Selecting People for Involving Them in Participatory Decision-Making Processes*

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Abstract. Inclusive e-government is challenged by the limited participation of generic citizens. In order to address this issue, we propose to exploit the online services offered by the Public Administration (which support the establishment of direct relations with the population) for identifying people who might be motivated to contribute at decision making on the basis of their information interests. We propose an application supporting the analysis of users' interests from the usage data collected by public online services and a direct interaction with the selected individuals. This application will be used for involving people in a few participatory processes to be carried out in Provincia di Torino (Italy).

Keywords: Participatory decision-making, people involvement, user interests analysis.

1 Introduction

Participation is one of the principles of good governance listed in the E-Government Survey 2012 [1]. Participatory processes are based on a bottom-up decision-making model which promotes the contribution of the population to public policy development by expressing their needs, proposals and feedback with the aim of raising the Public Administration's awareness of the priorities to be addressed, of focusing on the most useful services, and of reaching consensus on the actions to be carried out. In this context, a big challenge is that of involving representatives of as many stakeholders as possible, including generic citizens, in order to consider different and possibly conflicting viewpoints and to share decisions with a significant sample of the population.

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Most involvement efforts are carried out either via “face to face” interaction in the offices of the local communities or by disseminating information through public web sites. The former method has a narrow scope; the latter promotes participation among generic internet users, who might not be interested in the policies to be discussed. In order to address this issue, we propose to take advantage of all the existing relations between the Public Administration and the population, including the internet-based ones, for searching for people interested in policy making. Public online services can be used for identifying interested interlocutors: most of them provide geo-localized information (e.g., data about a city or an administrative area); thus, they target relatively small virtual communities radicated in the territory. Moreover, as many services authenticate their users, people can be identified and their information interests can be tracked. We thus propose to employ such services as information sources for steering the discovery of candidate participants depending on the scope of the policies to be developed.

This paper presents work carried out to start an analysis of users’ interests emerging from Regione Piemonte’s public online services. For such purpose, we developed a prototype application which enables the Public Administration to identify people who showed interest in specific geographical areas by analyzing the usage data of such services. The application allows to contact people by e-mail, establishing a one-to-one interaction which can be used, e.g., to promote public activities or to invite users in decision-making processes. In 2013, the application will be used in a few River and Lake Agreements in Provincia di Torino (a sub-area of Regione Piemonte).

The river (lake) agreement is a form of negotiated planning. It starts with a voluntary contract mobilizing participation by major institutional and social actors in a fluvial (lake) region to define and implement a common strategic framework. The objective is to incorporate territorial design into policies (soil and water protection, environmental improvement, landscape improvement, regional development) and financing projects, as well as to influence planning and programming [2]. The concertation process involves heterogeneous stakeholder groups. The organizational structure of each contract varies but all of them have a small decision-making body (Control Room) composed of members belonging to the most important stakeholder groups. Although generally defined as enlarged participative processes, there is a tendency to include the most important stakeholders from the economic world, institutions, or representative associations, as well as certain age groups (mainly through projects with the schools), with a limited presence of generic citizens. It is thus interesting to check whether the adoption of an automated service for inviting people who interact with the Public Administration through the web, such as the application presented in this paper, will succeed in including a more representative sample of the population.

In the remainder of this paper, Section 2 presents our work. Section 3 describes some related work. Section 4 concludes the paper and outlines our future work.

2 Supporting User Involvement in Inclusive E-government

The usefulness of participatory practices and methods to design legitimated and effective public policies is acknowledged by scholars from different disciplines including political science, spatial planning and environmental assessment. However, current partic-

ipatory planning practices are criticized because they are unable to penetrate the formal decision-making process [3], to contribute to citizenship enhancement of marginalized social groups [4] or to generate consistent outcomes in terms of collective decisions. Most of these limits depend on the synchronous and location-based nature of traditional methods for public participation and collaboration [5] but also on the duration of processes, which require long standing engagement. Both aspects might be at least partially addressed by exploiting ICT.

