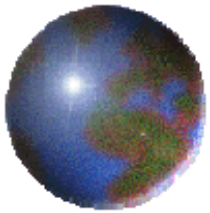


20. GIS partnerships

Geographic Information Systems and Science

SECOND EDITION

Paul A. Longley, Michael F. Goodchild, David J. Maguire, David W. Rhind

Overview

- Partnerships versus competition
  - Local
  - National Spatial Data Infrastructures (NSDIs)
  - Global Spatial Data Infrastructures
- Political power in partnerships
- Extreme events as drivers of change

Partnerships

- Often fraught with hazards – can take longer and create friction

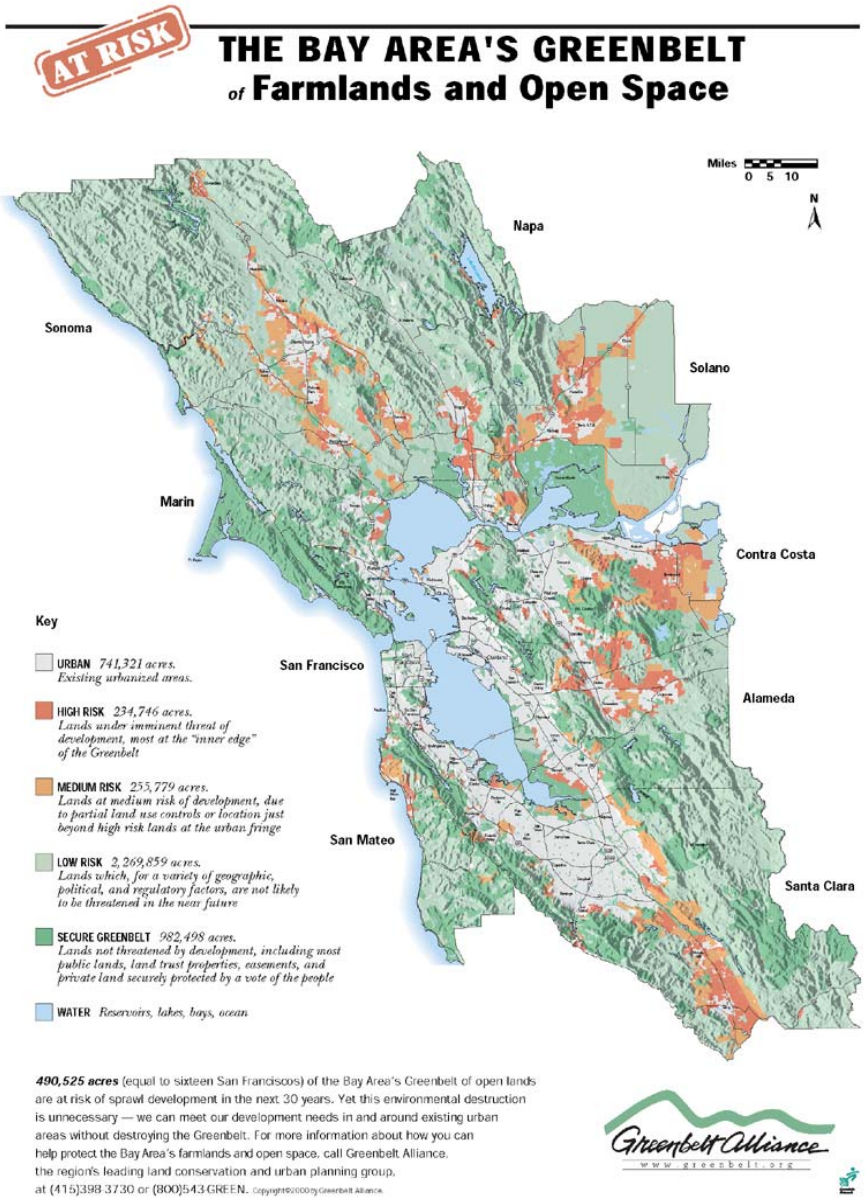
BUT

- Often there is no real choice for they can bring:
  - New staff skills
  - Additional technology
  - Marketing skills
  - Better brand image
  - New insights on user needs
  - New products
  - Cost- and risk-sharing

Local partnerships: an example

Public Participation GIS (PPGIS) are based on local partnerships, typically involving the community and interdisciplinary research.

