PMP® V5 RDS

Project Cost Management

V1.1

Overview

- Project Cost Management includes the processes involved in planning, estimating, budgeting, financing, funding, managing, and controlling costs so that the project can be completed within the approved budget.

Cost Management Processes

- **7.1 Plan Cost Management —** The process that establishes the policies, procedures, and documentation for planning, managing, expending, and controlling project costs.
- **7.2 Estimate Costs —** The process of developing an approximation of the monetary resources needed to complete project activities.
- **7.3 Determine Budget —** The process of aggregating the estimated costs of individual activities or work packages to establish an authorized cost baseline.
- **7.4 Control Costs —** The process of monitoring the status of the project to update the project costs and managing changes to the cost baseline.

Related Concepts

- Life Cycle Costing: Look at the cost of the whole life of the product, not just the cost of the project
  - e.g. Buying a printer, need to consider the maintenance cost, operation cost, and supply
- Value Analysis (value engineering): finding a less costly way to do the same work

Plan Cost Management

(planning)

Plan Cost Management

- The process that establishes the policies, procedures, and documentation for planning, managing, expending, and controlling project costs
- The key benefit of this process is that it provides guidance and direction on how the project costs will be managed throughout the project

Cost Management Plan

Plan Cost Management: Outputs

- Describes how the project costs will be planned, structured, and controlled. It includes:
  - Units of measure for each resource: e.g. staff hours
  - Level of precision: rounding to $100, $1000, etc.
  - Organizational procedures link: using the Control Account as in the WBS
  - Control thresholds: variance allowed before taking actions, percentage deviation from baseline (e.g. 0.8<CPI<1.2)
  - Rules of performance measurement: EVM rules of performance measurements
  - Reporting formats
  - Process descriptions
  - Does NOT contain budget nor Cost Baseline

Plan Cost Management
(planning)

Estimate Costs

(planning)

What is estimated?

- Costs of quality efforts
- Costs of risk efforts
- Costs of project manager's time
- Costs of project management activities
- Costs directly associated with the project, including training for the project, paper, pencils, needed labor, etc.
- Profit, if applicable
- Overhead costs, such as management salaries and general office expenses

Types of Costs

- Cost can be either variable or fixed
  - Variable Cost (easier to control)
    - These costs change with the amount of production or the amount of work (cost of material, supplies, and wages)
  - Fixed Costs
    - These costs do not change as production changes (set-up, rental)
- Cost can be either direct or indirect
  - Direct Costs (easier to control)
    - These cost directly attributable to the work on the project (team travel, team wages, recognition)
  - Indirect Costs
    - Overhead items or costs incurred for the benefit of more than one project (taxes, fringe benefits, and cleaning services)

Inputs

- Scope baseline
- Project schedule:
  - Contains the activities, types and quantity of resources needed, and when the work will occur
  - Provides:
    - Timing of when purchases are made
    - Develop a time-phased spending plan to control project expenditures
  - Costs will also affect schedule
    - E.g. seasonal pricing fluctuations of certain materials, availability, etc.
    - You may want to change schedule to purchase materials at a lower price

Inputs

- Human Resource Plan:
  - Reward systems can increase productivity and save money, but costs are incurred and need to be estimated
  - Labor rates: PM should know the labor rate, as charged to the project.
  - Resources, and the associated costs, intended for the project
- Risk Register:
  - Risk management will save time and money
  - But there are costs for controlling risks, and these costs will result in more (cost) risk
  - So risk is both an input and output to Estimate costs process: iterative planning

Inputs

- Policies on estimating, templates, processes, procedures, lessons learned, and historical information
  - Organizational policies have to be followed
- Enterprise environmental factors
  - Includes marketplace conditions
  - Commercial cost databases
- Project Management costs
  - Project management activities save overall project costs, but they do cost money
  - PM's efforts, status reports, change analysis, etc.

Tools and Techniques

- Analogous Estimating
  - Uses the values of parameters, such as scope, cost, budget, and duration or measures of scale such as size, weight, and complexity, from a previous, similar project as the basis for estimating the same parameter or measure for a current project.
  - Less costly and time consuming than other techniques
  - Generally less accurate
- Bottom-Up Estimating
  - The cost of individual work packages or activities is estimated in detail.
  - The detailed cost is then summarized or “rolled up”
  - The cost and accuracy influenced by the size and complexity of the individual activity or work package.

Analogous Estimating

Estimate Costs: Tools and Techniques

- A Top Down Estimation
- Advantages:
  - Quick, activities need not be identified
  - Less costly to create
  - Gives the project manager an idea of the level of managements expectations
- Disadvantages:
  - Less accurate
  - Estimates are prepared with a limited amount of detail information and understanding of the project
  - Require considerable experience to do well
  - Infighting to gain the biggest piece of the budget without being able to justify the need
  - Extremely difficult for projects with uncertainty
  - Does not take into account the differences between projects

Bottom-Up Estimation

Estimate Costs: Tools and Techniques

- Advantages:
  - More accurate, based on a detailed analysis of the project
  - Gains buy-in from the team because the team creates estimates
  - Provides a basis for monitoring and controlling, performance measurement, and management
- Disadvantages:
  - Takes time and expense to do this form of estimation
  - Requires that the project be defined and well understood before work begins
  - Requires time to break the project down into smaller pieces
  - Tendency for the team to pad estimates unless taught about reserves

Tools and Techniques

- Expert judgment
- Parametric Estimating
  - Uses a statistical relationship between historical data and other variables to calculate an estimate for activity parameters, such as cost, budget, and duration.
  - Higher accuracy depending upon the sophistication and underlying data built into the model
  - Can be applied to a total project or to segments of a project

Three-Point Estimating

Estimate Costs: Tools and Techniques

- Program Evaluation and Review Technique (PERT).
- Uses three estimates to define an approximate range for an activity's duration or cost, for duration:
  - **Most likely M, Optimistic O, Pessimistic P**

Expected Activity Duration	Activity Standard Deviation	Activity Variance
$\frac{(P+4M+O)}{6}$	$\frac{P-O}{6}$	$\left[\frac{P-O}{6}\right]^2$

Range of EAD = EAD +/- SD

Start of the range = EAD – SD

End of the range = EAD + SD

PERT is used for both time and cost estimates; it is used for quantitative analysis.