2.1 Analysis of Public Online Services

We aim at enhancing the Public Administration's capabilities to find candidate interlocutors for participatory decision-making by utilizing the Internet for reaching people who have not been attracted so far. The idea is that of complementing the work carried out by means of existing methods with a new approach which leverages the relations between Public Administration and citizens in order to enhance the identification of individuals who are likely interested in the policy making activities to be carried out.

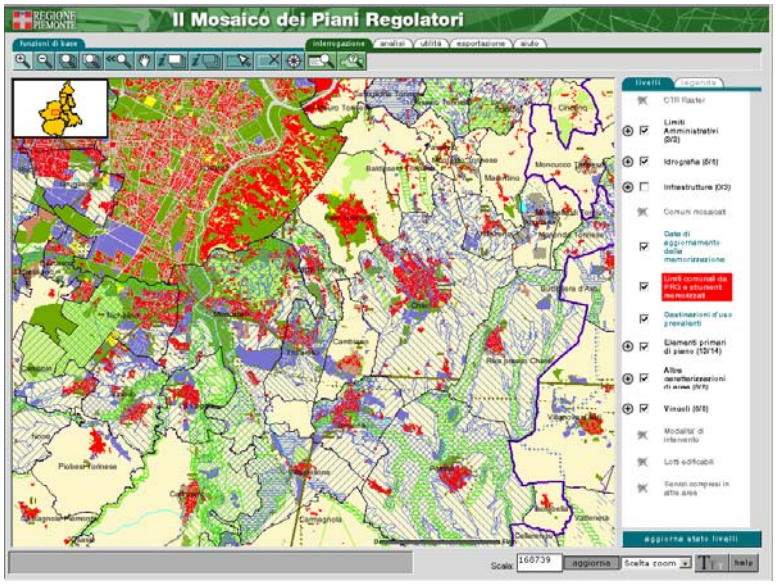

Fig. 1. A general town plan with legenda, generated by the MUPD service (in Italian).

Different criteria might be adopted to identify candidate invitees for participatory decision-making processes. Regarding territorial policies, which are the focus of this research, users' geographical interests are the primary factor to be taken into account as they allow the selection of people who could be directly or indirectly affected by the policies, e.g., because they live or work in the addressed areas.

We analyzed some territorial services offered by Regione Piemonte's Geovagando web portal (www.regione.piemonte.it/geopiemonte) to select a few of them for monitoring users interests. Geovagando enables visitors to find geographical information, browsing the wide production of cartographic information produced by public sector bodies in Piemonte. The web site supports thematic searches (e.g., Agriculture, Environment, Traffic) and offers different types of services (e.g., metadata catalogues, visualizers, download services).

Among the available services we selected the "Mosaic of Urban Planning Data" (MUPD) of the municipalities in Piemonte, in the thematic section "Spatial Planning". This service supports the downloading of maps related to an "interpretation" of the general town plans of Regione Piemonte, which provides information about land uses and urban policies. Specifically, the "mosaicatura" of town planning, provided by the service, is aimed at integrating the territorial choices of different local administrations using a common interpretative method and legenda. Fig. 1 shows a sample town plan downloaded from the MUPD service. The common legenda can be used to compare the land uses, such as residential areas (marked as red in the figure), public services (yellow), productive areas (violet), public green and protected areas (green) and infrastructures (not shown).

As the MUPD service authenticates its users, it allows the tracking of their interests and a one-to-one interaction with them. Its registration form asks the user for permission to track her/his behavior, adheering to the privacy regulation. If the user gives consensus, (s)he is invited to specify first and family name, e-mail account and classification in one of the following categories for statistical purposes: Public Administration employee, professional user, private user and student. This classification is orthogonal with respect to user interests analysis but it is useful to understand whether the service is only used by territorial experts or it has a heterogeneous user base and thus represents a promising source of information for policy making.

