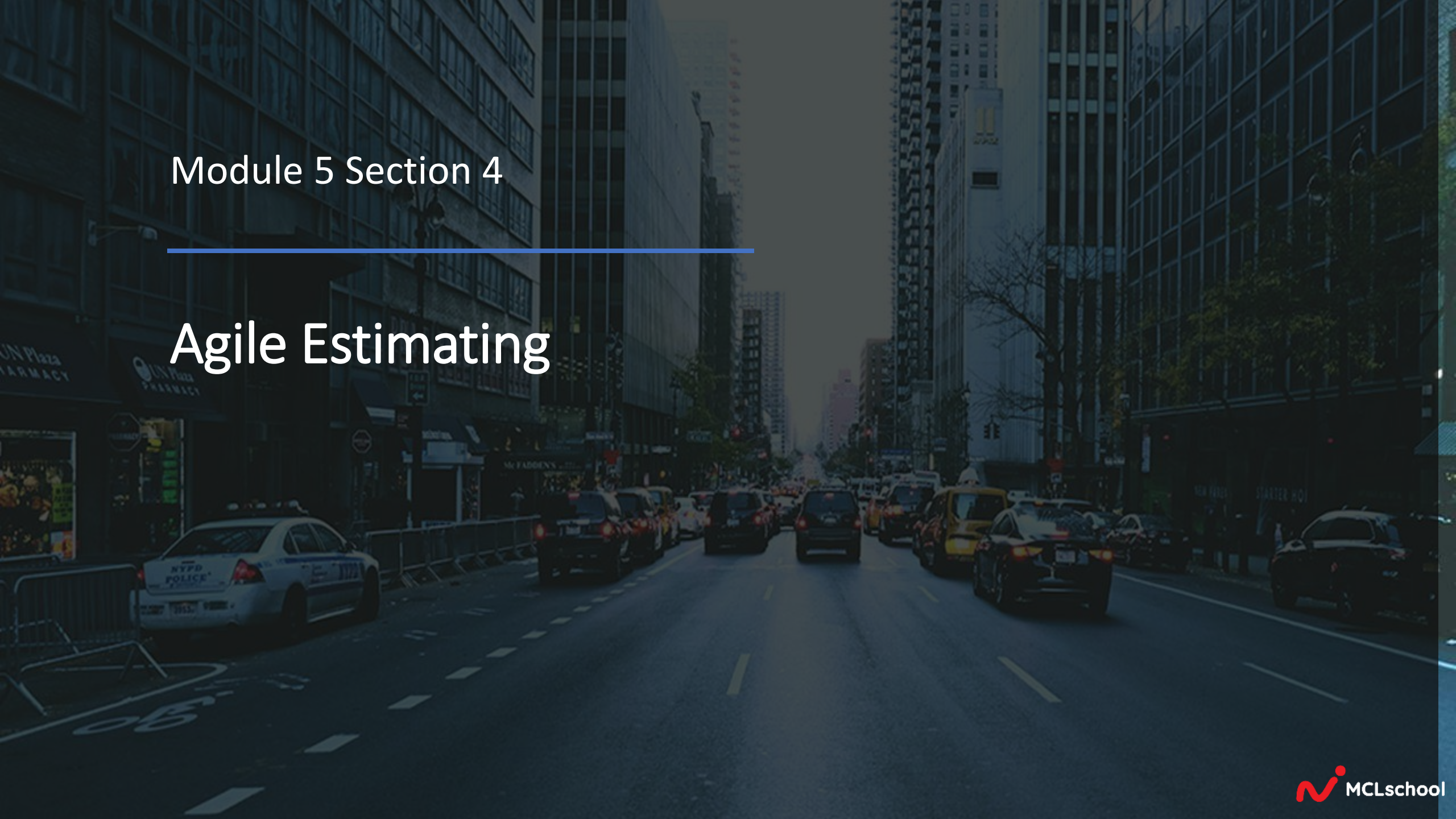
Backlog Prioritization – Example

Feature	Priority
Create user id	4
Additional pages	6
Allow users to provide feedback	8
Registration payment process	4
Allow users to tag speakers and events	5
Allow SMEs to post messages	10
Load speakers and events	2
Delete users	12
Add promotions material and ads	9
Create home page	3
Registrant agenda	5
Sent emails to registrants	11

