

Project  
Time & Cost  
A Project Management Company



# A New EVM Performance Index: THE MRPI

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# Outline

- I. Speaker Introduction
- II. Definitions and Additional Perspective
  - Total Allocated Budget (TAB)
  - Management Reserve (MR)
  - Cost Performance Index (CPI)
- III. The “Management Reserve Performance Index” (MRPI)
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- V. Conclusion



# Speaker Introduction

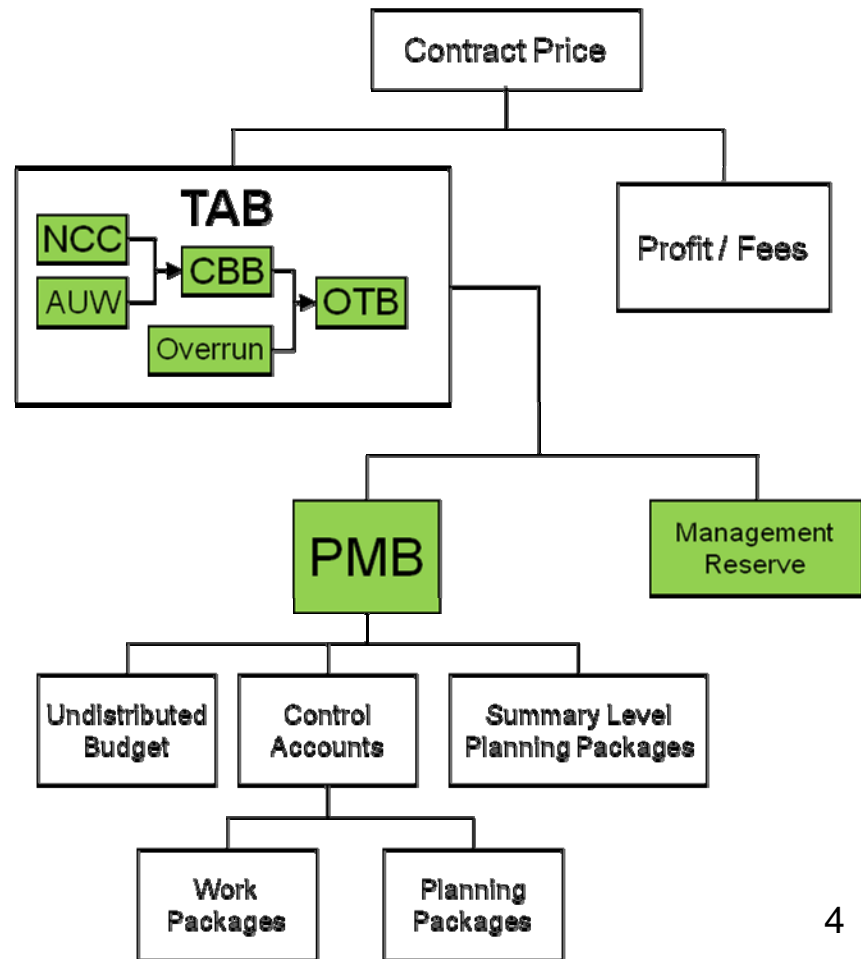
- Speaker Introduction
  - Currently
    - President of AACE International
    - Vice President & EVM Practice Lead with PT&C
    - Active member of NDIA's PMSC and EFCOG's PMWG
  - Formerly
    - VP of EVM for SM&A
    - VP of Project Controls for Parsons Government Group





# Definitions & Additional Perspective

- Total Allocated Budget (TAB)
  - Definition\*
    - The sum of all budgets allocated to contract
    - Consists of performance measurement baseline (PMB) and all management reserve
    - Reconciles directly to contract budget base (CBB)
      - CBB equal to negotiated contract Cost (NCC) plus authorized unpriced work (AUW)
      - If TAB is greater than CBB, difference is attributable to an over target baseline (OTB)

