

# 'Earned Value' in 45 minutes

Session CSC.19

*2003 AACEi Conference  
Orlando, Florida*

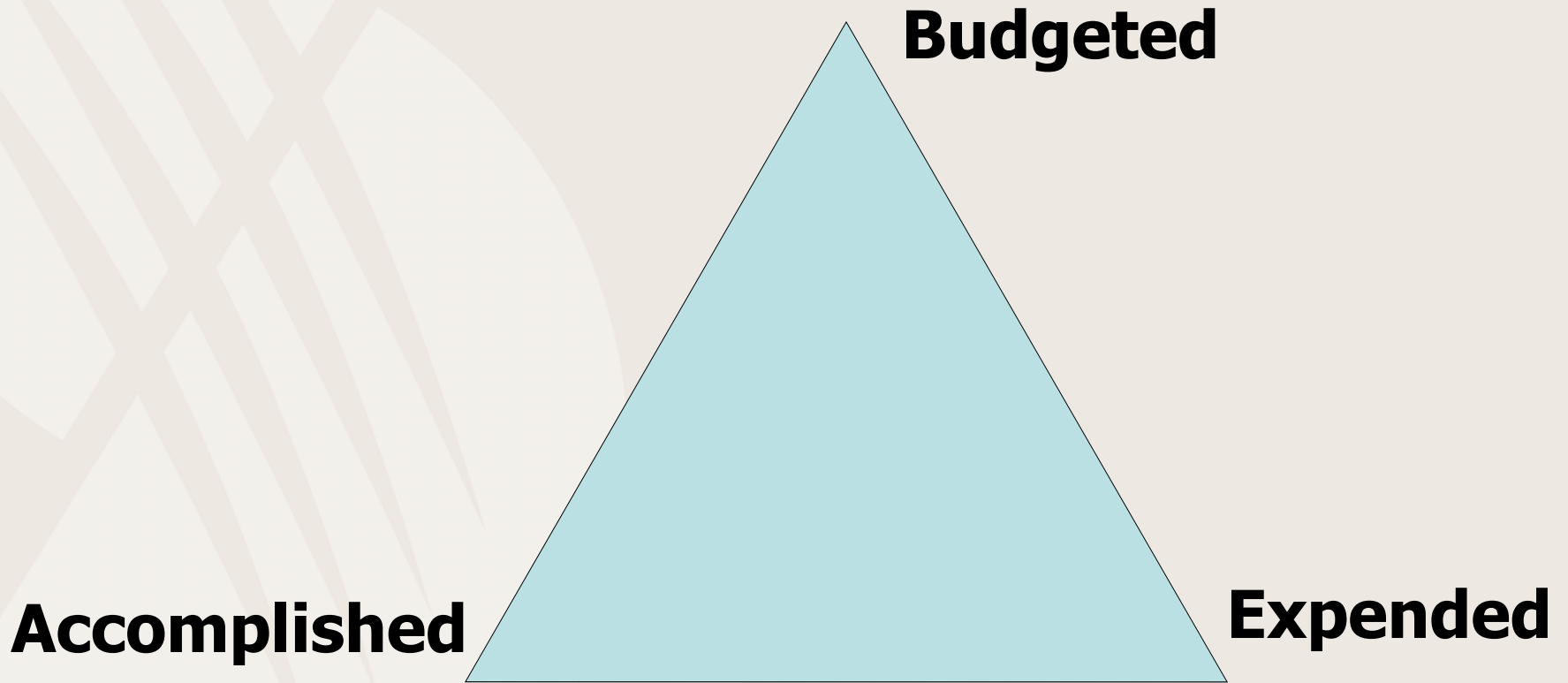
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# Objectives:

