City Visions: Concepts, Conflicts and Participation Analysed from Digital Network Interactions

Maria Célia Furtado Rocha[1], Gilberto Corso Pereira[2], and Beniamino Murgante[3(✉)]

[1] Federal University of Bahia, CAPES (proc. n. 11527/13-7), Salvador, Brazil
mariacelia.rocha@prodeb.ba.gov.br
[2] Federal University of Bahia, Salvador, Brazil
corso@ufba.br
[3] University of Basilicata, Potenza, Italy
beniamino.murgante@unibas.it

Abstract. The present article investigates the possibility of understanding the different city visions and conflicts arising in digital interactions in network of movements that discuss the use of urban space. We assume "expanded participation" as a way to include new social arrangements, present in cultures that use networked communication as a means to share visions, values and produce meanings and actions collectively. Digital network interactions make possible a form of participation based on personal expression of individuals interacting in social networks. The study analyzed the case of the movement Parco del Basento in the city of Potenza, Italy. The movement grown using as the main platform for the dissemination and discussion of ideas one Facebook page. The analysis of posts and their interactions was based on Social Network Analysis and Text Analysis Tools to investigated convergent positions of members on topics such as Urban Space and the city visions that emerge from discussions. Finally we analyze possibilities and difficulties found in the usage of this kind of tool.

Keywords: Digital social networks · Semantic networks · Civic participation

1 Introduction

Cities are complex organizations, portions of territory that polarize the geographic space and concentrate wealth, culture and people. They enable innovation and the economic and technological development. We live in an increasingly urban world and the expansion of cities has been the subject of numerous conflicts of interest between residents, administrators, planners and / or real estate developers. To plan the growth or evolution of a city involves the ability to anticipate and avoid problems associated with its development. Urban planning is a sophisticated instrument of political power because in essence determines how city dwellers can occupy the urban space, decide what activities can happen (and which can not) in certain areas.

Any intervention in the urban space will transform the use and value of this space, which results in a differentiated appropriation of land value produced by the intervention or the worth alteration that will be caused by the change in its use. Any decision of Urban

O. Gervasi et al. (Eds.): ICCSA 2015, Part II, LNCS 9156, pp. 714–730, 2015.
DOI: 10.1007/978-3-319-21407-8_51

Planning determines ultimately, who among the inhabitants will have advantages or disadvantages that are distributed asymmetrically affecting residents differently. Logan and Molotch [17] consider that local conflicts on urban growth are central to the organization of cities. The central conflict is between residents, who use urban space to satisfy essential needs (live and work in the city) and entrepreneurs seeking financial returns, which is achieved, generally intensifying land use (more buildings, verticalization, etc). For this reason, it is not surprising that the participation of society in the advanced planning processes are centered on proposals and action plans seeking to influence all steps of the process of decision-making of any kind, requiring broad access to information about operations, plans or places. The different stages of technological development always reflected in the urban space and in the form of cities. Transport technologies and the increase in speed of displacement led to greater spatial dispersion, the appearance of the phone reformatted the city allowing, among other things, the separation of factory and offices. We can consider the social organizations and current socio-technical networks as systems and environments with formations of different scales and dependent on digital technologies, which generate a range of spatial practices, organizational and interaction not previously prosecuted [15]. Today citizens are able to register and publicize their impressions and these can be anchored in the city itself. Planners should recognize that now our urban experience is not only influenced by urban form, but in different ways and forms of communication with which we interact daily. Social interactions of everyday life are in fact permeated by digital technologies, since the interactions between social networks are enhanced and contribute to organizing everyday urban life. It is the role of a contemporary urbanism exercise the possibilities that arise with current technologies. This paper investigates the possibility of understanding the different city visions and conflicts arising through data collected in digital interactions in network of movements that discuss the use of urban space. In this work, we assume "expanded participation" as a way to include new social arrangements, present in cultures that use networked communication as a means to share visions, values and produce meanings and actions collectively. Digital network interactions make possible a form of participation based on personal expression of individuals interacting in social networks. The study analyzed the case of the movement Parco del Basento in the city of Potenza, Italy. The movement was framed and grown using as the main platform for the dissemination and discussion of ideas one Facebook page as described by Murgante [23]. The analysis of posts and their interactions used text analysis tools and investigated the convergent positions of members on topics such as Urban Space, Conflict Visions and Politics and the *Polis*. Data was collected and processed as part of the research developed for the Maria Célia Rocha doctoral thesis at UFBa - Federal University of Bahia and with stage in UNIBAS - University of Basilicata, with support from CAPES.

