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VGI systems in the city/university dialect

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Abstract

Maps have always been the way to communicate an image of the city and to shape its identity. With the emerging of Volunteered Geographic Information (VGI) systems a crowd of mappers can make maps on the basis of their geographic world knowledge and it has enabled them to present their perspective on urban places.
In recent years, the role university may play to create the image of urban places has taken much more attention in literature. However, VGI systems have not been considered yet as a possible mean to strengthen the city/university relation. In this contribution we will describe the activities University of Turin is conducting to enhance its territorial role and we will focus on the experiment we managed to evaluate the opportunity VGI systems give in the university/city dialect.

Keywords
University cities, Volunteered Geographic Information, University Geo-services

Introduction

In university cities a high number of highly educated youngsters live and study for some years. It is an important human capital made particularly interesting by the age of the persons involved, their life-styles and their ability of using technology.
Enabling university geo-services using VGI systems (Goodchild, 2006) could engage students in showing their

perspectives on the city, their needs, as well as, in suggesting new solutions to urban policy-makers.
Literature on university city has shown that the university community can play a significant role in the economic, social and political life of the city (Goddard, 2005).
This contribution will present the case study of the University of Torino. In the first section, we will overview some of the University's initiatives and policies aimed at strengthening its role in the city. The second section will be focused on the recently inaugurated Campus Luigi Einaudi where the experiment of crowd mapping was set up. Finally, the mapping activity will be described and discussed in the last section and conclusions.

Torino as University city

During the last decade, the city of Torino, with its two universities (Politecnico di Torino, and University of Turin), has become more and more populated by students. Notably, it is roughly 100.000 students in complex, more than 10% of Torino municipality population. The increasing attractiveness of the Torino's universities gave to the academic institutions a growing potential as territorial actors in the city.
This important role can be played by the universities through formal and informal policies as well as top-down and bottom-up initiatives (Dansero, 2015).
Notably, the University of Torino has undertaken several activities aimed at strengthening its role[1].
We will focus here on the recently inaugurated new University Campus Luigi Einaudi (CLE), which has been the opportunity for more systematical reflections on the city/university dialect (Dansero, 2014).

The Campus Luigi Einaudi (CLE): a new campus for Torino

The Campus Luigi Einaudi project was grounded in the idea of a university scattered throughout the city. It is set in a complex and dense area of the city where many neighborhoods with different history and vocation overlapped. The plan was therefore a key intervention for easing the integration of dissimilar parts of the city as a consequence of the university influence (Univesità degli studi di Torino, 2012).
The structure has a great visual impact and it has rapidly become an icon for the city. Also, the curvilinear building's design breaks with the traditional spatial scheme of Torino, which is generally related to the orthogonal layout of the Roman *castrum* (Dansero, 2014). Its design has been the revealer of the territorial discontinuity and innovation which underpins the idea of a new campus for Torino. In this way, the campus has brought, with its realization, new representations and new spatial practices in the collective vision of the city/university interplay.
Also, starting from these reflections a project called *CLE and the territory* has been realized, focusing on the integration among the campus indoor spaces and surroundings. So far, the project has entailed the realization of an *Observatory of social and territorial change*, focused on monitoring alteration in territorial indices (i.e. rental values), of a *working table* with members of the university, of the city council and of the district council, and an experiment of use a VGI system in order to enable an innovative geo-service involving students population within the Campus. In the next section, the experiment will be described and assessed in more detail.

A novel geo-service for university students

In order to capture students' perspective of the Campus surroundings and to engage them in a more aware use of the territory, a participatory mapping process has been employed as a data-gathering technique to have a VGI system as university geo-service.
The methodology adopted have mixed a traditional PPGis method with the photo-eliciting one (Bignante, 2010) and it ends in the use of a VGI system, which allows to directly modify and update information collected.
Students were engaged during a seminar and they were divided in the most homogeneous groups as possible (i.e., students living in the same Campus neighborhood or not). Each group listed all the spatial elements considered relevant in their daily life at the university (i.e. library, student services, bike parking etc.). From that lists a unique legend was discussed and defined collectively. After that, students went around the campus mapping the places shown in the legend. They collected about 650 POI, using papers, that were mapped with QGis[2] (Calafiore et al., 2014). The schema to collect POIs provided space to enrich them with descriptions and comments.