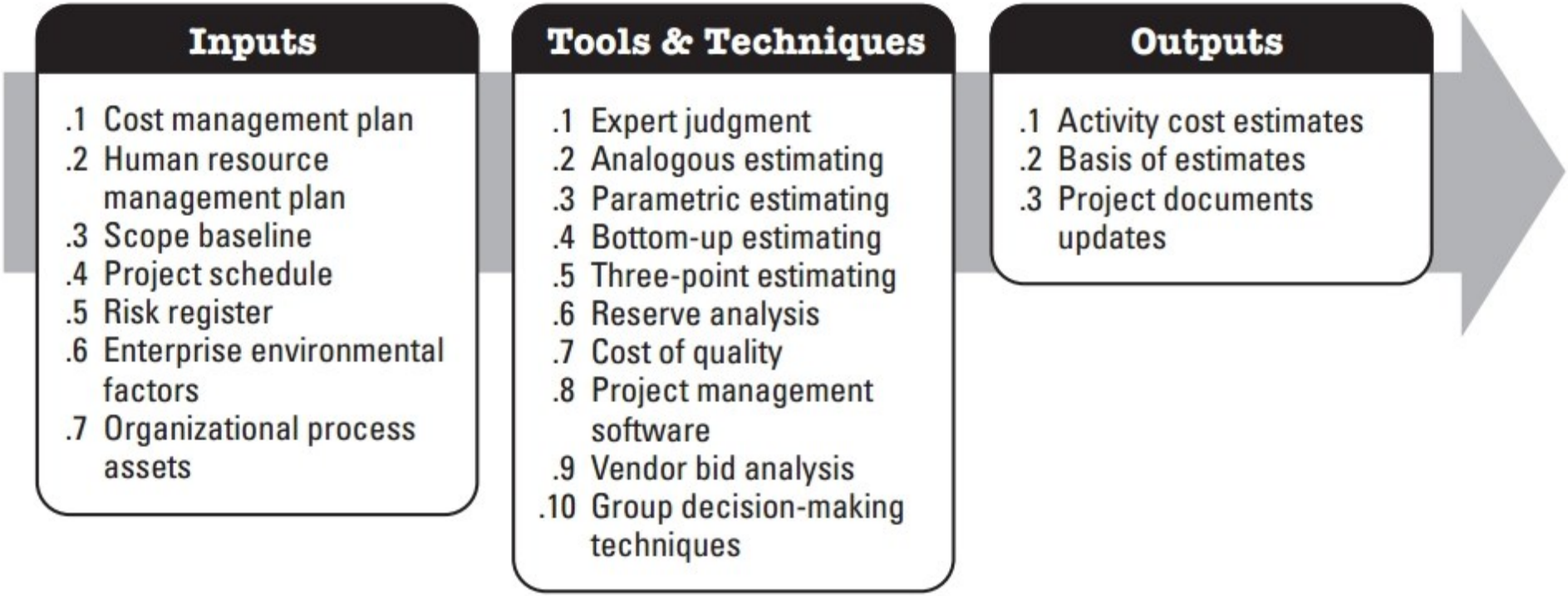
Tools and Techniques

- Reserve Analysis
  - For cost uncertainty
  - May be a percentage of the estimated cost, a fixed number, or may be developed by using quantitative analysis methods.
  - Contingency reserve: for the risks remaining after the Plan Risk Response process
    - Management reserve: extra amount of funds to be set aside to cover unforeseen risks. It is not covered in reserve analysis. We can't analyze unidentified risks.
- Cost of Quality (COQ)
  - Assumptions about costs of quality may be used to prepare the activity cost estimate
    - Cost of conformance
    - Cost of non-conformance

Accuracy of Estimates

- Estimate made in early part of the project will be less accurate than those made later in the project
- Estimate must be in a range and be refined as the project progresses
- Rough Order of Magnitude (ROM) Estimate
  - Usually made during the initiating process
  - Typical range: ±50% from actual
- Budget Estimate
  - Usually made during planning phase
  - Typical range: -10% to +25% from actual
- Definitive Estimate
  - Later during the project, the estimate will become more refined
  - Typical range: ±10% from actual or -5% to +10% from actual

Estimate Cost
(planning)



Determine Budget

(planning)

Determine Budget

- The process of developing an approximation of the monetary resources needed to complete project activities
- The key benefit of this process is that it determines the amount of cost required to complete project work

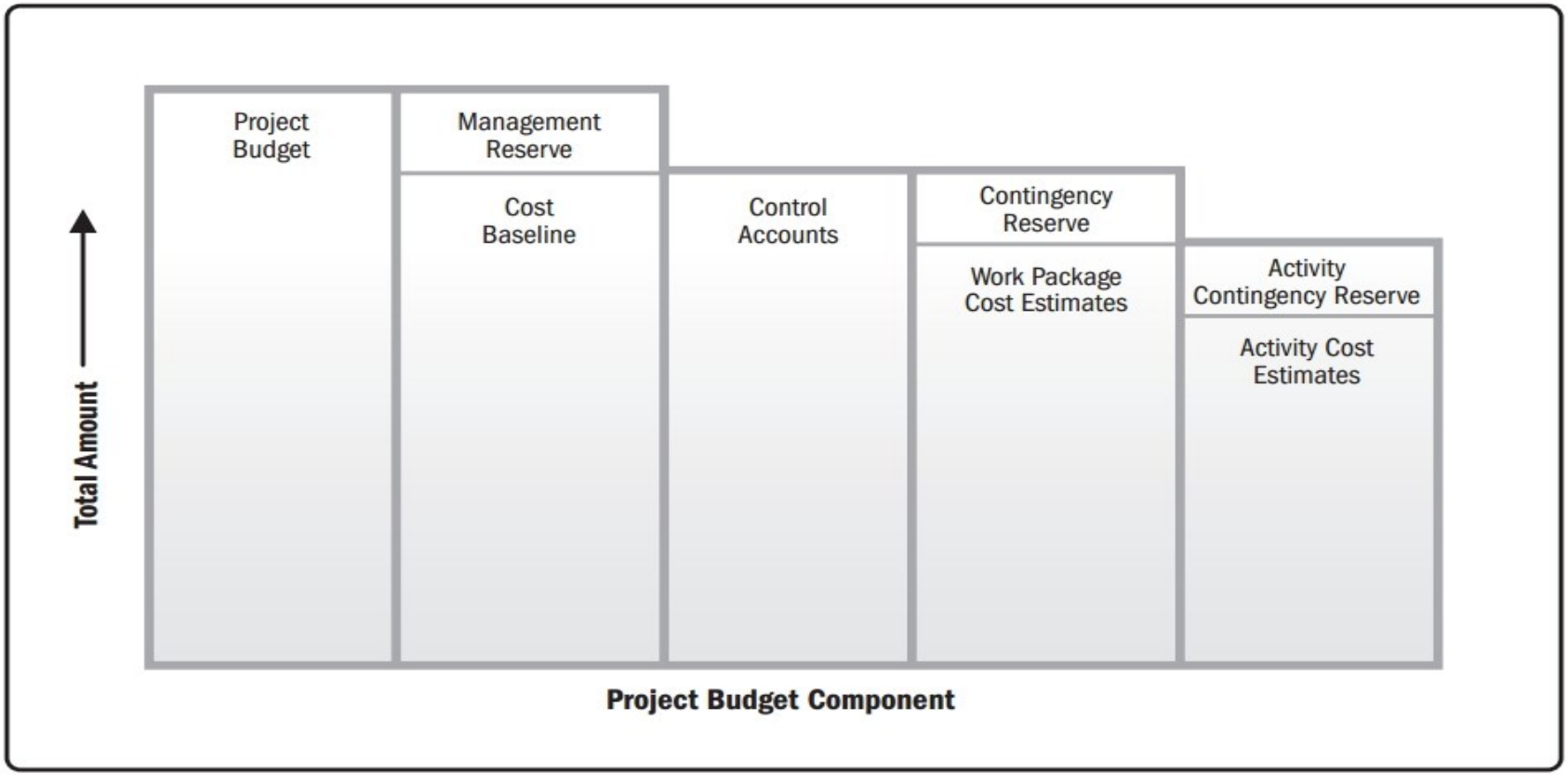
Determine Budget

- Aggregate the estimated costs of individual activities or work packages to establish an authorized cost baseline.
- Cost baseline: includes contingency reserve
  - The authorized fund for the PM to manage and control
- Cost budget: cost baseline + management reserve
  - How much money the company should have available for the project
- Constitute the funds authorized to execute the project.
- Project cost performance will be measured against the authorized budget

