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## KM at the Virginia Department of Transportation

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With about 9,200 employees, the Virginia Department of Transportation (VDOT) is one of the three largest state agencies in the Commonwealth of Virginia. Virginia has the third-largest state-maintained highway system in the United States. The VDOT is responsible for the construction, maintenance, and operation of the roads, bridges, and tunnels in the state's 58,082-mile system. The agency has nine district offices, which oversee construction, maintenance, and operations within the designated geographical area. The districts are further divided into forty-two residencies and two district satellite offices and also staff an area maintenance headquarters in each county. The VDOT central office headquarters is located in Richmond and has thirty-five operational and administrative units. The knowledge management division is part of the central office but is located in Charlottesville, in the geographical center of the state.

In the mid-1990s, the agency lost experience and valuable institutional knowledge following a statewide workforce reduction that offered early retirement to long-term employees. To mitigate the loss, the agency hired former employees as contractors to continue the work. Today, about 28 percent of the current employees are eligible for retirement in the next five years and the former employees hired back as contractors are approaching second retirements. To prevent a recurrence of the knowledge loss, the agency instituted a knowledge management division in late 2003 to address critical knowledge identification, collection, organization, and dissemination.

When Philip Shucet joined VDOT as the new commissioner in 2002, he introduced the concept of two new incubator programs to address the intellectual assets of the agency, knowledge management and the learning center.

His expectation was that the KM program would address the identification and sharing of critical institutional knowledge, and the learning center would ensure that the organization would incorporate that knowledge and emerging core competencies into training and learning opportunities. The KM division was established in the spring of 2003 and a director was hired in November of that year. Due to a hiring freeze in state government, hiring for additional positions in the division was put on hold for six months. As the new director came from outside the agency, the chief of technology, research and innovation, Dr. Gary Allen, assigned a research scientist and long-term employee, Bill Bushman, to temporary duty with the new division to act as a guide to the agency for the new director. The research council, located in Charlottesville, provided administrative support. The KM division was given two directives: (1) establish a community of practice for the project managers of the major construction projects, and (2) take baby steps but make this happen quickly.

### **Goals of the KM Division**

The goals of the division are to preserve and make accessible institutional knowledge and memory, to establish an environment that supports knowledge creation and sharing, and to help the organization know what it knows. The objectives are to identify knowledge experts and to support the redundancy of knowledge within the agency. These are accomplished through knowledge mapping and the establishment of communities of practice. The agency has included measurements for these activities in its strategic plan for 2006–2008. The division will map the knowledge network of one district and will double the number of communities to twenty.

### ***Original Community***

As directed by the commissioner and chief, the first community was to comprise the project managers of major construction projects, such as the Woodrow Wilson Bridge, the Springfield Interchange, Pinner's Point in Hampton Roads, I-81, and the Coalfields Expressway. The value of these projects taken together was approximately \$8 billion. An initial meeting with these seventeen project managers was held in early December 2003, during which the commissioner stated that he truly believed that just bringing them all together in one room to talk with each other about what was happening in their projects, their issues, their concerns, and lessons learned would result in tremendous savings for the agency. He also stated that due to the project managers' heavy schedules and responsibilities, the community would need

to be established electronically as they did not have time to meet in person on a regular basis. During the meeting, the project managers provided brief overviews of the construction projects to acquaint each other and the new knowledge management officer with the current status of the projects. The group agreed to meet again in early 2004 for a community kickoff, at which time the technology platform would be introduced.

As the agency did not have software for online communities at that time, the information technology division developed an interim solution for an online discussion board using Microsoft Office folders, which would allow the participants to send e-mail messages. The intent was to provide a forum with which project managers were familiar and that would allow them to participate while performing a familiar activity, corresponding through e-mail. Knowledge management also partnered with the project management office to establish a taxonomy to organize the discussion and to ensure that lessons learned were captured in a consistent way.

There were a few difficulties in establishing the discussion forum, however. In February 2004, the system went live and was introduced to the community during another face-to-face meeting. An initial topic was selected and the knowledge management office populated the forum with notes from that meeting. During the next two months, not a single community member used the system despite repeated requests, reminders, and encouragement. What the knowledge management director had not realized was that members of this group were new to their positions and had never had consistent interaction, nor were they necessarily familiar with each other. A successful community requires trust between members who are knowledgeable and have expertise in their field. Discussions should improve practices and increase knowledge, not criticize:

Trust plays an important role in the sharing and use of knowledge. If people believe they will benefit from sharing their knowledge, either directly or indirectly, they are more likely to share. Whether people use the knowledge of others depends on whether they know and trust the source of the knowledge (KM Working Group 2001, 2).

