URISA National Geographic Information Cooperation, Coordination, Collaboration Task Force (3CTF)

2002-2004 Report

&

Recommendations

Zorica Nedović-Budić

Task Force Chair October 2002 - October 2004

April 2005

EXECUTIVE SUMMARY

URISA's National Geographic Information Cooperation, Coordination, Collaboration Task Force (3CTF) was formed in October 2002 to help raise awareness about the issues related to realization of the National Spatial Data Infrastructure (NSDI) and to contribute to the NSDI development with the views from the community of GIS professionals across the public and private sectors. Cooperation, coordination and collaboration (3C) are the fundamental principles the Task Force promotes in addition to its commitment to efficient, effective, open, and sustainable spatial data infrastructure.

The Task Force has accomplished many activities. It introduced its rationale and goals to the membership and invited broad-based participation; it facilitated forums, discussing and sharing information on the ongoing federal NSDI implementation activities (Summit in May 2003 and during 2003 and 2004 annual conferences); and it summarized the position of URISA membership in a set of recommendations. The only remaining task is the finalization of the recommendations that would include its endorsement by other groups and organizations and its wide distribution.

Following are the proposed future activities that would extend the Task Force's contribution and utility to the NSDI objective:

a) Identifying and presenting model regional cooperative setups and activities by focusing on best practices in the areas of finance, access, standards, and roles and responsibilities and building on both emerging and proven frameworks and technologies;

b) Supporting the development of a concept / plan for NSDI implementation through innovative contributions compatible and complementary to the ongoing initiatives by other groups, Federal Geographic Data Committee, in particular;

c) Organizing a summit (#2) that would update the audience on the NSDI progress since the first Summit in May 2003 and give an opportunity for redefining and/or focusing the issues.

As Chair of the Task Force, I would like to take this opportunity to express my appreciation to all who were involved in TF activities and who contributed their energy and insight to our common cause.

Zorica Nedović-Budić

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INTRODUCTION

As the science of Geographical Information Systems (GIS) matures, and the applications of GIS technology in the governmental, public service, and private sector arenas become more sophisticated and diverse, a few key patterns are emerging. First, GIS is recognized as a useful tool for reducing costs, improving efficiencies, and enhancing the decision-making effectiveness. Second, large databases of spatial information are maintained by various agencies at all levels of government and by private sector organizations, many of which describe overlapping systems and phenomena. Often these data reside in information "silos," where a dataset builds upon itself but has no connectivity to other datasets. Third, vertical and horizontal integration of existing datasets at regional, state, and national levels, and creation of new data where the gaps exist are needed to bring about a viable spatial data infrastructure to support decision making and action in both crisis and ordinary societal situations.

To this end, the National Spatial Data Infrastructure (NSDI) initiative has been undertaken as a framework for moving toward a standards-based and integration-friendly approach to managing spatial data. Established in April of 1994 by presidential Executive Order 12906, the NSDI has come to be seen as the technology, policies, criteria, standards and people necessary to promote geospatial data sharing throughout all levels of government, the private and non-profit sectors, and academia. The vision of the NSDI is to assure that spatial data from multiple sources are widely available and easily integrated to enhance knowledge and understanding of our physical and cultural world. The NSDI is implemented by three key initiatives:

- creating spatial data standards
- fostering clearinghouses, portals, and metadata catalogs
- developing framework datasets.

The Urban and Regional Information Systems Association (URISA) representing a variety of NSDI constituencies, created a task force to discuss the Federal government's NSDI efforts and to make recommendations. The National Geographic Information Cooperation, Coordination, and Collaboration Task Force (3CTF) was established in October 2002 at the URISA annual meeting in Chicago. The 3CTF was created to voice the views and issues from associations and groups interested in, and affected by the Federal initiatives toward development of the NSDI, such as The National Map, Geospatial One Stop, and NGA's (National Geospatial-intelligence Agency) "133 Cities" Project.

The goals of the 3CTF were to:

- Increase awareness and understanding of the scope and objectives of various initiatives among the geospatial community members.
- Identify the relevant organizational and institutional issues and experiences.
- Point to the effective forms of cooperation, coordination, and collaboration that will bring mutual benefits to the involved parties, but also result in a coherent national information base.
- Advocate approaches for sustaining long term partnerships and mechanisms for geographic information development and maintenance.
- Communicate with the leadership of various initiatives to share views, concerns, and ideas.

The guiding principles for the Task Force are included in Box 1. Following are the specific activities that the Task Force proposed to undertake:

√ Introduce the Task Force's rationale and goals to the membership - ACCOMPLISHED;

√ Invite members to share their experiences with Federal initiatives - ACCOMPLISHED;

√ Summarize the key features of federal activities, relevant experiences reported by URISA members, and expected implications on URISA constituencies (government organizations at all levels, private sector, and spatial technology professionals) - ACCOMPLISHED;

√ Seek feedback on this summary - ACCOMPLISHED;

√ Write a URISA position statement, principles, and mechanisms that would lead to more effective interaction between federal and other levels of government in creating and integrating national datasets (the Recommendations) - ACCOMPLISHED; and

√ Share the Recommendations with key contacts in each of the initiatives and with the geospatial community at large for endorsement – IN PROGRESS.

Box 1: 3CTF Principles

MAP IT ONCE – AVOID DUPLICATE DATASETS AND WASTE OF FUNDS

BENEFITS TO ALL CONTRIBUTORS
EQUAL PARTNERS IN DATA DEVELOPMENT AND MAINTENANCE
COST SHARING AND/OR INCENTIVES FOR LOCAL DATA DEVELOPMENT AND UPDATE
RECOGNITION OF DATA RIGHTS AND RESPONSIBILITIES
FREE ACCESS TO PUBLIC DATA WITH SECURITY-RELATED WITHHOLDING EVOKED ONLY IF NECESSARY
USE OF COMMON STANDARDS
OPEN NON-HIERACHICAL LINES OF COMMUNICATION
DESIGNATED AUTHORITY AND POINT OF CONTACT AT ALL LEVELS
VERTICAL AND HORIZONTAL COORDINATION, COOPERATION & COLLABORATION (3C)
SUSTAINABLE SPATIAL DATA INFRASTRUCTURE

The purpose of this document is to:

- Report the activities performed since the TF's initiation in October 2002 until present (Part 1)
- Present the TF's Recommendations (Part 2)
- Suggest the TF's future activities (Part 3)

PART 1: TASK FORCE ACTIVITIES AND PRODUCTS 2002-2004

1.1 Organization and Web Page

Immediately after its initiation the Task Force established its goals and planned activities. This information was communicated to the URISA Board and the URISA community via a mass e-mail announcement and a reference to a newly created web page. The mass mail was used to invite the interested individuals and groups to contribute to the Task Force with their comments, experiences and ideas. An on-line guestbook was provided for these purposes.

Product
The web page:
http://www.urisa.org/Board_Initiatives/3IGCTaskForce/gi3ctaskforce.htm
It contains information on all TF's activities and output and links to relevant initiatives and documents.

1.2 May 2003 Summit

With support from the URISA Board and sponsorship from the Federal Geographic Data Committee (FGDC), the Task Force held a summit meeting in Washington D.C. on May 21, 2003, entitled, *Give & Take: National Programs ... Local Implementation*. Members of the GIS community from all levels of government, non-profit and private sectors, and academia attended to get information and to discuss the state of federal geospatial programs. The Summit was endorsed by the National Association of Counties (NACo), the International City/County Management Association (ICMA), and the National States Geographic Information Council (NSGIC)

The Summit was designed to balance both informative and interactive sessions. It gathered over 100 attendees from across the sectors of GIS community, including the Federal representatives. The attendees first heard an overview of five ongoing Federal initiatives (The National Map, Geospatial One-Stop, TIGER Enhancement, 133 Cities, and First Responders) and then actively engaged in expressing and discussing the related issues. The participants were provided a Matrix describing the key features, commonalities and distinctions between the five programs. The interactive sessions were professionally moderated to ensure a constructive dialogue and generation of ideas. The experience was considered unique and successful by many of the participants. The following issues were identified as critical for developing a sustainable and effective NSDI:

- 3C: cooperation, coordination & collaboration
- Roles and responsibilities
- Finances

- Access
- Standards

These themes are taken further in the TF's Recommendations, presented below.

Products

a) Summit Program (Appendix 1)

b) Matrix comparing Federal geospatial data-related initiatives / programs: http://www.urisa.org/Board_Initiatives/3IGCTaskForce/Oct2003_docs/program_matrix.pdf (Appendix 2)

c) Summary of the themes and ideas generated in the interactive sessions: http://www.urisa.org/Board_Initiatives/3IGCTaskForce/Oct2003_docs/Maysummit_summary.pdf (Appendix 3)

d) Frank Sietzen, Jr.'s article "Federal GIS: A Weapon of Mass Dysfunction? in Geospatial Solutions, October 2003 http://www.geospatial-online.com/geospatialsolutions/article/articleDetail.jsp?id=70780

e) Adena Schutzberg's report on the Summit in GIS monitor, May 29, 2003 http://www.gismonitor.com/news/newsletter/archive/052903.php

f) Review by Paul Tolme and observations by the Summit participants http://www.urisa.org/Board_Initiatives/FedSummit/Summit.htm

1.3 Knowledge Base - Review

In addition to consulting the geospatial community members and Summit participants on the important issues and experiences, existing academic research findings were considered a valuable resource on the organizational and institutional factors and models that can inform the advancements in the NSDI. A literature review was conducted during the summer of 2003 in preparation for the URISA 2003 conference. The topics covered in the review include:

- Collaboration - cooperation - coordination, with the last one implying the highest degree of dependence, mandates, and redistribution of power.

- Intergovernmental relations, which suggest cooperative federalism as possibly the most facilitative for NSDI-type developments, assume high level of decentralization, and may be applied among others as the coordinative authority or network-based exchange model (negotiated for mutual benefit and require transfer of resources with minimal loss of autonomy and power).

- Policy/program implementation, both top-down and bottom-up as the two most general approaches; information, facilitation, regulation, and incentives as the main implementation strategies; recognition of the importance and interaction of the national and local environments; and suggestion that cooperative intergovernmental policy is more effective than coercion-based policy and that the cases of spontaneous coordination are rare.

  Product
  Knowledge Base: Excerpts form the Literature on Relevant Frameworks and Models
  http://www.urisa.org/Board_Initiatives/3IGCTaskForce/Oct2003_docs/knowledge_base.pdf (Appendix 4)

1.4 URISA 2003 Conference

The TF organized several events during the 2003 annual meeting. The two main events were the roundtable luncheon discussion and the closing plenary session.

The roundtable had Federal Programs for its topic and gathered about 10 individuals. Ivan DeLoatch of the Federal Geographic Data Committee (FGDC) reviewed some of the recent initiatives, e.g., the Coordinated Grant Program for initiatives related to the CAP and the National Map programs, FGDC's National GIS workshops, and the development of standards for Geospatial One-Stop portal. The discussion items included: making the digital orthophotos more useful with higher resolution of data capture; problems in convincing local officials regarding the importance of building data across the local jurisdictions; the role and involvement of the private sector; better collaboration and communication between the state and federal levels; the future standardization and implementation of standards particularly at the local level; possibility of establishing a centralized grant application source; state funding options – Wisconsin example.

The Closing Plenary was used to review the TF's goals and principles, summarize the conclusions of the May Summit, present hypothetical NSDI implementation scenarios, and discuss future action items and priorities before and with the broader URISA audience. A panel of representatives from local, state, and federal organizations was assembled to offer diverse views on the future implementation of the NSDI and stimulate the audience participation. The session generated a lot of excitement and sharing of fresh opinions and ideas. New members interested in contributing to the TF were self-identified and signed up. The group as a whole was involved in all further TF activities.

The presented hypothetical implementation scenarios assumed:

- supporting institutional structure (change may be needed);
- allocation and generation of resources (human, financial, technological);

- development of the implementation plan(s);
- building on existing relationships / partnerships;
- long-term commitment at all levels of public sector; and
- availability of enabling standards and technologies.

The scenarios included: regulatory, network, lessaiz faire, and hybrid, or other.

Products
Closing Plenary Program (Appendix 5)
http://www.urisa.org/Board_Initiatives/3IGCTaskForce/Oct2003_docs/oct_program

Implementation Scenarios (Appendix 6)
http://www.urisa.org/Board_Initiatives/3IGCTaskForce/Oct2003_docs/Implement_scenar.pdf

1.5 Response to HB 3186

On behalf of the URISA Board, the TF wrote a position statement in support of the HB3186, introduced by Representative William Clay (D-MO) on September 25, 2003 and referred to the Committee on Science (Box 2).

The Bill can be viewed at:
http://www.urisa.org/Board_Initiatives/3IGCTaskForce/HR%203186.pdf .
Its main intention is: "To establish and maintain geospatial preparedness for the Nation with the National Spatial Data Infrastructure and integrated applications and systems required for homeland security, national defense, electronic government, and for other purposes."

Products
a) TF Position Statement "URISA Endorses Geospatial Preparedness Bill," Geospatial Solution, January 2004, p. 58 (One Last Thing)

b) Visit to Rep. Clay's office in Washington, DC on December 16-17, 2003. Martha Lombard delivered the letter on behalf of URISA.

Box 2: Letter in Support of HB3186

December 8, 2003

TO: Honorable Mr. Clay & the Committee on Science

RE: Geospatial Preparedness Act of September 25, 2003

FROM: URISA Board of Directors and the National Geographic Information 3C Task Force

As members of the Urban and Regional Information Systems Association (URISA) Board of Directors and the National Geographic Information Collaboration, Cooperation, Coordination (3C) Task Force, we would like to express our support for the proposed Bill H.R. 3186 presented before the 108th Congress (1st Session) on September 25th, 2003, and cited as the Geospatial Preparedness Act.

URISA represents geospatial technology professionals and scholars who apply, develop, and provide value-added services to private and public sector organizations. We can attest to the benefits that accrue from the use of geospatial technologies in fields ranging from property taxation, management of infrastructure, urban development, environmental protection, and business location and market analyses, to name a few. These are all civic purpose daily applications of the same technology and data that are necessary for response to emergencies caused by accidents, natural hazards and potential terrorist activities. Therefore, in our support for the Act, we would like to emphasize the following:

As indicated in the point 7 under section 2 -- geospatial technologies and data infrastructures are important for *both* civic (government and business) and homeland security needs.

Leveraging existing investments and endeavors at the local, regional, state, and federal levels, has to be accompanied with a more programmatic national approach and incentives.

