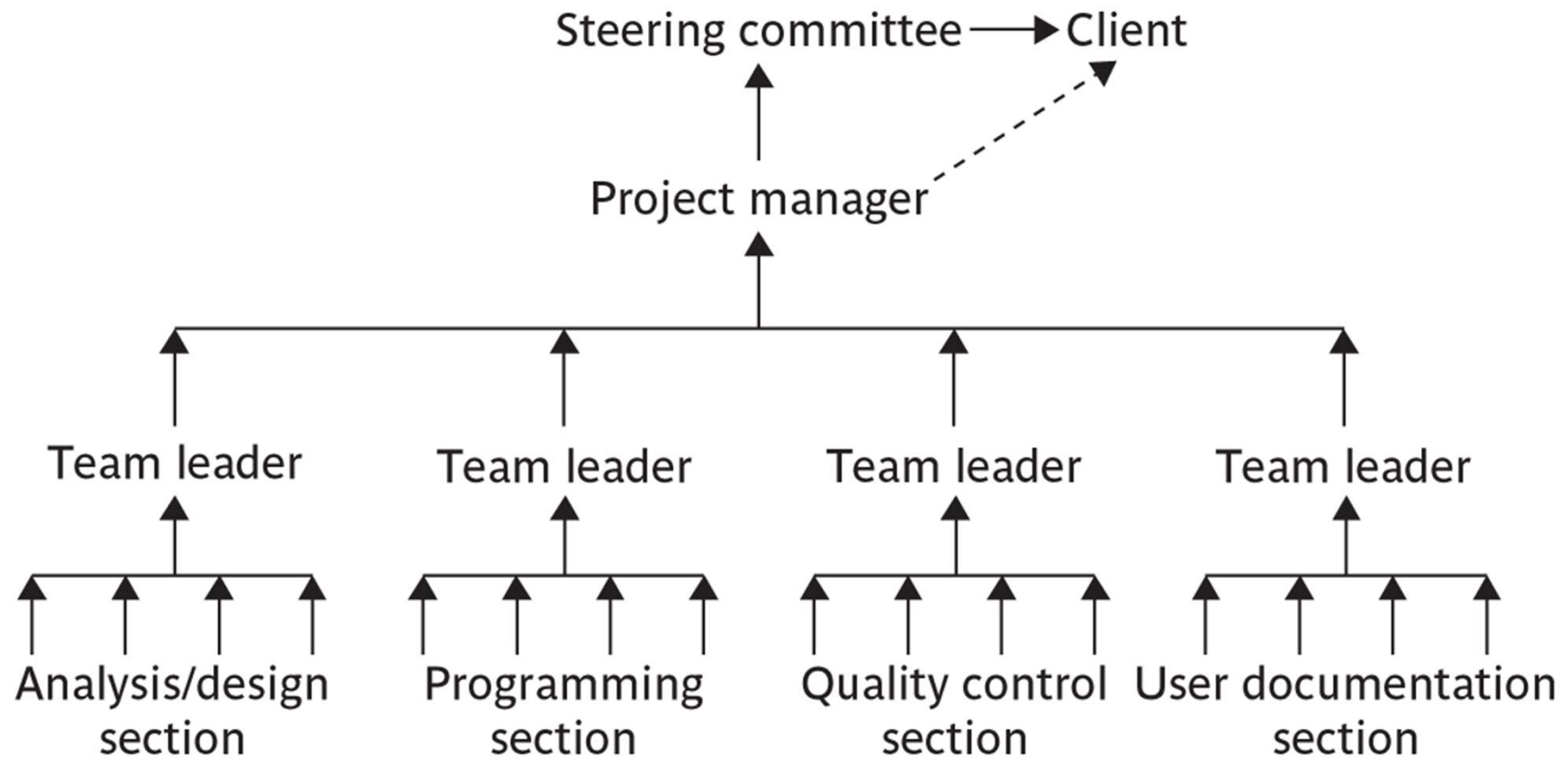


Responsibilities



Assessing progress



Checkpoints – predetermined times when progress is checked

- Event driven: check takes place when a particular event has been achieved
- Time driven: date of the check is predetermined