The map, produced by the GreenInfo Network, helped conservation advocates to show what could happen if suburban sprawl were to continue and forced answers to 'should the future be this way?'. Highly compelling visual design helped the project to obtain good coverage in the news media – and hence influence outcomes.



Local to global partnerships: an example

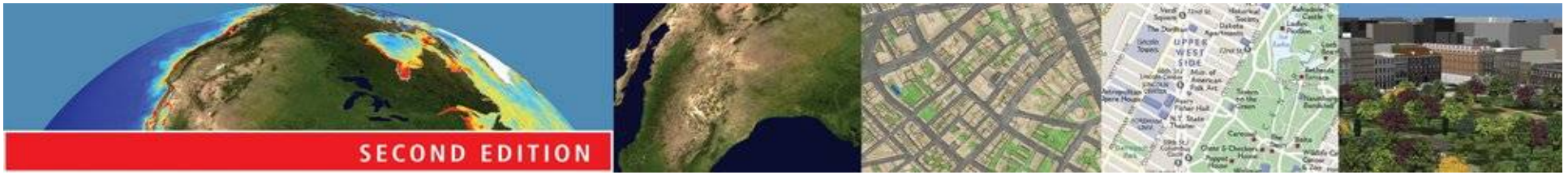
GIS Day is an annual grassroots event which began in November 1999, designed to promote geographic literacy in schools, communities, and organizations. GIS Day GIS users and vendors open their doors to schools, businesses, and the general public to showcase real-world applications of the technology.

Worldwide GIS Day Events

News of the event is spread by use of the Internet and by advertising. Any organization can host such an event: 2,400+ organizations hosted GIS Day events in more than 76 different countries in 2003 (see map). Over 2 million children and adults were enlightened on GIS technology on that day

National partnerships via NSDIs

- The problem:
  - Data duplication commonplace – so waste occurs
  - Ad hoc data sharing has many difficulties
  - Data often tailored to one application
  - Best data often collected in greatest detail at local level but not accessible to regional or national folk
  - Indexes/metadata to available GI unknown until recently
  - No general protocols for any of this until NSDI..



Many countries claim to have an NSDI

Australia	Finland	Japan	South Africa
Cambodia	France	Malaysia	Spain
Canada	Germany	Nicaragua	Sweden
Chile	Hungary	Norway	Switzerland
China	India	Philippines	The Netherlands
Colombia	Indonesia	Poland	United Kingdom
Cuba	Ireland	Portugal	United States
Czech Republic	Iceland	Russia	Uruguay
Denmark	Israel	Salvador	Venezuela
Dominican Republic	Italy	Slovenia	

What is a National Spatial Data Infrastructure?

- 'the technology, policies, standards, and human resources necessary to acquire, process, store, distribute, and improve utilization of geospatial data'

Source: Presidential Executive Order #12906 (1994): 'Co-ordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure' W Clinton.

BUT what does it mean in practice?

Initial elements of the US NSDI

- Defined standards (mandated on federal agencies and encouraged for others) Minimising inconsistency
- Clearing house – metadata descriptions of existing data. Advertising what is available
- National geospatial data framework - a common ‘template’ on which to assemble other data

But lots of people involved…

- Federal government (many agencies)
- State government
- Local government
- Private sector – contractors, value-adders, exploiters
- Not for profit organizations
- Citizenry
- Others...

No one is in charge...

Has the US NSDI been a success?

