U.S. Department
of Transportation

Office of Pipeline Safety Presentation on

Road Mapping Research, Development and Deployment

Accelerating the Pathway to Success

What: Roadmapping is a disciplined process for identifying the task and timeline necessary to manage technical risk associated with solving complex problems.

How: Using roadmapping as a process to overcome technology gaps or barriers. Finding cost-effective and timely technology to solve in pipeline integrity and safety issues.

When: Roadmapping adds value and focuses you toward results
- Faster
- Lower Cost
- Better

Why: Roadmapping helps me gain consensus, collaboration, and cooperation from industry partners.

Advantages, and Benefits of Technology Roadmapping

U.S. Department of Transportation

- **Identifies Critical Issues and technology opportunities**
- **Recognize complexities of designing & implementing R&D programs**
- **Mechanism to thoroughly identify all key issues and opportunities**
  Example: the issue of monitoring pipeline right-of-way for encroachment activities or potential 3rd party damage maybe critically important to pipeline safety. Few technology cost effective solutions have been identified
- **Identify specific technology barriers:**
  Performance cost, features and capabilities
- **Illuminate current status:**
  Progress of R&D projects towards meeting near-term barriers
- **Build consensus:**
  With industry, academia and other agencies
- **Defining technology alternatives:**
  Blue print for successful partnerships

OPS Technology Roadmapping Process

OPS R&D Strategy

Technology Options

Stakeholder Views

Roadmapping Workshops
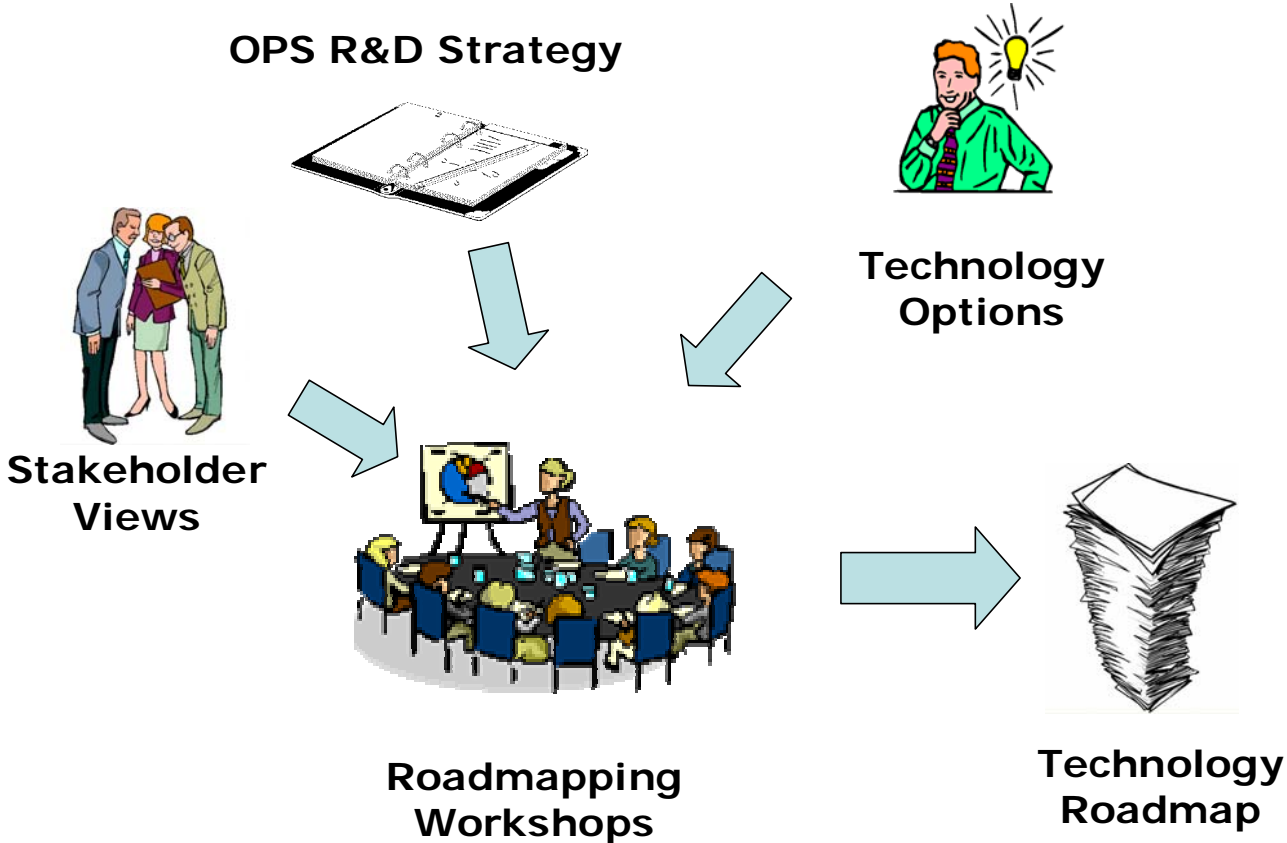
Technology Roadmap

Steps in OPS Technology Roadmapping Process

Phase I. Commitment and Planning

Phase II. Development of the OPS Technology Roadmap ←—**Today**
- Identify critical technology issues in pipeline safety
- Identify end products from the OPS R&D program
- Identify critical system requirements & targets
- Identify technology alternatives (pathways) & time lines
- Identify technology drivers and targets
- Specify major technology areas
- Decide priorities among technology alternatives

Phase III. Follow up and Application
- Create a draft roadmap document & review with stakeholders.
- Develop an implementation plan
- Review & update technology roadmap periodically

Guides to Technology Roadmapping

Examples of Technology Roadmaps
Technology Roadmap for the Petroleum Industry -DOE
http://www.oit.doe.gov/petroleum/pdfs/petroleumroadmap.pdf

Applying Science & Technology Roadmapping in Environmental Management -DOE.
http://fossil.energy.gov/programs/powersystems/vision21/

Road Map for the Safety of Hydrogen Vehicles and Infrastructure to Support the Transition to a Hydrogen Economy -DOT

The Electricity Technology Roadmap Initiative -EPRI
http://www.epri.com/corporate/discover_epri/roadmap/

International Technology Roadmap for Semiconductors
http://public.itrs.net/Files/2003ITRS/Home2003.htm

Guides to Technology Roadmapping

Fundamentals of Technology Roadmapping
http://www.sandia.gov/Roadmap/home.htm

Technology Roadmapping—A Guide for Government Employees
http://strategis.ic.gc.ca/epic/internet/intrm-crt.nsf/en/rm00055e.html

<u>Tools for Technology Roadmapping</u>
Robert G. Cooper. "Winning at New Products: Accelerating the Process from Idea to Launch". Cambridge: Perseus Publishing, 2001.

OPS R&D Program Contacts

Jeff Wiese
Department of Transportation
Research & Special Programs Administration
Office of Pipeline Safety
P(202) 366-2036
F(202) 366-4566
Email jeff.wiese@dot.gov

Jim Merritt
Department of Transportation
Research & Special Programs Administration
Office of Pipeline Safety
P(303) 683-3117
mobile (303) 638-4758
F(303) 346-9192
Email james.merritt@dot.gov

Robert Smith
Department of Transportation
Research & Special Programs Administration
Office of Pipeline Safety
P(202) 366-3814
F(202) 366-4566
Email robert.smith@dot.gov

Visit us at http://primis.rspa.dot.gov/rd