

# Information Technology Project Management – Fifth Edition

By Jack T. Marchewka  
Northern Illinois University

# Managing Project Stakeholders and Communication

Chapter 8

# Learning Objectives

---

- ▶ Describe the informal organization.
- ▶ Develop a stakeholder analysis.
- ▶ Develop a project communications plan that includes tracking the project's progress to the baseline plan and the distribution of this information to the stakeholders.
- ▶ Apply several types of reporting tools that support the communication plan.
- ▶ Apply the concept of earned value and discuss how earned value provides a means of monitoring and forecasting a project's progress.
- ▶ Describe how information may be distributed to the project stakeholders and the role information technology plays to support project communication.

While the formal organizational structure (see Chapter 4) tells us how individuals or groups within an organization should relate to one another, it does not tell us how they actually relate.

# The Informal Organization

---

- ▶ Bypasses formal lines of communication & authority
- ▶ Power is determined by how well one is connected in the informal network – i.e., the “grapevine”
- ▶ Can be more complex than the formal organization because relationships are established from positive and negative relationships over time

# Stakeholders

---

Individuals, groups, or even organizations that have a “stake” or claim in the project’s (successful or unsuccessful) outcome

# Stakeholder Analysis Process

---

1. Develop a list of stakeholders who have an interest in the successful or unsuccessful outcome of the project
2. Identify the stakeholder's interest in the project
  - ▶ “+1” for positive interest
  - ▶ “0” for neutral
  - ▶ “-1” for negative interest

# Stakeholder Analysis

---

1. Determine the degree of influence each stakeholder has on a scale of 0 (no influence) to 10 (can terminate the project)
2. Define a role for each stakeholder – e.g., champion, consultant, decision maker, ally, rival, foe, etc.



# Stakeholder Analysis

---

1. Identify an objective for each stakeholder – e.g., provide resources, guidance, expertise, acceptance, approval, etc.
2. Identify a strategy for each stakeholder – e.g., build, maintain, improve, re-establish the relationship

Stakeholder	Interest	Influence	Potential Conflicts	Role	Objective	Strategy
Hirem N. Firem	+1	5	Competition for resources with other functional managers	Project Sponsor and Champion	Provide resources, approvals, and public support for the project	To maintain open communication so that political landmines can be avoided
Dee Manitger	+1	3	Resources not made available as promised by functional managers	Project Manager	Lead and manage the project so that it achieves its MOV	Work closely with project stakeholders and project team
Project Team	+1	2	This project will change a number business processes. Affected users may resist change by withholding information	<i>Steve Turner</i> – Network Administrator <i>Shedelle Bivits</i> – Systems Analyst <i>Corean Jenkins</i> – Programmer/DBA <i>Myra Dickens</i> – Inventory Analyst	Provide expertise to complete the project work	Support project team with adequate resources while minimizing distractions
I. Will Sellit	-1	4	As the marketing manager, Sellit is not pleased that this project was chosen over his proposed project. May withhold promised resources	Foe	Build and maintain best possible relationship to minimize attempts to divert resources	Maintain open communication Use project sponsor's influence as necessary
8-10	Copyright 2015 John Wiley & Sons, Inc.					

# Monitoring and Controlling the Project

---

- ▶ Regardless of how well a project is planned, unexpected situations will require adjustments to the project schedule and budget.
- ▶ A project manager will not lose credibility because an unexpected event or situation arises. He or she will, however, lose (or gain) credibility in terms of how they handle a particular situation.

# The Project Communications Plan

---

- ▶ Can be formal or informal
- ▶ Supports all of the project stakeholders
  - ▶ Who has specific information needs?
  - ▶ What are those needs?
  - ▶ How will these needs be met?
  - ▶ When can they expect the information?
  - ▶ What will be the format?

# The Project Communications Plan

Stakeholder	Reporting Requirements	Report/Metric	Reason
Sponsor or client	During periodic review meetings <b>Time Frame:</b> Considering projects with six months or more of duration, the project sponsor can be provided with this report monthly.	Project summary, budget, earned value	Sponsor or client will be concerned primarily with the strategic indicators including overall cost and value in the project. <ul style="list-style-type: none"> <li>• Project summary report presents the overall cost that the project will incur. This report shows the baseline schedule and budget along with the actual schedule and budget and gives the project's overall status report.</li> <li>• The budget is also a top-of-view project summary of the cost for all tasks in the project.</li> <li>• Earned value report gives a top level summary of the project at a given status date. It also includes key metrics that monitor the health of the project.</li> </ul>
Project manager	At periodic intervals or even online <b>Time Frame:</b> This report can be sent to the project manager once in every two weeks for a typical six month or more project.	Earned value, project summary, slipping tasks, critical tasks, milestone, current activities reports, over budget tasks and resources	The project manager will be concerned with making both operational and strategic decisions. Therefore, reports that are primarily involved in tracking the current status of the project and its health are of utmost importance. The project manager would be required to be informed of the work progress compared to the baseline plan.
Project team	At periodic intervals <b>Time Frame:</b> Receiving this report weekly would help the team members benefit from it. They also need to get an updated copy in case of any changes in the schedule.	"Who Does What When" and "To Do List" reports	The project team would be concerned with day-to-day execution of the project. Issues like who does what and when, what is assigned to a team member would be key needs. In case of interdependent tasks, the team members can also see who performs preceding or succeeding tasks.