Cost Aggregation

Determine Budget: Tools and Techniques

- Contingency reserve: for identified risks (known unknowns); can be determined
- Management reserve: for unidentified risks (unknown unknowns, or simply unknowns); adding a percentage on top of the cost baseline



Funding Limit Reconciliation

Determine Budget: Tools and Techniques

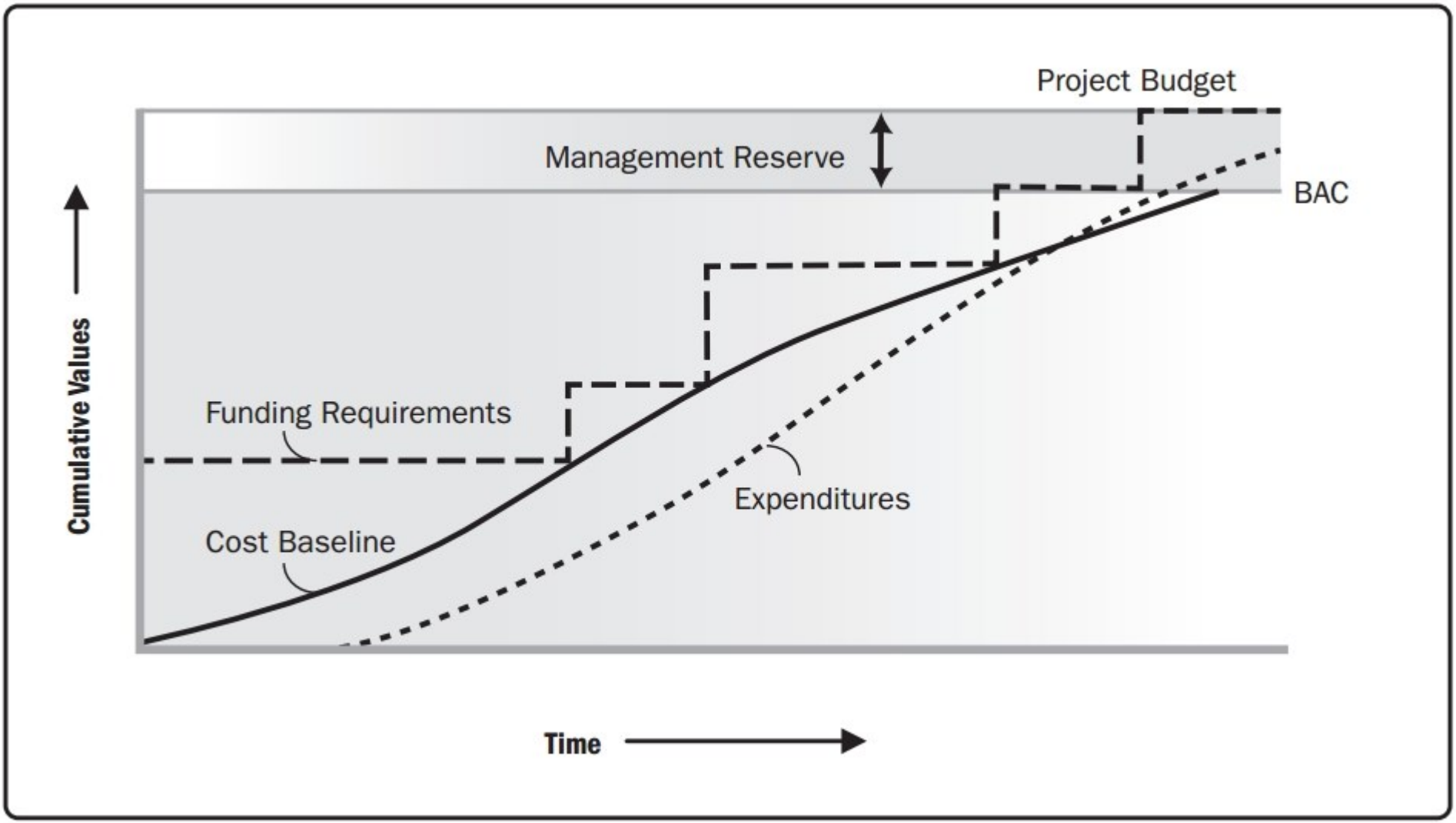
- A tool
- The expenditure of funds should be reconciled with any funding limits on the commitment of funds for the project.
- A variance between the funding limits and the planned expenditures will sometimes necessitate the rescheduling of work to level out the rate of expenditures.
- This is accomplished by placing imposed date constraints for work into the project schedule.

Project Funding Requirements

Determine Budget: Outputs

- Total funding requirements and periodic funding requirements (e.g., quarterly, annually) are derived from the cost baseline.
- The cost baseline will include projected expenditures plus anticipated liabilities.
- Funding often occurs in incremental amounts that are not continuous, and may not be evenly distributed.
- The total funds required are those included in the cost baseline, plus management reserves.

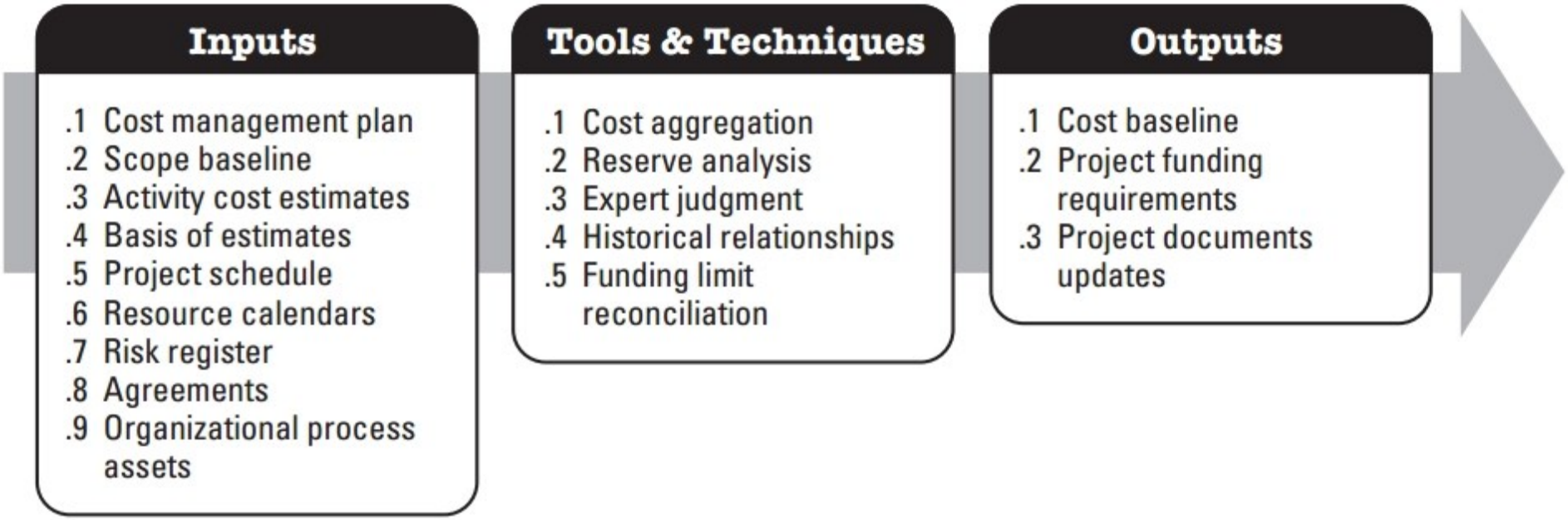
S-curve: cost baseline, expenditures, and funding requirements



