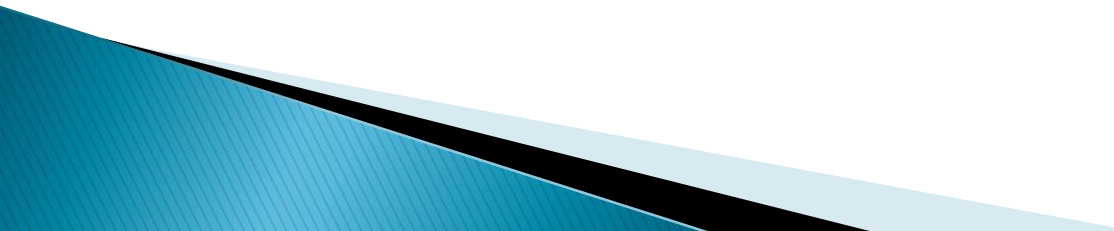# Project evaluation and control
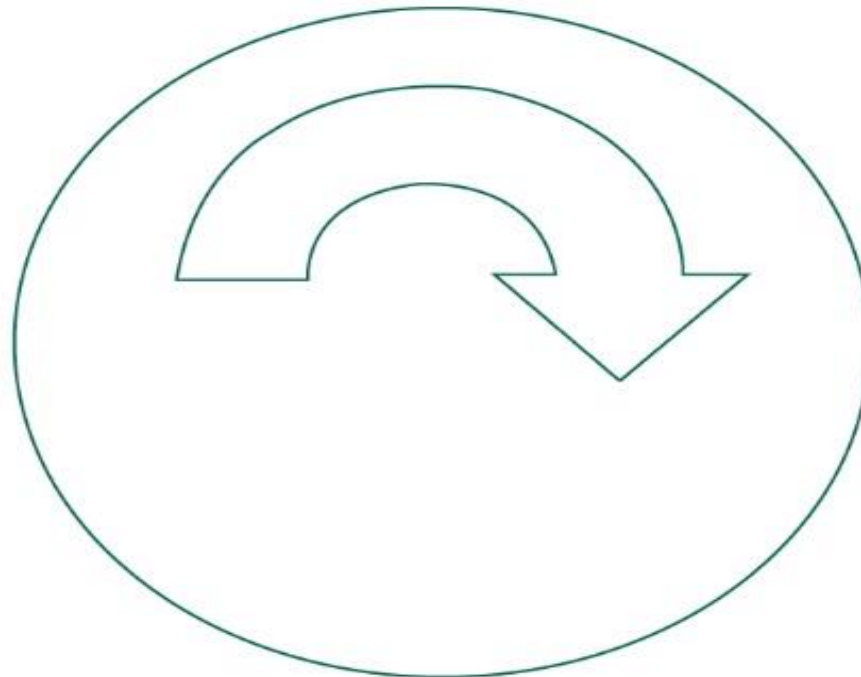
Chapter 13

