

# **FOLDER 5:**

## **PROJECT MONITORING & PERFORMANCE REPORTING**

### **(EARNED VALUE MANAGEMENT)**



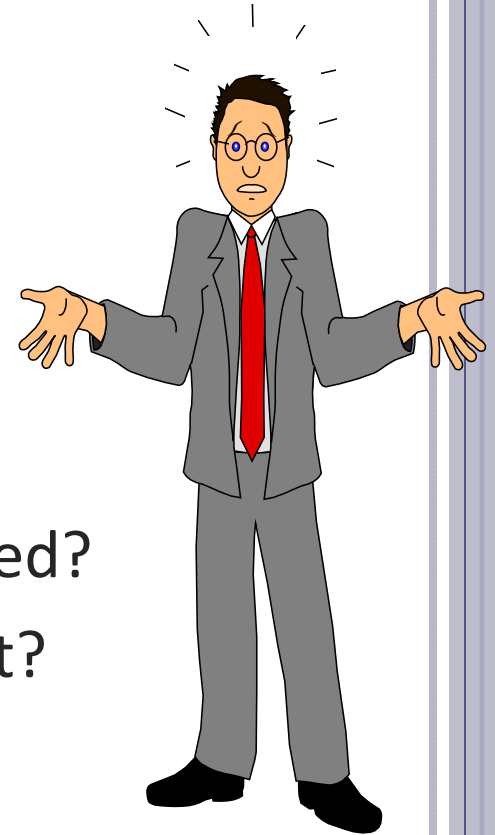
## LAPORAN SKALA JKR

Berdasarkan kaedah *Earn Value* iaitu:

- Planned Value (PV) = Rancangan Kewangan Kontrak (RKK)
- Earned Value (EV) = Nilai Kerja Sebenar
- Status Varian Kemajuan =  $EV - PV$
- Status *delay @ ahead* berdasarkan pengiraan *schedule variances* (berbeza dengan pengiraan *delay @ ahead* menggunakan CPM)

# HOW TO ANSWER OTHER QUESTIONS?

1. Are we ahead of or behind schedule?
2. How efficiently are we using our time?
3. Are we under or over budget?
4. How efficiently are we using our resources?
5. When is the project likely to be completed?
6. What is the remaining work likely to cost?
7. What is the entire project likely to cost?
8. How much will we be under or over budget?



# Earned Value Management

## What Is It?

- Project management technique for measuring project performance and progress in an objective manner
- Has the ability to combine measurements of scope, schedule, and cost in a single integrated system