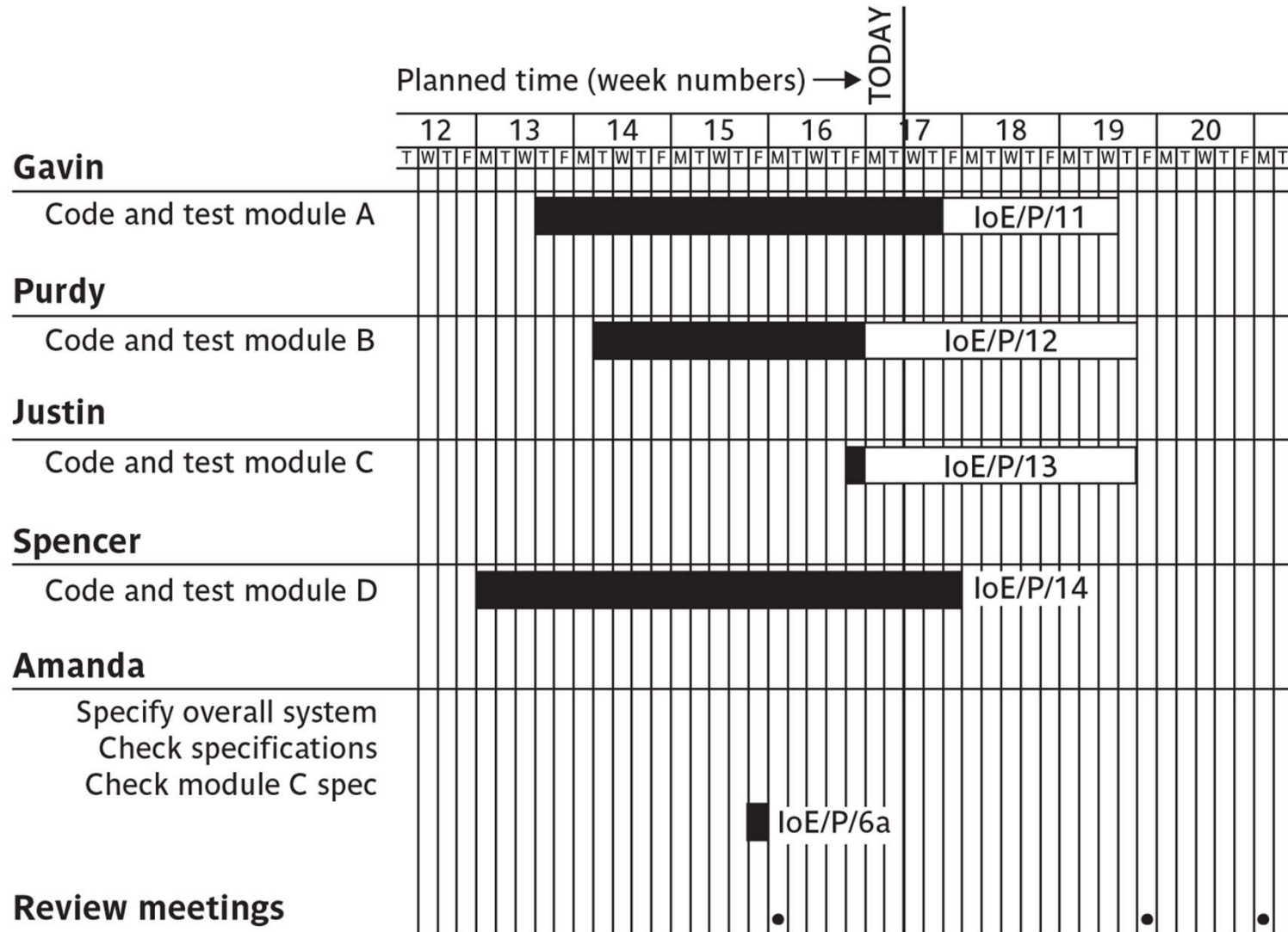
Frequency of reporting

The higher the management level then generally the longer the gaps between checkpoints

