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Topic (i): Policy and organizational aspects in GIS and statistics

**COMMISSION INITIATIVES TO ESTABLISH A EUROPEAN GEOGRAPHICAL  
INFORMATION INFRASTRUCTURE (EGII)**

Submitted by Eurostat<sup>1</sup>

**Invited paper**

**ABSTRACT**

In its Green Paper entitled Public sector information: a key resource for Europe, published in January 1999, the Commission expresses concern about the low level of dissemination of public sector information by EU countries. The report states that "the ready availability of public information is an absolute prerequisite for the competitiveness of European industry. In this respect, EU companies are at a serious competitive disadvantage compared to their American counterparts, which benefit from a highly developed, efficient public information system at all levels of the administration".

Geographical information is no exception to this rule. European diversity in data policy and its interpretation, in data specification, in pricing and access rules, in private/public sector relationships, is holding back the development of a single market and the growth of the European economy.

In the near future, in Europe, the governments should freely access and exploit GI in decision making and solving the pressing political bottlenecks in society, such as a social exclusion, security and health. The public sector should work in full partnership with, and encouraging, the private sector to provide information via electronic systems. European citizens should use GI for participation in the public decision making processes, and use many services. GI usage should be far more embedded in education programs. The research community should build up a knowledge infrastructure to be exploited through many knowledge centres.

A way to achieve all these objectives is to create a European Geographic Information Infrastructure.

In this context, the Commission has a key role to play:

- To facilitate the creation of the administration and the mechanisms of EGII
- To stimulate the broader GI-debate and increase awareness
- To act as a catalyst initiating and promoting direct action in priority areas

The paper prepared by Eurostat describes the initiatives already taken by the Commission in this direction: GI2000, the creation of EUROGI, the R&D projects, the drafting of a first document on a

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vision for the EGII and the creation of an interservice group to discuss the use of GI and GIS inside the Commission.

## **I. INTRODUCTION**

1. The United Nations Conference on the Environment and Development, which was held in June 1992 in Rio-de-Janeiro, was for many reasons a historical event. Ségolène Royal, the former French Minister of the environment, declared at that time in "Le Monde Diplomatique" [1] : "The old international order has collapsed. A new one is developing before our eyes. Along with the GATT negotiations or the redeployment of the United Nations system, the Rio Conference is, without a doubt, one of the integral elements of this process. Even if the parameters of this new international balance are still uncertain, it is now unimaginable that it would not include a strong ecological dimension.... Our current development methods and consumer habits not only affect our environment but also threaten, today, the major ecological balances of the planet. Continuing on this current path is clearly suicidal for humanity." What better argument could be found to justify the adoption of a global infrastructure for geographical information?

2. This summit led to the drafting of a final document called Agenda 21 (for the twenty-first century) - involving the current and prospective problems, as well as the measures to be taken. Its application will require, among other things, the availability of geographical information on a global scale.

3. It is in this context that a Steering Committee was instructed to define the framework of a global infrastructure for geographical information (GSDI ) [2]. It will be replaced in the long term by an international coordination organisation. Several conferences have already been organised under its aegis: Bonn, Chapel Hill and Canberra. The next conference will take place in Cape Town, South Africa. Each of these events permitted substantial progress to be made in the adoption of the infrastructure.

4. What will this global infrastructure be if not the merger of the national or supranational infrastructures? Several European countries are currently working towards the adoption of a national infrastructure. The Commission feels it can play a coordinating role and proposes the creation of a European geographical information infrastructure that would constitute the link between the various national initiatives. This document presents the various initiatives undertaken in this direction by Commission departments. It first tackles the general problem of access to public data (green paper on public sector information) [3] and then details the contents of the various approaches pursued by Commission departments.

## **II. GREEN PAPER ON PUBLIC SECTOR INFORMATION**

5. The Commission published in January 1999 a green paper entitled "Public Sector Information: a key resource for Europe". In this document, the Commission expresses its concern about the poor distribution of public data by European countries, which in its opinion prevents European industry from being competitive.