Backlog Prioritization – Questions

1. **The main factor considered for prioritization of the product backlog is:**
   a. Customer satisfaction
   b. Customer value
   c. Business need
   d. Business satisfaction
2. **What is the outcome of product backlog prioritization?**
   a. Each feature belongs to an iteration that was defined
   b. Each iteration implements the lowest priority features
   c. Each feature can be deleted or added to the stack
   d. Each new feature is prioritized and added to the stack

1. B
2. D



Module 5 Section 4

Agile Estimating

Estimation Categories

- Product Backlog
  - Features
  - Epics
- Sprint Backlog
  - User Stories
  - Tasks
- *Spending more time on perfecting the estimating technique does not necessarily increase the accuracy of the estimate*
- Estimating bigger items will reduce the level of accuracy and increase number of dependencies
- Using the decomposition technique, items of the backlog can be broken down and easier to estimate

Relative Estimation

- *Relative estimation is the basis of several closely related variants:*
  - Silent grouping: Silently order user stories by relative size
  - Affinity estimating
- Comparison to object, fruits, t-shirts, etc. intends to make the estimation closer to reality
- Benefits:
  - Stops confusing estimates for commitments
  - Research in the psychology of planning shows that people fare better at relative estimation more than absolute estimation, which people are inherently bad at

Source: agilealliance.org

Relative Estimation Techniques

- There are some popular estimation techniques:
  - **Fibonacci sequence** – *each successive number in the sequence is obtained by adding the two previous numbers in the sequence (1, 2, 3, 5 and 8).*
  - **Planning poker** – use numbered playing cards to estimate the items; works well for max 10 items in a small team (5-8 people). Follows mainly Fibonacci sequence.
  - **T-Shirt size** – used for large items with less precision (S, M, L, XL, XXL)
  - **Dot voting** – each person gets a number of small stickers and vote for individual items. More dots is an indicator of a bigger size.
  - **The bucket system** – good for estimating a large number of items with a large group of participants; create several buckets in the sequence of planning poker.
  - **Affinity mapping** – finding similarities in the estimated items and group them together; this visual way works best with small groups and a small number of items.
  - **Silent grouping** – the team silently orders user stories by relative size and then resolves any differences.