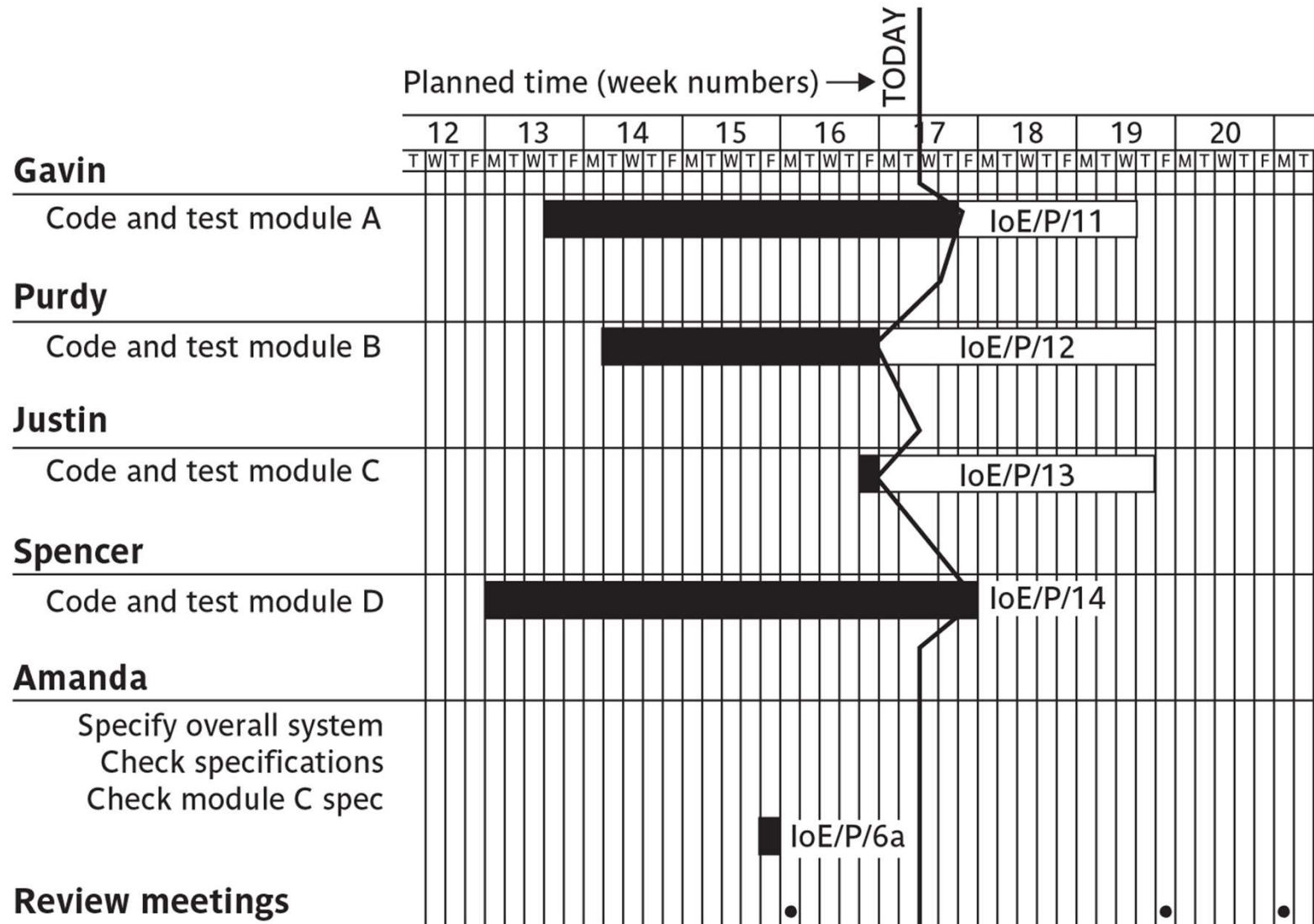
Red/Amber/Green reporting

- Identify key tasks
- Break down into sub-tasks
- Assess subtasks as:
 - Green – ‘on target’
 - Amber – ‘not on target but recoverable’
 - Red – ‘not on target and recoverable only with difficulty’
- Status of ‘critical’ tasks is particularly important

