6.0 NSDI RESEARCH

6.1 NSGIC/FGDC Framework Data Survey

The National States Geographic Information Council (NSGIC) and the Federal Geographic Data Committee undertook a nationwide assessment of the NSDI's "Framework" development. Since the NSDI's inception in 1994, the FGDC has promoted and supported collaborative efforts to develop Framework data themes. Beginning in the Fall of 1997, the Framework Data Survey coordinators distributed a comprehensive survey consisting of some 118 questions, to participants in all 50 states, in an effort to capture data for all counties.

The final surveys were returned in October 1998. By June of 1999, the preliminary results were compiled, and Sheryl Oliver, President, NSGIC, and John Calkins, briefed the Framework Data and Product Development Thread of the 1999 GeoData Policy Forum. The survey provides a rough nationwide inventory of organizations that are producing or using framework data, which themes of data are being produced, the availability of metadata, data sharing practices of respondents, and key contact information.

This Section Addresses

- Research by independent organizations on different aspects of the NSDI
- Research includes:
  - The Framework Data Survey
  - Financing the NSDI, and
  - Improving Federal Agency Geospatial Data Coordination

The Framework Data Survey had two major goals:

- To take a snapshot of Framework Data development across the United States.
- To promote development of Framework activities.

The computer diskette format questionnaire was provided to over 13,000 respondents in late 1997. The Framework data themes surveyed included: geodetic control, orthoimagery, elevation, transportation, hydrography, governmental units, and cadastral information. By October of 1998 5,299 responses were received from counties, the federal government, states, regional authorities, municipalities, academia, private industry, and tribal councils representing a remarkable response rate of over 40%.

Some conclusions reached from the survey include:

- Framework data serves many difference uses;
- Substantial progress has been achieved in framework data creation;

- Framework development status is comparable across themes;
- Many different types of organizations are involved in framework development activities;
- Data sharing levels are very high;
- Private sector participation and sharing levels are significantly lower than public sector participants; and
- Coordination efforts are making substantial progress.

The study clearly identified that the framework benefits organizations in several ways:

- It can greatly reduce the time, effort, and expense involved in developing geographic data.
- It gives users ready, reliable data, in a consistent format.
- It gives data producers a reference source, standards, and guidance for creating geographic data, and
- The framework also makes it possible to combine data from many sources and areas.

Of the seven framework data themes, the framework data survey found the transportation theme to be the most developed/used by the survey respondents, followed closely by government units and hydrography.

Of particular interest is the role framework data plays in an organization's data needs. While framework data has never been intended to fulfill an organizations total data needs, it is intended to play an important role in many organization's GIS databases and operations.

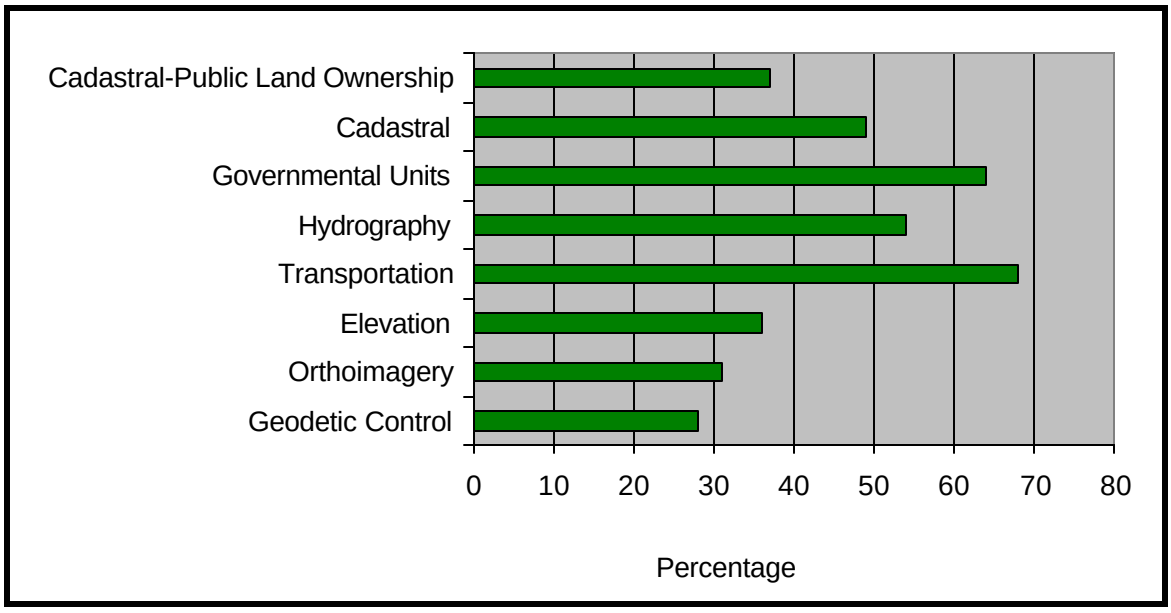
The survey data collected valuable information to assess the underlying framework concepts and to validate them as they relate to the various markets the NSDI is intended to serve. The survey data provides a wealth of data to better understand the value of the NSDI framework effort and the private sector's participation role.

