RD&T PROGRAM REVIEW

PHMSA's Pipeline Safety Research Program

October 14, 2010

Who Is PHMSA?

- **We develop and enforce regulations for the safe, reliable and environmentally sound operation of:**

<u>Approximately</u>

- **2.5 M pipeline miles**
- **2,500 pipeline operators**
- **1M daily hazmat shipments**
  - By land, sea and air

Pipeline Safety R&D

Pipeline Safety R&D Program Mission:

To sponsor research and development projects focused on providing near-term solutions that will improve the safety, reduce environmental impact, and enhance the reliability of the Nation's pipeline transportation system.

Key Points

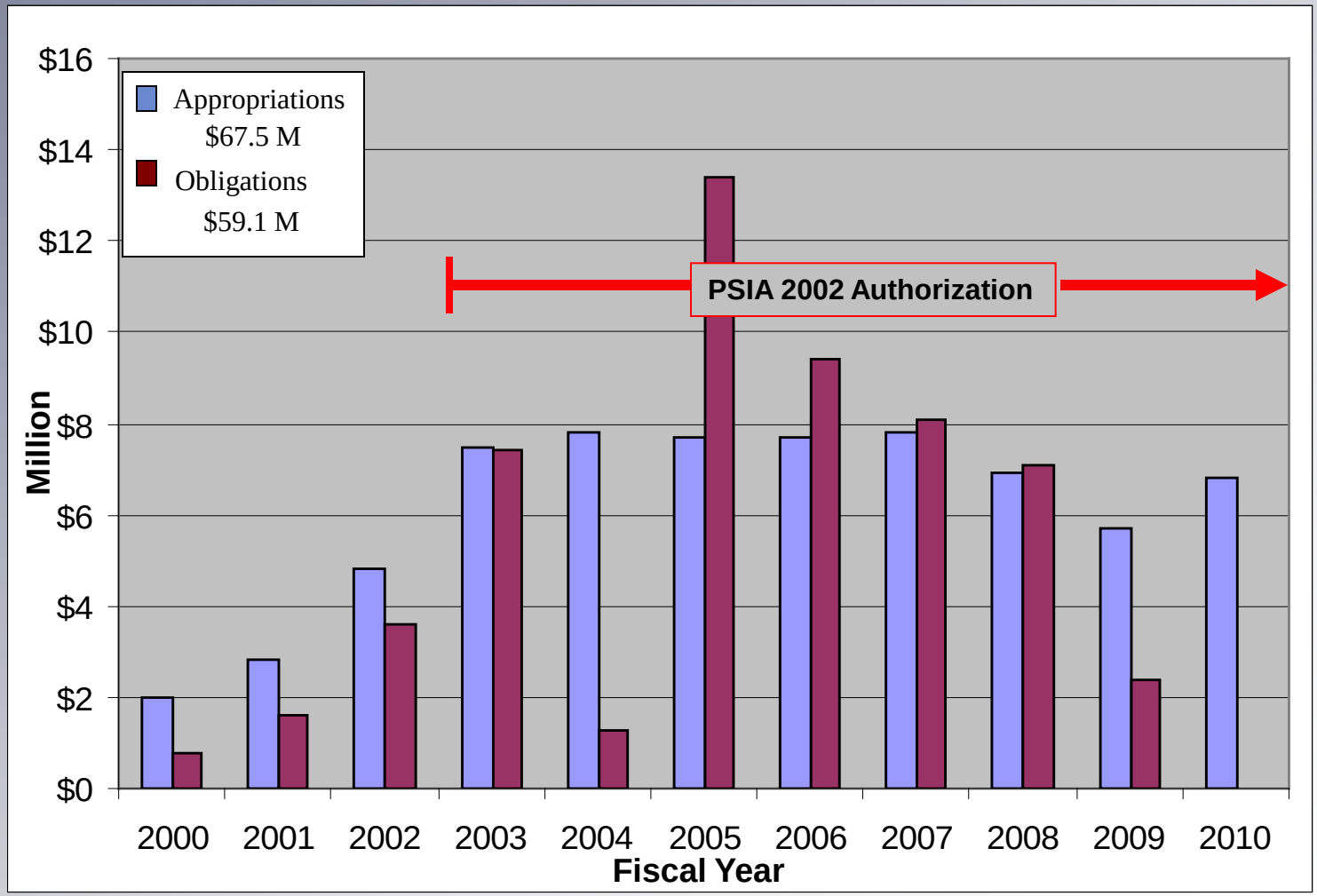
- We employ a collaborative approach to address mutual challenges
- We help remove technical barriers on a given challenge
- We measure our research results/impacts
- We are transparent - http://primis.phmsa.dot.gov/rd/

