

The **Electronic Commons Program** provided grantees with the opportunity to extend the value of their knowledge about natural resources through innovative uses of information technology. Some grantees sought to disseminate information by building Web sites; others by creating new Web-based training resources. Others sought to create new communities of practice through combinations of resources such as interactive Web sites, Webinars, and Web-based training (refer to Table 1). Whether their purpose was to reach new audiences or to disseminate knowledge to known partners in a more cost effective manner, each team explored the promise of the Internet as the knowledge-sharing tool of choice.

Innovation

An idea or behavior perceived as new to the individual or adopting organization (Rogers, 1972, Kanter, 1983, Damanpour, 1996).

Along the way each team encountered the well-known challenges of information technology innovation, as well as additional challenges unique to the non-profit environment. These challenges were further complicated by the fact that each team consisted of at least two organizations, often located in geographically distant areas, trying to serve geographically dispersed communities. These additional challenges required each team to establish new ways to collaborate across organizational boundaries and to effectively communicate with partners whose location did not allow frequent face-to-face contact. In the end, a number of the grantees found the logistics of hosting an event (Webinar or Net-meeting) in this new medium to be more of a challenge than engineering the software. Trainers had to be retrained, course materials had to be revamped for the new venue, and participants had to be educated in how to interact with this new media. There were also some surprises along the way. In the case of the *Historic Woods* project, the archived Webinars became an asynchronous training opportunity. However, for another project a switch in the Webinar host resulted in the loss of archived events, an unforeseen consequence. The success of their efforts makes their stories particularly useful for others embarking on similar projects or working within similar environments.

Table 1. Eight Technology-based Knowledge Sharing Innovations

Project Name	Knowledge Sharing Innovation
www.AugustaSprings.org Department of Forestry, Virginia Tech, Virginia	Interactive Web site to educate visitors of the Augusta Springs center, a U.S. Forest Service wetlands and conservation education center on the North River Ranger District, George Washington National Forest.
Cooperative Weed Management Area (CWMA) Training for Eastern United States The Nature Conservancy, Indiana	Informational and training materials to be used for remote training workshops.
Demonstration of a Community of Practice to Enhance Economic Development Northeast Minnesota (NE MN) Forestry Industry, Minnesota	A community of practice for the Northeastern Minnesota Forest Products Action Team and the regional wood products industry using a variety of means.
Forest Resources and Ecology: A Distance Education Network Model Chequamegon Nicolet National Forest, Wisconsin	An interactive educational program for school districts to inform teachers, students and parents about the issues facing the Chequamegon Nicolet National Forest.
Native Plants Learning Network: Propagating restoration through technology The Nature Conservancy, Michigan	A multimedia online learning network focused on native plant conservation and restoration.
Promise of Place Interactive Web site Shelburne Farms and Green Mountain National Forest, Vermont	An interactive Web site that provides a forum for Place-Based education models.
Sustaining White-tailed Deer and Forests: An Electronic Resource Center Cooperative Extension, University of Georgia, Georgia	A Web site to carry on informed dialog and develop community-based solutions to the problems of local wildlife.
Web-based Learning and Technology Transfer of Inspection Methods for Historic Wood Structures Natural Resource Research Institute (NRRI), University of Minnesota, Minnesota	A community of practice for the inspection of historic wood structures.

Information technology innovation

Expert observers of Information Technology (IT) trends say organizations waste time, money and credibility on IT because of a few fatal mistakes. Even though studies of IT innovation span the last decade, the challenges still come down to understanding the problem to be solved and choosing the right technology. Many have been blindsided by the “*glitter of all things new*,” when in fact the best solution to the problem may not be the technology but an organizational or policy change. Many have tried and many have failed all in the name of innovation.

Pick a technology that enhances the course or the material - don't let the technology drive the business or the topic.

Historic Wood

The eight grantees were no different from other IT innovators. Many found the selection of the technology as challenging as using the technology to conduct their project work. A number of the teams had little if any technology expertise within the team and had to rely on the knowledge and experience of others to guide decision making in these areas. Some project teams were fortunate that their project leads were in fact comfortable with technology. However a majority of the teams were comprised of primarily content experts: people who understood what knowledge needed to be shared with whom and for what purpose. A majority of the teams had in general, limited knowledge about the medium they were relying upon, except as users themselves.

The teams wrestled with questions such as:

- Will it (Web site, Webinar, etc.) work within their environment?
- Are the desired results obtainable with these new mediums?
- Do we have the skill sets necessary to take advantage of these new tools?
- Will the users possess the necessary knowledge to take advantage of their product?

When planning a project involving technology, make sure to try it out before committing to it - that's the only way to assure it is the right technology for your project.

Cooperative Weed Management Areas

Choosing the right technology is a difficult, and at the same time a crucial process for the success of a project involving the use of IT for knowledge sharing. Selecting the best technology to support the goals of a project while also ensuring the users have the skills and resources necessary to benefit from the system over time is a complicated task, especially for teams with limited knowledge of IT. The teams found enabling their knowledge sharing innovations to be challenging in and of itself, especially within the non-profit environment in which they worked. Couple this with geographically dispersed team members, and the selection and use of technology became even more compounded.

Managing organizational change

The grantees set out to achieve very specific and innovative knowledge sharing objectives. Along the way they explored new ideas, methods, and devices for sharing knowledge about natural resources management. Natural resources management and knowledge sharing both have challenges in their own right, however, in each case organizational change had to occur as well for the projects to be successful. Project team members discussed the challenges they faced when the changes required to move a project forward needed to occur outside of their own organization and in that of a partner.