Framework validation addressed in the Framework Survey included:

- Are the seven data themes common to most organizations that deal with digital geographic data?

- What data resolution is needed for different organizations and applications?
- Are there differences in framework development patterns in different geographic regions?
- What factors affect the timing of framework data development?
- What operational needs affect framework data development?
- How do organizational differences affect Framework development?
- How does resource (money, personnel, software) availability affect framework data development?
- What factors influence coordination and data sharing?
- How important are incentives in promoting framework development?

The following table from the Framework Data Survey Preliminary Report summarizes the respondents activity in developing framework data themes.



Of particular interest in the framework data study is the insight provided by the framework data survey respondents. Approximately 10% of the respondents were classified as private sector and their responses provide valuable insights into the private sector's framework data activity.

The following table presents the nine organization-types that were considered in the framework data survey:

Respondent	Numbers	Percentage
Counties	257	31.65
Federal	83	10.22
State	109	13.42
Regional	60	7.39
Municipalities	160	19.70
Academia	29	3.57
Private Industry	85	10.47
Tribal	29	3.57
Total	**812**	**100.00**

The framework survey preliminary report identified several private sector factors as follows:

- Utilities have Framework data activities similar to the public works department of a county government.
- The GIS software industry has segmented into “professional” GIS users and “non-technical” GIS users. Non-technical users work at desktop PC’s or Web-enabled viewing applications.
- Private sector organizations are the most active in creating elevation data.
- Federal agencies and the private sector are most active in creating hydrographic data.
- The private sector distributes data at lower rates than other organizations.
- Data sharing levels are very high except for the private sector. The private sector is least likely to share data.
- The private sector is the least likely to permit unrestricted data redistribution.
- The private sector participates the least in spatial data coordination groups.

One of the purposes of the framework data survey was to provide a snapshot of framework data development and to enable analysis of the data to confirm or refute fundamental framework concepts. The above findings regarding the private sector provide us some fertile areas to examine in this study.

6.2 Financing the NSDI: National Spatial Data Infrastructure – Aligning Federal and Non-Federal Investments in Spatial Data, Decision Support and Information Resources

In Urban Logic's work on private financing approaches to finance the development of the NSDI, Mr. Bruce Cahan addresses the issues of how capital can be better used and invested in spatial data. This report also looks at the evolution of shared decision support tools that are driving the demand for spatial data.

The report advocates the creation of spatial data consortia to provide an "architectural unit" for public/public, public/private, and private/private partnerships to align their investments in spatial information services. The spatial information consortia would facilitate the pooling of capital and information resources among a number of needs, servicing Federal "data mandates."

Mr. Cahan identifies three types of consortia:

- Regional – Pacific Disaster Center (PDC), San Diego Association of Governments (SANDAG)
- Industry – such as Energy, Healthcare, Insurance, Real Estate, and Telecommunications
- Interest Groups – Association of Biodiversity, Intelligent Transportation Society (ITS) of America

Through these consortia, spatial data can be securitized to fund data development, data updating, and applications development to meet the multiple spatial data needs from precision agriculture to community zoning.

6.3 Improving Federal Agency Geospatial Data Coordination

As the FGDC has grown to 17 departments and independent agencies, and as directed by Executive Order 12906 to develop the National Spatial Data Infrastructure, FGDC members have voiced concerns that FGDC's expanded role to address a wider community has impeded the coordination work at the Federal level. It is the belief among many that the FDGC's coordination effort has slowed and key Federal agencies are absent from FGDC meetings. The purpose of the report, "Improving Federal Agency Geospatial Data Coordination," is to gather information, evaluate this information and recommend actions with respect to the FGDC's priorities.

The report identified a number of significant concerns/issues applicable to the FGDC:

- Senior officials within the FGDC have not had the opportunity or reason to develop an understanding or appreciation of the importance of geospatial data or GIS to the overall mission of the agency.

- Coordination among Federal agencies is generally ignored because oversight is not at a high enough level within the Executive Branch.
- The NSDI data assets need to be developed and distributed in a timelier manor based on “market demands.”
- FGDC needs to be more responsive to the needs of member agencies.
- Management oversight and accountability is lacking.

While all of these issues do not appear to relate to a lack of private sector participation, they all actually do. All of these issues suggest a lack of clear purpose and mission and a mismatch between agency goals and those of their desired “customers.” The private sector, driven by time-to-market, short-term profit, liability, and privacy issues, is not likely to take an interest in a program that is difficult to participate in or lacks relation to their own goals. They are also not likely to invest in programs without a clear purpose.

Notwithstanding the goal of developing the NSDI, including the national framework effort, realistic expectations of the private sector are not clear. Clearly, the private sector has different drivers than the public sector. The challenge is to align private sector NSDI goals with public sector NSDI goals to the maximum extent possible. The Spatial Technologies Industry Association is committed to addressing this issue on behalf of its member companies in conjunction with the Federal Geographic Data Committee.