We strongly encourage development of the national spatial data infrastructure implementation plan by using expert advice and community input on the necessary mechanisms, streamlining of processes, and institutional forms.

More specifically, the community input would be used to: 1. assess the current geospatial preparedness; 2. quantify the resources required at each level of government and by other sectors; and 3. develop the standardization and funding mechanisms to provide consistency and cohesion with existing capital infrastructure programs.

To develop a functional and useful infrastructure, the Office of Geospatial Management may have to include and cooperate with entities beyond the Department of Homeland Security in terms of its scope, authority, data access, technology transfer, and finances.

In particular, vertical integration is a necessary prerequisite for building a sustainable national geospatial infrastructure. While the proposed legislation recognizes localities as being beneficiaries included in vertical integration and needing resources, it is not too clear on their roles and appears to task the federal agency with implementation.

In conclusion, we strongly believe that by emphasizing the multiple uses of the same data for both civic and emergency applications -- the concept of building data once, maintaining it, and using it repeatedly for many purposes – would garner a broad support

for the Bill and its intentions. This approach would also promote the most economical and effective use of public and private resources.

Please accept our full agreement with and support for the goals and intentions of the Act, and affirmation of the benefits that would be realized by furthering and implementing the ideas and principles expressed in it. We hope that the URISA Board's and Task Force's endorsement of the Act will be helpful in advancing its purpose and vision.

1.6 Recommendations

Conveying a message about the unmet needs and recommended actions toward advancing and achieving a sustainable NSDI was the final item on the TF's agenda for this past period. Writing of the TF Recommendations was a group task with member involvement secured through a series of conference calls in December 2003. Each conference call gathered a group of interested participants around one of the four main topics identified at the Summit and carried through the continued exchanges after the Summit.

The topics were:

- Roles and responsibilities
- Finances
- Access
- Standards

The Recommendations are presented below. They were discussed and endorsed by the Task Force during URISA's 2004 annual meeting in Reno, Nevada.

PART 2: RECOMMENDATIONS

Current trends in business and government to provide more geodata services with fewer resources, and the ascendancy of public safety issues, prompt the need for on-demand access to accurate and up-to-date spatial information. These trends and needs call for greater cooperation, coordination, and collaboration (3C) in data development and integration across organizational and jurisdictional boundaries, in four conceptual areas:

- Roles and Responsibilities
- Finances
- Access
- Standards

The following recommendations are directed toward the FGDC, organizer of the NSDI initiative, and equally toward state, regional, and local public agencies that create, manage, and distribute geodata. The vision for widespread accessibility to quality geodata - as articulated through the NSDI, The National Map, and Geospatial One Stop initiatives - benefits all levels of government, the private sector, researchers and individuals. Manifesting the NSDI vision is a shared responsibility.

1 – Roles and Responsibilities

Policies are needed for coordinating, developing, maintaining, and integrating local, regional, and state-owned spatial data that are the building blocks of the NSDI.

- Roles and responsibilities should be self-assigned through explicit program policy with bottom-up, incentive-based, and cooperation-based implementation.
- FGDC can exert national leadership by example, by setting standards collectively, and by financial incentives.
- Roles and responsibilities should be accepted by organizations and/or individuals whose existing functions are closely related to the tasks of data custodianship, data stewardship, or coordination.
- Organizations of all types and levels should have an identified and stable point of contact (POC).

2 – Financing

Spatial data should be treated as a capital asset with management and investment cycles, utilizing funding methods alternative to selling the data, and tying the funding to the agencies/individuals with specific roles and responsibilities mentioned above (#1).

- A portion of an agency's general fund should be allocated to enterprise-wide geodata and services.
- Within the agency, a portion of each department's operating budget should be allocated to support geodata development and maintenance.

- Internal accounting procedures should be changed to identify the additional revenues and cost savings that result from the use of geospatial data, so as to allocate a portion towards the ongoing maintenance and operation of the geodata asset.

3 – Data Access

Technical impediments to data access should be reduced through the adoption of technical and administrative standards (see #4), maintenance of common metadata descriptors, and use of software capable of translating geospatial data from one reference system to another. Political impediments to data access should be reduced in the following areas of concern:

Proprietary Interests

- Legislation or judicial decisions are needed to define local government's ownership rights (including copyright, sales and licensing) of public data.
- Adoption of a standard/model data distribution policy by local governments would provide consistency of access.

Parochial Interests

- Strengthen the requirement for data coordination and collaboration among agencies at both Federal and state level, as well as for multi-level, multi-jurisdiction projects; require data sharing in order to receive permits and funding.
- Open limited-purpose data repositories, such as those being constructed by the Department of Homeland Security, to all public and private users, with appropriate restriction only on critical security-related information.

Financial Needs

- Provide substantial funding to local, regional and state agencies to compile and maintain their data and metadata for public accessibility.
- Encourage government agencies to identify revenues and savings accrued through the use of GIS, and to allocate some of those benefits to the maintenance of their GIS operations.
- Encourage governmental agencies that charge fees for data to move to the cost recovery system outlined in #2.

Security Concerns

- Subject security restrictions of data to risk analysis; assure that the restriction would prevent a credible danger and that the probability-discounted danger outweighs the potential benefit from numerous non-dangerous uses.

Privacy Concerns

- Assure that individuals can review and correct their personal data in the public record.
- Restrict personal data from the public record if it does not have a substantial public-interest reason for public accessibility.

4 – Data Standards

Adequate interoperability standards exist, and are evolving, to fulfill the NSDI vision for data access. Incentives are needed to stimulate implementation in the following areas:

Technology Transfer Education/Awareness

- Technology providers should implement the NSDI standards in their products.
- Customers and potential users of geospatial products should be made aware of these standards as part of the purchase decision marketing process.
- Perhaps some kind of "FGDC stamp of approval" could be awarded to software and data sets that meet NSDI standards and objectives.

College Curricula

- Establish an awareness and curriculum building program concerning the development and use of geodata standards for the academic research community.
- Require academic curricula to follow geospatial data standards, and build the paradigm of their acceptance among students.

Training

- Professional data providers should become well-versed in the accepted standards, to help government agencies to meet standards.
- Software vendors, GIS consultants, data providers, photogrammetry firms, and professionals should expand their businesses into the training market.
- The training process should be interwoven with the recently initiated certification process, which should require standards competency.

Interoperability Projects

- There should be a more coordinated effort guiding interoperability projects to make use of the available standards.
- Interoperability should be supported more directly as a key research theme, making the interoperability expectations of research projects clear.

Implementation Incentives

- Incentives should specifically encourage geo-interoperability through standards implementation.
- The geo-interoperability vision must be clearly stated and adopted as the primary focus of evaluation. The collaboration requirements should not be artificial but clearly fit for the project in question. There should be a clear and privileged role for standards authorities in such a plan.
- Decision makers and politicians should put geospatial issues high on the political agenda to encourage the development of geospatial interoperability, and to promote both commercial and user interests.

PART 3: FUTURE ACTIVITIES

The Task Force is continuing its activities under the new leadership. Bruce Joffe of GIS Consultants in Oakland, California, and Susan Johnson, of the City of Charlotte, who will co-chair as the primary URISA Board contact. They have agreed to build on the previous work and ideas with new energy.

The Task Force sponsored two sessions planned for URISA 2004 meeting in Reno, Nevada, that tackled: a) the substantive issues that the TF is focused on; and b) the future organization of TF activities. A number of other sessions relate to the Task Force's mission, the track on National Programs, Local Implementation – Partnerships for NSDI, in particular. On November 9, 2004 interested 3CTF participants at the URISA 2004 conference reviewed the recommendations posed above. Their comments may help guide further action of the 3CTF, FGDC, and other parties interested in promoting the NSDI.

- These recommendations should be vetted through other organizations with similar interests in the widespread dissemination of geodata, for endorsement.

- The complete white paper should reference the business case for accessible geodata, such as that made in the NAPA study (2000). Regional and local agencies need to see how implementing local geodata according to NSDI principles provides them local benefit.

- Managing geodata in accord with NSDI principles should be promoted as standard, ethical professional practice.

- Local agencies are beginning to implement NSDI principles for regional data sharing. This "next step" has been encouraged by FGDC through CAP grants, regional "I-team" formation, and starter kits. These initiatives should be greatly expanded.

- Subsequent stages of NSDI implementation may develop the amalgamation of regional data sharing projects to larger geographic areas. FGDC could encourage this process by proposing a descriptive timeline.

An immediate activity is to seek endorsement of the Recommendations by other organizations (e.g., ICMA, NACO, NAPA, NSGIC, GITA, STIA, etc.). Presenting these Recommendations to key administrative and legislative national bodies, organizations, and associations, will be one more opportunity to raise awareness of the need for a sustainable NSDI and to communicate about the effort and commitment required.

With additional grant funding, the Task Force could engage in such further activities as:

a) Identifying and presenting model regional cooperative setups and activities by focusing on best practices in the areas of finance, access, standards, and roles and responsibilities and building on both emerging and proven frameworks and technologies;

b) Supporting the development of a concept / plan for NSDI implementation through innovative contributions that are compatible and complementary to the ongoing initiatives by other groups, Federal Geographic Data Committee, in particular;

c) Organizing a summit (#2) that would update the audience on the NSDI progress since the first Summit in May 2003 and give an opportunity for redefining and/or focusing the issues.

A P P E N D I C E S

Give & Take:

Appendix 1

National Programs ... Local Implementation

A URISA Summit to Promote National Data Partnerships & Collaboration

May 21, 2003
Jury's Washington Hotel on Dupont Circle
Washington, DC

Join URISA for a one-day summit designed to foster the development and assembling of the national geospatial datasets through partnerships and collaboration between governments at all levels, private sector, and non-profit organizations. The summit will focus on five programs initiated by the Federal government as a unique opportunity for creation of a viable information base and infrastructure to support decision-making and action in both crisis and ordinary situations. The following programs will be addressed:

- US Geological Survey's *The National Map*
- Office of Management and Budget & FGDC's *Geospatial One-Stop*
- US Census Bureau's *TIGER Enhancement*
- National Imagery and Mapping Agency's *133 Cities*
- Federal Emergency Management Agency's *First Responders*

Content:

The program will feature a panel of representatives from the USGS, FGDC, NIMA, FEMA, US Census Bureau, local and state governments, and relevant associations and groups. After reviewing the ongoing programs, the panelists will engage in a dialogue among themselves and the attendees about the issues, opportunities, and implementation strategies that will lead to successful creation and assembling of the national datasets. All sessions will be professionally moderated. An information package about the five programs will be distributed to each attendee before the Summit.

Target Participants:

If you are a geospatial information professional, manager, or administrator interested in learning about the ongoing Federal programs, and in envisioning and shaping the process and outcomes of their implementation – this summit is right for you and you are the right person for this summit!

Summit Agenda

8:30–9:00 AM — Welcome

Morning Sessions — Understanding the Programs and Examining the Issues: Getting to the Core of It

9:00–10:00 AM — **Initiating a Dialogue: Local Government Perspective, Experience, and Principles for Successful Data Partnering**

10:30 AM–12:00 NOON — **Reviewing the Programs: Goals, Activities, & Relationships**

Representatives from Federal agencies will clarify the intent of their programs, the approach taken toward accomplishing them, and the nature of interaction and involvement with other programs and agencies.

12:00 NOON–1:30 PM — Luncheon

The mid-day keynote address will remind us of the lessons learned from other partnering, collaboration, and program implementation efforts involving public and private organizations with diverse goals, resources, and interests.

Afternoon Sessions — Towards A Successful Implementation

1:30–3:00 PM — **Exploring Opportunities and Implementation Strategies**

This interactive session will engage the panelists and participants at large to identify the paths and requisites for achieving the shared goal of a viable national information base and infrastructure. Fresh ideas and solutions will be generated through a constructive dialogue.

3:30–4:30 PM — **Closing Session: One Vision—One Plan—One Map**

Review and summary of the Summit's goals, accomplishments, and messages; prioritization of issues and activities.

4:30–6:00 PM — Closing Reception

URISA

Visit www.urisa.org for program details and registration information, or call (847) 824-6300.

Endorsed by: National Association of Counties (NACo) and the International City/County Management Association (ICMA)

Continued on reverse

URISA National Geographic Information 3C (Cooperation, Coordination, Collaboration) Task Force and URISA Summit Goals

- Increasing awareness and understanding of scope and objectives of various Federal programs and expectations from other government levels
- Identifying and prioritizing relevant organizational and institutional issues
- Affirming the need for commitment to 3C and a coherent/unified path of action among Federal agencies (3C = Cooperation, Coordination, Collaboration)
- Encouraging development of implementation plans for the Federal programs to include local, regional, state, and other parties as equal partners
- Sharing of resources among federal agencies and with local, regional, and state parties
- Demonstrating a common ground between state and local government and other organizations
- Raising the level of political sophistication for locals in dealing with Federal agencies in terms of understanding their environment and drives
- Pointing to effective forms of partnering and collaboration that can bring mutual benefits to the involved parties but also result in a comprehensive and unified national information base
- Advocating approaches for sustaining long term partnerships and mechanisms for geographic information development and maintenance
- Fostering communication about a variety of perspectives, issues, opportunities, and solutions/ideas

Visit http://www.urisa.org/initiativeshome.htm for more information about URISA's National Geographic Information 3C (Cooperate, Coordinate, Collaborate) Task Force

Appendix 2

Selected Federal Geospatial Activities At-A-Glance
(Programs, Projects, Initiatives, and Strategies)
May 2003

	The National Map (TNM)	**Geospatial One-Stop (GOS)**	**Homeland Security Infrastructure Program (HSIP) (includes "133 urban areas")**	**Interagency Geospatial Preparedness Team (IGPT)**	**MAF/TIGER Accuracy Improvement Project (MTAIP)**
Lead Agency	U.S. Geological Survey (USGS)	Office of Management and Budget (OMB)/Department of the Interior (DOI)	USGS/National Imagery and Mapping Agency (NIMA)	Department of Homeland Security/Federal Emergency Management Agency (FEMA)	U.S. Census Bureau
Authority/Guiding Policy	Organic Act of 1879, as amended; various laws and directives that apply government wide	OMB Circular A-16, E-Gov initiative	Agency Missions	Agency Missions	Organic Act Legislation
What is it?	On-going program	Short-term (18-24 months) project	Initiative	Interagency team chartered to develop a strategic plan for National Geospatial Preparedness	8-10 year project
Purpose	Provide seamless, continually maintained geographic base data to serve as a foundation to integrating, sharing, and using other data easily and consistently.	To spatially enable e-government "faster, easier, less expensive" access to geospatial information	To provide geospatial data as the foundation enabler for NIMA's homeland security mission in support of lead Federal agencies	Improve national preparedness for all hazards emergencies by working with the geospatial and emergency management/response communities at all levels of government to identify the geospatial capabilities needed	To provide improved geospatial data to support the 2010 census and other census activities

