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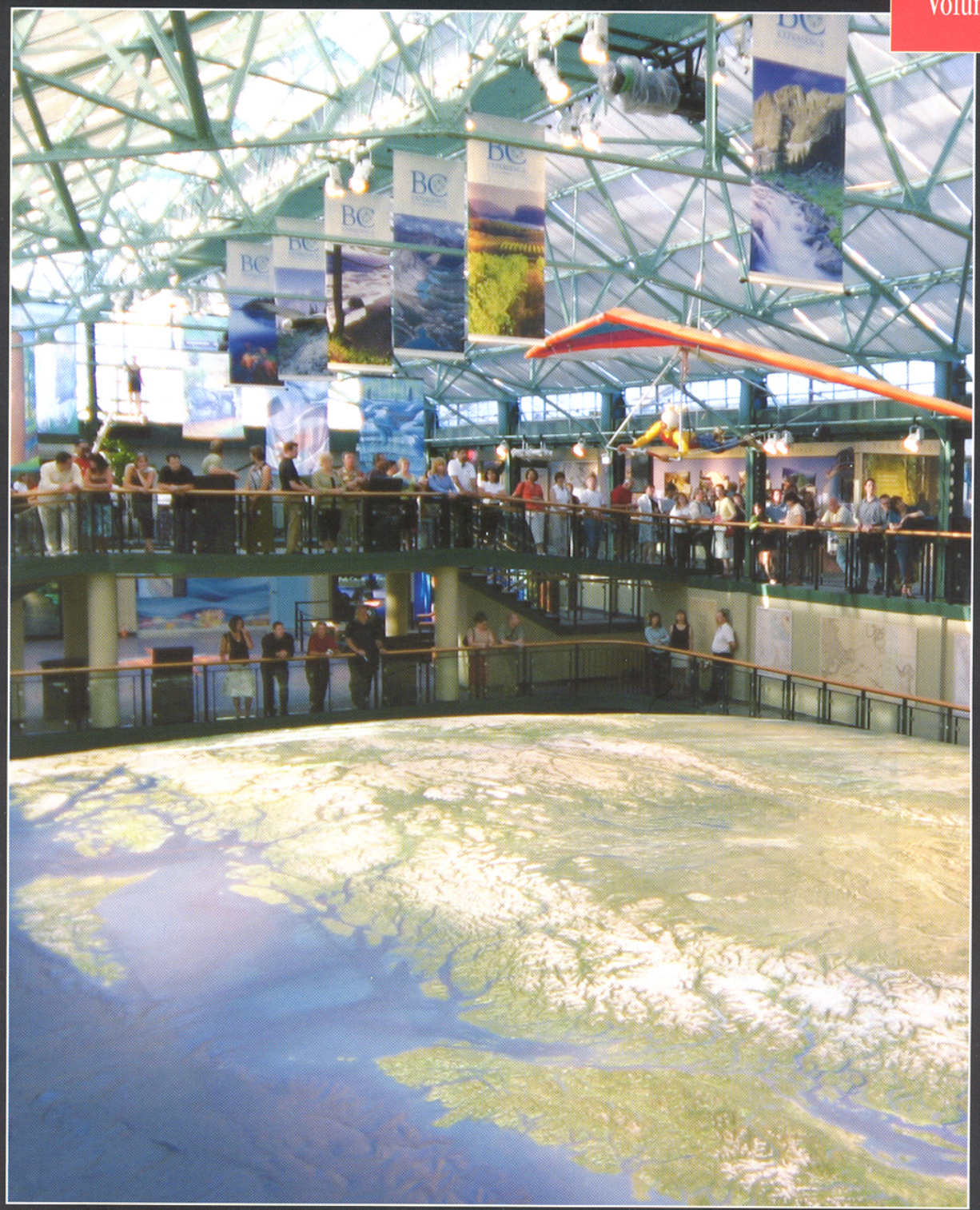

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Implementing SDIs through effective networking: the MetroGIS Geospatial Data Collaborative

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It has often been argued that effective networking is the key to successful SDI implementation but it is not often recognised that new types of organisation may be needed for such purposes. For this reason the experiences of the MetroGIS geospatial data cooperative are likely to be of interest to international as well as North American audiences.

Origins

Organizations in the state of Minnesota have a long tradition of cooperative development and use of geographic information system technology. Hereby they address issues that significantly affect the quality of life. In the early 1990s a number of local governments began to explore the benefits of GIS technology and state and regional government. Six of the seven counties that make up the Minneapolis–St. Paul metropolitan area made considerable investments.