# The Project Communications Plan – Key Areas

- ▶ Stakeholders – have a “stake” or a claim in the project’s outcome
- ▶ Information Requirements – Driven by stakeholder needs information requirements will vary by project but typically focus on scope, schedule, budget, quality, and risk.
- ▶ Type of report or metric – Dependent upon stakeholder information requirements. Can take the form of formal or informal reviews of deliverables, milestones, newsletters or other forms as needed.
- ▶ Timings/Availabilities – Set expectations for stakeholders. Should let people know when they will know.
- ▶ Medium or format – Defines how the information will be provided, for example, paper reports, face-to-face-meetings, emails, etc.

# Project Metrics

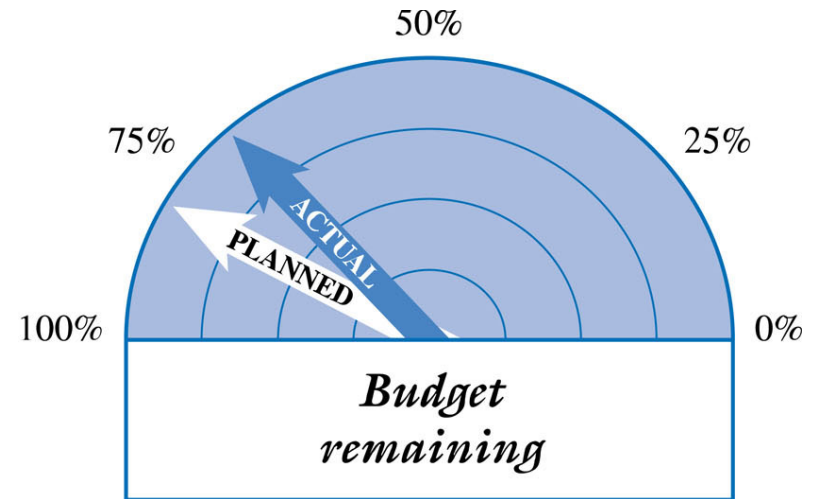
---

- ▶ **Project Metric**
  - ▶ A qualitative measurement of some attribute of the project.
- ▶ **Project metrics should focus on the following key areas:**
  - ▶ Scope
  - ▶ Schedule
  - ▶ Budget
  - ▶ Resources
  - ▶ Quality
  - ▶ Risk

# A Good Project Metric Must Be...

---

- ▶ Understandable
  - ▶ Intuitive
- ▶ Quantifiable
  - ▶ Objective (no bias)
- ▶ Cost Effective
  - ▶ Easy and inexpensive to create
- ▶ Proven
  - ▶ What gets measured gets done
- ▶ High Impact
  - ▶ Otherwise why bother?





# Project Measurement Systems Should...

---

- ▶ Allow the team to gauge its own progress
- ▶ Be designed by the project team
- ▶ Adopt and use only a handful of measures
- ▶ Track results and progress

# Burn-Down Chart

---

- ▶ Popular in Agile software development methods like Scrum or XP
- ▶ Shows how the scope, features or functionality, or work is being completed over time
- ▶ Visually displays the amount of work that can be delivered in a single iteration
- ▶ Helps to predict when project work will be completed

