Digital State Survey Part IV

Darby Patterson | April 16, 2002

The final phase of the four-part Digital State Survey assessed how states are progressing in the use of geographic information systems and in education. The survey is conducted by the Center for Digital Government, the knowledge-management and research division of e.Republic, and sponsored by the Progress & Freedom Foundation and Government Technology magazine to support the continued development of electronic government.

This year marks the first analysis of GIS implementations - technology that has become increasingly important throughout government. Some experts estimate that 80 percent to 90 percent of government information has geographical components. Many states have been using GIS for years in areas such as environmental and wildlife management, transportation and construction. After Sept. 11 GIS became widely known as a critical tool in emergency management, ground surveillance and military actions.

"It is very interesting to observe that many states already grasped the importance of GIS, even before the events in September," said Cathilea Robinett, executive director of the Center for Digital Government. "This very flexible technology will undoubtedly become a major tool in the future of governments at all levels. It is gratifying to see that some very innovative implementations are already in use."

GIS/Transportation

The survey assessed which states have the necessary infrastructure to create enterprise-wide access to GIS. Among survey requirements were a GIS coordinating body and a clearinghouse for GIS data. States were also asked about public access to this data, how the departments of transportation integrate technology, and what progress they'd made in implementing the federal Commercial Vehicle Information Systems and Networks program. This program provides standards for connectivity between interstate and intrastate databases, allowing motor carriers to apply for credentials through a nationwide electronic network, along with other services.

Kansas led the country with a perfect score of 100 points. The state started early by creating the Kansas GIS Policy Board in 1989. The board drew upon the expertise of 20 stakeholder groups to create data standards that were later incorporated in the Kansas Information Technology Architecture.

According to Chief Information Technology Architect Don Heiman, the effort to monitor the aquifer that runs beneath almost one-third of the state using GIS became a national model. "We found ourselves in an interesting leadership position in the United States as other states tried to pull together their natural resources capabilities," he said.

One of the state's most successful applications, the Department of Health and Environment's Web site, provides information about potential groundwater contamination from the use of fertilizers in the farming state. "When you think about it, water is just so essential to our rural economy and such a prize possession," Heiman said, adding that online GIS information has been a critical tool for citizens. "It gave them a higher level of assurance that we were properly managing our water supplies." The site also offers educational programs, technical assistance, a searchable database to create custom maps of water resources and narratives describing potential contamination sources.

Arizona was one of three states to earn a second place ranking for its advanced use of GIS. The Arizona Geographic Information Council includes representatives from federal, state and local government agencies, education and the private sector.

The public can access a wide variety of GIS data through the State Land Department Web site or by requesting a CD that contains the same information. The state's system is based on cross-agency data sharing, vastly expanding the information and services available. The Department of Transportation has been particularly effective in its use of GIS, creating a Web site that offers images of freeways, road conditions, closures and restrictions, live video and traveler information.

Tied for second place, Illinois lays claim to one of the nation's oldest geospacial data clearinghouses. The state has also been recognized for having one of the nation's largest repositories of digital orthophoto quadrangles - photos that combine the image characteristics of an aerial photo with the geometric qualities of a map so that all features are shown in their correct ground positions.

The success of the state's system is apparent in the 3.2 million hits to the site over three-and-a-half years. Clearinghouse officials say an average of 3,750 users download over 210,000 data sets (200 gigabytes) each month. The system offers interactive mapping capabilities and is available to the public.

In addition, the "Inside Illinois" feature on the state's Web site offers GIS-based information such as weather and climate data, trip routing, links to city and county sites, state transportation maps, access to GIS data sets and a GIS tutorial, among other services.

"I think that if you look at GIS technology and think of it as a tool to integrate data sets and information," said Illinois CIO Mary Barber Reynolds, "then GIS becomes a decision-making tool for government and for the public." Reynolds said the data is equally important for citizens, businesses and tourists. "When information is integrated,

you can make your own decisions with a full set of information," she said. "It's a tool we weren't able to provide before."

Rounding out the three-way tie for second, Louisiana is offering some innovative GIS services including a digital map of the state. Developed by multiple agencies in the state, federal, educational and private sectors, the two CD-ROM set is free and available to the public. In addition, the state's Department of Transportation offers a GeoMedia Workspace that can be downloaded to a personal computer. The base-map data can then be customized to the user's needs. Information includes parish and political boundaries, data on highways and bridges and the GIS CD-ROM set.

Education

Technology is widely recognized as a powerful tool for education, both formal and informal. How information is being harnessed to deliver education in colleges and universities and kindergarten though 12th grade institutions was the topic of the final section of the Digital State survey.

Evaluations were based on an assessment of how many administrative functions can be performed online for state colleges and universities; what colleges provide classroom information online and distance education programs; if academic and progress reports on public schools and students are available online; and if states have deployed e-learning systems.

Illinois, South Dakota and Utah are the nation's top providers of online educational services. In South Dakota, characterized by its rural nature, online services provide educational opportunities that were not previously available. The state's six universities and colleges allow students to go online to make schedule changes, register, check on financial aid, make payments and other activities that otherwise would have required personal visits and waiting in lines.

The state is also ahead in delivery of electronic services to K-12 institutions, according to Otto Doll, state CIO. "One of the reasons is that Gov. [William] Janklow is passionate about aligning technology for the benefit of education, particularly K-12," Doll said. "When we started, we knew we'd need a highly collaborative environment and that opened the way for an avalanche of activity."

Currently, 70 percent of the state's 127,000 K-12 students can be online simultaneously. In addition, the state has implemented substantial videoconferencing technologies. "We've really minimized the educational digital divide," Doll said. "We try to leverage, not only the subjects that are taught, but we are able to get better teachers and make them accessible to people in small towns." Doll added that most kids grow up in towns with populations under 5,000 and graduate from high schools with fewer than 100 students.

Utah takes great pride in its focus on education, and that priority shows in the state's online learning opportunities. "There is a cultural commitment to education in Utah," said Al Sherwood, the state's electronic commerce officer who was recently named chief privacy officer. "We have a lot of children in the state, and

from the beginning, we have used technology to deliver educational services."

This attitude is particularly evident in the arena of higher education, according to Gary Wixom, assistant commissioner of technology and extended programs. "One of the things that's happening right now is the governor's push to double and then triple the number of graduates in technology-related areas," he said.

Toward this goal, the legislature created the Utah College of Applied Technology with 10 sites across the state. "We are really moving forward to supply the work force that has technical skills," Wixom explained. "Although we don't have a lot of money, we do have a lot of students," he added. "The commitment is to supply them with the best education possible and technology is a big part of it."

Georgia, North Carolina and Pennsylvania share the fourth-place ranking. Georgia considers itself a leader in "one-on-one computing" and has implemented a unique pilot project in eight middle schools. Each student and teacher in the selected schools has been given a laptop computer, in addition to Internet access from their homes. If the pilot is successful, the state will consider expanding the program to other schools.

North Carolina has an extensive "student accounting system" that tracks information about students. The state is in the process of making this information, including disciplinary actions, student attendance and test results, available to parents online through the NC Wise system, complete with security to protect individual records.

Pennsylvania is particularly proud of its seven cyber charter schools in which 4,000 students work toward their high school degrees. Students receive computers and Internet access and are not required to participate in a traditional school setting. All course work is delivered, completed and submitted online.

Previous Digital State surveys measured other critical areas such as e-government, health and welfare, justice systems, taxation and other services. Results from all sections of the survey are tallied to reveal how states rank in their overall delivery of digital government. The education element of part four of the survey was sponsored by AMD.