Estimating – Example

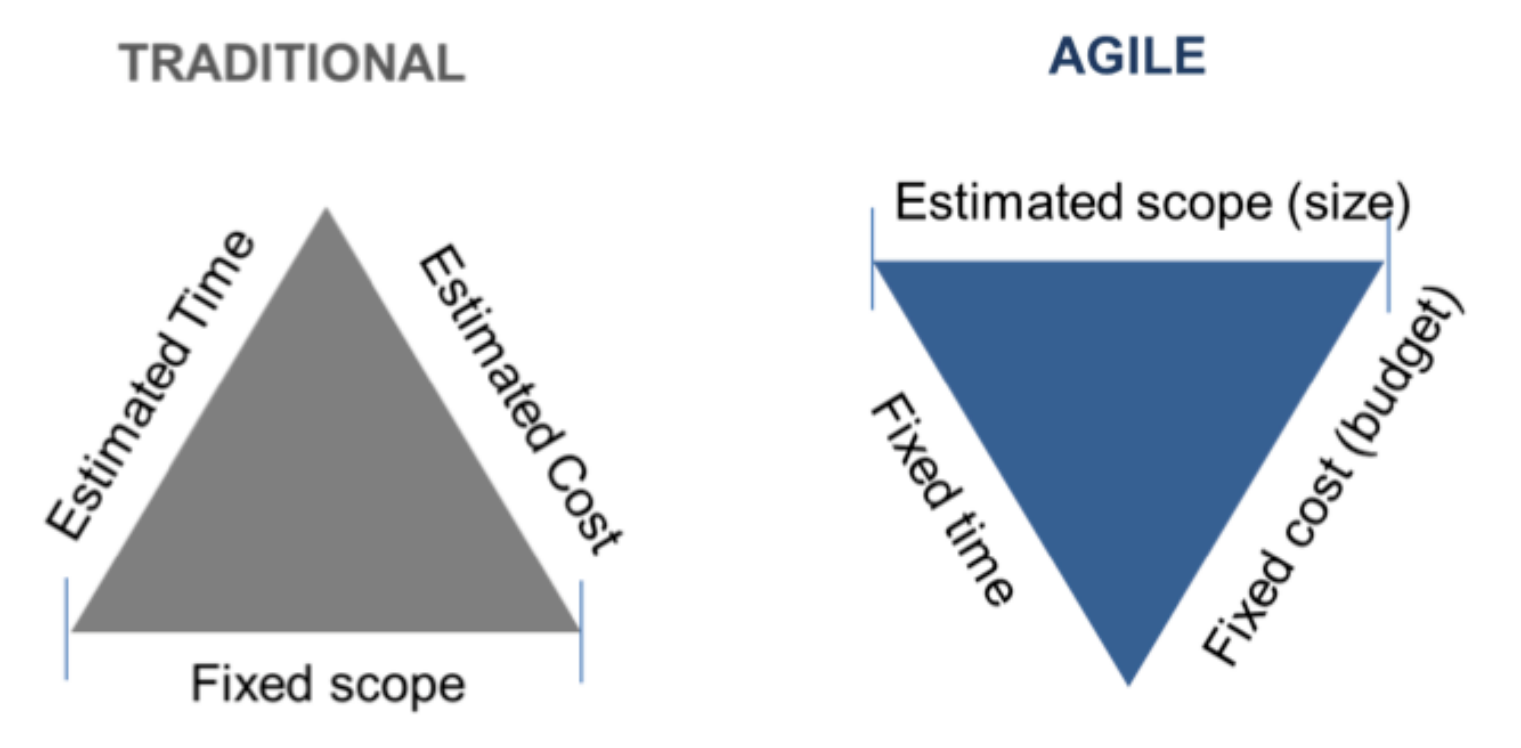
Feature	T-Shirt	Dots	Story Points
Create user id	M	2	16
Additional pages	XL	8	32
Allow users to provide feedback	M	1	12
Registration payment process	XXL	20	42
Allow users to tag speakers and events	L	4	26
Allow SMEs to post messages	XL	10	35
Load speakers and events	M	1	12
Delete users	S	0	6
Add promotions material and ads	L	4	26
Create home page	S	0	6
Registrant agenda	M	1	12
Sent emails to registrants	M	1	12
Total			239

Calculating Budgets

- Estimation is done and agreed by the team members who are the closest to the work being performed
- Determine the duration of the sprints
- Decide which user stories must be picked up in the first sprint and which stories can be taken up later
- Add additional costs like equipment purchases, tools, infrastructure support, etc.
- Monitor risks such as absence of team members, skills, changing commitments or priorities
- Plan for trade-offs (“give and take”)

Fixed Budgets

- ***Agile works well with fixed budgets*** given that the team will include in the sprint only the necessary features that will fit within the budget
- *Additional features are either traded off or excluded*



Agile Estimating – Questions

1. Estimates are best derived collaboratively by the team because:
   a. The team can ask questions that no one can ask
   b. The team is working together without any interruptions
   c. The team has undergone training and can do it better
   d. The team performs the work, and they are the closest to it

2. The Fibonacci sequence technique for estimation states that the _____ number in the sequence is obtained by adding the two _____ numbers in the sequence.
   a. Next, first
   b. Previous, next
   c. Next, previous
   d. First, previous

