

# Comprehensive Assessment of Contract Performance Using Earned Value Management (EVM) Data

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# Overview

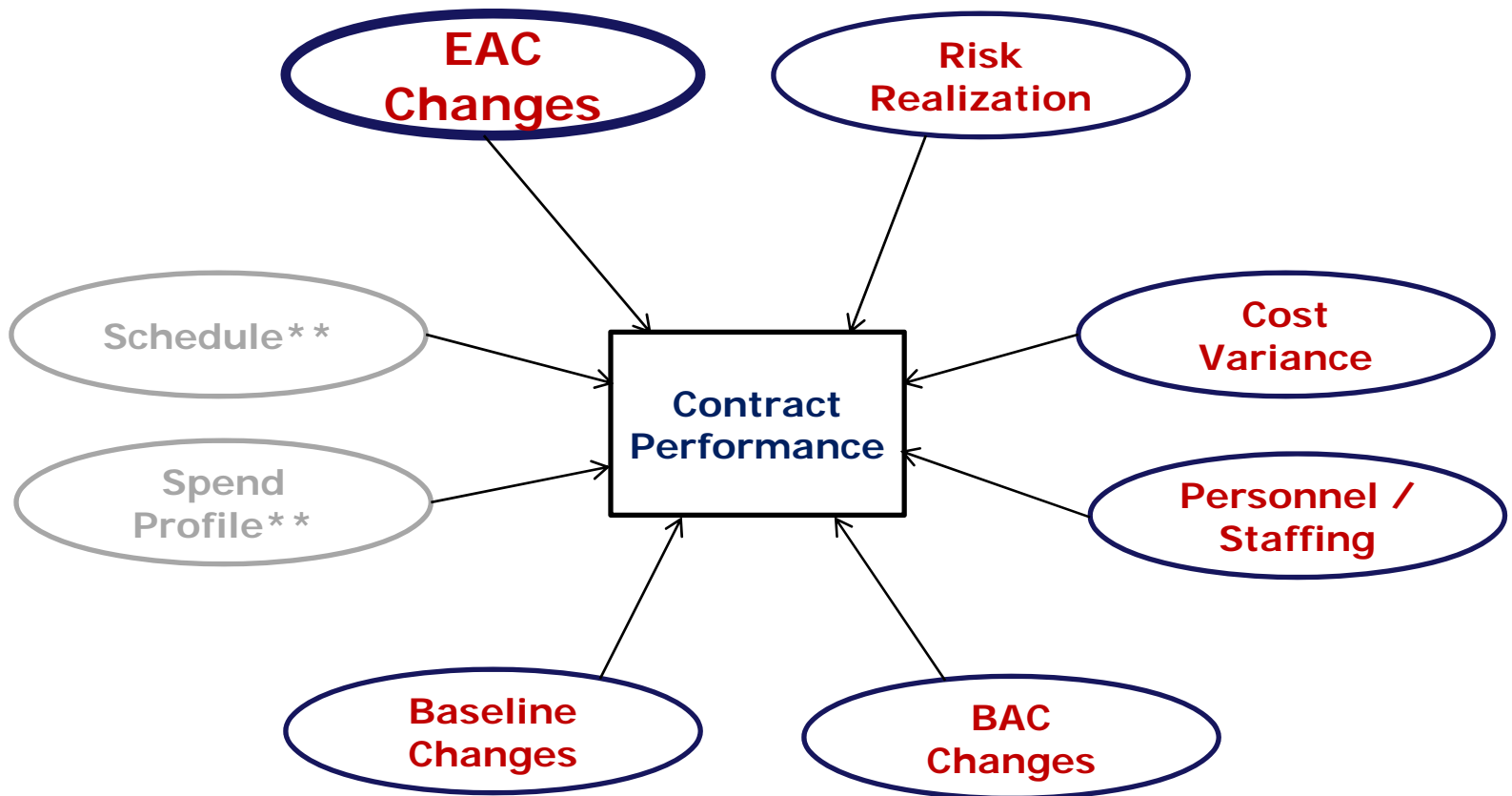
Views make use of all available CPR data –  
Multiple Formats, Multiple WBS Levels

Mixture of new ways to look at existing metrics  
and altogether new metrics

Designed to be informative and visually appealing

# Acquisition Program Dimensions

8 dimensions that reflect contract performance



\*\* Current / Future Work

# EAC Changes View Explanation

The *rate* of EAC growth is a more useful metric than the *level of growth*

- Calculate annualized rates of growth of EAC (since the first report and over the last 6 months)
- Easier to identify potential implications for contract growth

Rate of growth can indicate whether important growth thresholds could be breached

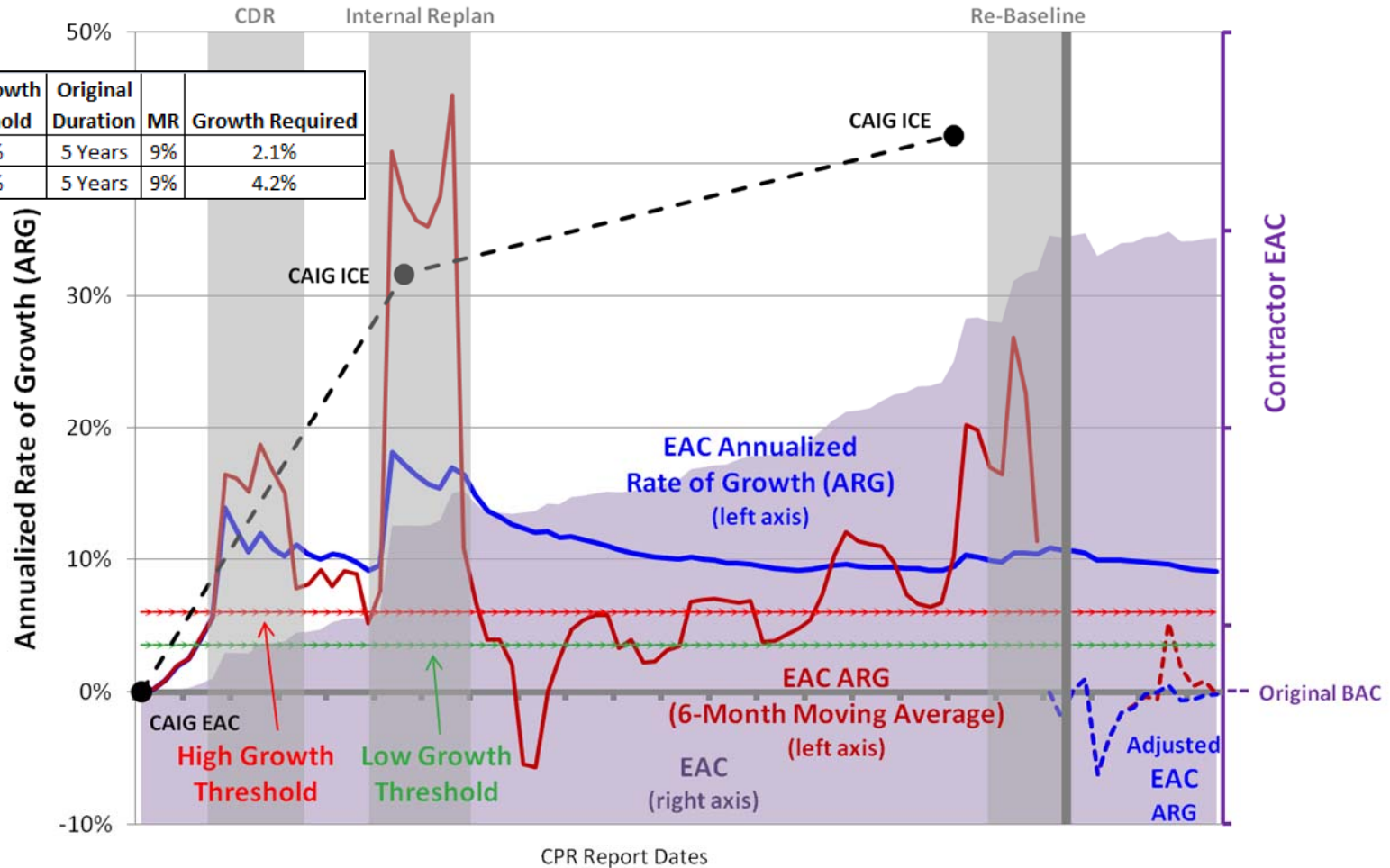
- Given expected duration, can identify total contract growth if current rate is maintained
- Tolerances can be adjusted based on circumstances