The traces of user behavior collected by the MUPD service include data about information queries and downloaded documents. This information is stored in a User Interests Database which maintains the registered users's data and the tracked geo- and time-referenced download events performed by them. For each event, the database stores information about the type of the downloaded item, the geographical area of interest (e.g., city name and identification code), and the date of the event.

The MUPD service has pros and cons: regardless of its technicality, it has a heterogeneous user base because it is relevant for real estate. The users who accessed the service between the beginning of 2005 and February 2013 are distributed as follows: 36.8% of them are professionals (e.g., they could be architects, etc.) and 15.6% are from the Public Administration; 25.8% are private users and 21.8% are students. It is also worth noting that this service provides particularly significant information about user interests because town plan maps are downloaded by people who are analyizing a territory in detail; e.g., for work or education reasons, or because they live, or plan to live there. However, general town plans concern a whole city or large portions of it; thus, they cannot provide information about fine-grained geographical interests (e.g., focused on specific urban administrative areas). Moreover, as such maps change every few years, the same user is expected to rarely download the same document. This

Fig. 2. Searching for people who downloaded information about Torino and Moncalieri since 2012 (anonymized sample of usage data).

also means that the service collects a relatively small number of download events. These characteristics make the service suitable for collecting information to be used in policies having a large geographical scope; e.g., in river and lake agreements, which concern the whole territorial area of one or more cities.

2.2 Our Application

In order to support people involvement in policy making, we developed a prototype Web-based application which helps the Public Administration to search for people to be invited in participatory processes by exploiting the users' geographical interests collected by public online services. The application supports searching for users who downloaded information about a selected geographical area during a certain time interval and makes it possible to contact them by e-mail, e.g., to inform them about the territorial plans under definition or to invite them in a participatory process. The people who answer positively will be involved in the related processes.

While the application supports people identification and invitation, it does not handle the online collaboration within a participatory process. Indeed, existing social networks, such as Facebook, can be exploited as a first solution for that purpose, by enabling communication, document sharing and consultation through polls, within thematic groups associated to participatory projects. That approach was successfully applied by Voghera and colleagues in the Tinella Basin River Contract [6], a governance tool promoting vertical and horizontal subsidiarity for local development and sustainability in the Tinella fluvial region (Italy). In that contract, Facebook was used to handle

the distribution of questionnaires and the management of people's responses in a rapid and effective way.

Given the specification of a geographical area and of a temporal interval, our application queries the User Interests Database and presents the list of accounts satisfying the search criterion. Fig. 2 shows the user interface of our application on a small sample set of anonymized user data used for application development. In the left portion of the page, a map supports the selection of the geographical points of interests; moreover, city names can be entered via form (Seleziona Comune - select city). The form also allows to specify the starting year for the query (2012, intended as January 1st) and the type of user to be considered: non specificato (all users), PA (Public Administration employee), privato (private user), libero professionista (professional), studente (student). The right portion of the page shows the result of the performed query in a table containing a row for each retrieved user. Above the table, the "Invia mail a tutti" button can be used to send an e-mail message to all the retrieved accounts and the "Spedisci mailing list" one can be used to send an e-mail message including the list of accounts for later use.

Each row of the table shows a user id (which can be clicked to send the user an e-mail message), the classification of the corresponding person and the dates of the download actions (s)he performed on the selected geographical area. Moreover, the "Visualizza" (show searches) button makes it possible to retrieve the user's geographical profile by visualizing the list of cities (s)he has downloaded information about in the selected time interval.

We developed our application following a user-centered approach, in cooperation with experts in participatory processes (urbanists) who provided their requirements and contributed to the design of the user interface and of the features to be offered. Moreover, a preliminary test with users has shown that they find the application very intuitive and easy to use. They declared that it conveys the information they need in a simple and efficient way. However, they would like to have a stronger integration of the application with the social network environment to be used during the participatory process, e.g., to automatically generate user groups starting from the user lists they retrieve.

The application currently presents information collected by the MUPD service. However, it can work on usage information collected by other services of the Geovagando web site, provided that such data is stored in the User Interests Database. In that case, basic geographical search might be extended to support finer-grained searches which take information types into account. This would make it possible to search for users interested in specific topics (e.g., related to agricolture, etc.).