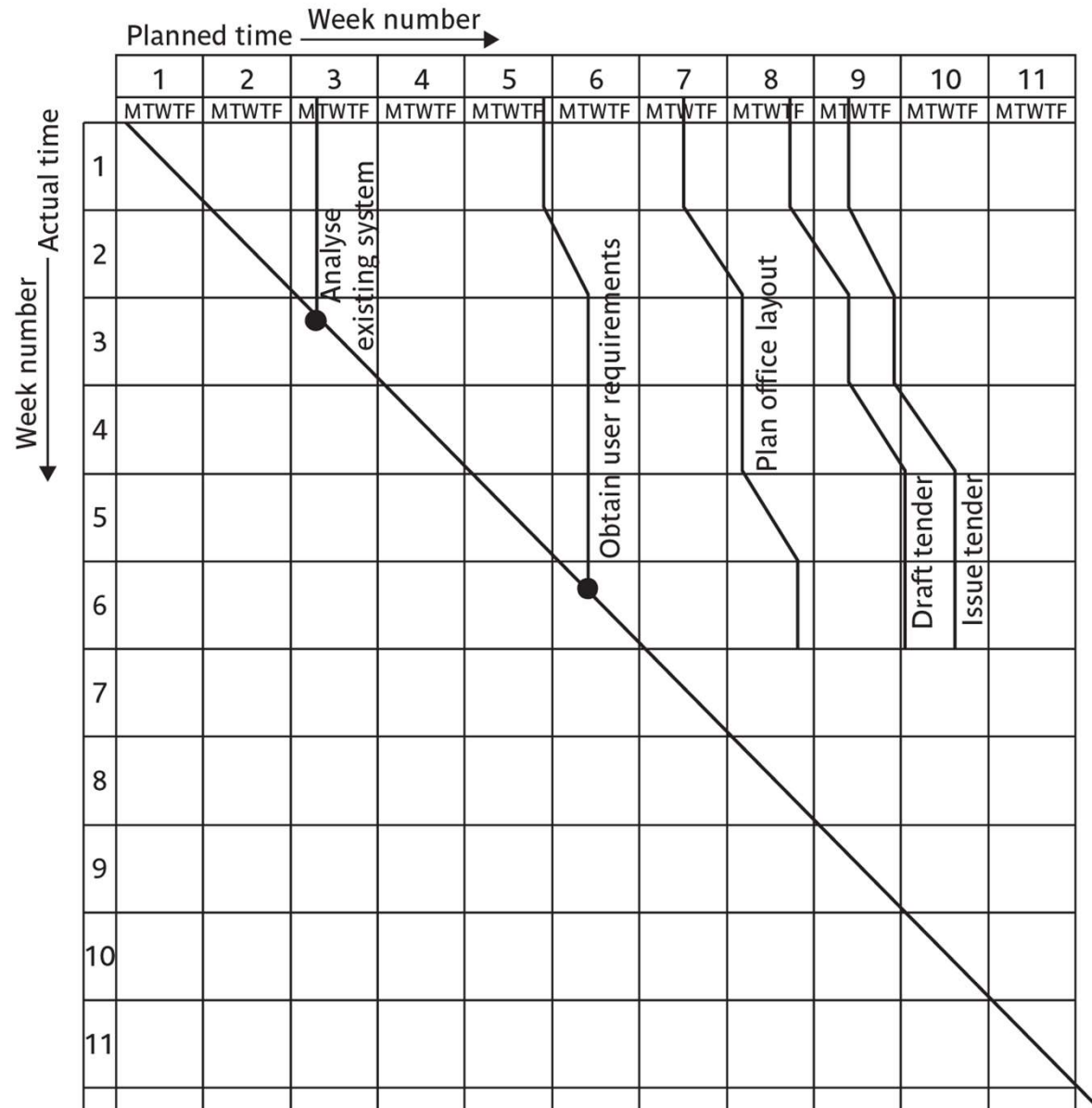
Gantt charts



Slip charts



The timeline



Cost monitoring

- A project could be late because the staff originally committed have not been deployed
- In this case the project will be *behind time* but *under budget*
- A project could be on time but only because additional resources have been added and so be *over budget*
- Need to monitor both achievements and costs

Project costs may be monitored by a company's accounting system. By themselves, they provide little information about project status.