Key growth drivers can be identified by evaluating contribution to growth of WBS elements

# EAC Changes View

Annualized Rate of Growth From Original Baseline

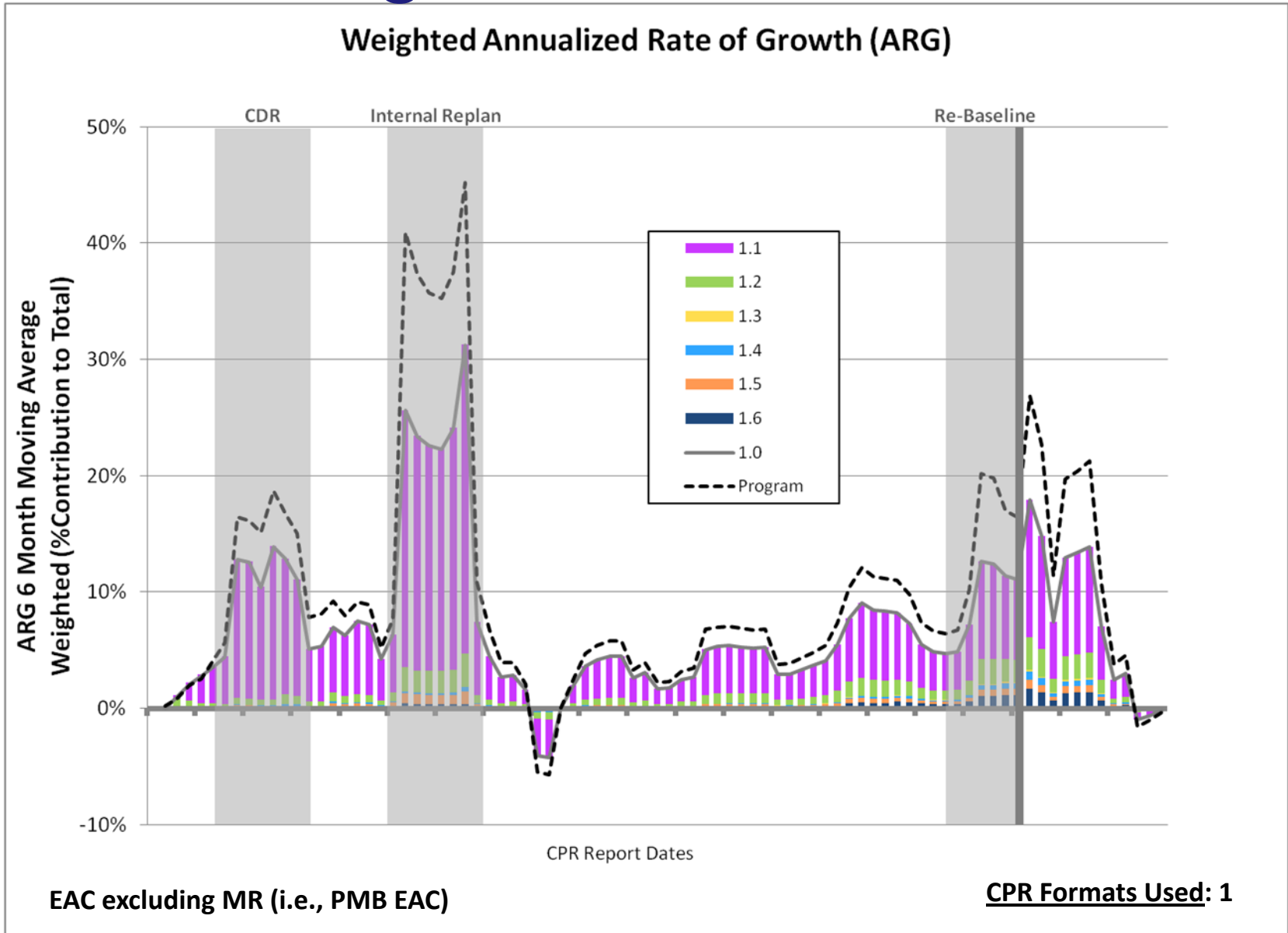
	CBB Growth Threshold	Original Duration	MR	Growth Required
Low	10%	5 Years	9%	2.1%
High	25%	5 Years	9%	4.2%



EAC excluding MR (i.e., PMB EAC)