As Edwards and Kidd (2003, 133) have noted, "knowledge sharing, even without any kind of formal system, inevitably raises issues of trust." Ribiere and Sitar (2003) have suggested that dialogue and communication are the basis for all knowledge sharing because they facilitate the development of social relationships, and if people are to start talking freely without the fear of becoming vulnerable, trust is absolutely necessary. The willingness to share what is known requires the presence of trust.

Trust involves a belief that the source and recipient will be respectful of the knowledge exchanged and that the exchange will be beneficial to each. It

also encompasses a belief that the source of knowledge is competent and reliable. According to Abrams et al. (2003, 65):

In the context of knowledge creation and sharing in informal networks, research suggests two dimensions of trust that promote knowledge creation and sharing: benevolence (“You care about me and take an interest in my well-being and goals”) and competence (“You have relevant expertise and can be depended upon to know what you are talking about”).

In our early program, participants perceived the initial system as “clunky and unfriendly,” and did not feel that they had time to learn how to use it. A meeting was called for June, at which time all the participants were to be brought together to discuss the lack of use of the system and to continue discussions on lessons learned to that point. The KM director admitted to the project managers that the attempt to establish an online community had been a complete failure. The ability and freedom to admit to this mistake established for the community that it was acceptable to say that something could have been approached differently. From this we learned a lesson that could be used in the future, which later helped establish trust and demonstrated what could be shared.

The decision was made for the full group to meet quarterly for similar discussions. The knowledge management office would conduct interviews of specific project managers prior to the meeting to collect lessons learned that the group would review prior to publishing them to the agency at large. The lessons learned by the knowledge management division included: (1) know the participants, (2) develop the community of practice to suit them, (3) participants need to know and trust each other to share knowledge, and (4) although communities can be supported by online interaction, they require periodic face-to-face meetings.

### *Office Expansion*

The hiring freeze was lifted in 2004 and three new project managers were hired. The office now had four full-time and two part-time employees, along with administrative support staff. A list of possible knowledge management projects had been gathered and these projects were assigned to the new members of the team, who quickly began to implement new communities. There were also parallel activities in knowledge mapping: identifying experts, identifying knowledge held by experts, identifying knowledge gaps or potential gaps, and promoting and defining knowledge management within the agency. In addition, the division welcomed the addition of the VDOT library. The

expertise and skills of the librarians would be utilized by knowledge management in organizing the knowledge collected to ensure that it would be retrievable.

### **Communities and KM Projects**

By the end of 2004 there were four active communities, two emerging communities, a lessons learned collection project, and three active knowledge mapping projects. By the end of June 2005, ten communities, three lessons learned collection projects, and four knowledge mapping projects were functioning, along with a waiting list of proposed communities and mapping projects. The division had doubled its activities in six months.

Each community is unique in its purpose and outcomes. Membership in communities varies to include:

- Employees within the same division or functional area,
- Employees who have the same role in different geographic areas,
- Employees who have different roles but perform related functions,
- Current and former employees addressing an identified knowledge gap, and
- Employees of VDOT working with employees of other agencies or organizations.

The original community is still active and developing lessons learned that can be shared within the agency. It is currently organizing an interactive conference to promote and share ideas on project management within the agency, thus expanding the reach of the lessons learned and best practices. Three communities evolved out of the original community as a result of issues raised and lessons learned during community meetings and interviews of the project managers for construction projects. These communities are looking at ways to improve cross-functional knowledge sharing, promoting the practice of project management within the agency, and establishing best practices for quality assurance and quality control.

To improve cross-functional knowledge and the promotion of project management, the construction project managers teamed with representatives of the location and design and structure and bridge divisions. After two meetings and the formation of a subcommunity, the group realized that the goal was to establish regular feedback between the design and implementation of a construction project using a project management approach. This shared feedback leads to the development of lessons learned and best practices that can serve as resources for future projects in support of the agency goal of

delivering projects on time and on budget with quality. An additional outcome was the formation of a constructability issues panel discussion between three representative project managers and the location and design division statewide. This panel discussion contributed to lessons learned and the sharing of best practices. The panel shared what worked well as well as challenges faced during construction that directly related to the design.