# Burn-Down Chart

---

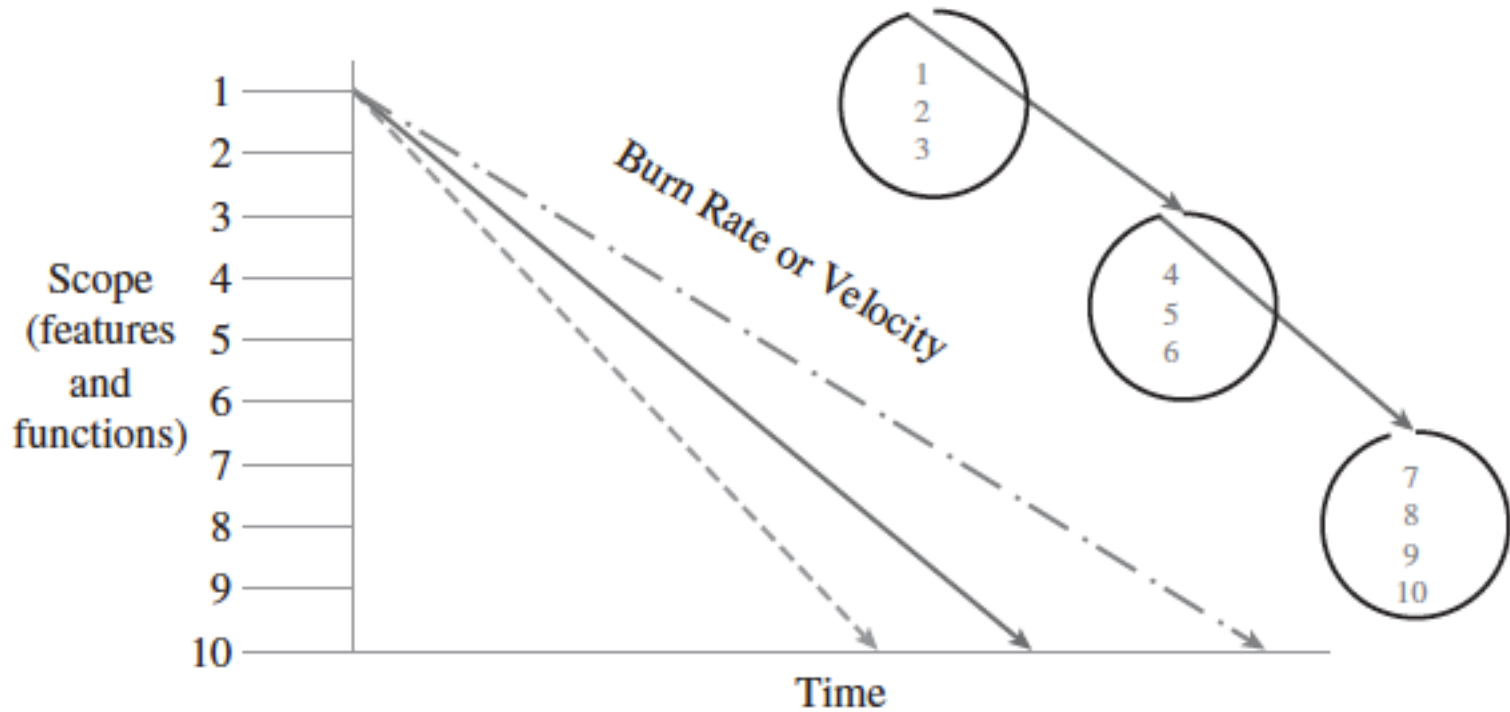


Figure 8-4

# Earned Value

---

- ▶ Suppose you just signed a contract with a consulting firm called Dewey, Cheatem, and Howe for developing an IS.
- ▶ Project Budget, Schedule, Tasks
  - ▶ \$40,000
  - ▶ 4 months
  - ▶ 20 Tasks (evenly divided over 4 months)
    - ▶ \$2,000 per task
    - ▶ 5 tasks per month

# The Planned Project Schedule And Budget

Task	Month 1	Month 2	Month 3	Month 4
1	\$2,000			
2	\$2,000			
3	\$2,000			
4	\$2,000			
5	\$2,000			
6		\$2,000		
7		\$2,000		
8		\$2,000		
9		\$2,000		
10		\$2,000		
11			\$2,000	
12			\$2,000	
13			\$2,000	
14			\$2,000	
15			\$2,000	
16				\$2,000
17				\$2,000
18				\$2,000
19				\$2,000
20				\$2,000
<b>Total</b>	<b>\$10,000</b>	<b>\$10,000</b>	<b>\$10,000</b>	<b>\$10,000</b>

# Earned Value Concepts

---

## ▶ Planned Value (PV)

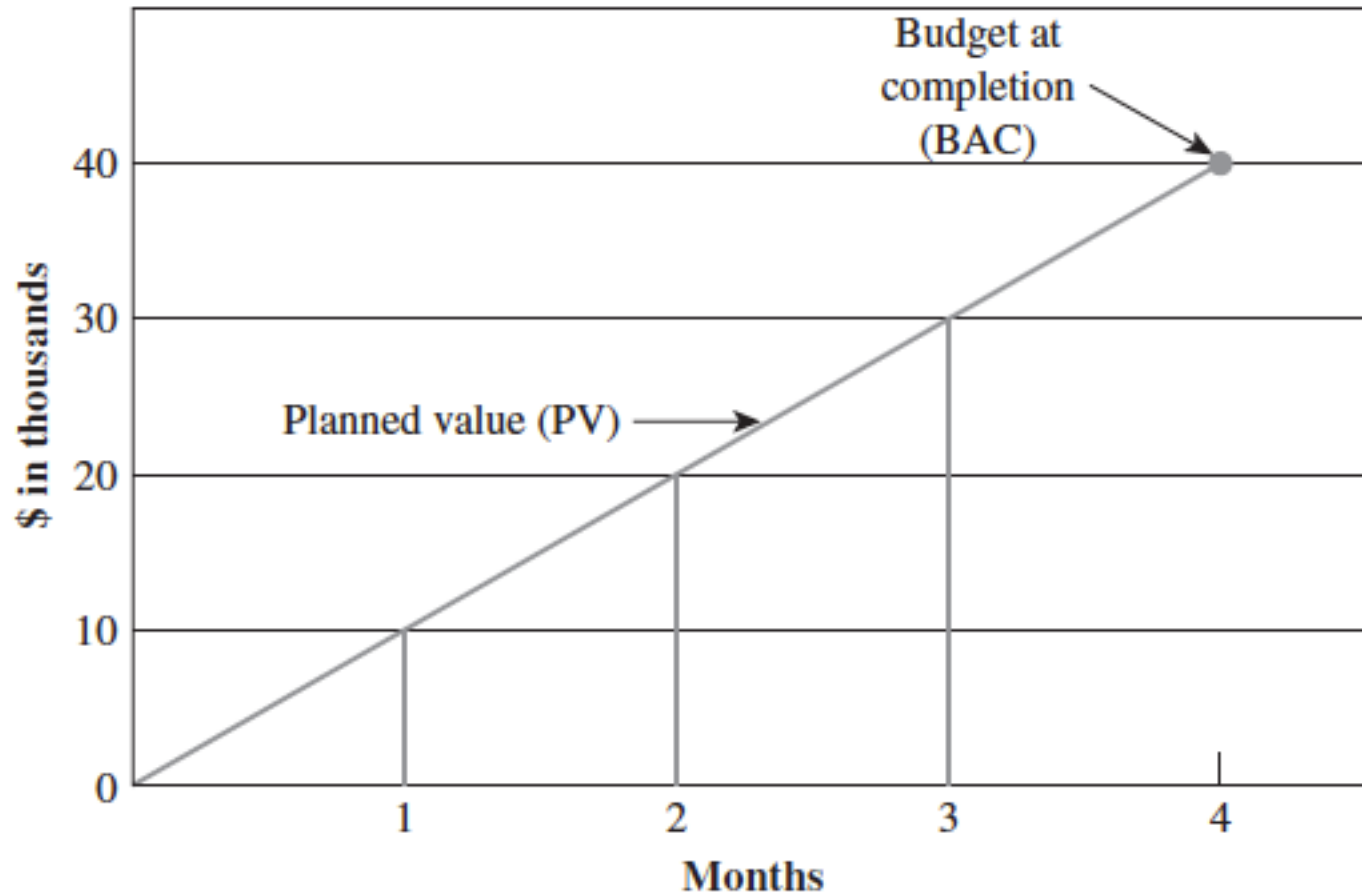
- ▶ The planned or budgeted cost of work scheduled for an activity or component of the WBS
  - ▶ In our case, our planned value for each task is \$2,000
  - ▶ The planned value for each month is \$10,000