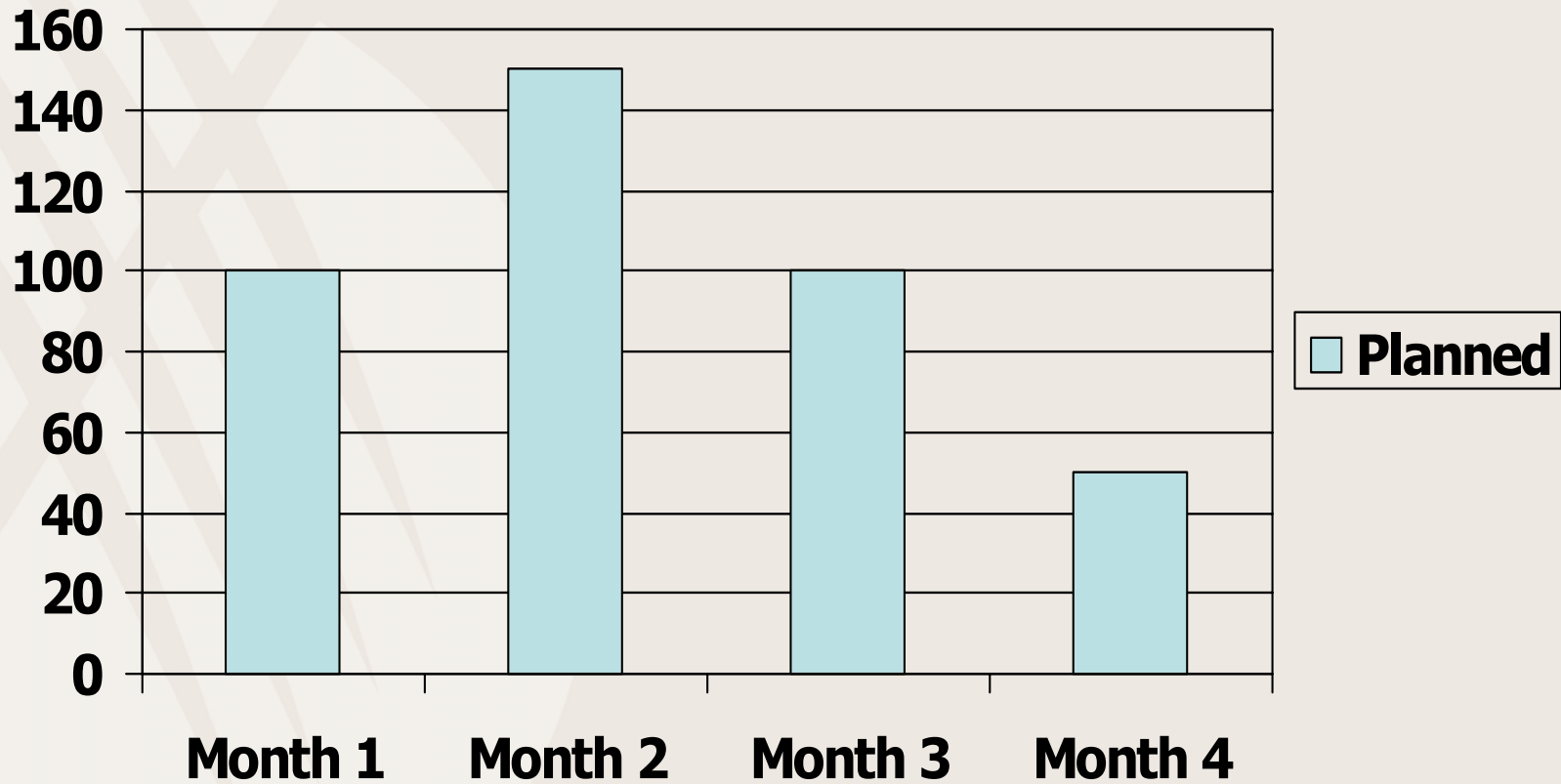
- Explain/define Earned Value concept
- Illustrate the benefits
- ‘Demystify’