The result was a plethora of conflicting data-access policies, inconsistent and time-consuming licensing requirements, and duplication of data-development efforts. Where data documentation existed, it varied significantly in quality and format. Small pockets of collaboration began to emerge as the GIS community became increasingly aware of the duplication of effort and expense that was occurring.

Guiding vision

MetroGIS was created in 1996 to improve the efficiency and quality of decisions made by governments in the Twin Cities area through widespread geospatial data sharing. The guiding vision of MetroGIS is to 'provide an ongoing, stakeholder-governed, metro-wide mechanism through which participants easily and equitably share geographically referenced data that are accurate, current, secure, of common benefit, and readily usable.'

Its goal has been to integrate into the day-to-day functions of stakeholder organizations the systems and procedures needed to sustain the desired data-sharing outcomes. The result is that both data users and producers share in the efficiencies of users being able to effortlessly obtain data needed from others, in the form needed, and when it is needed.

MetroGIS's comprehensive solution can be characterized as a distributed system comprised of three interrelated, technology dependent components:

- Coordinated production, maintenance, and documentation of regional data solutions for common information needs;
- A one-stop shop for discovery and distribution of data important to and consistent with stakeholder business functions (MetroGIS DataFinder);
- Knowledge sharing and fostering use of endorsed best practices through the general-information Web site, special purpose forums, and scheduled meetings of the policy Board and committees.

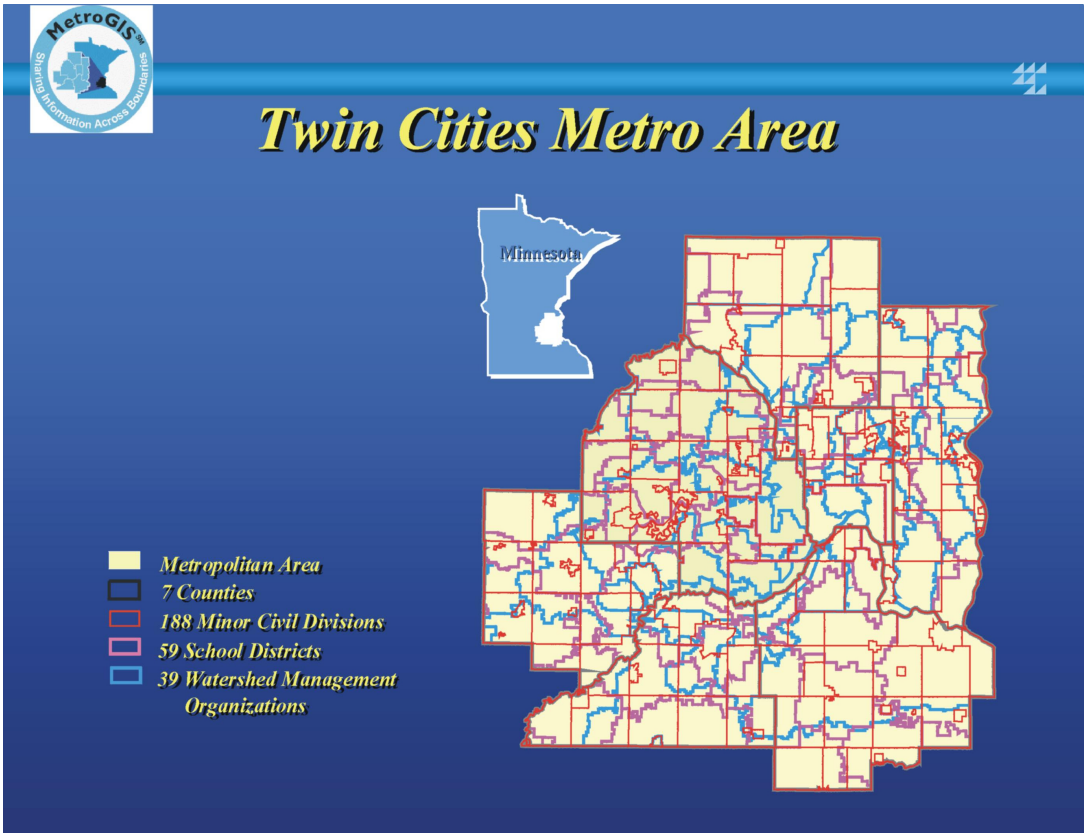

Figure 1 More than 300 local and regional government units serve the seven county Minneapolis Saint Paul metropolitan area