Pipeline Safety Improvement Act of 2002 established our modern program

Research Program Objectives

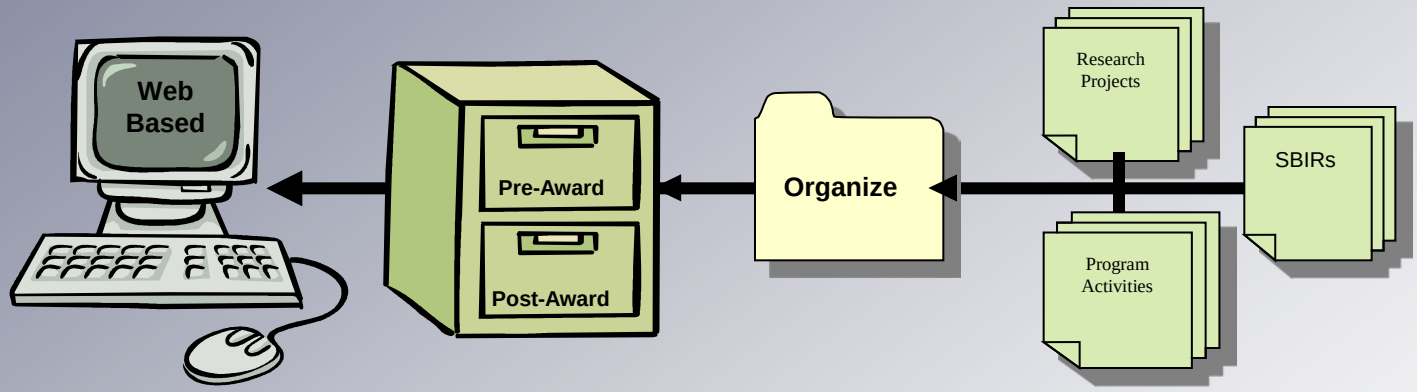
Developing Technology	Strengthening Consensus Standards	Promoting Knowledge
Fostering the development of new technologies so that pipeline operators can improve safety performance and more effectively address regulatory requirements.	Targeting and feeding new knowledge into the process of keeping standards relevant to their purpose.	Generating and promoting general knowledge to decision makers.

Appropriations vs. Obligations



Mapping monies of $1.2M removed FY 2000 to FY 2009

R&D Program Management Information System (MIS)



System features and benefits include:

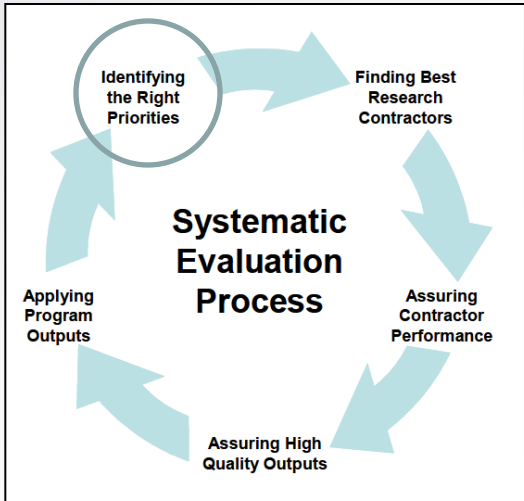
1. Secure online submission and review of white papers and proposals.
2. Tracking, inventory, and accountability features.
3. Linking program/project activities with procurement and financial requirements.
4. Automated milestone notification to program/project/procurement officials.
5. Reduction of workload for interfacing stakeholders .
6. Rapid/accurate query functions.
7. Reduction in time between initial solicitation and final selection/awards.

1. External stakeholder involvement in developing research agendas: *Elements*

A. Transparent and consistent process for involving external stakeholders in the development of program agendas and priorities.

