

Summary

Nearly all government information has a geographic dimension--a street address, a transportation corridor, a river, a city line. Geographic Information Systems (GIS) offer unique opportunities to analyze and compare these disparate types of information, opening up new opportunities to deliver both information and services. The value of GIS and spatial data can be seen most dramatically in applications that promote economic development, public health and safety, and environmental quality. Moreover, these applications share many common information needs.

Experts estimate that up to 80 percent of the cost of GIS is tied to the collection and creation of spatial data. Often, however, data created by one organization can be used by other organizations with similar needs, so sharing can yield considerable efficiencies.

The New York State GIS Cooperative Project, initiated by the NYS Department of Environmental Conservation (DEC), was designed to address some of these issues. The project demonstrated the depth and variety of existing human, technical, and data resources in New York State. It showed the extent to which spatial data needs overlap among key policy and applications areas. It also examined how data sharing strategies can reduce the cost and increase the value of geographic information systems at every level of government and in the private sector. The project identified and examined existing barriers to data sharing and coordination and developed specific recommendations for overcoming those barriers. Finally, the project created a new spatial data resource for New York State, the prototype NYS Spatial Data Clearinghouse.

Publications & Results

Reports and Working Papers (7)

New Models of Collaboration: GIS Coordination in New York State

Wed, 01 Oct 1998

Bringing an array of geographic information into a central system provides increased value to users, but coordinating that presents considerable challenges. This report describes how the New York State GIS Coordination Program was initiated and developed. It looks at the problems encountered and solutions tried, and focuses on data sharing and public-private sector partnerships.

The NYS Geographic Information System (GIS) Coordination Program was designed and implemented through the collaboration of governments and private entities throughout the State. This case study presents this innovative initiative as a model for data sharing and public-private sector partnerships. The report describes in detail how the GIS Coordination Program was initiated and developed, looking at the role of the different collaborators as well as the problems encountered and solutions tried. An evaluation of the costs and benefits of the project is also included, as well as a reflection on the remaining problems that need to be tackled in the coming years.

IT Innovation in Government: Toward an Applied Research Agenda, Part One: The practitioner perspective

Tue, 01 Oct 1997

This paper provides the practical perspective of studying government information technology issues. It is one of two papers that served as the background for discussions at an applied research workshop hosted by CTG in October 1997.

Public and private sector organizations alike are striving to improve their productivity and effectiveness by rethinking missions, reengineering processes, and implementing information technology (IT) solutions. Much work is being conducted in university settings and research centers to support the innovative use of IT to improve government services and operations.

The value of research to practice reflects the fit between the topics that interest researchers and their funders and the problems that practitioners are trying to solve. It also reflects the effectiveness with which knowledge is transferred between the two domains.

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A Framework for Evaluating Public Sector Geographic Information Systems

Sun, 01 Dec 1995

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Substantial opportunity exists to share spatial data, knowledge, and other resources across programs in the public and private sectors. This report is a discussion of the mechanisms for evaluating public sector geographic information systems (GIS). It presents strategies for quantifying potential system benefits, and it shows what opportunities exist for containing costs and maximizing the benefits of GIS implementation. The role of partnerships and information sharing is stressed in the context of maximizing the value of GIS in public organizations.

Compelling Reasons for GIS Coordination in New York State

Sun, 01 Dec 1995

Coordinating geographic information collected by different agencies and local governments can help promote three program areas of vital importance in New York State: economic development, environmental conservation, and public health and safety.

One of the underlying assumptions of the NYS Geographic Information Systems (GIS) Cooperative project is that GIS is a valuable public management tool, whose benefits could be enhanced through increased coordination. This project sought to identify the value of geographic information systems and spatial data in the public sector, as well as to examine mechanisms and opportunities for leveraging the benefits and minimizing costs. This value can be seen across a broad array of program areas. This report demonstrates the value that GIS can add to three programmatic areas of vital importance to New York State: economic development, environmental conservation, and public health and safety.

Sharing the Costs, Sharing the Benefits: The NYS GIS Cooperative

Sun, 01 Dec 1995

The New York State Geographic Information System (GIS) Clearinghouse Cooperative project was undertaken to show the extent to which spatial data needs overlap among key policy and applications areas. This report demonstrates how data sharing strategies can reduce the cost and increase the value of GIS.

Geographic Information Systems (GIS) offer unique opportunities to analyze and compare disparate types of information. They are opening up new opportunities to deliver both information and services. The value of GIS and spatial data can be seen most dramatically in applications that promote economic development, public health and safety, and environmental quality.

