NEW MARKETS, NEW WAYS TO SALE AND COPYRIGHTS IN THE SDI FRAMEWORK

Jordi Guimet Perenya

Dr. Industrial Engineering. Director of IDEC Project

After a first definition of some concepts like market, goods and transactions in the GI area, the paper analyses the differences between the scope of the old market and the new one, based on Internet information, their advantages and their consequences.

Anyhow, several problems have to be foreseen, mainly the legal ones related with protection of provider's copyrights. Without a regulation and means to assure the legal aspect, probably market prospects will no increase. We have to consider too the different ways that GI and related services can be provided to end users and will influence upon the global solutions.

In this framework, improved and enhanced by SDI initiatives, specially at a regional scale, to set up new distribution and control services is fundamental, since they mean the basic commercial infrastructure, so the role that an institutional (regional) SDI has to play in this scenario is stated in the paper, as well as the conclusions of the Catalan Working Group on Digital Rights Management that considered these subjects in the last months.

INTRODUCTION

In the geoinformation market goods are data, products and services. Currently these goods are available on line, using Internet as the framework in which the most common operations and transactions take place: discovering, consulting, visualizing, downloading, buying…
It is easy to distribute, share, copy and transform information, to use services and interoperate in this new paradigm that the SDI architecture and concepts represents.
Internet has implied a relevant change in the contacts between providers and consumers, increasing the number of possibilities and affording clear new benefits such as:

- Products and services are more available and easier to be accessed, decreasing the transactions costs
- New products and services are being created from the combination of the existing ones (i.e. chaining services)
- The growth of Internet users represents an increasing demand for IG sector market. New specialized markets can appear in the sector.

The consequences of these changes can already be appreciated, but others are expected in the future. We can underline some of them:

- New ways to provide products and services

  o Using different units of measure (Mb, Area, number of hits…..)
    ▪ It is possible, because it is easy to do, to offer different kinds of valuation units, like Mb downloaded, area consulted, number of hits done, etc.

  o Offering different kinds of services (consult, downloads, transform..)
    ▪ It is possible, because it is easy to do, to offer different kinds of services related with the data provided: it can be a consultation service, or to allow its download, or to facilitate several geoservices applied over the data

  o Allowing different types of commerce (licensing, selling, quoting…)
    ▪ It is possible to offer different types of products copyright, like a licensing contract to distribute the product with or without added value, a direct and individual selling, to pay a periodic quote for the use of the product, etc.

- There is a potential massive market, based on the internet platform, which encompasses not only the specialized users, but also the non-specialized users.

- New roles and agents will arise to cover new functionalities, requirements and needs.

But certainly new problems are already appearing, because the new paradigm creates new conditions, and we have to cope with several difficulties related with these conditions:

- The copyright protection in Internet requires appropriate technologies
- Providers have to trust on the new paradigm and on the means to protect and guarantee their rights, otherwise they will no play and active role in the new market, and will not be incentivated to publish their data and distribute it by Internet.
- There is still a lack of appropriate distribution channels, meaning professional or commercial companies or organizations dedicated to this kind of business.
- The mentioned problems lead to a weak participation of the private sector (providers of data and services) and public entities, in the new paradigm

So, perhaps the most important aspects to take care are related with the copyright protection in the IG and Internet framework. Anyway, we have to underline the need of an efficient, useful and reliable Distribution service.

TECHNOLOGIES TO PROTECT COPYRIGHT AND TO DEAL WITH ECONOMIC ASPECTS OF DATA MARKET

We can mention the Technological Protection Measure (TPM) and the Digital Rights Management, DRM, as the technological resources to be implemented in the systems or in the digital supports of data in order to control the use of it according with the legal conditions.

In its simplest form a TPM (Technological Protection Measure) is a technological method intended to promote the authorized use of digital works. This is accomplished by controlling access to such works, including: copying, distribution, performance and display. TPMs can operate as safeguards or 'virtual fences' around digitized content, whether or not the content enjoys copyright protection. Two common examples of TPMs are passwords, and cryptography technologies

Digital Rights management are more sophisticated information systems designed to protect intellectual property. DRMs permit the exchange of usage information among rights of owners and distributors, and establish the manner in which a work may be used. They can include or not TPM. Typically, a DRM consists of two components: a database containing information which identifies the content and rights holders of a work, and a licensing arrangement which establishes the terms of use for the underlying work

But also other resources has to be mentioned, which allow to control the data and services distribution, and also ordering and pricing. All them are based in XML standards. XACML and SAML are two languages created by OASIS and based on XML, to manage the codified information interchange in a large variety of environments, including the Web Services.

SAML:
The Security Assertion Markup Language, or SAML, provides a mechanism that transfers information about entities between various cooperating domains without the need for those domains to lose the ownership of that information. It means for example, that an internet user, once has given its credentials, will obtain services from different web sites without needing to submit its credentials at every place, since those providers will be able (after user's explicit approval) to share this information.