2 Digital Network Interactions

Interactivity is a feature of the constitution of the texts on the Internet. The digital conversation is a textual type but conceived as orality. His way of writing is more flexible and informal. It is an oral interaction with use of graphical means, a "text

spoken in writing" [22]. According Recuero [28] the terms interaction and conversation are not always synonymous. The language is adapted, modified and conventionalized to give talks dimensions of orality. For the author, the interactive exchanges between the actors in these environments have many similarities with oral conversation - fast and informal. Social networking sites have created new forms of circulation of information, led to the advent of new forms of conversation: collective conversations, asynchronous or synchronous, public and able to involve a lot of actors, which the author calls "network Conversation" whose most important feature is the spread between social groups through the connections between individuals [28]. Social networking sites are those that comprise the category of systems focused on exposing and publish the social networks of players [27]. These sites promote social contact, forge personal, professional or geographic connections and encourage weak ties (Van Djick, 2013), ties between people who know each other but they are not close friends, which, however, are critical to maintaining the cohesion of the social system [14]. These conversations, even when facing aspects of daily life, are likely to influence actions of the political system, contributing to the expansion of the arguments spectrum to the resonance of matters of interest common to the network and even for scheduling issues in mass media and institutions of the political system [6] [18]. Many studies have been devoted to understanding the political behavior based on interactions in digital social networks. Some of them are based on interactions collected in the Twitter microblogging site, such as that performed by Small [31] on the possibility offered by the platform for participation and political conversation; the reflections made by Artieri [3] talks about how this and other social networking sites are integrated with the mass media forms and make the plural and potentially visible public sphere. According to him, these sites do not play the role of representing themes of society, but have a role in drawing attention to these issues, to communicate life experiences able to relate the uniqueness of the plan to the collective, a political action consisting essentially of "contagious ". Many of these studies refer to the concept of social network, which first appears in a study of the principles of social stratification in a Norwegian island held by the British anthropologist A. Barnes, published in 1954. The anthropologist has established the hypothesis that all the inhabitants of that island would be connected by shorter or longer chain knowledge. On the other hand, Mercklé [20] says, Milgram [21] may have been the first to make the effort to empirically demonstrate some of these intuitions, as evidenced by his experience of "small world". He created chains between persons elected randomly from a national population and demonstrated that the individual is not alienated and separated from the rest of society: all are, in a sense, delimited by a tightly woven social fabric [21]. The notion of social network has expanded to designate sets of relationships between people or between social groups. It involves a set of methods, concepts, theories, models used in sociology as well as in other social science disciplines (anthropology, social psychology, economics, etc.) and considers as an object of study not the attributes of individuals (age, profession) but relations between individuals and the regularities they present, to describe them, to realize their formation and their transformations, analyze their effects on individual behavior. The proposal is to restore the individual behavior of the complexity of social relations subsystems

that give them meaning and to which they give meaning (Merckle, 2004). A social network, in this view, can be defined as consisting of a set of social units and relationships established between them, directly or indirectly, through variable length chains. The network is used here as a kind of contextual variable. The social units may be individuals, informal groups of individuals or more formal organizations such as associations, companies or countries. The relationships that establish the elements can also be of various kinds, including all sorts of verbal and gestural interactions. The analysis of social networks reassembles the individuals from the existence of strong links between them, ie in function of the observation of cohesion and density that they form sets. The study of these relationships and regularities that feature is developed based on models and methods supported by mathematical tools based on graph theory and linear algebra and it establishes and institutionalizes its own domain (Merckle, 2004). The graphs provide a graphical representation of social networks, facilitate viewing and enlighten some of its structural properties that impact on their behavior (Barabasi, 2012). On the other hand, the graph theory provides an arsenal of concepts, theorems and algorithms by means of which the graphical figurative goes beyond simple representation to allows a mathematical treatment of new knowledge (Merckle, 2004). Concepts of graph theory seek describe the properties of nodes - its centrality - the arrangements relating between them - distance and connection paths between nodes - or global network properties, in particular through the density and connectivity notions. However graphs with dozens of nodes and hundreds of arcs/edges may become unreadable. The linear algebra and matrix calculus, another area of mathematics, will help overcome this barrier. Expressions such as network relationships, density, click popularity, isolation, prestige could then receive an operative mathematical definition, which allows to build indicators, measure them and then empirically test the hypotheses or check the propositions that could be wrong because of its largely metaphorical content (Merckle, 2004). General contributions to the study of networks will be brought by Watts and Strogatz [35] and Barabási and Albert [5], among others. The first claim that many real-world networks, social or other, behave like networks "Small World"; the second will describe properties of real complex networks of large size, whose growth occurs according to preferred and non-random connections, as predicted by Erdős and Rényi. The theory of random networks from Erdős and Rényi, introduced in 1959, says that if the network is large almost all nodes have approximately the same number of links in spite of completely random placement of links. But for Barabási and Linked [4], in real networks there is not a type of feature node, there is not an intrinsic dimension of these networks. In many real-world networks, the degree distribution, ie the number of the probability distribution of connections of nodes throughout the network [25] [4], typically has a long tail: most nodes have less than half the average number of links while there is a small fraction of hubs that appear much better connected than the average [34]. The degree distribution follows the power law free scales. Its characteristic is that many small events coexist with some very large. This indicates that in real networks, there is not a type of feature node; there is not an intrinsic dimension of these networks. Combining growth and preferential binding, Barabási and Albert [5] explained the hubs, nodes more connected. Power laws that they formulated in mathematical terms refer the