The New York State GIS Cooperative project, initiated by the NYS Department of Environmental Conservation, demonstrated the depth and variety of existing human, technical, and data resources in the state. This report presents the results of that project. It shows the extent to which spatial data needs overlap among key policy and applications areas. It examines how data sharing strategies can reduce the cost and increase the value of GIS.

The New York State Spatial Data Clearinghouse Technical Report

Sun, 01 Dec 1995

Developing the New York State (NYS) Geographic Information System (GIS) Clearinghouse prototype required the adoption of standards and an effective search mechanism. This report presents how these were implemented in the NYS GIS Clearinghouse project.

The NYS Department of Environmental Conservation initiated the NYS Spatial Data Clearinghouse project, and the Center for Technology in Government directed the development of the GIS Clearinghouse prototype. As many as 450 state and county government officials as well as ten corporate partners cooperated in the design and implementation of the online clearinghouse of meta data and spatial data sets. The prototype NYS Clearinghouse provides a mechanism for potential users of NYS spatial data to determine whether data sets they need are already available or under development.

This technical report outlines the development of the prototype, the adoption of the Federal Geographic Data Committee's meta data content standard, and the search mechanism used for retrieving data. The report also documents hardware and software choices made for implementation of the World Wide Web site.

Journal Articles and Conference Papers (1)

The Internet, the State Library, and the Implementation of Statewide Information Policy

Mon, 01 Oct 1999

Geographic Information Systems (GIS) are used by government, researchers, and businesses to support a wide range of activities. This article documents the implementation of an Internet-based GIS Clearinghouse in New York State, and highlights the role of the State Library as a critical implementer and value-added facilitator.

Geographic Information Systems (GIS) are used by government, researchers and businesses in a wide range of domains including economic development, environmental management, education, health, human services, infrastructure management, and disaster response. Most experts agree that the most expensive part of a GIS program is the creation of spatial data. Some estimate that as much as 80 percent of the cost of any application is attributable to the expenses of acquiring and geo-coding information (Thapa and Bosler, 1992). Often the information needs of different GIS applications overlap and data created by one organization can be used by others. Data sharing can therefore help reduce costs of GIS application development and yield considerable benefits and efficiencies.

To achieve this purpose, the State of New York has implemented a GIS Coordination Program which features an Internet-based GIS Clearinghouse operated by the New York State Library (Dawes and Eglene, 1998). In this program, the Library acts as a critical implementer and value-added facilitator of an important new state information policy that has influence over spatial data development, exchange, and use at all levels of government and in the private and not-for-profit sectors. The Clearinghouse provides the conceptual framework and operational platform for a fully functioning data cooperative which is the heart of the New York State GIS Data Sharing Policy. The Library-based Clearinghouse has become the essential portal to many newly identified information resources. It organizes the data descriptions, provides a publicly available and easy-to-use means of access, promotes sharing, points the way to education and other services, and generally makes possible the vision of a living data resource.

Other Results

The New York State GIS Cooperative Project demonstrated the depth and variety of existing human, technical,

and data resources in New York State. It showed the extent to which spatial data needs overlap among key policy and applications areas and examined how data sharing strategies can reduce the cost and increase the value of geographic information systems at every level of government and in the private sector.

Existing local and regional coordination efforts were identified as were the formal coordination activities of the federal government and other states.

The project identified seven management and policy factors which hinder the sharing of spatial data. These included lack of awareness of existing data sets; inadequate meta data; lack of uniform policies, incentives, tools and guidelines; and an absence of state-level leadership. The project also made specific recommendations for overcoming those barriers.

Finally, the project created a new spatial data resource for New York State, the prototype NYS Spatial Data Clearinghouse.

The information policy, technology, and coordination issues examined in this project are not limited to geographic information systems. They are general, systemic issues that underlie all government operations. The entire information policy framework of state government can be strengthened by the analysis and recommendations that emerged from this project.

Lessons Learned

The NYS Department of Environmental Conservation initiated this project with several specific questions to be answered. The project provided the agency the following lessons:

The project established the feasibility of an Internet-based repository for sharing spatial data. Given that DEC spent significant time and effort distributing spatial data sets, the investigation of an Internet-based repository as a mechanism for distributing spatial data was a key agency goal. The project allowed DEC to investigate the usability of a clearinghouse as a mechanism for data sharing and to assess how well it encourages data interchange.

DEC increased awareness and improved access to its spatial data resources. DEC's goal for the project was to establish a framework for cooperation within the context of a shared information resource. DEC data has become better known and more readily available for those who want to use spatial data to make decisions.

The project demonstrated how the GIS community can apply concepts like "reduce, reuse, and recycle" to improve data management. DEC used these concepts from the environmental movement to increase the overall level of communication and information sharing among members of the GIS community.