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The MetroGIS concept

MetroGIS provides an innovative and effective system for collaboration between the geospatial data producer and user communities to assemble, document, and distribute geospatial data commonly used by the more than 300 local and regional government units serving the seven-county Minneapolis–St. Paul metropolitan area, see figure 1. It is a voluntary organization that provides an effective forum to identify common geospatial

data related needs, collectively define the organisational and technical solutions needed to address those needs, and share geospatial data knowledge. MetroGIS has no legal standing and, as such, cannot own data, hire staff, or finance projects. It relies on its stakeholder organizations to develop and maintain all data, develop and support data-distribution tools, and finance its staff and project needs. The key to MetroGIS's ability to accomplish institutional changes needed to achieve the vision of both the MetroGIS community is its unconventional organizational structure. Its Policy Board consists of 12 elected officials from its core local and regional government communities - counties, cities, school districts, watershed districts, and regional government. These members are appointed by their respective communities to the Board, which has no formal legal standing, see figure 2.

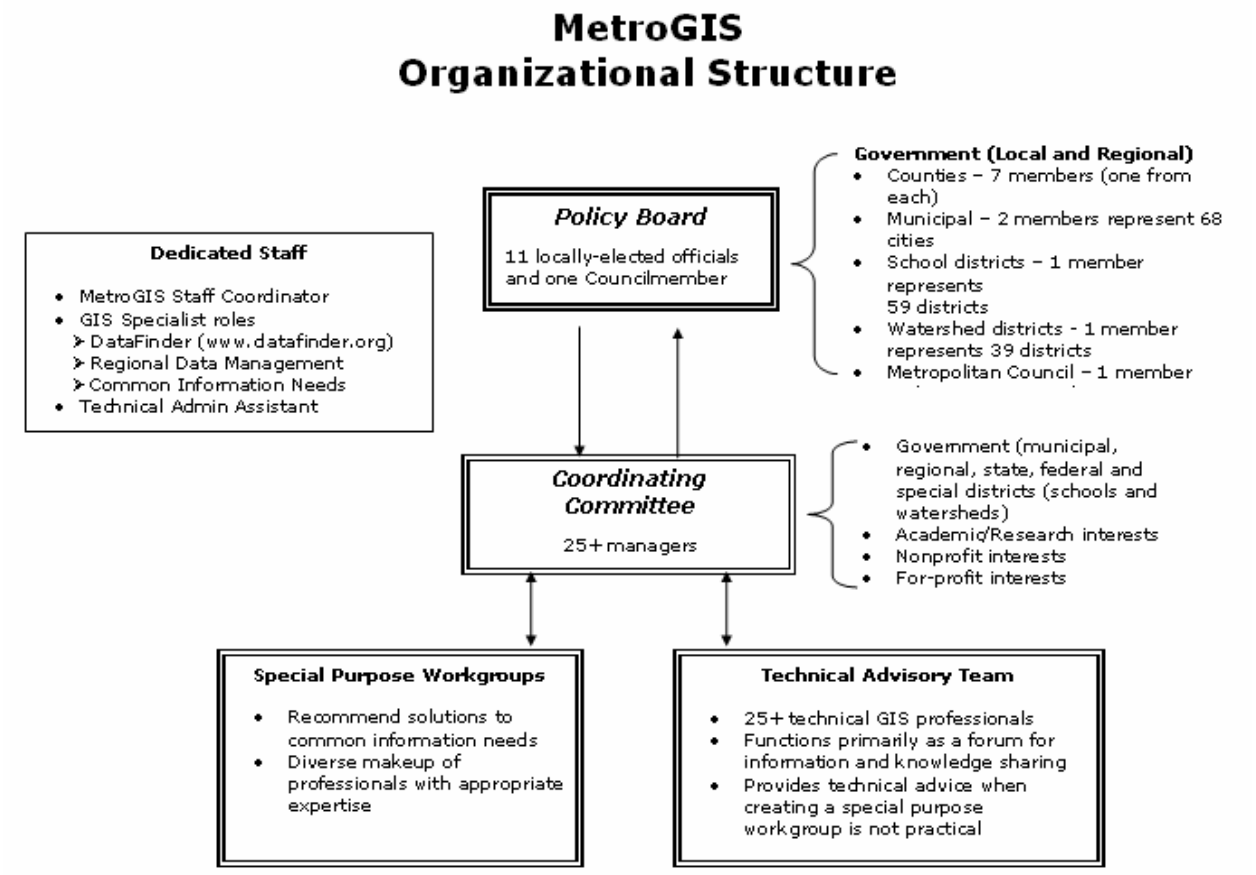

Figure 2 The Policy Board is supported by a 25 member Coordinating committee

The Policy Board is supported by a 25-member Coordinating committee. This provides a forum to discuss MetroGIS design, implementation, and operations. It defines goals and issues for strategic work groups, and makes recommendations to the Policy Board. Its members are drawn from a wide variety of public, academic, private, nonprofit, and for-profit stakeholders of MetroGIS.