notion that few large events lead most of the action, and the scale-free topology shows the existence of organizing principles acting at each stage of the network formation process [4]. In turn, the findings of Watts and Strogatz [35] allowed the identification of a universal class networks, a family of networks that share some properties (small network and dense clusters) regardless of their individual characteristics. With this metric and idealized models to solve social networking issues can be used in other disciplines [34]. These and other studies in the sometimes called "new" science of networks contributed ideas, introduced techniques and metrics, either by borrowing or "rediscovering" what's already time mathematicians, economists and sociologists developed. They contributed to the interdisciplinary synthesis of new analytical techniques, which has a large computing power and unprecedented amount of empirical data [34].

3 Text Analysis

Following this trend, the use of these techniques and metrics will be incorporated into the study of abstract relations between discrete entities, such as extracted from the written words that make up what Watts [34] calls "symbolic" networks, as opposed to "interactive" networks, which links describe tangible interactions capable of transmitting information, influence or material. In the first case, he warns, often is not clear how network metrics such as grade, size and centrality of the way, should be interpreted from the point of view of its consequences for certain social, physical and biological processes. This observation Watts [34] serves as a warning to those who seek to obtain the meanings conveyed in texts with use of these techniques. Moreover, according Merckle (2004) characterization of a network by observation of their relations, by observation of its form, must include the definition of relations and therefore the attention to its content. The question of the content can not be removed from the analysis of structures without the risk of not understanding the complexity of individual situations. This work is based on networked word representations and metrics of graph theory to the discovery and clarification of meanings conveyed in digital conversations. Clues provided by the textual analysis and visual analysis of words networks serve for the capture of the main meanings attributed by the Parco del Basento group to urban space in whose defense engages. The operation of political and cultural context and expressed values and motivations in networked conversations help to reveal answers to questions like: what are the characteristics of urban space required? what are the preferred actions to get it? Text analysis refers to a set of techniques for the study of social communication that allows access to meanings, values, social norms through language and symbolic expressions conveyed in texts and images in their various media [26] [33]. Carley [8] and Alexa [1] cite numerous techniques of textual analysis and say that, in the social sciences, the content analysis predominates. Alexa [1] defines text analysis as a field of practice, and the content analysis as a set of techniques to provide text interpretation. To Popping [26] the terms text analysis and content analysis are interchangeable: This type of analysis allows the researcher, from text and its context, make explicit all aspects of social processes, to better

understand and make valid inferences and reproducible over them. The text analysis flourished during the Second World War, being used to answer questions such as: how often a word or specific term occurs in a text? how many articles examine specific topics? Then focused on the valence analysis to observe the positive or negative connotation given to issues and, in a third time, between 50 and 60 of the last century, pointed up the weights themes and words to indicate the relative intensity assessments and assertions [26]. Remained descriptive method until around the late 1960. The available statistical techniques, especially association analysis and correlation, allowed to investigate associations (or "contingency") between textual features. In the late 1960s researchers began to use the computer to sort and count words and phrases in "categories of meaning" in order to codify the terms without human interference, according to a predefined coding scheme. According Popping [26], the fact that the words and phrases have been tabulated, categorized, correlated and interpreted, but taken out of context, led at that time, the loss of confidence in using the method. However Schorott and Lanoue (1994, cited in [26]) found, for the period 1977 to 1986, a major expansion in the number of articles published using the text analysis techniques, particularly in research in communication; in the 1990s there was strong growth in its use in Sociology.

4 Semantic Networks

The networked interaction was analyzed using complex semantic networks. We try to characterize relationship between words used in the posts on Facebook pages from both groups. This work analyzes words and their relations forming semantic networks. From this point, by considering pairs of elements, it is possible identifying words with higher centrality metrics – an indication to reach main ideas expressed in the content of virtual posts and discussions.