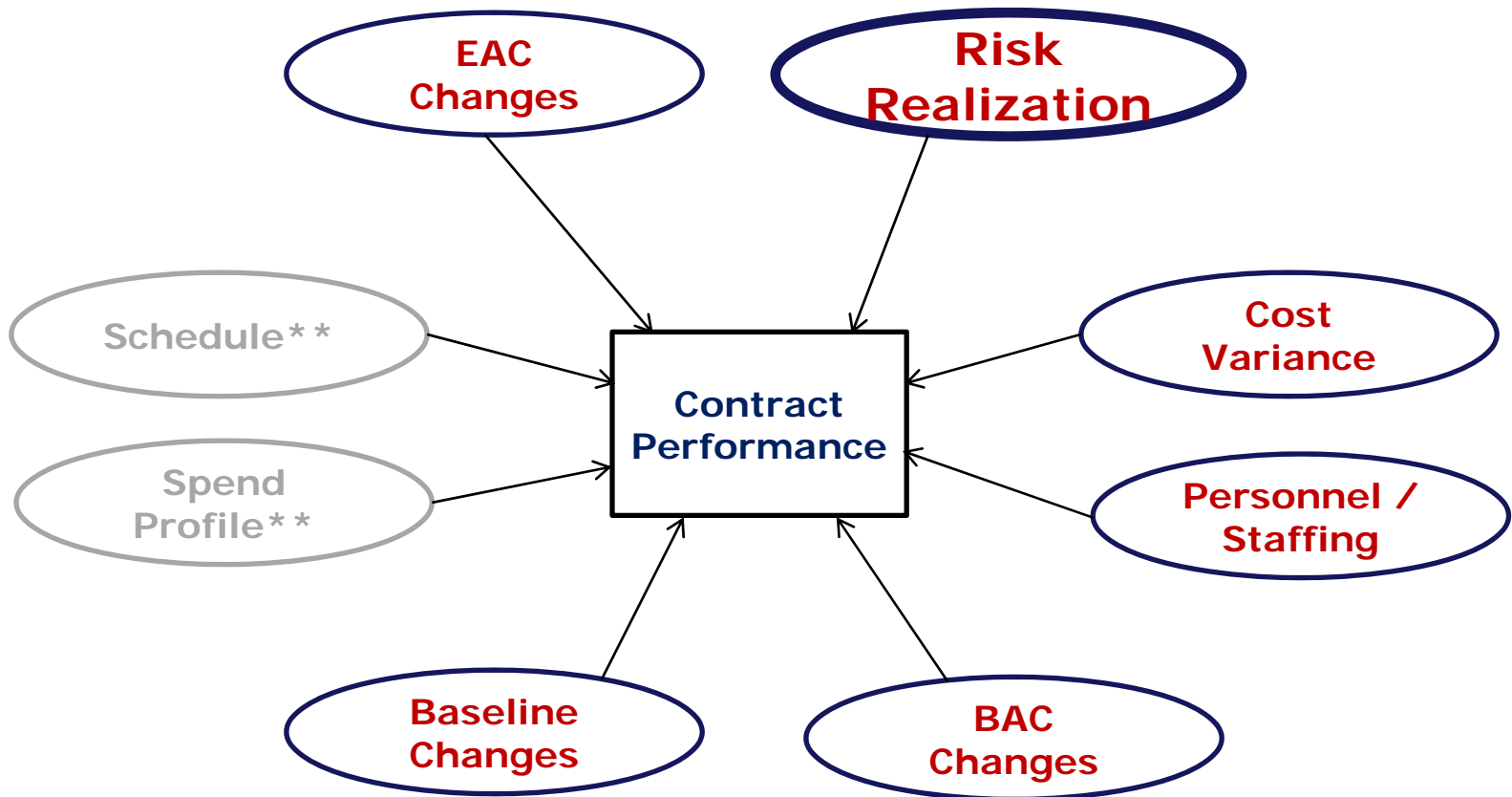
CPR Formats Used: 1

# EAC Changes View: WBS Breakdown



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# Risk Realization View Explanation

Management Reserve (MR) is important, but analyzing changes in the level of MR is not enough

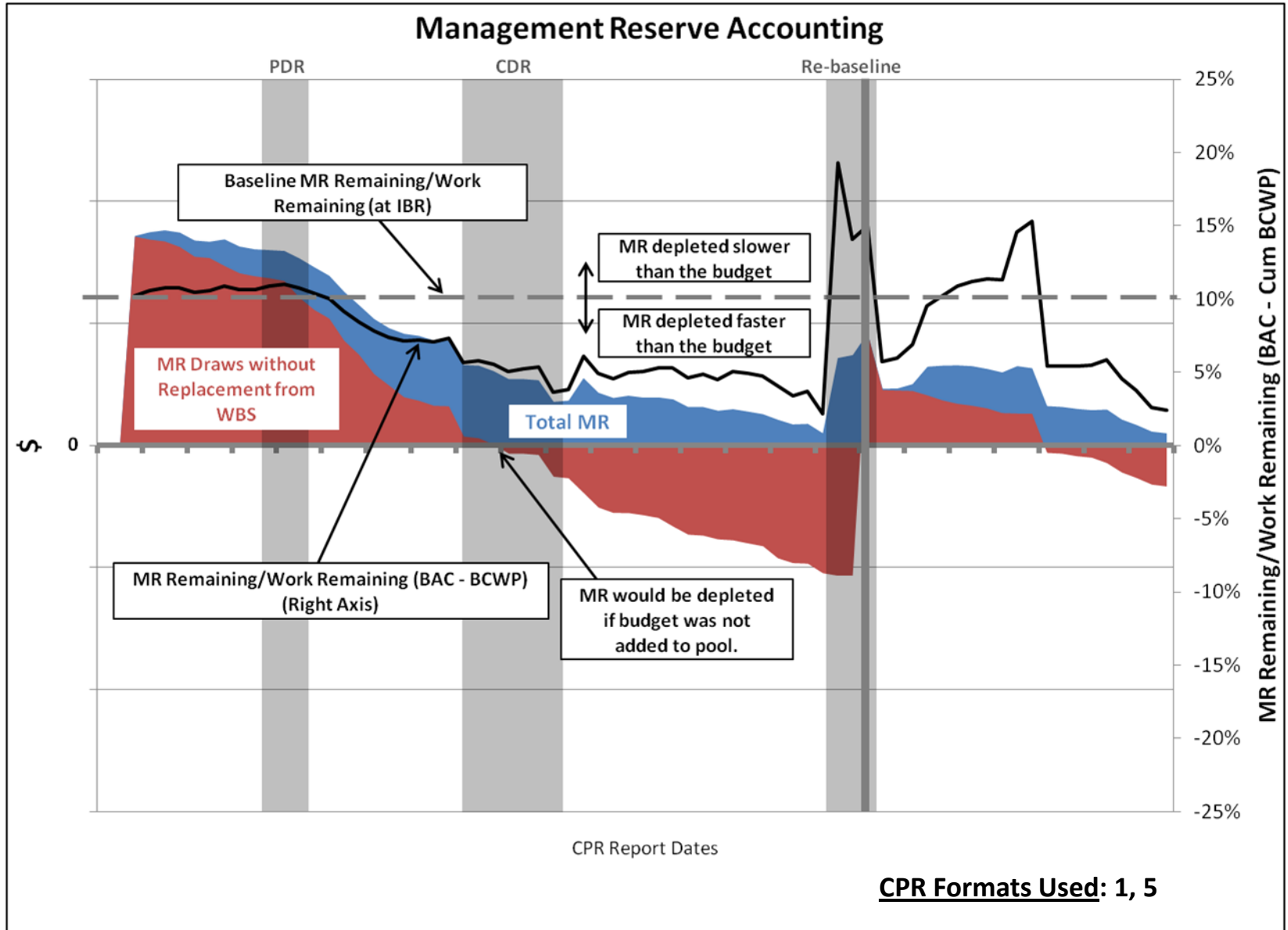
How MR is consumed relative to the accomplishment of budget is an important indicator

- This ratio should decline early as risks are realized; though rapid declines should be investigated
- Should recover or stabilize as the design matures

Understanding the extent to which \$ are flowing *into* MR is also important for assessing risk