# The Earned Value Triad



# Given: Planned Expenditure or 'Work-off'

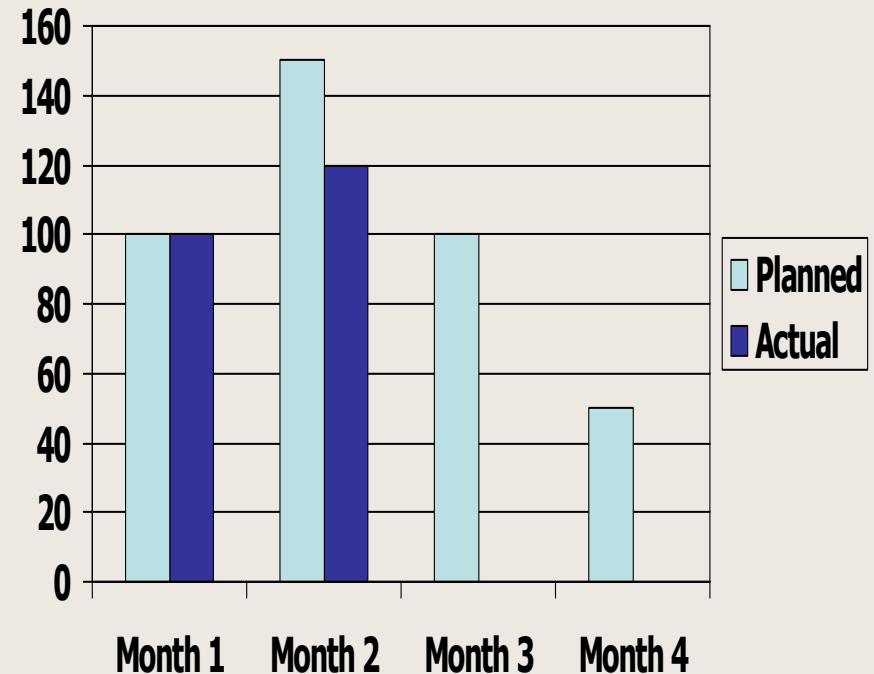
(Of \$ or *Hours* or *Resource Units*)



# Compare: *Planned vs. Actual*

Does this chart portray Good News? or Bad News?

- **Month 1**
  - 'On Target'? – only if Productivity was 100%
- **Month 2**
  - Maybe behind
  - Maybe on-target, just highly efficient



**Insufficient information to tell!**

# The Real Questions...

## How Much Got Done?

How Much was PLANNED to have gotten done?

## How Much did it Cost?

How much SHOULD it have cost?