CONTROL CYCLES – GENERAL MODEL

1. Setting a goal.

2. Measuring progress.

3. Comparing actual with planned performance.

4. Taking action.

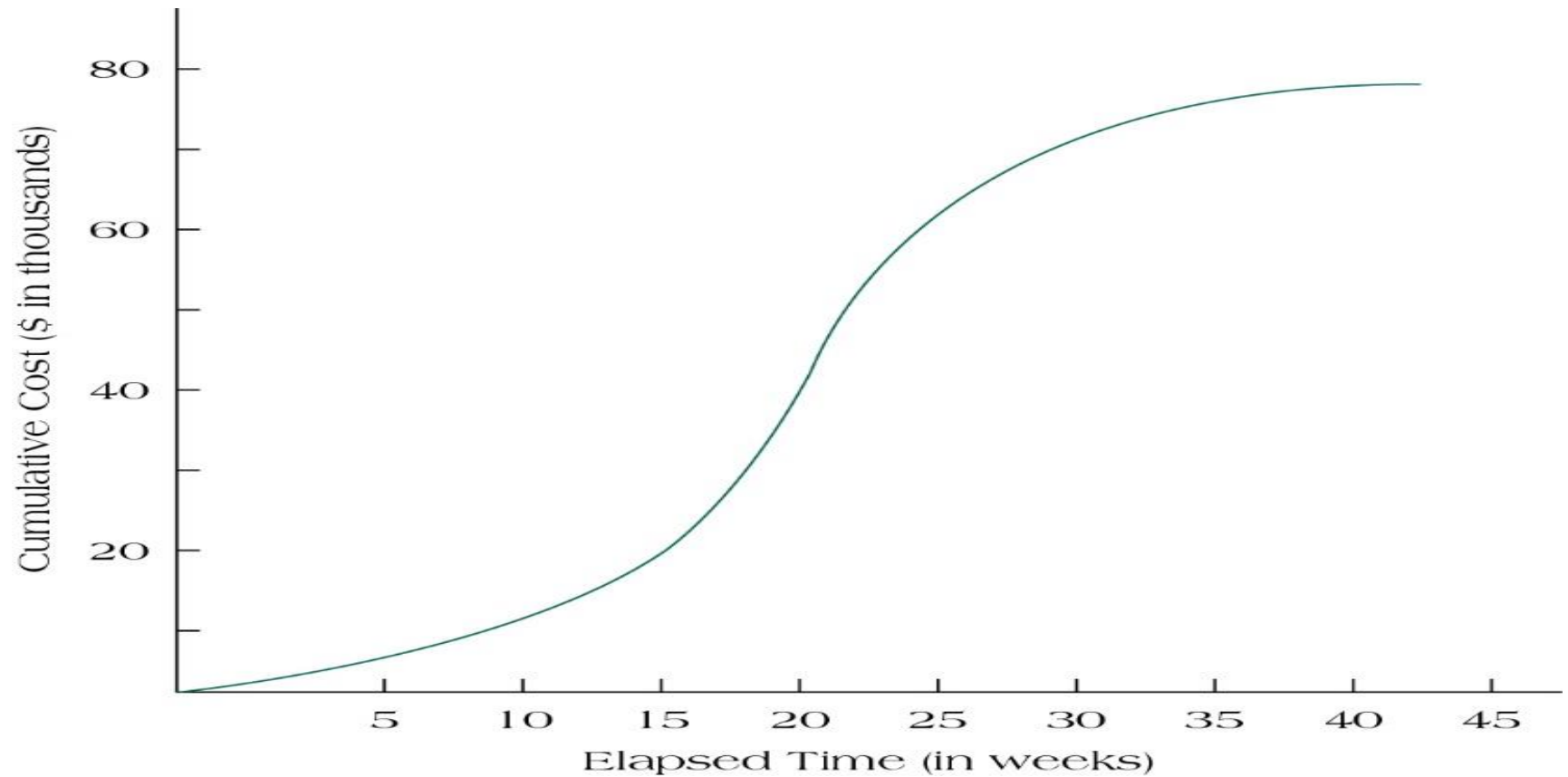# The Project Control Cycle

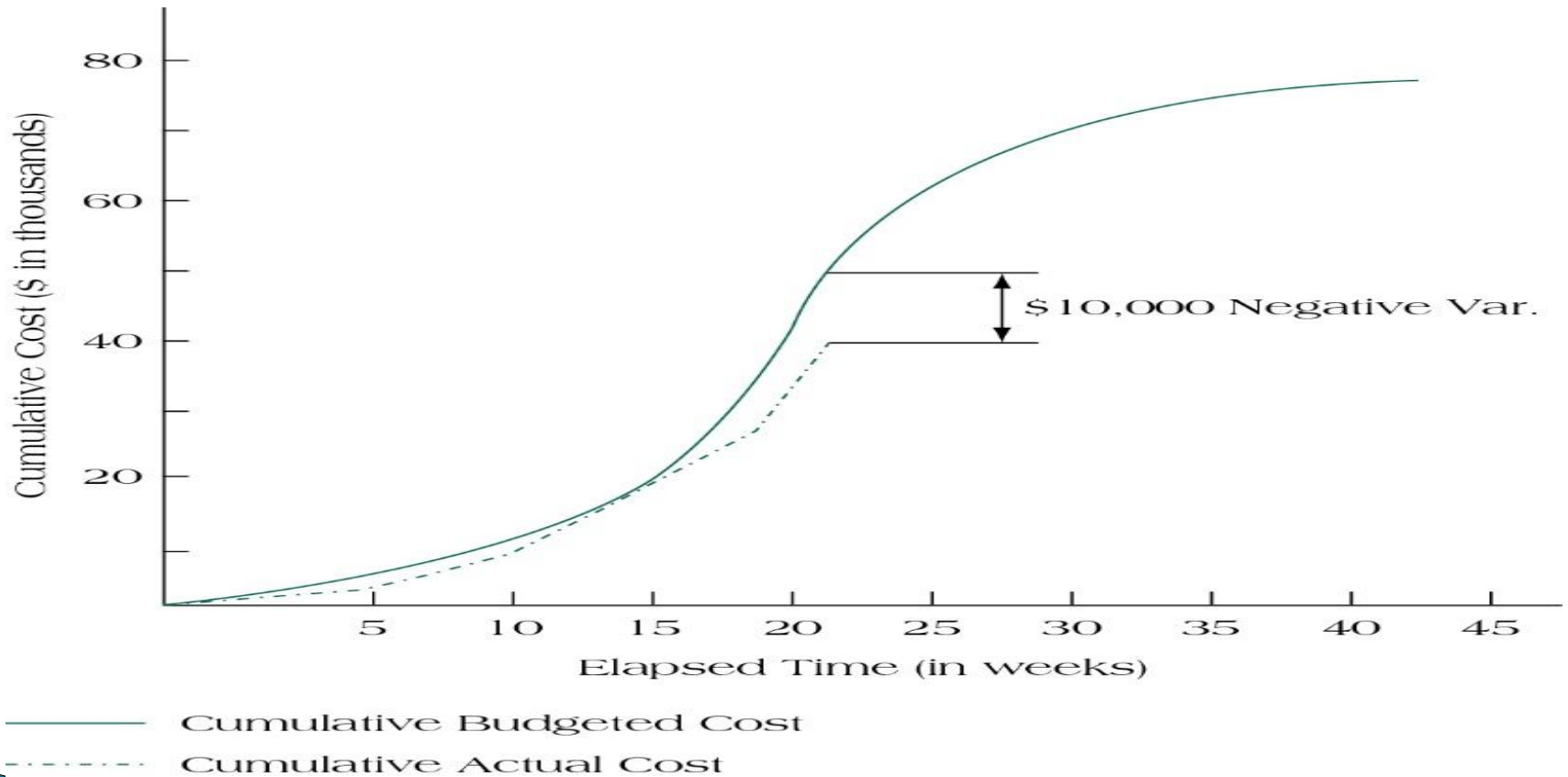1. Setting a goal

2. Measuring progress

3. Comparing actual with planned

4. Taking action and recycling the process

Project S-Curves

PROJECT SIERRA'S S-CURVE SHOWING NEGATIVE VARIANCE

Milestone Analysis

Milestones are *events or stages* of the project that represent a *significant accomplishment.*

Milestones:

1. *Signal completion* of important steps
2. *Motivate* team and suppliers
3. Offer *reevaluation* points
4. Help *coordinate* schedules
5. *Identify* key review gates
6. *Signal* other team members when their participation begins
7. *Delineate* work packages