Check and Reconcile

- Sanity Check
  - Compare the cost baseline and cost budget against parametric estimates, expert judgment or historical relationships
  - To spot great differences
    - E.g. rule of thumb for design should be around 15% of cost of construction
- Reconcile with any cost constraints in the Project Charter
  - Meeting with management to explain why their costs cannot be met
  - Propose options to decrease costs
  - As part of integration management

Determine Budget
(planning)



Control Costs

(monitoring and controlling)

Control Costs

- The process of monitoring the status of the project to update the project costs and managing changes to the cost baseline
- The key benefit of this process is that it provides the means to recognize variance from the plan in order to take corrective action and minimize risk

Control Costs

- Monitor the status of the project to update the project budget and managing changes to the cost baseline
- Analyse the relationship between the consumption of project funds to the physical work being accomplished for such expenditures
- Influence the factors that create changes to the authorized cost baseline
  - Ensuring that all change requests are acted on in a timely manner
  - Ensuring that the authorized funding is not exceeded
  - Monitoring cost performance to isolate and understand variances
  - Monitoring work performance against funds expended
  - Informing stakeholders of all approved changes and associated cost
  - Acting to bring expected cost overruns within acceptable limits

Actions Required

- Follow the project management plan
- Be assertive and make sure the project goes according to the plan
  - No unauthorized changes
- Measure variances and determine whether corrective/preventive actions are required
- Therefore the cost management plan should include what to measure, when, and the amount of tolerable variations

Progress Reporting

- Progress report information can help control the schedule and costs, and to assess whether the project is on track
- Pure guess of the percentage work done does not provide a confident estimate of the actual percent completed
- Rules:
  - 50/50 rule: when an activity begins: 50%; when complete: another 50% done
  - 20/80 rule: when an activity begins: 20%; when completes: another 80%
  - 0/100 rule: no credit at start, but gets all credit for full completion
  - Why these rules?
    - Most progress of intangible products cannot be measured
    - That's why project managers rarely use earned value analysis

Earned Value Management

Control Costs: Tools and Techniques

- Measure project performance against the scope, schedule, and cost baselines
  - PMI's view: EVM is the generic method for managing scope, schedule, and cost baselines
- Indicate potential deviation from the baseline
- Integrates cost, time and work done (scope) to forecast future performance and project completion dates and costs
- EVM only works if
  - Percentage of scope completed can be measured
  - And the work completed can be quantified as money

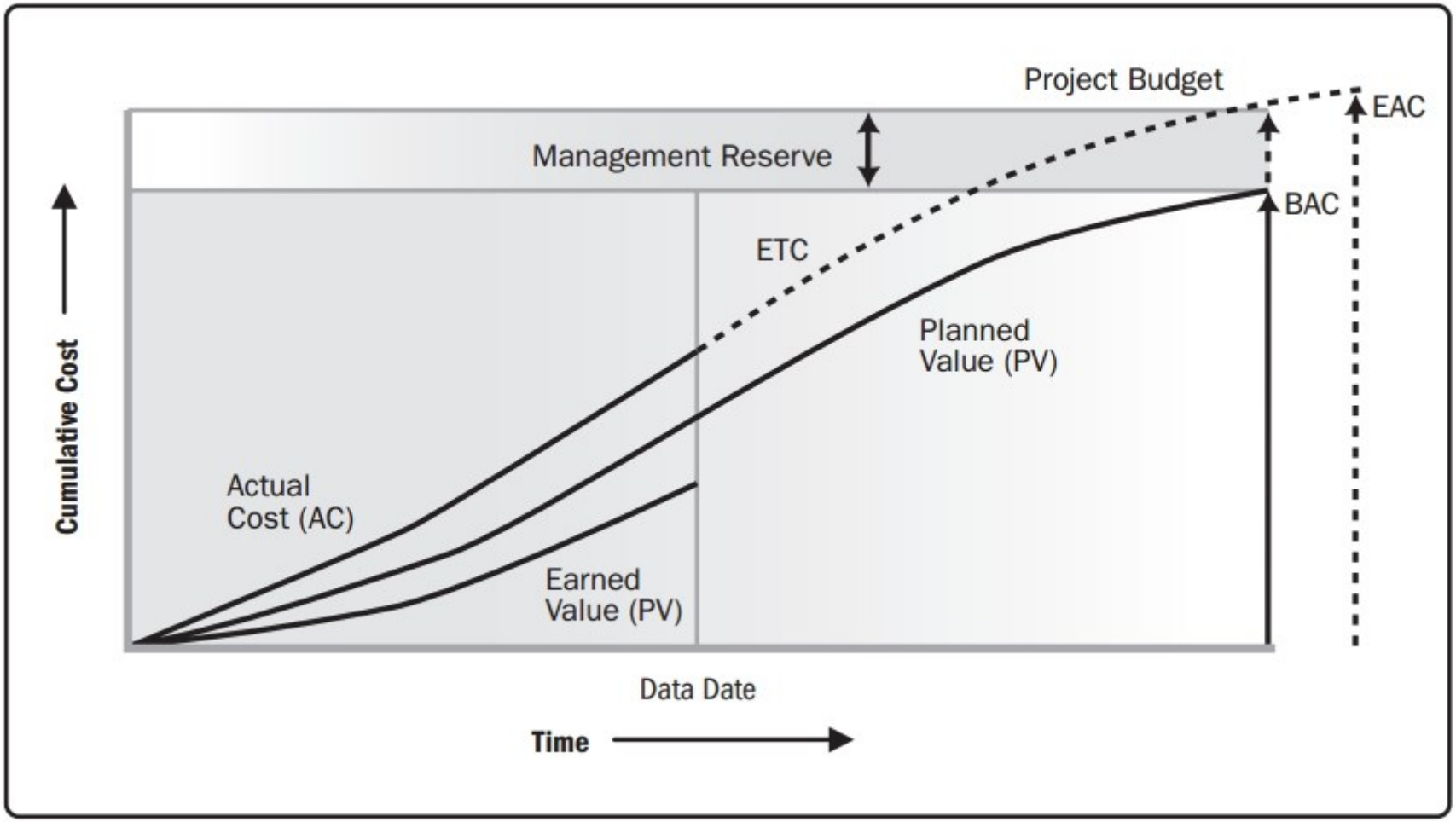
EVM Basic Concepts

- Planned Value (PV):
  - As of today, the estimated value of the work planned to be done
  - Basic concept
- Earned Value (EV):
  - As of today, the estimated value of the work actually accomplished
  - Basic concept
- Actual Cost (AC):
  - As of today, the actual cost incurred for the work accomplished
  - A fact
- Budget At Completion (BAC)
  - The BUDGET for the TOTAL project effort
  - A figure already determined

EVM Derived Concepts

- Estimate at Completion (EAC):
  - As of today, the estimated value of the work planned to be done
  - A ratio to be derived (based on EV, AC, BAC)
- Estimate to Complete (ETC):
  - From this point on, how much MORE do we expect it to cost to finish the project (a forecast)?
  - Simple calculation: should be something minus AC
  - = EAC - AC
- Variance at Completion (VAC):
  - As of today, how much over or under budget do we expect to be at the end of the project?
  - Simple calculation: should be BAC minus something
  - = BAC - EAC

Earned Value Management



Variances

- Cost Variance (CV)
  - = EV – AC
    - NEGATIVE is over budget; POSITIVE is under budget.
- Schedule Variance (SV)
  - = EV – PV
    - NEGATIVE is behind schedule; POSITIVE is ahead of schedule.
- Cost Performance Index (CPI)
  - = EV / AC
    - We are getting $_____ worth of work out of every $1 spent.
    - Funds are or are not being used efficiently.
- Schedule Performance Index (SPI)
  - = EV / PV
    - We are (only) progressing at _____ percent of the rate originally planned.