Appendix 2

	The National Map (TNM)	**Geospatial One-Stop (GOS)**	**Homeland Security Infrastructure Program (HSIP) (includes "133 urban areas")**	**Interagency Geospatial Preparedness Team (IGPT)**	**MAF/TIGER Accuracy Improvement Project (MTAIP)**
Interactions among these activities	-Participates in GOS. Provides base layers, and inventories other layers, for HSIP -Receives road and boundary data from MAF/TIGER modernization -Sends/makes available hydrography data to MAF/TIGER -Contribute to IGPT strategy development	-Provides framework content standards -Provides search vehicle for geospatial data through Portal -Provides a communications focal point through Board of Directors	NIMA participates in GOS through the Federal partners.	Provides a business case to GOS; will point to GOS standards and portal interfaces as the ones necessary to implement; the strategy points to federal programs like TNM, HSIP and MAF/TIGER update as part of the federal contribution to national geospatial preparedness	Participates in GOS ; provide street centerlines and governmental unit boundaries to *The National Map*
Goals/objectives/Characteristics/salient points/elements	-Build initial version from best available data -Actively back and work with State and local governments, Federal agencies, and the private sector, to develop, integrate, serve, and disseminate data -Based on networked, distributed collection of databases. -Around-the-clock Internet access. -Respond to requests for paper topographic maps and digital data	-Web portal -One Stop Access to Geospatial Data -Framework content standards -Document Federal Metadata -Inventory planned data investments	-Share GIS info. to provide common frame of reference -Promote effective use of resources -Support assessments of Critical Infrastructure -Support to Readiness, Response, and Recovery of Natural/Man-made Disasters.	Develop needs (via regional workshops) and capabilities (via input from GOS and USGS/133 City data surveys) assessment leading to a gap analysis. The strategy will describe how to "fill the gap" in terms of resources needed at all levels of government, sustainable approaches, and potential new policies needed to overcome barriers to sharing and intergovernmental coordination/collaboration	Create a nationwide street centerline file of 7.6 meter CE95 accuracy or better.

Appendix 2

	The National Map (TNM)	**Geospatial One-Stop (GOS)**	**Homeland Security Infrastructure Program (HSIP) (includes "133 urban areas")**	**Interagency Geospatial Preparedness Team (IGPT)**	**MAF/TIGER Accuracy Improvement Project (MTAIP)**
Timeline/Milestones	On-going	2 year	On-going	Spring 2004	
Intergovernmental Coordination Mechanisms: ▪ Grants ▪ Human Coordinators ▪ Joint standards development ▪ Workshops, other outreach ▪ Public review of documents ▪ Participation in public forums	-Variety of resource-sharing methods (amount subject to available funding) -Regionally-based coordination personnel -Plans/activities provided for public and other reviews -Participate in various conferences, workshops, and other forums	GOS Board of Directors	Most place specific outreach through USGS.	In FY03: Workshops planned National Capital Region, Pacific NW (FEMA Region 10); and the Midwest (FEMA Region 7). Also, use GOS Board of Directors as an outreach and information sharing community.	Regional geographers participate on I-teams, conferences and workshops.
Data ▪ Distribution ▪ Pricing ▪ Ownership	-Browser-based viewing, dissemination (small data volumes) and ordering (large data volumes delivered on media) -Other access paths for web mapping services -No charge for viewing and downloading small data volumes; cost of reproduction for large data volumes -Implementing print-on-demand capabilities Public domain	Channel for distribution	Public domain with restrictions as needed	No data collection planned.	Public domain.

Appendix 2

	The National Map (TNM)	**Geospatial One-Stop (GOS)**	**Homeland Security Infrastructure Program (HSIP) (includes "133 urban areas")**	**Interagency Geospatial Preparedness Team (IGPT)**	**MAF/TIGER Accuracy Improvement Project (MTAIP)**
Data ▪ Theme ▪ Resolution/scale ▪ Geographic footprint	-8 themes for which USGS plans to act as a "guarantor"; other themes being added as a local option -Various resolutions/ scales; goal is not worse than that found on USGS 1:24,000-scale topographic maps; current activities working on much more detailed data in urban areas. -Nationwide coverage	-GOS does not produce data. Serves as a channel for distribution. -Framework content standards for common exchange.	*The National Map* + critical infrastructure	The needs assessment will define geospatial information technology needs, including data. It's expected that data being provided by TNM, HSIP and MAF/TIGER Modernization (as well as other fed programs) will all be identified in the needs assessment. So far, we have identified three categories of data themes: base map data; "mission specific" to emergency management (e.g. emergency services, public utilities, etc), and disaster modeling and simulation output.	Street centerlines, street names, and address ranges, governmental unit boundaries, hydrography (with linkages to NHD); railroads, Census statistical unit boundaries, national parks, and selected landmarks and geographic features.
Point of Contact	Mark DeMulder nationalmap@usgs.gov	Hank Garie Henry_Garie@ios.doi.gov	Rex Tugwell hsip@usgs.gov	Sue Kalweit igpt@fema.gov	Bob LaMacchia or Al Pfeiffer Robert.a.lamacchia@census.gov or Alfred.H.Pfeiffer@census.gov, or Census regional geographers.
Web Address:	http://nationalmap.usgs.gov	www.geo-one-stop.gov		Pending June 2003	www.census.gov/geo/www/tiger/index.html

MAY 2003 SUMMIT SUMMARY

THEMES & IDEAS

COLLABORATION, COOPERATION, COORDINATION

Horizontal (e.g., fed to fed) and vertical (e.g., fed to state) with equal treatment of all players; inclusive; established communications; clear channels; sustainable; cross-referencing of databases; education / awareness; broad vision; commitment; policies, processes and protocols; consistency; motivation & benefits

- Grassroots / bottom up approach to building national spatial datasets
- Motivated by: elimination of redundancy, savings, and ability to access timely and accurate data in support of internal business processes and better delivery of services (preferably free of charge or for reasonable cost); shared cost and shared benefits; potential for cooperation in other areas; removed disincentives
- Facilitated through regional coordination/collaboration committees, networks, or consortia; also important are robust intra- and inter-sector communication systems beyond e-mail; depending and building on cross-agency administrative capacity and existing relationships
- Recording and promoting best practices and successes; outreach to communicate the benefits realized through those efforts (marketing); a business or strategic plan for the collaborative that lays the foundation for the agreed upon best practices would provide credibility for the outreach efforts
- Education of elected officials, administrators, and managers about benefits and implementation approaches / solutions

ROLES & RESPONSIBILITIES

Leadership / oversight / guidance / control; authority; point[s] of contact across organizational levels and geographies; data maintenance; data integration; prioritization; evaluation and measuring of performance

- Local: data stewardship – collection, development, and maintenance (except for imagery – shared)
- Regional and state: data stewardship - data integration and analysis; ensuring consistency and use of standards; budgeting capacity and authority
- Federal: enabler / catalyst and oversight
- Institutional changes may be needed at the Federal and probably other levels as well, e.g., establishment of Office of E-government / Office of Spatial Data Management / Office of Joint Programs (GIO, expanded FGDC, independent); with cross-agency administrative and budgeting capacity
- Private sector / industry: creation of value added products

- Single point of contact (POC): Federal, state (e.g., GIO; GIS council; state coordinator; I-Teams; brokered by NSGIC), regional, local (e.g., county – Wisconsin Land Information Officer as an example)
- Intergovernmental management model – state / regionally based
- Leadership by top agencies – committed and accessible; work with champions at all levels
- Articulated responsibilities (with adequate capacity to perform), lines of communication, and accountability

FINANCES

Leveraging and aligning of resources; important for consensus building and reinforcement of authority; building local capacity; avoiding unfunded mandates

- Spatial data infrastructure – treated as a capital and strategic asset
- Multiple sources: Federal (Congress, DOD/DHS, FEMA), state, local (e.g., 911), private sector (Industry, Wall Street)
- Sustainable funding base and agreed upon outcomes, with local commitments being essential in the long run; principle: a) assign and return value to producers of data for sustainability; b) apply investment criteria (e.g., maintenance, distribution, access)
- Create a balanced portfolio of data for a region (and/or other levels)
- Clear ownership / custodianship of data at each level
- Economies of scale exploited at regional / state levels (particularly for imagery)
- Possible funding mechanisms:
    - Existing infrastructure programs, e.g., capital improvement programs (CIP); maintenance under service agreements
    - Matching grants favoring regional cooperation and conditional upon, for example, progress toward standards, metadata development, and publishing of spatial data infrastructure
    - Link to line items, e.g., transportation and gas taxes
    - Cost sharing agreements
    - Contracts mechanisms for QA/QC, technical assistance
    - 5-year Federal authorization similar to highway funding, distributed through state to regional organizations and/or county governments based on formulas and allowing for long-term planning (for fundamental data layers only, for example, imagery)
    - Monetary and other incentives (e.g. training, use of services) tied to performance measures (e.g., regular database update, adherence to standards)
    - Grants for new and innovative programs
    - Transaction fees, e.g., for infrastructure development, back-end royalties, sales/surcharge on services
    - Value capture: economic development, insurance savings

ACCESS

By various users / communities; private, public, and non-profits; easy, inexpensive, fast; privacy / security related restrictions; disparities – parcel data in particular

- Bottom-up data network, based on common geometry; distributed system
- Clearinghouses (local, regional, and state) or Geolibrary – virtual seamless environment – build on existing developments and investments made at all levels, Federal, state, regional and local
- Open access – public (pull) or by subscription (based on interest - push)
- Early exclusion of private/personal or sensitive public information from circulation (for example removing owner names from addresses and property records) to enable a wider access to other public databases/records
- Variety of formats, up-to-date data, accurate data, nationally consistent
- Consideration of equity issues
- Open Data Consortium – Model Data Policy

STANDARDS

Recognizing different user needs and purposes/missions; involving public and private sectors; abreast of new technologies but focused on product specifications instead of methods; used / enforced

- Flexible, open standards determined for all levels for the minimum essential dataset
- Focused on attributes instead of production systems / technology
- Bottom-up establishment of standards in order to accommodate the complexities of local data
- Building on existing standards that have been operational and consistent with Federal Geographic Data Committee's (FGDC) and/or state-sponsored guidelines that can serve as basis to launch a broader initiative
- Implementation: incentives to comply with standards (e.g., tied to funding, acceptance of data)
- Endorsement – agency or point of contact; possibly certification with determined rating / level of confidence
- Facilitated by better translation / interchange tools (interoperability)

Knowledge Base: Excerpts from Literature on Relevant Frameworks & Models

The purpose of this handout is to provide the URISA National GI Task Force and other URISA members with background information that could inform and structure our thinking about the potential steps, strategies, and approaches to developing viable national datasets and spatial data infrastructure. The text below consists of quotes (marks omitted) taken from books and articles on:

A. COLLABORATION-COOPERATION-COORDINATION (3Cs)
B. INTERGOVERNMENTAL RELATIONS
C. POLICY/PROGRAM IMPLEMENTATION

The 3Cs

Intensity and scale of inter-organizational relationships

COLLABORATION ---------- COOPERATION ----------COORDINATION
least intensive — most intensive
most autonomous — least autonomous

1	2	3	4	5
personnel meetings	resource transfers	board membership	joint programs	written contracts

Recognition of interdependence	Coincidence of values	High degree of ongoing dependence
Identification of a requisite number of stakeholders	Dispersion of power among stakeholders	External mandates
Perceptions of legitimacy among stakeholders		Redistribution of power
Legitimate / skilled convener		Influencing the contextual environment
Positive beliefs about outcomes		
Shares access power		

Fundamental reasons for geographic data sharing (p. 30, after Oliver, C. 1990)

Type						
	Necessity	**Asymmetry**	**Reciprocity**	**Efficiency**	**Stability**	**Legitimacy**
Type I	Legal decision requires one-shot analysis	Organization wants to control information as sole source	Source organization has resources available; other parties' resources not relevant	Source organization sees GIS as providing efficiency gains in its own mission	Source organization has stable mandate, little environmental uncertainty	Source organization wishes to improve quality of its own data collection and analysis
Type II	Legislative mandate encourages initiation of GIS	Lead organization wants to retain control of data quality and standards	Continuing maintenance and improvement of data over time requires more resources than lead agency has	There is a desire to limit data collection redundancy	Lead organization experiences some funding uncertainties in the future	Lead organization wishes to gain more visibility and credibility
Type III	State mandates a GIS effort	No single organization is able to act or to fund a GIS unilaterally	Joining together is the only way a GIS can be implemented	Each participant sees individual efficiency gains for its own organizational goals	Most of the participants are faced with funding uncertainties	Participants wish to gain higher visibility through the GIS

Type I – An organization provides geographic databases to other organizations at a nominal charge that does not reflect the production costs, or in a "one-shot" project where maintenance is not a concern.

Type II – An organization provides geographic databases of universal value to a variety of other organizations. However, continued maintenance and expansion of the database depends to a large degree on the using organizations picking up a portion of the tab for this effort as well as the demonstration of the usefulness of this data to the resource-providing bodies. The dominant inter-organizational dynamic is still somewhat "one-way," but it is moderated by the demand for the product by the user organizations.

Type III – Several organizations undertake building and maintaining geographic databases by sharing the cost and products as a response to resource scarcity and to minimize duplication / redundancy. The dominant inter-organizational dynamic is "two-way." That is, without the mutual consent and participation of each organization the project will not take place, and its ultimate success depends largely on the inter-organizational dynamics.

[Source: Azad, Bijan, and Lyna Wiggins. 1995. Dynamics of Inter-Organizational Geographic Data Sharing. In Harlan J. Onsrud and Gerard Rushton (eds) Sharing Geographic Information, pp. 22-43. New Brunswick, New Jersey: Center for Urban Policy Research, Rutgers University.]

Although cost savings are often mentioned as the major reason for interorganizational engagements, expected *monetary benefits* are not the only motivators for the establishment of data sharing mechanisms. In the GIS literature, the following additional reasons are cited as motivating GIS related data exchange:

- organizational needs and capabilities (Calkins and Weatherbe 1995);
- power relationships;
- appeals to professionalism and common goals (Obermeyer 1995);
- incentives;
- superordinate goals;
- accessibility; and
- resource scarcity (Pinto and Onsrud 1995).