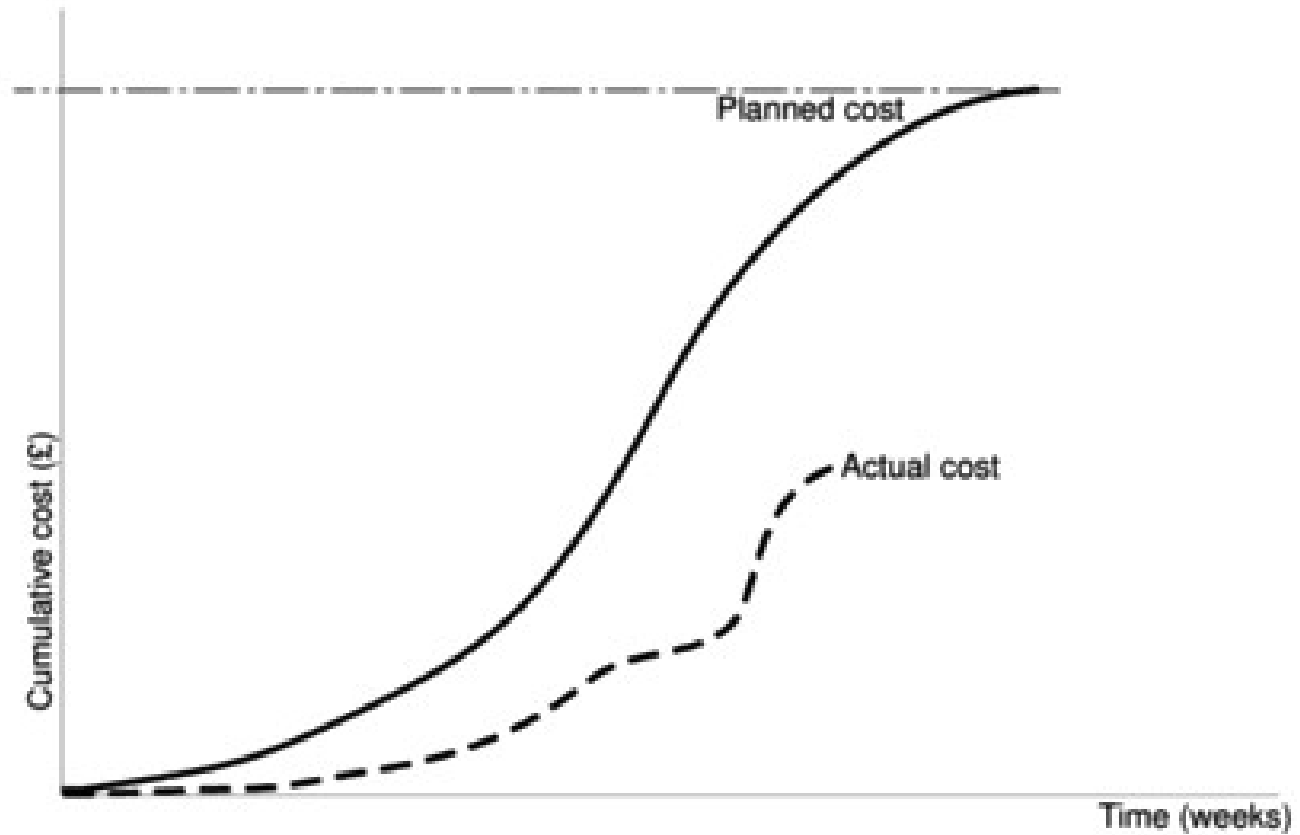


Figure 9.9 *Tracking cumulative expenditure.*

Earned Value Analysis

- Earned value is a quantitative measure of percent of project completed so far.
- The total hours to complete the entire project are estimated and each task is given an earned value based on its estimated percentage contribution to the total.

Earned value analysis

- *Earned value analysis is based on assigning a value to a task or work package based on the original expenditure forecast.*
- *Planned value (PV) or Budgeted cost of work scheduled (BCWS) – original estimate of the effort/cost to complete a task (compare with idea of a ‘price’)*
- *Earned value (EV) or Budgeted cost of work performed (BCWP) – total of PVs for the work completed at this time*

Accounting conventions

- Work completed allocated on the basis
 - *50/50* half allocated at start, the other half on completion. These proportions can vary e.g. *0/100, 75/25* etc
 - *Milestone* current value depends on the milestones achieved
 - *Units processed*
- Can use money values, or staff effort as a surrogate

Earned value – an example

- Tasks
 - Specify module 5 days
 - Code module 8 days
 - Test module 6 days
- At the beginning of day 20, PV = 19 days
- If everything but testing completed EV = 13 days
- Schedule variance = EV-PV i.e. $13-19 = -6$
- Schedule performance indicator (SPI) = $EV/PV = 13/19 = 0.68$
- SV negative or $SPI < 1.00$, project behind schedule