1. D
2. C

Module 5 Section1

Lesson 5: Planning 3 - Cost Management

Case Study

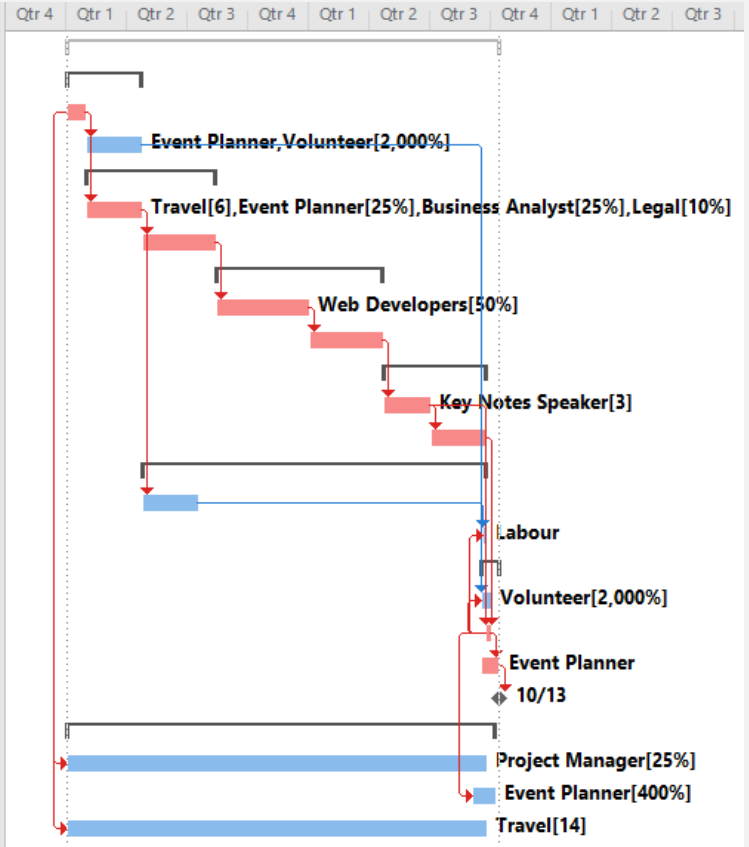
- The Project Manager has worked with the project team to prepare a schedule and budget for the conference
- The team has provided the following information
  - High level WBS with durations and dependencies
  - Gantt Chart
  - Budget, with a S-Curve Cost Baseline

Case Study – Budget

WBS Id	Name	Duration	Predecessor	Quantity	Rate	Utilization	Total
1.0	Staff						
1.1	Project Team Selected	4					$0
1.2	Volunteers Assigned	12	1.1	60	$400	100%	$ 24,000
2.0	Venue						
2.1	Venue Confirmed	12	1.1				
	Staff			39	$500	100%	$19,500
	Travel			6	$1,000	100%	$6,000
	Deposit						$10,000
2.2	Hotel Booked	16	2.1				
	Main Room			3	$1,000	20%	$600
	Breakout Rooms			9	$500	20%	$900
	Food			3	$14,165	20%	$8,500
3.0	Registration						
3.1	Website Developed	20	2.2	20	$5,000	50%	$50,000
3.2	Member Packages Sent	16	3.1	1	$5,000	100%	$5,000
4.0	Program						
4.1	Speakers Confirmed	24	3.2	3	$4,000	100%	$12,000
4.2	Social/Entertainment Confirmed	16	4.1	1	$6,000	50%	$3,000
5.0	Sponsorship						
5.1	Sponsor Packages Completed	12	2.1	1	$5,000	100%	$5,000
5.2	Sponsor Layout Completed	4 days	5.1, 6.4SS 4 days lead	4	$500	100%	$2,000
6.0	Event	3	5.2				
6.1	Volunteers Travel Completed	2	1.2, 6.2SS 1 week lead	20	$1,500	100%	$30,000
6.2	Event Held	1	4.1, 4.2, 5.2				$0
	Balance for Hotel						$40,000
	Key Note Lunch			3	$2,000	100%	$6,000
	Balance for Social/Entertainment						$3,000
6.3	Survey Completed	4	6.2, 2week lead	20	$400	100%	$8,000
6.4	Event Completed	0	6.3				$0
5.0	Project Management						
5.1	Project Management Completed			450	$1,000	25%	$112,500
5.2	Event Planners Selected		6.2SS 3 week lead	20	$400	500%	$40,000
5.3	Travel Completed			14	$1,000	100%	$14,000
Total							$400,000