O'Toole and Montjoy (1984) summarize the various motivations into three categories of inducements:

1) authority,
2) common interest, and
3) exchange (receiving something in return).

It is important to consider these various types of motivations for data exchange as they can be expected to uniquely shape the structure of data sharing agreements.

[Source: Nedovic-Budic, Zorica, Jeffrey K. Pinto & Lisa Warnecke. GIS Database Development And Exchange: Interaction Mechanisms And Motivations Forthcoming. URISA Journal.]

When collaboration is advantageous:

- The problems are ill defined, or there is disagreement about how they should be defined.
- Several stakeholders have a vested interest in the problems and are interdependent.
- These stakeholders are not necessarily identified a priori or organized in any systematic way.
- There may be a disparity of power and/or resources for dealing with the problems among the stakeholders.
- Stakeholders may have different levels of expertise and different access to information about the problems.
- The problems are often characterized by technical complexity and scientific uncertainty.
- Differing perspectives on the problems often lead to adversarial relationships among the stakeholders.
- Incremental or unilateral efforts to deal with the problems typically produce less than satisfactory solutions.
- Existing processes for addressing the problems have proven insufficient and may even exacerbate them.

Designs for collaboration

		Expected outcome
Motivating factors	**Exchange of information**	**Joint agreement**
Advancing A Shared Vision	***Appreciative planning*** **Search conferences** **Community gatherings**	***Collective strategies*** **Public-private partnerships** **Joint ventures** **R&D consortia** **Labor-management cooperatives**
Resolving conflict	***Dialogues*** **Policy dialogues** **Public meetings**	***Negotiated settlements*** **Regulatory negotiations** **Site-specific disputes** **Mini-trials**

[Source: Gray, Barbara. 1989. Collaborating – Finding Common Ground for Multiparty Problems. San Francisco: Jossey-Bass Publishers.]

Theories of interagency collaboration – for example, resource dependence and network theories - focused on behavior rather than on capacity. New focus: interagency collaborative capacity (ICC).

Success of interagency collaborative capacity (ICC) building depends on (p. 29):

- The quality of the human and social material available to would-be collaborators;
- The efficacy of "smart practices" used by aspiring collaborators to work with the available materials;
- The availability of critical skills and abilities within the community of potential collaborators; of special importance are improvisational, adaptive, and leadership skills, and the ability to understand the nature of collaboration as a dynamic developmental process;
- The vulnerability of the emerging ICC structure to hostile forces in the environment, and the skill of the builders in protecting the ICC against these.

ICC success factors

1. The relative clarity of technical means-ends relationships across policy domains, because clarity facilitates conflict resolution and the definition of a common purpose;
2. The strength of political and financial incentives to collaborate;
3. A favorable cultural climate regarding bureaucratic flexibility; and
4. The quality of leadership.

Types of opportunities relevant in the ICC context (pp. 32-33)

- the political and budgetary climate that leads agency managers to see bureaucratic benefits of collaboration
- the potential value-creating synergy that comes from agencies doing their work collaboratively rather than separately
- the problem-solving potential of frontline worker teams that comes from their superior access to information

- the climate of confidence once a critical mass of potential collaborators has signaled its readiness to help or at least not to obstruct
- the culture of pragmatism about bureaucratic structure and process that might be used to nourish cross-agency collaboration
- the extra boost that comes from sequencing steps in a long development process according to an underlying technical or political logic

ICC developmental dynamics: each new capacity is a platform for the next (p. 274)

Continuous learning
Operating subsystem
Improved steering capacity

Advocacy group
Implementation network
Intellectual capital
Creative opportunity

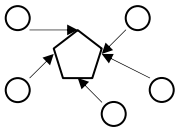
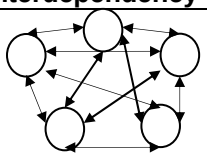
Communication network

Acceptance of leadership
Trust

[Source: Bardach, Eugene. 1998. Getting Agencies to Work Together. The Practice and Theory of Managerial Craftmanship. Washington, DC: Brookings Institution Press.]

Organizational interdependence, structure, and potential for conflict

(Adapted from Robey & Sales, 1994, fig. 5-3, p. 121; p. 287)

Type of interdependence	**Pooled Interdependency**	**Sequential Interdependency**	**Reciprocal Interdependency**
Configuration			
Coordination Mechanisms	Standards & Rules	Standards, Rules, Schedules & Plans	Standards, Rules, Schedules, Plans & Mutual Adjustment
Technologies	Mediating	Long-Linked	Intensive
Structurability	High	Medium	Low
Potential for Conflict	Low	Medium	High
Type of IOS	Pooled Information Resource IOS	Value/Supply-Chain IOS	Networked IOS
Examples of Implementation Technologies and Applications	Shared databases Networks Applications Electronic markets	EDI Applications Voice Mail Facsimile	CAD/CASE Data Interchange Central Repositories Desk-top Sharing Video-conferencing

[Source: Kumar, Kuldeep, and Han G. van Dissel. 1996. Sustainable Collaboration: Managing Conflict and Cooperation in Interorganizational Systems. MIS Quarterly 20: 279-300.]

Horizontal linking devices

Galbraith 1973: Sequence of 7 devices	**Mintzberg 1979: Continuum of liaison devices**	**Nadler & Tushman 1988: Linking mechanisms**	**Daft 1992: Ladder of mechanisms**	**Galbraith 1994: Lateral organization mechanisms**
High	**High**	**High**	**High**	**High**
Matrix form **Managerial linking role** **Integrating role** **Team** **Task force** **Liaison role** **Direct contact between managers**	**Matrix structures** **Integrating managers** **Task forces and standing committees** **Liaison positions**	**Matrix organization** **Integrator roles/ departments** **Cross-unit groups** **Liaison**	**Teams** **Full-time integrators** **Task forces** **Liaison roles** **Direct contact** **Paperwork**	**Integrator roles** **Formal groups** **Informal (spontaneous, voluntary) organization**
Low ability to handle information **Low cost to organization**	**Low strength of modification**	**Low cost** **Dependence on informal organization** **Low information processing capacity**	**Low information capacity** **Low degree of horizontal coordination**	**-Network-building practices** **-Interdepartmental rotation** **-Physical collocation** **-Interdepartmental events** **-Information technology network** **-Mirror-image organizational structure** **-Consistent (cross-unit) reward and measurement practices**

Note: Integrator role perceived as more effective than a formal group.

[Source: Brown, Carol V. 1999. Horizontal Mechanisms under Differing IS Organization Contexts. MIS Quarterly 23(3): 421-454.]

Major issues related to coordinated development and use of local geographic information systems and databases:

- motivation for sharing,
- coordination process,
- organizational factors,
- standardization and interoperability,
- cost of coordination, and
- sharing mechanisms.

Obstacles to spatial data sharing

- Technical obstacles – standardization of data formats, quality, and descriptions.

- Organizational obstacles – lack of efforts to create organizational environments and institutional frameworks conducive to interorganizational dynamics with respect to spatial data. In other words, appropriate organizational motivation, attitudes, and structure are required for geographic data sharing to happen.

[Source: Nedovic-Budic, Zorica and Jeffrey K. Pinto. 1999. Interorganizational GIS: Issues and Prospects. Annals of Regional Science 33: 183-195]

Barriers to cooperation:

1. Lack of a means for communicating and integrating spatial data.
2. A degree of confidentiality associated with many key datasets. When this is combined with high costs, exchange is often prohibited.
3. No history of large scale data exchange between highly compartmentalized agencies often having incompatible objectives and differing IT strategies.

[Source: Higgs, Gary. Sharing environmental data across organizational boundaries: Lessons from the rural Wales terrestrial database project. Annals of Regional Science (1999) 33:233-239.]

Literature suggests that the major source of organizational inefficiency is flawed coordination and collaboration; repairing inefficiency is an uphill battle without much evidence of success.

Essential aspects of organizational life paradigm

1. The way people are ordinarily defined as resources
2. The obstacles to redefinition of resources
3. The role of networks for maximizing the application of resources
4. The special role and characteristics of the network coordinator
5. The way resource exchange energizes and reinforces collegiality and a sense of community

[Source: Sarason, Seymor B. and Elizabeth M. Lorentz. 1998. Crossing Boundaries: Collaboration, Coordination, and the Redefinition of Resources. Jossey-Bass. San Francisco.]

Issues and impediments that need to be resolved to build a more robust NSDI

1. There is no agreed-upon national vision of the NSDI nor is there an apparatus to implement it.

2. Because of the lack of central oversight, there appears to be extensive overlap and duplication in spatial data collection at the federal level.

3. There are no current mechanisms that allow identification of what spatial data have been collected, where the data are stored, who controls the access to the data, the content of the data, and the data coverage.

4. Although a Federal Information Processing Standard (FIPS) for spatial data transfer has been approved, profiles for implementing this standard for the exchange of spatial data between federal agencies have yet to be developed.

5. There are major impediments to and few workable incentives for the sharing of spatial data among the federal, state, and local organizations.

[Source: National Mapping Science Committee. 2001. Toward a Coordinated Spatial Data Infrastructure for the Nation (Executive Summary). Washington, DC: National Academy of Sciences.]

Categories of benefits and barriers associated with interagency information sharing (p. 378)

Category	Benefits	Barriers
Technical	Streamlines data management Contributes to information infrastructure	Incompatible technologies Inconsistent data structures
Organizational	Supports problem solving Expands professional networks	Organizational self-interest Dominant professional frameworks
Political	Supports domain-level action Improves public accountability Fosters program and service coordination	External influences over decisionmaking Power of agency discretion Primacy of programs

Benefits of interagency information sharing are manifested as:

a) potential for solving domain-level problems,
b) reinforcement of valued relationships, and
c) level of awareness.

Risks of interagency information sharing are manifested as:

a) threats to program integrity, and
b) costs of participation.

[Source: Dawes, Sharon S. 1996. Interagency Information Sharing: Expected Benefits, Manageable Risks. Journal of Policy Analysis and Management 15(3): 377-394.]

Goal interdependence has been considered to affect collaboration both within and between groups. Several studies confirm that employees who have cooperative goals also have trusting expectations, exchange information and resources, work efficiently and productively, and develop confidence for future collaboration. Interactions with competitive goals are characterized by suspicion, little exchange, and low productivity and morale.

Sense of shared purpose and common tasks are particularly critical in developing cooperative goals. Rewards for joint success, recognition that resources and information needed to get a job done are distributed among people/organizations, positive feelings about individuals, and roles that stipulate exchange also develop cooperative goals.

[Source: Tjosvold, Dean. 1988. Cooperative and Competitive Dynamics Within and Between Organizational Units. Human Relations 41 (6): 425-436.]

Collaboration is a key to organizational success. Specifically, shared vision, supportive culture, group tasks, and common rewards are hypothesized to induce cooperative interdependence and interaction.

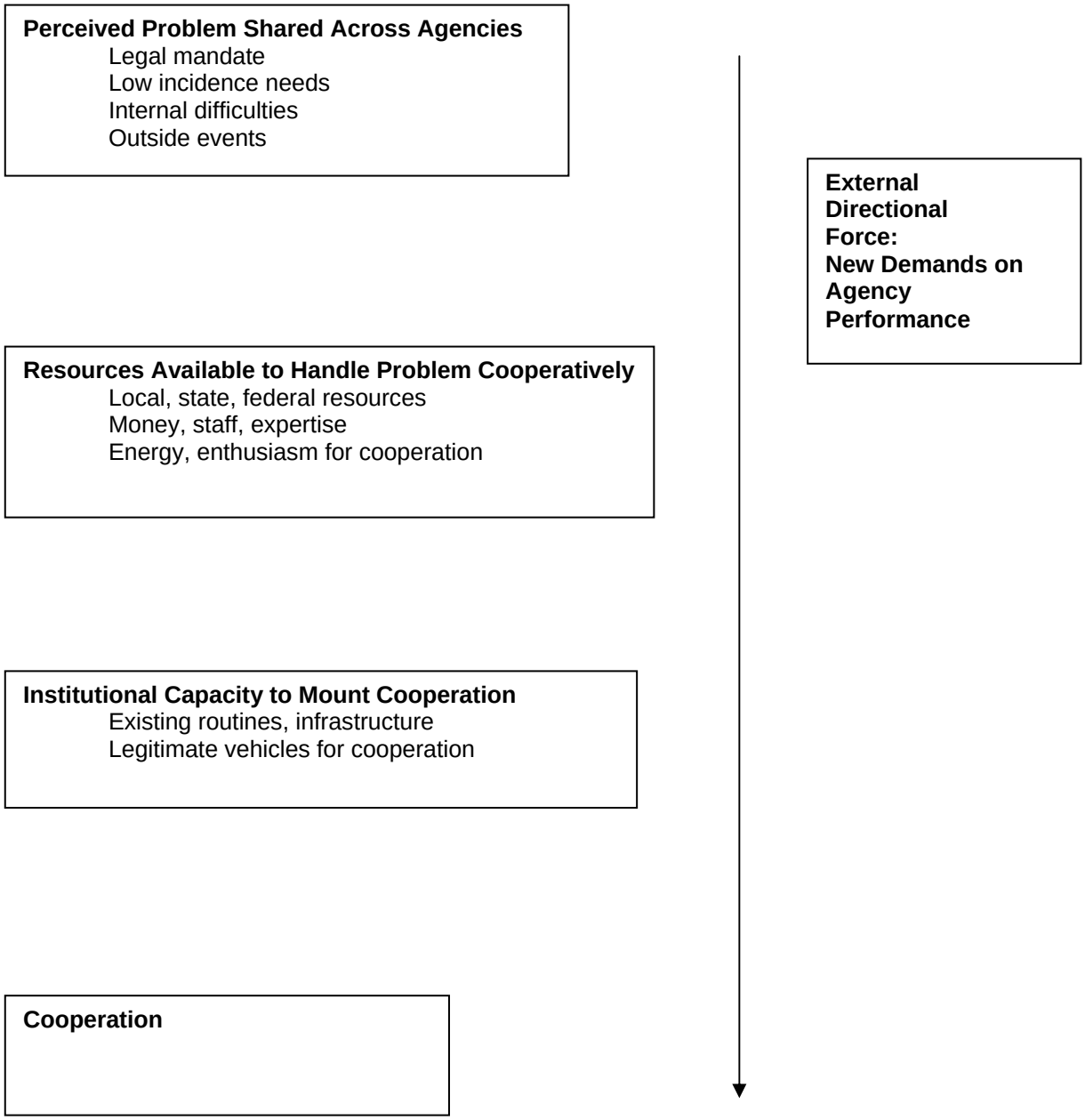
[Source: Tjosvold, Dean, and Yuan Tsao. 1989. Productive organizational collaboration: The role of values and cooperation. Journal of Organizational Behavior 10: 189-195.]

