Chapter 23
Semantic Spatial Representation, an Experimental Proposal in the Framework of eParticipation

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ABSTRACT

The chapter explores the theme of collaborative construction of territorial knowledge through the use of ICTS, proposing a new approach to spatial representation based on semantic ontologies. The theoretical perspective is applied in a recent experimentation conducted in collaboration between the Politecnico and the Università di Torino, called OnToMap – Community Maps 3.0. The essay is divided into two parts. The first part aims to define the theoretical framework of the eParticipation practices, specifying which approach to participation is assumed as conceptual background. The second part focuses on the web-based application OnToMap, which relies on an territorial ontology for encourage construction of collective and shared knowledge of the places. It is therefore proposed a definition of "Social Semantic Mapping" based on the integration of GIS tools, VGI practices and Web 3.0 applications. The article ends with a reflection on semantic and cartographic representation of urban space and its potential in terms of citizen empowerment.

INTRODUCTION

The use of information and communication technologies (ICT) in public administrations is now increasingly widespread and the European Union has, in this sense, launched a series of policies to promote computer and digital tools to incentivise all member states to develop those technologies[1]. The European Smart City model, meaning the set of strategic actions to make cities intelligent, digital and inclusive, is

closely connected to the development of infrastructures dedicated to communication and social participation. There are various different forms of expression of the Smart City model in practice; the concept of *eGovernment*, or *e-gov*, (Aoema, 2005) identifies the possibility of improving the quality, rapidity and reliability of services provided to citizens by public administrations, thanks to the digitisation of administrative apparatus (Clift, 2004). However, the model also refers to *learning communities*, meaning communities focused upon sharing knowledge (Coe, Paquet Roy, 2001).

In this area, attention is paid to the use of Ict for sharing geographical knowledge in support of spatial design and urban planning. In line with institutional practices of transferring geographical knowledge on digital media through the construction of Geographic Information Systems (Gis), with Web 2.0, new possibilities were configured for citizens to construct geographic knowledge voluntarily and spontaneously, using different digital media (Goodchild, 2007, 2009).

The article offers a reflection on the theme of the collaborative production of geographical knowledge by constructing a technical framework at international level, presenting a recent experimentation conducted in collaboration between the Inter-University Department of Sciences, Planning and Territorial Policies (Dist) of the Politecnico di Torino, the Department of Computer Science of the Università degli Studi di Torino and Csi Piemonte, with funding from the Fondazione Crt [2]. In particular, the focus of the research is oriented towards constructing a methodology to implement a synergic exchange between institutional geographical knowledge and the knowledge of citizens. The research project, called OnToMap –Mappe di Comunità 3.0 is based upon constructing an ontology - "an explicit specification of a conceptualization" (Gruber, 1995) - of the territory. Constructing a territorial ontology involves choosing concepts and relationships between them, through which the representation of the territory can be expressed. The "Mappe di Comunità 3.0" Project (http://ontomap.dyndns.org/) aims to develop a knowledge sharing model and an online platform to integrate official cartographies developed by the Public Administration with spontaneous ones, in a unified framework supporting information searches and crowdsourcing of territorial open data. The application domain is that of Participatory Decision-Making processes, aimed at favouring the reflection on territorial identity and on social use of the territory and, orthogonally, the inclusion of citizens in the design of public policies. The goal is to convey knowledge of the perception of places, creating an indicator of the territorial identity - or many territorial identities - inhabiting the city. In this context, the project focuses on developing a tool for creating and managing Community Maps to enable different communities to maintain shared information spaces representing specific viewpoints on the territory.

PUBLIC PARTICIPATION THEORY: AN APPROACH

Since 1970, public participation in decision-making has been considered a useful and effective practice for encouraging dialogue between administrators and citizens, essential for building consensus around policy choices (Dennis, 1970). In particular, the field of territorial planning is particularly attentive to building open and agreed processes; traditional methods of consultation and information do not appear sufficient to ensure that all public applications will be heard (Turkucu & Roche, 2008) and numerous research focuses on defining a new theoretical approach capable of integrating, effectively and operationally, grassroots applications. Attempts to define the concept of participation see combinations of different perspectives and expectations, which translate into different classifications of the same concept.

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