A **change agent** is someone who engages either deliberately or whose behavior results in social, cultural or behavioral change. http://en.wikipedia.org/wiki/Change_agent

Project leaders and often the team members as well acted as change agents. The way the projects themselves were conducted required changes in organizational practices. Working across boundaries to create new resources to create specific shared products was new territory for many. The project teams found their traditional project management tools and techniques had to be applied more rigorously to identify and coordinate the changes necessary across all participating organizations. In addition, they noted the need to more consistently

adapt to the dynamic conditions of the collaborative efforts. New strategies for working collaboratively across the various boundaries had to be developed. These “innovations” enabled the teams to focus more on the knowledge sharing innovations and less on the process issues.

Working in a not-for-profit soft-money environment

The project teams identified a number of challenges to their efforts that can be attributed to the nature of the not-for-profit, soft-money environment in which they work. Scarcity of resources, lack of operational funding, and delayed delivery of grant dollars were three of the challenges considered by the project teams to present the most significant challenges.

Securing ongoing funding to create and then support the technical and organizational infrastructure necessary for innovative and effective programs and services was almost a deal breaker. These resources, when they are available, often come with conditions for use including when and how they can be used. While these conditions are generally well-known among not-for-profit practitioners they often constrain the efforts of newcomers to technology innovation who cannot predict the full range of conditions or expenses they might face in their projects.

Funding organizations have traditionally funded the creation of new resources and programs while relying on the funded organization to secure support for ongoing operations. The catch-22 of this approach is that it creates competing priorities for project teams. The need to divide efforts between working on the project itself and finding more money to sustain the project over time was regularly noted by the teams as an obstacle to progress. This was especially challenging for the smaller organizations or teams where the team leader was also the grant manager. Since funding for ongoing operation of the new programs was not provided, many of the organizations involved had to focus both on creative ways to find monies for operations and creative designs to minimize ongoing operational expenses. These pressures reduced the time available to work on the project itself.

In addition, a number of the teams did not have ready access to the grant funds until well after the official project start date. The project participants considered this as one of the most significant barriers to their efforts.

Working in multi-organizational, geographically dispersed teams

All of the **Electronic Commons Program** projects involved partners from multiple organizations and geographically dispersed locations. These multiple partner, geographically dispersed teams were consistent with the aims of the **Electronic Commons** program officers; to encourage collaborative community-based innovations in knowledge sharing. However, this design introduced new challenges for the project team members, most of whom did not have experience working in this way. Some team members spoke about the difficulty of maintaining the passion and commitment to the project goals without the immediate physical presence of other team members to help carry them through difficult times. As a consequence teams were required to develop new and creative ways to work together. The cost of holding co-located meetings on a regular basis, for example, was prohibitive due to both the cost of travel and to the significant loss of time in the field. Therefore, alternatives had to be found. A number of the teams looked to Web-based meeting software, Webinars, and simple teleconferencing technology as alternatives to same-time, same-place meetings. Meeting software supported traditional “teleconferencing” but also allowed the teams to share documents and other products (such as slide shows, video clips, etc.) real-time during meetings. Others found the functionality of basic telephone-based teleconferencing enough to satisfy their requirements as long as necessary materials were shared in advance of meetings.

It is important for a group to have good functioning dynamics prior to an effort to make the communication electronic. We focused on just a core group of organizations and individuals who for the most part had a long term cooperative relationship. This helped smooth the transition to electronic meetings.

Economic Development

Many of the team leaders found themselves having to consider questions not just about the needs and the capabilities of the intended users of the knowledge sharing innovations they were coming together to produce, but also of the team members themselves. A number of the eight project teams found they had to make choices based on the “lowest common denominator.” For example, using Web-based meeting software as an alternative to face-to-face meetings made sense for some teams. However, other teams had team members without access to high speed Internet; therefore, these teams had to adjust their communication strategies to simpler methods to

ensure all members could participate.

Meeting cost was also a new factor to consider. Calculating the cost of a meeting when working within an organization where team members are co-located traditionally requires consideration of the cost of personnel and opportunity cost of time spent in a meeting. When working with multi-organizational, geographically dispersed teams the cost of meetings must now include the technologies employed to support those meetings, as well as their selection, acquisition, deployment, training, management, and maintenance. These costs can vary with the sophistication of the tools selected. However, throughout this process a number of the teams discovered that while some technologies are more expensive than others, both in purchase price and overhead, they do not always provide additional value beyond the less expensive alternatives. Teams found they needed to consider the task at hand, the technological capabilities of the team (both of the individuals and the organizations that support them), and the associated cost when deciding about the appropriate technology for their meetings. In some cases the teams found that less wasn't necessarily more, but it may have been enough.

In addition to the challenges of communicating between and among team members, teams had to contend with the continual struggle of managing competing priorities. This challenge many times is difficult when teams are co-located, but becomes virtually impossible to manage when teams are geographically dispersed or from multiple organizations. Even with using the various tools discussed previously to maintain cohesion within the team and to ensure ongoing commitment among the geographically dispersed team members, the challenge of managing competing priorities continued to be an issue. During the reflection workshop the participants discussed the challenge of managing multiple competing priorities along with balancing their **Electronic Commons Program** project. As team leaders, they also had to take into consideration the challenges their teammates were facing in addressing their own competing priorities and those of the **Electronic Commons Program**.