Case Study – Gantt Chart

	WBS	Task Name	Duration	Start	Finish	Predecess	Resource Names	Cost
0	**0**	**Project Management Expo**	**93 wks**	**Mon 1/3/2**	**Fri 10/13/23**			**$400,000.00**
1	**1**	**Staff**	**16 wks**	**Mon 1/3/22**	**Fri 4/22/22**			**$24,000.00**
2	1.1	Project Team Selected	4 wks	Mon 1/3/22	Fri 1/28/22			$0.00
3	1.2	Volunteers Assigned	12 wks	Mon 1/31/22	Fri 4/22/22	2	Event Planner,Volunte	$24,000.00
4	**2**	**Venue**	**28 wks**	**Mon 1/31/22**	**Fri 8/12/22**			**$45,500.00**
5	2.1	Venue Confirmed	12 wks	Mon 1/31/22	Fri 4/22/22	2	Travel[6],Event Planne	$35,500.00
6	2.2	Hotel Booked	16 wks	Mon 4/25/22	Fri 8/12/22	5		$10,000.00
7	**3**	**Registration**	**36 wks**	**Mon 8/15/22**	**Fri 4/21/23**			**$55,000.00**
8	3.1	Website Developed	20 wks	Mon 8/15/22	Fri 12/30/22	6	Web Developers[50%]	$50,000.00
9	3.2	Member Packages Sent	16 wks	Mon 1/2/23	Fri 4/21/23	8		$5,000.00
10	**4**	**Program**	**22 wks**	**Mon 4/24/23**	**Fri 9/22/23**			**$15,000.00**
11	4.1	Speakers Confirmed	10 wks	Mon 4/24/23	Fri 6/30/23	9	Key Notes Speaker[3]	$12,000.00
12	4.2	Social/Entertainment Confirmed	12 wks	Mon 7/3/23	Fri 9/22/23	11		$3,000.00
13	**5**	**Sponsorship**	**74 wks**	**Mon 4/25/22**	**Fri 9/22/23**			**$7,000.00**
14	5.1	Sponsor Packages Completed	12 wks	Mon 4/25/22	Fri 7/15/22	5		$5,000.00
15	5.2	Sponsor Layout Completed	4 days	Tue 9/19/23	Fri 9/22/23	14,18SS-4 d	Labour	$2,000.00
16	**6**	**Event**	**4 wks**	**Mon 9/18/23**	**Fri 10/13/23**			**$87,000.00**
17	6.1	Volunteers Travel Completed	2 wks	Mon 9/18/23	Fri 9/29/23	18SS-1 wk,3	Volunteer[2,000%]	$30,000.00
18	6.2	Event Held	1 wk	Mon 9/25/23	Fri 9/29/23	11,12		$49,000.00
19	6.3	Survey Completed	4 wks	Mon 9/18/23	Fri 10/13/23	18FS-2 wks	Event Planner	$8,000.00
20	6.4	Event Completed	0 wks	Fri 10/13/23	Fri 10/13/23	19		$0.00
21	**7**	**Project Management**	**92 wks**	**Mon 1/3/22**	**Fri 10/6/23**			**$166,500.00**
22	7.1	Project Management Completed	90 wks	Mon 1/3/22	Fri 9/22/23	2SS	Project Manager[25%]	$112,500.00
23	7.2	Event Planners Selected	5 wks	Mon 9/4/23	Fri 10/6/23	18SS-3 wks	Event Planner[400%]	$40,000.00
24	7.3	Travel Completed	90 wks	Mon 1/3/22	Fri 9/22/23	2SS	Travel[14]	$14,000.00