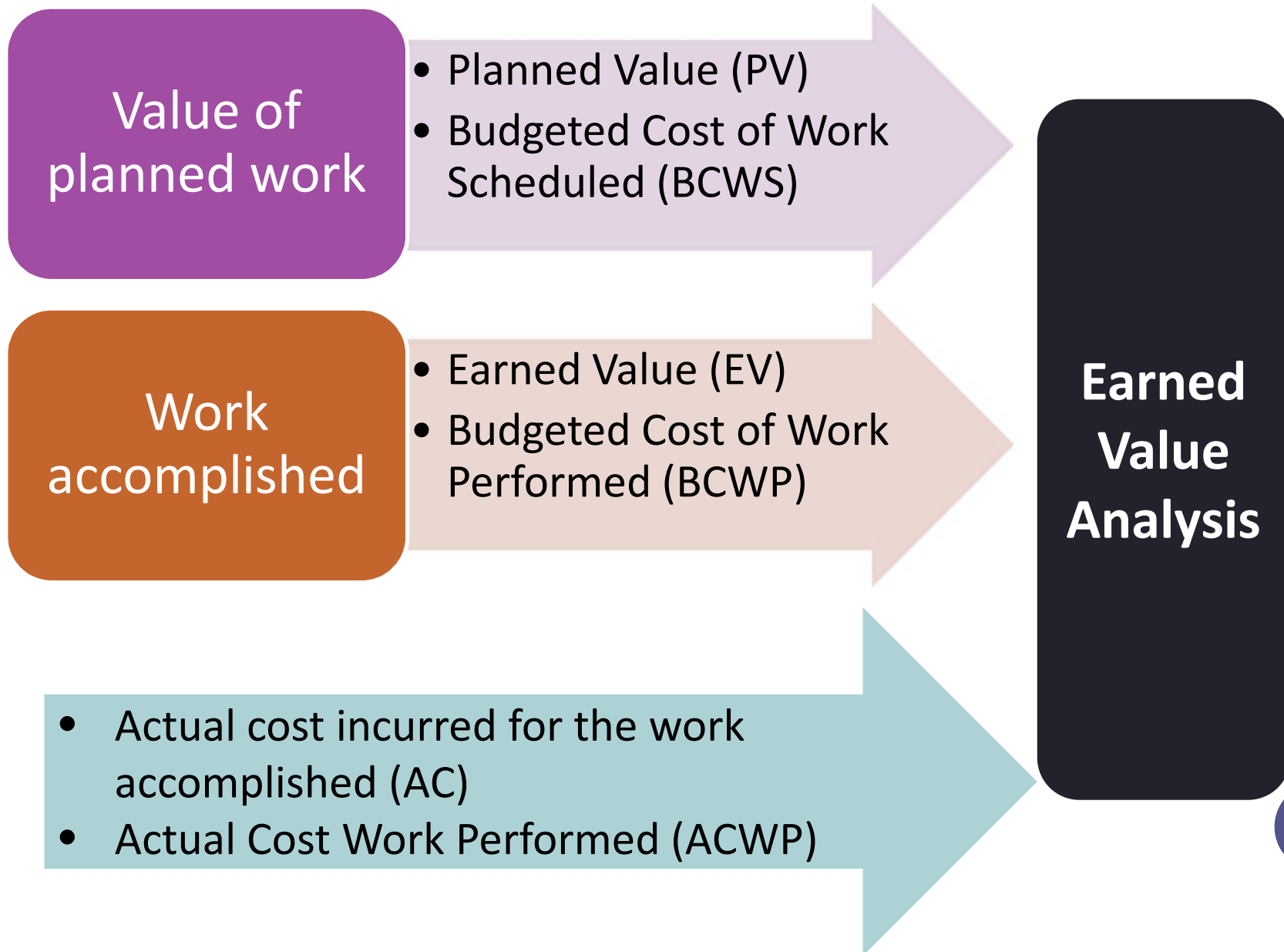
# Earned Value Management

It comprises of:

- **Earned Value Analysis (EVA)**
  - Progress tracking
  - Forecasting
- **Earned Value Technique (EVT)**
  - Physical works (tangible)
  - Non-physical works (in-tangible)



# Earned Value Analysis



# Some Derived Metrics

## ➔ **SV: Schedule Variance (EV - PV)**

- A comparison of amount of work performed during a given period of time to what was scheduled to be performed.
- A negative variance means the project is behind schedule

## ➔ **CV: Cost Variance (EV - AC)**

- A comparison of the budgeted cost of work performed with actual cost.
- A negative variance means the project is over budget.

# Schedule Variance & Cost Variance

$$\text{Schedule Variance} = \text{EV} - \text{PV}$$

$$\begin{array}{r} \$49,000 \\ - 55,000 \\ \hline \text{SV} = - \$6,000 \end{array}$$

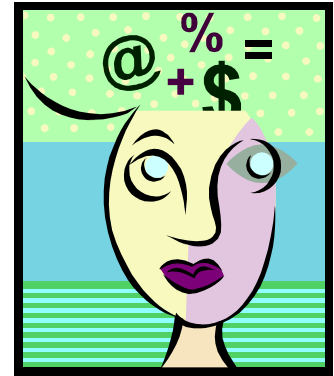


$$\text{Cost Variance} = \text{EV} - \text{AC}$$

$$\begin{array}{r} \$49,000 \\ \underline{56,000} \\ \text{CV} = - \$7,000 \end{array}$$



# PROGRESS TRACKING USING EARN VALUE



Schedule Performance Index (SPI):

$$\text{EV/PV} = 310,230/400,920 = 0.77$$

**If > 1 = Ahead; < 1 = Behind**

Cost Performance Index (CPI):

$$\text{EV/AC} = 310,230/254,389 = 1.22$$

**If > 1 = Under budget; < 1 = Over budget**



## FORECASTING COMPLETION USING EARN VALUE

- **Time Estimate at Completion ( $EAC_t$ )**

= Project duration/SPI  
= 12 months/0.77  
= 15.6 months

- **Time Variance at Completion ( $VAC_t$ )**

=  $EAC_t$  - Project duration  
= 15.6 - 12 months  
= 3.6 months *(yg diperlukan utk siapkan projek)*



## FORECASTING COMPLETION USING EARN VALUE

- **Estimate at Completion (EAC)**

= Budget at Completion/CPI

= RM1m/1.22

= RM0.82m

- **Variance at Completion (VAC)**

= EAC – Budget at Completion

= RM0.82 – RM1m

= -RM0.18m (*penjimatan*)