Cooperation Among Public Organizations

Reasons to Cooperate:
Financial benefit
Professional values
Political advantage
Problem solving or better quality of services
Uncertainty reduction
Legal mandate

Reasons Not to Cooperate
Financial Costs (too expensive)
Professional values (“we’d rather do it ourselves”)
Loss of political advantage
Problems not solved (could not be solved or problems not solved better)
Uncertainty creation (future uncertain, inconvenient, disruptive)

Process Model of Cooperating Among Public Agencies



[Source: Weiss, Janet A. 1987. Pathways to Cooperation among Pubic Agencies. Journal of Policy Analysis and Management 7(1): 94-117.]

Factors Affecting the Perception of Benefits from Geographic Data Sharing

	Significant Dependent Variables						
Independent Variables	**Returns**	**Relationships**	**Efficiency**	**Data**	**Compatibility**	**Effectiveness**	**Satisfaction**
ORG. RESOURCES							
COOP HISTORY		+				+	
SHARING PROCESS	+	+	+	+		+	+
SHARED ACCESS	+				+		+
IMPLEM. CAPACITY							
IMPLEM. LEADERSHIP	+	+		+		+	+
OVERALL MODEL R	**0.548**	**0.652**	**0.431**	**0.493**	**0.392**	**0.541**	**0.627**

Aspects of the Interorganizational Process Affecting the Perception of Geographic Data Sharing

	Outcomes						
	Returns	**Relations**	**Efficiency**	**Data**	**Compatibility**	**Effectiveness**	**Satisfaction**
1 MORE RESOURCES AND CONTROL			+		+		
2 UNHELPFULL PARTICIPANTS							+
3 CONTRIBUTED LESS THAN COULD					+		
4 NEGOTIATION USED						+	
5 PERSISTANCE		+		+	+	+	+
6 A LOT OF EXTRA TIME SPENT							
7 READY TO ALTER OWN GOALS,ETC.			+				
8 POSITIVE NEGOTIATION EXPERIENCE	+	+					+
9 UNDERSTANDING FOR OTHERS				+			
10 OWN GOALS COME FIRST				+			+
11 COMMUNICATION		+	+			+	
12 PARTICIPANTS DIFFICULT TO ACCESS				+			+
13 REDEFINED OWN SCOPE OF WORK							
14 MOST OF WORK DONE - MANY BENEFIT	+		+				
15 COMMITTED LEADERS							
16 NEW DUTIES BACKED BY RESOURCES				+			
17 CONTRIBUTIONS VS RETURNS							
18-19 ACCESS TO SHARED COMPONENTS	+				+		+
20 EQUAL DECISION-MAKING POWER							
21 DEFINED ROLES AND RESPONSIBILITIES	+		+	+		+	

*[Source: Haithcoat, Timothy, Lisa Warnecke, and Zorica Nedovic-Budic. 2001. G**eographic Information Technology in Local Government: Experience and Issues**. In The Municipal Year Book 2001, pp. 47-57. Washington, D.C.: International City/County Management Association (ICMA); Nedovic-Budic, Zorica, and Jeffrey K. Pinto – Project Web Page http://www.urban.uiuc.edu/faculty/budic/W-NSF-2.html]*

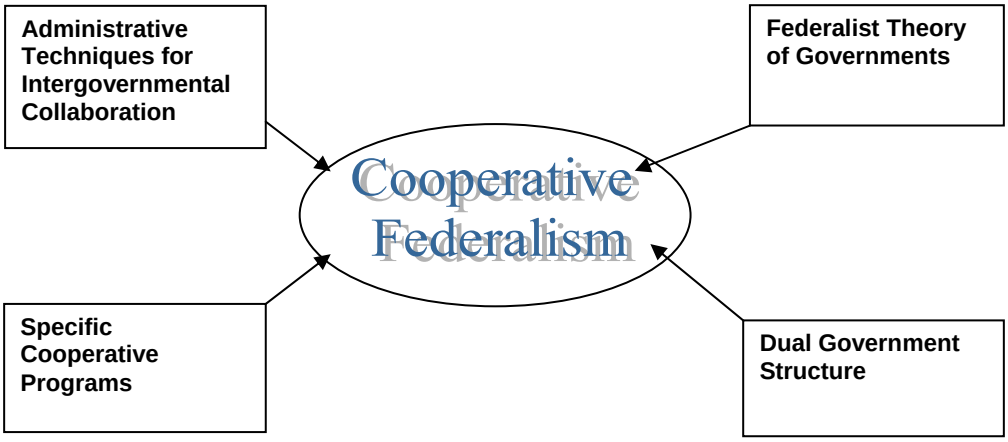
INTERGOVERNMENTAL RELATIONS (IGR)

IGR vary along 3 dimensions:

- Degree of institutionalization – IGR can be highly institutionalized with formal structures and processes to channel intergovernmental activity; or it can be conducted in an informal ad-hoc fashion depending on circumstances and preferences of actors.
- Extent of decision-making – IGR may involve sharing of information; it may entail consultation and adjustment of policies by one actor in light of another; or it may embody a formal decision-making capacity, where intergovernmental forum is site where some of the authoritative choices of a federal community are made.
- Level of transparency – IGR may be practiced behind closed doors with little popular knowledge or accountability; or it may be embedded in processes open to public scrutiny and influence, constrained by clear lines of democratic responsibility.

[Source: Cameron, David. 2001. The Structures of Intergovernmental Relations. UNESCO – Blackwell Publishers.]

Elazar's concept of collaboration within Federalism consists of four elements that come together to form the pattern of intergovernmental interaction known as cooperative federalism.



[Source: Agranoff, Robert. 2001. Managing Within the Matrix: Do Collaborative Intergovernmental Relations Exist? Publius 31(2): 31-56.]

Important relationship exists between IGR, 'political decentralization' and 'administrative decentralization.' Political decentralization concerns the location of policy-making power and is defined in constitutional arrangements; administrative decentralization concerns authority or tasks assigned to a subordinate organization (or person) in the policy implementation stage.

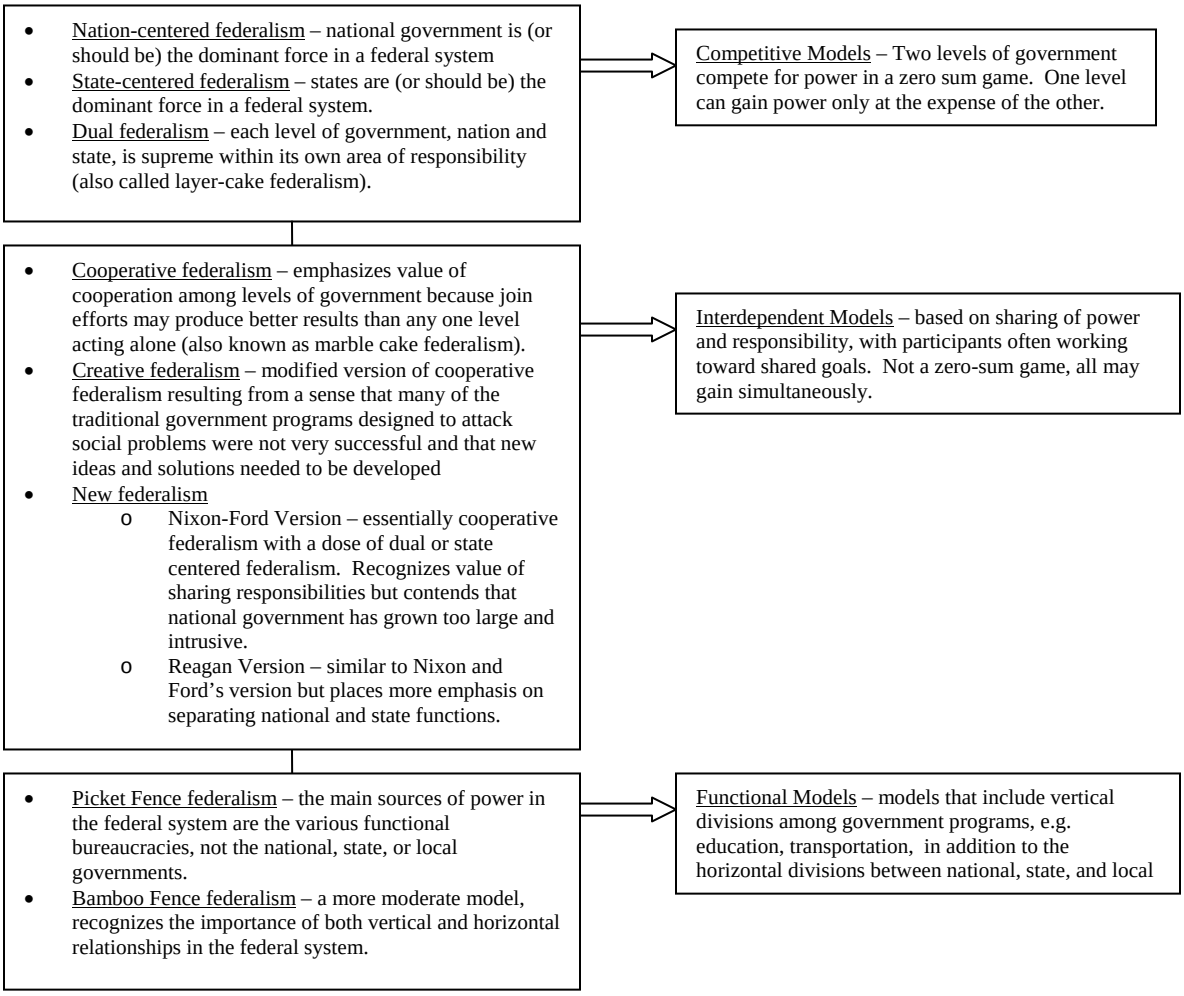
Example: five historical phases of IGR development in Japan.

Period	Phase descriptor	Major Problems	National Goal	IGR mechanisms	IGR reform
1945-50	**Commanded devolution**	**Democratization**	**Equity**	**Local autonomy law**	**Political decentralization**
1950's-60s	**Centralized consolidation**	**Rationalization**	**Efficiency and economic growth**	**Agency delegated functions National grants National planning Consolidation of local governments**	**Public and administrative centralization**
1960s-70s	**Challenging central control**	**Urbanization**	**Quality of life**	**Local bylaws Local policy initiatives Local programs Public participation**	**Administrative centralization**
1980s-1990s	**Collaborative devolution**	**Globalization**	**Accountability and effectiveness**	**Privatization Grant reductions Delegation of national functions Federations of local governments**	**Administrative decentralization**
2000 and beyond	**Civic devolution**	**Creativity**	**Diversity and Innovation**	**Public-private partnerships Regional networks Local associations**	**Political decentralization?**

[Source: Koike, Osamu and Deil S. Wright. 1998. Five Phases of IGR in Japan: Policy Shifts and Governance Reform. International Review of Administrative Sciences 64: 203-218.]

Nice and Frederickson's models of Federalism:

[Source: Nice, David D., and Patricia Frederickson. 1995. The Politics of Intergovernmental Relations. 2nd ed, Chicago: Nelson-Hall.]

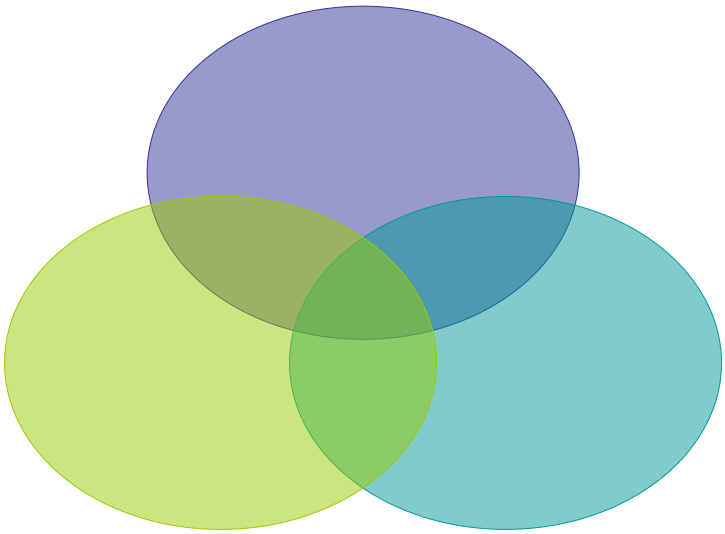


O'Toole's models of Federalism:

- Overlapping Authority
- Coordinative Authority Model
- Inclusive Authority Model

[Source: O'Toole, Laurence J. Jr., editor. 1985. American Intergovernmental Relations: foundations, perspectives, and issues. Washington, D.C.: CQ Press.]

Overlapping Authority Model

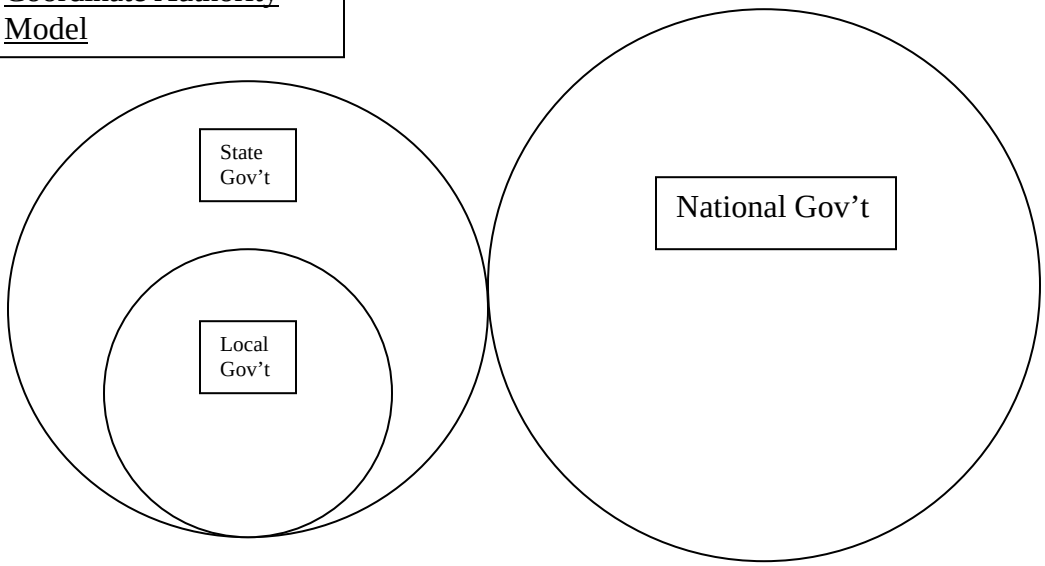


This model has three characteristic features:

1. Substantial areas of governmental operations involve national, state, and local units (or officials) simultaneously
2. The areas of autonomy or single-jurisdiction independence and full discretion are comparatively small.
3. The power and influence available to any one jurisdiction (or official) is significantly limited. The limits produce an authority pattern best described as bargaining.

