



TRB SPECIAL REPORT 284

Transportation Knowledge Networks

A Management Strategy for the 21st Century

In today's information age, public- and private-sector transportation professionals seek rapid delivery of reliable information and data to enable them 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 has caused some transportation agencies to question the need for traditional libraries with central physical collections, and library budgets are often easy targets for cutbacks. Despite the riches of the Internet, however, transportation professionals still report that they face an overwhelming volume of information, and many often have difficulty locating and retrieving technical reports, even those in digital form.

STUDY CHARGE

Concerned about library downsizing and closures, as well as growing user demand for information services better geared to new information technologies, the Standing Committee on Research of the American Association of State Highway and Transportation Officials (AASHTO) requested that the Transportation Research Board (TRB) take a fresh look at how transportation information should be managed and provided. AASHTO charged the TRB study committee that developed this report with providing strategic advice to the federal government and the states on core information service needs and a sustainable administrative structure and funding mechanism for meeting these needs.

FOCUS

Users of transportation information represent a diverse and decentralized community, including the states 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. Not only do these groups need transportation information, but they also are frequently the primary source of reports, research, and technical information that are not always widely shared. Thus, an important focus of this study is how to improve the identification, collection, accessibility, and preservation of information so these resources can be better circulated and shared among users.

The committee's report covers all types of transportation information—from reports and journal articles to conference proceedings, as well as databases and statistical information, in both the United States and abroad. The major focus, however, is on the basics—ensuring that narrative information, such as key reports, articles, and conference proceedings, is identified and made available (preferably in electronic form), and remains accessible to major user groups. The report addresses the provision of information services generally; it is not limited to libraries.

PROBLEM STATEMENT

Many transportation information services exist as the result of a transportation information management system envisioned in the early 1970s. Some of those services include the Transportation Research Information Service (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, collections of many U.S. transportation libraries are cataloged in the Online Computer Library Center, which identifies where a document is located for participating users. A special online catalogue of the collections of transportation libraries only (TLCat) was recently launched.

These services, however, have evolved in a piecemeal fashion, are unevenly funded, and are largely dependent on informal institutional arrangements. In addition, the primary elements of the original vision of a transportation information management system

have not been realized. Most notably absent are a sustainable coordinating mechanism and stable financial support.

In 1998, Congress authorized the U.S. Department of Transportation (USDOT) to establish and maintain a National Transportation Library (NTL). 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. NTL also initiated a pilot consortium of libraries in the Midwest and could have become the national-level coordinating entity envisioned by U.S. transportation professionals. Without stable funding and support from USDOT, however, NTL has been able to operate 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 more valued? For example, many state departments of transportation (DOTs) are serviced by libraries with one full-time equivalent or less professional staff, and two-thirds of state DOT libraries have annual budgets of less than \$15,000. The ubiquitous presence of desktop access to online information is part of the answer. Cost-conscious managers ask why the personnel costs and space requirements of running a library and providing information services are necessary when users can simply summon the information they require at their desktops.

Making the business case for the time and efficiency gains—the value added—of well-organized, readily accessible, and reliable information resources can be difficult. Like research, good information is often taken for granted, and its 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 known, 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. In the committee's judgment, networks could form the backbone of a better system for managing transportation information, and a good model exists in the consortium of Midwestern transportation libraries.

MANAGEMENT AND COORDINATION OF A TRANSPORTATION INFORMATION MANAGEMENT SYSTEM

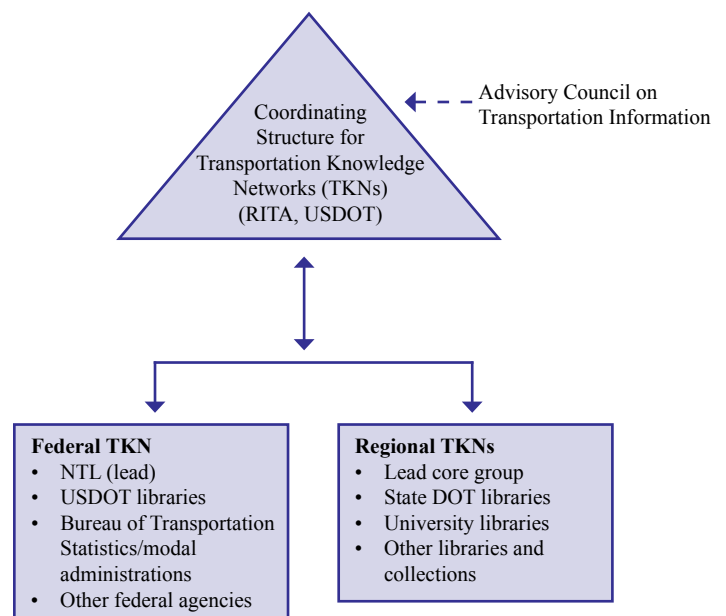
To address the information service needs of the transportation sector in the digital age, the committee developed a series of consensus findings and recommendations for the organization and development of a transportation information management system. The committee recommends that transportation knowledge networks (TKNs) be established in every region of the United States and at the federal level to link information providers to users wherever they may be. Management and coordination of the

activities of the TKNs should take place at the national level and be located within USDOT's Research and Innovative Technology Administration (RITA). RITA should be charged with establishing a governance body for the coordinating structure by broadening the focus and membership of the current Advisory Council on Transportation Statistics, which would become the Advisory Council on Transportation Information, with responsibility for policy direction and oversight and annual reporting to Congress. External peer reviews of the activities of the coordinating structure and the TKNs should also be conducted, and the TKNs should consider organizing a representative nonprofit association external to USDOT.

SUSTAINING A TRANSPORTATION INFORMATION MANAGEMENT SYSTEM

Lack of sustained funding and ownership in the development of a nationwide transportation information management system has been a critical problem in the past, hindering the transportation sector from providing the support necessary to build a coordinating structure with a national vision to meet the information service needs of transportation users. Therefore the committee recommends that the proposed coordinating structure be initiated and funded for the first 3 years by annual federal grants of \$3 million to \$5 million to set up the coordinating structure, start up its critical programs, and make pilot grants to help establish the regional and federal TKNs.

After the first 3 years, federal grants should be increased and local matching funds required to help support network operations, leveraging a total annual program budget of \$7.5 million to \$13 million. The coordinating structure's funds would be used to help finance continuing network development and expansion;



Proposed nationwide system for transportation information management

underwrite individual projects with national applications, such as information infrastructure, tool building, and products for network use; support professional capacity building; and conduct research. Network funds would be used to support collection coordination and development, interlibrary loan services, coordinated preservation and storage of printed and electronic materials, reference services for regional users, and professional development for members.

NEXT STEPS

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 transportation information management system recommended in its report. In addition, the committee calls upon USDOT to expedite the establishment and funding of the national coordinating structure as recommended in the report. The committee recognizes that funding for RITA is constrained under the current surface transportation legislation, so its recommendations for federal funding are focused on the next reauthorization. Finally, the committee urges that the legislation for the Advisory Council on Transportation Statistics be amended as soon as possible to broaden its membership, focus, and reporting functions so as 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.

CONCLUSIONS

A critical benefit of the proposed transportation information management system will be improved 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 should also foster sharing of expertise by training users in how to search for and locate information and by keeping librarians and other information professionals abreast of rapidly changing technology advances. Most important, the proposed coordinating structure, supporting the TKNs at the federal and regional levels, should provide the long-overdue leadership needed to bring about a transportation information management system that will meet the

information needs of the transportation sector well into the twenty-first century.

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