2.3 Identification of Candidates for Participatory Processes

We will use our prototype application in a few participatory processes to be carried out in 2013 in Provincia di Torino. Such processes concern the River Agreements of Sangone, Stura and Pellice and the Lake Agreements of Avigliana and Viverone. This activity will help us to assess the degree of participation achieved by inviting in decision-making processes not only the traditionally involved subjects, but also the people identified by analyzing the usage data of the MUPD service. For evaluating our approach, we will also compare the obtained participation data with that collected in previous experiences, such as the Tinella Basin River Contract.

The advantages of broadening of the decision-making process to a larger range of social actors since the preliminary phases of a participatory process can be examined at the level of the relations among the actors, of the quality of planning and design (decision content) and of the implementation of development scenarios. Concerning the relations between actors, it is conceivable that this first step can bring advantages discernible in the short or medium term. Among them, the improvement of the trust between institutional actors and citizens: on the one hand, citizens' trust in institutional actors might increase because people feel to be explicitly invited to express themselves on decisions affecting their territory. On the other hand, institutional actors might perceive that a significant part of the population is attentive towards the questions that relate to a river/lake or, even more, declares itself open to forms of dialogue and sharing of ideas on the future landscape of the surrounding region. Concerning the quality of decision content related to vast scale/local choices, the consultation of citizens allows to discover the problems and opportunities which characterize a certain region. Furthermore, it enables to make decisions which are (i) more equitable because decision makers have strong collective visions, (ii) wiser because they are aware of a multiplicity of viewpoints, (iii) more efficient due to the reduction of time and cost of interventions, (iv) long-lasting and simpler to implement because they anticipate oppositions [7].

3 Related Work

This work relates to the research on knowledge representation as the analysis of user interests concerns both the identification of the users' geographical areas of attention and the types of information they search for. Until now, we modeled a single data type corresponding to user interests in town plans. However, to support the integration of different types of information, a topic ontology has to be introduced and the information items provided by services have to be mapped to its concepts. Moreover, user interests have to be modeled in a user profile. We will analyze existing ontologies, such as, e.g., NASA SWEET Ontologies (http://sweet.jpl.nasa.gov/ontology/), to see whether they can be used for our purposes.

For the analysis of usage data concerning different types of information (e.g., the search engine of the Geovagando web site), our work relates to the research about virtual community detection. In that area, [8] proposes to mine the logs of web sites to recognize spontaneous virtual communities and personalize services for them. Moreover, [9] discusses multidimensional virtual network analysis to support the recognition of virtual communities in which individuals are related by multiple relations. Finally, matrix [10] and tensor [11] co-clustering methods are proposed to support efficient, scalable and reliable community detection.

4 Conclusions and Future Work

In this paper, we proposed to exploit the relations between Public Administration and citizens established through public online services in order to enhance the identification of candidate participants for public policy making. Our hypothesis is that, by selecting people on the basis of their interests and of the geographical scope and topics of the

policies to be developed, it will be possible to identify individuals who might likely be motivated to be involved in participatory decision-making processes because they are interested in the arguments to be discussed.

As a first step, we developed an application which retrieves the e-mail addresses of the users of public online services who demonstrated an interest in a selected geographical area. We are going to use this application to invite people in a few participatory decision-making processes to be carried out in Provincia di Torino during 2013.

In our future work we plan to integrate the User Interests Database used by our application with other public services of the Geovagando web site; this will likely enhance the quantity of information about user interests (in terms of user downloads), its granularity (e.g., focusing on specific districts of a town) and the addressed topics. Moreover, we will enrich the search facilities offered by our application adding topic-based selection criteria, useful to customize the interaction with users. For instance, the interest in more or less technical data (e.g., traffic data w.r.t. chemical composition of water resources), or in specific services, reveals details about users' knowledge and priorities that could be used to restrict the invitation in specific consultations to people interested and knowledgeable in the topics to be discussed.

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