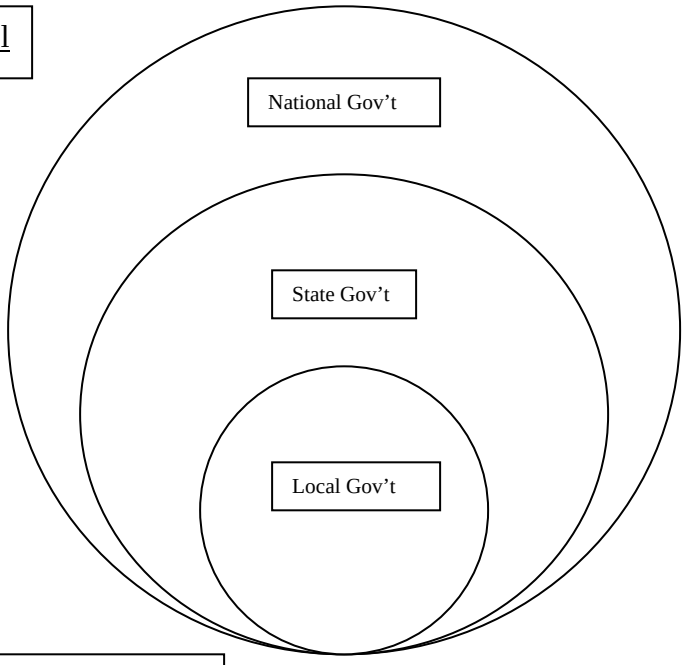
According to Wright this is the most representative model of IGR practice.

Coordinate Authority Model



In this model, sharp, distinct boundaries separate the national government and state governments. Local units are included within and are dependent on state governments.

Inclusive Authority Model



In this model, the concentric circles represent diminishing levels of power from the national to state to local levels. The proportion of power exercised by each jurisdiction with respect to the others is represented by the area of each circle.

Comparison of Weberian and Virtual Bureaucracies (p. 61)

Elements of Weberian bureaucracy	Elements of a virtual bureaucracy
Functional differentiation, precise division of labor, clear jurisdictional boundaries	Information structured using information technology rather than people; organizational structure based on information systems rather than people
Hierarchy of offices and individuals	Electronic and informal communication; teams carry out the work and make decisions
Files, written documents, staff to maintain and transmit files	Digitized files in flexible form, maintained and transmitted electronically using sensors, bar codes, transponders, hand-held computers; chips record, store, analyze, and transmit data; systems staff maintain hardware, software, and telecommunications
Employees are neutral, impersonal, attached to a particular office	Employees are cross-functional, empowered; jobs limited not only by expertise but also by the extent and sophistication of computer mediation
Office system of general rules, standard operating procedures, performance programs	Rules embedded in applications and information systems; an invisible, virtual structure
Slow processing time due to batch processing, delays, lags, multiple handoffs	Rapid or real-time processing
Long cycles of feedback and adjustment	Constant monitoring and updating of feedback; more rapid or real-time adjustment possible

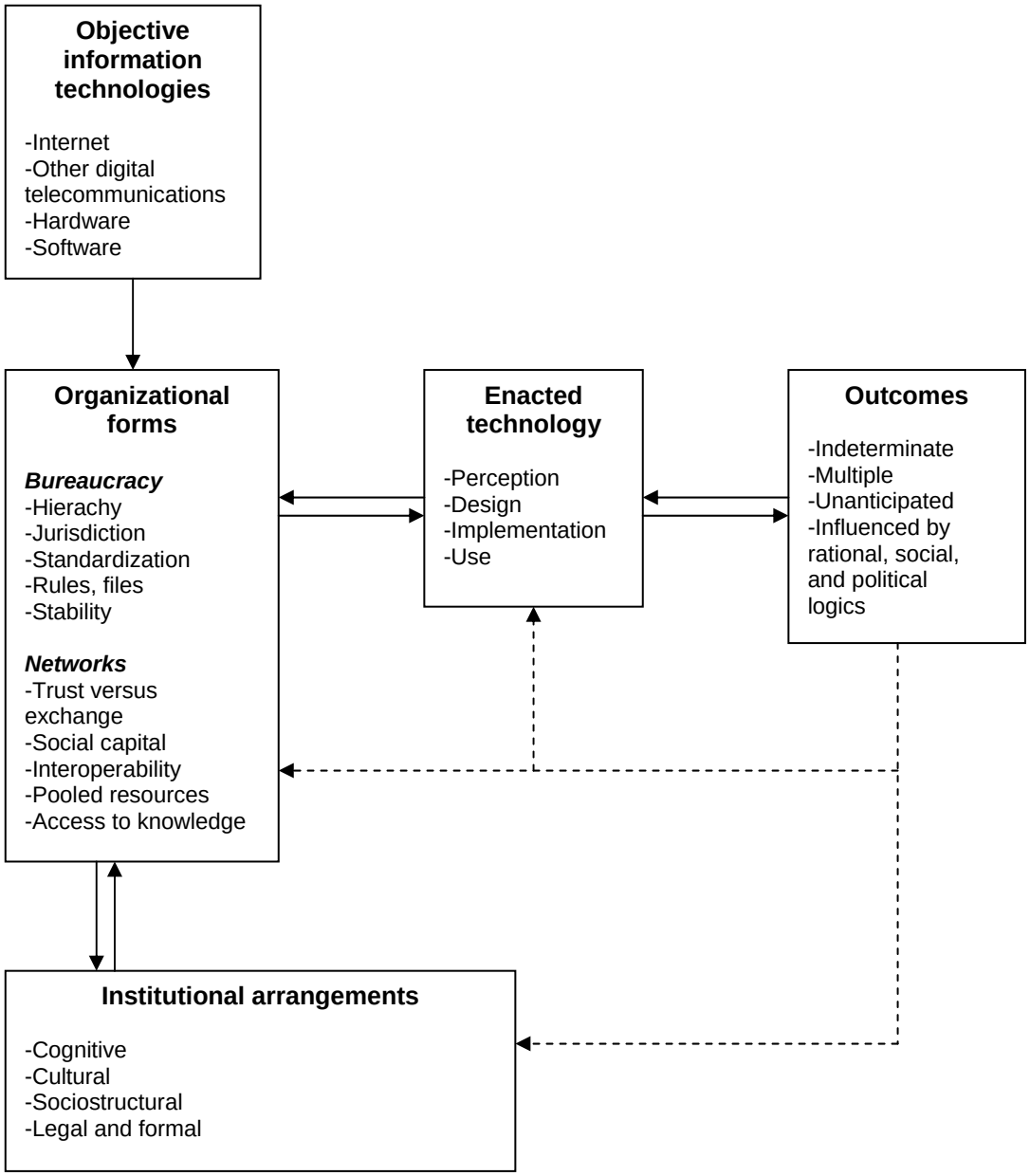
Gaps between agency and individual expectations and between arenas in an intergovernmental system.

To increase collaboration and develop more effective IGR, clearly delineated accountability standards should be used.

[Source: Radin, Beryl A. and Barbara S. Romzek. 1996. Accountability Expectations in an Intergovernmental Arena: The National Rural Development Partnership. Publius 26.]

Technology Enactment: An Analytical Framework (p. 91)

[Source: Fountain, Jane E. 2001. Building the Virtual State – Information Technology and Institutional Change. Washington, DC: Brookings Institution Press.]



Network-based exchange model of interorganizational relations

An exchange relation consists of voluntary transactions involving the transfer of resources between two or more actors for mutual benefit (p. 64).

Given functional specialization among organizations and a scarcity of resources, organizations seek to reduce environmental uncertainty by creating "negotiated" environments (p. 65).

In any exchange relation the power of one organization over another is the ability of the first organization to decrease the ratio of resources involved in the exchange (p. 66).

The dependence of one organization upon another is a joint function, 1) varying directly with the value of resources received from other organization, and 2) varying inversely with the comparison level for alternative exchange relations (p. 66).

Organizations seek to form that type of interorganizational exchange relationship which involves the least cost to the organization in loss of autonomy and power (p. 74).

Criticisms: the exchange model may not apply when interorganizational relations are mandated by law or regulatory agencies; it is focused on relations between organizations of equal power or control over resources, deemphasizing dominance and vertical relations among organizations (p. 77).

Forms of interorganizational activity:

- merger
- coalition
- alliance

[Source: Cook, Karen S. 1977. Exchange and Power in Networks of Interorganizational Relations. The Sociological Quarterly 18: 62-82.]

The role of government in data collection and dissemination – example of the US Office of Management and Budget (OMB) during the Reagan's administration:

a) participation in the development and implementation of government information and statistical policy;
b) setting of budgets for centralized statistical agencies;
c) the forms review process; and
d) control of the information collection budget.

[Source: Morin, Arthur L. 1994. Regulating the Flow of Data: OMB and the Control of Government Information. Public Administration Review 54(5): 434-443.]

Organizational Forms

- Functional
- Divisionalized
- Matrix
- Network (stable, internal and dynamic)

Failures arise from two types of subtle managerial “mistakes”:

a) individually logical extensions of the form which in the aggregate push the form beyond the limits of its capability, and
b) modifications of the form which, while reasonable on the surface, nevertheless violate the form’s operating logic.

Avoiding failure = developing competence for self-renewal

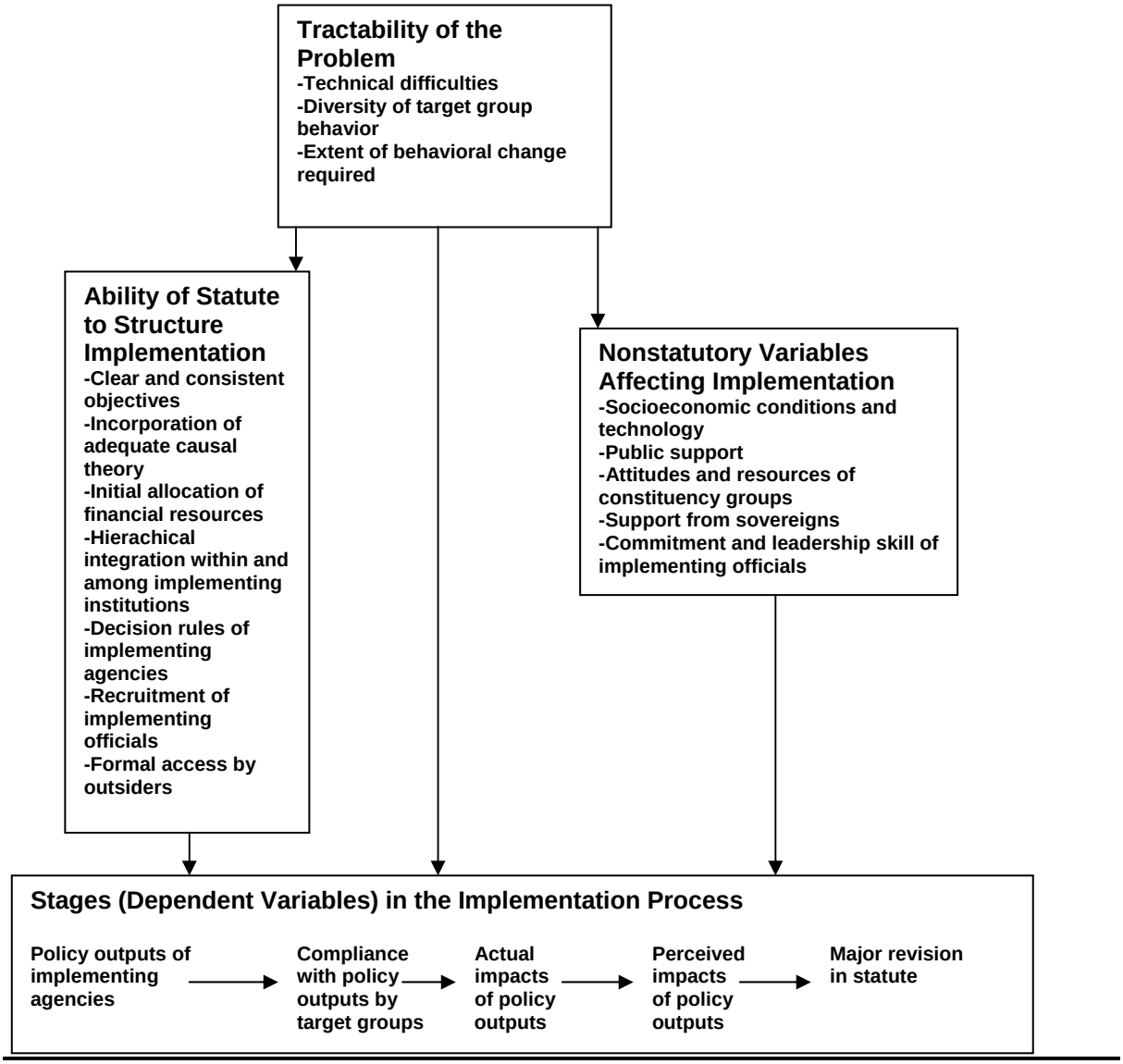
[Source: Miles, Raymond E., Charles C. Snow. 1992.Causes of Failure in Network Organizations. California Management Review 34(4): 53-72.]