## ▶ Budgeted At Completion (BAC)

- ▶ The total budget for our project
  - ▶ In our case, \$40,000 is our BAC since this is what we expect to pay for the completed project
  - ▶ The BAC is the total cumulative planned value

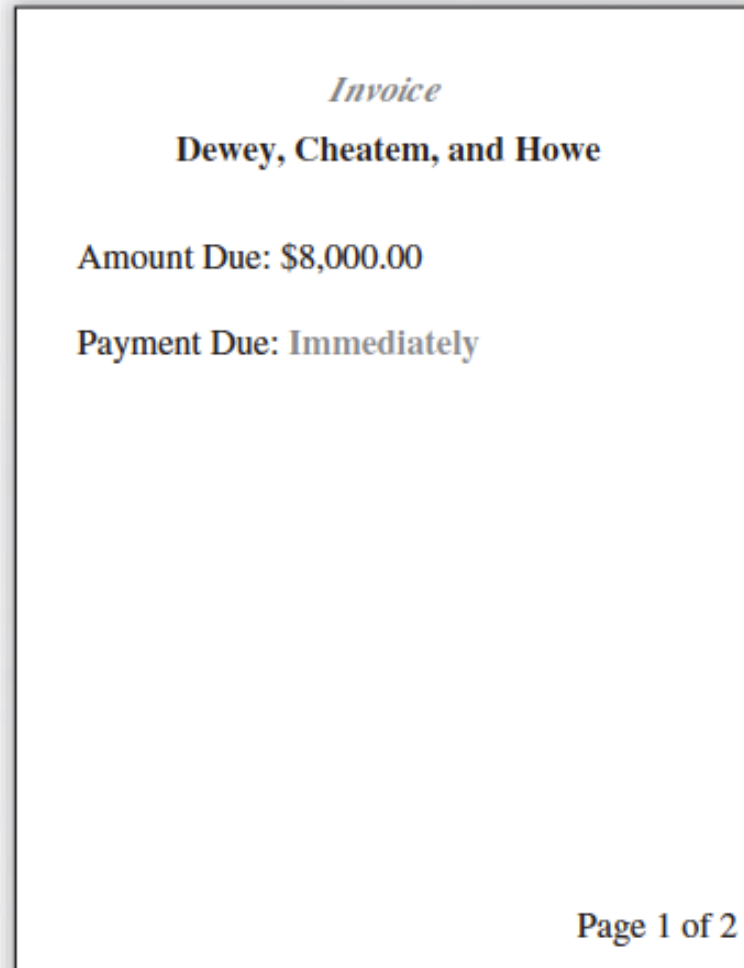
# Planned Budget

---



At the end of Month 1, we received the following invoice...

---





## This Looks Like Good News!

---

- ▶ We expected to pay \$10,000 but we're only being billed for \$8,000
  - ▶ Are we really ahead of our budgeted or planned value by \$2,000?
- ▶ It depends on what work was accomplished for the \$8,000 that is due

# Therefore, we need to look at the rest of the invoice to be sure

---

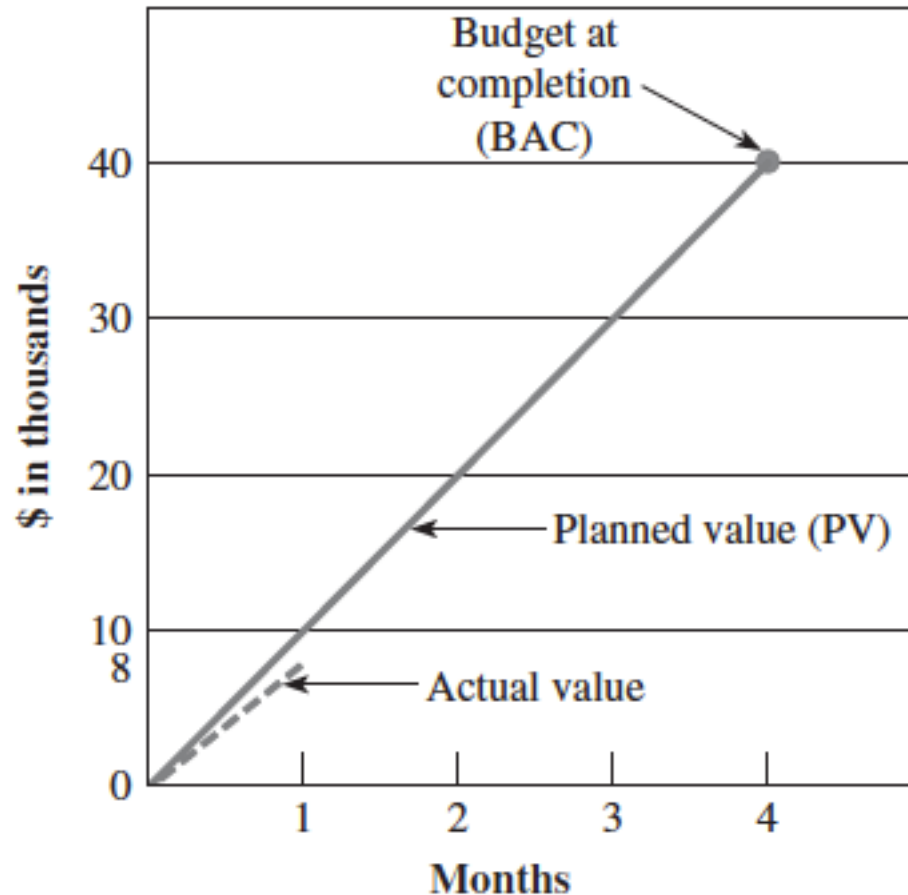
It appears that only three of the five tasks scheduled to be completed in Month 1 were completed as planned. In fact, two of the tasks cost more to complete than originally estimated.