The second community that developed out of the original community was established within the right of way and utilities division to address the pending knowledge loss that would result from the retirements of about 40 percent of its employees and 90 percent of its managers. Knowledge management has partnered with human resources to work with this community to establish what skill sets will be needed in the future, how to develop these skills, and how to hire for these positions. This endeavor is a pilot for how the agency will address the same issues with other divisions. The community also established quarterly project days to discuss current and upcoming projects and how to best use existing staff to address needs, including assigning employees across multiple districts when needed. When the community brought the ideas for addressing the anticipated knowledge loss in front of the district administrators committee, the response was unanimously positive and supportive. Leadership was pleased to have the community of practice proactively identify the problem and recommend a solution.

The third community that was developed out of the original community involved construction quality managers with the anticipated outcome of developing best practices and improving day-to-day operations. The agency is facing a serious shortage of experienced inspectors, so the community established a quarterly statewide project day to share information and to break down barriers in districts. The community presented an idea for a best practice that will enable inspectors to spend more time in the field and to produce statewide consistent records, which has been enthusiastically endorsed by the district construction engineers committee.

One of the construction project managers invited knowledge management personnel to participate in a “lessons-learned” meeting on a public-private partnership construction project. This participation led to the formation of a group to look at all lessons learned in this new type of project and to close the loop by developing a feedback process and identifying lessons learned that could be a knowledge resource for future projects. The lessons developed from this project are serving as the basis for the development of a repository and taxonomy for the organization’s intranet.

Another community was established to address an identified knowledge gap in the rehabilitation, dismantling, and relocation of historic truss bridges.

This community includes retired employees who hold the missing knowledge and will result in published best practices that will be used throughout the country. This community was interested in supplementing in-person meetings and interviews with an online team room.

Two more communities were developed to determine best practices for a new function for the agency, intelligent transportation systems, and to share lessons learned across the state. One community was formed to look at what the core functions of the smart traffic centers were as part of a research project. A member of the group expressed his satisfaction with the process by saying that the community was the most useful and rewarding activity of his professional life as it allowed him to learn from others, to meet with his peers, and to be creative in problem solving. The other community was developed for the entire intelligent transportation system function and the focus there is to set up an online environment in which members can share lessons learned and best practices and can ask questions.

A community linking the agency with representatives of cities and towns within Virginia is in the developing stages, and a subcommunity has developed that provides the members with the opportunity to ask questions of the experts in managing their own construction projects during round table sessions. This has led to cities' beginning to use each other as resources.

### ***Knowledge Mapping Projects***

Knowledge mapping projects include identifying and capturing the knowledge held by experts who are eligible for retirement, identifying lessons learned and best practices from long-term employees to be used by new employees, and identifying and capturing knowledge held by a sole source. An example of a sole source knowledge mapping is the highway performance monitoring system, a process that affects federal allocations for state road construction but that is currently only known by three people, all of whom are eligible for retirement. Lessons learned are captured for new and established functions for the agency both within communities and external to communities. An example of this would be the asphalt forum, which is attempting to collect lessons learned and best practices over the past fifty years from both within and external to the agency.

The knowledge management office is developing an online team site for the forum. The division plays a major role with the intranet to ensure that it is a knowledge-sharing tool and to establish a taxonomy that will allow for quick retrieval of needed knowledge and information. Online communities have also been established and are facilitated by the division on the agency intranet and learning management system.

## **Research to Identify Networks**

The Virginia DOT recently sponsored a study to identify the types of networks within the agency in which employees participate, to determine what knowledge is shared, and to determine what roles employees play within the networks. Results of this study were then used to design new knowledge management projects within the agency and to identify what agency actions were needed to support knowledge sharing. The goal was to identify and make available expert, internal knowledge and external knowledge on the intranet so that an employee can search on a topic and have a retrieval that encompasses all three knowledge types. This allows the user to select the type of knowledge most needed or with which they are most comfortable—regardless of whether it is a written document or access to an internal or external expert.

The inclusion of experts in the system was necessary because not all knowledge can be codified and because people do not know what they know until they are asked a specific question. Study results were grouped by years of service with the organization, as follows:

### ***Employees with Thirty or More Years of Service***

These employees indicate having active roles in networks with strong ties (frequent interaction) with colleagues in the same geographical location as themselves, with counterparts in other geographical locations, and with consultants. Strong networks share institutional knowledge and experience and inform employees of who knows what. These long-term employees also participate in networks with weak ties (infrequent interactions) as peripheral members with employees within the same functional area in which knowledge is shared. These employees are the experts who are consulted or who offer knowledge and advice upon request. Employees became aware of these networks through mentors and as a result of long tenure with the agency. There was management support for regular face-to-face interactions with contacts and for informal knowledge sharing. As contacts retire, the networks are dissolving and interaction is decreasing. Long-term employees have a strong desire to share institutional knowledge, expertise, and experience with newer employees, but do not perceive that management has allocated time or budget resources to support the activity in the last decade.