**OR, What was Earned?**

# 'Earned'

The Value of the work accomplished

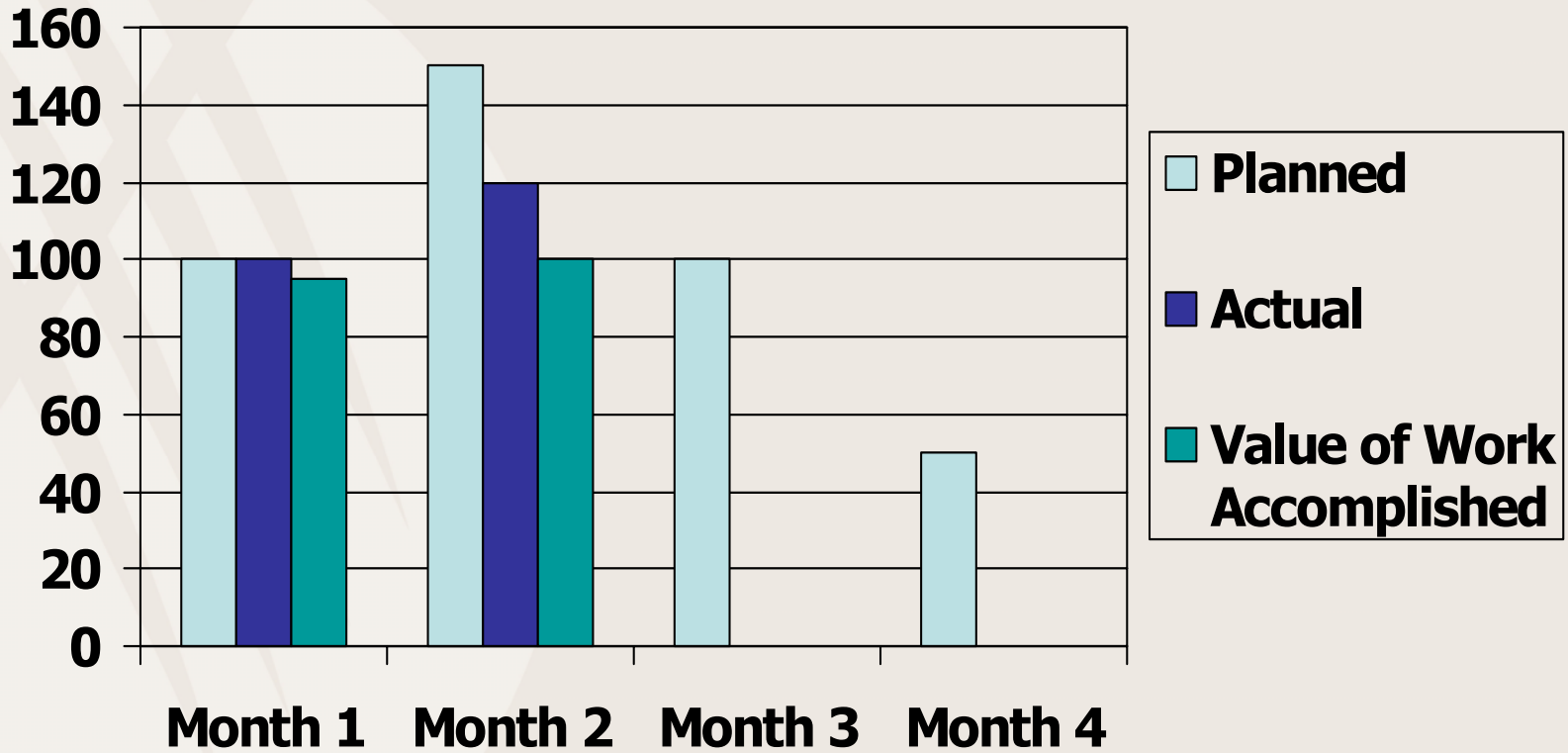
- When a task, or portion of a task, is accomplished, the Resources ( \$ or Hours) Budgeted to that task are ***Earned***.

**Earned = Budget x % Complete**

- Earning is Independent of Expenditure -
  - A task that is 20% complete *Earns* 20% of its associated Budget - irrespective of the *Actual* amount spent in accomplishing it!

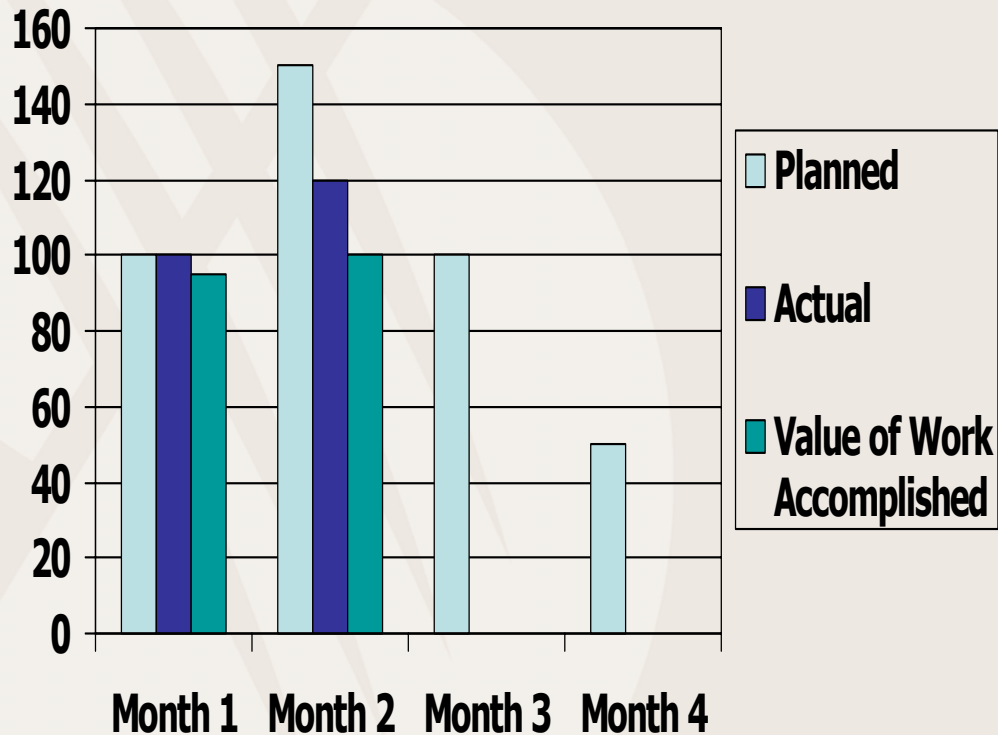
# Now: Compare Planned vs. Actual vs. 'Earned'

