

Industry Perspective

(Breakout 1 of 3)

Edith Page and Eugene Pentimonti, *Cochairs*

Participants in this session included representatives from private companies involved in various aspects of freight transportation, including rail, truck, and marine carriers; industrial shippers; and manufacturers and suppliers of equipment. In addition, representatives from the National Highway Traffic Safety Administration, the Department of Energy, and Volpe TSC and private consultants were among the participants.

The group was unanimous in its belief that the best and most effective research and development (R&D) involves a partnership of government and industry. Industry is willing to share the costs of R&D to ensure that its input is incorporated into the research agenda. The R&D agenda must be customer driven.

The overarching vision of the group was a safer, more efficient, and productive intermodal transportation system. The group also recognized the importance of smooth, seamless functioning of the entire transportation system.

Research priorities at the modally structured U.S. Department of Transportation seem to be oriented modally. Most transportation providers and their customers, however, do not think this way. The goal of a safe, efficient, and productive system is an R&D standard by which priorities should be set and resources allocated.

The group made the point that cargo neither speaks nor votes. Freight requires more emphasis in transportation R&D, and some type of institutional mechanism is needed for carrying out this R&D. (A suggested model was a national cooperative intermodal research program such as the National Cooperative Highway Research Program.) In addition, a centralized data bank focusing on intermodal system performance would be useful.

The group discussed process issues. Issues that came up most frequently involved the setting of environmental and equipment standards. For example, thousands of tons of dredged material must be disposed of annually because of environmental concerns, even though most of the material is of sufficient quality to be put to productive use in other construction activities.

The group focused on the need to overcome the difficulties in determining the appropriate time to “freeze” a technology into an industry standard. There is always the feeling that perhaps if we wait for the next technological improvement, the resulting standard will be

better. At some point, however, we need to have standards set, both to keep our industries running and to enable us to benefit from new technologies.

More government resources than are currently available should be set aside to bring new technologies into the system. No single company or industry segment has the resources to allocate to this type of R&D. Some examples of these new technologies include underground (vacuum) pipelines for movement of parcel freight, magnetic levitation systems, and new types of personal transportation vehicles.

The group concluded that the plenary session speakers were on target in saying that a strategic plan is useful only until it is completed; then it is time to think about how the plan should be changed. Customers' needs are going to change. The changing demands on the transportation system make government R&D programming difficult. The R&D program has to be carefully formulated and presented in a budget that is 2 years from actuation. It would be helpful to have regular update sessions with clients to see how their needs are changing.

The following research needs were identified:

GENERAL

- Human factor research,
- Automated equipment identification project,
- "Tube freight," and
- Evaluation of benefits/costs of regulations.

AUTO-TRUCK

- Antilock brake systems,
- Headlight visibility,
- Collision avoidance,
- Different type of personal vehicle, and
- Environment (scrapping old equipment).

RAIL

- Enhanced freight car capacity,
- Composite materials,
- Locomotive improvements,
- Enhanced ride acceptability,
- Alternative fuels, and
- Rail safety crossings.

MARINE

- Marine accident prevention more cost-effective than double hull; how to integrate marine information into shipping/port system;
- Maritech—U.S. shipyards and flags—use of federal dollars;
- Dredging and spoils (disposal), environmental evaluation, and problem solving; and
- Research for using dredged material productively.

Industry Perspective

(Breakout 2 of 3)

Robert Davis and Jack Kay, *Cochairs*

This session included representatives from aircraft/engine manufacturers, airlines, transit management companies, the Federal Aviation Administration (FAA), the National Aeronautics and Space Administration (NASA), the Environmental Protection Agency, and bus manufacturers. In addition, engineering consultants were among participants. The consensus of the group was that the role of government is to “ensure that U.S. security and the economy are not limited by transportation factors.”

Participants endorsed the vision statement outlined in the draft Strategic Implementation Plan, but cautioned that it needed to be augmented with plans that (a) establish more detailed direction with appropriate measures toward success; (b) are integrated and intermodal (not stovepipe); and (c) extend and are funded beyond yearly budget cycles. It was recognized that government often is a poor partner in making long-term commitments because of the vagaries of the budgeting process.

Participants agreed that government clearly has a role in transportation safety and regulation, in developing and maintaining standards, in helping industry maintain preeminence and competitiveness, and in sponsoring selected areas of research and development (R&D). It was recognized that clear criteria to identify areas for government sponsorship and funding and a process for ensuring integrated customer input are lacking.

Participants discussed examples of successful and unsuccessful R&D programs. Even though the aviation industry, along with NASA and FAA, has a good process for acquiring customer input and guidance, the group agreed that improvements could be made, particularly in the area of viewing a total integrated plan among all industry and government agencies.

Participants welcomed the opportunity for industry input provided by the forum. They recommended that such outreach efforts be continued in a focused effort to gather customer input. Work should be carried out to provide the next level of detail on key programs and to indicate the degree of integration among the programs.

Industry Perspective

(Breakout 3 of 3)

William Spreitzer and Philip Tarnoff, *Cochairs*

Participants in this group were from various private organizations interested in advanced transportation systems and technologies.

The group agreed that the federal government has several roles in transportation R&D. It serves as a

- Policy maker and leader, as representative of society;
- Motivator, as “funder” and, when needed, regulator; and
- Risk sharer in areas of uncertainty, including public acceptance, market acceptance, and technical feasibility.

The group discussed relative funding levels for different types of federal government transportation R&D and developed the following general allocations for further discussion:

- Basic research (fundamental work without a specific mission)—5 to 10 percent,
- Applied research (both private- and public-sector, with cost sharing where there is commercial market potential)—65 to 80 percent, and
- Development (where government is the primary customer)—15 to 25 percent.

Strategies and priorities for such funding should include the following:

- Realization that research has a relatively low success rate;
- Recognition that transportation R&D has a fragmented customer base, making it difficult to plan, specify, manage, evaluate, and justify an R&D program;
- Strong involvement by transportation constituencies—public (all relevant federal agencies; state, regional, and local governments; users; social and stakeholder interests) and private (industry, associations, institutes, users);
- Partnerships (agencies, constituencies, interests, public/private, national/continental/global);
- Continuity of support, especially in basic research;

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- Recognizable deliverables and measures of performance;
 - Overall management by staffs with experience in conducting R&D; and
 - Streamlining of procurement and contracting processes.

The group recommended that a new committee on transportation R&D policy and programs be formed to provide consultation, advice, strategies, priorities, management (when needed), and evaluation of the federal transportation R&D program on a continuing basis. This committee, which could be established within the National Research Council or other appropriate organization, would be composed of knowledgeable senior professionals from government, industry, academia, and public interests, including the public and private sectors; from scientific, technical, social, and behavioral fields; and from management, technical, and administrative staffs.