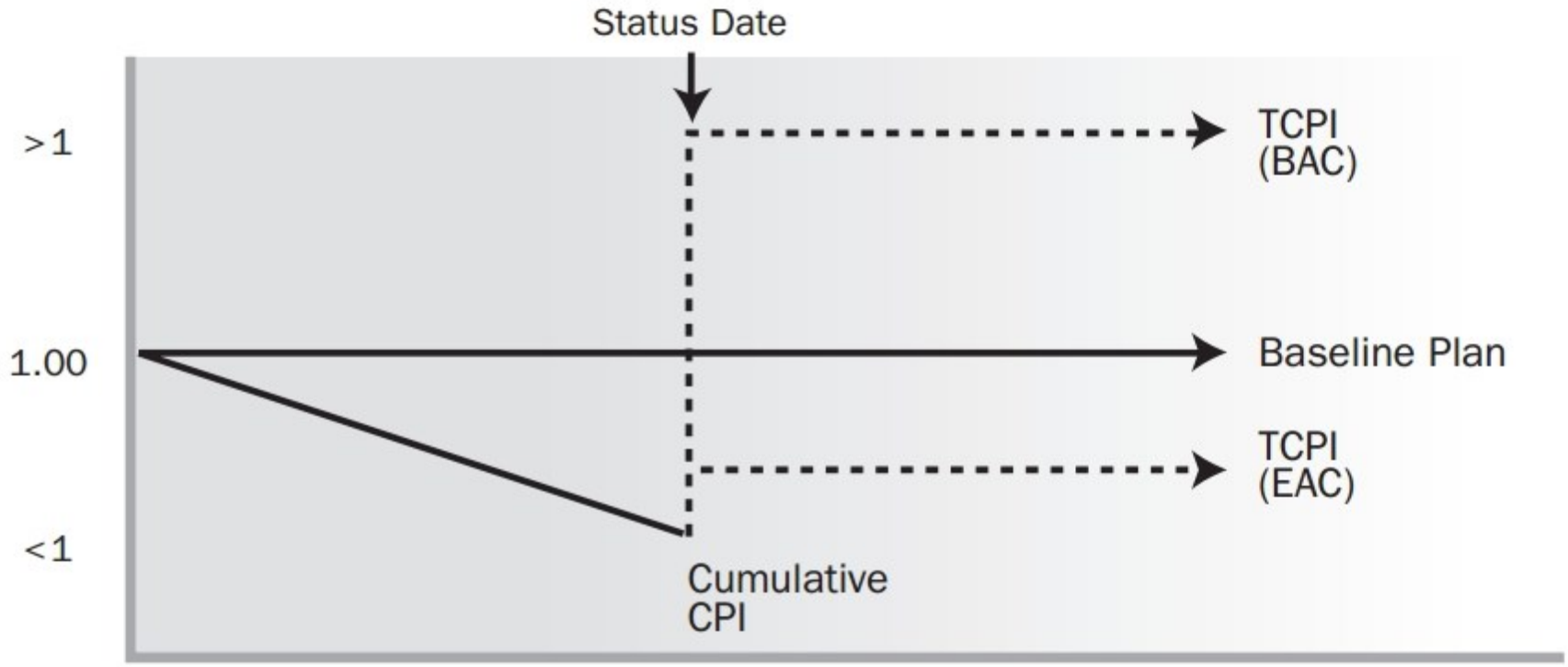
CPI and TCPI

- EAC = BAC / CPI
  - Many ways of calculating EAC, exam will only use the above formula
  - It is derived from this ratio
    - EAC / AC = BAC / EV
- To Complete Performance Index (TCPI)
  - A measure of the cost performance that is required to be achieved with the remaining resources in order to meet a specified management goal, expressed as the ratio of the cost to finish the outstanding work to the remaining budget
  - TCPI is the calculated cost performance index that is achieved on the remaining work to meet a specified management goal, such as the BAC or the EAC.

TCPI

Control Costs: Tools and Techniques

- If the cumulative CPI falls below the baseline, all future work of the project will need to be performed immediately in the range of the TCPI (BAC) to stay within the authorized BAC.
- If it becomes obvious that the BAC is no longer viable, the project manager should consider the forecasted EAC. Once approved, the EAC may replace the BAC in the TCPI calculation.
  - TCPI = work remaining / funds remaining
  - TCPI based on the BAC: (BAC – EV) / (BAC – AC)
  - TCPI based on the EAC: (BAC – EV) / (EAC – AC)



Formula:

$$\frac{\text{Work Remaining (BAC-EV)}}{\text{Funds Remaining (BAC-AC) or (EAC-AC)}} = \text{TCPI}$$

Points to Note

- EV comes first in every formula
- If it is a variance, the formula is EV minus something
- If it is an index, the formula is EV divided by something
- If the formula relates to cost, use AC
- If the formula relates to schedule, use PV
- For variance interpretation: negative is bad and positive is good
- For indices interpretation: <1 is bad and >1 is good
- POSITIVE or >1 is GOOD (under-budget or ahead schedule)
- NEGATIVE or <1 is BAD (over-budget or behind schedule)

Performance Measures		Schedule		
		SV > 0 & SPI > 1.0	SV = 0 & SPI = 1.0	SV < 0 & SPI < 1.0
Cost	CV > 0 & CPI > 1.0	Ahead of schedule under budget	On schedule under budget	Behind schedule under budget
	CV = 0 & CPI = 1.0	Ahead of schedule on budget	On schedule on budget	Behind schedule on budget
	CV < 0 & CPI < 1.0	Ahead of schedule over budget	On schedule over budget	Behind schedule over budget