Many text analysis computer-assisted emerge around 1980, with a preponderance of traditional text analysis, called thematic analysis. The testing of hypotheses is through research the frequency of occurrence of words in phrases categorized in a number of subjects. Association analysis can also be done by a simple quantification of the occurrence and co-occurrence of words in the text, without restricting them to predetermined subjects [26]. From occurrence of measures, correlations between the concepts can be computed; from the correlation measures between concepts may be applied other techniques such as cluster analysis, factor analysis, path analysis, etc. [26]. In the analysis of thematic content, you cannot answer several research questions using the same data as a consequence of that van Atteveldt [33] calls the semantic gap. This gap is due to the level of abstraction required by the researcher confronted with the fact that the words in a text often refer to actors and concrete issues, which requires the encoder the need to make judgments as to whether the actor or question are included in the concept. The other gap is due to the fact that, since categories and variables unstructured - for example the frequency of specific patterns of relationships - are used to measure complex phenomena, the researcher is defied to convert complex texts in simple scores which, again, requires interpretation. These

difficulties, he says, require data to remain as close as possible to the text of the semantic point of view, a necessary condition for reuse or combination of databases. Semantic analysis of texts, in turn, is a type of content analysis that expands the possibility of answers to research questions. There are also counting concepts, but unlike the thematic analysis, there is still counting the relationships between concepts. The coding of these relationships allows one to test hypotheses by statistical analysis of a data matrix, and the ambiguities of natural language are avoided by use of semantic grammars, indicating which relations can be found and allow to consider the context of the phrases [26]. Data of natural language suffer a translation process for structured isomorphic forms that serve the inference mechanisms. It are then transformed by processes of abstraction in order to preserve and reveal entities and relations explicit or implicitly represented in the input data [11]. Each sentence is then coded according to the intended meaning - be it a description, be it a evaluation. The construction of the computer aided analysis corpus therefore involves conversion, selection of groups of words considered analysis units and their classification according to a scheme that can be performed a priori or emerging process. In the first case it assumes a confirmatory perspective, while in the latter assumes an exploratory view [1] [26]. In the confirmatory approach, words are defined independently and prior to any textual coding, while in exploratory approach the words are taken from texts. The choice of terms and relationships to be extracted requires prior knowledge of the field and the research itself context, the prerequisites to infer answers to questions. This includes the way the words are categorized and, together with the choice thereof, provides a way of interpreting the text and, therefore, the content analysis context [33]. Once connections have been established between concepts, one can build networks of semantically related concepts and expand the analysis of the relations between concepts in addition to their co-occurrence in the sentence. In the semantic analysis, the relationship between pairs of concepts is exploited. In the network approach, the information contained in the declarations made up of two related concepts are amalgamated and analyzed in terms of links, chains and concepts organizations [26]. This is exactly what makes the Network Text Analysis (NTA) which has originated in traditional techniques to index relations between concepts, syntactic grouping of words and hierarchical bonds / non-hierarchical words. It is based on the assumption that the language and the knowledge can be modeled as words networks and their relationships.

Semantic networks are structured representations of knowledge aimed at understanding and development of inference [11]. Knowledge is represented in a graph structure in patterns of interconnected nodes and arcs [32], or, in mathematical language, patterns of vertices connected by edges (for undirected relationship) or arcs (in the case of directed relationships) [16]. In the language of computer science, triple linking object-connector-object together form a network of objects, consisting of nodes and their links [33]. In semantic network nodes are concepts - abstract representations of ideas, thoughts, knowledge and meaning units - and links established a significant association between pairs of concepts. Once built, the representation of the network is then asked to answer the research questions. Concepts and their connections can then be characterized according to their position in the network. In the 90 Carley [8] states that analysis that went beyond the visual inspection began to