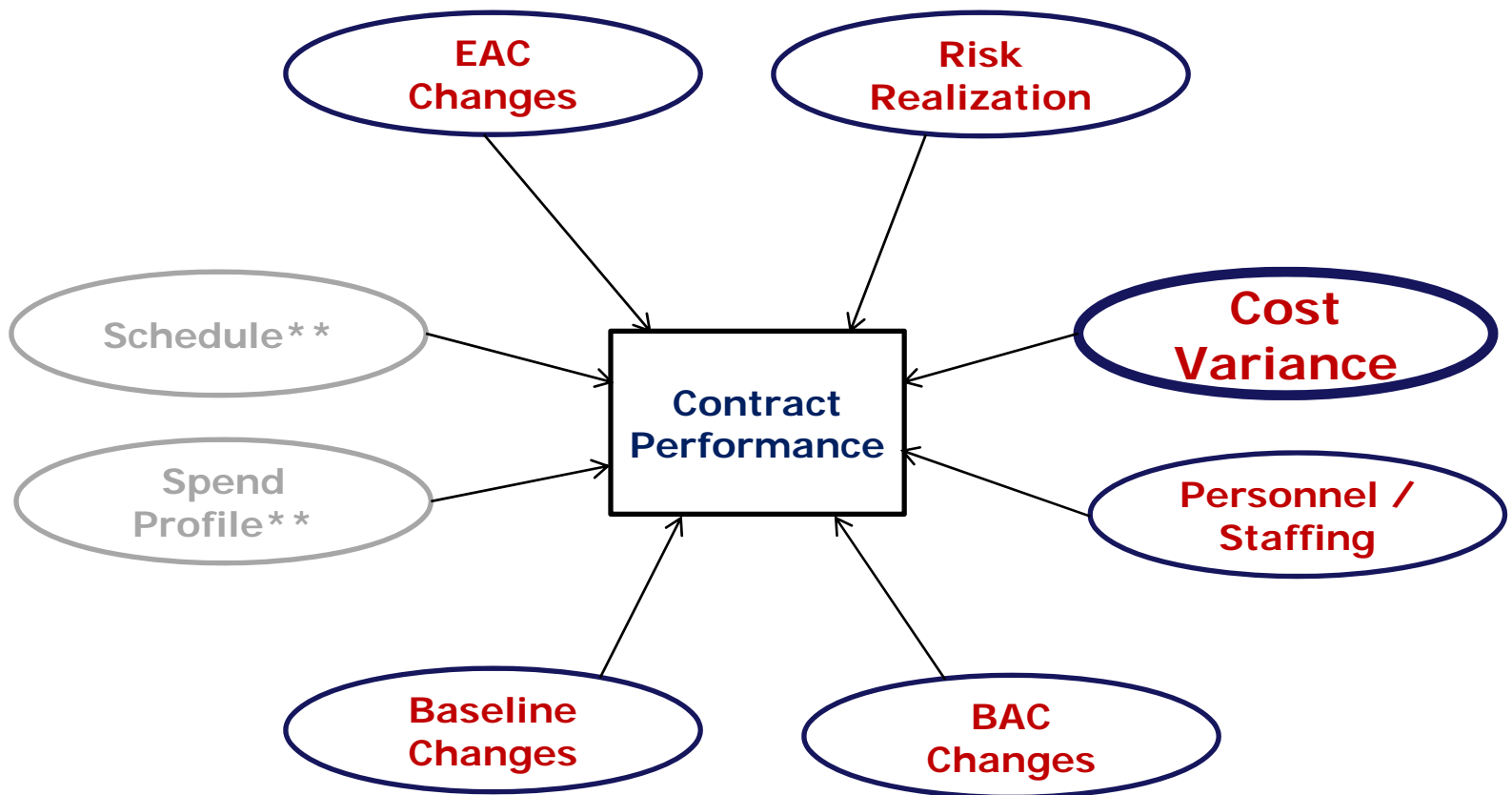
- Show what MR level *would be* without adds from the WBS
- Could be obscuring the real rate of risk realization
- Does replenishment represent real opportunities/savings, or effort that eventually needs to be allocated back to the WBS?

# Risk Realization View



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# Cost Variance View Explanation

The spread of CPI and  $TCPI_{BAC}$  is a key indicator of the likelihood of an overrun

- Rule of thumb (for purposes of discussion):  $TCPI > CPI$  by 0.1 is unrecoverable
- Accepts accuracy of reported CPI; best case scenario

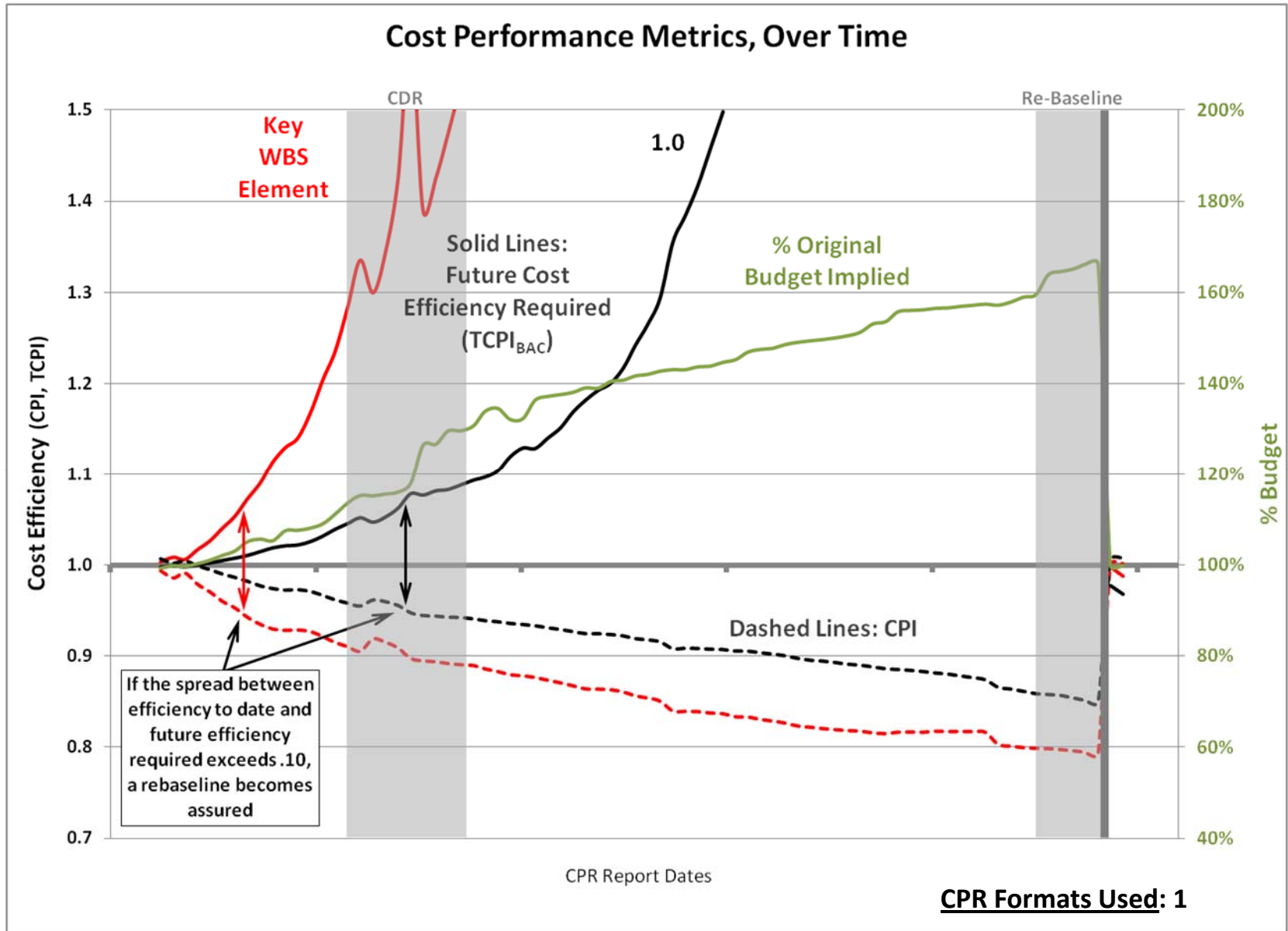
Identifying key elements and tracking their cost performance can hasten the realization of problems

- Key elements may be diverging faster than total contract
- Front-loaded, large % of total, affects back-loaded elements

