Digital Social Media to Enhance the Public Realm in Historic Cities

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Abstract. The research aims at exploring a methodology for the use of *digital social media* (*DSM*) to study and influence people's behaviors within the public realm of an historic city center. Potentialities and limitations, created by the use of digital social media for urban analysis and planning, are spotted regarding the specific conditions of an historic city center with the goal of creating a more livable public realm. The research aims at drafting a general methodology both in data mining both in public places promotion and enhancement, through information and digital connection, referring to the specific case of historic city centers. The research considers the case study of Urbino, in the Marche region (Italy), and carries on different analyses and proposals of intervention based on digital social media.

Keywords: Public realm · Historic cities · Information technologies · Social media · Urban analysis · Information strategy

1 Introduction

The research[1] at issue aimed at defining a methodology to explore the potentialities of digital social media (DSM) to study people's behavior within the public realm of an historic city center and to propose a strategy able to influence it, through information flows and media activities.

The Italian peninsula is constellated by a very conspicuous number of ancient municipalities, where people keep on dwelling, although increasing preservation restrictions. The dichotomy between the spaces of these cities and the expectation of contemporary dwellers is dramatically increasing in time. Particularly, the research fo-

[1] The research has been developed within the activities related to a master thesis discussed at *Politecnico of Milan* in April 2013. The thesis *Urbino: can digital technology enhance historic public realm?* was the joint effort of three Politecnico students under the supervision of Prof.ssa Corinna Morandi, Prof. Paolo Ceccarelli and Prof.ssa Agata Spaziante.

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cused on the case of Urbino, a historic city center in Italy, listed as UNESCO heritage and hosting a university pole. The difficulties to intervene with a material transformation of the city could foster the use of digital social media as tools for an intervention that shifts its field of action from the physical dimension to the informational approach. Based on those principles, we tested this praxis on the historic center of Urbino and we present in this paper the adopted methodology and its results.

In the first part of the paper we trace the literature references and define the main features of the case study Urbino.

Then we present the outcome of the analyses obtained by data mining of digital social media. In particular, we focus on how the geographical and social features of Urbino offered unique conditions and we investigate what kind of data are worth to be stored and what analyses are relevant for this specific case.

In the last part we present the strategy to reactivate the public spaces of Urbino based on injecting in the historic fabric new activities connected with the use of digital technology, whose accessibility and interconnection is enhanced by a designed flow of information. This strategy also seeks solidification of the community bonds of Urbino, particularly for students, facilitating a more active citizenship.

2 Relevant Works

Nowadays, information technologies are part of our daily life and are influencing the way we use and experience the space we live. It is important to consider new forms of communication when acting within the city and its spaces, assuming that information may be an ingredient that – as well as uses and physical infrastructures – drives the public realm. According to theoretical framework we referred to, digital technologies are relevant in planning and urban design in different ways:

- In first instance the possibility to consider digital social media data disclosures innovative manners of *analyzing the public realm*. There is a huge amount of invisible data daily produced by citizens: places are embedded with a series of media contents that once revealed might give new insights [2], [8,9], [11], [15,16].
- Secondly a *new approach to design* should be considered: points distant one from the other, working reciprocally once they are digitally connected [1], [4,5], [12]. Referring to *Networked urbanism* means analysing and planning the urban environment with an information based approach, reasoning in terms of *nodes* (points) and *connections* (network); where the nodes are public and semi-public spaces assumed to be the core of not private activities and the *connections*, assuring the exchange among the nodes, are both the physical (roads, streets) and virtual (internet connection, video-streaming, information exchange) tools for communication. In this wider connotation *accessibility* also means “published on the web”, while *density* stands for *frequency of intercommunication among different places through virtual information sharing*. Thus, it is possible to create a more liveable system of public spaces considering a series of isolated points that work synergistically as if they were physically co-present and whose activities are “advertised” via media.

- A tool for place making. But communication technologies could also be used in order to drive citizen towards a more active role with the public spaces their cities, to support grass-root common projects and to strengthen the community ties in general terms. DSM are able to create connections among strangers and to provide a platform for a more proactive citizenship [6,7], [14].

3 Urbino: Why It Could Be Assumed as a Case Study

Urbino is a small-sized city located in the "heart" of the Italian peninsula; it is listed under the UNESCO patronage since 1983, thanks to its prominent historic heritage dated back to the Renaissance.

The condition of isolation – both geographical and infrastructural – represented for our research an in-vitro test situation. The number of observable social phenomena is limited and bearable; cases of "contamination" by exogenous factors – meaning social interactions coming from outside the city center – are rare and controllable.