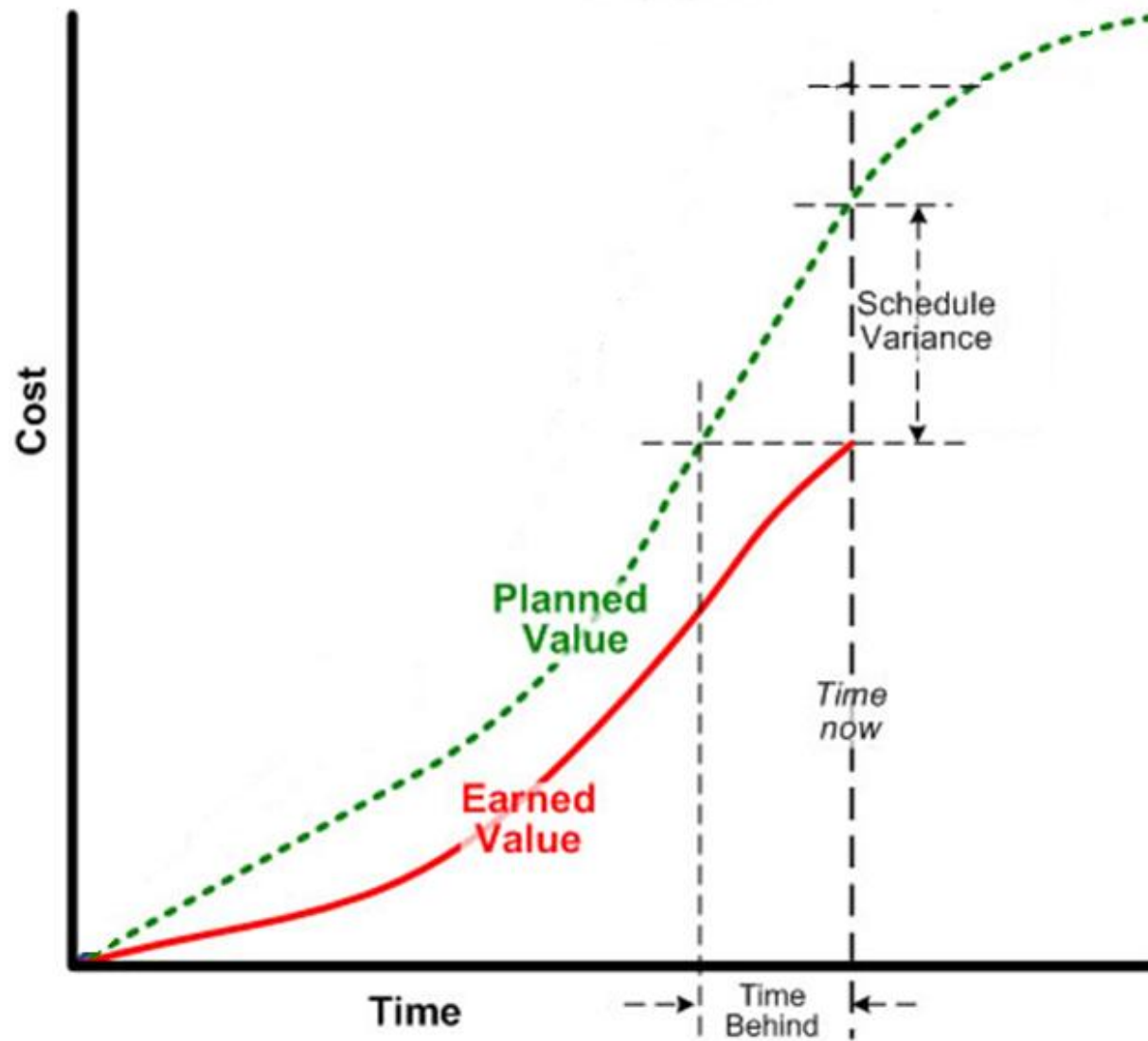
- **Estimate to Complete (ETC)**

= EAC – AC

= RM0.82m – RM0.254m

= RM0.566m

## Financial S-Curve: PV, EV



# Earned Value Technique

PHYSICAL WORKS (TANGIBLE)	NON PHYSICAL WORKS (INTANGIBLE)
1. FIXED FORMULA	1. APPORTIONED EFFORT
2. WEIGHTED MILESTONE	2. LEVEL OF EFFORT (LOE)
3. % COMPLETE	



# Physical Work (Tangible)

FIXED FORMULA	WEIGHTED MILESTONE	% COMPLETE
<ul style="list-style-type: none"><li>• Works with short duration</li></ul>	<ul style="list-style-type: none"><li>• Suitable for longer duration tasks that have intermediate products</li></ul>	<ul style="list-style-type: none"><li>• Long duration works</li></ul>
<ul style="list-style-type: none"><li>• A fixed % of work performance is credited at the start of work and the remaining % at the completion of work</li></ul>	<ul style="list-style-type: none"><li>• Work is divided into segments with a clear milestone</li></ul>	<ul style="list-style-type: none"><li>• Worker/Manager makes estimate of % of work complete</li></ul>
	<ul style="list-style-type: none"><li>• Assign value to achievement of each milestone</li></ul>	<ul style="list-style-type: none"><li>• Pay according to work done</li></ul>

# Non- Physical Work (Intangible)

APPORTIONED EFFORT	LEVEL OF EFFORT
<ul style="list-style-type: none"><li>• Work that run concurrently with physical work that has its own EV</li></ul>	<ul style="list-style-type: none"><li>• Based on schedule progress</li></ul>
<ul style="list-style-type: none"><li>• Work that has relationship with a physical work</li></ul>	<ul style="list-style-type: none"><li>• For supporting works such as maintenance site office, work program</li></ul>
<ul style="list-style-type: none"><li>• Work such as quality assurance or inspection activities</li></ul>	

**Report right thing at right time to the  
right person!!!**

**DON'T JUST WRITE FOR FILES**





Do you have any  
questions? Thank you  
for your attention