Definitely 'Bad News' - This Project is Behind Schedule *and* Over Budget



# Behind Schedule *and* Over Budget

Why do we say that?



## Because:

- In Month 1, we spent exactly what we had planned – but didn't accomplish an equivalent amount of work.
- In Month 2, we under-spent our plan – but neither accomplished a sufficient amount of work nor accomplished it at the planned cost.

# What.....

## Is 'Earned Value'?

- 'Earned Value' is an analytical technique that measures *Results* relative to *Effort*.
- Permits us to manage our Project and predict its outcome based upon *Performance*.
- Simultaneous three-way comparison of Schedule/Budget/Cost.

# Why.....

Use it?

- **Accurate Status Evaluation** - Knowing where we 'are', not just what we've *spent*.
- **Useful Performance Indices** - ability to trend or project results at completion - Knowing where we're 'going'.
- **'Early Warning'** - enabling us to take timely actions to correct variance trends.

# Enables Us to Answer:

- How much *did* we accomplish?
- How much *should* we have accomplished?
- What *did* it cost?
- What *should* it have cost?
- What future impact does this current performance portend?

# Where.....

Should it be implemented?

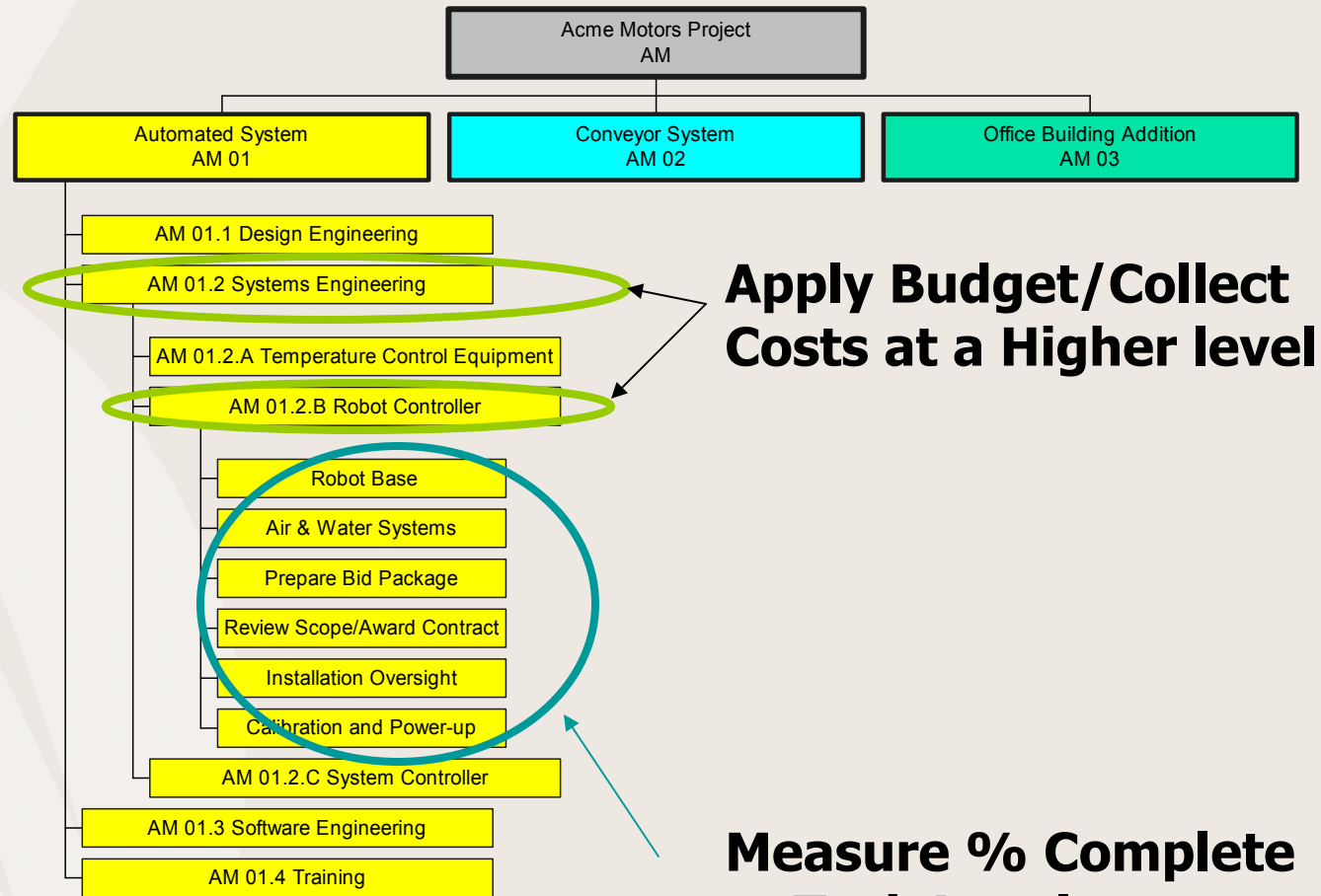
- Any Cost-Plus Contract
- Any Lump-Sum Contract in which:
  - Schedule Performance is important
  - A Default due to Poor Performance would have unacceptable consequences

# How.....

Is it implemented?

- **Define Performance Standards**
  - Cost
  - Schedule
- **Develop Work Breakdown Structure (WBS)**
  - ‘Deliverables’ - Products or desired end-results.