### ***Employees with Twenty Years to Less than Thirty Years of Service***

Long-service employees have active, central, and spanner (links between networks) roles in networks. Moreover, they have forged strong ties with

colleagues in the geographical area, with jurisdictions, and with consultants. These strong networks share experience, provide referrals, and inform employees of who knows what. These employees also participate in networks with weak ties, as peripheral members with previous coworkers and with employees in the same functional area in which relevant knowledge is shared. Employees became aware of networks through family members who also worked for the agency, through on-the-job training, by invitation, through involvement in special projects, or because of reputation. There was management support for regular face-to-face interactions with contacts and for informal knowledge sharing during the early years with the agency but that diminished since the 1990s. Participation supports these employees in knowing the function, providing institutional knowledge, and informing them of who does what. As networks dissolve through retirements, position changes, and departures from the agency, employees lose contacts and knowledge is limited to the immediate functional area. Periodic, temporary networks are relied upon. Employees perceive that management support for participation has decreased dramatically.

### *Employees with Ten to Twenty Years of Service*

These employees indicate having active and central roles within networks, with strong ties with friends, colleagues in the same geographical area, localities, consultants, and those on Internet forums. Strong networks share career information, functional knowledge, how-to knowledge, and interpretations of explicit knowledge and inform employees of who knows what. The employees also participate in networks with weak ties in central roles, with previous coworkers, with employees in the same functional area within the agency, and with counterparts in other geographic locations in which functional, technical, historical, and cross-functional knowledge is shared. There are employees within this tenure group who are isolated from networks, primarily by choice. Employees became aware of networks through family members who also worked for the agency, mentors, job requirements, tenure, predecessors, or participation in special projects. There was support for participation in networks if required by the job or encouraged by mentors, although support has decreased since the mid 1990s due to budget and staff cuts. Management is focused on getting the job done today. Participation supports these employees in streamlining work processes, sharing workloads, knowing the questions to ask, and demonstrated value of expertise. Dissolution of networks has resulted in lack of communication, loss of contacts, lost institutional knowledge, and employees' no longer knowing who to ask.

### *Employees with Less than Ten Years of Service*

These employees indicate having active or central roles within networks, with strong ties with friends, immediate coworkers, and previous coworkers; across functions when required by the job; with consultants; and through Internet forums. Strong networks share career information, functional knowledge, technical knowledge, and institutional knowledge. These employees also participate in networks with weak ties, in peripheral or spanner roles with counterparts in other geographic locations, localities, vendors, and colleagues in professional associations. Knowledge shared within networks with weak ties includes functional, institutional, and professional knowledge; lessons learned; and informing the employee of who knows what. There are employees who are isolated but wish to be more involved. Isolation can be attributed to a fear of providing wrong information as well. Employees became aware of networks through family members who work for the organization, the engineer trainee program, previous experience with networks, long-term employees, managers, and by invitation. Employees perceive there is management support if required by the job or if it results in improved technical knowledge. Lack of support is attributed to the unavailability of budget allocations to support networking. Participation in networks eases work assignments. Dissolution of networks results in lost institutional knowledge, not knowing who to ask, and a low awareness of organizational issues.

This study revealed that strong tacit knowledge networks in this state agency are primarily restricted to local groups due to a lack of time, budget restrictions, reduction in staff, high workload, the weight of paperwork, rules and regulations, and lack of management support. The assumption is that employees would share more if more time and resources were allotted to support the transfer of knowledge. Networks that do go outside the local area, primarily weak networks, result in more efficient and effective work practices. However, because these are weak networks with infrequent interaction, the agency does not fully benefit from the collective knowledge of its employees.

### **Effects of Organizational Culture**

The participants perceive that the organizational culture is one of a command-and-control approach, which interferes with knowledge sharing and transfer through networks. "Culture embodies all the unspoken norms, or rules, about how knowledge is to be distributed between the organization and the individuals in it" (DeLong and Fahey 2000, 118). Knowledge cre-

ation and sharing is also affected by this organizational culture. “An organizational culture that enforces a policy of command and control to create an order seldom provides opportunities to create knowledge” (Bhatt 2000, 1).