6. In Europe, different national legislation concerning access to public information causes the information to be dispersed and fragmented. Companies and the public sector itself suffer from this situation. In this respect, the Americans benefit from a highly developed public information system. In 1966, they adopted the Freedom of Information Act, which was then amended by the Electronic Freedom of Information Act. This law guarantees public access to information held by the federal administration electronically. The United States government strongly encourages private sector companies to use the public sector information commercially. The U.S. pricing philosophy is that the public sector should see the adding value only as a tool for its own efficiency purposes, and not as an incentive for profit making. For its part, the private sector has to offer commercially viable products or services adding value beyond that added by the public sector.

7. It was necessary to quickly initiate a debate on this subject in Europe. The lack of administrative and non-administrative information (statistical, financial or geographical data) has an impact on small and medium-sized enterprises that have fewer resources to devote to an often-difficult search for fragmented information. Public information plays an essential role in all their sectors of activity, in particular when defining business strategies, making commercial decisions or drawing up investment or export plans. The lack of information can create a real competitive disadvantage for European companies in comparison with their competitors.

8. The situation is identical regarding the access to public geographical information. An example quoted in the document summarises the situation very well: “An American software firm is about to release a business mapping software product allowing users to find and illustrate points on the map, integrate maps in their documents and identify the trends of their business on the map. The objective is to make it easy for business users in organisations of any size to use maps to make better-informed business decisions. Over 15 million addressed street-level segments are included for all US and worldwide country-level boundaries. The estimated retail price of the product is about \$100. For the sake of comparison, a German mapinfo company is offering geodata for one German state unit only for a total of approximately \$4.800”

9. In this example, a private company plays the role of a public service, but does not provide the information at an affordable price. This demonstrates the necessity for complementarity between public services and private companies in this sector. Basic topographical information (not always profitable by itself) provided by the state is essential to the private sector in order to develop thematic information and applications.

10. In a very thorough report published in May 1998, the AFIGEO illustrates an identical situation in France and in several European countries. It is observed that since their appearance on the market in the 1970s, geographical information systems have experienced only limited growth in Europe. Among the reasons which explain this phenomenon, one could of course point to the complexity of these systems, but the lack of accessibility and the high cost of the data, as well as the almost complete absence of truly Pan-European (“seamless”) layers most probably played a decisive role.

### **III. THE COMMISSION’S ROLE IN GI**

11. The Commission deals with all geographical information issues from three different points of view, any one of which can have an impact on its development in Europe. Its political role will first be presented, followed by its role in market stimulation and finally its role as pan-European GI user to satisfy its own internal needs.

12. These are mainly three Directorates-General of the Commission that share these roles: Information society, the Joint Research Centre of ISPRA and Eurostat.

#### **III.1 The Political Role**

13. For several years, DG Information Society (former DG XIII) has undertaken a number of initiatives in an attempt to solve the GI problem in Europe: the GI2000 communication project [5]; its participation in the creation of EUROGI [6]; the drafting of a first document which describes its vision of what the European Geographical Information Infrastructure could be.

14. The objective of the GI2000 communication project was above all to initiate a political debate on GI in Europe. This document was the subject of a very large number of discussions and consultations. The new Commission has decided to integrate this project in the overall context of the green paper on access to public sector information in Europe. However, the information contained in the GI2000 document remains pertinent. Indeed, it described in a rather detailed way the development potential of the geographical information market in Europe, its key players and the barriers that affect it. There are

obviously parallels between the situation described in the GI2000 document and the contents of the green paper. Europe's strengths and weaknesses in the area of GI are multiple. Without being exhaustive, one should note as strengths: the long European tradition in cartography at a national level, the existence of excellent georeferenced national files, the will to improve co-ordination as well as numerous initiatives taken to develop standards (in particular under CEN TC 287 and ISO TC 211). The main weaknesses are: the lack of coherent public pan-European geographical data, the lack of a mandate within official mapping agencies to create and maintain European datasets, the various pricing and copyright policies, the absence of an integrated metadata system. The political actions proposed in this document (creation of a high level group to deal with GI issues, the creation of a European geographical information infrastructure) are therefore still on the agenda but in the context of the green paper on access to public sector information in Europe.