MetroGIS has been successful because it focuses on both technology and building interorganisational relationships, and it raises issues to a level of public purpose. This structure ensures that "all relevant and affected interests are involved, dominated by none." At the outset, participants recognized that conventional hierarchical, command-and-control structures would not be capable of building and maintaining the trust relationships needed to bring all essential participants to the table or of overcoming fears of "hidden agendas."

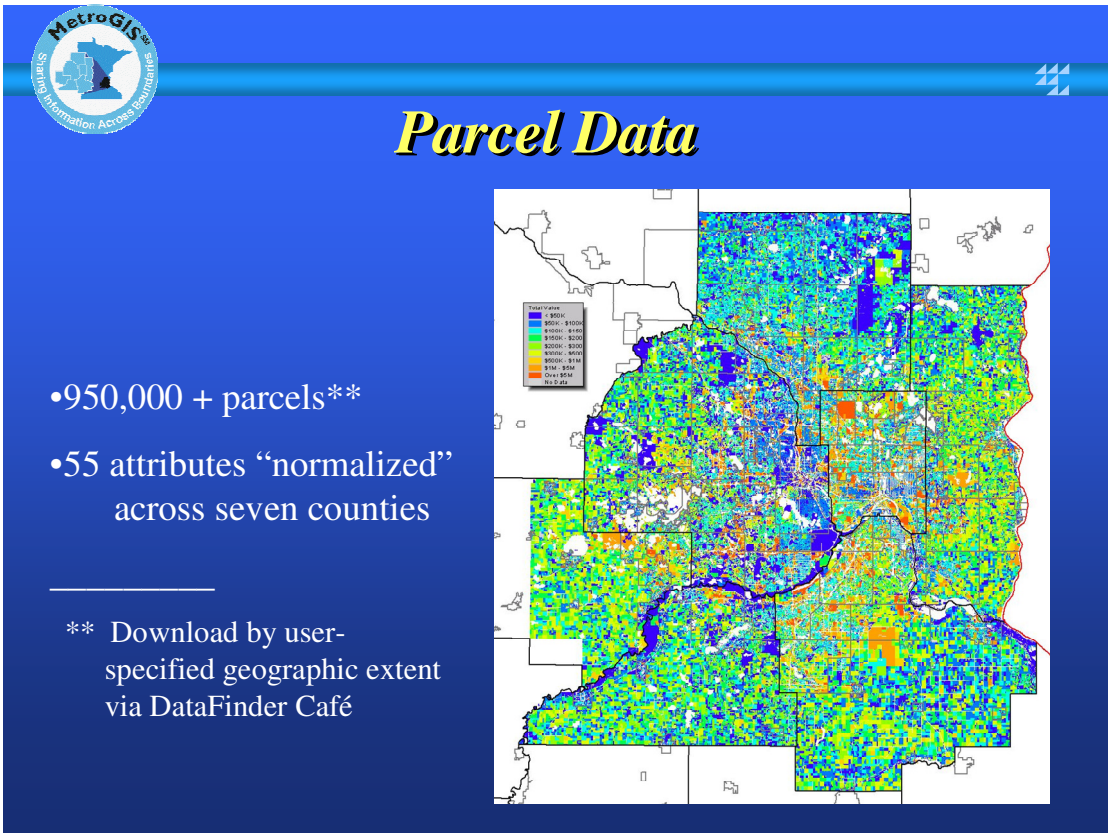

Figure 3 The seven individually produced county parcel data sets have been assembled into a single regional solution with attributes that have been reformatted to have consistent names, character types and sizes

Current status

During its ten year lifetime MetroGIS has had a significant positive impact on improving the efficiency of government operations in the Twin Cities area. The primary reasons for the improved efficiencies include: reduced duplication of effort to find and use data; access to data not previously available; cost avoidance through collaborative solutions;

improved data quality; and greater understanding of the community's geospatial data needs and opportunities through increased networking.
Benefits of regional data solutions to common information needs include

- Uniform data solutions across the seven-county area, notwithstanding that in most cases each regional data set is an assembly of several components or primary data sets. For example, the seven individually produced county parcel data sets have been assembled into a single regional solution with attributes that have been reformatted to have consistent names, character types, and sizes, see figure 3.