Status as a government agency also impedes network participation, as employees are often overloaded with paperwork, rules, and regulations. According to Chiem (2001), unlike workers in private enterprise, government workers must complete paperwork for even the simplest tasks—a requirement that can potentially hamper workers’ productivity and create an institutional tendency to perform only the minimum job requirements. Chiem also suggested that presenting knowledge sharing as a way to make jobs easier can assist in making KM practices appealing to government employees.

In the DOT study, employees with less than twenty years of service do perceive knowledge sharing as making jobs easier. Employees do not know what to share or what is known until the opportunity to network with other employees arises and through discussion the knowledge is revealed. There is a perception that talking is not productive; this study reveals that it is. “The non-information sharing culture of many government agencies is perhaps one of the greatest barriers that many agency directors will face” (Auditore 2003, S4). The KM Working Group of the Federal Chief Information Officers Council (2001) identified several reasons employees do not share knowledge: (1) people may not know what they know, (2) they do not know how to share or with whom to share, or (3) sharing may be seen as too difficult or time consuming.

The DOT study found that lack of time, failure to recognize employees, and rules and regulations produced by legislation all impacted networks. Similar information was found in a study of the U.S. Social Security Administration by Rubenstein-Montano, Buchwalter, and Liebowitz (2001), in which they identified the following barriers to sharing knowledge:

1. Lack of resources;
2. Failure to recognize individual contributions;
3. Assignment to leadership positions not based on merit or experience;
4. Hierarchical organizational structure; and
5. An organization driven by legislation.

The strong networks found to exist in the Virginia Department of Transportation were most often local, with few networks reaching across geographical or functional locations. A rationale for this finding was suggested by Ruddy (2000), who found that a great deal of knowledge in an organization is undocumented and therefore isn’t easily available to everyone. It may

be shared among a few individuals or within local groups, but it rarely migrates outside those circles. This is especially true for practical know-how, but is also true for the more formal kinds of knowledge that people discover and create every day. This restriction to local sharing of knowledge prevents that knowledge from being accessible to the rest of the organization.

### **The Impact of Worker Loss and Isolation**

In the DOT study results, retirements, failure to retain employees, and reorganizations were all cited as contributors to knowledge loss and the inability to know who to call, a finding that was also seen by Burk (2000, 18):

New staff or staff facing new problems are unaware of these ad-hoc communities and are unable to tap into their expertise. Expertise learned from experience is lost with retirement. Staff turnover and restructuring break down the informal networks to the point where even long-term staff do not know who to call.

Employees with less than twenty years of service may feel isolated (Connelly and Kelloway 2003, 297). Fifteen of the seventeen participants interviewed in the DOT study indicated a desire for more participation in more networks, particularly those that go outside the local area. These findings contradict Chatzkel (2002), who suggested that the main barriers to knowledge sharing in government organizations were the “not invented here” syndrome and personal power issues. Chatzkel also concluded that government employees hoarded knowledge to support the security of their role in the institution—barriers that were not found in the DOT study.

### ***Lack of Management Support***

A number of researchers have suggested that management is often unaware—or aware but not providing support or focus—of the role of networks in sharing knowledge across an organization. The literature indicates that management effort and support are required for successful knowledge transfers. Organization leaders have direct control over which activities are rewarded, which behaviors are encouraged, and how work is measured and valued in an organization, factors that all influence workers’ motivation and ability to develop new knowledge (Bryant 2003). It is the organization’s responsibility to establish a culture or environment that supports the forming of these networks, both loose and tight, to encourage the sharing of knowledge.

## **Implications and Recommendations**

Findings of the knowledge sharing and networking study conducted in Virginia have implications that may be applicable to other organizations, including:

1. Barriers to knowledge sharing are greater than management support as evidenced by time allotted and resources provided for networking;
2. The loss of knowledgeable employees since the mid-1990s through retirements and attrition resulted in dissolutions or weakening of networks through which tacit knowledge was shared;
3. The continuing loss of employees further impedes the sharing and preservation of institutional knowledge;
4. Government employees need the visible and articulated support of management to engage in knowledge sharing;
5. Knowledge sharing results in benefits to the organization through improved processes, shared workloads, and easing of work assignments;
6. Younger employees desire to have the institutional knowledge recorded and made available electronically whenever feasible or to make tacit knowledge explicit; and
7. Long-term employees have a desire to share the knowledge gained over the years.