consider connectivity between concepts by examining its density (number of links that connects with other concepts) to make inferences about their communicative prominence. In his study of the connectivity of the symbols based on semantic networks, the author deals with two more dimensions: consensus - once symbols to operate as such, must be connected to widely shared historical inferences - and conductivity that considers, the ability from a concept to function as a passage for the many ideas that flow on network paths. At that moment, she was interested in the measurement of focal concepts in meaning networks - a representation of messages in defined contexts. The higher the density, the greater the extension concept, and the more individuals share links and concepts related to the focal concept, the greater the social consensus. In turn, the conductivity of a concept increases as grows the number of paths connecting it to other focal concepts, which places it at the crossroads of multiple network paths [8]. Thus, the author has implemented measures related to the topology of the semantic network to emphasize the connections between concepts such as representation of the meaning of messages. Text analysis will incorporate measures developed in social network analysis to study groups, particularly in the analysis of mental maps built from the perspective of its members. Differences in the distribution of concepts and relationships between them come insights about similarities and differences in the content and structure of the texts. For making it possible to examine the data graphically and statistically, map analysis would allow the researcher to get close to the text and use the inferential ability of quantitative techniques to increase qualitative techniques [8]. As it contemplates the content analysis, the results can also be analyzed from a traditional analytical content perspective. The addition of relational information, however, allows the researcher to consider not only changes or differences in the floor over time, but changes or differences in meaning. Carley [8] proposes a comparative approach by graphic depiction of mental models of individuals and social groups, represented as networking concepts. The union of all the statements of members of a group would comprise the knowledge of the group about a topic in particular, as the intersection of the statements of all members of a group show concepts that are consensus in the group. In this method, the statements made explicit by the sources are extended by the knowledge of the context, which are the basis for inferences about the conceptual relationships [26]. Carley and Palmquist [9] used Network Text Analysis to build mental models, with software aid. To represent these models, the statements (made up of concepts related to each other) are displayed as networks of shared concepts. After identifying the concepts that will be used in the encoding of texts and after defining the relationships that can exist between them, the information is extracted and encoded as a set of statements. Finally, here is your disposal in a mental representation of the model in the form of "map" for presentation and statistical analysis. Diesner and Carley [12] describe similar process to condense data into concepts and link them according to statement formation rules. The rules for the preprocessing of text and for the formation of declaration, together form the encoding scheme. To support this process AutoMap (http://www.casos.cs.cmu.edu/projects/automap/) are used, software developed by the Center for Computational Analysis of Social and Organizational System - CASOS, at Carnegie Mellon University. During the pre-processing, there is the elimination of words that do not convey content, for

example, proper names, conjunctions, articles and prepositions, depending on the case, and the translation of specific words in more general concepts. The authors refer to these processes as "exclusion" and "generalization". Deleting words is implemented in AutoMap through a list of words; generalization is implemented with the use of thesauri. The declaration of formation is implemented in software using the window method proposed by Danowski [10]. Thus, in AutoMap the resulting statements of the relationship between concepts are established based on a series of connection between adjacent concepts, according to a defined window length. The researcher, therefore, should be aware that their choices will affect the results, even before getting involved in the coding and analysis of texts. She also prevents to the fact that, if you choose to locate implicit knowledge beyond those explained in the text, it will require more than generalization, the effort to determine a set of concepts which other concepts are missing, which makes it difficult the automation of the process, because such choices require semantic and cultural interpretations of the data [8]. In any case, the presence of these words does not guarantee having the same meaning, or because the definitions attributed to them are different, either because the same word is placed in syntactically different positions, or because the same word is used in several semantic contexts.

5 Concepts Network: Structure, Content and Meaning

Paranyushkin [24] also starts from the idea of the existence of a constant process of interaction between concepts, which come into relationship and produce meaning. Meanings may be totally different even with the use of the same vocabulary. The author assumes that the closer together the words appear in the text the more related they are. Therefore, to represent texts, he chooses to use words as nodes of the network and its proximity and relationship between them.

According to him, the visual representation of text and graph can help improve understanding of the text by providing references to the underlying information retrieval, represent the strength of association between words groups, contexts and dynamics of multiple discourses present there. The author uses graph analysis tools for the detection of interrelated concepts communities and to find the most influential concepts.

The study networks with tools of graph theory and theory of complex networks can be a powerful aid to analysis of text, on the other hand its use often moves understanding of their contents for analysis of structure and dynamics of growth. This bias coincides with the assessment made by Merckle (2004) about the trend assumed by those who incorporated theory of resource graphs in studies related to the field of social studies. Many years after Barnes made use for the first time the notion of "social network", Merckle (2004) found that the dominant approach in sociology of social networks, the structural analysis, was marked by a strong tendency to simulation experimental, the development of abstract models of relational systems and the use of a hypothetical-deductive logic. For him, there would be a strong theoretical and methodological opposition between a "comprehensive" approach, based on analysis of egocentric networks, inherited from the anthropological tradition, and an approach