- Organize and hold an R&D Forum/Workshop using a Steering Committee to guide decision making
  - Pipeline Safety Stakeholders: PHMSA, other Federal Agencies, Pipeline Safety State Partners, International Pipeline Regulators, Pipeline Trade Organizations and Standard Developing Organizations

http://primis.phmsa.dot.gov/rd/evaluation.htm

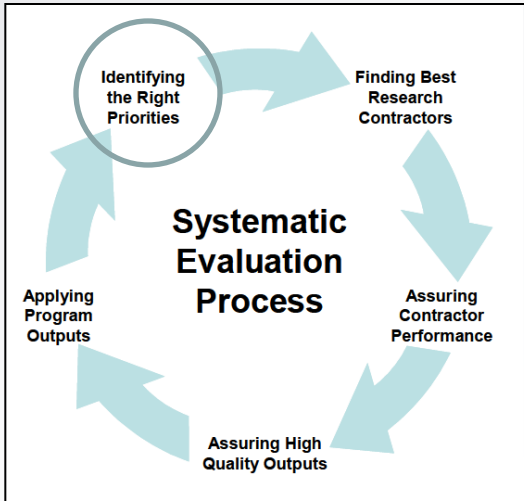


1. External stakeholder involvement in developing research agendas: *Elements*

B. Process for responding to stakeholder recommendations.

- Forum Agenda and Working Groups factor feedback, discuss and reach consensus on challenges, road map challenges then report out to audience
- Process culminates with issuance of proceedings and solicitation issued using identified topics

http://primis.phmsa.dot.gov/rd/evaluation.htm



1. External stakeholder involvement in developing research agendas: *Indicators*

A. Public announcement of upcoming stakeholder reviews and relevant information.

- Federal Register Notice (Docket ID PHMSA-2009-0157)

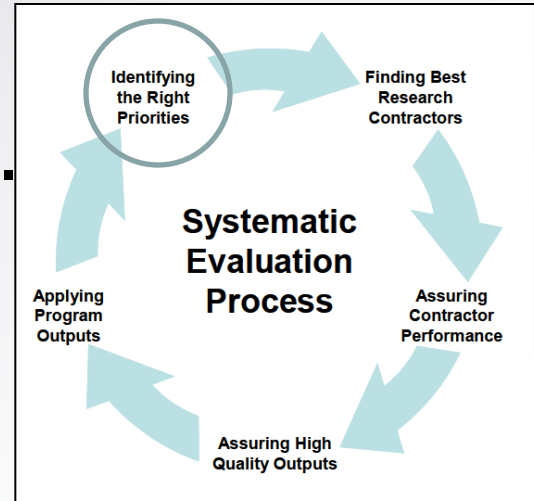
B. Posting and/or publication of review proceedings, recommendations, and reports.

- Proceedings are developed, reviewed by steering committee and posted http://primis.phmsa.dot.gov/rd/mtg_062409.htm

C. Posting and/or publication of OA's response to stakeholder recommendations.

- Both the proceedings and the feedback report illustrate the PHMSA response http://primis.phmsa.dot.gov/rd/mtg_062409.htm

http://primis.phmsa.dot.gov/rd/evaluation.htm

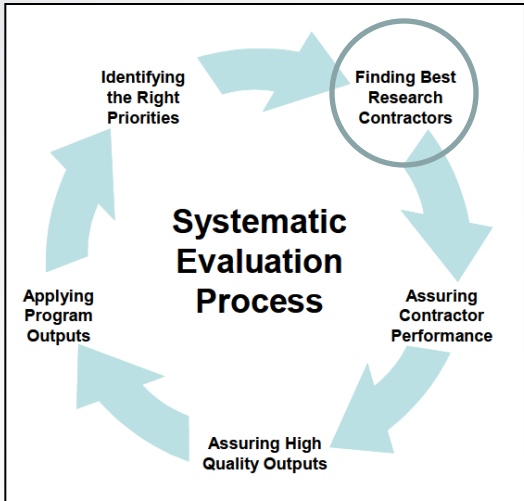


2. Merit review of proposals for competitive research grants and contracts: *Elements*

A. Transparent and documented process for awarding competitive grants and contracts based on merit review.

- Issue a Broad Agency Announcement using topics identified in forum/workshop proceedings
- Form merit review panel using pipeline safety stakeholders
- Jointly review white papers and proposals using 24 focused criteria
  http://primis.phmsa.dot.gov/matrix/RfpInfo.rdm?rfp=28

