

Performance Measures

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A Brief History

- ▶ Specific HEP performance measures first appeared in FY2003 budget submissions
 - § Included FY01 “Results” and FY02 “Targets”
 - § Example: “Deliver integrated luminosity as planned (80 pb⁻¹) to CDF and D-Zero”
 - § Measures have been tracked by DOE and OMB since 2002. DOE requires quarterly reporting.
- ▶ Performance measures continue in FY04 and beyond, though format changes
- ▶ This is not going away. Rather, it is becoming an Industry (see next slide...)

Performance Measure SPAM

- ▶ Dear Government Executive,
- ▶ Just announced...Don't miss the 10th national forum on...
- ▶ -----
- ▶ PERFORMANCE MEASUREMENT for GOVERNMENT
- ▶ Linking Performance Measures, Strategic Planning & Budgeting Into An Integrated Management System
- ▶ -----
- ▶ September 16-18, 2003, Washington, DC

- ▶ *****
- ▶ Register by AUGUST 15th to Save \$400!
- ▶ *****

- ▶ To review the detailed agenda or for more information:
- ▶ -----
- ▶ Online: http://www.aliconferences.com/conferences/pmgov_sept03.html
- ▶ Call: 888-362-7400, or, 312-362-9100
- ▶ *Please mention priority code "e-GA-1" to ensure early bird rates!*

- ▶ Hear from these leading agency representatives and experts what it takes to make performance measurement an integral part of your strategic planning process and improve results. SPEAKERS and TOPICS include:
- ▶ ...
- ▶ 8. THE DISTRICT OF COLUMBIA
- ▶ >>>"How To Manage Change To Achieve Lasting Gains"

How Measures are Used

- ▶ OMB uses Performance Measures to “grade” programs via the Performance Assessment Rating Tool (a.k.a. PART). Includes program planning and mgmt as well as Results.
 - § First year for grades was FY04 budget cycle (based on FY01-02 performance)
 - § Office of Science was “guinea pig” for DOE
 - § HEP score was 55 (out of 100), lower half of Office of Science programs
 - § Main issues: Run II, NuMI

What OMB Wants and Why

- ▶ An objective set of metrics that can be used to evaluate all R&D program outcomes on an “even playing field” to help make budget decisions
- ▶ As such, measures should be:
 - § Quantifiable, or independently verified
 - § Trackable (can establish and follow “baselines”)
 - § Representative of program
 - § “Ambitious”
 - § Succinct (fields are limited to 255 characters!)
- ▶ At least one measure must demonstrate improvements in efficiency over time

Why Should HEPAP Care?

- ▶ Independent validation of goals HEPAP
 - § There is an explicit question in PART scorecard that asks for this
- ▶ In principle, Performance Budget
 - § Results in meeting annual and long-term goals are 50% of overall PART score
- ▶ In practice, Performance is Necessary but not Sufficient
- ▶ Flip side: Poor performance remediation

Guidelines/Caveats

- ▶ Measures presented today are still in **DRAFT**
- ▶ “We don’t need no stinkin’ measures” is not a useful response
- ▶ **HEPAP** will be asked to review progress against long-term (10-year) measures in **~3 years**
- ▶ Working on wording. Plain English encouraged, technical jargon not. Suggestions welcome.
- ▶ Working on definitions of “success” and “minimally effective” for long-term measures.
- ▶ Error bars are okay on quantitative measures

Questions for HEPAP

- ▶ Are goals sufficiently ambitious?
- ▶ Are goals representative of program?
- ▶ Are we choosing the right metrics?
- ▶ Can the long-term goals be adequately reviewed in ~3 years?
- ▶ If answers to any of the above are "No," will need suggestions for alternatives
- ▶ Need answers in ~one month

Proposed Long-Term Measures I

- ▶ Confirm or rule out scenarios for new physics beyond the current Standard Model (e.g., supersymmetry, extra space-time dimensions) —OR—
- ▶ Confirm the existence of new supersymmetric (SUSY) particles, or rule out a large fraction of SUSY models of new physics.

Proposed Long-Term Measures II

- ▶ Confirm or rule out that the Higgs mechanism is responsible for generating mass for all elementary particles.

Proposed Long-Term Measures III

- ▶ Measure the matter-antimatter asymmetry in many particle decay modes with uncertainties of order 10% or better. Compare with other existing measurements to search for evidence of non-Standard Model mechanisms.

Proposed Long-Term Measures IV

- ▶ Confirm or rule out a particle physics explanation for the “dark matter” in the universe.



Proposed Long-Term Measures V

- ▶ Determine the masses of the neutrinos and characterize the “mixing” between neutrino species.

Proposed Annual Measures I

▶ Average unscheduled downtime of the scientific user facilities as a percentage of the total scheduled annual operating time.

§ 2002: < 20% (met goal)

§ 2003: < 20% (will meet goal)

§ 2004: < 20%

§ 2005: < 15%

Proposed Annual Measures II

- ▶ Total integrated amount of data (in pb-1) delivered to the CDF and D-Zero detectors at the Fermilab Tevatron.

§ 2002: 80 (met goal)

§ 2003: 225 (?)

§ 2004: 400

§ 2005: 600

Proposed Annual Measures III

- ▶ Total integrated amount of data (in fb-1) delivered to the BaBar detector at the SLAC B-factory.

- § 2002: 35 (met goal)

- § 2003: 45 (probably will miss)

- § 2004: 50

- § 2005: 60

Proposed Annual Measures IV

- ▶ Cost-weighted mean percent variance from established cost and schedule baselines for major construction, upgrade or equipment procurement projects.

- § 2002: < 10% (met goal)

- § 2003: < 10% (will meet goal)

- § 2004: < 10%

- § 2005: < 10%