$TCPI$  and  $CPI$  are just metrics; implications important

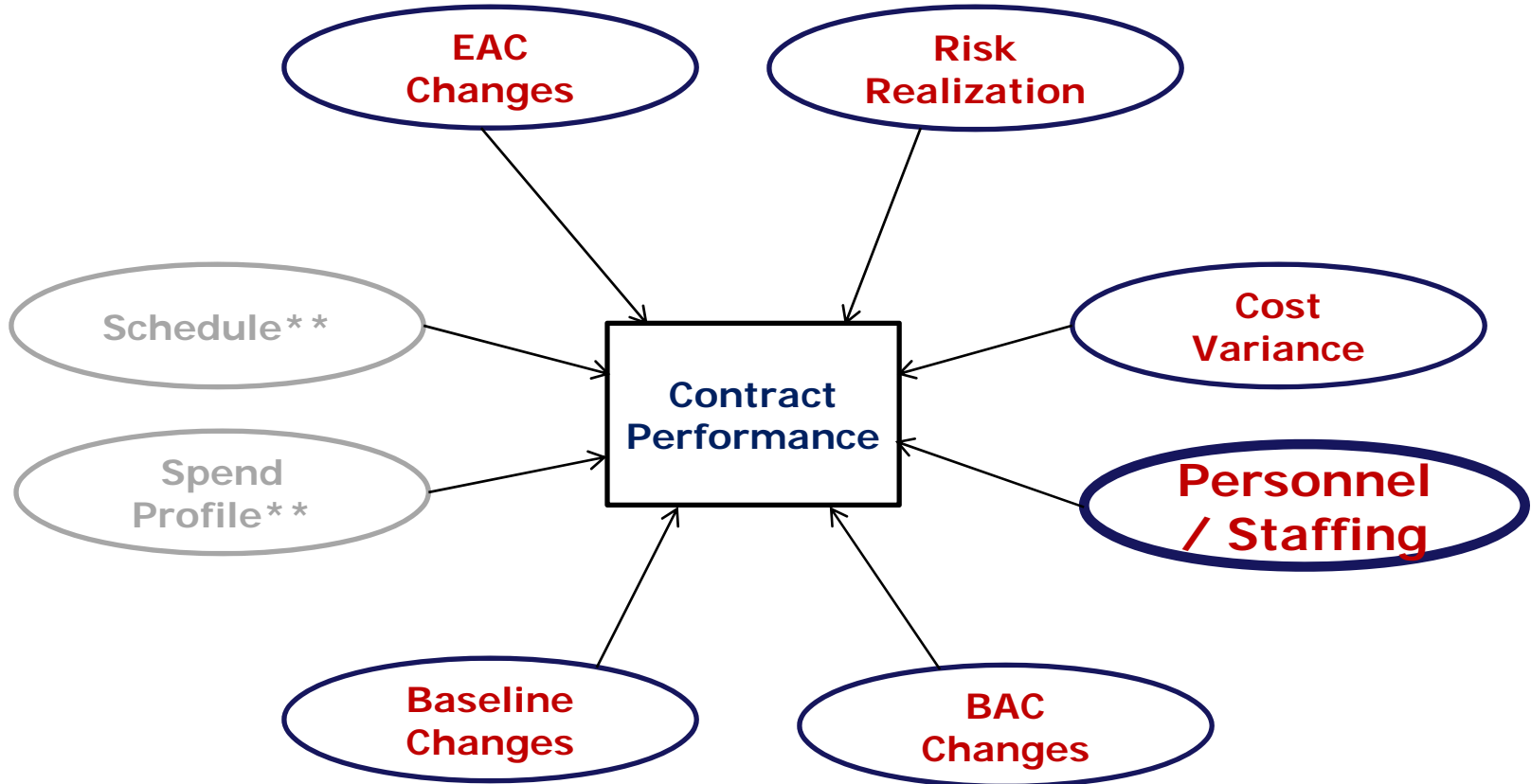
- Identify implied overrun
- Represents best case overrun because reported CPI accepted

# Cost Variance View



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# Personnel/Staffing Views Explanation

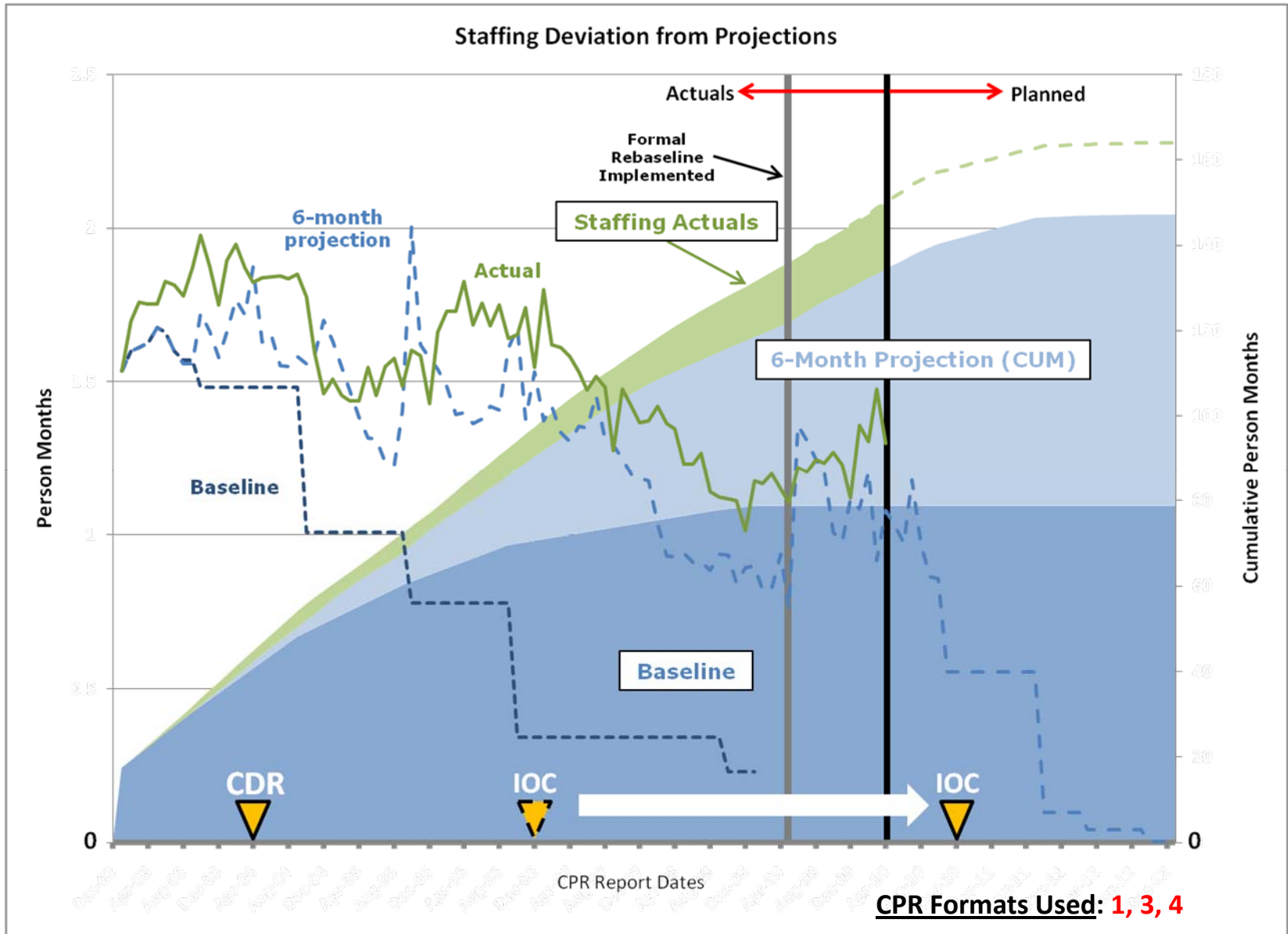
Reliability of staffing projections an important indicator of likelihood of an overrun