- Interoperable regional data solutions which significantly reduce the time and effort needed to manipulate data for use once it is located and obtained.

The experience of the Metropolitan Mosquito Control District is a good example of these benefits. Prior to access to MetroGIS data, district staff spent thousands of dollars and many hours acquiring, downloading, manipulating, and reconciling parcel data from seven different counties to generate accurate and comparable field maps. Now the data is free and can be downloaded from one spot. Quarterly updates are available at no charge. In just two months after an updated and enhanced parcel data set was released in early 2005, nearly 50 organizations had sought and obtained licenses for access to this data.

Experiences

Riley-Purgatory-Bluff Creek Watershed District has also benefited considerably from MetroGIS. The District works with other government bodies to regulate storm water runoff, improve water quality, and provide recreation. GIS Specialist Tim Anderson, from the District's consulting firm, Barr Engineering, explains that before MetroGIS, his firm had to spend time and money getting data from two separate counties and several cities and then reconciling the data. Through the MetroGIS data-sharing agreements, that data can be downloaded for free and is often contained in a regional dataset that doesn't require any further work to piece it together. "This represents a savings for our clients because we don't have to generate or look for the data," Anderson said.

The City of Roseville's experience is similar to those described above. Roseville is a first-ring suburban community of 33,690, situated just north of St. Paul. It is home to more than 2,200 businesses that employ more than 39,000 people, many of whom live outside the city. The culture of data-sharing facilitated by MetroGIS, and its easy data access tool, DataFinder, make cross-jurisdictional analysis not only possible but quick and easy, see figure 4. 'Having an organization that coordinates the sharing of data is a much more efficient mechanism than having all the region's cities, and other organizations, spending time to acquire the data individually' said Dennis Welsch, Roseville's community development director. 'The bottom line is better service to the public – by enabling management and elected officials to make more informed decisions because of access to the wealth of information that can be processed and displayed using GIS.'

Figure 4 The culture of data sharing facilitated by MetroGIS, and its data access tool, DataFinder, make cross jurisdictional analysis quick and easy

MetroGIS from an international perspective

The experiences of MetroGIS show what can be achieved through effective networking through new kinds of organisation at the metropolitan level to implement SDIs. Despite the collaborative's reliance on consensus decision making procedures it has proved a remarkably robust model for interagency networking over the last years and is therefore of considerable interest to the international SDI community as well as a north American audience.

One factor that underlies the success of MetroGIS is the key role that local politicians have played in the development of MetroGIS through their participation in its Policy Board. This has been very important in building up support for its activities amongst the key stakeholders and giving it some measure of protection from external threats during this period.

The other main factor behind MetroGIS's success is the extent to which it is the product of enlightened self interest on the part of its stakeholders. During the ten years that it has been in operation MetroGIS has built up a core of active users in a wide range of

agencies who are able to access data that they regard as being of importance to their work through MetroGIS. MetroGIS is also attractive to politicians and taxpayers because it saves money and makes better use of existing resources. The only direct cost of its operations is the $200,000 that is paid annually by the Metropolitan Council to cover the costs of coordination. However, the seven counties also contribute the equivalent of 20 FTE staff time each year through the work that they carry out with respect to the core land parcel database and a state agency and the University of Minnesota also contribute to the collaborative solutions.

Regional solutions

The value added dimension of MetroGIS to users is that it provides regional solutions to common information needs. No single entity in the Twin Cities has the charge to secure the regional solutions that have been achieved through MetroGIS's efforts, due to the diversity of business needs being served. In a recent program evaluation study of the value of MetroGIS, the Metropolitan Council found that other metropolitan governments in the United States, with similar responsibilities, are paying 5 to 6 times its $200,000 investment for similar and, in some cases, less robust data. The Council's unanimous conclusion was that MetroGIS is not only extremely economical for its needs but that it is also providing significant benefits to the region as a whole through the leveraging and coordination of existing investments by a host of data producers closest to the source of data commonly used by many.

Further information

MetroGIS websites - www.metrogis.org and www.datafinder.org.