DEC acquired knowledge about Web site construction and on-line search and retrieval tools. As a partner in the design and development of the NYS Spatial Data Clearinghouse, DEC technical staff acquired first-hand experience in new information technology tools for creating Internet sites, authoring World Wide Web documents, and maintaining an Internet-based data resource.

New York State government overall benefited from the project in the following ways:

Members of the public sector GIS community identified barriers and recommended improvements in data sharing and coordination. Project seminars and presentations promoted awareness of programs at the State Library, State Archives and Records Administration, and the National Center for Geographic Information and Analysis at the University at Buffalo. Each program increased awareness of existing resources, to enhance coordination and collaboration, and to improve the ability of the participants to provide new and enhanced services.

The prototype NYS Spatial Data Clearinghouse served for a time as a new production-quality information resource for New York State. At the time of its creation, the prototype NYS Spatial Data Clearinghouse was one of only two state clearinghouses to be formally linked to the National Spatial Data Clearinghouse. It not only provided a vehicle for data sharing, but also demonstrated the use of the Internet as an effective tool for government-wide communication.

Members of the public sector GIS community initiated an ongoing user-oriented analysis of the Federal Content Standard for Digital Geospatial Meta Data. Standard meta data provides a common language for describing data that may be of value to many different users. This part of the project involved an analysis of the underlying data model as well as an analysis of the meta data standard itself. A structured process for continued

analysis of the standard was developed and continued by project partners in Erie County and the University at Buffalo.

The project heightened awareness of existing coordination efforts and exemplary GIS applications.

Through formal presentations, case studies, and regional meetings, the project highlighted a number of exemplary public sector GIS applications in New York and other states.

Several objectives of the NYS Temporary GIS Council were directly addressed. The project demonstrated the value of GIS to decision makers who were assessing the need for a formal coordinating body, and provided an environment for broad public participation.

Press Releases & News Stories

Press Releases

Information and Technology for Economic Development
Fri, 22 Dec 1995

News Stories

From Prototype to Statewide Resource: The New York State GIS Clearinghouse

Innovations

November 1997

NASCIO Announces Recognition Awards for Outstanding Achievement in the Field of Information Technology

National Association of State Chief Information Officers

1996

Prototype

The prototype GIS metadata clearinghouse, built in 1994-95, demonstrated the first attempt in New York State to build a common repository of information about spatial data and make it accessible over the Internet.

Today, the official New York State GIS Clearinghouse is part of a comprehensive statewide GIS Collaboration program. Available on-line through the NYS Office for Technology Web site, the Clearinghouse provides access to both meta data and many spatial data sets. It also contains comprehensive information about New York's Statewide GIS initiative as well as links to GIS tools, education and training opportunities, and GIS resources of the federal government and other states.

Partners

Government Partners

- New York State Department of Environmental Conservation
- New York State Division of Budget
- University at Buffalo, National Center for Geographic Information Analysis
- Erie County Water Authority
- The New York State Forum

Corporate Partners

- Applied GIS, Inc.
- Aule-Tek, Inc. now known as Unified Technologies
- Blue Moon Training Systems
- Digital Equipment Corporation, now known as Hewlett-Packard
- Documentation Strategies, Inc.
- Full Circle Communications
- Harlan Wallach Graphic Arts
- Intelegis Corporation
- Sun Microsystems
- Xyplex, Inc., now known as MRV Communications, Inc.

Center for Technology Government

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Related Web Sites

The Intergovernmental Solutions Program

<http://www.albany.edu/igsp/>

A partnership between the University at Albany's Rockefeller College of Public Affairs & Policy and New York State to develop a professional learning community focused on intergovernmental effectiveness. Program goals are to capture and share knowledge about how successful intergovernmental work occurs.

NYS GIS Clearinghouse

<http://www.nysgis.state.ny.us>

New York State's official GIS Clearinghouse and GIS Coordination Program, operated by the NYS Office for Technology

National Geospatial Data Clearinghouse

<http://nsdi.usgs.gov/>

A component of the National Spatial Data Infrastructure (NSDI). The Clearinghouse provides a pathway to find information about geospatial or spatially referenced data available from the US Geological Survey.

Federal Geographic Data Committee

<http://fgdc.er.usgs.gov/>

A 19 member interagency committee responsible for developing the National Spatial Data Infrastructure (NSDI) in

cooperation with State, local, and tribal governments; the academic community; and the private sector. The NSDI comprises policies, standards, and procedures for cooperative production and sharing of geographic data.

National Center for Geographic Information and Analysis

<http://www.geog.buffalo.edu/ncgia>

The University at Buffalo is home to one of the three sites of the National Center for Geographic Information and Analysis (NCGIA), an independent research consortium devoted to basic research in geographic information science and technology.

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