***Maybe things are not as good as we thought!***

<i>Invoice</i>	
<b>Dewey, Cheatem, and Howe</b>	
<u>Work Completed for Month 1</u>	
Task 1:	\$2,000
Task 2:	\$3,000
Task 3:	\$3,000

Page 2 of 2

# Planned Value versus Actual Cost



# Some More Earned Value Concepts

---

## ▶ Actual Cost (AC)

- ▶ The actual cost incurred for completing an activity or component of the WBS
  - ▶ For example, the actual cost for completing task 2 is \$3,000
  - ▶ Or, we have to write a check for \$8,000 for the three tasks that were completed in Month 1

## ▶ Earned Value (EV)

- ▶ A performance measurement that tells us how much of the budget we really should have spent for the work that was completed
- ▶ We need to pay our consultants \$8,000 in actual costs even though we should be paying them only \$6,000
- ▶ This \$6,000 is called the earned value

# Planned, Actual, & Earned Values for Month 1

Task	Planned Value	Actual Value	Earned Value
1	\$2,000	\$2,000	\$2,000
2	\$2,000	\$3,000	\$2,000
3	\$2,000	\$3,000	\$2,000
4	\$2,000		
5	\$2,000		
Cumulative	\$10,000	\$8,000	\$6,000

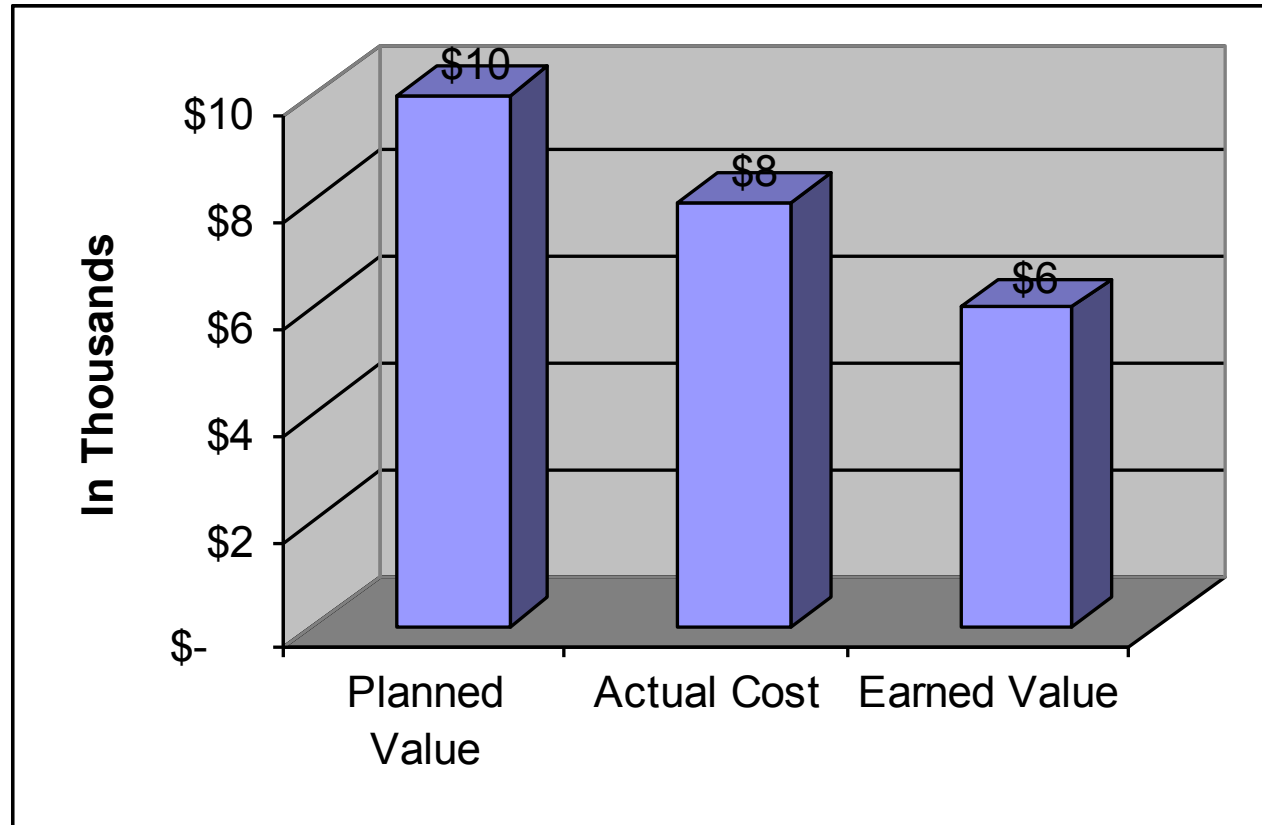
↑  
What we  
planned to pay

↑  
What we  
have to pay

↑  
What we  
should to pay

# Comparison of Planned Value, Actual Cost, and Earned Value

---



We are spending \$8,000 to achieve \$6,000 worth of work!

# Cost Metrics

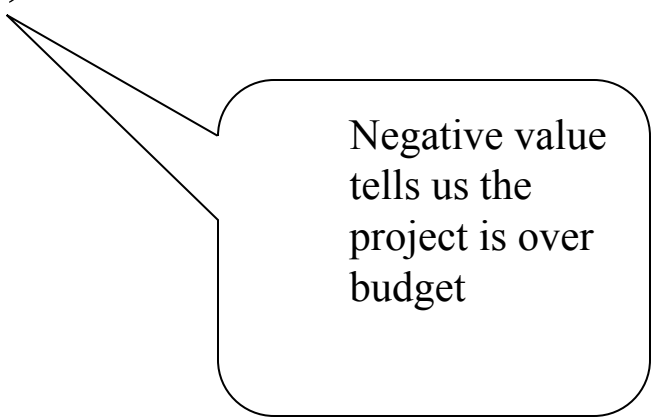
---

- ▶ **Cost Variance (CV)**-the difference between a task's or WBS component's estimated cost and its actual cost:
  - $CV = EV - AC$ 
    - Negative Value = over budget
    - Positive Value = under budget
    - Value = 0 means project is right on budget
- ▶ **Cost Performance Index (CPI)**-percentage of work completed per dollar spent