- Staff size a key driver of cost growth
- Assists in assessing plausibility of growth mitigation plans
- 1<sup>st</sup> view compares baseline projection, 6-month projection, and actuals (cumulative and monthly)

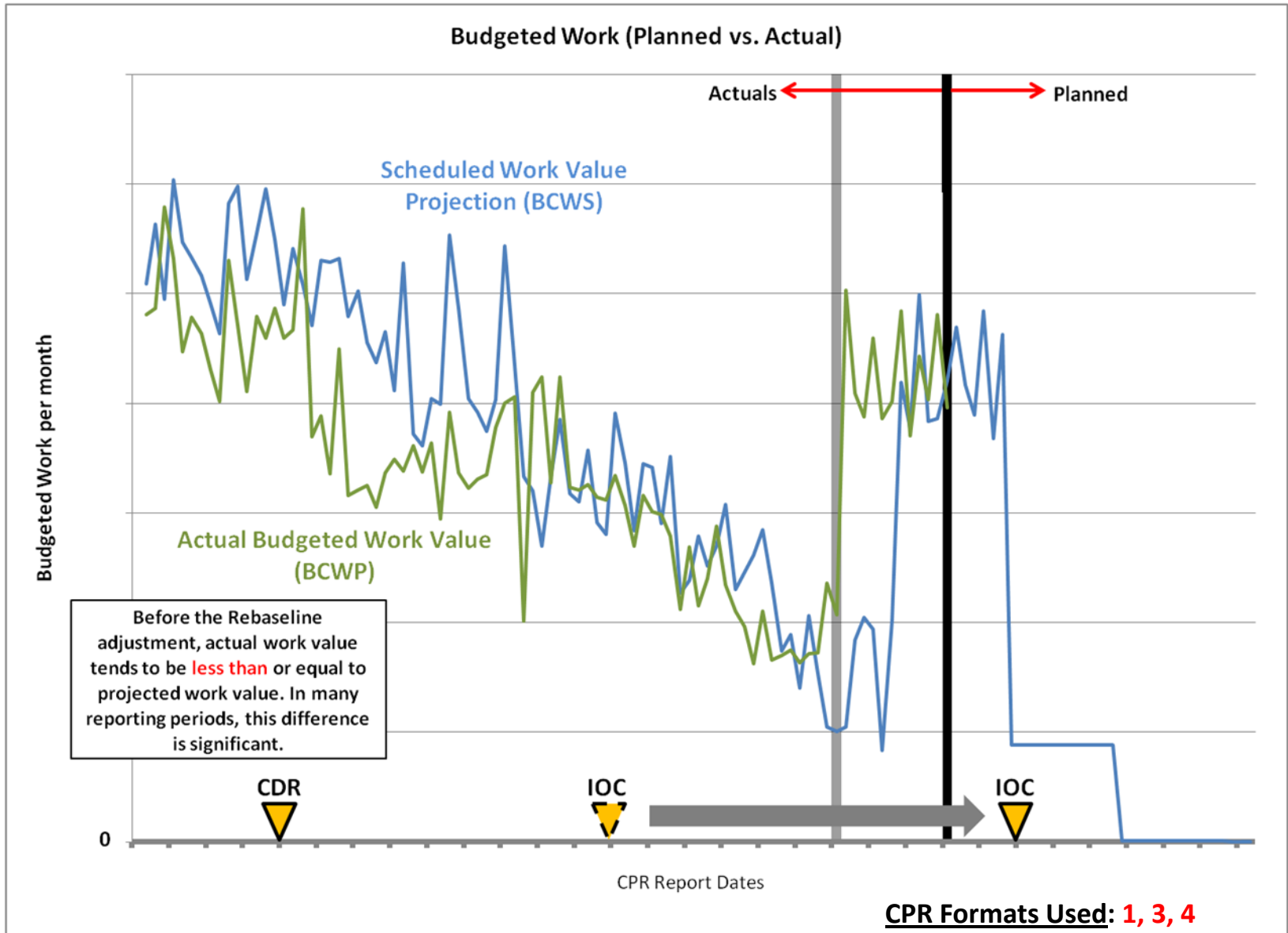
Larger staff than projected could indicate cost growth (bad) or accelerated schedule (maybe good)

- 2<sup>nd</sup> view compares actual work performance with work scheduled 6 months prior
- Same or less work relative to plan indicates cost growth, more work accomplished may indicate schedule acceleration