15. The deadline for comments on the green paper was June 1, 1999. By that date, 180 reactions had been received, including 40 from the GI community. They will be soon taken into account in a Commission Communication, which will propose a framework of possible actions to improve the situation at European level.

16. EUROGI (European Umbrella Organisation for Geographic Information) was created in November 1993 as a result of a study commissioned by DG Information Society. It is a European foundation established under Dutch law in Amersfoort, The Netherlands. EUROGI currently has 19 members belonging to two main groups: interdisciplinary national organisations (one per country) and pan-European organisations having an interest in GI. The objectives of EUROGI are to promote the definition and adoption of a European policy on geographical information and to promote the development of a European geographical information infrastructure. Another aspect of EUROGI activity is raising awareness among potential users regarding the added value of geographical information and its associated technologies. EUROGI is also member of the GSDI Steering Committee. In this context, it promotes the establishment of national geographical infrastructures. This organisation is playing a key role within the political framework we are dealing with. Professor Ian Masser currently chairs it.

17. To conclude this summary of the Commission's political role, attention should be given to the DG Information Society initiative that invited, in December 1998, a panel of specialists from the public and private sectors to draft a very first version of the document "A Vision for the European Geographic Information Infrastructure". The document was then discussed via Internet and its contents are still far from being unanimously accepted. Two rival approaches were put forward during the drafting of the document and during the discussions that followed. On the one hand, there was a very broad vision of what a geographical infrastructure should be, one that includes all the political levels and brings together all geocoded information (by pushing this line of reasoning to the extreme, the majority of statistical data could be considered geocoded in a direct or indirect way). On the other hand, there is a more pragmatic approach calling for the creation of a European database of basic topographical data at a scale 1/100.000 from existing data. This would be only a first step to fulfil the needs expressed by Commission departments, large users of this type of information. This approach is rather similar to the "Global Map" project launched by the GSDI Steering Committee (basic global data set at the 1/1.000.000). Both positions remain. It will be the Commission's role, together with EUROGI and the various players in the GI field to pursue discussions that will lead to the definition and development of a future European infrastructure.

### **III.2 The role of catalyst and market stimulation**

18. The main tool used by the Commission to stimulate the geographical information market is the 5th R&D framework programme, in particular the IST programme. The 5th programme is subdivided into key actions that provide opportunities to propose applications using GI (environment, navigation, public information, etc.). In the previous programme, 200 GI related projects were identified. Altogether, these projects received 200M €. It should also be noted that the INFO2000 programme financed 30 GI related projects for an overall amount of 6M €.

All these programmes were useful or will be used to create a number of building blocks for the future European geographical information infrastructure. They also allowed starting certain actions connected with the improvement of data accessibility, with the harmonisation of national data policies, etc.

### III.3 The Commission as a Data User

19. As mentioned earlier, the Commission is a large user of pan-European geographical data. Eurostat is not only a user of GI but is also responsible for the management of the Commission's geographical reference database (GISCO). In this context, Eurostat consulted all the Commission departments to inquire about their needs in terms of GI. The conclusions of this survey revealed quite clearly that there is an increasing need for detailed information in scales ranging between 1/100.000 and 1/500.000. The main policies concerned with this geographical information requirement are the common agricultural policy and the regional policy, which are also the most important in terms of budget. Transport, Environment, Fishing and to a certain extent Competitiveness and Expansion are also Directorates-generals that use this information.

