

Integrated Program Management Division

**Program Management Working Group (PMWG)
Predictive Measures Guide**

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- **PMWG first deliverable**
- **Title: “A Guide to Using Predictive Measures to Effectively Manage Programs”**
- **Guide approach**
 - Use the ICPM Predictive Measures (2008) presentation as the basis
 - Update list of measures
 - Use Industry/Government practices, but
 - Don’t affiliate a measure with a contributor
 - Make sure measure is a predictor
 - Approach & strategy instead of program specifics

Intended Audience

The intended audiences for this guide are organizations (government and industry) that are looking for standard approaches to manage programs. This guide is not intended to necessarily provide a new set of standards that would be required to assess program performance, but instead provide a “menu” of typical measures that could be applied. Each organization should decide which measures are most appropriate for their environment and select only those measures suitable for them.

- **Commonly used in ACQ phases (MSA, TD, EMD, PD, O&S) – *moved to an Appendix***
- **Metric Definition – *Not an Exhaustive Description***
- **Calculations**
- **Output / Threshold**
- **Predictive Information – *Most Critical***
- **Possible Questions – *what a PM or LM could ask***
- **Caveats / Things to Watch For / Limitations / Cautions**

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Acronyms

- 1 Introduction
- 2 Schedule Metrics
 - 2.1 Trip Wire Metrics
 - 2.1.1 Schedule Performance Index (SPI)
 - 2.1.2 Baseline Execution Index (BEI)
 - 2.1.3 **Critical Path Length Indicator (CPLI)**
 - 2.2 **Current Execution Index (CEI)**
 - 2.3 **Total Float Consumption Index (TFCI)**
 - 2.4 **Earned Schedule**
 - 2.4.1 **Time-based Schedule Performance Index (SPI_t)**
 - 2.4.2 **SPI_t vs. $TSPI_{ed}$**
 - 2.4.3 **Independent Estimated Completion Date – Earned Schedule ($iECD_{es}$)**

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- 3 Cost Metrics
 - 3.1 Trip Wire Metrics
 - 3.1.1 Cost Performance Index (CPI)
 - 3.1.2 CPI vs. $TCPI_{eac}$
 - 3.2 **Range of IEACs (Independent Estimates at Completion)**
- 4 Staffing Metrics
 - 4.1 Critical Skills Key Personnel “Churn” / Dilution Metric
 - 4.2 Critical Resource Multiplexing Metric
 - 4.3 Staffing Profile

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- 5 Risk and Opportunity Metrics
 - 5.1 Risk/Opportunity Summary
 - 5.2 Risk/Opportunity \$ vs. Management Reserve (MR) \$
 - 5.3 **Schedule Risk Assessment (SRA)**
 - 5.4 **Schedule Margin Burn Down**
- 6. Requirements Metrics
 - 6.1 Requirements Completeness
 - 6.2 Requirements Volatility
 - 6.3 TBD/TBR Burn Down
 - 6.4 Requirements Traceability

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- 7 Technical Performance Measures (TPMs)
- 7.1 Technical Performance Measure Compliance
- 8 Contract Health Metrics
- 8.1 Trip Wire Metrics
 - 8.1.1 Contract Mods
 - 8.1.2 Baseline Revisions
- 8.2 Program Funding Plan
- 8.3 Program Funding Status
- 8.4 Contract Change Value
- 8.5 **RDT&E Actual Billings vs. Forecast Billings**

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- 9 Supply Chain Metrics
 - 9.1 Parts Demand Fulfillment
 - 9.2 Supplier Acceptance Rate
 - 9.3 Supplier Late Starts
 - 9.4 **Production Line of Balance**
- 10 **Rayleigh Estimator**
- 11 Contributors
- 12 References

Appendix A: Predictive Measures Commonly Used in the DoD Acquisition Phases

Appendix B: Trip Wires

Contributors

- **Glen Alleman, Niwot Ridge**
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Metrics not associated with contributor

Schedule

- ✓ **Announce Intent** Feb 2013
- ✓ **Develop Introduction & Outline** Mar 2013
- ✓ **First Draft** Aug 2013
- ✓ **Second Draft** Oct 2013
- ✓ **Senior Review** Nov 2013
- ✓ **NDIA Workshop at IPMC** Nov 2013
- ✓ **Submit to IPMD for comment** Apr 2014
- ✓ **Comments due** May 2014
- **IPMD Approval** By Sep 2014

ICPM Comments

- Well received – few comments
- Called guide “a toolbox and dictionary for the masses”
- Several comments indicated that this was intended to be the beginning of a conversation
- Systems Engineering Division published a similar study for Leading Indicators
 - [System Development Performance Measurement \(October 2011\)](#)

How to submit comments

- **Document posted on the IPMD site**
 - Program Management Working Group heading (in Working Groups and Other Activities)
- **Use NDIA IPMD Predictive Measures Comments Input Form**
- **Inputs due by May 16**

24 comments received so far

“Dispositioning” Reviewers

- **Bill Altman, Battelle**
- **Blake Crenshaw, Raytheon**
- **Charmaine Narciso-Jiao, SPAWAR**
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QUESTIONS