Earned value analysis – actual cost

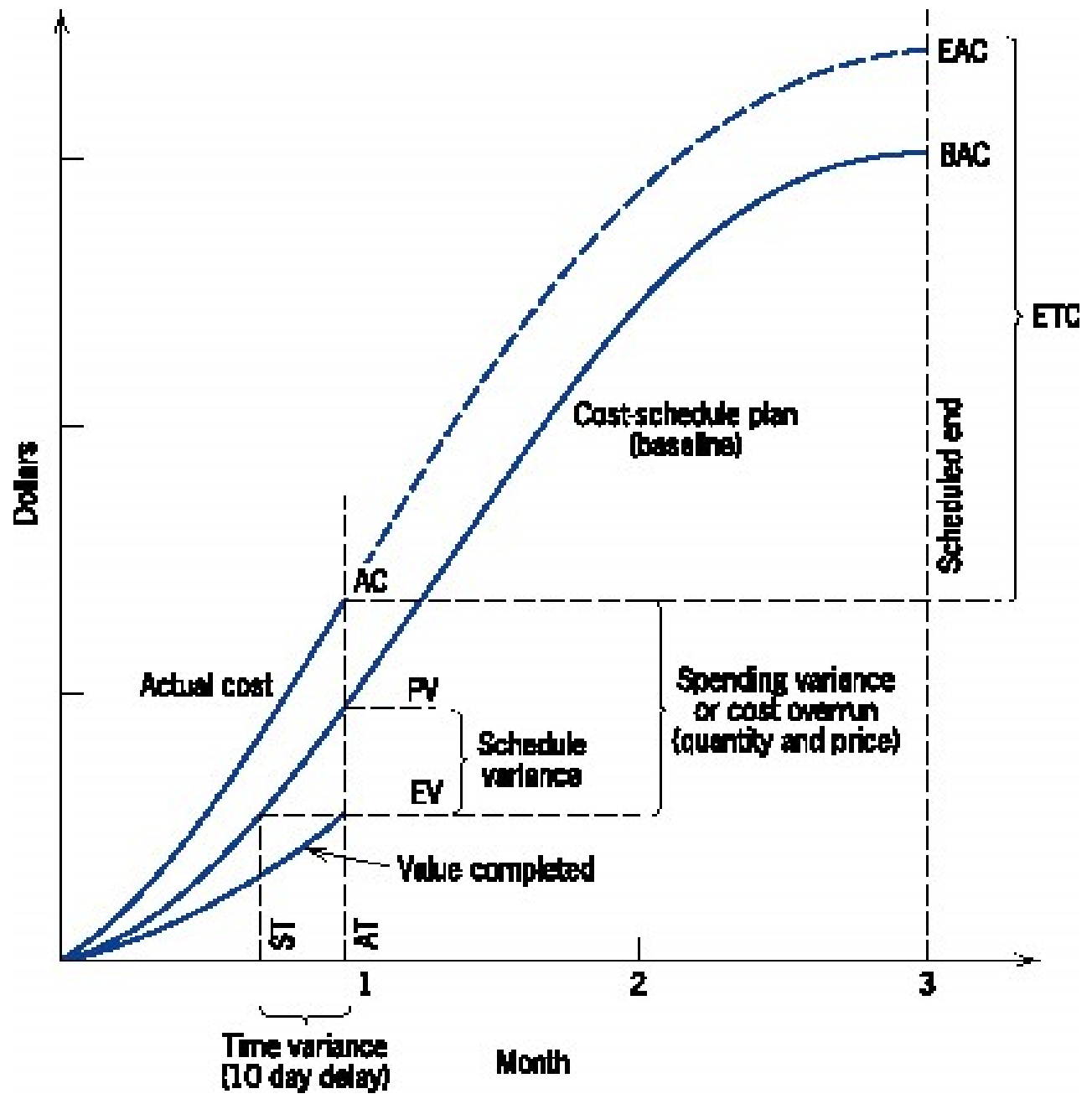
- Actual cost (AC) is also known as Actual cost of work performed (ACWP)
- In previous example, if
 - ‘Specify module’ actually took 3 days
 - ‘Code module’ actually took 4 days
- Actual cost = 7 days
- Cost variance (CV) = EV-AC i.e. $13-7 = 6$ days
- Cost performance indicator = $13/7 = 1.86$
- Positive CV or $CPI > 1.00$ means project within budget

Earned value analysis – actual costs

- CPI can be used to produce new cost estimate
- Budget at completion (BAC) – current budget allocated to total costs of project
- Estimate at completion (EAC) – updated estimate = BAC/CPI
 - e.g. say budget at completion is £19,000 and CPI is 1.86
 - $EAC = BAC/CPI = £10,215$ (projected costs reduced because work being completed in less time)

Time variance

- Time variance (TV) – difference between time when specified EV should have been reached and time it actually was
- For example say an EV of £19000 was supposed to have been reached on 1st April and it was actually reached on 1st July then TV = - 3 months



Error Tracking

ET is a process of assessing the status of the s/w project

Defect Removal Efficiency (DRE) = $E/(E+D)$

Where E is error and D is defect.

Defects = Any error that remain uncovered and are found in later tasks are called defects.