

Transportation Knowledge Networks

A Management Strategy for the 21st Century

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The rapid delivery of reliable information and data enables public- and private-sector transportation professionals to perform their work, carry out the mission-critical goals of their organizations, and remain on the cutting edge of new research and technologies. The availability of the Internet and web search engines, however, has caused some transportation agencies to question the need for maintaining traditional libraries with central physical collections; library budgets are easy targets for cutbacks.

Despite the promise of the Internet, transportation professionals still report that they face an overwhelming volume of information. Many often have difficulty locating and retrieving technical reports, even the reports that are available in digital formats.

Strategic Advice

Concerned about the downsizing and closing of transportation libraries, as well as about the growing

demand for information services geared to new technologies, the Standing Committee on Research of the American Association of State Highway and Transportation Officials (AASHTO) requested the Transportation Research Board (TRB) to take a fresh look at how transportation information should be managed and provided. Through the National Research Council of the National Academies, TRB assembled a study committee of experts in information and computer science, library science and management, transportation policy and research, and transportation agency and research administration (see box, this page).

AASHTO charged the TRB study committee to provide strategic advice to the federal government and the states on the core needs for information services and on a sustainable administrative structure and funding mechanism to meet those needs.

Focusing on Basics

Users of transportation information represent a diverse and decentralized community that comprises the state and federal agencies involved in transportation; more than 600 transit agencies; nearly 400 metropolitan planning organizations; countless public works officials in thousands of cities, towns, and counties, supported by private contractors and consultants; universities; and private transportation companies and professional associations.

These groups not only need transportation information but also frequently assemble reports, research, and technical information that are not always widely shared. The study committee therefore focused on how to improve the identification, collection, accessibility, and preservation of information to increase the circulation and sharing of these resources among users.

The committee's report, issued as Special Report 284, *Transportation Knowledge Networks: A Strategy for the 21st Century*, covers all types of transportation information—from reports and journal articles to conference proceedings, as well as databases and statistical information, in the United States and abroad. The

Committee for a Future Strategy for Transportation Information Management

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focus is on the basics, however: ensuring that narrative information—such as reports, articles, and conference proceedings—is identified and made available, preferably in electronic form, and that it remains accessible to major user groups. The report addresses the provision of information services in general, not only the accessibility through libraries.

Achieving the Vision

Many transportation information services are products of a transportation information management system envisioned in the early 1970s. These include the Transportation Research Information Services (TRIS) bibliographic database, the Research in Progress database, and a Transportation Thesaurus to improve and standardize the indexing and retrieval of transportation information.

In addition, the Online Computer Library Center catalogues the collections of many U.S. transportation libraries and locates documents for participating users. The recently launched TLCat is a special online catalogue of the collections of transportation libraries.

These services, however, have evolved piecemeal, are unevenly funded, and depend on informal institutional arrangements. The primary elements of the original vision for a transportation information management system have yet to be realized—notably the establishment of a sustainable coordinating mechanism and stable financial support.

In 1998, Congress authorized the U.S. Department of Transportation (DOT) to establish and maintain a National Transportation Library (NTL). The NTL provides a small digital collection of documents and websites, makes a major portion of TRIS available on the web, and offers reference services and free public access to TLCat; it also initiated a pilot consortium of libraries in the Midwest.

The NTL was positioned to become the national-level coordinating entity that U.S. transportation professionals had envisioned. But without stable funding and support from U.S. DOT, the NTL has been able to operate to date only within a narrow definition of its mission.

Making the Case for Change

In today's digital age, why are transportation libraries and information services not valued more? Many state DOT libraries, for example, are staffed by only one full-time equivalent professional, and two-thirds of state DOT libraries have annual budgets of less than \$15,000.

Part of the reason is that desktop access to online information is ubiquitous. Cost-conscious managers ask why the personnel costs and space requirements of running a library and providing information services are necessary when users can summon the informa-



tion they require at their desktops.

Making the business case for the gains in time and efficiency—the value added—through well-organized, readily accessible, and reliable information resources can be difficult. Like research, good information is often taken for granted, and the benefits are not always evident. The services offered by librarians—reference and research, document retrieval from international sources, literature reviews, collection development, full-text article retrieval, and other subscription services—are frequently not recognized, especially at the level of state DOT leadership, where turnover among chief executive officers is high.

Libraries and information professionals in other fields, such as health and agriculture, have addressed this problem by transforming their libraries. As information has become increasingly electronic, libraries have evolved from centralized and managed physical collections into decentralized networks of information, providing information services to users wherever they reside.

According to the committee, networks could form the backbone of a better system for managing transportation information. The consortium of Midwestern transportation libraries provides a good model.

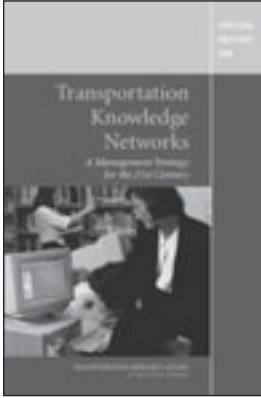
Knowledge Networks

To address the information service needs of the transportation sector in the digital age, the committee developed a series of consensus findings and recommendations for the organization and development of a transportation information management system.

The committee recommends the establishment of transportation knowledge networks (TKNs) in every region of the United States and at the federal level to link information providers to users (see figure, next page). Management and coordination of the activities of the TKNs should be at the national level, located within U.S. DOT's Research and Innovative Technology Administration (RITA).

