IDE-OTALEX C. The big challenge of the first Crossborder SDI between Spain and Portugal

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Abstract

The SDI implementation is an average difficult work. There should be an understanding between political and scientific interests, technological advances and it is also quite recommended to meet the needs of citizens. A cross-border SDI implementation, where three levels of administration belonging to two countries must be considered, may seem impossible to do, but it is not only a possible task, but also an enriching and useful task to study the reality of the territory and its sustainable development. IDE OTALEX C is the first crossborder spatial data infrastructure characterized for being a distributed, decentralized, modular and collaborative system, based on standards OGC (Open Geospatial Consortium), W3C (World Wide Web Consortium), ISO (International Organization for Standardization) and open source technology.

1 Introduction

The Alentejo (Portugal), Extremadura (Spain) and recently Centro (Portugal) regions, are working along 16 years, several projects with the co-finance of the crossborder cooperation programs for Spain-Portugal of the ERDF (European Regional Development Fund) on study the reality and sustainable development of territory.

Three regions have similar characteristics; sparsely populated regions (less than 37 inhabitants per km²), whose main economic activities are agriculture and services and important environmental areas with several nature conservation sites and protected areas (Natura2000 sites, Birds Protection Areas and National Parks).

IDE-OTALEX C has developed an Indicator System—SI-OTALEX C, to identify, measure, monitor and evaluate human pressures and its dynamics in the region. The established set of indicators has a common and standard structure designed by a multidisciplinary team with experts from both countries. Its main objective is to evaluate the transformations of the territory and help to solve common problems of the territory and their populations.

2 Data and Monitoring

Following the guidelines of the EU-SDS (Sustainable Development Strategy of the European Union), the national Development Strategies for Portugal and Spain, SI-OTALEX C was framed by the conceptual model PSR (Pressure-State-Response), adopted from Ref. [1]. Although, we know that choices always involves disregarding something [1], since there is no universal set established, and there is such a high and diverse number of indicators, the core indicators for SI-OTALEX C was built with those that best fit the project objectives, had more relevance and representativeness in the area, and also easily available and measurable. Furthermore they should be simple, easy to read and update.
3 IDE-OTALEX C

Spatial data infrastructures are, in general, for their characteristics, the best technological tool to publish sustainability data in the web. They can synthesize, calculate and analyse spatial data through interoperable web based services. SDIs are essential to manage natural resources, economic development and environment protection in a way to monitor the changes of the territory.

IDE-OTALEX C is the crossborder spatial data infrastructure of Alentejo, Extremadura and Centro. It was implemented in 2007 to share official geographic information between these regions. This has been the most effective way to have a distributed and flexible observatory for sustainable development and environment protection in this rural and low populated regions [3]. It also contributes to territorial cohesion, one of the tree main pillars of European Cohesion Policy.

Table 1: SI-OTALEX C main structure.

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<th>VEC T O R</th>
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<td>01. Territory</td>
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<td>02. Geology and Geomorphology</td>
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<td>03. Hydrography</td>
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<td>04. Soil</td>
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<td>05. Administrative structure</td>
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<td>02. Environment</td>
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<td>06. Environmental performances and Urban spaces</td>
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<td>10. Landscape</td>
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<td>11. Soil protection</td>
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<td>03. Social</td>
<td>01. Population</td>
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<td>02. Demographic structure</td>
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<td>03. Equipment’s and Services network</td>
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<td>04. Economy</td>
<td>01. Economic activities</td>
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<td>05. Sustainability</td>
<td>01. Territorial matrix</td>
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<td>02. Sustainable transport</td>
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IDE-OTALEX C is a distributed, decentralized, modular and collaborative system, based on standards (OGC, W3C, ISO) and open source technology, developed to guarantee interoperability between the different GIS provided by each project partner and OTALEX C itself.

Sam of the main results is:
- Data harmonization (cartography and indicators) on both sides of the border (fig. 5).
- Development of Analysis Tools through OGC standard WPS (Web Processing Services).
- Work with network and local information:
  - WMS load
  - KML file load
  - GML file load
  - SHP file load
- Geometry drawing and editing tools.
- Local Nodes Remote Administration (BackOffice). Remotely enables management of information from different local nodes.
- Tools for citizen participation.
- I + D developments. In this workgroup there have been developments in these two fields:
  - Environmental monitoring (SOS), responsible for collecting the measurements made by each of the sensors that comprise a network of environmental monitoring, and also for processing and publishing the resulting data.
  - Transformation of OTALEX GI into WEB 2.0 (linked data and WEB semantic).
Network SI-OTALEX C (fig. 6)

Figure 5: Cartography harmonization

Figure 6: Network SI-OTALEX C

4 References