Gantt Chart with Milestones
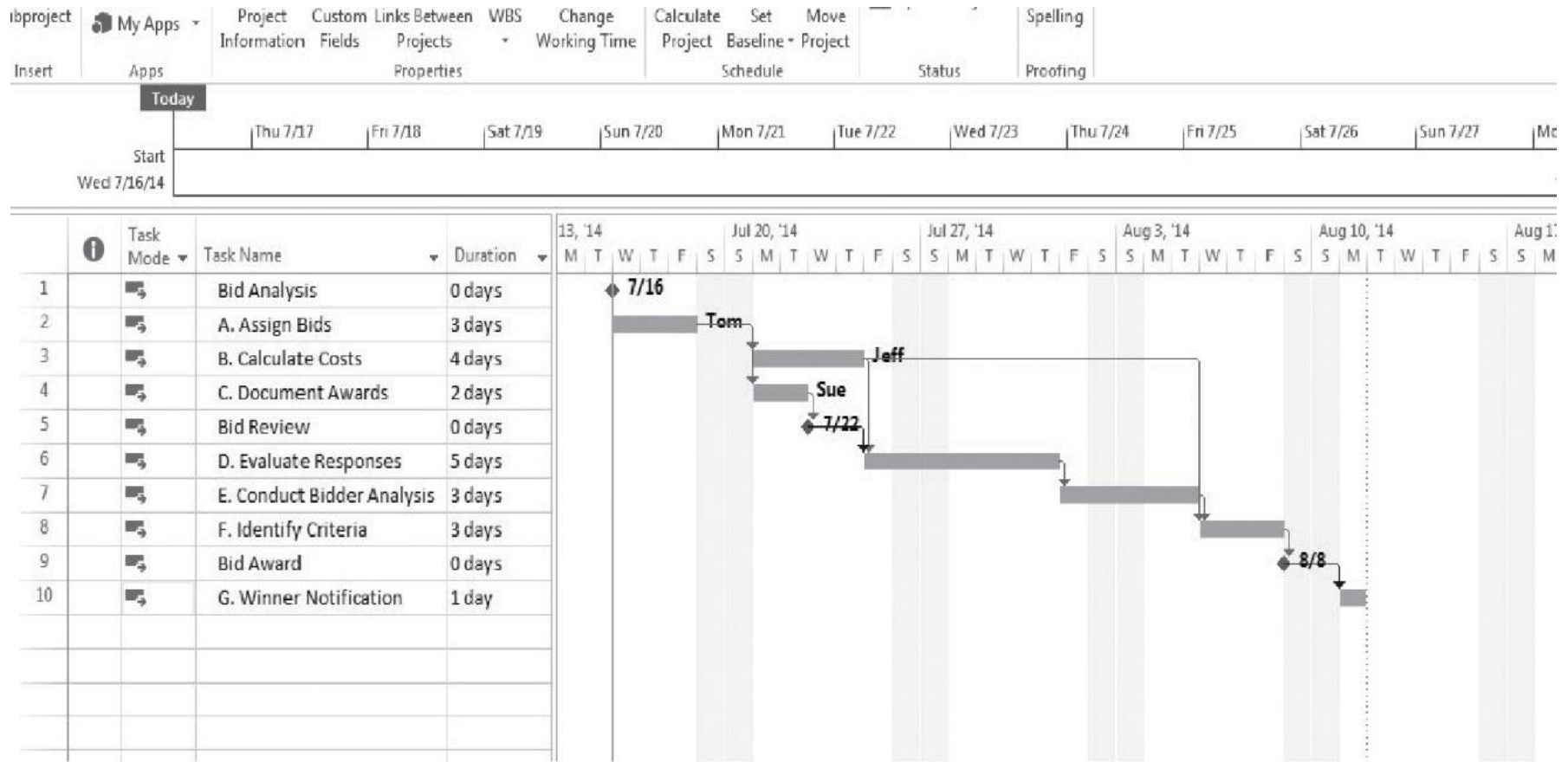
ASSESSING PROJECT BLUE'S STATUS USING TRACKING GANTT CHART
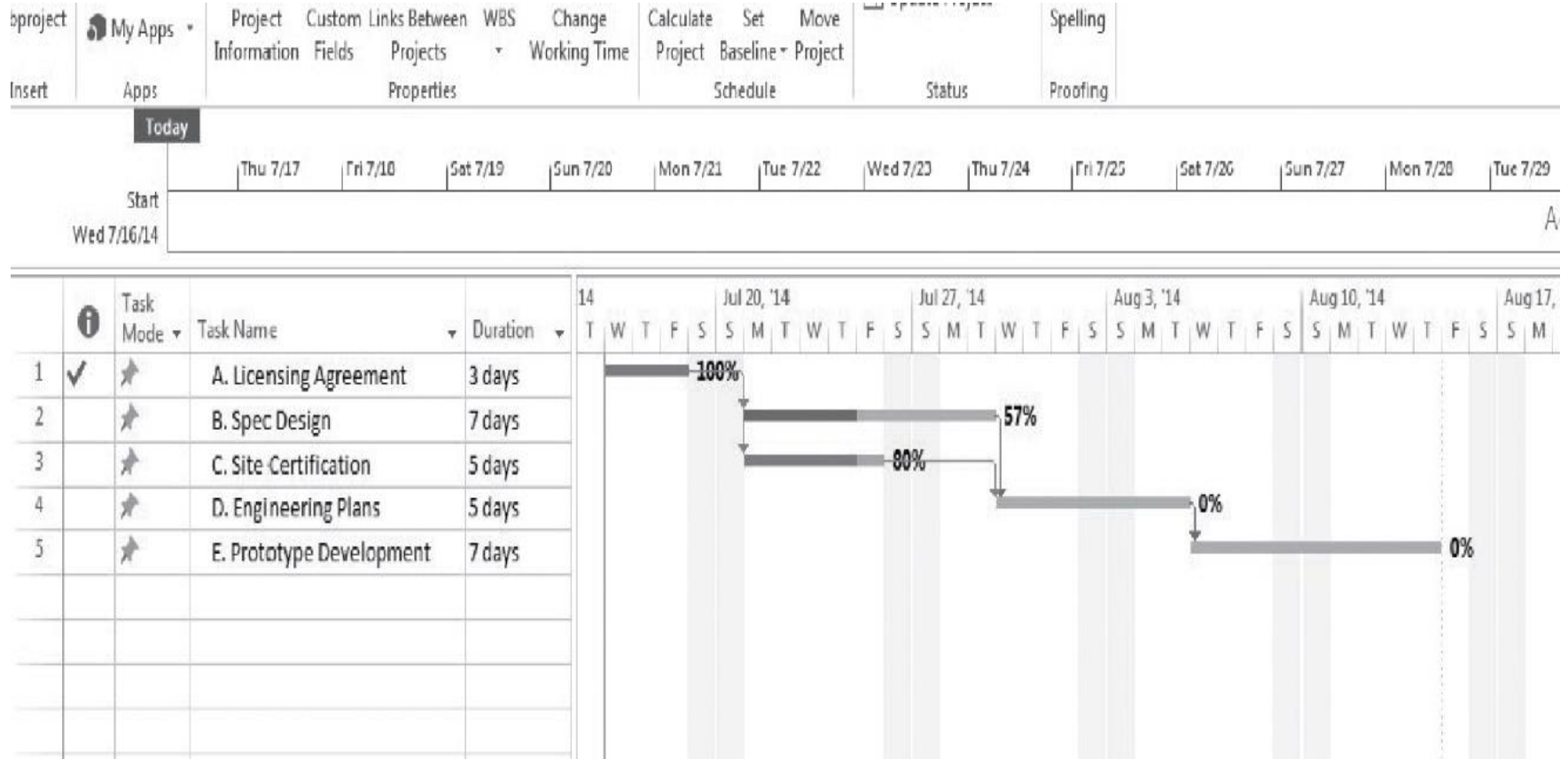
Tracking Gantt with Project Activity Deviation