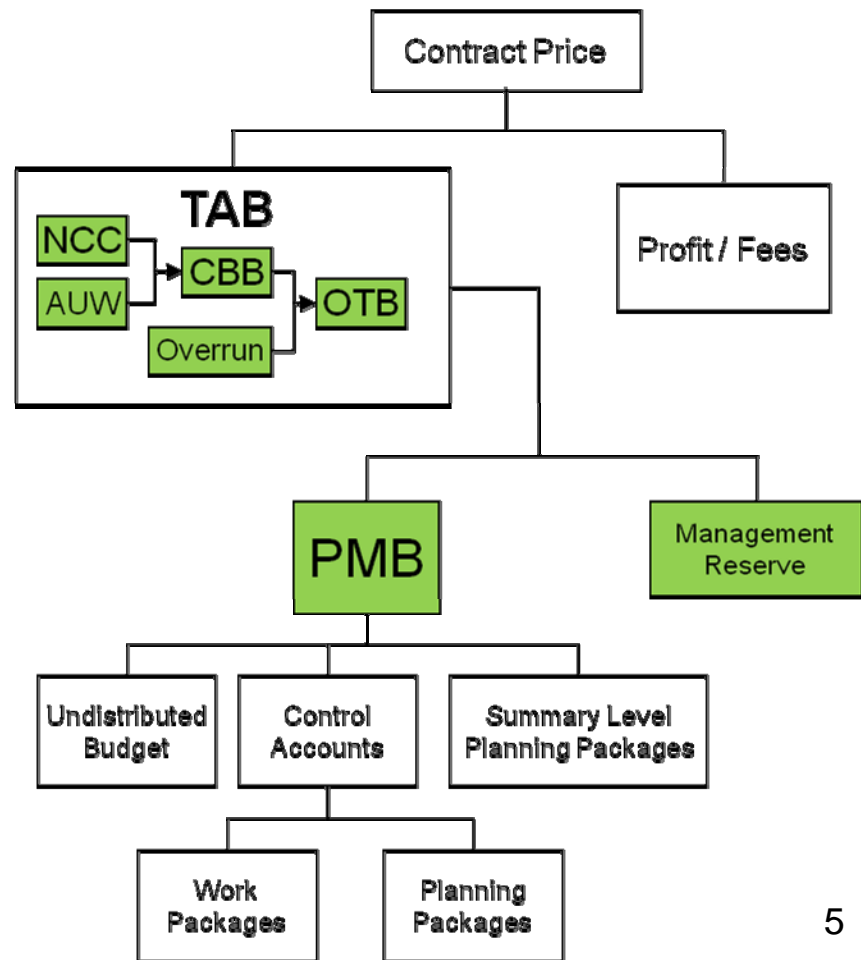


\* From EVMIG



# Definitions & Additional Perspective

- Total Allocated Budget (TAB)
  - Additional Perspective
    - At start of contract, TAB = NCC = CBB = **overall contractual authorization**
    - Contractor is authorized to spend this entire amount in execution of SOW (provided there is sufficient funding to do so)





## Definitions & Additional Perspective (cont'd)

- Management Reserve (MR)
  - Definition\*
    - An amount of overall contract budget held for management control purposes and for unplanned events
      - Shall never be a negative value
  - Additional Perspective
    - Originally formalized in 1970 as numerical value to balance difference between PMB and CBB
      - Possibility that this could be a negative value led to development of OTB concept

\*From IPMR DID





## Definitions & Additional Perspective (cont'd)

- Cost Performance Index (CPI)
  - Definition
    - A measure of “cost efficiency,” the ratio of value for work performed to actual costs of work performed (BCWP/ACWP)
      - **Not mandated by either ANSI/EIA 748(B) Standard or CPR/IPMR DID**
  - Additional Perspective
    - First discussed in 1972 as means to develop more accurate independent estimate at completion (IEAC)
      - $IEAC = (BAC - BCWP) / CPI + ACWP = BAC / CPI$
      - Only tie to MR value is fact that BAC includes MR already allocated to PMB
      - **Implied assumption is that allocation of MR is proportional to current percent complete/BCWP**





# The MRPI

- Historically, an analysis of MR usage performed subsequent to calculating an IEAC
  - Most of time just a graphical analysis of MR drawdown as a % over time
- Intent of this presentation is to integrate calculation of IEAC with analysis of MR usage
  - Result is “risk-adjusted IEAC,” that provides more accurate assessment of project’s or program’s overall cost performance







# The Process

- Initial calculation of MRPI
  - $MRPI = MR \text{ "earned"}/ MR \text{ allocated}$   
 $= \text{original MR}(\% \text{ complete})/MR \text{ allocated}$
- Second calculation for “MR Adjustment”
  - $MR \text{ Adj.} = \text{original MR}/MRPI - \text{Original MR}$
- Final calculation is for “risk adjusted IEAC”
  - $IEAC = BAC/CPI + MR \text{ Adjustment}$





# Hypothetical Case Study

- Base Project , Scenario #1
  - Original budget = \$100,000,000
  - Budget at Complete = \$105,000,000
  - Overall project is 25% complete
    - BCWP = \$26,250,000
    - ACWP = \$29,166,667
    - CPI = .9
- Traditional (CPI-based) IEAC
  - IEAC =  $\$105,000,000 / .9 = \mathbf{\$116,666,667}$





# Hypothetical Case Study (cont'd)

## ★ Additional Scenario #1 Information

- Original MR budget = \$10,000,000
- Remaining MR = \$5,000,000
- Risk-adjusted IEAC
  - MRPI = “earned MR” / “actual MR allocated”  
= \$2,500,000 / \$5,000,000  
= .5
  - MR adjustment = Original MR / MRPI - Original MR  
= \$10,000,000 / .5 - \$10,000,000  
= \$10,000,000
  - IEAC = \$116,666,667 + \$10,000,000  
= **\$126,666,667**





## Hypothetical Case Study (cont'd)

- Base Project, Scenario #2
  - Original MR budget = \$10,000,000
  - Remaining MR = \$7,500,000
- Risk-adjusted IEAC
  - MRPI = “earned MR” / “actual MR allocated”  
= \$2,500,000 / \$2,500,000  
= 1
  - MR adjustment = Original MR / MRPI - Original MR  
= \$10,000,000/1 - \$10,000,000  
= \$0
  - IEAC = \$116,666,667 + \$0  
= **\$116,666,667**





## Hypothetical Case Study (cont'd)

- Base Project, Scenario #3
  - Original MR budget = \$10,000,000
  - Remaining MR = \$8,750,000
- Risk-adjusted IEAC
  - MRPI = “earned MR” / “actual MR allocated”  
= \$2,500,000 / \$1,250,000  
= 2
  - MR adjustment = Original MR / MRPI - Original MR  
= \$10,000,000/2 - \$10,000,000  
= \$-5,000,000
  - IEAC = \$116,666,667 + \$-5,000,000  
= **\$111,666,667**





# Conclusion

- Contractors are authorized to spend entire amount of MR as a component of CBB
  - Regardless of current emphasis on risk
- Traditional IEAC calculations assume that MR usage is proportional to % complete/BCWP
  - If MR usage is assessed, it is by independent analysis
- A risk-adjusted IEAC can be calculated using an MRPI to integrate MR usage into forecasting process
  - Result should be more comprehensive and accurate





# Questions?

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