Also, students could take pictures of places particularly significant for them. Photos were associated with descriptions and motivation of their relevance. The elicitation due by images gave us a more subjective channel of knowledge of how students perceived the campus surroundings. Examples of photos are related to: problems in the use of Turin's public transport, or underlining the absence of recycling within the Campus; to peculiar streets furnitures; to territorial changes consequent to the Campus presence as the opening of new bars or the new bus stop named as the Campus.
Finally, all the data collected, using papers and then visualized with Qgis, were imported in a web mapping platform called First Life (www.firstlife.org). First Life is a user-friendly map-based application in development at the

department of Computer Science in Torino. With the web platform students can sign up and use the map they realized also with smartphones. Furthermore, they can modify, update, add comments or other photos on the map. This activity will follow-up with a specific use of First Life for university students. The experiment indeed resulted in some requirements for such an application; notably, the map legend demonstrated to be properly defined in the experiment when the target crowd is students; the possibility of uploading photos could be considered an asset to easily show perceptions and experiences in the use of the city; finally, students shown their willingness in actively interacting with a web platform.

Conclusion

The emerging of VGI systems accessible through the web has opened up new and innovative development patterns in the geographic information field. Notably, we can distinguish two general classes of VGI systems: on the one hand, platforms as Open Street Map (OSM) allowing users to add all the geographical primitives (Hakley, 2009). The main purpose here is to create base maps updated and complete. On the other hand, platforms like Foursquare, First Life or based on Ushaihdi are much more focused on the map thematism rather than on the base map making. This type of VGIs, indeed, generally relies on OSM as base map.

In both cases the volunteering of the mapping making is crucial. However, information selected by users completely differ. Notably, with more social-network-like systems (i.e. Foursquare, FirstLife) the bias in choosing relevant information is more evident. For this reason, we consider the latter type of VGIs the most adequate to realize an

innovative geo-service for universities, representing the university community point of views of the city.

References

Bignante, E. (2010), The use of photo-elicitation in field research. Exploring Maasai representations and use of natural resources, *EchoGéo,* 11.
Calafiore, A., Cittadino, A., Dansero, E., Di Gioia, A., Garnero, G., Guerreschi, P., & Vico, (2014) F. Hackathon@ IODD2014 e HackUniTO: esperienze sull'uso di Open Geo Data e di crowdmapping, *XVII conferenza della Federazione italiana delle Associazioni Scientifiche per le Informazioni Territoriali e Ambientali - ASITA*, Firenze, pp. 1-8
Dansero, E. (2014) "Cantiere aperto" per costruire il luogo e la relazione città-università: il CLE tra contesto e pretesto per pratiche di cittadinanza, *Atti e Rassegna Tecnica*, ANNO 147, LXVIII, 1-2-3.
Dansero, E. (2015) UniTo e distinto: il ruolo dell'Università di Torino nel progetto di Torino città universitaria, in *UniTown, Città universitaria. Dalle buone pratiche all'identità*, FaustEdizioni, Ferrara.
Goddard, J., & Vallance, P. (2013). *The university and the city,* Routledge.
Goodchild, M. F. (2007). Citizens as sensors: the world of volunteered geography, *GeoJournal*, *69*(4), 211-221.
Haklay, M., & Weber, P. (2008). Openstreetmap: User-generated street maps, *Pervasive Computing, IEEE*, *7*(4), 12-18.
Università degli studi di Torino, (2012), *I luoghi della conoscenza*, Agit Marigros Industrie Grafiche.

[1] For a detailed summary of the University of Torino (UniTo) initiatives see Dansero (2015).

[2] The use of Qgis, instead of using directly a VGI system, was aimed at training students in the software use.