20. The current contents of the GISCO database do not fully meet these requirements. Two layers are available at the 1/100.000 scale: the administrative boundaries down to commune level (SABE from MEGRIN) and CORINE Land cover. Other information is available on scales ranging from 1/1.000.000 to 1/10.000.000. It should be specified that the CORINE and SABE layers, which were created at the request of the Commission, are more or less the only harmonised data available at this scale in Europe. The Commission has therefore contributed to the establishment of European infrastructure building blocks by seeking to satisfy its internal needs.

21. Eurostat undertook initiatives, in close cooperation with DG Information Society and the Ispra JRC to try to supplement the internal supply of layers at the 1/100.000 scale.

22. First of all, Eurostat organises each year a joint NSI/NMA Working Party. These meetings enable Eurostat to express the needs of the Commission to the representatives of the official mapping agencies. They also make it possible to establish links between statisticians and GI suppliers. It should be noted that the nature of NSI/NMA links varies considerably from one country to another. These meetings provide an opportunity to create them where they do not yet exist or, if necessary, to strengthen them. It is within this framework that the NMAs proposed to build a set of basic harmonised data based on NATO data (VMAP) at the 1/250.000 scale. A project co-financed by DG Information Society (PETIT) produced a prototype dataset based on a sample that covers a part of Benelux and Germany. Tests on this prototype carried out by Commission departments (Eurostat, the Ispra JRC and DG REGIO) were not conclusive. The geometrical quality of the data is sufficient, but it does not contain topology and a good data model. This excludes it from use in a GIS to perform spatial analysis.

23. The NMAs are aware of these limitations. They propose a two-stage strategy. Firstly, the sample will be extended to cover the entire European territory (around 2001 - EUROMAP project). Secondly, the data will be made "intelligent" and usable by a GIS. It is therefore noted that Eurostat's need for basic data will not be completely satisfied before 2002 or 2003.

24. A second area of focus is the creation of an interdepartmental group on geographical information within the Commission (COGI) on the initiative of Eurostat and DG Information Society. The creation of this group satisfies the need for a strategic approach and for a better co-ordination and visibility of Commission actions related to GI and GIS. This request comes from Commission departments, but also from the outside world. Actually, it is very difficult for an observer to have a good overview of all the projects and initiatives emerging from the Commission.

25. This group is made up of high-level officials. It can be seen as a precursor to the high-level group foreseen in GI2000 and included in a broader way in the green paper. The mandate of the COGI can be summarised as follows:

The COGI is required to co-ordinate the use of geographical information within the Commission in order to improve the monitoring of the various Commission policies which require access to geographical information. Strategies will have to be developed to improve the availability and quality of the data by an internal acquisition or common creation policy; to make Commission management aware of the potential of this information; to give, on the matter, a coherent image of the Commission to the outside world; to reduce redundancies between the various projects; to exchange rules of good practice and procedures between the services. It also aims at developing a common policy to share information within Commission departments and to disseminate it in order to encourage the creation of added value services by the private sector on the basis of this core geographical information.

26. The first COGI meeting, chaired by Mr. Franchet, Eurostat General Director, took place last November. Some initial decisions were made at that meeting:

- An action plan will be defined on the basis of the mandate;
- The document describing the geographical information needs of the Commission departments will be reviewed;
- Eurostat will analyse the various ways offered to the Commission to gather the basic topographical data it needs (ad-hoc acquisitions, call for tenders, regulation).

#### **IV. CONCLUSION**

27. In conclusion, it is obvious that a lot of work remains to be done in Europe to harmonise, improve accessibility and to reduce the cost of geographical information. The Commission is tackling these questions from several complementary points of view. First of all, there is the green paper on public sector information and the Communication that will follow. The activities of the Commission in the field of GI at the political level should be considered as a market catalyst and as a harmonised pan-European information user. These three main areas of interest will enable the Commission, together with the main European actors of the field, to progress towards the adoption of a geographical information infrastructure in Europe whose long-term role will be to be integrated into the global one.

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