



Multimodal Systems Research & Analysis

Safety Management Systems

Environmental & Energy Systems

Freight Logistics & Transportation Systems

Physical Infrastructure Systems

CNS & Traffic Management Systems

Human Factors Research & System Applications

Advanced Vehicle & Information Network Systems

Freight Logistics and Transportation Systems Center of Innovation

**Volpe National Transportation Systems Center
U.S. Department of Transportation
Research and Innovative Technology Administration**

Innovation for a Nation on the Move

Trends and Issues

Economic globalization and international trade are growing faster than the overall economy, quadrupling between 1980 and the present. New economies are emerging, trade routes are shifting, and the U.S. faces new economic challenges. Economics of global supply chains are being affected by volatile energy prices; there is growing concern that manmade and natural events can shut down supply chains and disrupt the global economy.

Demand for freight transportation is increasing in line with our growing population and increased economic activity. As a result, the U.S. is experiencing increased congestion at our borders, our seaports, and on our major surface transportation corridors.

COI Profile

The Freight Logistics and Transportation Systems COI maintains awareness of changes in local, regional, national, and world freight and logistics transportation infrastructure; includes consolidation of all elements of safety, security, economic, environmental stewardship, and energy issues. Technical expertise is provided to support the deployment of the next generation of global logistics and transportation systems.

Project Snapshots

• Developed, for the U.S. Navy, a vessel monitoring and tracking system to improve the safety and security of maritime operations. The system includes real-time tracking of more than 10,000 vessels from over 50 nations. Continues to upgrade and replicate the system throughout the world. This program won the Harvard University, Ash Institute for Democratic Governance and Innovation, *Innovations in American Government Award*.



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• Developed a web-based logistics information system for the United Kingdom Ministry of Defence to provide secure visibility of both passenger and freight movements.



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• Developed a system to track the location of ships passing through the Panama Canal. GPS satellite data were used to create real-time displays to monitor the location of transiting vessels. The system improved safety and significantly increased vessel throughput in the Canal.

• Surveyed intermodal supply chain, port, and airport operations in Asia, the Middle East, the Indian subcontinent, Europe, and North America for the DOT and other agencies. Collected information and best practices on security and operations from over two dozen international ports.

• Supporting the Port Authority of New York and New Jersey (PANYNJ) in the development of a regional surface transportation security and emergency operation plan for the New York tri-state area, reviewing interoperability issues, and identifying gaps in lines of communications.

• Conducting an assessment of the risks and vulnerabilities in the national Marine Transportation System (MTS) for the U.S. Army Corps of Engineers. The project identifies system attributes that make the MTS adaptive and resilient in the face of adverse human-made and natural events and disruptions.



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security technologies in an international supply chain.

• Supported the Interagency Technical Support Working Group (TSWG) by providing research, development, and prototyping of non-intrusive inspection technology to screen personnel, vehicles, vessels, mail, and cargo.

• Developed a set of global satellite-based freight and vehicle tracking tools that were employed extensively to meet military logistics and operational requirements under the In-transit Visibility (ITV) program for the Department of Defense.



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• Deployed a new automatic identification system (AIS) for vessel traffic in the Columbia River in Oregon, providing continuous AIS signal coverage along the navigable waters of the Columbia River, resulting in improved safety and greater situational awareness.

• Supported the U.S. Postal Service to meet its strategic objectives and process-based initiatives in the prevention, detection, and identification of HAZMAT-related problems in the mail by developing training materials, providing education, and developing management process improvement strategies.

About the Research and Innovative Technology Administration

The Research and Innovative Technology Administration (RITA) coordinates U.S. DOT's research programs and is charged with advancing the deployment of cutting-edge technologies to improve our Nation's transportation system. RITA was established as a U.S. DOT Operating Administration by the Norman Y. Mineta Research and Special Programs Improvement Act of 2004.

About the Volpe Center

An innovative, Federal, fee-for-service organization, the Volpe Center, part of the U.S. DOT's RITA, is an internationally recognized center of transportation and logistics. The Volpe team represents a world-class transportation resource with multidisciplinary expertise in all modes of transportation. The Volpe Center plays a unique role in looking across the transportation enterprise to anticipate future transportation issues and challenges. The Center also has a highly skilled team of acquisition professionals. For nearly 40 years, the Volpe Center has lent critical support to all U.S. DOT's modal administrations and offices, other Federal agencies, state and local governments and organizations, foreign governments and entities, and the private sector.

The Volpe Center is organized into eight Centers of Innovation (COI). Each COI applies its technical capabilities to U.S. DOT strategic goals and national transportation priorities. The COIs expand U.S. DOT's horizon and show how innovation can arise from creative and collaborative use of internal and external assets. The COIs include:

- **Multimodal Systems Research and Analysis**
- **Safety Management Systems**
- **Environmental and Energy Systems**
- **Freight Logistics and Transportation Systems**
- **Physical Infrastructure Systems**
- **Communication, Navigation, Surveillance (CNS) and Traffic Management Systems**
- **Human Factors Research and System Applications**
- **Advanced Vehicle and Information Network Systems**

For more information

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<http://www.rita.dot.gov>

<http://www.volpe.dot.gov>

Innovations in American Government Award Winner

The Ash Institute for Democratic Governance and Innovation at the Harvard University Kennedy School of Government announced the **Global Maritime Domain Awareness Program** as a winner of the **2008 Innovations in American Government Awards** for its efforts in enhancing levels of safety and economic stability on the global seas. The program provides real-time tracking of more than 10,000 vessels from over 50 nations, providing an unprecedented level of visibility into port activity. The program will receive \$100,000 toward dissemination and replication across the country.