SCAN TEAM REPORT
NCHRP Project 20-68A, Scan 12-04

Advances In Transportation Agency Knowledge Management

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Executive Summary

This report summarizes the findings from a scan workshop of Knowledge Management (KM) within transportation agencies and other organizations. The purpose of this scan was to identify and document successful KM practices and identify additional needs to advance KM in transportation agencies.

A scan team consisting of state Departments of Transportation (DOTs) and United States Department of Transportation (USDOT) administration staff was formed to guide the scan and develop findings, recommendations, and implementation actions. Scan team members brought a diversity of KM implementation experience and an understanding of DOT management and workforce challenges to the table. Scan team members and representatives of 10 other organizations met for a scan workshop in November 2013 to share their practices. In all, the scan reviewed KM activities in seven state DOTs (i.e., Alaska, Georgia, Kansas, Missouri, Virginia, Washington and Wisconsin); three USDOT administrations (Federal Aviation Administration [FAA], Federal Transit Administration [FTA], and Federal Highway Administration [FHWA]); two private sector organizations (Kraft Foods and Accenture); the National Aeronautics and Space Administration (NASA); and Alberta Transportation.

Scan participants were asked to discuss these topics:

- **Context** – characteristics of their organization that provide a context for KM implementation

- **Innovation and Knowledge Sharing** – ways in which their organization fosters innovation through collaboration and knowledge sharing

- **Succession Management** – strategies for managing staff transitions to retain and acquire critical knowledge and minimize risk

- **Employee Orientation, Learning, and Development** – ways in which their organization facilitates new employee orientation and ensures continued employee development and organizational learning

- **Identification, Documentation, and Dissemination of Processes, Practices, and Expertise** – techniques used for identifying, capturing, storing, and providing access to knowledge about business processes, practices, and expertise

Most of the participants said that they were motivated to implement KM because of a concern about loss of staff knowledge due to retirements. A desire to support innovation and achieve efficiencies provided a second common motivation for KM. There was considerable variation across scan participants in their approaches to KM implementation. A handful of the participants reported that their organizations had established centralized and formal KM functions; others had implemented

KM practices in a more limited and decentralized fashion. After hearing the presentations, the scan team concluded that a formal KM function with a designated lead and staff resources is a strategy that should be considered to effect meaningful and sustained change. However, the team also acknowledged that organizations that cannot establish a central KM office can still derive value through implementation of KM techniques within individual business units.

Scan participants made it clear that KM is fundamentally a strategic endeavor that seeks to maximize value from the organization's human capital. As such, a cabinet-level position for the KM lead or a close working relationship between the KM lead and the leadership team is important to use effectively KM techniques to further the organization's mission. However, because KM is difficult to sustain in an organization through leadership changes and shifts in priorities, participants emphasized the importance of embedding KM from the bottom up through supporting the formation of networks.

Participants stressed the importance of organizational culture as a key enabler of innovation and knowledge sharing within an organization. A highly siloed organization in which employees are in the "every person for themselves" mode is not conducive to adaptation or innovation. Examples of strong leadership development programs and deliberate management efforts were provided, illustrating how organizations can not only articulate values that support teamwork and innovation, but also make sure they are actually "walking the walk."

A wide range of KM strategies and programs were discussed, including:

- **Workforce Planning** techniques to anticipate and address anticipated gaps in critical expertise

- **Recognition Programs** to reinforce organizational values of knowledge sharing and teamwork

- **Communities of Practice** that bring together groups within specific content or functional areas to share knowledge, support each other, and develop practice improvements

- **Knowledge Capture Methods** to codify, document, and retain valuable lessons learned and other know-how from employees with years of experience and/or highly specialized and unique expertise

- **Team Learning Techniques** to ensure that project teams learn from experience prior to starting work and take the time during the project to document lessons for use in future initiatives

- **Mentorship Programs** to provide on-the-job support to help less experienced staff get up to speed

- **Information Management** strategies to define common terminology across the organization and ensure that critical information (e.g., policies, procedures, and business processes) is accessible and usable

These techniques can be combined to develop a robust KM program that minimizes the impact of employee transitions and builds a strong foundation for innovation. This scan provides a rich base of materials that transportation agencies can use to investigate and implement KM practices. The scan team identified and is pursuing an extensive set of outreach activities to disseminate the scan's findings and support further adoption of KM practices (see Chapter 4.0).