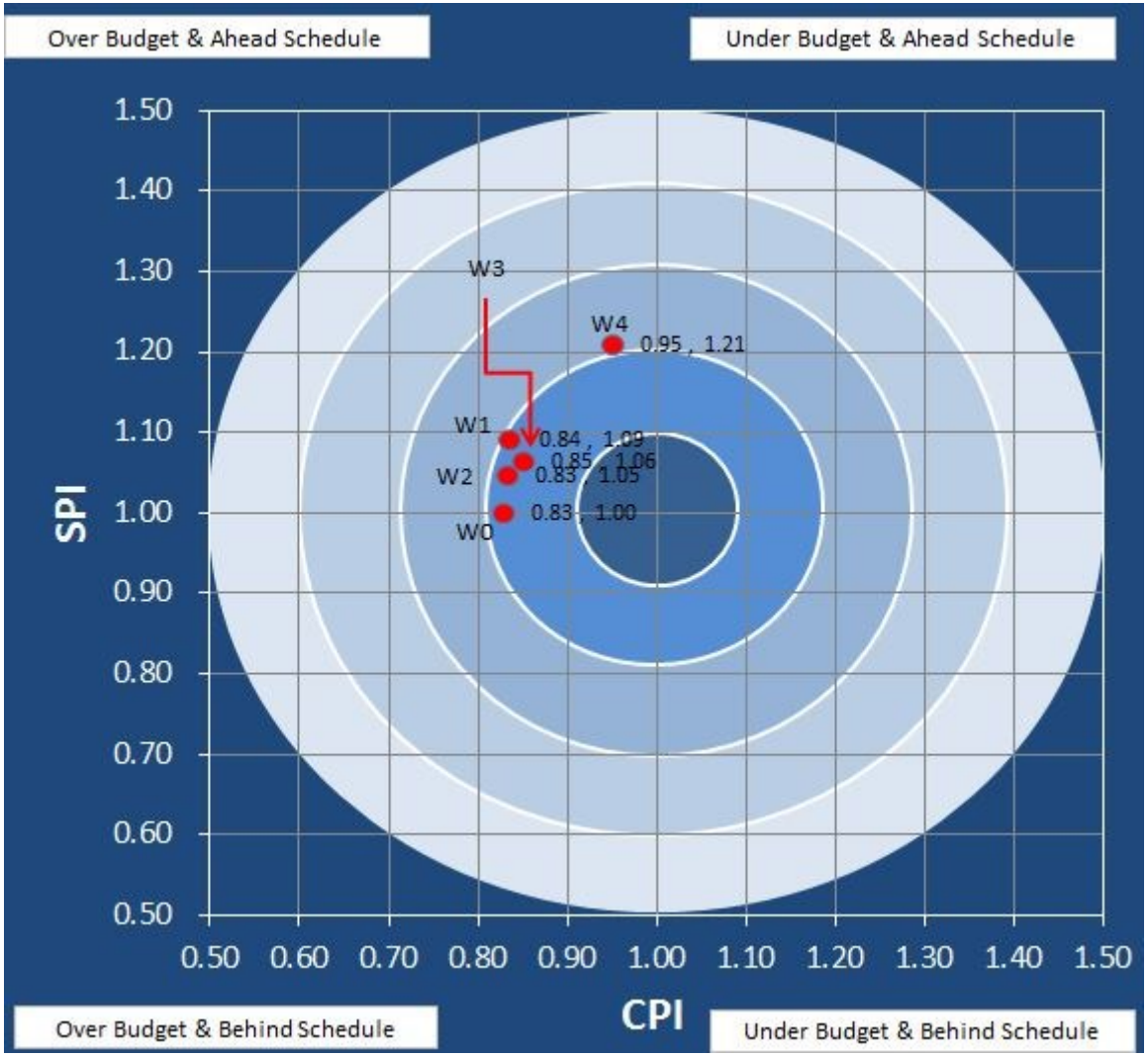
Exercise

- You have a project to build a new fence. The fence is four-sided as shown. Each side is to take one day to build and is budgeted for $1,000 per side. The sides are planned to be completed one after the other. Today is the end of day three.

Activity	Day 1	Day 2	Day 3	Day 4	Status (at the end of Day 3)
Side 1	finished				complete; spent $1,000
Side 2		finished			complete; spent $1,200
Side 3			50% finished		50% complete; spent $600
Side 4					not yet started

Bulls Eye Diagram

- Do we need to do anything if both CPI and SPI are higher than 1?
  - Yes or no – refer to the thresholds of cost Management plan



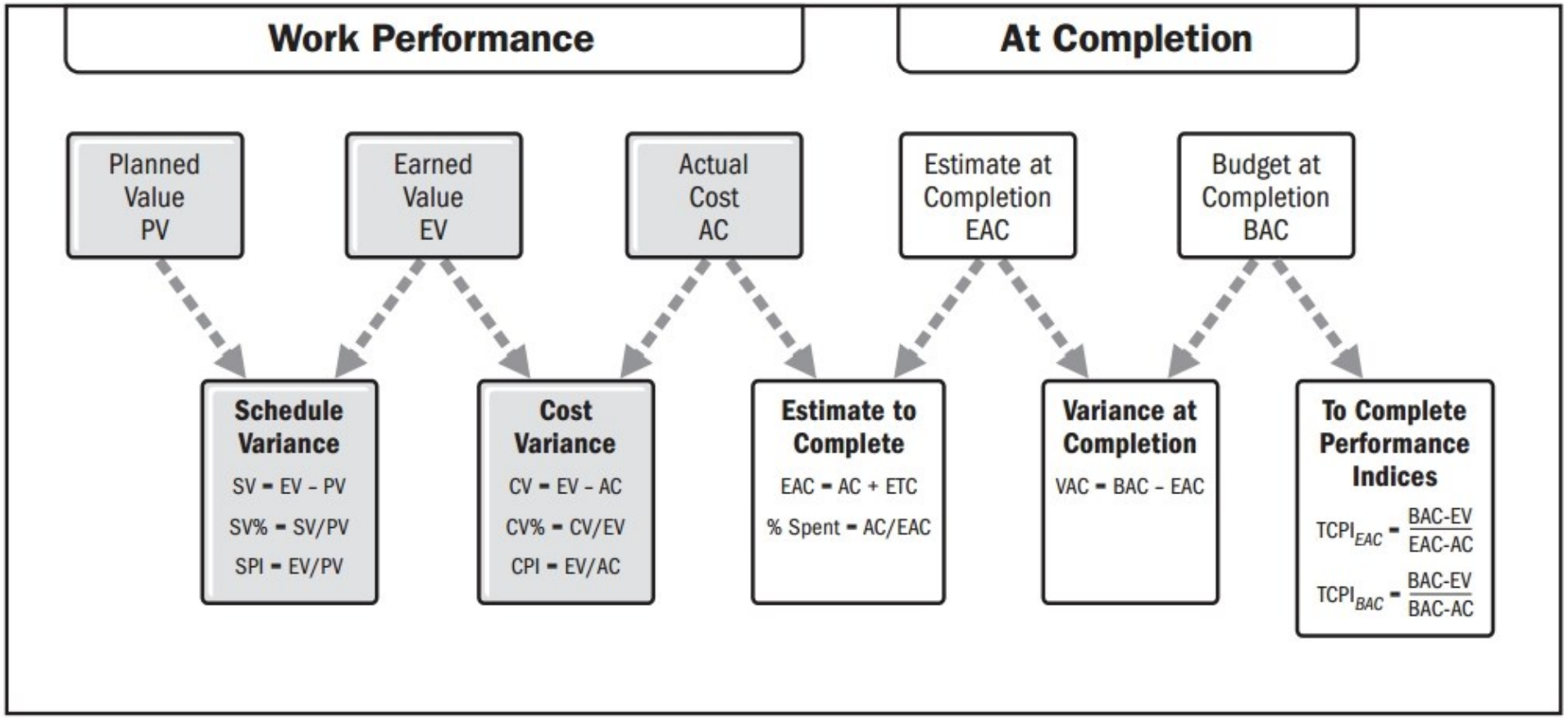
Schedule Compression Revisited

- How to choose on the exam?
  - Behind schedule (SPI < 1); determine the CPI first
    - Under budget (CPI > 1) → Crashing
    - Over budget (CPI < 1)
      - Activities are not risky or discretionary dependency → Fast Tracking
      - Activities are risky or Mandatory dependency → Re-estimate risk OR value analysis
    - If management sets unrealistic schedule → Say "no"
    - Nothing mentioned → Look for other options
    - Below should not be the answers in exam
      - Reduce scope, cut quality (if not requested by the customers)
      - Work overtime without compensation (NOT PROFESSIONAL and UNETHICAL!)