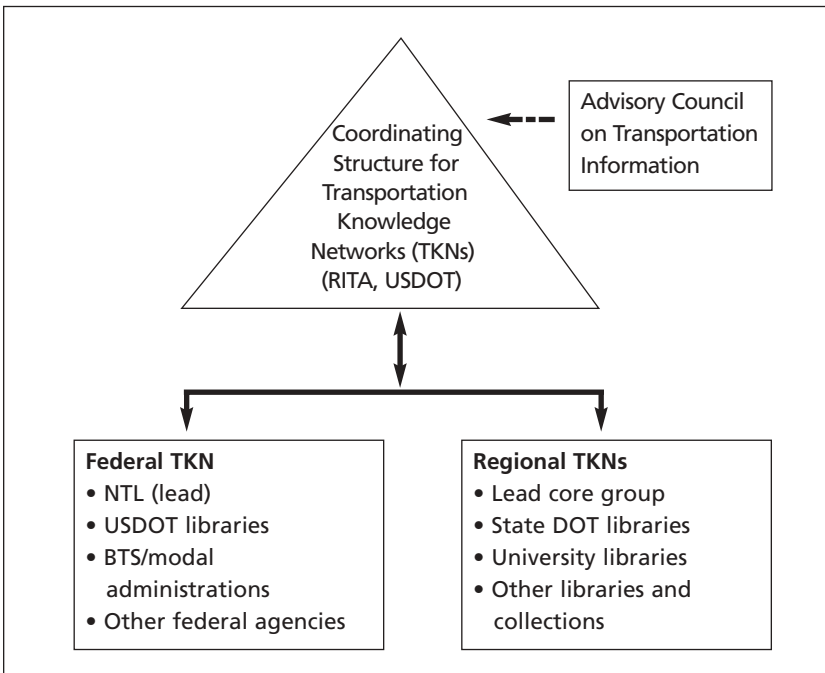
RITA should establish the governance for the coor-

Members of the Committee for a Future Strategy for Transportation Information Management presented their findings and recommendations and released Special Report 284 at a 2006 TRB Annual Meeting session, Wednesday, January 25: (left to right) Lance Grenzeback, Francis Francois (*chair*), Leni Oman, Bonnie Osif, Roberto Sarmiento, and Robert Johns.



TRB Special Report 284, *Transportation Knowledge Networks: A Management Strategy for the 21st Century*, is available from the TRB online bookstore, www.TRB.org/bookstore; to view the book online, www.TRB.org/publications/sr/sr284.pdf.

Proposed nationwide system for transportation information management.



ordinating structure by broadening the focus and membership of the Advisory Council on Transportation Statistics to become the Advisory Council on Transportation Information, with responsibility for policy direction and oversight and for reporting annually to Congress. External peer reviews of the activities of the coordinating structure and the TKNs also should be conducted, and the TKNs should consider organizing a representative, independent nonprofit association.

Sustaining the System

The lack of sustained funding and of ownership in the development of a nationwide transportation information management system has been a critical problem. This has hindered the support necessary for building a coordinating structure with a national vision to meet the information service needs of transportation users.

The committee therefore recommends initiating and funding the proposed coordinating structure for the first 3 years through annual federal grants of \$3 million to \$5 million. The funds will be used to set up the coordinating structure, start up the critical programs, and make pilot grants to help establish a federal TKN and the regional TKNs.

After the first 3 years, the federal grants should be increased and local matching funds should be required to support network operations, leveraging a total annual program budget of \$7.5 million to \$13 million. The coordinating structure's funds would help finance continuing network development and expansion; underwrite individual projects with national applications, such as information infrastructure, tool build-

ing, and products for network use; support professional capacity building; and conduct research. The network funds would support collection coordination and development, interlibrary loan services, the coordinated preservation and storage of printed and electronic materials, reference services for regional users, and professional development for members.

Follow-On Project

The committee recommends a follow-on project funded through the National Cooperative Highway Research Program to develop a business plan, including details of proposed functions and funding for the recommended transportation information management system.¹ In addition, the committee calls on U.S. DOT to expedite the establishment and funding of the national coordinating structure as recommended. Recognizing that funding for RITA is constrained under the current surface transportation legislation, the committee is focusing its recommendations for federal funding on the next reauthorization.

Finally, the committee urges the amending of the legislation for the Advisory Council on Transportation Statistics as soon as possible to broaden its membership, focus, and reporting functions, to provide a strong governance body for the coordinating structure. The follow-on study should be completed in time to enable Congress to review both the recommended funding requirements and legislative changes before the next reauthorization.

A Winning Strategy

A critical benefit of the proposed transportation information management system will be to improve access for users to more complete, reliable, and rapidly delivered information. The network focus, in particular, provides a winning strategy for leveraging resources, minimizing duplication, and stretching budgets for libraries and information services in today's business environment, in which transportation professionals are asked to do more with less.

A more coordinated information management system also should foster the sharing of expertise by training users to search for and locate information and by keeping librarians and other information professionals abreast of rapidly changing technology advances. The proposed coordinating structure, supporting a federal TKN and the regional TKNs, should provide the leadership to bring about a transportation information management system to meet the information needs of the transportation sector well into the 21st century.

¹The AASHTO Standing Committee on Research approved a two-year follow-on project through the National Cooperative Highway Research Program on March 21, 2006.