http://primis.phmsa.dot.gov/rd/evaluation.htm

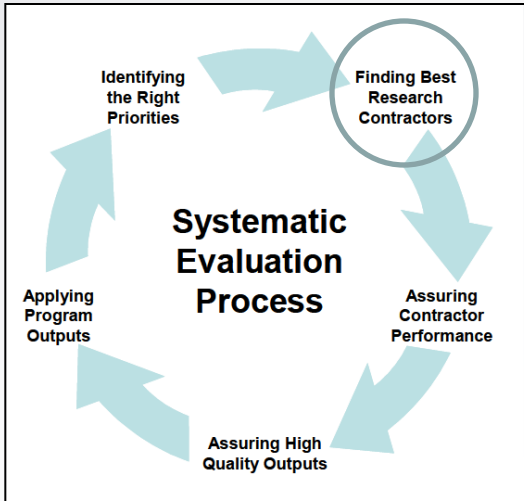


2. Merit review of proposals for competitive research grants and contracts: *Indicators*

A. Public announcement of grants and contracts on Grants.gov, FedBizOpps.gov, or elsewhere

- Posted on FedBizOps - DTPH56-10-BAA-000001
- Posted on or program website http://primis.phmsa.dot.gov/matrix/RfpInfo.rdm?rfp=28

http://primis.phmsa.dot.gov/rd/evaluation.htm

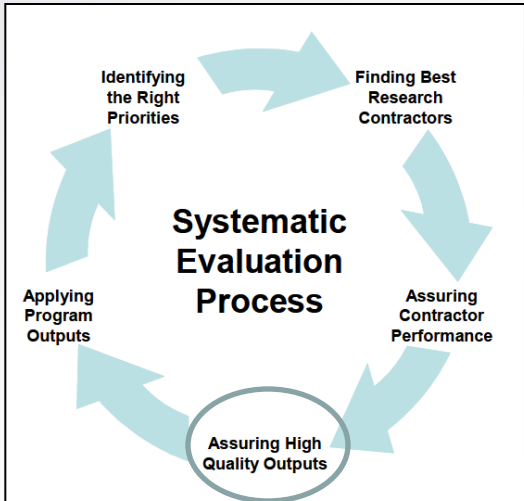


3. Independent evaluation of significant research using some form of expert review: *Elements*

A. **Adherence to OMB guidelines for peer review of "Highly Influential" and "Influential" scientific information.**

- PHMSA research outputs could potentially impact the economy in the tens of millions
  - Never over $100M or $500M
- Nevertheless PHMSA holds annual peer reviews following the "Influential" guidelines http://primis.phmsa.dot.gov/rd/annual_peer_review.htm

http://primis.phmsa.dot.gov/rd/evaluation.htm

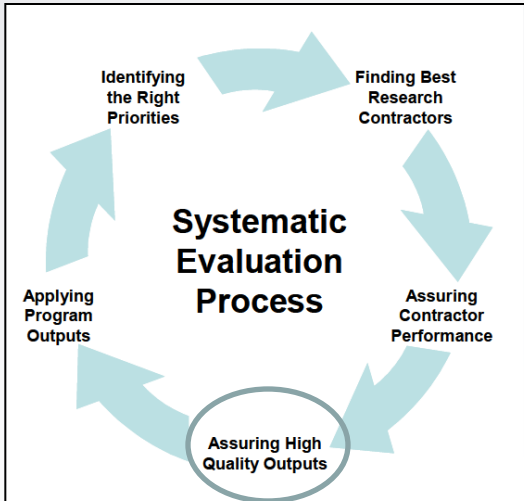


3. Independent evaluation of significant research using some form of expert review: *Elements*

B. Systematic process for evaluating significant RD&T programs that incorporates some form of independent expert review.

- PHMSA holds annual peer reviews using expert panels
  - Expertise, balance, and independence using 14 focused review criteria in 5 categories

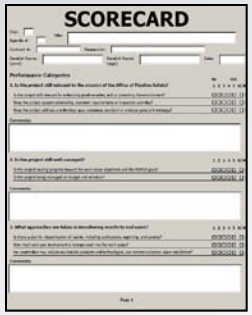
http://primis.phmsa.dot.gov/rd/evaluation.htm



1. Project relevance to the PHMSA mission.
2. Project management.
3. Approach taken for transferring results to end users.
4. Project coordination with other closely related programs.
5. Quality of project results.

