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Using the Cohort Model in Development of Web Sites and Web Policies

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New York's Center for Technology in Government organized a "cohort" of state and local government teams, all of whom wished to offer services by using the World Wide Web as a delivery platform. For the most part the cohort model was beneficial by providing opportunities for additional learning, for information sharing, and to build on the experience of others.

The Cohort Model

"A cohort is any group of individuals linked as a group in some way -- usually by age...or modes...or class." Usually cohorts are established for learning, for engineering change, or to experience an event (Glenn 1977).
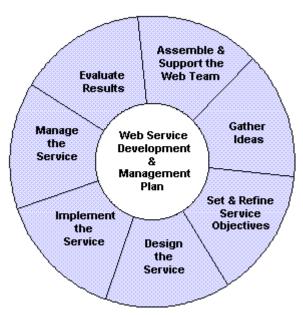

Figure 1. The Web Site Development Process

Most organizations develop Web sites for information dissemination and service transactions, but they do so in isolation. A Webmaster or service agency designs the Web site, loads information and implements its use. Another model of Web implementation was developed by the Center for Technology in Government (CTG), an Innovations in American Government Award winner, when it worked with state and local governments to establish Web sites and, more importantly, to create good processes for continual development and ongoing Web use. (See Figure 1)

The Center used the "Cohort" model so that participants from seven different state and local governments could work together to learn about assembling the Web team, gathering of ideas, setting service objectives, design principles, implementation, ongoing management, and evaluation of Web services. Concentrating on the service and management aspects in addition to the technology necessary for a Web site, CTG provided the structure and led the teams in learning about Web practices and policy issues. Each team came together in the "cohort" model to attend seminars, workshops, and planning sessions. Some teams had done preliminary work in creating Websites, but others were complete beginners. The cohort model accommodates a variety of expertise and levels of expertise. The experienced Web developers were an asset to the project, often providing sophisticated examples of Web applications. The teams themselves shared information at each meeting, teaching each other about software, hardware, and choosing other tools for attractive and workable sites. In a cost analysis, groups helped each other estimate organizational readiness, end user support and the necessary maintenance and infrastructure needed in addition to the human resources required. Based on processes observed, CTG created a methodology to replace traditional information system development methods.

Throughout the nine-month project, Web teams from the seven government organizations came together to plan for a Web site that would have strategic advantages as well as producing the site itself. Though the project teams were governmental, the model could have been used with representatives of non-governmental organizations or businesses. The teams gave presentations of their work throughout the project, and they received feedback from others in the cohort. Then they used suggestions and recommendations to refine ideas and make improvements. Teams were also able to see how others in the cohort were proceeding and this gave them different ideas and also provided information about time expectations in the development process. The Web cohort all used the same textbook and other materials, and they learned about electronic resources that provided tutorials and style guides for Web page creation. The learning was shared in person and through e-mail and electronic discussion groups. Working in a group or cohort meant that teams were motivated to meet timelines and to finish each phase of the process. The creativity and synergy of ideas that developed by working together enhanced the Web service project, and lessened the frustration and feeling of isolation.
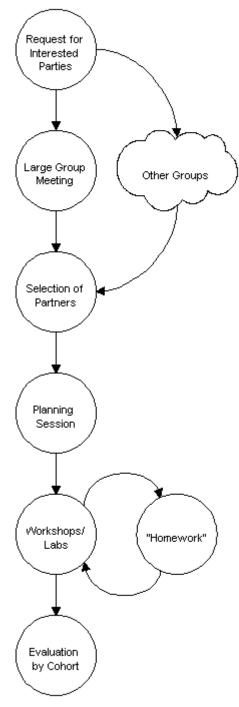
Figure 2. The Cohort Model Process

Tools Development

Although the overt goal for the representatives of government organizations was to develop Web sites, the cohort also developed practical tools and publications that can be used by others in creating Web-based services. The "Starter Kit" helps managers and potential Web developers begin the process of understanding the World Wide Web; the "Best Practice Checklist" was created to help the cohort become familiar with the basic

tools and terminology of an effective Web site; the "Stakeholder Analysis" worksheet encourages thinking about all those who will be affected by a Web site. It requires the investigation of the effects a site will have on different types of stakeholders along six different dimensions: improve quality, increase access, enhance productivity, generate savings, generate revenue, and extended benefits; the "Strategic Framework" tool helps set service objectives as well as examine the factors necessary to achieve those objectives; and finally, the detailed "Cost Worksheet" was used by the cohort to list every possible cost center that will be affected by starting and maintaining a Web presence. The worksheet was developed over three dimensions --- modest, moderate, and elaborate --- investments to help the cohort think about the extent of the Web site's scope.