XACML:
On the other hand, XACML specifies how the SAML authentication request is internally processed. It gives the language to define the procedures for creating the complete infrastructure of rules and policies to make authorized decisions.

WPOS:
The Web Pricing and Ordering Service is intended to offer a suitable way to order and purchase data in a distributed architecture with multiple providers under the conceptual portal approaching, issuing functionalities such as pricing models and licensing, price calculation, security mechanisms, and ordering and delivering. It has to support chaining operations with cascaded WPOS services.

Some of these resources are already implemented in commercial products, like in some WFS software . We expect that in the future they will be more and more usual and providers will be able to apply them for to issue their data or services to the users.

In any case, all these technologies are still being developed, rethought and tested, according to the growing demand of this kind of resources. OGC is working on that questions, so many of these technologies and methods will became new standards in a short time.

THE NEED OF DISTRIBUTION SERVICES

To implement and manage these resources is not an easy work, and can be near impossible for many potential small providers, such as small municipalities, university research centres and private individuals that want to offer their specific products.

For this reason it could be interesting to consider these activities like services to be offered by brokers to these providers, at affordable costs. Combining control and protection services with other services related with the e-commerce, such as ordering, pricing, earning, analyzing the demand, generating statistics, etc.

In other words, we have to consider the "distribution services" an important element for the future development of the SDI.

They should offer:

- e-commerce services (PO): fees, procurements, distribution of earnings among the providers, etc
- Authentication and authorization
- Access control
- Package (data), metadata and encryption, when needed.

The role of distribution services

As mentioned before, distribution services have to mean a copyright providers guarantee offering the mentioned resources so that they can trust on the system, on the new paradigm.

Distribution services also improve offer ways, allowing providers to offer its data and services under different conditions (licensing, quoting, etc.) that could be impossible by themselves.

They can also provide the commercial infrastructure need by any market (marketing, advertising, logistics, …)

In conclusion, we consider that technologic resources are available and adequate organizations would have to be created in order to offer a reliable institutional service to providers.

REGIONAL SDI AS STRATEGIC ORGANIZATIONS TO CARRY OUT OPERATION WITH AA AND O&P

If defining a Regional SDI as an institutional or legal organization in charge of the corresponding SDI in its administrative area, it seems correct to consider them as the most appropriate entity to carry out with the mentioned described activities.

In our concrete case, we are currently working in some initiatives to set up thematic SDI's which will require the described services. One of them is the inter-universities SDI. The other one is the Local SDI.

In both cases, participants do not want to allow access to thir data to everyone, or t to offer them free of charge. So we expect they will define, in a short time, the access conditions to their data, related more or less with the following questions:

- All information will be free of charge
- All information or part of it will be available with a previous fee payment
- All information or part of it will be free but with access restrictions
- All information or part of it will be acceded with restrictions and a previous fee payment.

So, we have to prepare and manage a system to connect all participants systems with the described services, filtering the user previous requests to the provider server. The first step has to be the user's authentication and authorization, the following one will be the access conditions controls and finally fixing the price of the allowed service (consultations, download, etc.) and dealing with other e-business operations.

Providers, in this case local authorities or university centres, are waiting for clear solutions in a reliable framework to fully participate in the projects that already under way. Problems do not com from technology but from the lack of a data distribution policy and from the providers fears about the handling and final use of their data (or services). If problems origin and adequate solutions are known, our immediate task is to prepare a comfortable and trusty environment in which data flows and services can be transacted as happen in the usual market.

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BIOGRAPHICAL NOTES

Dr. Industrial Engineer, he has worked as civil servant in the Public Administration as Deputy General Director for Information Technologies in the General Direction of the Cadastre Organization (Madrid, 1987-1991), being in charge of the technical modernization of the Cadastre, introducing the IT and GIS technologies in all the cadastre offices and central services, and further as Regional Cadastre Director in Catalonia (Barcelona, 1992-2001).

Associated Professor of the Technological University of Catalonia in the domain of Information systems and business management, Director of the Master on Geospatial Technologies and Systems in the Politechnical Foundation of Catalonia.

Currently owns a consulting company which, among other projects, is in charge of the development of the IDEC project, the SDI of Catalonia, promoted by the Secretary of the Information Society and leaded by the Cartographic Institut of Catalonia.

He is author of several technical books about GIS, Cadastre and Information Systems, and has also published an important number of articles in different magazines.

He founded the Spanish Association of GIS (1990) and has been its president until the year 2000. Currently is the president of the catalan chapter of this association.

Contacts

Dr. Jordi Guimet Perenya
Projecte IDEC – Institut Cartogràfic de Catalunya
Parc de Montjuic
08038 Barcelona
SPAIN
tel. 34 93 567 15 00
fax 34 93 567 15 67
Email : jguimet@icc.es
http://www.geoportal-idec.net