- Many more partnerships to create and provide data than hitherto [how much due to NSDI?]
- Acted as a policy catalyst and fostered awareness of GIS and GI
- But many different views of its effectiveness (see page 457)
- ‘bottom up’ collaborative data assembly difficult
- Effectively re-launched mid 2004 by new actions on Geospatial OneStop, FGDC and US National Map

Beyond the national frontiers..

- National governments own and control national mapping agencies
- All such mapping produced to national specifications until recently
- New private sector providers:
  - Produce imagery for anywhere in world
  - Produce road databases
- How do we get everyone to work together?

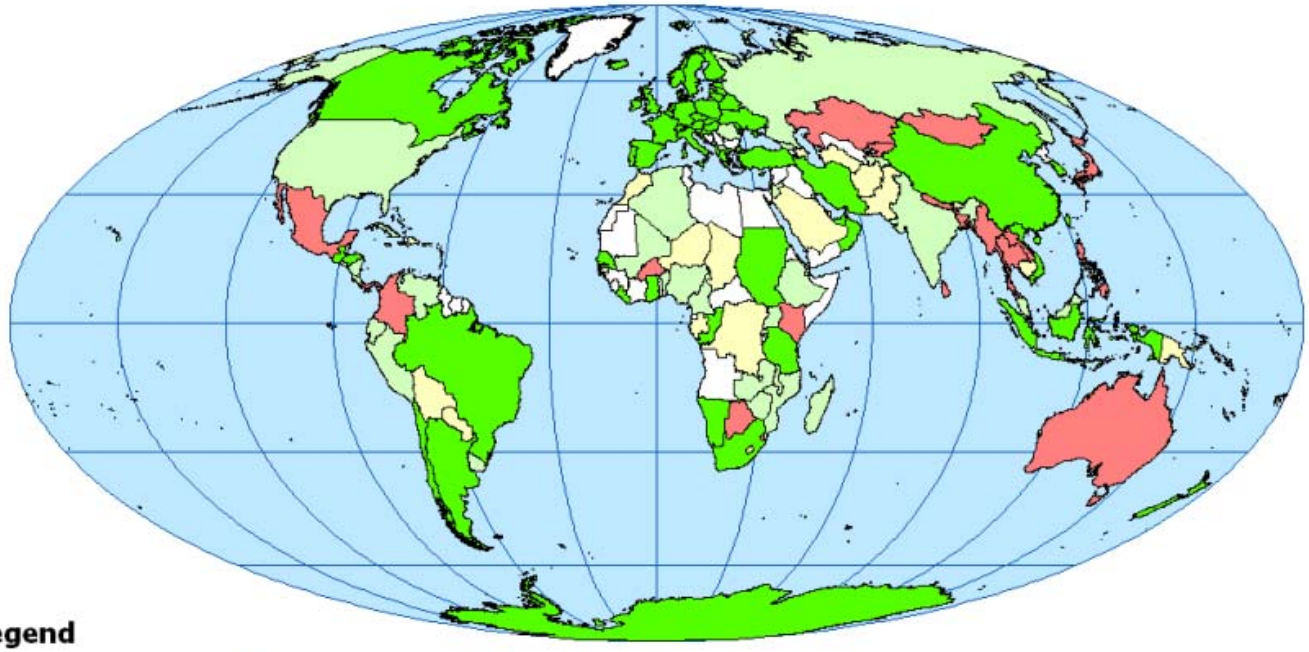
Multi-national and global partnerships

- European attempts to implement a GIS/GI policy for 450 million people in 25 countries (INSPIRE)
- Permanent Committee on GIS for Asia and the Pacific (55 countries)
- Potential or existing global GI:
  - Topographic mapping - military and ISCGM
  - Road guidance data by NAVTEQ and Tele-Atlas
  - Commercial satellites e.g. use after SE Asia tsunami
  - Scientific missions e.g. NASA, ESA
  - Global standards for GI e.g. Open Geospatial Consortium
- Global Spatial Data Infrastructure

An example of a global partnership

Progress of Global Mapping Project

As of 2004-07-20
Secretariat of
International Steering Committee for Global Mapping



Legend

- data available
- data for verification
- developing data
- considering joining the project
- not participating in the project

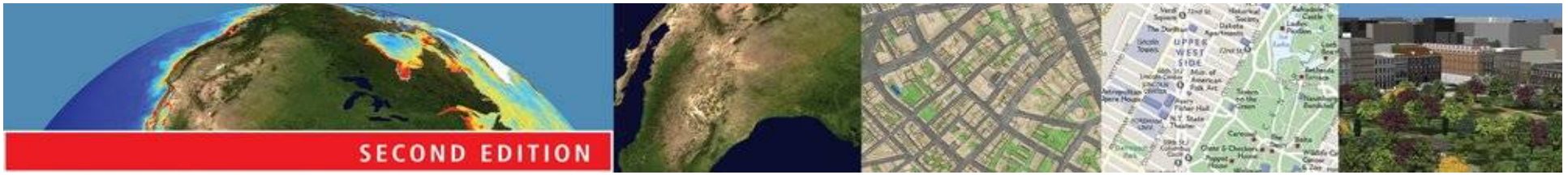
This map is for the purpose of reference and the boundaries in this map are not authorized by any organizations.

A Global Spatial Data Infrastructure?

- Difficult enough to get players within any one country to work together...
- Demonstrating benefit to those who face costs a challenge. Who are the stakeholders? Who needs it? (military doing what they need themselves?
- GSDI now focused on
  - articulating value of SDI
  - Fostering all SDIs – more exist, the better change of global SDI
  - Promoting informed and responsible use of GI generally

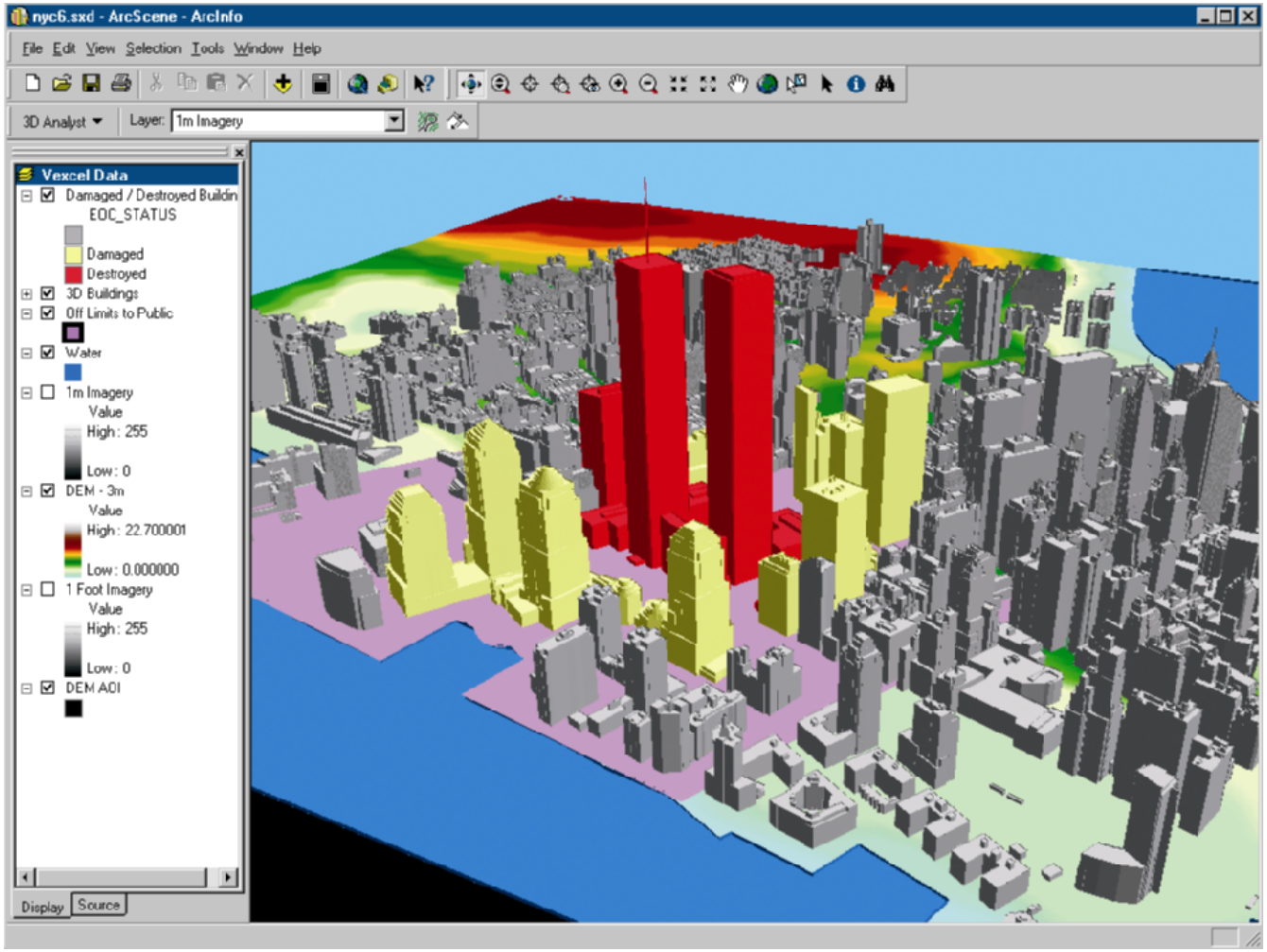
Extreme events change everything

- First duty of government = protect its citizens
- Events like 9/11, other atrocities around world and SE Asia tsunami require much use of GIS/GI
- GIS/GI can aid terrorists by:
  - Locating ‘choke points’ or unique impact big targets
  - Modeling of likely effects of disruption
  - Defining access and escape routes
- BUT is this a real danger?
  - Various organisations removed material from web sites after 9/11 (e.g. layout of nuclear plants and risk factors)



Geographic impact of 9/11

Courtesy: US Department of Homeland Security, US Geological Survey and ESRI

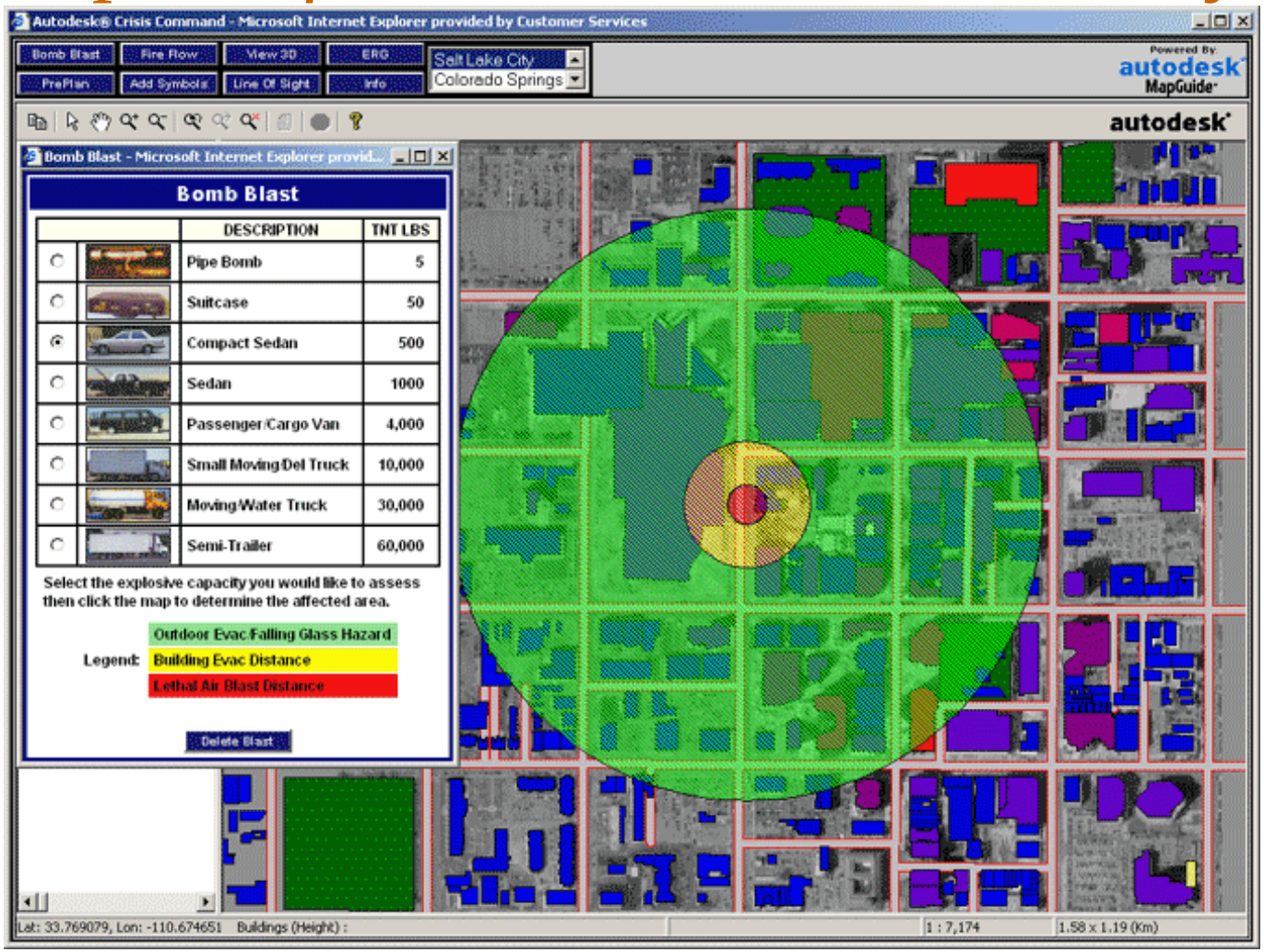


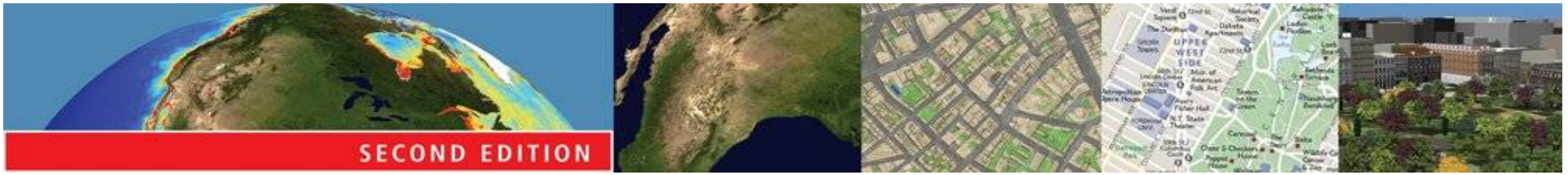
The Rand Report http://www.rand.org/publications/MG/MG142

- Rand's conclusions:
  - Publicly accessible GI could help terrorists
  - But much available from so many sources that it can't be stopped
  - Big cost to society of curtailing access to GI via web
  - Federal Government should work out how to guard sensitive GI + raise public awareness of dangers...

Estimated impact of car bomb in Salt Lake City

Courtesy: Autodesk Inc. © 2004





GIS/GI can help in disasters by…

- Contributing to
  - Risk assessment
  - Preparedness
  - Mitigation
  - Response
  - Recovery
- BUT someone has to be in charge. The old NSDI scheme and loose partnerships may not work..

Conclusions

- Partnerships potentially very powerful so look beyond the normal..
- Nothing is without cost or risk...
- Choose GIS partners carefully, nurture relationships...