

# **To Use IDEC (SDI) Philosophy to Modify Strategies and Plans: Analysis of Concrete Cases in Catalonia**

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**Key words:** regional SDI, thematic SDI, SDI impact, distributed architecture.

## **SUMMARY**

After a short description of IDEC Project (SDI of Catalonia) and services that IDEC is presently providing as well as activities it has been displaying to make known SDI architecture advantages and interoperability, we can make up our mind about its impact on several relevant projects that Catalonian Regional and Local Administration are developing or preparing to be launched in a short term.

We would like to let you know how IDEC Project has positively influenced on the above mentioned projects strategies, planning and changing them, even though it cannot be valued in terms of economic impact.

Three concrete cases are described stating which were or which are the Project objectives, which was its initial architecture or design and which is the final solution taken once their managers have been convinced of advantages to base them on distributed and interoperable systems.

A first example is the called “Hypermap of Catalonia” a project from the Public Works and Territorial Policy Department (DPTOP) with the aim of being a tool for a corporative policy in the Regional Government as far as IG concern.

A second example is the planned Urban Planning Information System in Catalonia, an initiative from the above mentioned Department (DPTOP) which, as top organism, has the purpose to get urban information and managing it (now, it is in charge of local authorities).

And the last example refers to the Local SDI Project as an strategy to promote IG and SIG use in local administrations through constructing a specific SDI for them.

## **SUMMARY**

Després d'una breu història del projecte IDEC i la descripció dels serveis que actualment facilita, així com de les activitats que ha dut a terme per difondre els avantatges de l'arquitectura IDE i de la interoperativitat, es disposa d'una mínima consciència del seu impacte en alguns dels projectes importants que té en marxa o té previst iniciar l'administració regional i local a Catalunya.

La finalitat d'aquesta aportació es explicar com ha incidit el projecte IDEC en l'elaboració i modificació d'estratègies en els esmentats projectes, cosa que si be encara avui es poc

traduïble en forma d'avaluació d'impacte econòmic sí es constatable que ha tingut efectes positius en l'orientació o re-orientació dels mateixos.

Es descriuen tres casos concrets, exposant quins eren o son els objectius del projecte, quina era l'arquitectura o disseny inicial del mateix i quina es la fórmula finalment adoptada, una vegada els seus responsable han estat convençuts dels avantatges de basar-los en sistemes distribuïts i interoperables.

Un primer cas es el que s'anomena hypermapa de Catalunya, projecte del Departament d'Obres Públiques i Política Territorial, amb voluntat de ser instrument d'una política corporativa en matèria IG dins el Govern Regional.

Un segon exemple és el previst Sistema d'Informació Urbanístic de Catalunya, també iniciativa del DPTOP, que preveu aconseguir informació urbanística (la seva gestió és competència de les autoritats locals) per fer-ne un control i seguiment, dins les seves funcions de màxim òrgan competent en la matèria.

Finalment, el tercer exemple presenta el projecte IDE Local, com a estratègia per a impulsar la utilització de la IG i dels Sistemes SIG en les administracions locals, promovent aquest ús a través de construir una IDE específica per als governs locals.

# **To Use IDEC (SDI) Philosophy to Modify Strategies and Plans: Analysis of Concrete Cases in Catalonia**

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## **1. ANTECEDENTS**

The government of the autonomous region of Catalonia (Spain) set up, at the beginning of 2002, the IDEC project (SDI of Catalonia)<sup>1</sup>. The first year was oriented to the general preparation and to create the appropriate collaborative framework. The following year the basic services and the institutional compromises and agreements were made, allowing a general understanding about the concepts, architecture and technologies proposed by the initiative. Last year, 2004, represents the consolidation of the project.

Currently, the regional SDI offers in its Geoportal, several services, the most important of which is the multilingual Catalog Server, with more than 18,000 records of metadata available (53,000 including the records translated to Spanish and English), corresponding to over 70 providers. In a short time, metadata of services and schemas will be also available. Furthermore we should mention the Viewer (WMS Client) which allow the user to access to more than a dozen of WMS from different providers and about 125 layers of geodata, with WFS and WCS services active.