# Personnel/Staffing View (1 of 2)

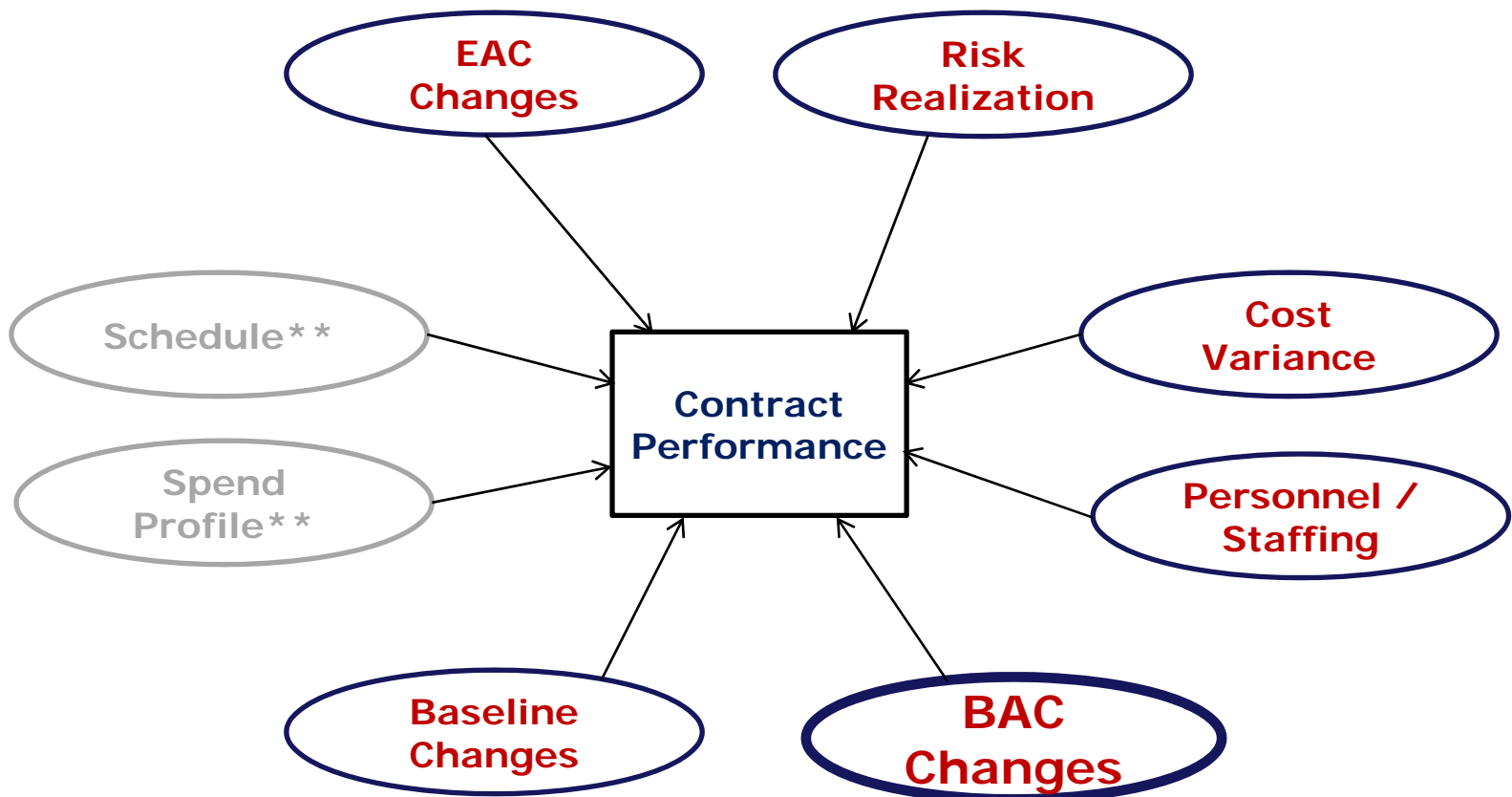


# Personnel/Staffing View (2 of 2)



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# BAC Changes View Explanation

Frequent shifting of budget between WBS elements may foreshadow increases at the contract level

- Contract with an apparently stable budget may have changes at lower levels that indicate a build-up of pressure

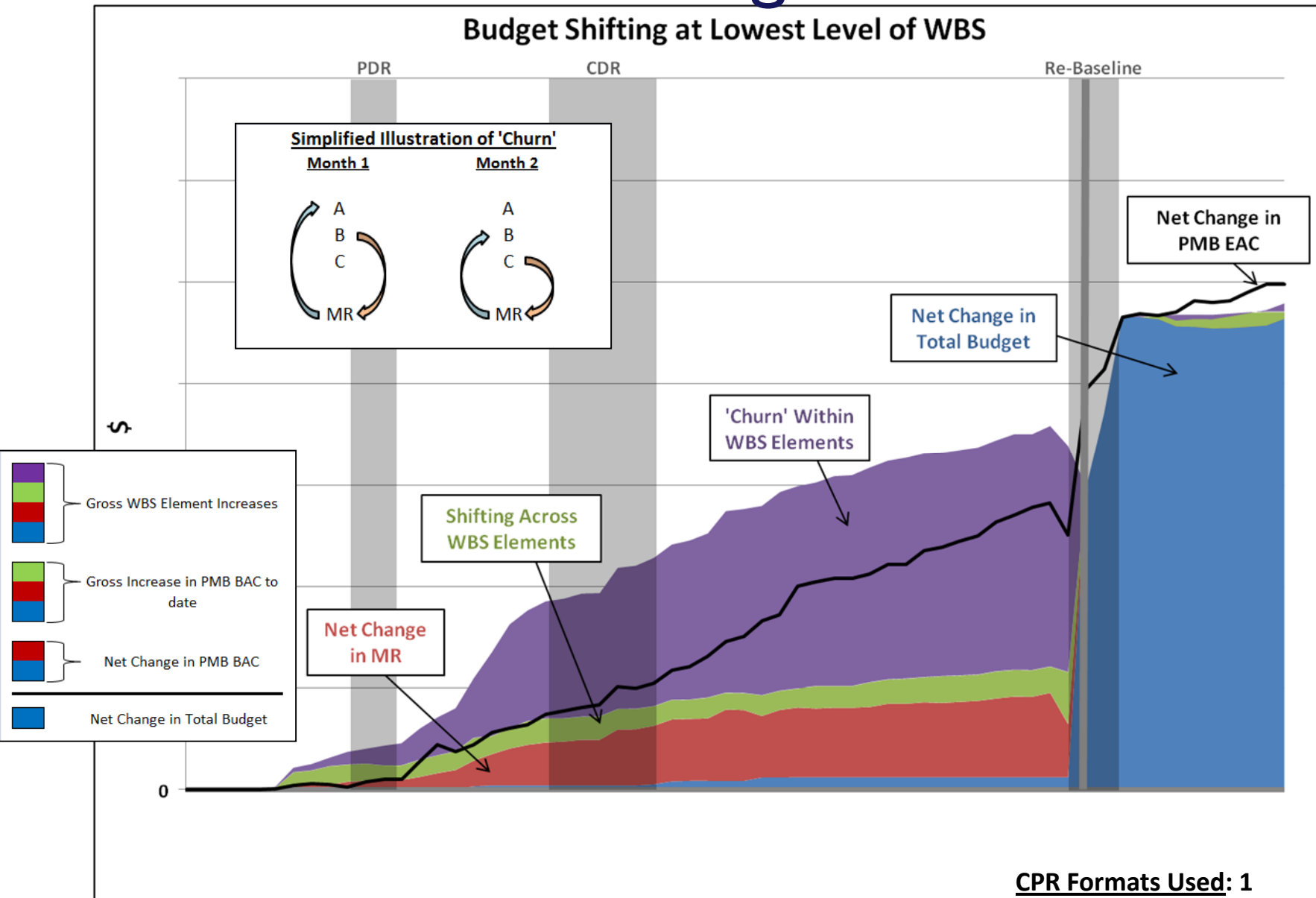
Source of new budget for a WBS element provides key insight into potential sources of budget pressure

- Increased budget via contract modification
- Management Reserve
- **Permanent reduction in other WBS elements**
- **Temporary reduction in other WBS elements**

Changes could be due to a flexible management approach (good) or a poor understanding of the problem (bad)