Moreover Urbino hosts a huge university pole, thus students represents a significant slice of the population living within the city center and this conjunction is relevant for two main reasons:

- Digital devices, especially with a socially oriented purpose, are particularly spread among people between 15 and 30 years. Since university students fall entirely in this age-range and since these latter also represent a conspicuous slice of the urban population of Urbino, a preponderant number of users is observable using data coming from digital social interactions;
- Every year, young people arrive in Urbino from all over Italy, in order to attend university, who will leave the city once their education is completed. Students are thus temporary users of Urbino and this condition is cause – and then again effect – of a lack of awareness towards the common value of public spaces. Such indifference is exacerbated due to the failure of these venues in satisfying the needs and demands of the students;

Moreover, the precepts of integral conservation of the architectural and historical heritage, further intensified by the declaration as UNESCO site, made it impossible to offer a tangible answer to the requests of those who live – or should live – in the historic city.

The aim of our research, therefore, was to give indications for a possible strategy of intervention, that could make the public realm of the historic city more suitable to the needs of young people, keeping in mind the neo-born practices influenced by the extensive use of digital social devices.

4 Data Mining Processes to Trace the Public Life of an Italian Historic City Center

The use and spread of digital social devices has produced a vast amount of data that could be collected in real time maps and give new insights to the way people live within the city.

Nowadays a great optimism is perceived towards the possibilities aroused by the collection and the reading of users' generated data, produced by digital social media activities: these types of observations may require a moment of reflection to understand what significant analyses could be drawn out starting from the interpretation of user's generated data; in particular what analyses could be significant in the case of Urbino and more generally for historic cities centers.

As previously introduced, this research finds particularly relevant to consider data from social media in places like Urbino for the following reasons:

- *The observable portion of users is significant to the terms of the research*. In fact, usually, the main users of digital social media are young people under thirty-five years old[2]. Thus, students and young native dwellers are fully covered within this age-range.
- *The results are manageable and thus immediately functional as planning resources.* Urbino is a small town, characterized by a condition of spatial isolation. The data mining from digital social media suits particularly well these conditions: no contaminations with exogenous factors are possible and the number of interactions of the inner members is easily controllable and bearable.[3]

Our main goal was to draw out maps of the social life in public spaces, to incorporate them in a strategy that addresses the whole city center and makes an extensive use of information technologies.

Using data coming from the social network Foursquare we created the Popularity Map and the Attendance Ratio Map, the first registering the most representative places of the city, the latter the type of approach people have towards certain locations (frequently attended venues, occasional venues, special events venues). With the data coming from Flickr, we extracted the Tourist representative poles map, considering what people tend to visit whenever they decide to spend a couple of days in Urbino [11].

Approaching the social network Instagram, the mapping process itself could benefit from the specific physical and social environment of Urbino. In fact Instagram provides several information about the users: apart from the pictures shared – that is a main content itself – it is possible to deduce collateral data concerning the age, gender, profession of the user and where he lives and works.

This enabled us to profile people according to four main categories: the resident, the student – originally not from Urbino, but living and studying in the Marchisan

city – the tourist and the commuters – those that even though they are not living inside the historic center of Urbino, reach the city frequently due to working reason or for leisure activities.

The way each Instagram user is assigned to a category follows certain empirical criteria that combine information provided by the users and deducted from the pictures. Applying this methodology of observation to the case of Urbino, by February 2013, it has been possible to identify one hundred sixty Instagram users, which were using the geo-location option in sharing their contents. The profiles have been studied to find out which the most attended places within the historic center were and who the users were. Combining these two inputs we were able to identify which are the most attractive spots of the city for students, tourists, commuters and inhabitants and how their dynamics influence reciprocally.

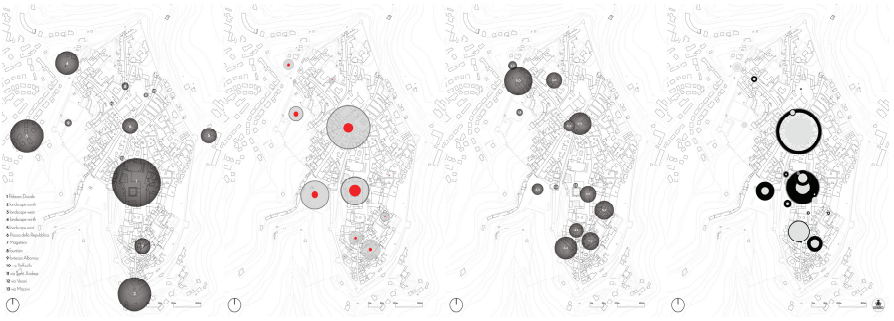

Fig. 1. Maps of Urbino from social networks data mining. From left: *Tourist representative poles* Map, *Popularity* Map, *Attendance Ratio* Map, *Instagram* Map (Source: Palmieri, Stojanovic, Tomarchio, Urbino: can digital technology enhance historic public realm?, 2013)

As a result of this assumption, we discovered how certain areas packed with touristic attractions where instead not popular at all among tourists. The other way round, it was possible to map selected places well known among the students, but absolutely not perceived through the sieve of the traditional analysis.