(figure 13.7)
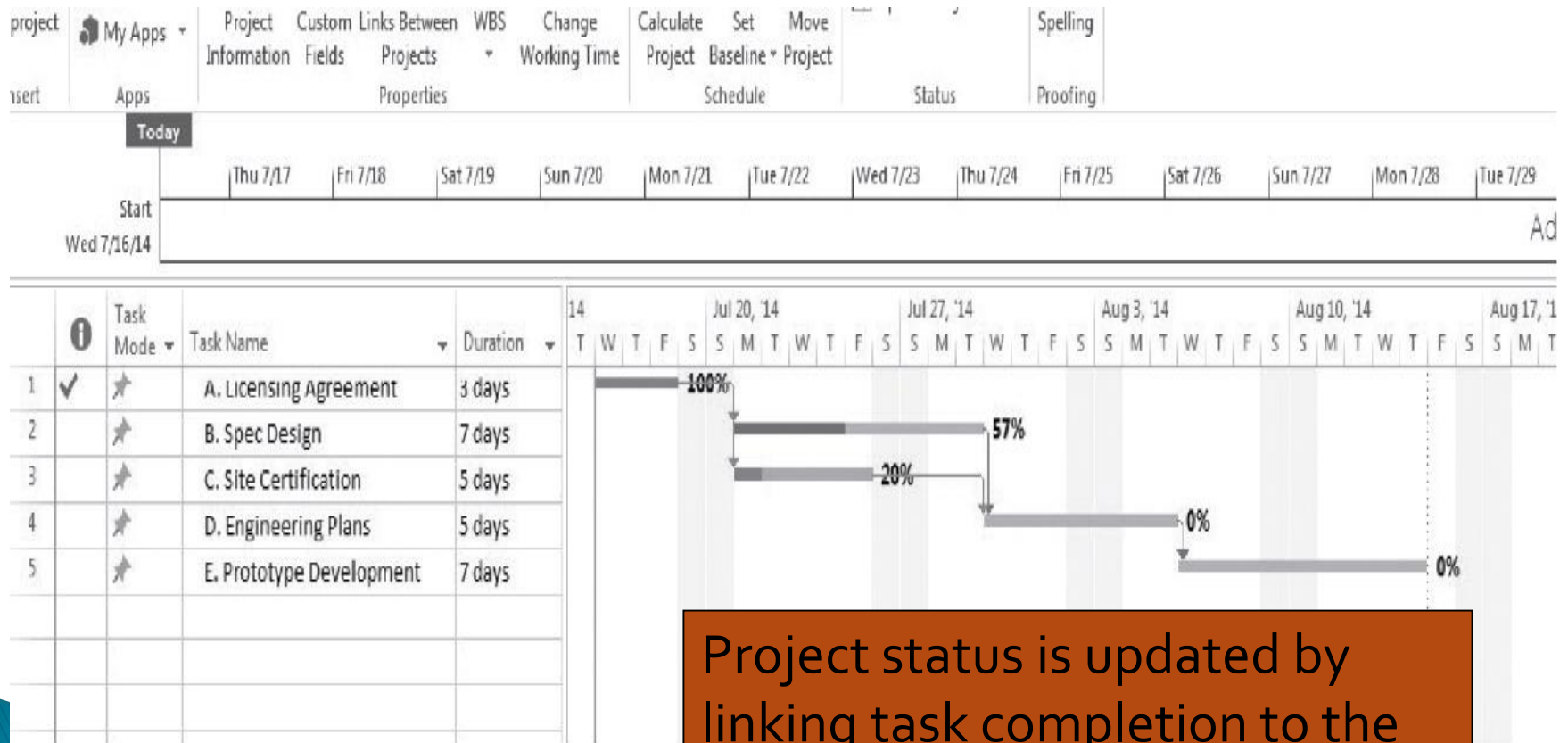
Project status is updated by linking task completion to the schedule baseline.