POLICY/PROGRAM IMPLEMENTATION

Im-ple-ment \ -,ment\ *vt* (1806) **1 : CARRY OUT, ACCOMPLISH**; *especially* : to give practical effect to and ensure of actual fulfillment by concrete measures (Merriam Webster's Collegiate Dictionary, 10th Edition, 1993)

To understand what actually happens after a program is *enacted* or *formulated* is the subject of *policy implementation*: those events and activities that occur after the issuing of authoritative public policy directives, which include both the effort to administer and the substantive impacts on people and events. This definition encompasses not ony the behaviour of the administrative body which has responsibility for the program and the compliance of target groups, but also the web of direct and indirect political, economic, and social forces that bear on the behavior of all those involved, and ultimately the impacts – both intended and unintended – of the program. (p. 4)

Variables involved in the implementation process:



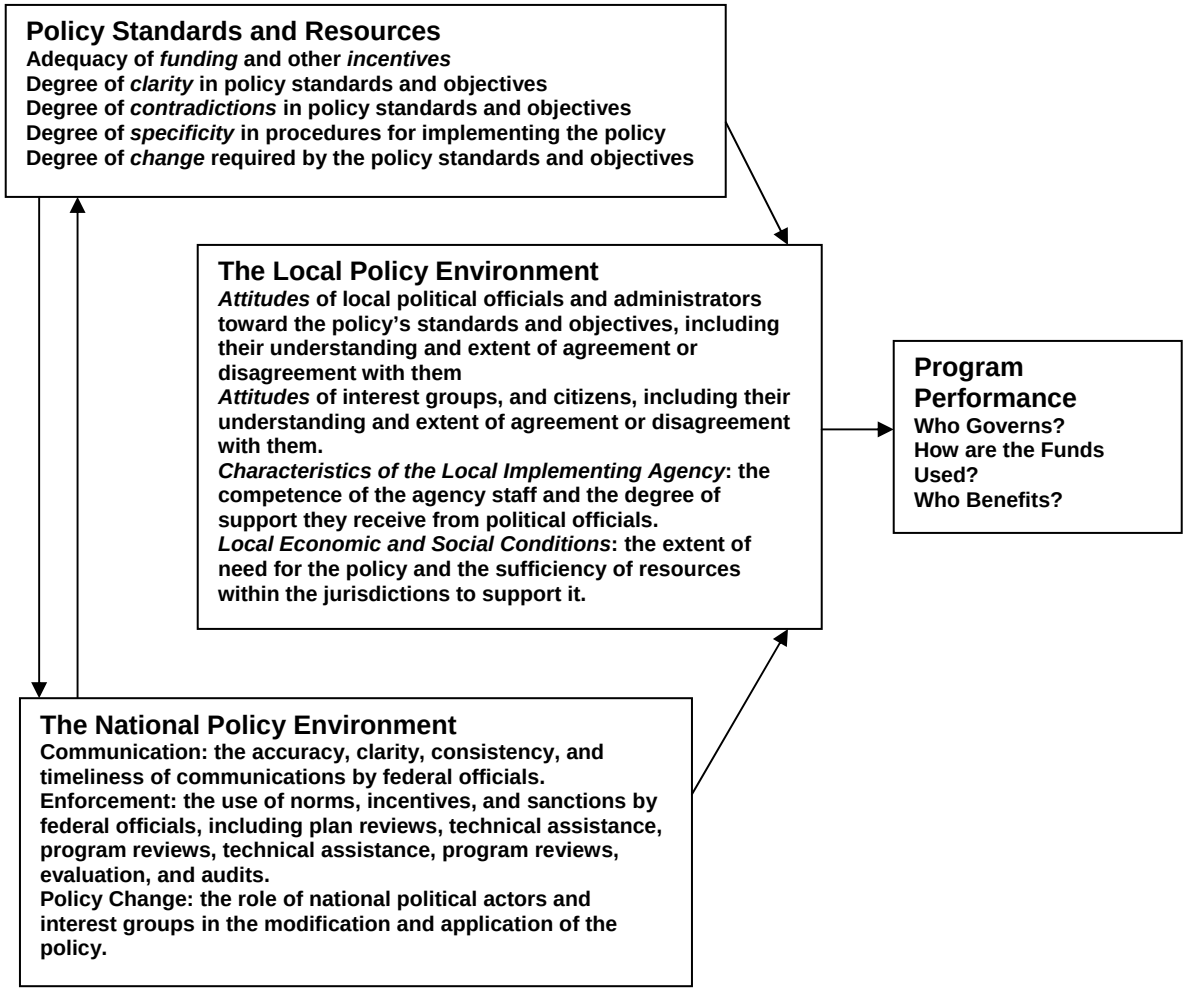
Comparison between Top-down and Bottom-up approaches

	Top-Down (Sabatier & Mazmanian)	**Bottom-Up (Hjern et al.)**
Initial focus	(Central) Government decision, e.g., new pollution control law	Local implementation structure (network) involved in a policy area, e.g., pollution control
Identification of major actors in the process	From top-down and from govt. out to private sector (although importance attached to causal theory calls for accurate understanding of target group's incentive structure)	From bottom (govt. and private) up
Evaluative criteria	Focus on extent of attainment of formal objectives (carefully analyzed). May look at other politically significant criteria and unintended consequences, but these are optional.	Much less clear. Basically anything the analyst chooses which is somehow relevant to the policy issue or problem. Certainly does not require any careful analysis of official govt. decision(s).
Overall Focus	How does one steer system to achieve (top) policy-maker's intended policy results?	Strategic interaction among multiple actors in a policy network

Note: Advocacy coalition framework used for understanding policy change.

[Source: Mazmanian, Daniel A., and Paul A. Sabatier. 1989. Implementation and Public Policy. Lanham – New York – London: University Press of America.)

Model of intergovernmental policy implementation



[Source: Van Horn, Carl E. 1979. Policy Implementation in the Federal System – National Goals and Local Implementors. Lexington, Massachusetts - Toronto: Lexington Books.]

Linking Interorganizational Relations and Intergovernmental Issues in Developing Intergovernmental Management (IGM)

Strategies:

A Influencing policy design

- Interorganizational linkages may be mandated or voluntary formal or informal; they should be mandated if: a) high levels of coordination are crucial for implementation success and are unlikely to emerge spontaneously, or b) one can anticipate efforts within a network to exclude certain underrepresented organizational units.

- Mandated links do not necessarily increase chances for policy success; flexibility must be maintained in some parts of an interorganizational network.
- Policy makers must be alerted to the types and quantities of resources necessary for inducing cooperation on the part of at least the essential units in an implementation scheme; the task of managing the network itself – developing the linkages, enforcing the bargains, transmitting and timing the messages in the system, etc. – itself requires resources. Policies that skimp on the provision of resources (strategically-situated offices, personnel, time, and/or finances) for IGM are likely to be handicapped from the start.
- Perception of potential exposure to unacceptable levels of risk by some of the participants, may create implementation difficulties. This is particularly the case when an organizational unit must commit resources (personnel, time, capital equipment, reputation) into the future without sufficient control over its increased exposure to contingencies. Risks during implementation can be reduced by committing resources for longer periods, by creating mechanisms for pooling risk across organizational units in scattered locales, etc. Risk-reducing elements should be part of formal policy.

B Mobilizing, nurturing, and managing the interorganizational structure

- Number of units in a network is as important as structure. Large numbers or complex patterns are not necessarily limiting success. Arrangement of units, rather than their sheer number is more important for IGM. The tradeoff is between coordination and speed of action, the latter more characteristic for simple structures (e.g., pooled), and the latter for more complex structures (e.g., reciprocal).
- Management tasks vary with structures. E.g., for an “assembly line” (sequential) network the key role is of “fixer”; for reciprocal linkages the diplomatic skills, persuasion and conflict resolution are needed.
- Policy type also affects implementation. For example redistributive programs more likely flourish in networks built to strengthen exchange among professionals, and developmental programs thrive when more closely liked to political structures.
- If a structure impedes exchange and collective action, it should be modified. Various external events can be used as prompts for change and new commitments.

C Utilizing information on behalf of the common effort

- Perception can be a central component of success or failure. Support for the commong effort can be built by using information carefully and sensitively, often in an informal fashion; the information should increase perceived common interest and sense of authority within a network.
- Important matters:
    - articulating, recording (even informally), and enforcing commitments across organizational boundaries;
    - respecting confidences and averting unnecessary embarrassments on the part of participants in the network;
    - encouraging the development of norms of civility, reciprocity, and mutual respect (to raise the level of trust in the system);
    - reducing perceptual barriers if impeding the common effort, or using perceptions to assist coordination;
    - timing the use of information to maximize chances of implementation success (“noncompliance delay effect”);
    - adjusting the flow of information to encourage the perception of shared interest; reducing communication barriers and developing open and easy access to information across boundaries throughout the network;
    - however, where goal divergence is high or where information is and must be proprietary, more narrowly-structured – perhaps even “negatively coordinated” – channels may need to be used.

[Source: O’Toole, Laurence J. Jr. 1988. Strategies for Intergovernmental Management: Implementing Programs in Interorganizational Networks. International Journal of Public Administration 11: 417-441.]

Perspectives / views on analyzing policy implementation:

- Learning theory
- Utility theory

Implementation strategies

Strategy	Works because:	Works better if:	Problems:
INFORMATION	-signals benefits available -lowers information costs -can "motivate" change	-"motivation" is high -information is sought -technical or large investment planned -communication is done well	-high cost -controversy of information -trade-off between amount of information and audience
FACILITATION	-reduces costs	-"motivation is high -specific costs identifiable -beneficiary invests / participates	-reactance -ineffective / inefficient if not aimed at specific causes of market failure
REGULATION	-raises costs of noncompliance -people wish to evade punishment -suppresses behavior temporarily	-change is: • Discontinuous • Detectable • Important • Achievable in few ways -effective surveillance and enforcement mechanisms -linked to reinforcement for change	-inefficiency -requires much monitoring -evasive or combative response -punitive effects: • Negative effect • Stigma -stifles innovation
INCENTIVES	-makes change attractive -transactions become more efficient -induces positive affect	-change is: • Continuous • Detectable • Important • Achievable in many ways -incentive is: • High • Scheduled properly -losers are compensated -changes is gradual -beneficiaries are "relaxed"	-reduces altruistic behavior -requires some monitoring -can exploit individuals -costs of compensanting "losers" -difficulty of identifying "losers"

[Source: Brigham, John, and Don W. Brown (eds). 1980. Policy Implementation – Penalties or Incentives? Beverly Hills – London: SAGE Publications.]

Cooperation Vs Coercion

Cooperative policies hold out promise of an improvement over coercive mandates as ways to enhance implementation of intergovernmental programs. Moreover, over the long run cooperative policies may have greater promise in sustaining local government commitment (p. 171).

Definitions and assumptions (pp. 173-174):

> **Coercive** intergovernmental mandates treat state or local governments as regulatory agents charged with following rules prescribed by higher-level governments. These mandates spell out detailed standards and procedures for achieving policy goals, thereby reducing state or local discretion in policy development. Sanctions are applied when lower-level governments fail to undertake their prescribed roles or deviate from the procedural prescriptions of the mandates. Coercive mandate designs pay some attention to building the capacity of lower-level governments to comply, but that is secondary to putting in place monitoring systems and penalties. The coercive design recognizes the fundamental tensions of shared governance and presumes conflicts over goals or means for reaching goals. The coercive solution is to provide sanctions for recalcitrant government. Compliance is therefore based partly on calculations concerning the consequences of failing to comply, involving what is labeled as "calculated commitment."
>
> **Cooperative** intergovernmental policy designs are aimed at enhancing lower-level government interest in and ability to work to achieve policy goals. State or local governments act as regulatory trustees in seeking appropriate means for reaching performance standards. Cooperative mandates prescribe planning or process elements to be followed (a form of policy mandate), but they do not prescribe the particular means with which lower-level governments achieve desired regulatory outcomes. Cooperative mandates use financial and technical assistance for the dual purpose of enhancing lower-level governments' policy goals and their capacity to act. Sanctions may also be applied if lower-level governments do not undertake the mandated planning process, but wide latitude is allowed in policy development. The cooperative design assumes lower-level governments do not have any fundamental disagreements with policy aims and therefore do not have to be forced to comply. That is, they are assumed to already possess at least a modicum of commitment to policy goals, involving what is labeled as "normative commitment." But their commitment needs to be mobilized. By removing barriers created by deficiencies in capacity and by enhancing normative commitment through inducements, cooperative policies seek compliance with higher-order objectives.
>
> *[Source: May, Peter J., and Raymond J. Burby. 1996. Coercive Versus Cooperative Policies: Comparing Intergovernmental Mandate Performance. Journal of Policy Analysis and Management 15(2): 171-201.]*

Cases of spontaneous coordination are relatively rare, … because some adjustment is usually required to mesh the routines of independent organizations (p. 493).

[Source: O'Toole, Laurence J. Jr., and Robert S. Montjoy. 1984. Interorganizational Policy Implementation: A Theoretical Perspective. Public Administration Review, November/December: 491-504.]

Success of various governmental policy strategies is dependent on the autonomy of each actor and the level of policy fragmentation within the subsystem.

Autonomy and policy fragmentation can be considered separate ends of a continuum in which successful coalitions should be considered highly autonomous while unsuccessful coalitions should be said to operate in a policy space that is highly fragmented. The policy process is understood as an iterative system of learning and policy adjustment.

Policy change occurs:

- When coalitions modify beliefs and behaviors as they learn more about how to achieve their objectives, and
- When systemic changes occur external to the subsystem, e.g. elections or economic shifts.

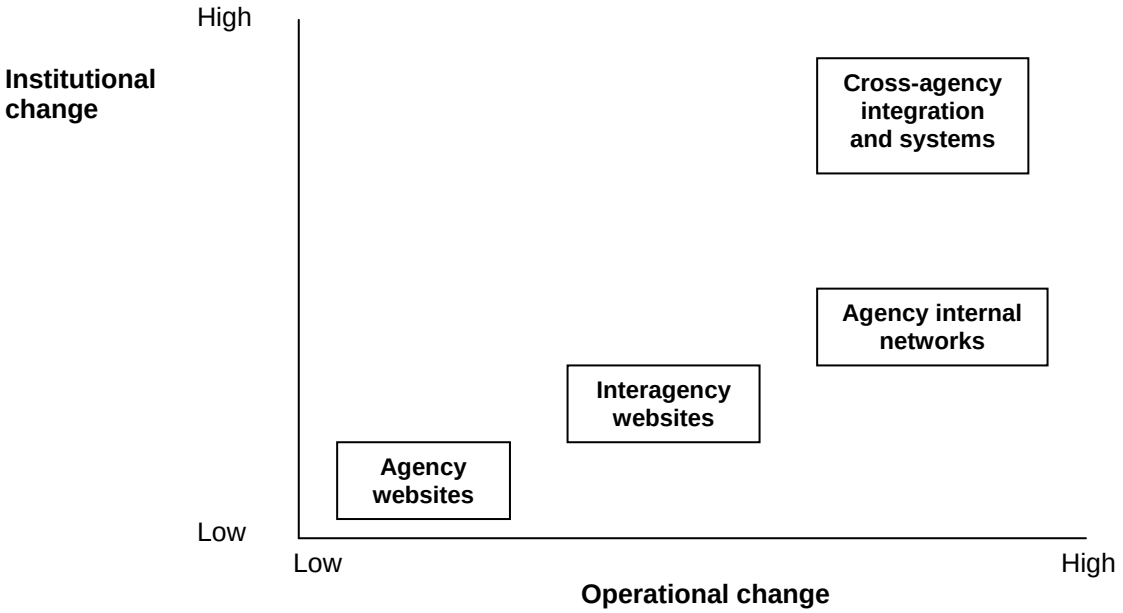
Hypotheses:

1. When agencies that anchor coalitions do not share programmatic responsibilities with agencies from other governments, policy change is unlikely.
2. When subsystems are populated by agencies with multiple programmatic responsibilities from different governments, policy change is likely.