"explanatory" sometimes tempted by structuralism, matter of sociometric tradition embodied by the structural analysis Anglo-Saxon. This same approach is reflected here in many of the present authors in this brief review of semantic networks, especially in the application of the theory of complex networks, dedicated to the study and comparison of network topology. Based on this, you can identify different application scales of these studies. Possibly comparative studies of network topology and its growth dynamics are more suited to the identification of major emerging themes in particular taking a large database, the exploration of hypotheses based on standardized terms. Studies coming closer of the contexts in which concepts are applied (which involves many returns to the original text to verify the direction in which they are applied) allow further progress towards the variety of views and the identification of semantic fields prevailing in the debate. These studies benefit greatly from the use of centrality indices associated with graph theory. The challenge is to deal with the large amount of digital data available bearing in mind the multiple meanings for which the semantic network provides clues. Data visualization emerges as a research field just to account for this challenge. In turn, the analysis of semantic networks seems to come now being taken up as a tool for clarification, evaluation and synthesis of views in the discussion of solutions to urban problems. Some recent studies illustrate this aspect, including which proposes Social Media Geographic Information / Analysis [7] in support of the planning methodology and uses what it calls textual analysis space-time; the proposal for a framework that includes capturing the cultural significance of the landscape based on values expressed by its inhabitants (Cerreta and others, 2014); the study of the opinions of people with respect to the heritage-based message posted on Twitter (Monteiro and others, 2014) and studies of social interactions in network groups engaged in degraded urban areas [18] [30]. Finally, explore and discover the content of conversations in online social networks can help lighten "a routing area of individual and collective actions", since it falls within the size of the production of meaning. From this perspective, the case of the Parco del Basento is analyzed here.

6 Analysis of Conversations Networks

Networks established were analyzed, in general, from the discussions in the Parco del Basento group and comments on the themes framed Urban Space, Views in Conflict and Politics and *polis*.

Data were collected using Netvizz application [29]. Semantic networks were generated using the AutoMap v3.0.10.36 based on the post's comments. For each of the posts, the comments were gathered in a single text, the authors' names were eliminated, as well as dates and symbols. End points were added to judgments when omitted, as well as spelling corrections were made. Articles, conjunctions and prepositions were excluded but always after checking whether their elimination could change the meaning of the sentence. Adverbs of manner, place and questioning were generally excluded, most particularly when it came to generate the theme networks Urban Space. Semantic networks were generated with the method of windows on the AutoMap and viewed with

the ORA NetScenes 3.0.9.9j version, trial version. The coding choices for extracting all nets were as follows: Unit: sentence; Directionality: bidirectional; Window size: 2. The components of each network were visualized with the ORA. Component is a subset of nodes in a network, so that there is a path between any two of its nodes, but you can not add any other node that has the same property. If a network consists of two components, a single link placed correctly can connect them. This connection is called the bridge. In general, a bridge is any link that, when cut, disconnects the graph [4]. It was decided to focus the analysis on the largest component of the network and eliminate peripheral concepts (pending concepts, according to the terminology used by ORA). The algorithm Newman for detection of communities helped identify concepts clusters more strongly related to denote topics of interest in the conversation. Visual inspection of the networks and their communities gave rise to numerous returns to the original text and the new refinements by processing software, until we get a simple to understand network in visual terms. Those generated semantic networks were consolidated by theme. Because of space limitations this text will deal only with theme "Urban Space". In this case we generated a network in order to obtain a global view of the group on a bill creating the park itself, supported by a vision of the qualities attributed to the resulting space of urban evolution. The terms most frequently use in relation to urban space were selected. With the help of lists of concepts of each network, we sought to identify words, referring to similar aspects, there with higher frequencies on other networks. We tried to unify terms with similar meaning. New generalized networks were then obtained. From this development began to emerge categories of urban space and actions on it. Initially, the concepts were classified as actors, initiatives, actions, elements of space, space qualities, qualities of actions and values and motivations. It was found that often the term fits into more than one category, but for simplification effect was chosen by one of them. In the step of generating and revising the network, the concepts are organized into semantic domains, or in similar meanings fields. Then, we identified which keywords best represent each of these semantic fields, thus giving rise to the analysis categories. The Urban Space theme network was generated with the ORA and then exported to Gephi 0.8.2 beta for viewing and further treatment. To categorize concepts was taken as a starting point emerging categories on the theme Urban Space, which were widespread and defined in table 1. Based on this categorization took place a visual analysis of network partitions. This allowed to know the group and the representative vision of who does what, how and where, with what motivations and results. Figure 1 shows the network as a whole, formed in six (6) communities. The colors correspond to the communities and the node size depends on the degree of each concept. The main interests of the group are revealed by the most central concepts in the network, shown in Table 2. Centrality value was calculated as the centrality indices ranking. The most prominent is the community that has the largest number of concepts located between the ten (10) on the 1st ranking positions in the case, the community 4. This community has 54% of the best-positioned concepts in ranking and contains 23.68% the total number of concepts in the network. In fact, it appears that the "community 4" plays a central role in the network. The subgraph corresponding to it shows the group's motivations associated with the creation of the park ("riscattare", "area_ex_cip_zoo", "area_verde", "cittadini"), resources mobilized for this ("petizione", "cittadinanza_attiva", "partecipata" in addition