13-9

Earned Value Management

Earned Value Management (EVM) recognizes that it is necessary to jointly consider the impact of time, cost, and project performance on any analysis of current project status.

Earned Value (EV) directly links all three primary project success Metrics (cost, schedule, and performance).

Earned Value Terms

- Planned value (PV)

- Earned value (EV)

- Actual cost of work performed (AC)

- Schedule variance (SV) and Schedule performance index (SPI)

- Cost variance (CV) and Cost performance index (CPI)

- Budgeted cost at completion (BAC)

Steps in Earned Value Management

1. *Clearly define each activity* including its resource needs and budget.

1. *Create usage schedules* for activities and resources.

1. *Develop a time-phased budget* (PV).

1. *Total the actual costs* of doing each task (AC).

1. *Calculate* both the budget variance (CV) and schedule variance (SV).

Project Baseline, Using Earned Value

(figure 13.11)
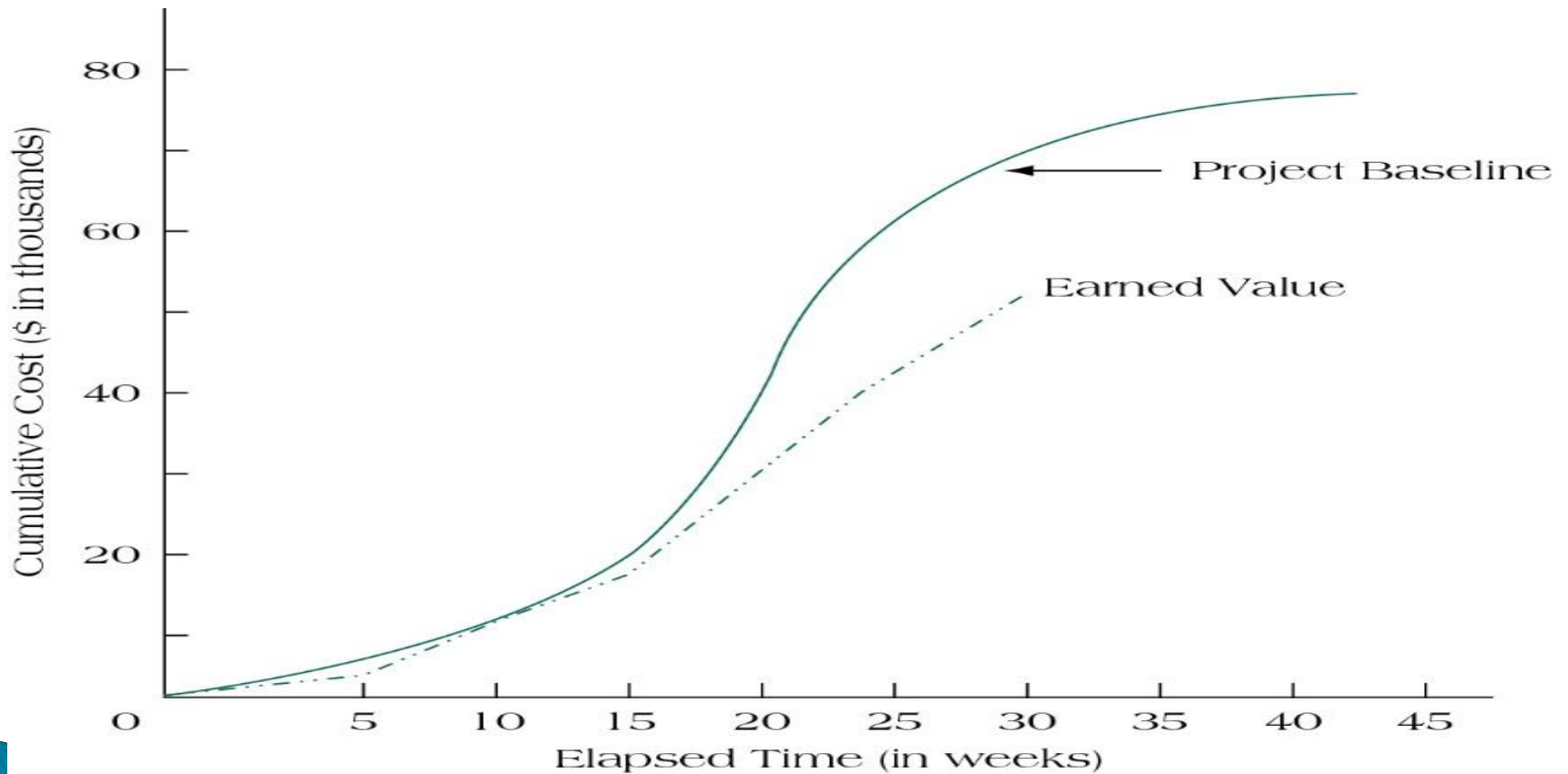
Earned Value Milestones
(figure 13.12)
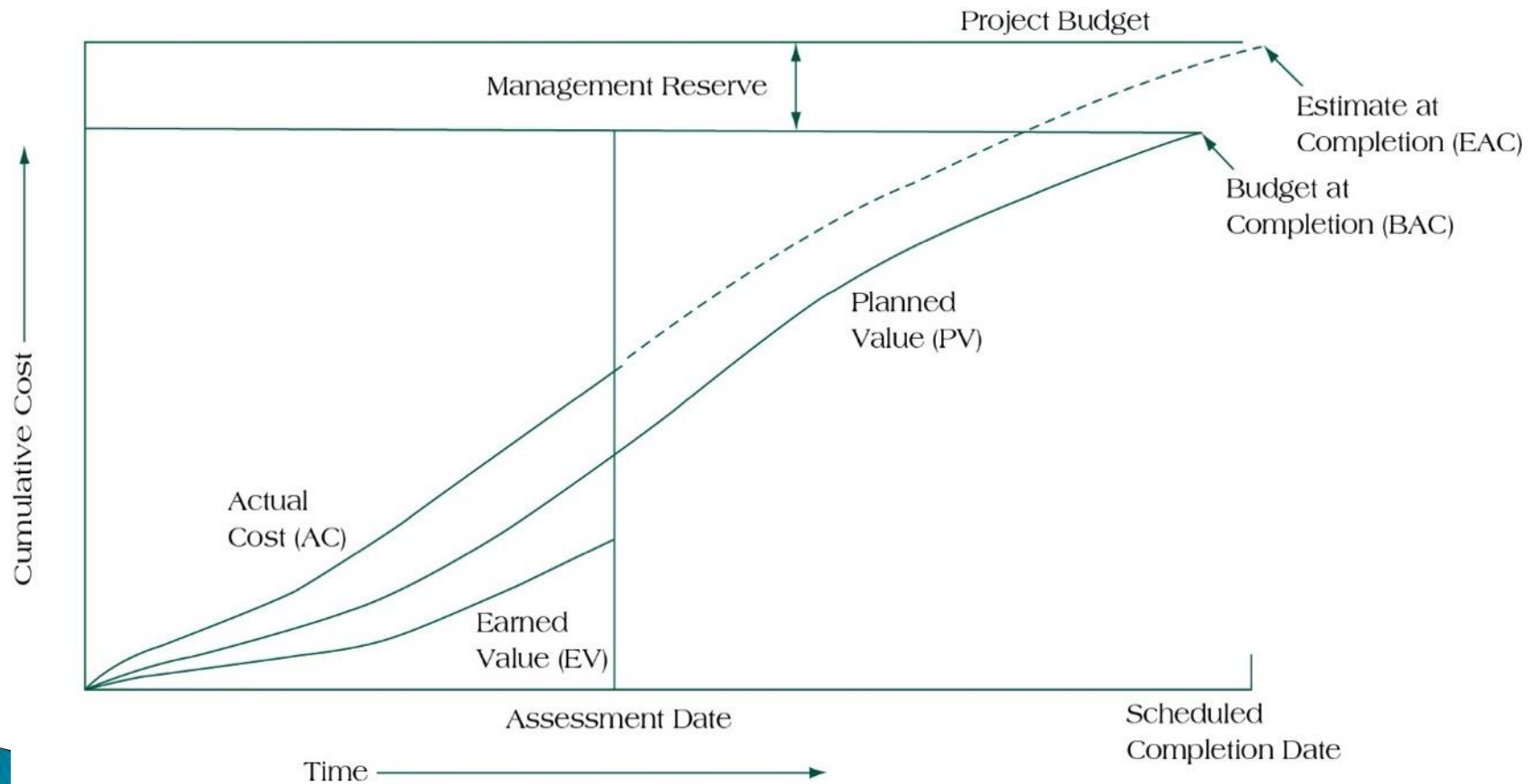
Earned Value Example