Needed: A mechanism to account for differentiations in power among coalitions.

[Source: Ellison, Brian A. 1998. Intergovernmental Relations and the Advocacy Coalition Framework: The Operation of Federalism in Denver Water Politics. Publius 28(4): 35-54.]

Virtual Agencies and Ease of Implementation (p. 100)



[Source: Fountain, Jane E. 2001. Building the Virtual State – Information Technology and Institutional Change. Washington, DC: Brookings Institution Press.]

Managerial success in the public sector [amounts to] initiating and reshaping public sector enterprises in ways that increase their value to the public in both the short and the long run… Sometimes this means increasing efficiency, effectiveness, or fairness in currently defined missions. Other times it means introducing programs that respond to a new political aspiration or meet a new need in the organization's task environment so that its old capabilities can be used more responsively and effectively. On occasion it means reducing the claims that government organizations make on taxpayers and reclaiming the resources now committed to the organizations for alternative public or private uses. (Mark Moore, 1996, p. 10 in Bardach, p. 9)

[Source: Bardach, Eugene. 1998. Getting Agencies to Work Together. The Practice and Theory of Managerial Craftmanship. Washington, DC: Brookings Institution Press.]

Appendix 5

URISA 2003 Conference Closing Plenary Session

1:45-3:15pm, *Wednesday, October 15, Atlanta GA*

Sponsored by: URISA's National Geographic Information 3C Task Force

GIVE AND TAKE:

NATIONAL PROGRAMS ... LOCAL IMPLEMENTATION

THE NEXT STEP

AGENDA:

1:45-2:45pm	Review of Task Force's Goals & Principles Summary of May 2003 Summit Implementation Scenarios Questions & Discussion Action Items / Priorities
2:45-3:15pm	Report - FGDC Homeland Security Working Group on Public Access

PANELISTS:

Tom Conry, GIS Manager, Fairfax County, VA
Michael Domaratz, US Geological Survey, National Map Program
(Co-Chair, FGDC Homeland Security Working Group)
Susan Johnson, City of Charlotte, NC
David Moyer, National Geodetic Survey, NOAA, Madison, WI
Tim Trainor, Chief, National Geographic Partnerships, U.S. Census Bureau
Zorica Nedovic-Budic, University of Illinois @ Urbana-Champaign

ATTACHMENTS:

Implementation Scenarios & Questions (3 pages)
May 2003 Summit Summary: Themes & Ideas (3 pages)
Selected Federal Geospatial Data Activities At-A-Glance (4 pages)
Excerpts from Literature on Relevant Frameworks & Models (25 pages; web only)
All documents are available at: http://www.urisa.org/initiativeshome.htm

This is a follow up on URISA May 21st Summit designed to explore the opportunities for **Cooperation, Coordination and Collaboration (3C)** between geospatial professionals and organizations at all levels and the Federal agencies with mandates for performing data-related initiatives, such as The National Map, Geospatial One-Stop, US Census TIGER, NIMA's 133 Cities, and FEMA's First Responders.

Several ideas and questions will be presented for discussion and feedback in terms of likely direction and actions needed for advancing the NSDI. The alternatives will need to relate to the institutional, financial and technical aspects of policy/program implementation. More specifically, the session will extend on the following key issues that were identified during the May Summit:

- Horizontal and Vertical Collaboration-Cooperation-Coordination
- Roles & Responsibilities - Points of Contact
- Financing
- Access
- Standards

Taking further the ideas from presentations and discussions generated during the May Summit, this plenary will offer an opportunity to review and discuss the approaches for developing, integrating, and maintaining the national datasets. These approaches will have to account for the complexities that characterize the national policies and programs:

a) whose successful implementation depends on motivation and capacity at state, regional, and local levels;
b) which require substantial intergovernmental relations; and
c) that have to be considerate of regional and local sensitivities and policies regarding spatial data ownership, liability, privacy, security, and access.

The prospective approaches and strategies need to build on many ongoing activities and achievements driven by groups and organizations such as: Federal Geographic Data Committee, I-Teams, National State Geographic Information Council (NSGIC), GeoData Alliance (GDA), Open GIS Consortium (OGC), Open Data Consortium (ODC), Spatial Technologies Industry Association (STIA), National Academy of Public Administration (NAPA), International City/County Management Association (ICMA), National Association of Counties (NACO), National Association of Regional Councils (NARC), (Regional) Area Integrators, and many others.

Other Relevant URISA 2003 Conference activities:

Monday, October 13

10:30 AM –12:00 Noon	Session: Modeling Techniques in GIS for Transportation Planning Session: Working with Metadata
12:00 Noon – 1:30 PM	Roundtable Luncheon (TF topics highlighted)
2:00 PM–3:30 PM	Session: Metadata – Tried and True Strategies

Tuesday, October 14

8:30 AM–10:00 AM	Session: Data Modeling and Information Infrastructure Development to Facilitate Efficient Government Business Practices Session: Approaches & Issues for Homeland Security Technologies
10:30 AM--1:30 AM	Natn'l Geographic Information 3C Task Force Meeting
10:30 AM–12:00 Noon	Session: The Challenges of Building a Spatial Data Infrastructure Solutions for Emergency Management & Homeland Security
12:00 Noon–1:30 PM	Luncheon Seminar: Geospatial One-Stop—the Federal Government Portal *Jack Dangermod, ESRI, Redlands, CA, Hank Garie, Geospatial One-Stop/FGDC, Reston, VA, and Don Chambers, ESRI, Redlands, CA*
3:30 PM – 5:00 PM	Session: Data Technologies Applied to Homeland Security

Wednesday, October 15

10:30 AM-12 PM Noon	Panel Discussion: Data Sharing Among Local and Federal Agencies: A Two-way Street

This panel presentation will convey: 1.That there are already a number of successful partnership/collaborative efforts on-going that involve federal agencies, state agencies, and local governments; 2.That a consistent data distribution policy is a necessary component to insure data accessibility and distribution; and 3.Developing I-Team plans (using plans for specific states for specific framework themes (e.g. Utah, Montana, etc.)) are helping to insure the involvement of all levels of government in the planning, stewardship, and implementation of consistent programs for the production, maintenance, and exchange of information resources from all levels of the public and private sector community.

Moderator: David Moyer, National Geodetic Survey, NOAA, Madison, WI

- National Data Partnerships and Collaborative Efforts: Success Stories from the Field
  Gilbert Mitchell, National Geodetic Survey, NOAA, Silver Spring, MD
- GeoSpatial One Stop and I-Teams: Two Federal initiatives Inviting Local and Regional Participation
  Hank Garie, Office of Management and Budget and the Federal Geographic Data Committee, Reston, VA
- Deriving a Model Data Distribution Policy
  Bruce Joffe, GIS Consultants, Oakland, CA

National GI 3C (Cooperate, Coordinate, Collaborate) Task Force / URISA

Challenging times present us with new opportunities and responsibilities. The events of 9-11-01 have shown the utility of spatial technologies in recovery efforts and have raised awareness about the importance of up to date and accurate geographic information. Even though the value of technological and information preparedness has already been recognized in other emergency activities (police, medical, fire, and natural disasters), prevention of terrorism-related emergencies have added a new dimension to the overall effort to prevent disasters and be ready for fast recovery in case they happen. Initiatives in this area abound at all levels - from Federal to local – offering a unique opportunity for all producers and users of geographic data and for the nation. Vertical and horizontal integration of existing datasets at regional, state, and national levels, and creation of new data where the gaps exist promise to finally bring about a viable spatial data infrastructure to support decision making and action in both crisis and ordinary situations.

The *National GI 3C Task Force* is created to voice the views and issues from associations and groups interested in and affected by the initiatives mentioned above. The Task Force was initiated during the Urban and Regional Information Systems Association (URISA) annual meeting in Chicago in October 2002, and is open to any motivated individual and group representative to contribute to its activities.

National GI 3C Task Force -- Goals

- Increasing the understanding of federal programs/initiatives and expectations from local government
- Crystallizing and prioritizing of issues
- Commitment to Cooperation, Coordination, Collaboration among federal agencies and a coherent/integrated path of action
- Treatment of local, regional, state, and other parties as equal partners to federal
- Development of implementation plans for the federal programs (or better yet, a joint implementation plan)
- Sharing of resources among federal agencies and with local, regional, and state parties
- Demonstration of common ground between state and locals (in order to act jointly as a bargaining unit)
- Raising the level of political sophistication for locals in dealing with federal agencies (understanding their environment and drives)

National GI 3C Task Force – Principles

- Map it once – avoid duplicate datasets and waste of funds
- Benefits to all contributors
- Equal partners in data development and maintenance
- Cost sharing and/or incentives for local data development and update
- Recognition of data rights and responsibilities
- Free access to public data with secrecy invoked only if necessary
- Use of common standards

- Open non-hierachical lines of communication
- Designated authority and point of contact at all levels
- Vertical and horizontal coordination, cooperation & collaboration (3c)
- Sustainable spatial data infrastructure

Task Force Members	
Zorica Nedovic Budic - Chair University of Illinois	Scott Oppmann Oakland County, MI
Diann Danielsen Dane County, WI	Scottie Barnes Geospatial Solutions
Tom Conry Fairfax County, VA	Bruce Joffe GIS Consultants, Oakland, CA
Randall Johnson MetroGIS, St. Paul, MN	Krzysztof (Kris) Kolodziej Massachusetts Institute of Technology (MIT)
Kathy Covert The Federal Geographic Data Committee	Lisa Warnecke GeoManagement Associates, Syracuse, NY
Mark Sievers East Central Florida Regional Planning Council	Stu Davis Ohio Geographically Referenced Information Program
Alex Hepp Mobile Video	Rachel Arulraj Parsons Brinckerhoff Quade and Douglas Inc.
Joe Sewash Department of Finance and Administration, State of Tennessee	Brant Melick Public Works, City of Springfield, OR
Staff Support	
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IMPLEMENTATION SCENARIOS

Following are three hypothetical approaches that could be employed toward advancing the state of the national spatial data infrastructure (NSDI). Their underlying assumptions are:

a) supporting institutional structure (change may be needed);
b) allocation and generation of resources (human, financial, technological);
c) development of the implementation plan(s);
d) building on existing relationships / partnerships;
e) long-term commitment at all levels of public sector; and
f) availability of enabling standards and technologies.

REGULATORY

- Based on a legislation/policy mandating public sector organizations to share / contribute their digital spatial data to a national depository and to allow for data dissemination / access; sensitive personal or public information is excluded from circulation
- National program to facilitate collection and distribution of spatial data, with Federal leadership; centralized and/or distributed oversight
- Fundamentally cooperative program, implemented through designated state agencies, regional agencies, and/or regional offices of Federal government (e.g., USGS) authorized to collect and integrate local and regional datasets based on their implementation plans (customized by coordinated with others)
- Some Federal funding is provided to the designated agencies to cover the cost of staffing, technical support to the local and/or regional agencies, and development of data access points (clearinghouses); leveraging existing geographic information technology resources and expertise at the state, regional, and local levels; enhancing local capacity where necessary
- Cost-sharing of imagery data between Feds and states
- Example: institutionalized, more structured, and funded I-Teams approach; FGDC and Geo-Spatial One Stop enhanced with budgeting and coordination authority and one point of federal contact

NETWORK

- Based on coordinated development, maintenance, and/or integration of spatial data at the regional level and by regional agencies
- Matching grants provided through regional councils/commissions to stimulate pooling of resources (financial and other) from municipal and county governments; private sector, regional offices of Federal and state agencies, and other non-profit organizations would also participate

- Developing a "system of the systems" based on locally focused organizational and technical networks with authorized / designated local points of contact
- Leadership by a designated Federal agency and state government to keep track of regional developments and needs
- Procedures and rules of data access decided at the regional level, after a minimum framework dataset is provided
- On demand/need integration of data at state and Federal levels, but clear (singular) points of contact at all ends (regional, state and Federal)
- Example: Area Integrator Concept with Federal and/or state involvement in tracking regional developments; employment of Open Data Consortium's Model Data Policy; use of interoperable systems

LESSAIZ FAIRE

- Voluntary partnerships based on interest and capacity to engage in interorganizational relationships
- Emphasis on technology as enabling access to and translation of spatial data of various formats and levels of quality
- Case by case approach in partnering between Federal and other levels of government
- Some incentives available; applied upon negotiations with local (and possibly state), but primarily building on the existing local / regional developments and resources
- No coordination of database development or funding opportunities
- Example: status quo

WRITE-IN SCENARIO: ALTERNATIVE, HYBRID, ETC.

Characteristics of your approach:

a)

b)

c)

d)

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DISCUSSION ITEMS / QUESTIONS

1. Should we focus on establishing an agreed-upon national vision of NSDI, a common set of goals and objectives to put a "face" (a symbolic representation that has common meaning across the entire base of constituents) on NSDI that all can understand and support?

2. Should we develop a comprehensive NSDI program and begin to define roles and responsibilities across the vertical levels of government; a plan to consolidate program deliverables, measures, outcomes, and devise an all-inclusive high-level work plan? Who would be in charge of developing and implementing such a program?

3. Nations throughout the world have demonstrated the viability of building the NSDIs. Should we consider formulating a draft policy (legislation coupled with institutions, authority, and funding) to build agreement and participation with organizations holding valuable spatial data depositories, i.e., local governments who currently lack incentives to participate?

4. Should we first evaluate the needs, capacities, and overlapping responsibilities in order to begin parsing out data stewardship and data custodian roles? Would some harmonization of data policies varying across states and localities be necessary and/or feasible?

5. What should be URISA's and this Task Force's role?

6. What are the immediate tasks / action items?

Other questions / comments: