19 GIS Partnerships

OVERVIEW

- No single organization or individual can provide all the skills, tools, or knowledge required to carry out significant GIS-based projects.
- Describes the evolution of spatial data infrastructures

LEARNING OBJECTIVES

- **The necessity for GIS partnerships and their potential benefits.**
- **The nature of the "big idea"—spatial data infrastructures (SDIs).**
- **The history of and differences in SDIs at global, continental, national, and local levels.**
- **The evolution in SDIs away from a technical solution to a technically supported social and institutional network.**
- **Other forms of partnership in GIS, notably commercial ones and combinations of individual volunteers exploiting technology to achieve critical mass.**

KEYWORDS

PPGIS, NSDI, FGDC, standards, National Geospatial Data Clearinghouse, National Digital Geospatial Data Framework, INSPIRE, PCGIAP, DCW, ISCGM, NMO (National Mapping Organization), SRTM, OGC, GSDI and public access to GI.

OUTLINE

19.2 Commercial Partnerships

19.3 Spatial Data Infrastructures

19.4 Partnerships of Individual Volunteers

19.5 Have SDIs Been a Success?

19.6 Nationalism, Globalization, Politics, and GIS

19.1 Forcing Functions

- There are multiple drivers behind the formation of partnerships
- Partnerships are easier if someone is in overall charge

19.2 Commercial Partnerships

- Massive consolidation of the industry has taken place since the early 2000s
    - This is illustrated with Nokia purchasing Navteq and TomTom purchasing TeleAtlas
    - Despite these acquisitions many GIS companies still operate partnerships
        - E.g. the Google business model, where data are acquired free or through license (see Section 18.5.1.2), processed, and then served to Google Earth and Google Maps users
- The authors describe hybrid forms of public-private partnership using the example of the Open Geospatial Consortium (OGC: www.opengeospatial.org)

19.3 Spatial Data Infrastructures

- SDI is the dominant conceptual model of GIS Partnerships for over the past 15 years
- The meaning of the term differs in different countries, though in essence it normally describes a widely available GIS search and mapping engine, GI and additional institutional and legal frameworks

19.3.1 How it all began

- The authors describe the history of SDI from their emergence in the early 1990s

19.3.2 SDI Partnerships at the Global Level

- Global-level partnerships comprise those:
    - based on executive mandate and finances to carry out particular tasks, and
    - that are in some sense voluntary.

19.3.2.1 Global Organizations and Their Partnerships

- Examples are given for Food and Agriculture Organization (FAO), the World Meteorological Organization (WMO), and the World Health Organization (WHO)

19.3.2.2 Global Voluntary Partnerships

- Describes a series of voluntary partnerships including:
    - Global Spatial Data Infrastructure Association (GSDI)
    - International Society for Digital Earth (www.digitalearthisde.org)
    - International Steering Committee for Global Map
    - OpenStreetMap

19.3.3 SDI Partnerships at the Multicountry Level

19.3.3.1 The European Dimension

- The status of SDIs in Europe as of 2007 is summarized in Figure 19.8
    - Most European countries have a fairly well coordinated SDI approach at the national level and also one or more of the SDI components at an operational level
- An EU directive introduced by the European Commission and approved by the European Parliament and the Council of Ministers must be implemented in national law within a defined period (normally two years).
    - The example of the INSPIRE directive is given which is designed to establish a legal framework for the establishment and operation of an INfrastructure for SPatial InfoRmation in Europe
- INSPIRE is designed to reduce the following barriers:
    - Inconsistencies in spatial data collection
    - Lack of documentation
    - Incompatible spatial datasets
    - Incompatible geographic information initiatives
    - Barriers to data sharing
- INSPIRE aims to overcome these barriers by:
    - Creation of metadata
    - Harmonizing key spatial data themes to support policy
    - Forming agreements on network services
    - Making policy agreements on sharing and access
    - Devising coordination and monitoring mechanisms
    - Creating the implementation process and procedures.
- The data types to be made available by all EU countries are listed in Table 19.1

19.3.3.2 The Permanent Committee on GIS Infrastructure for Asia and the Pacific (PCGIAP)

- The authors describes the structure and activities of PCGIAP

19.3.4 SDI Partnerships at the National Level

- This section reviews the evolution of three national level SDI in the U.S., Singapore and the UK

19.3.5 SDI Partnerships at the Subnational or Local Level

- This section reviews the evolution of three sub national or local level SDI in Catalonia and Australia.

19.4 Partnerships of Individual Volunteers

- Web 2.0 has transformed the potential for certain types of GI collection, leading to the concept of volunteered GI
    - The example of GISCorps is given which coordinates short-term, volunteer-based GIS services to underprivileged communities and MapAction which supports emergency aid relief using GIS

19.5 Have SDIs Been a Success?

- The authors evaluate the success of SDI in this section. The key points are:
    - Something as diffuse as NSDI will never be seen as a success by everyone, but it has been a catalyst for many positive developments.
    - The impetus for greater government efficiency and effectiveness and the advent of the Department of Homeland Security reignited the cause of NSDI.
    - Highly partisan views exist on what NSDI has achieved and what should be done next. This is not surprising given its ambitious scope, its nature, and the lack of simple measures of success.

19.6 Nationalism, Globalization, Politics, and GIS

- Other than for imagery and some roads data, global GI is currently little more than the sum of the highly varied national parts, and detailed consistent information rarely is readily available. This is a consequence of historical methods of data collection, plus nationally-focused policies and funding

ESSAY TOPICS

1. Is there anything special about geographic information that makes partnership an attractive proposition?
2. Why might you wish to act in GIS partnership with other organizations? What are the likely benefits and disbenefits?
3. To what extent does the uptake and use of public participation GIS depend on free access to framework data?
4. It is one thing to share geospatial data, quite another to do so in such a way as to make these data effective. Why should data collected by one agency be of little or no use to another?
5. Describe what is meant by spatial data infrastructures?
6. To what extent do the governance systems of a country influence its ability to create a national geospatial infrastructure?
7. What are the prospects for the creation of a globally consistent set of framework data?
8. In the creation of spatial data infrastructures, it is possible to categorize the strategies adopted as 'top down' and 'bottom up'. With examples, outline the relative merits of each.
9. Has EITHER (a) NSDI in USA or (b) National Land Information System in UK or (c) an equivalent initiative in your own country been a success?
10. Does it seem likely to you that the most effective SDIs are those for parts of a country (e.g., states) rather than whole countries? If so, why?

MULTIPLE CHOICE QUESTIONS (MCQ)

There are none for this chapter.

ACTIVITIES

1. A structured comparison. Visit the website of the Geospatial Data Infrastructure Association at www.gsdi.org. There is a useful 'cookbook' about GSDI at www.gsdi.org/gsdicookbookindex.asp. This has several case studies. Make a poster in which you compare and contrast these using as sub-headings:
    a. Background, Context, and Rationale
    b. Organizational Approach
    c. Implementation - Approach
    d. Components

e. Implementation
f. Issues

2. In the late 1980s, there were a number of academic initiatives to develop partnerships that would build GIS expertise and infrastructure. In UK the Economic and Social Research Council initiated its Regional Research Laboratory Initiative and in USA the superficially-similar National Center for Geographic Information and Analysis (NCGIA) was established. See, for example, J Shepherd et al, 1989, "The ESRC's Regional Research Laboratories: An Alternative Approach to the NCGIA?," *AutoCarto* 9, Sydney, Australia. See also www.geog.ubc.ca/courses/klink/gis.notes/ncgia/u71.html on the Development of National GIS Policy. Use a search engine to trace how each initiative fared, and compare and contrast their individual legacies.

3. There are many ways by which SDI can be classified, but one of the most useful looks as their status and scope. In terms of status, a distinction is made between those that have a legal mandate (as in USA and Portugal) and those that are an outgrowth of existing collaborations (as in Australia and the Netherlands). In terms of scope a distinction can be made between those that are broad (USA) and those that are narrow (Malaysia). Visit as many website as you can and 'populate' the following table with examples:

Legally mandated, narrow in scope	Legally mandated, broad in scope
Outgrowth, narrow in scope	Outgrowth, broad in scope

What local factors explain each entry in your table?

4. Using as many sources of public domain data as you are able, create a 'spatial data infrastructure' for the area around your home or place of study. 'Journal' the steps you take and the difficulties you encounter. If you are resident in USA, it is almost certain that your state has a geospatial data clearinghouse to which you should direct attention. In the UK Ordnance Survey makes available multiple sets of data under its OpenData scheme; much other data are available from data.gov.uk

FURTHER READING

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