  - $CPI = EV \div AC$ 
    - ratio  $> 1$  = ahead of budget
    - ratio  $< 1$  = behind budget (cost overrun)
    - Ratio = 1 means project is right on budget

# Cost Metrics

---

$$\begin{aligned}\text{Cost Variance (CV)} &= \text{EV} - \text{AC} \\ &= \$6,000 - \$8,000 \\ &= (\$2,000)\end{aligned}$$



Negative value  
tells us the  
project is over  
budget



# Cost Metrics

---

$$\begin{aligned}\text{Cost Performance Index (CPI)} &= \text{EV} / \text{AC} \\ &= \$6,000 / \$8,000 \\ &= .75\end{aligned}$$

ratio < 1 = the project is over budget

For every \$1 spent, only \$0.75 of the work we budgeted was really completed.

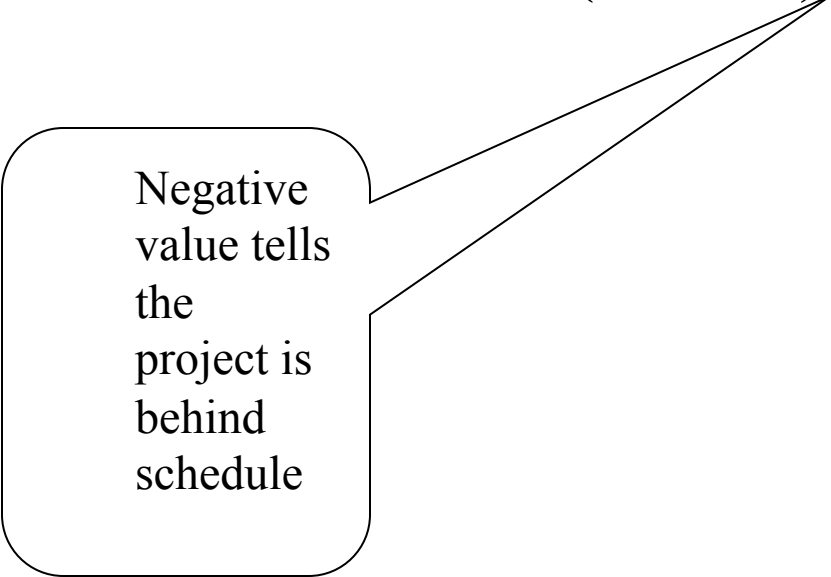
# Schedule Metrics

---

- ▶ **Schedule Variance (SV)** – the difference between the current progress of the project and its original or planned schedule
  - $SV = EV - PV$ 
    - Negative Value = behind schedule
    - Positive Value = ahead of schedule
    - Value = 0 means project is right on schedule
- ▶ **Schedule Performance Index (SPI)** – a ratio of the work performed to the work scheduled.
  - $SPI = EV \div PV$
  - ratio  $> 1$  = ahead of schedule
  - ratio  $< 1$  = behind schedule
  - Ratio = 1 means our project is right on schedule

# Schedule Metrics

$$\begin{aligned}\text{Schedule Variance (SV)} &= \text{EV} - \text{PV} \\ &= \$6,000 - \$10,000 \\ &= (\$4,000)\end{aligned}$$



Negative  
value tells  
the  
project is  
behind  
schedule

# Schedule Metrics

---

$$\begin{aligned}\text{Schedule Performance Index (SPI)} &= \text{EV/PV} \\ &= \$6,000 / \$10,000 \\ &= .60\end{aligned}$$

ratio < 1 tells us  
the project is  
behind schedule

For every \$1.00 of  
work that was  
expected to be  
completed, only  
\$0.60 was  
accomplished.