### ***Agency-Related Recommendations***

Recommendations resulting from this study for the agency are:

1. Increase management awareness of the value and impact of networks on the work performed;
2. Provide time and budget resources to support employee participation in cross-functional and cross-geographical networks to increase knowledge shared;
3. Develop networks for knowledge sharing;
4. Identify knowledge experts; and
5. Transform tacit knowledge to explicit when feasible and make it accessible electronically.

## **Lessons Learned**

The agency hired a knowledge management director from outside the organization. Although the director had the knowledge and experience to de-

velop a KM program, the new director did not have knowledge of the organization. To address this gap, a long-term employee was tapped to act as a guide for the new director. In this role he explained the history of the organization, the functions, and how they interacted; defined acronyms and terminology that were unfamiliar; and introduced the director to agency employees. As this long-term employee was well known and respected within the agency, this provided the new division with instant credibility.

That temporary assignment evolved into a permanent one, primarily at the request of the employee, who recognized the need for and value of a knowledge management program. The now-permanent staff person was also able to translate this experience into language that was instantly understood by his colleagues. The lesson learned is that an organization needs an experienced knowledge management professional to develop the program and to explain and define knowledge management for the organization, but it also needs the expertise and familiarity of a long-term employee to ensure that the program addresses the unique needs of the organization.

No two communities are alike within this agency. However, all communities were developed to provide something specific that would benefit the organization, whether that is the sharing of lessons learned that leads to cost avoidance, the development of a plan to address pending knowledge loss, the recovery of lost knowledge, or the sharing of knowledge between functions. Communities have an executive sponsor to ensure that participation is supported and that the community will provide the organization with a return on its investment. The knowledge management division provides coordination and organization for the community, facilitation of discussions, and the collection, organization, and dissemination of the knowledge across the agency. The lessons learned are that communities have unique needs and purposes but all must demonstrate value to the organization and to be successful community members need to meet face-to-face periodically to establish the necessary trust to share knowledge.

The knowledge management program was the direct result of the commissioner's initiative and vision, which was shared by the chief of technology, research and initiative. Both actively promoted the program prior to its inception and after, resulting in a willingness of employees to listen and to grant knowledge management the opportunity to pilot several programs. At that point, it was up to the KM team to demonstrate and persuade employees of the value of the program. The lessons learned were that the support of the top executive team was vital, particularly in the early days of the program to ensure that employees were given the support to participate. It was then important to demonstrate value to build grassroots support within the agency. Today, the program has the benefit of both.

To identify the impact of the knowledge management initiatives, participants were surveyed. The following statements by involved VDOT personnel illustrate sharing of lessons learned and current information in the original community:

- I view the reports from other PMs as adding value, as they provide unique real-time information and solutions from the other districts and projects.
- Allows me to see how others deal with issues and alerts me to potential issues.
- Other reports have given me insight into the management of the Virginia Public-Private Transportation Act of 1995 (PPTA) and design/build projects. For me, they have also proven to be a good tool to allow me to think of ways to develop and (at least) try to streamline some of our antiquated practices.
- Review of others' issues provides insight into issues that could surface on my projects and provides me time to consider them prior to their becoming a crisis.
- The reports are a valuable communication tool in what is happening and just as importantly in what is not. The reports can only help in strengthening the administrative team. We have had limited experience with multiple major projects . . . the reports keep us focused.

Members of the right of way and utilities community (formed to address the pending knowledge loss that will result from the retirement of about 80 percent of its employees) were surveyed on what value they perceived the agency gained from the community. The following received the highest ratings from the members:

- Ongoing—improved communication/collaboration
- Ongoing—improved processes and/or integration of people, ideas, differing objectives, or needs
- Lessons learned (can be related to projects, processes, or planning)
- Best practices (can be related to projects, processes, planning, or staffing)
- Effective process model for use elsewhere in the agency

The survey also questioned members of the right of way and utilities community on what value they perceived that the knowledge management office brought to the community:

- Effective facilitation of meetings
- Effective communication support (documentary or verbal)

- Collection of important and useful information
- Analysis of information to provide a useful result
- Integration of a working group that respects differences among people, ideas, and objectives or needs
- Neutral perspective—not associated with any specific group
- Access to decision makers
- Understanding of how to increase/improve collaboration

## Conclusion

The development of a knowledge management division at the Virginia Department of Transportation has provided demonstrated value to the agency. Understanding of its role and goals has increased and has resulted in increasing support from both management and employees. The initiative is still in its early stages but a plan is in place to address the pending knowledge loss due to the retirements of long-term employees and to make that knowledge available to current and future employees.

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