  - ‘Manageables and ‘Measurables’ - easily measured.
- **Assign Cost/Time Budgets to appropriate WBS level**
- **Collect actual costs or resource expenditures**
- **Measure accomplishment** – Units or measured % complete
- **Measure performance** - Actual vs. Scheduled vs. ‘Earned’

**Make it easy  
to use!**



**Apply Budget/Collect  
Costs at a Higher level**

**Measure % Complete  
at Task Level**

# Performance Indices

- Cost Performance Index (CPI)
  - Earned Cost/Actual Cost (Bad <1.0> Good)
- Schedule Performance Index (SPI)
  - Amount of Work Performed/Amount of Work Scheduled to have been Performed (Bad <1.0> Good)

*Remember* - Values for Work and Cost can be measured in many units:  
man-hours, \$, time, board feet of lumber, tons of steel, numbers of drawings, etc.

# Performance Projection:

Not an exact science – but a good indicator...!

- **Cost at Completion =**
  - Cost to date + Cost to Complete - *Always!*
- **Cost to Complete =**
  - Budgeted Cost - Cost to Date – If, and only if,  $CPI = 1.0$
- **Cost to complete (If CPI is *not equal* to 1.0) =**
  - $(\text{Budget} - \text{Earned})/CPI$
- **Time Remaining =**
  - $(\text{Scheduled Time} - \text{Time Earned})/SPI$

# Thought for the day:

- A Project at the 20% completion point has established a cumulative performance that most probably will track through and to completion. (Source: 700 DOD projects)
- Lessons:
  - Implement early – identify and correct trends while they are still just trends!
  - Little chance of recovery from early missteps or failures to manage performance.

# Questions?

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