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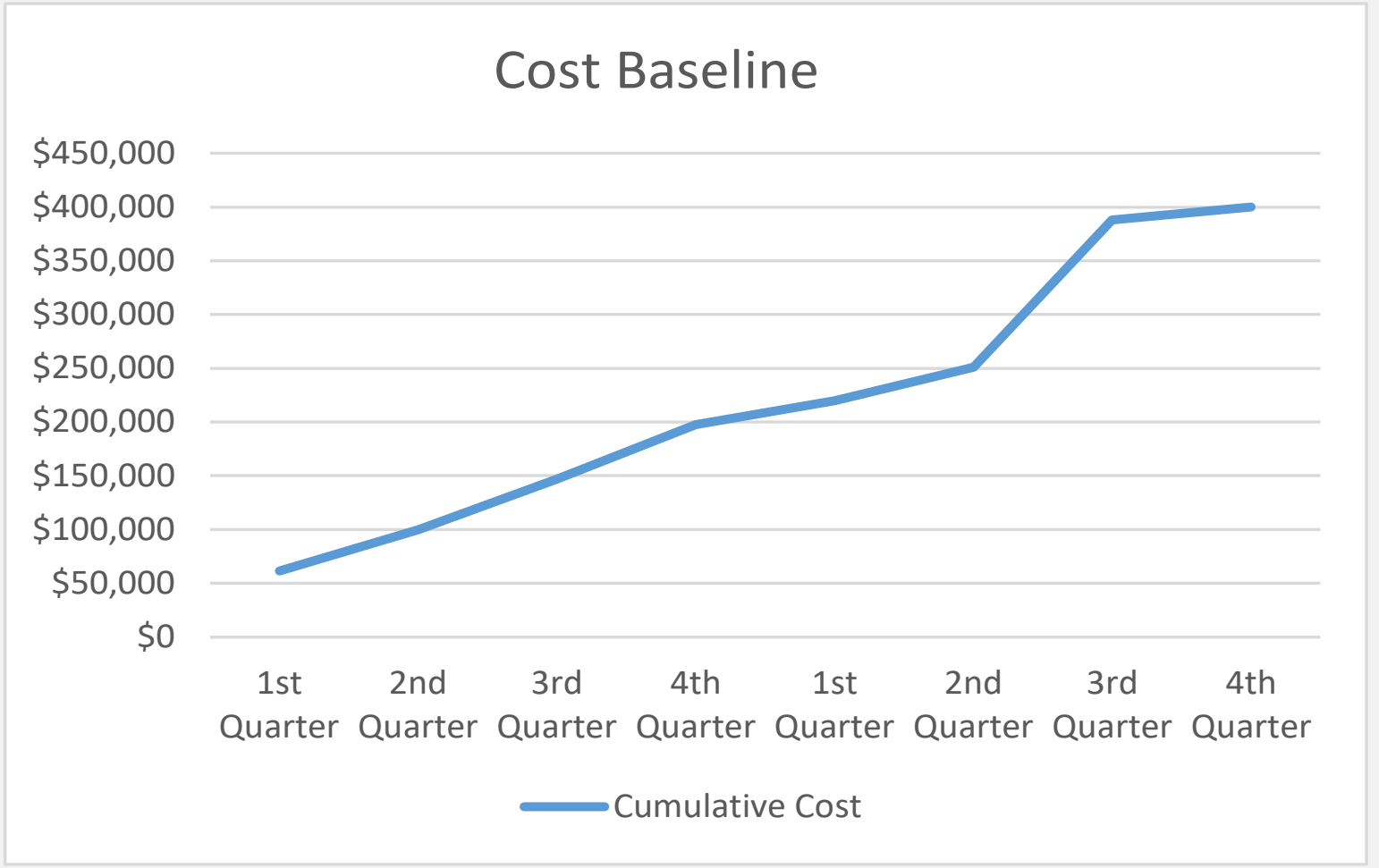
Cost Baseline



Case Study – Cost Estimates

	WE	Task Name	Cost	Work	Fixed Cost	Details	C	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
0	**0**	**Project Management Expo**	**$400,000.00**	**5,140 hrs**	**$0.00**	Cost				$61,624.44	$38,222.22	$46,970.00	$50,772.22	$22,334.72	$31,209.72	$136,866.67	$12,000.00
1	**1**	**Staff**	**$24,000.00**	**960 hrs**	**$0.00**	Cost				$17,600.00	$6,400.00						
2	1.1	Project Team Selected	$0.00	0 hrs	$0.00	Cost											
3	1.2	Volunteers Assigned	$24,000.00	960 hrs	$0.00	Cost				$17,600.00	$6,400.00						
4	**2**	**Venue**	**$45,500.00**	**288 hrs**	**$0.00**	Cost				$26,033.33	$9,466.67	$10,000.00					
5	2.1	Venue Confirmed	$35,500.00	288 hrs	$10,000.00	Cost				$26,033.33	$9,466.67						
6	2.2	Hotel Booked	$10,000.00	0 hrs	$10,000.00	Cost						$10,000.00					
7	**3**	**Registration**	**$55,000.00**	**400 hrs**	**$0.00**	Cost						$17,500.00	$32,500.00	$4,062.50	$937.50		
8	3.1	Website Developed	$50,000.00	400 hrs	$0.00	Cost						$17,500.00	$32,500.00				
9	3.2	Member Packages Sent	$5,000.00	0 hrs	$5,000.00	Cost								$4,062.50	$937.50		
10	**4**	**Program**	**$15,000.00**	**0 hrs**	**$0.00**	Cost									$12,000.00	$3,000.00	
11	4.1	Speakers Confirmed	$12,000.00	0 hrs	$0.00	Cost									$12,000.00		
12	4.2	Social/Entertainment Confirmed	$3,000.00	0 hrs	$3,000.00	Cost										$3,000.00	
13	**5**	**Sponsorship**	**$7,000.00**	**32 hrs**	**$0.00**	Cost					$4,083.33	$916.67				$2,000.00	
14	5.1	Sponsor Packages Completed	$5,000.00	0 hrs	$5,000.00	Cost					$4,083.33	$916.67					
15	5.2	Sponsor Layout Completed	$2,000.00	32 hrs	$0.00	Cost										$2,000.00	
16	**6**	**Event**	**$87,000.00**	**1,760 hrs**	**$0.00**	Cost										$83,000.00	$4,000.00
17	6.1	Volunteers Travel Completed	$30,000.00	1,600 hrs	$30,000.00	Cost										$30,000.00	
18	6.2	Event Held	$49,000.00	0 hrs	$49,000.00	Cost										$49,000.00	
19	6.3	Survey Completed	$8,000.00	160 hrs	$0.00	Cost										$4,000.00	$4,000.00
20	6.4	Event Completed	$0.00	0 hrs	$0.00	Cost											
21	**7**	**Project Management**	**$166,500.00**	**1,700 hrs**	**$0.00**	Cost				$17,991.11	$18,272.22	$18,553.33	$18,272.22	$18,272.22	$18,272.22	$48,866.67	$8,000.00
22	7.1	Project Management Completed	$112,500.00	900 hrs	$0.00	Cost				$16,000.00	$16,250.00	$16,500.00	$16,250.00	$16,250.00	$16,250.00	$15,000.00	
23	7.2	Event Planners Selected	$40,000.00	800 hrs	$0.00	Cost										$32,000.00	$8,000.00
24	7.3	Travel Completed	$14,000.00	0 hrs	$0.00	Cost				$1,991.11	$2,022.22	$2,053.33	$2,022.22	$2,022.22	$2,022.22	$1,866.67	