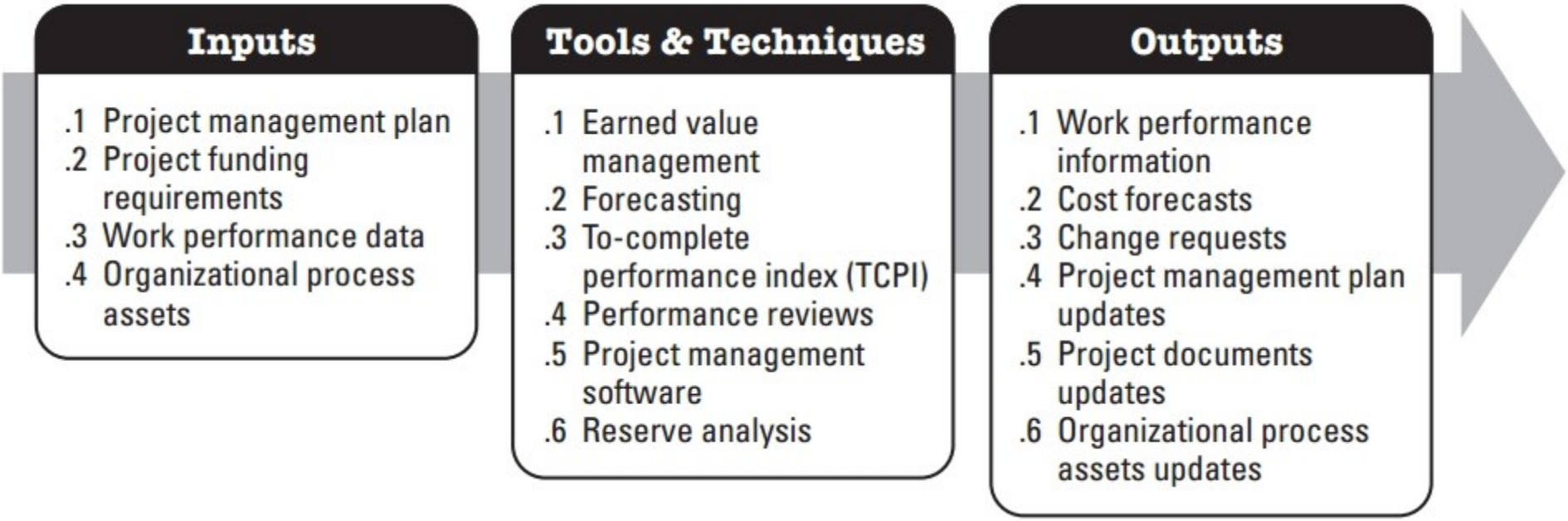
Earned Value Analysis

Abbreviation	Name	Lexicon Definition	How Used	Equation	Interpretation of Result
PV	Planned Value	The authorized budget assigned to scheduled work.	The value of the work planned to be completed to a point in time, usually the data date, or project completion.		
EV	Earned Value	The measure of work performed expressed in terms of the budget authorized for that work.	The planned value of all the work completed (earned) to a point in time, usually the data date, without reference to actual costs.	EV = sum of the planned value of completed work	
AC	Actual Cost	The realized cost incurred for the work performed on an activity during a specific time period.	The actual cost of all the work completed to a point in time, usually the data date.		
BAC	Budget at Completion	The sum of all budgets established for the work to be performed.	The value of total planned work, the project cost baseline.		
CV	Cost Variance	The amount of budget deficit or surplus at a given point in time, expressed as the difference between the earned value and the actual cost.	The difference between the value of work completed to a point in time, usually the data date, and the actual costs to the same point in time.	CV = EV – AC	Positive = Under planned cost Neutral = On planned cost Negative = Over planned cost
SV	Schedule Variance	The amount by which the project is ahead or behind the planned delivery date, at a given point in time, expressed as the difference between the earned value and the planned value.	The difference between the work completed to a point in time, usually the data date, and the work planned to be completed to the same point in time.	SV = EV – PV	Positive = Ahead of Schedule Neutral = On schedule Negative = Behind Schedule
VAC	Variance at Completion	A projection of the amount of budget deficit or surplus, expressed as the difference between the budget at completion and the estimate at completion.	The estimated difference in cost at the completion of the project.	VAC = BAC – EAC	Positive = Under planned cost Neutral = On planned cost Negative = Over planned cost

CPI	Cost Performance Index	A measure of the cost efficiency of budgeted resources expressed as the ratio of earned value to actual cost.	A CPI of 1.0 means the project is exactly on budget, that the work actually done so far is exactly the same as the cost so far. Other values show the percentage of how much costs are over or under the budgeted amount for work accomplished.	CPI = EV/AC	Greater than 1.0 = Under planned cost Exactly 1.0 = On planned cost Less than 1.0 = Over planned cost
SPI	Schedule Performance Index	A measure of schedule efficiency expressed as the ratio of earned value to planned value.	An SPI of 1.0 means that the project is exactly on schedule, that the work actually done so far is exactly the same as the work planned to be done so far. Other values show the percentage of how much costs are over or under the budgeted amount for work planned.	SPI = EV/PV	Greater than 1.0 = Ahead of schedule Exactly 1.0 = On schedule Less than 1.0 = Behind schedule
EAC	Estimate At Completion	The expected total cost of completing all work expressed as the sum of the actual cost to date and the estimate to complete.	If the CPI is expected to be the same for the remainder of the project, EAC can be calculated using: If future work will be accomplished at the planned rate, use: If the initial plan is no longer valid, use: If both the CPI and SPI influence the remaining work, use:	EAC = BAC/CPI EAC = AC + BAC – EV EAC = AC + Bottom-up ETC EAC = AC + [(BAC – EV)/ (CPI x SPI)]	
ETC	Estimate to Complete	The expected cost to finish all the remaining project work.	Assuming work is proceeding on plan, the cost of completing the remaining authorized work can be calculated using: Reestimate the remaining work from the bottom up.	ETC = EAC – AC ETC = Reestimate	
TCPI	To Complete Performance Index	A measure of the cost performance that must be achieved with the remaining resources in order to meet a specified management goal, expressed as the ratio of the cost to finish the outstanding work to the budget available.	The efficiency that must be maintained in order to complete on plan. The efficiency that must be maintained in order to complete the current EAC.	TCPI = (BAC–EV)/(BAC – AC) TCPI = (BAC – EV)/(EAC – AC)	Greater than 1.0 = Harder to complete Exactly 1.0 = Same to complete Less than 1.0 = Easier to complete Greater than 1.0 = Harder to complete Exactly 1.0 = Same to complete Less than 1.0 = Easier to complete