3. Independent evaluation of significant research using some form of expert review: *Elements*

C. Process for using the results of expert reviews to guide future program decisions.



- PHMSA collects and documents the review including feedback from the panel
- Weak performing researchers are sometimes redirected using the panel recommendations
  - Consultation with PHMSA project managers and project co-sponsors

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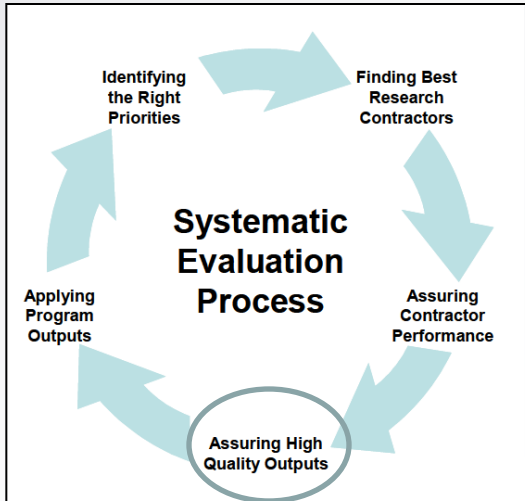
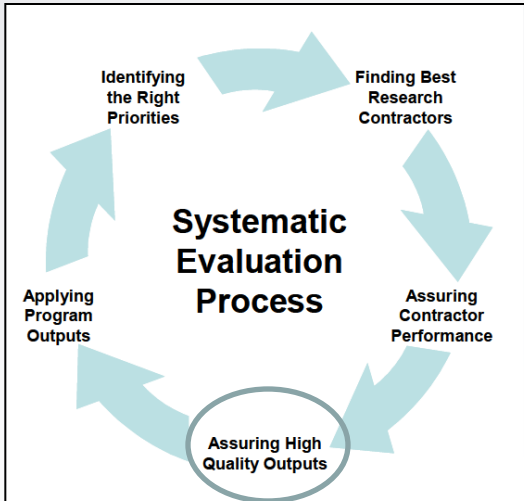


3. Independent evaluation of significant research using some form of expert review: *Indicators*

A. **Posting of a "peer review agenda" for all planned and ongoing research determined to be "Highly Influential" or "Influential," including peer review plans and links to relevant documents identified by OMB.**

- PHMSA is less than "Influential" and does not post the agenda
- Everyone involved is invited: Researcher, panelists, project managers, co-sponsors, other invited guests
- Public questions collected for the review via http://primis.phmsa.dot.gov/rd/annual_peer_review.htm

http://primis.phmsa.dot.gov/rd/evaluation.htm



3. Independent evaluation of significant research using some form of expert review: *Indicators*

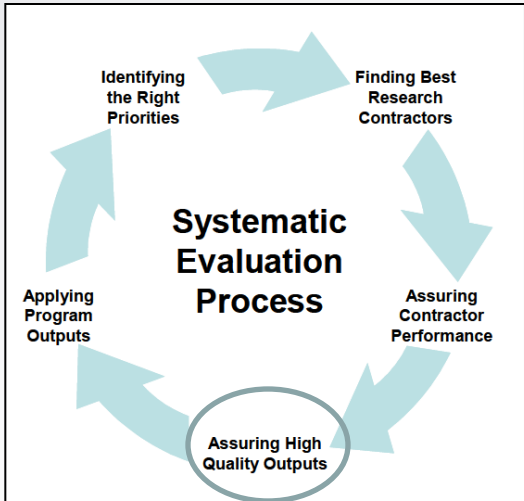
B. Posting and/or publication of the dates, process, and results of expert reviews of significant RD&T programs.

