

POLITECNICO DI TORINO
Master of Science in Territorial, Urban, Environmental and Landscape
Planning
Honors theses

Interoperability for spatial planning: the case of PRGC

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In urban planning processes it is necessary to deal with a wide number of informations deriving from many sources, each one often codifying data in autonomously. Standardization has become fundamental in such processes, in particular when using information technology, which because of their nature need standards to work properly. In consideration of the above a research into interoperability for spatial planning is needed, in terms of (intended as) *“the possibility for spatial datasets to be combined, and for services to interact, without repetitive manual intervention, in such a way that the result is coherent and the added value of the datasets and services is enhanced”* (INSPIRE directive, 2007, art 3.7). In order to achieve this aim, technical interoperability, which refers to the internal structural model of natural language, or machine language in this case, and semantic interoperability, which focus on the connection between signifiers, need to be both pursued. Semantic consistency is reached when two people or systems come to the same conclusions starting from the same information. Semantic variability originates from the abstraction process used in multidisciplinary environments, such as those involved in the territory government processes, which describe the real world each differently from the others.

The present work of thesis is about data interoperability of a urban development plan, because it partly starts from PRGC “dematerialization” activities that are in the process conducted by the region Piemonte within the project “urbanistica senza carta”. The above mentioned dematerialization is the basis of an infrastructure aimed at defining rules as well as tools for spatial planning (above all the definition of data model to draw up “normalized” PRGC).

Normalized data for urban planning can be divided in data of planning and data for planning. Data for planning are directly linked to the real object they represent; data of planning are instead “an administrative measure concerning the function or the future purpose of territorial objects [...]it will be necessary for data “of” planning to include, explicitly or implicitly, directly or indirectly, information about the process (Translation from *Camerata et al, 2010*). This definition suggests that this type of data derive from a subjective interpretation. In consideration of the above, the interpretation of reality is a relevant issue, and in terms of data model it may cause different meaning to be given to the same object. As for the data model, one of the most important activities is defining data specifications, which define the object to be considered. The exact definition with the exact level of detail of these object are both crucial in order to reach a good balance between simplicity (which is needed for their normalization) and complexity (which prevents urban planning from losing the function of enhancing the value of territorial transformation processes) of the specifications themselves.

An analysis of GeoUML model, which defines a series of constructions for the conceptual pattern of a given specification, is carried out to organize data specifications.

In this thesis is analyzed the case of some Italian regions, such as Emilia-Romagna and Veneto where organizing data system has been adopted, this allows the data themselves to be dealt with in an harmonized manner on a regional scale. All of the above operations has been conducted according to INSPIRE directive, the main normative European reference in connection with this subject.

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