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Quiz

Quiz

1. As a project manager, when you present your initial cost estimate to the project sponsor for approval, you are asked to cut the cost of the project by 10%. What would you do?

A. Replace the originally planned resources with lesser skilled resources at lower rates

B. Cut specific project activities and obtain the sponsor's approval

C. Strongly say no to the sponsor and walk away from the project

D. Ask all the team members to reduce the cost of their activities by 10%

Correct Answer is : **B**
A project manager is responsible for managing cost overruns. If you have estimated cost in a certain way and it's required to be reduced, you should determine the impact of any cost reduction actions. Replacing the originally planned resources with lesser skilled resources is also an option, but the risks associated with this action should be carefully investigated

Quiz

2. Which of the following is not a tool or technique used in the process of determining budget?

A. Cost aggregation

B. Reserve analysis

C. Funding limit reconciliation

D. Resource calendars

Correct Answer is : **D**
All the above tools and techniques, except resource calendars, are used to determine budget process. Resource calendars are an input to this process.

Quiz

4. What is not a valid technique to estimate costs?3

A. Three point estimating

B. Earned value management

C. Parametric estimating

D. Analogous estimating

Correct Answer is: **B**
Earned Value Management is a technique used to Control Costs.

Quiz

4. Peter is a project manager of a large commercial construction project. The cost of concrete has risen substantially as the forecasted economic growth of the region has increased demand. Peter is concerned his project will be over-budget. What should he do?

A. Submit a change request for more budget to cover any potential shortfall

B. Review the contingency reserve

C. As this is a result of an external variable, it should not be included in the project budget

D. Substitute concrete for a cheaper material like wood or plastic

Correct Answer is: **B**
As the increase in concrete costs are a result of forecasted economic growth, this was likely identified as a risk, and an associated contingency was determined. Peter can use these funds now that the risk has materialized.

Key Takeaways

- Project cost management includes the processes involved in estimating, budgeting, and controlling costs so that the project can be completed within the approved budget.

- Cost management plan contains details on how to plan, manage, and control the project cost in relation to the cost baseline and manage the cost variances.

- Cost estimate is an educated guess of how much an activity or a project will cost. Budget considers the cost estimate and accordingly sets aside funds for the completion of the project.

- Under control account technique, related activities are clubbed and their costs are managed as one unit.

- The four Project Cost Management processes are Plan Cost Management, Estimate Costs, Determine Budget, and Control Costs.

- Earned Value Management technique indicates potential deviation of the project from the cost and/or schedule baselines.

Questions