Schedule Variances

Planned Value (PV) = 103

Earned Value (EV) = 44

Schedule Performance Index = .43 = 44/103 = EV/PV

Estimated Time to Completion = (1/.43)x7=16.3 months

Cost Variances

Cumulative Actual Cost of Work Performed (AC) = 78

Cost Performance Index = .56 = 44/78 = EV/AC

Estimated Cost to Completion = $210,714 = (1/.56)x$118,000

Earned Value Report for Project Atlas

(figure 13.16)

	Task Name	Planned Value - PV (BCWS)	Earned Value - EV (BCWP)	AC (ACWP)	SV	CV	EAC	BAC
1	A. Design	$1,400.00	$1,400.00	$1,400.00	$0.00	$0.00	$1,400.00	$1,400.00
2	B. Engineering	$2,160.00	$2,160.00	$2,160.00	$0.00	$0.00	$2,160.00	$2,160.00
3	C. Testing	$864.00	$288.00	$288.00	($576.00)	$0.00	$864.01	$864.00
4	D. Certification	$0.00	$0.00	$0.00	$0.00	$0.00	$516.00	$516.00
5	E. Supplier Qualification	$1,040.00	$1,040.00	$1,040.00	$0.00	$0.00	$1,040.00	$1,040.00
6	F. Prototyping	$0.00	$0.00	$0.00	$0.00	$0.00	$1,200.00	$1,200.00

Using earned value to manage a portfolio of projects

(table 13.9)

Project	PV	EV	Time Var ($)	Var	AC	Cost Var ($)	Var +	Plan	Est. at Completion
Alpha	91	73	−18	18	83	−10	10	254	289
Beta	130	135	5	0	125	10	0	302	280
Gamma	65	60	−5	5	75	−15	15	127	159
Delta	25	23	−2	2	27	−4	4	48	56
Epsilon	84	82	−2	2	81	1	0	180	178
	395	373			391				962

Total Schedule Variance   27   Total Cost Variance 29

Relative Schedule Variance 27/395 = 6.84%   Relative Cost Variance 29/395 = 7.34%

Completion Values in EVM

Accurate and *up-to-date* information is *critical* in the use of *EVM*.

➤ 0/100 Rule

➤ 50/50 Rule

➤ Percentage Complete Rule

Human Factors in Project Evaluation & Control

- Project coordination and relations among stakeholders

- Adequacy of project structure and control

- Project uniqueness, importance, and public exposure

- Success criteria salience and consensus

- Lack of budgetary pressure

- Avoidance of initial overoptimism and

Critical Success Factors in the Project Implementation Profile

1. Project mission
2. Top management support
3. Project plans & schedules
4. Client consultation
5. Personnel
6. Technical tasks
7. Client acceptance
8. Monitoring & feedback
9. Communication channels
10. Troubleshooting