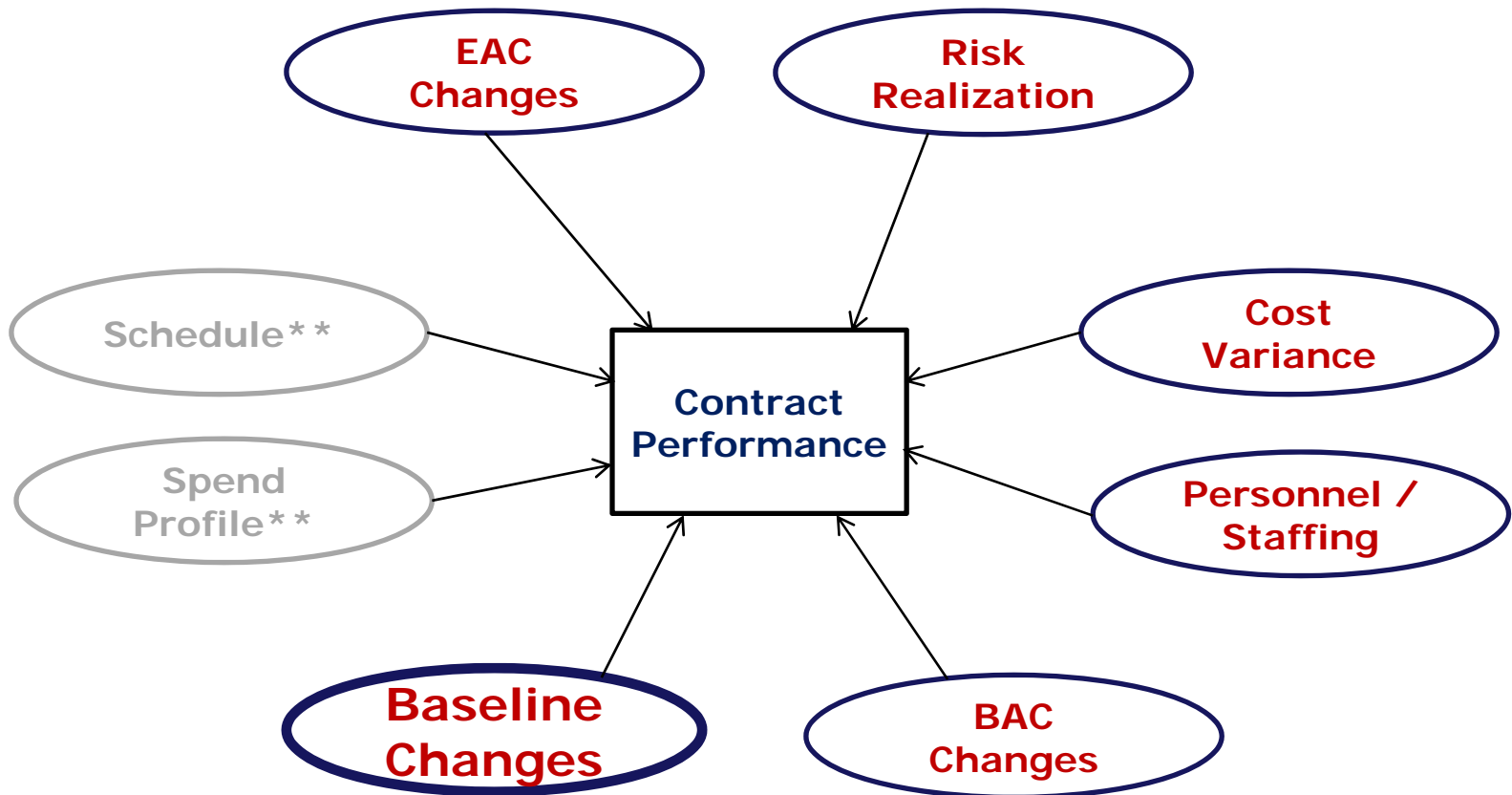
# BAC Changes View

## Budget Shifting at Lowest Level of WBS



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\*\* Current / Future Work

# Baseline Changes View Explanation

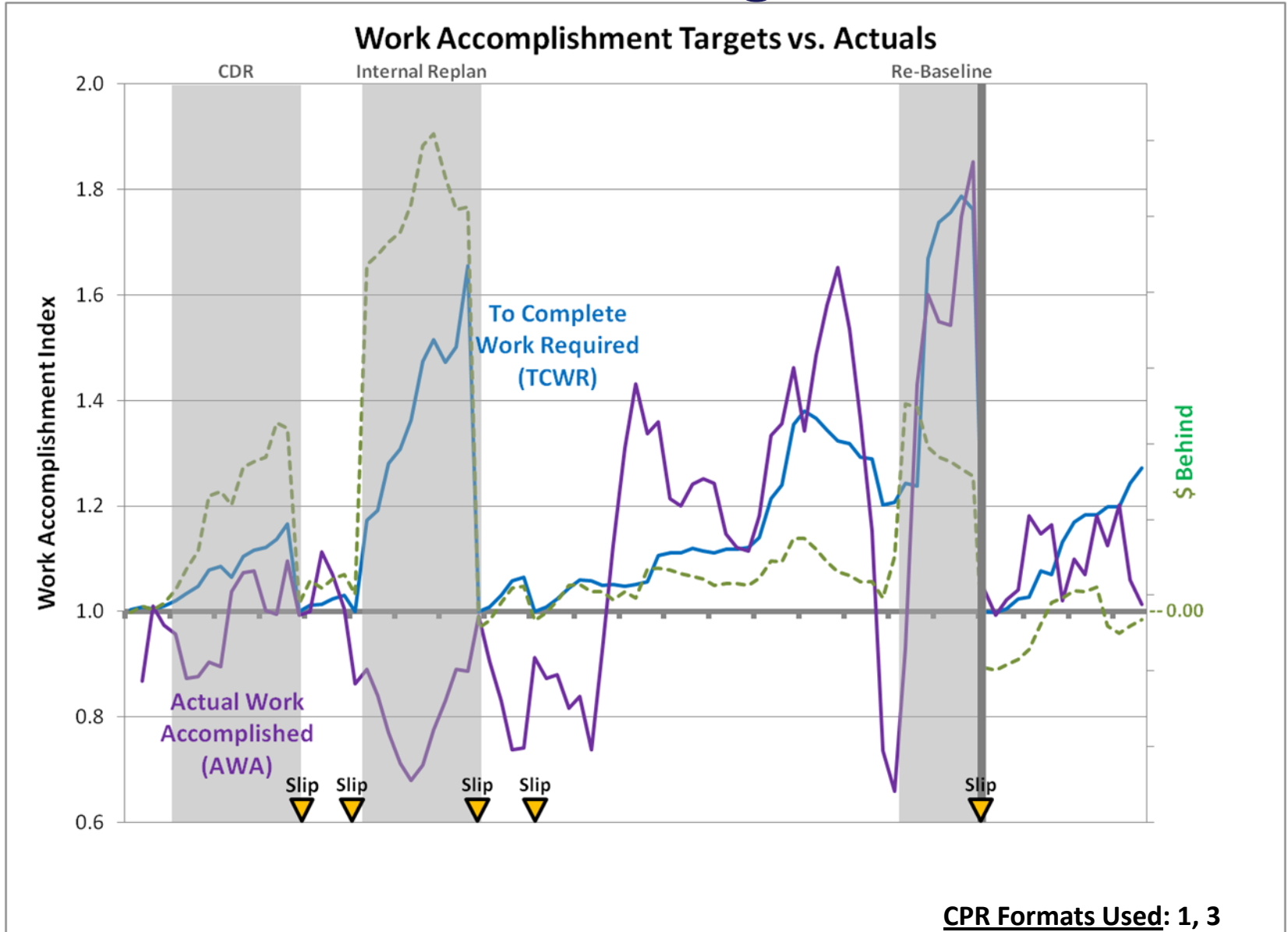
Using budget growth and Format 3 BCWS movements, an improved schedule indicator can be developed

- Develop a “To Complete Schedule Index” that includes: To Complete Work Required (TCWR) and Actual Work Accomplished (AWA)
  - $TCWR = \text{Actual Budgeted Cost Work Remaining (BCWR)} / \text{Planned BCWR}$
  - $AWA = \text{BCWP} / \text{Planned BCWS}$
- Comparison provides a measure of schedule pressure
- Metric resets after each schedule extension

Identify budget recovery required to catch up

- Placing a \$ value on the schedule lost provides an indicator as to whether a significant schedule slip is necessary

# Baseline Changes View



# Conclusion & Future Work

## Conclusion

- EVM data can be used efficiently and effectively to evaluate contract performance
- Can also provide leading indicators of problems rather than simply being used for rearview mirror analysis
- Multiple views required to get comprehensive assessment
- Traditional metrics should be viewed as a starting point for analysis and not be taken at face value

## Current/Future work focuses

- Expanded schedule analysis
  - Weibull
  - IMS
- Analyze additional programs to test robustness of the views