Work Performance
At Completion
Planned Value PV
Earned Value EV
Actual Cost AC
Estimate at Completion EAC
Budget at Completion BAC
Schedule Variance
SV = EV – PV
SV% = SV/PV
SPI = EV/PV
Cost Variance
CV = EV – AC
CV% = CV/EV
CPI = EV/AC
Estimate to Complete
EAC = AC + ETC
% Spent = AC/EAC
Variance at Completion
VAC = BAC – EAC
To Complete Performance Indices
$TCPI_{EAC} = \frac{BAC-EV}{EAC-AC}$
$TCPI_{BAC} = \frac{BAC-EV}{BAC-AC}$

Control Costs
(monitoring and controlling)



EVM Formula

- CV = EV – AC
- SV = EV – PV
- CPI = EV / AC
- SPI = EV / PV
- EAC = BAC / CPI
- ETC = EAC – AC
- VAC = BAC – EAC
- TCPI =
  - (BAC – EV) / (BAC – AC) on BAC
  - (BAC – EV) / (EAC – AC) on EAC

Exercise

- Estimate at completion (EAC) is a periodic evaluation of:

A. The cost of work completed.
B. The value of work performed.
C. The anticipated total cost at project completion.
D. What it will cost to finish the job.

Answer: C

- While reviewing project performance, the project manager determines that the schedule variance is -500. What is the BEST thing to do?

A. Let the sponsor know.
B. Determine the cost variance.
C. Look for activities that can be done in parallel.
D. Move resources from the project to one that is not failing.

Answer: B

- Which of the following information about the project would NEVER be available during project planning?
  A. Cost performance index
  B. Benefit cost ratio
  C. Internal rate of return
  D. Budget at completion

  Answer: A

- Which of the following is a benefit of an analogous project estimate?

A. The estimate will be closer to what the work will actually require.
B. It is based on a detailed understanding of what the work requires.
C. It gives the project team an understanding of management's expectations.
D. It helps the project manager determine if the project will meet the schedule.

Answer: C

- Which of the following is NOT needed in order to come up with a project estimate?
  A. WBS
  B. Network diagram
  C. Risks
  D. A change control system

  Answer: D

- A cost management plan contains a description of:
  A. The project costs.
  B. How resources are allocated.
  C. The budgets and how they were calculated.
  D. The WBS level at which earned value will be calculated.

Answer: D

- You are having difficulty estimating the cost of a project. Which of the following BEST describes the most probable cause of your difficulty?

A. Inadequate scope definition
B. Unavailability of desired resources
C. Lack of historical records from previous projects
D. Lack of company processes

Answer: A

- Which of the following is an example of a parametric estimate?
  A. Dollars per module
  B. Learning bend
  C. Bottom-up
  D. CPM

Answer: A

- All of the following are tools for of the Determine Budget process EXCEPT:
  A. Aggregation
  B. Reserve analysis
  C. Funding limit reconciliation
  D. Bottom-up estimating

  Answer: D

- All of the following are inputs to the Determine Budget process EXCEPT:
  A. Activity cost estimates.
  B. Work breakdown structure.
  C. Project scope statement.
  D. Project performance reviews.

  Answer: D

- During project executing, one of the electrical engineers informs the project manager that the life cycle cost of the new heating and air conditioning system is higher than the life cycle cost of another heating and air conditioning system. What should the project manager do?

A. Determine if there is room in the project budget for the additional cost.
B. Select the product with the lower life cycle cost.
C. Select the product with the best life cycle cost to earned value ratio.
D. Select the product with the lowest maintenance cost to life cycle cost ratio.

Answer: B

- You have just completed the initiating processes of a small project and are moving into the planning processes when a project stakeholder asks you for the project's budget and cost baseline. What should you tell her?

A. The project budget can be found in the project's charter, which has just been completed.

B. The project budget and baseline will not be finalized and accepted until the planning processes are completed.

C. The project management plan will not contain the project's budget and baseline; this is a small project.

D. It is impossible to complete an estimate before the project management plan is created.

Answer: B

- A project has a team member assigned to the project full time. What is the MOST likely effect on the project if that resource completes her activity sooner than planned?
  A. Lower quality deliverables
  B. Wasted cost
  C. A subsequent activity will be delayed
  D. Changes to the risk response plan

Answer: B

- The main focus of life cycle costing is to:
  A. Estimate installation costs.
  B. Estimate the cost of operations and maintenance.
  C. Consider installation costs when planning the project costs.
  D. Consider operations and maintenance costs in making project decisions.

Answer: D

- An estimate that is +/-50 percent of actual is considered a(n):
  A. Budget estimate.
  B. Rough order of magnitude estimate.
  C. Definitive estimate.
  D. Parametric estimate.

  Answer: B

- Which of the following does NOT assess the value a project brings to an organization?
  A. Benefit cost analysis
  B. Net present value
  C. Value analysis
  D. Needs assessment

  Answer: C

- A project manager needs to analyze the project costs to find ways to decrease costs. It would be BEST if the project manager looks at:

A. Variable costs and fixed costs.
B. Fixed costs and indirect costs.
C. Direct costs and variable costs.
D. Indirect costs and direct costs.

Answer: C

- Earned value measurement is an example of:
  A. Performance reporting.
  B. Planning control.
  C. Ishikawa diagrams.
  D. Integrating the project components into a whole.

  Answer: A

- Which type of cost is team training?
  A. Direct
  B. NPV
  C. Indirect
  D. Fixed

  Answer: A

- The cost of contingency reserve should be:
  A. Hidden to prevent management from disallowing the reserve.
  B. Added to each activity to provide the customer with a shorter critical path.
  C. Maintained by management to cover cost overruns.
  D. Added to the base costs of the project to account for risks.

Answer: D

- Value analysis is performed to get:
  A. More value from the cost analysis.
  B. Management to buy into the project.
  C. The team to buy into the project
  D. A less costly way of doing the same work.

  Answer: D

- A cost performance index (CPI) of 0.89 means:
  A. At this time, we expect the total project to cost 89 percent more than planned.
  B. When the project is completed, we will have spent 89 percent more than planned.
  C. The project is only progressing at 89 percent of that planned.
  D. The project is only getting 89 cents out of every dollar invested.

Answer: D

- The difference between the cost baseline and the cost budget can be BEST described as:

A. The management reserve.
B. The contingency reserve.
C. The project cost estimate.
D. The cost account.

Answer: A

- Which of the following is the LEAST effective way to influence the factors that create changes to the cost baseline?

A. Review the project scope with the functional manager responsible for the greatest number of requested changes.

B. Explain to those requesting changes the negative impact of change to the project.

C. Eliminate the scope causing the most changes.

D. Notify all stakeholders that no more changes will be allowed.

Answer: D

- A project manager discovers that a work package has been completed for substantially less cost than planned. Which of the following is NOT among the first things to consider doing?

A. Make sure all project processes were followed.
B. Make sure the right resources were used.
C. Make sure all the work was done.
D. Identify ways to increase the result.

Answer: D

- You provide a project cost estimate for the project to the project sponsor. He is unhappy with the estimate, because he thinks the price should be lower. He asks you to cut 15 percent off the project estimate. What should you do?

  A. Start the project and constantly look for cost savings.
  B. Tell the team members to cut 15 percent from their estimates.
  C. Inform the sponsor of the activities to be cut.
  D. Add additional resources with low hourly rates.

  Answer: C

The End