This services framework is offered to other institutions and organizations, as a platform which other can add value to, sharing and reusing the services to other specific applications. Our strategy has been, and still is, to promote thematic SDI. And this kind of thematic project, based on the IDEC platform, has had a clear impact on the ways and models upon which other projects had initially been planned. Some important initiatives have changed its initial conceptualization, from a centralized model to an open and distributed architecture, from a proprietary system to a standardized one, and introducing interoperable technologies.

We could mention several examples, such as EUROSION Project, a European initiative funded by the EC to promote a better management of the coastal zones, UNIVERS, a regional initiative to connect WMS of the university Departments in Catalonia to share land and geo information, SITCAT, a corporate governmental GIS, LOCAL, a recently launched project which aims to incorporate the municipalities in the Information Society and e-government....all them are clear samples of a new era in managing GI technologies. The SDI paradigm is already impacting and demonstrates the importance of the interoperability concepts and technologies.

We think that the regional dimension helps to set up and more easily to promote projects based on SDI concepts and technologies, because of its position between the large scale of the

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<sup>1</sup> <http://www.geoportal-idec.net>

State and perhaps the small scale of the local level. And also, the smaller the area of study is, the greater the possibilities to know and study the impacts of this projects.

Let's put across to you, with this paper, a first impression about some real impacts on concrete projects and initiatives, due to the application of the SDI philosophy and architecture and, in a less theoretical way, the use of the services issued by the organization in charge of it in Catalonia.

We are presenting you three specific projects in the public sector which have been modified due to the application of the SDI concepts and the technologies proposed by our regional SDI organization.

## **2. THE EXAMPLES**

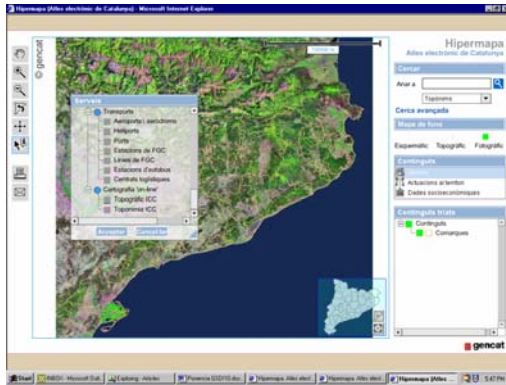
The first one is named "Hypermap"<sup>2</sup> and its origin is the willingness to provide a corporate GIS in the regional government. Its first activities had been to create a web page with a map server, in which citizens and companies, but also the administration itself, can find geoinformation such as topographic maps, ortophotos, other reference data and thematic data such as boundaries, transports, environment, etc., and general information about governmental activities in the territory. Initially, the foreseen architecture consisted of a proxy containing data issued by the different Departments, managed by one of them, the project leader, to which every Department from time to time shall upload its data to the proxy.

So this kind of solution was, perhaps, the only one possible at the beginning of the project (year 2000) but not the best one in 2002. It was necessary to duplicate the information, to use the same software in all the Departments to publish the layers to be placed in a unique WMS, or, alternatively, to apply costly conversion processes; and also required the commitment to issue the data at the appropriate timing to update the one existing in the proxy.

They have changed once they have been convinced about the new possibilities in an interoperable world. Firstly they tested a connexion between its server and the servers available from our SDI, for accessing the topographic layers (1/5000), instead of loading this enormous volume of data in its server. Afterwards they did the same with other servers from the Environment Department and others. Since the experience has been successful and very cost-effective, they decided to reorient its initial architecture and project implementation process. Now every Department can freely decide its best tools for managing GI, which can be shared with others and put in common in the Hypermap project, without duplications and with a higher level of maintenance, and at a lower cost than there would have been following the initial idea. Our SDI organization is helping the regional govern Departments to implement its WMS (in a first step, some free software is generally used) or hosts the data in its servers. This also helps to produce and maintain metadata registers in our Catalog server.