A number of the tools comprise part of the handbook developed by CTG and other members of the cohort. "Developing & Delivering Government Services on the World Wide Web: Recommended Practices for New York State" (Dawes et al. 1996) was made available via the Web and in print.

Policy Development

Whereas the benefits of the cohort model are many in designing and creating Web sites, it is in the area of policy development that the cohort model was most beneficial. The cohort model is very good when dealing with uncertainties and innovative practices. Participants were able to discuss the number and kind of policies they hoped to establish, and best practices research was conducted on Web policies from other states. Information was shared and policies were formulated with the advice and ideas from cohort members. Participation in effective planning and service design was found to require thoughtful policy development, organizational buy-in, and emphasis on the information and functions that will service constituents most appropriately.

Cohort Method

The cohort model assumes that an expert or expert group takes responsibility for managing the process. A new endeavor (see Figure 2) starts with the experts, in this case -- CTG, choosing a project in which several organizations could benefit. A general request for interested parties is disseminated, and a large group meeting is held to present information, raise awareness about a new technology, and demonstrate how it can be used. A cohort is selected among potential partners on the basis of their interest level and their common need for the same technology.

At the planning session, teams of between three and five people from each selected organization meet for the first time. Each organization is encouraged to select people with different skill sets and backgrounds. During this first session, the managers/experts present the preliminary plan for the whole project leaving time for questions, discussion, and revision suggestions from any of the participating teams.

The cohort teams learn together in workshops held at scheduled intervals during the course of the project. The teams assemble in pre-planned workshops or labs, where they

learn several methods and tools for accomplishing their goals. The concept of learning together, learning from each other, and sharing applications from the learning sessions is key to the cohort model. Between workshop sessions the teams go back to their respective organizations, and do "homework." During this applied work, they fit the methods and tools to their specific organization. Iteration between workshops/labs and homework is where much of the practical work is accomplished.

When the teams come together again, they present the results they attained while working on their own. The teams who have confronted obstacles in the project talk about the problems and pitfalls to the group, generating discussion about solutions and alternatives. The synergy resulting from the discussions and the group problem-solving is one of the chief advantages of the cohort model. The teams return to their organizations with new ideas and solutions.

This iteration goes on until the projects have come to a natural end, and all teams comprising the cohort have completed their project, or been given a fair chance to do so. Because of the different characteristics of people and organizations, there is no guarantee that all organizations will complete their goals, but the moral support and encouragement of others in the cohort provide benefits that working alone doesn't afford. The project teams have help from cohort colleagues who provide creative thinking beyond what an individual team could offer.

Finally, the participants in the cohort evaluate their experiences and give feedback to the expert group to help them hone the cohort model in the future as well as judge the success of the project at hand. The evaluation can be done with the help of an outside facilitator to get more objective information, but the cohort teams must be integral to the evaluation process as well.

Limitations and Difficulties

Most of the cohort participants assumed the Web development duties in addition to their regular responsibilities. They were given no or little extra time outside of the specified seminars to complete the work, consequently much of the work was on a volunteer basis. This led to some problems. In the use of an online discussion forum participation was limited, and expectations were not realized. Although written "homework" was agreed upon for completion between the seminar meetings, it became difficult for most cohort members to complete because of time constraints. Participants needed reminders and encouragement to finally complete the assignments.

For the cohort method to work at its best, it is recommended that the group participants have time allotted to work on the project. This can only work if they are relieved of some of their current work assignments.

Conclusion

The cohort model engaged the participants and helped them see realistic time frames for completing the work. Participants encouraged each other in the practical matter of performing planning and implementation of the tasks. For most participants being a member of the Web development team required work above and beyond their regular duties. The motivation provided by others in similar situations was enough incentive to keep going, even when the work required late hours and overtime without compensation.

Although there was no control group with which to compare, Web development in a cohort environment seems to have many benefits over the traditional model of individual teams working in isolation. There is enough anecdotal evidence to indicate that learning, working, and sharing information within a cohort makes it possible not only to develop information systems that the organization has no prior experience with, but also to create networks of incremental learning.

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