- Dates are posted, process is posted and results are posted via http://primis.phmsa.dot.gov/rd/annual_peer_review.htm

C. Posting and/or publication of plan for using expert reviews of significant RD&T programs to guide future decisions.

- Peer Review Report illustrates PHMSA's next steps if any.

http://primis.phmsa.dot.gov/rd/evaluation.htm



Listing of Annual Peer Reviews

No.	Date	Peer Review ID	Complete	Projects Reviewed	Very Effective	Effective	Moderately Effective	Ineffective
1.	February 7-9, 2006	PHP-1-2006	Yes	31	29	2	0	0
2.	March 27-29, 2007	PHP-2-2007	Yes	27	26	1	0	0
3.	May 1, 6, & 14, 2008	PHP-3-2008	Yes	29	28	1	0	0
4.	April 1, 2, 14, & 15, 2009	PHP-4-2009	Yes	42	34	8	0	0
5.	April 14, 15, 27, & 28, 2010	PHP-5-2010	Yes	35	26	9	0	0

4. Performance measures for significant research programs: *Elements*

A. Single- or multi-year objectives for significant RD&T programs (outcome measures).

- Periodically hold R&D Forum, generate consensus agenda and solicit for that agenda within these three objectives
- Solicitation defines a 1-3 yr objective within these 3 areas

Developing Technology	Strengthening Consensus Standards	Promoting Knowledge
Fostering the development of new technologies so that pipeline operators can improve safety performance and more effectively address regulatory requirements.	Targeting and feeding new knowledge into the process of keeping standards relevant to their purpose.	Generating and promoting general knowledge to decision makers.

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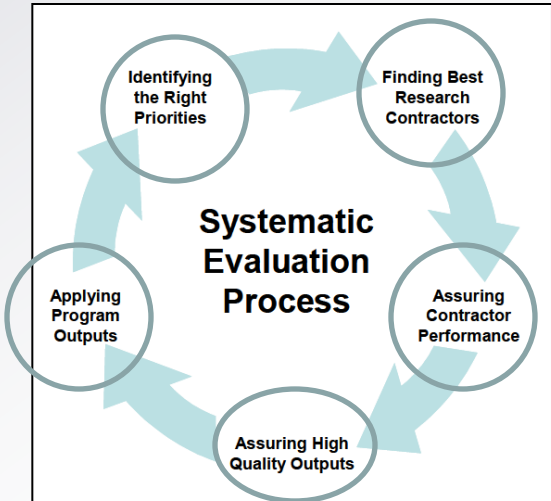
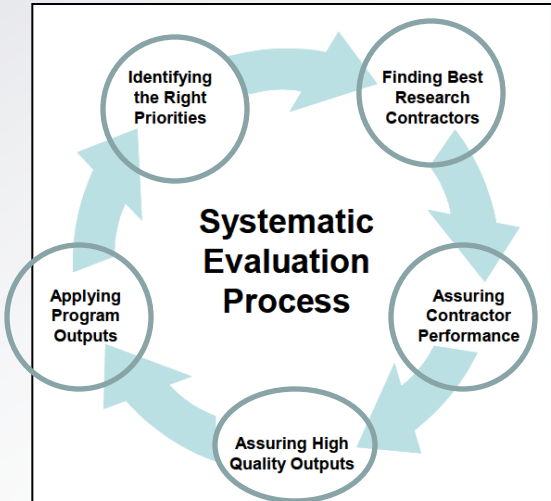


4. Performance measures for significant research programs: *Elements*

B. Measurable annual milestones that show how outcomes will be reached (outputs).

- PHMSA must be completing items within most if not all 5 steps in order to show outcomes will be reached
  - Steps 3 and 4 are most important
- Each step involves multiple sub-steps and with adjustments made as needed.

http://primis.phmsa.dot.gov/rd/evaluation.htm



4. Performance measures for significant research programs: *Indicators*

A. **Documentation of outcome measures in performance plans, performance reports, and/or program plans.**

B. **Documentation of annual output measures in performance plans, performance reports, and/or program plans.**

Fostering Development of New Technologies

- Number of projects developing new technology: 58
- Number of projects demonstrating new technologies: 27
- Number of U.S. Patent applications resulting from projects: 15
- Number of commercialized technology improvements: 9