## Summary of Project Performance Metrics

<b>Task</b>	<b>Planned Value PV</b>	<b>Actual Cost AC</b>	<b>Earned Value EV</b>	<b>Cost Variance CV</b>	<b>Schedule Variance SV</b>	<b>Cost Performance Index CPI</b>	<b>Schedule Performance Index SPI</b>
1	\$2,000	\$2,000	\$2,000	-0-	-0-	1.00	1.00
2	\$2,000	\$3,000	\$2,000	(\$1,000)	-0-	0.67	1.00
3	\$2,000	\$3,000	\$2,000	(\$1,000)	-0-	0.67	1.00
4	\$2,000				(\$2,000)	-	0.00
5	\$2,000				(\$2,000)	-	0.00
<b>Cumulative</b>	<b>\$10,000</b>	<b>\$8,000</b>	<b>\$6,000</b>	<b>(\$2,000)</b>	<b>(\$4,000)</b>	<b>0.75</b>	<b>0.60</b>

# Estimate at Completion (EAC)

---

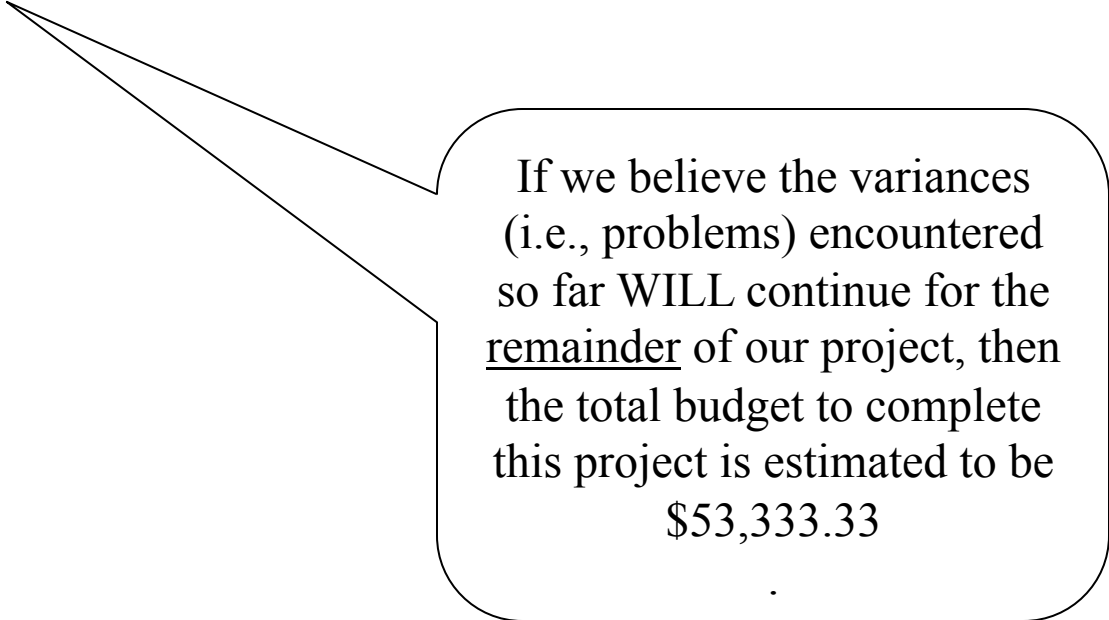
- ▶ Estimates the most likely total or final value based on our project's performance and any risks that should be considered
  - ▶ We can either revise the whole budget and schedule and start over,... or
  - ▶ We can use the project's current performance metrics to develop a more realistic picture
    - ▶ Depends on whether we believe these variances are typical and expected to continue or atypical – i.e., we don't expect variances or problems as we continue with the project.

# Estimate At Completion (EAC)

---

## ▶ EAC (typical variances)

$$\begin{aligned} &= \text{Cumulative AC} + ((\text{BAC} - \text{Cumulative EV}) / \text{Cumulative CPI}) \\ &= \$8,000 + (\$40,000 - \$6,000) / .75 \\ &= \$53,333.33 \end{aligned}$$



If we believe the variances (i.e., problems) encountered so far WILL continue for the remainder of our project, then the total budget to complete this project is estimated to be \$53,333.33

# Estimate At Completion (EAC)

---

## ▶ EAC (atypical variances)

$$\begin{aligned} &= \text{Cumulative AC} + (\text{BAC} - \text{Cumulative EV})/\text{SPI} * \text{CPI} \\ &= \$8,000 + (\$40,000 - \$6,000)/(.75 * .60) \\ &= \$65,500.00 \end{aligned}$$

If we believe the variances (i.e., problems) encountered so far WILL NOT continue for the remainder of our project, then the total budget to complete this project is estimated to be \$65,500.00



## Variance At Completion (VAC)

---

- ▶  $VAC (CPI \text{ only}) = BAC - EAC$  (*typical variances*)  
= \$40,000 - \$53,333  
= (\$13,333)

Or, if considering the effect of both the CPI and SPI then use the calculation below:

- ▶  $VAC (CPI \text{ and } SPI) = BAC - EAC$  (*atypical variances*)  
= \$40,000 - \$65,000  
= (\$25,000)