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<sup>2</sup> <http://www.gencat.net/ptop/actuacions/hipermapa.htm>



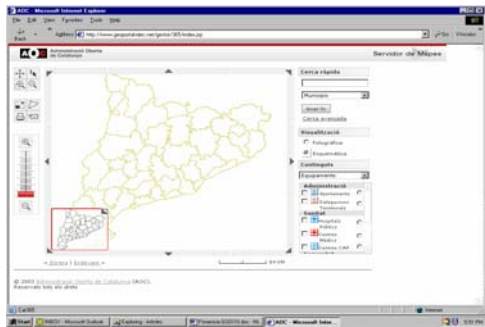
Hipermapa. On-line Cartography

The second initiative to be mentioned is related to a big project to promote the use of digitised geodata in the local administration, funded by the regional government in the framework of the e-government project and under the willingness to share resources within regional and local administrations.

The first idea relied on the classic process of distributing funds within the municipalities which had previously presented a plan to digitise data (mainly cartography) or to acquire and implement a GIS. But this kind of projects, although they are still needed and being very interesting, does not give much added value from a global point of view, that's to say, from the e-government perspective. So the e-government organization decided firstly not to distribute money, but facilitate the access to technological tools to the municipalities to implement or to improve their GIS when existing, and not to promote more digitised cartography, which in many cases was not as widely used as expected, and their results not appreciated, representing a very high overall cost. During this decision making process the leaders of the initiative focused their interests on achieving the best way to produce value for the citizens... And they have been convinced that the best way was to create a thematic SDI, that is a Local SDI. The premises were as follows: there is a lot of digitised geoinformation, underused, unknown, in almost all local organizations. So it's time to know it, to use it intensively, to make artificial boundaries disappear in managing land data. So the effort is now centred not on creating more information but in publishing the existing one, to be shared by other administrations and made it available to the citizens. The project is funded by the regional government and managed by a partnership between Localret (a local organization which includes all the municipalities) and IDEC.

In conclusion, the first idea has been totally transformed, and a new SDI project has been born, being also an excellent platform from which to set up other interesting initiatives. The municipalities will enjoy of the reference data already available in the IDEC project, and other data and services will be added, e.g. a street searchable map produced by the regional government for all the territory. The municipalities will generate metadata about their own geoinformation, and part of it will be affordable by other administrations throughout the implementation of WMS (also free software, initially). The collaboration of supramunicipal organizations is expected, to help the smallest municipalities (Catalonia has more than 900 municipalities, about 800 have less than 5.000 inhabitants). Cadastre, urban plans,

environment, utilities, etc. will be the most valuable data to share. Some problems combining data will appear, but the experience will serve as a test to improve new applications. The result of this initiative would be a platform to generate new projects and initiatives based on the SDI architecture, like the following one.



The e-gov geoportail (powered by IDEC)

The last one (for the time being) is the creation of an information system to manage the urban plans at the regional level by the competent Department of the Autonomous government. In Spain the legal competence about urban planning pertains, at the last step of approval of local proposals, to the autonomous government (the Land Planning and Public Works Dept.). This is the reason for the interest in implementing such a kind of information system, in order to be aware of the situation and plans development, and to monitor over the changes in a very dynamic framework.

It's necessary to avoid the classic model of creating a unique database owned by the Planning Department, where all local authorities transfer their already digitised information, or where this information is placed throughout a former digitalising work done by a high number of employees under the Department responsibility and budget. This solution is almost impossible, due to its high cost. And it does not guarantee the constant and needed update of the very dynamic information that the urban plan is.

The clever solution is to create a thematic SDI, derived from the mentioned LOCAL SDI, about urban planning, in a contributing architecture with the participation of all the municipalities. This solution will made possible at a low (relatively) cost the implementation of a Urban Plan Managing System, and will avoid the probability of an unsuccessfully and costly project, as other experiences have demonstrated, specially when considering the data updating.

The Land Planning and Public Works Department, once accepted the technical proposals of IDEC about this implementation, is now defining a first pilot project throughout which to experience all kind of problems that will appear implementing such a kind of project, not only in the technical level (specially derived from differents data models and symbolisation) but mainly in the institutional level. In any case the experience will be worth, and surely will represent a great impact in the administrative processes and policies. The decision to (re) orient in such a way its initiative is really a very important first impact.

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Dr. Industrial Engineer, MBA.  
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