Strengthening Regulatory Requirements and Consensus Standards

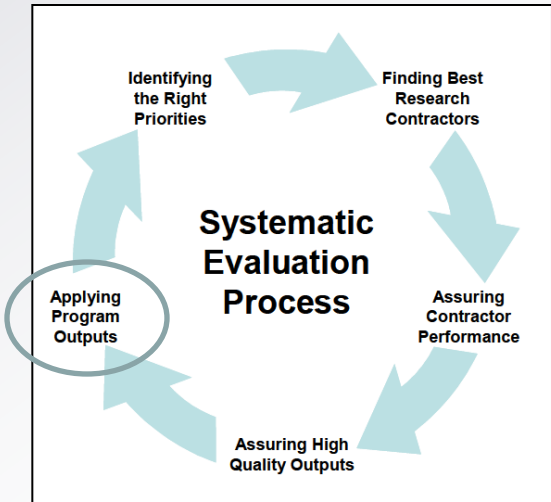
- Number of projects targeting Consensus Standards: 53
- Number of projects results used to revise Consensus Standards: 4
- Number of Consensus Standards affected by projects: 41
- Number of Consensus Standards revised by project results: 3
- Number of project results sent to committee for use in possible revision: 11
- Number of projects addressing PHMSA Regulations: 70
- Number of projects addressing NTSB Recommendations: 7

Promoting Knowledge for Decision Makers

- Number of projects promoting knowledge to decision makers: 113
- Number of final reports publicly available: 90
- Number of conference/journal papers presented: 70

http://primis.phmsa.dot.gov/rd/performance.htm

http://primis.phmsa.dot.gov/rd/evaluation.htm



5. RD&T Coordination: *Elements*

A. Consistency with RD&T strategies identified in the DOT Strategic Plan and RD&T Strategic Plan

- PHMSA Pipeline is very relevant to the following DOT Strategies:
  - Safety
  - State of Good Repair
  - Environmental Sustainability
- PHMSA Pipeline is now revising its RD&T Strategic Plan 2011-2015 and will re-align to these revised DOT strategies

5. RD&T Coordination: *Elements*

B. Coordination with relevant OAs, agencies, and partners

- Agencies and partners are integrated in each step of our program execution
- Participation with RITA and DOT activities provides for opportunities to further coordinate and self assess our

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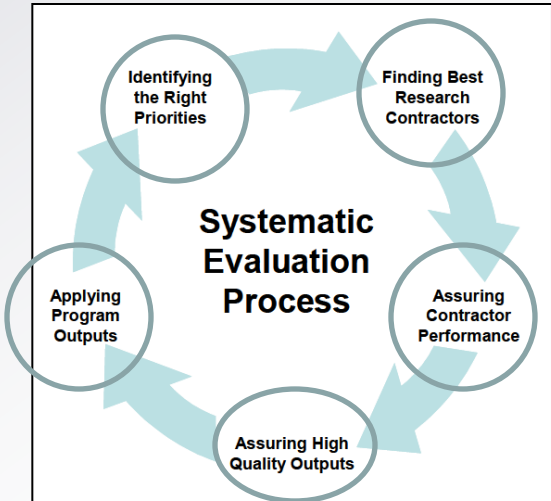

5. RD&T Coordination: *Indicators*

A. Identification of the RD&T strategies supported

- PHMSA has already tagged our projects as relevant to one DOT Strategy or another
- Projects will be re-tagged after the PHMSA and DOT RD&T Strategic Plans go final

Previous DOT RD&T Plan

Goals and Strategies

Departmental Goals Strategic Queries...

Goal	# Projects	PHMSA ($M)	Industry ($M)	Total ($M)
Safety	165	$56.51M	$76.19M	132.70M
Environmental Stewardship	11	$5.04M	$2.74M	$7.78M
Security	1	$0.26M	$0.26M	$0.53M
Organizational Excellence	1	$0.06M	$0.20M	$0.26M
GRAND TOTALS:	178	$61.89M	$79.39M	141.28M

- **124** projects addressing Safety also impact Environmental Stewardship.
- **1** projects addressing Safety also impact Organizational Excellence.
- **10** projects addressing Environmental Stewardship also impact Safety.
- **1** projects addressing Environmental Stewardship also impact Organizational Excellence.
- **1** projects addressing Security also impact Safety.
- **1** projects addressing Organizational Excellence also impact Safety.

5. RD&T Coordination: *Indicators*

A. Documentation of coordination efforts in program budgets, plans, reports, or briefings

- RD&T Fiscal Budget Submission
- R&D Forum Proceedings
- Participation in stakeholder events
- Annual Peer Review Reports
- Tech Demonstration Reports
- Project Final Reports issued during a given year
- Several memos, QFRs and testimony during a given year
- In 5 Congressional Reports as required by PSIA 2002

Thank You!

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