to the characteristics of the movement ("bataglia", "portare_avanti"). the movement, therefore, focuses on the defense of the project of creation of the Parco del Basento a specific area of the city and aims to rescue this space for a diverse use of it was intended during the process of urban development in the mid of the previous century, it is opposed to the real estate speculation process and argues that the area should be used as a green area by the citizens.

Table 1. Analytical categories

Category	Identifier	Definition
Actor	AT	Every individual, group, professional category or role played by individuals, entity or institution, whether declared as agent or patient actions, be it an object of evaluation or judgment.
Action	AC	Every physical or communicative action that has occurred or may occur, with possible impact on actors, space, institutions of public administration and social institutions of any kind, including politics, understood as the activity aimed at establishing the rules and to make the decisions to make possible the coexistence between groups of people (Bobbio, 2010).
Event, Institution, Initiative or Resource	EIR	Any initiative undertaken or idealized, either in physical space or in forums set up under the social relations, and their used or available resources to achieve them, including spatial element (area, area, city, place) referred.
Value, Quality and Motivation	VQM	Judgment assigned to any element of other categories of analysis, including with respect to the time when the action takes place.

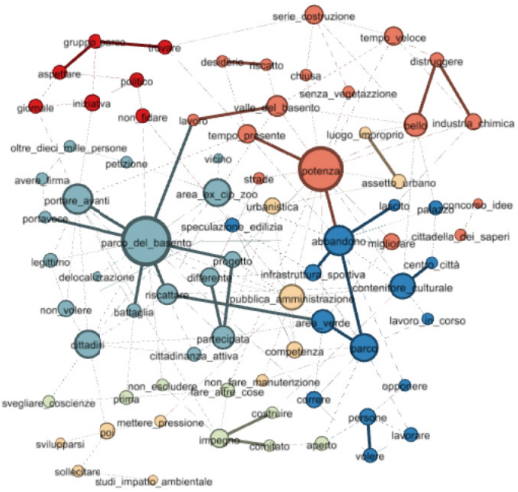

Fig. 1. Urban Space Network (Source: research data, Rocha, 2015)

The term spokesman ("portavoce") belongs to this community and appears on the large number of signatories of the petition in favor of the creation of the park, more than eleven thousand people at that time. Not connected to the mention of the group - which belongs to another community (identifier 0), which does not even have a term in the rankings above. The movement affirms itself as a form of active citizenship,

participatory and different. The idea of participation is here associated with own architectural design idea of the park. The second most prominent community is number 5, which deals with the abandonment of both sports and cultural infrastructure as the existing parks and green areas, and shows the desire of people to use the green area to run. The word "abbandono", the third place in the ranking of centrality, has 10 degree and succeed "potenza" specifically in terms of this index. At this point, equals the expression "portare-avanti," which is the most prominent community network (the community 4) and deals with the willingness to carry forward the "battle" for the park. The mention of the city of Potenza is located in the community 1, which presents the characteristics of urban evolution and Basento Valley area. Here appears a protagonist of the changes in city characteristics: the chemical industry. According to group members, the city quickly would have turned into a city "closed" (referring to the large buildings that do not allow the view of the landscape), devoid of vegetation. An overview of the most important communities (4, 5 and 1), shown in Figure 2 below shows how the Parco del Basento group sees in his initiative a way to rescue the urban space from the mobilization of citizens of Potenza: the city for use by citizens.

Table 2. Urban Space - Core Concepts (Source: research data, Rocha, 2015)

Position	Concept	Centrality	Category	Community
1	parco_del_basento	40	EIR	4
2	potenza	36	EIR	1
3	abbandono	32	VQM	5
4	portare_avanti	25	AC	4
	area_ex_cip_zoo	25	EIR	4
5	cittadini	24	AT	4
6	pubblica_amministrazione	20	AT	2
7	contenitore_culturale	11	EIR	5
8	riscattare	10	AC	4
9	parco	8	EIR	5
	area_verde	8	EIR	5
10	partecipata	5	VQM	4
	bello	5	VQM	1