In order to draw these conclusions we crossed data coming from social networks with those that are normally observed in the city with a traditional analysis (eg. mapping building uses, analyzing flows of people and mental maps). Trying to abstract and synthesize the enormous number of potential outcomes of these collected data overlapping, it could be possible to identify three main categories:

- *Discovery*. The digital analysis reveals the existence of certain urban spots that are not detectable by means of traditional analysis.
- *Matching*. The digital analysis spots a series of evidences actually corresponding to those individuated through the use of the traditional one.
- *Denial*. The digital analysis reports no or little evidences referred to a point that at a classical observation seems to be a major one.

Discovery and Denial areas where those on which the next part of our research focused, exploring what kind of information strategy could be used in a historic city center to enhance its liveability.

5 A Strategy to Enhance the Public Life of Historic City Centers

The purpose is to define a strategy that uses digital technologies to address the public spaces in a historic city.

The strategy aims at:

- Strengthening the community ties creating tools to reinforce the common attachment and interest toward venues [6,7] [14];
- Extending the public uses of places, including activities that are at least partly performed using new tools and media;
- Creating a holistic system among the public spaces of the historic center, so that what happens in one place is immediately shared with the others, using real time communication as a way to create contamination of uses and generate unexpected activities.
- Inform people about the existence of certain public spaces and opportunities and thus influence the way they use the venues.

From the previous analyses we selected two types of spaces, object of our intervention: the anchor points – venues turning out to be the most popular and attended by the city dwellers – and action points – beautiful open spaces, practically unknown and not used by the citizens, where it would be possible to established new activities to revitalize the area.

We decided to introduce in the action points new programs, partially performed by new media technologies: common screens for media streaming, working area with Wi-fi connection and sockets, but also spots to access common media contents showing past events in that venue. The public life in both these points, action and anchor, will work within a holistic system created by an information infrastructure, through which users could talk, describe, get to know about the venues and activities.

The design of the infrastructure requires both the design of an application that stores user-generated information and the strategic planning of places and devices through which people could access this information. These two points will be crucial in deeply influencing the target of user that will be exposed to the data. In fact, if the distribution was limited to smart phone owners only, a large piece of population will be cut out. Moreover the way we access spatial information determine also the way we navigate the space. The common way to experience the city used to be stumbling upon activities, with the result that close events could influence and contaminate each other. But nowadays, the discovery of space is at least partly up to the use of social media: people tend to look at their network database to decide where to go, moving from one point to the other, following the Google Maps pin, with an indifferent attitude toward the physical reality around them. Our proposal is then to combine those

two ways of experiencing the space. Create a user-generated database of events and interactions that is shared not only in social networks, but also in physical places. In fact in each of the anchor point, a screen may visualize events and information about other venues in the city. Moreover, anchor points and action points could be directly linked each other with a video streaming connection, thus contaminating the respective uses.

The data base of information shared in the screens is generated by an application, called OpenUrbino: this social communication software is designed in order to create an online database of information – that could be redistributed upon the territory in specific spots, as previously described – but also in order to "enhance" local communities. Communication technologies have proved they could help processes where citizens are engaged as co-makers and co-creators of the public domain.

The application OpenUrbino specifically designed for the historic center of Urbino aims at achieving those goals. The design of the application, still a beta version for exclusive use within the research, is already partly coded and will be soon released.

In order to help in creating the local community ties, OpenUrbino lets people share localized media contents they have been producing on popular social networks (Instagram, Foursquare, Facebook, to mention but a few), not only with friends but also with strangers who are - or will be - in the same location. The application doesn't work as a competitor of other social networks, but rather like a digital social traces search engine. The proposed goal is to share activities and memories with strangers who are actually neighbors, tourists, thus reinforcing the sense of community. The application is designed in order to share social media contents about places, to browse the venues where there is a major number of contributions (for instance in the previously discussed Popularity map); but also to start and foster projects of common interest, to share public events and then to look at what is happening in real time in the area. Open-Urbino creates a huge database: for each venue there are several media experiences recorded, showcasing activities and uses, lists of events, lists of participants, all updated in real time.

6 Conclusion

The research aimed at drawing a methodology on how to use the resources offered by digital social media in analyzing the use of public spaces and in promoting activities to enhance their attractiveness and liveability for an historic Italian city center. The historic dimension was pretty significant in term of the research because it offered a network of public venues with high quality spaces, easily accessible by pedestrians and public transportations. Since the physical components that affect the public realm are considered as quite untouchable resources, different actions were required.

The research demonstrated to have a clear principle of reproducibility, offering the chance to elaborate a methodology of intervention that operates on the public realm in a non-invasive and basically low cost way. Thus, this methodology explored for this case study could be extended, being pertinent and applicable to a conspicuous number of Italian municipalities, similar to Urbino under many aspects.

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