# To Complete Performance Index – For the original BAC

---

▶  $TCPI = (BAC - EV)/(BAC - AC)$   
 $= (\$40,000 - \$60,000)/(\$40,000 - \$8,000)$   
 $= 1.06$

# To Complete Performance Index – For the EAC with typical and atypical variances

---

▶ TCPI (*CPI only*) =  $(BAC - EV)/(EAC - AC)$   
=  $(\$40,000 - \$6000)/(\$53,333 - \$8,000)$   
= .75

Or, if considering the effect of both the CPI and SPI then use the calculation below:

▶ TCPI (*CPI and SPI*) =  $(BAC - EV)/(EAC - AC)$   
=  $(\$40,000 - \$6000)/(\$65,000 - \$8,000)$   
= .59

# Table 8-4 Earned Value Analysis

Earned Value Metrics	Description	Amount/Formula	Value	Analysis
<i>Actual Performance to Baseline Plan</i>				
Budget At Completion (BAC)	Total Planned budget	Given	\$40,000	
Planned Value (PV)	Amount authorized to spend	Given	\$10,000	
Actual Cost (AC)	Actual cost of work performed	Given	\$8,000	
Earned Value (EV)	Amount that should have been spent on the work completed	Given	\$6,000	
Schedule Variance (SV)	Amount ahead or behind schedule	$SV = EV - PV$	\$(4,000)	A negative SV indicates the project is behind schedule
Cost Variance (CV)	Budget surplus or deficit	$CV = EV - AC$	\$(2,000)	A negative CV indicates the project is over budget
Schedule Performance Index (SPI)	Efficiency indicator of how well team is using the planned schedule	$SPI = EV/PV$	0.60	A SPI <1 indicates the project is behind schedule
Cost Performance Index (CPI)	Efficiency indicator of how well project resources are consuming the budget	$CPI = EV/AC$	0.75	A CPI <1 indicates the project is over budget
<i>Projected Performance Based on Actual Performance</i>				
Estimate at Completion (EAC) (CPI only)	The projected total cost of the project if CPI remains the same	$EAC = AC + (BAC - EV)/CPI$	\$53,333	If the current CPI continues, the project will cost \$53,333
Estimate at Completion (EAC) (CPI and SPI)	A worst case that considers the efficiency of both the schedule and budget	$EAC = AC + (BAC - EV)/(CPI + SPI)$	\$65,500	If both the SPI and CPI continue to influence the project, the project will cost \$65,500

(continued)

# Table 8-4 Earned Value Analysis (continued)

Earned Value Metrics	Description	Amount/Formula	Value	Analysis
Estimate to Complete (ETC)	The projected cost to complete the remaining work of the project. (CPI Only)	$ETC = EAC - AC$	\$45,333	If the current CPI continues, \$45,333 will be needed to complete the project
	(SPI and CPI)	$ETC = EAC - AC$	\$57,500	If both the SPI and CPI continue to influence the project, \$57,500 will be needed to complete the project
Variance at Completion (VAC)	The projected budget surplus or budget (CPI only)	$VAC = BAC - EAC$	\$(13,333)	If the current CPI continues, the project will be \$13,333 over budget
	The projected budget surplus or budget (CPI and SPI)	$VAC = BAC - EAC$	\$(25,500)	If both the SPI and CPI continue, the project will be \$25,500 over budget
To Complete Performance Index (TCPI)	An efficiency measure that compares the work remaining (BAC - EV) to the remaining funds (BAC - AC) based on the BAC	$TCPI = (BAC - EV) / (BAC - AC)$	1.06	TCPI > 1 so the project will be more difficult to complete with remaining budget
	An efficiency measure that compares the work remaining (BAC - EV) to the remaining funds (EAC - AC) based on the EAC	$TCPI = (BAC - EV) / (EAC - AC)$	0.75	TCPI < 1 so the project will be easier to complete with new EAC. (CPI Only)
			0.59	TCPI < 1 so the project will be easier to complete with new EAC. (SPI and CPI)

## Another way to calculated Earned Value...

---

- ▶ In terms of completion of the planned value
- ▶ Just multiply the planned value (PV) of an activity, task, or WBS component by its percentage of completion

# Earned Value = PV \* Percent Complete

---

<b>Task</b>	<b>Planned Value</b>	<b>Percent Complete</b>	<b>Earned Value</b>
A	\$1,000	100%	\$1,000
B	\$1,500	100%	\$1,500
C	\$2,000	75%	\$1,500
D	\$800	50%	\$400
E	\$1,200	50%	\$600
Cumulative	\$6,500		\$5,000

# Reporting Performance and Progress

## Reporting Categories

---

- ▶ **Reviews**
  - ▶ May be formal or informal and include various project stakeholders. Purpose is to not only show evidence that the project work has been completed, but also that the work has been completed according to certain standards or agreed-upon requirements.
- ▶ **Status & Progress Reporting**
  - ▶ Describes the present state of the project. In general, a status report compares the project's actual progress to the baseline plan.
- ▶ **Progress Reporting**
  - ▶ Tells us what the project team has accomplished
- ▶ **Forecast Reporting**
  - ▶ Focuses on predicting the future status or progress of the project



# Information Distribution

---

- ▶ Face-to-Face Meetings (F2F)
- ▶ Telephone, electronic mail, other wireless devices
- ▶ Collaboration technology
  - ▶ Project blog, wiki, or instant messaging

# Communication and Collaboration Matrix