Potenza is represented by the node with the second highest number of relationships (degree 16); rivals only with the mention of the Parco del Basento (18). But while the concept occupies the second position in the ranking of centrality and join the second largest community (22.37% of the concepts of network), it is not one of the two most prominent communities in the sense used here, with the community 1 has only 15.38% of the concepts presented in the ranking of centrality. The exploration of the neighborhood (depth equal to 1) the main network node - "parco_del_basento" - reveals the distrust with the government, which is blamed for the lack of maintenance of urban infrastructure and is the target of group pressure. Taking the point of view of

the categories, it appears that most - six (6) - the 13 concepts ranking of centrality refer to EIR (Event, Institution, or Resource initiative). In it are framed the initiative of the Parco ("parco_del_basento"), its deployment area ("area_ex_cip_zoo"), the city itself ("potenza") - which falls under subcategory space element (EE) - and equipment / cultural buildings ("contenitore_culturale") in that area. The EIR category appears in the centrality ranking with 46.15% of the concepts; on the network as a whole, it appears with 27.63% of the nodes.

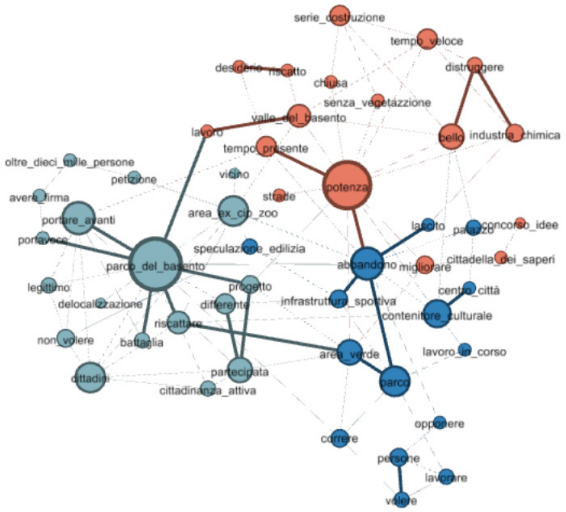

Fig. 2. Urban Space - Top communities (Source: research data, Rocha, 2015)

7 Final Considerations

The aim of this research was to capture the meaning assigned today to the urban space as a common good for groups present in digital social networks and the forms they assume to defend him. To identify the required space, with its main characteristics and uses, it was decided to apply social network analysis techniques at extracted semantic networks of conversations groups with Facebook profile that led forth movements for regeneration of degraded urban areas of the city of Potenza, southern Italy, particularly in 2012. Conversations and key terms used in them according to the ranking of the most central concepts were identified, according to a combination of centrality indices and neighborhoods of these nodes. A categorization of the concepts helped put highlighted actions, resources and qualities mentioned to initiatives and activities of the groups, as well as to the city and other aspects of space.

The assumption considered that social networking platforms have been used by groups to promote a collective understanding of the required quality of urban space common to all and on how they should act to defend it, regardless of the different views of democracy that may exist between its members. Despite their political beliefs and individual views, they want to participate and to influence the decisions that

touch public life, particularly the public administration. They want to be actors, act materially and through words, publicly reveal their intentions. As if they were citizens of a polis, in the space where they share words and actions establish a kind of organized memory [2]. Network analysis, based on topology and graph theory, is attentive only to nodes and neglects the significance of the "holes" that ultimately make up the mesh [13]. For networks "symbolic", these holes represent silences, pauses, breaks, gaps own spoken language, full of expression and meaning, or are the product of the researcher's choices. One can not ignore the restriction arising from the need to simplify the network (and helping to word processing with computer assistance) through the construction of statements by the relationship between concepts from a distance fixed within the limits of a given text unit. All these strategies, so to speak, "flatten" the text and lead to impoverish its interpretation. It must be clear that semantic networks are not more than the modeling products by the researcher, which uses the simplification to unveil meanings, and so this should refer often to originally collected data. The decision to combine several network node centrality index also helps to put the concepts into line, concealing their functions in speech. This is shown particularly in the case of concepts with high centrality (betweenness centrality), that can connect communities with varying topics of interest and can assist in the underlying information retrieval, but that in the rankings prepared for this study often presented terms disparate in relation to most of the terms well positioned in each of the other indices used. This shows the need to deepen the method using a differential treatment of each of the centrality indices. The intention here was to reveal meanings through the discovery of the most important terms in accordance with the positions they take the statements made by members of the groups, certainly both coding choices as the combination method of centrality indices adopted were suitable, including regarding the level of detail necessary to obtain answers to research questions. The method was therefore effective to investigate and discover the meanings of speeches many of which remain hidden in a traditional content analysis.

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