Engagement of citizens through the co-creation of Open Data: the Prato Wi-Fi coverage extension Use Case

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1. INTRODUCTION

Open Data (OD) are public available datasets published under an open source license, allowing everyone to freely use, modify, and share them for any purpose. Public institutions started to publish OD in digital formats. OD initiatives are in favour of transparency and aim to reduce the gap between citizens and public institutions. OD concerns transports, environment, economic, society and service, culture and heritage, and so on. Despite these commendable initiatives, open datasets remain in their repositories without any exploitation by citizens. Thus, effectively barriers in the use of open data exist; such as difficulties in accessing open data, incomplete and poor quality datasets, barriers in the understandability, and usability of datasets, which contribute to the common sense that Open Data are for experts. Our leading research question is how to foster and engage citizens in exploiting Open Data, overcoming some of these barriers.

Idea is to engage citizens by enabling Data-Driven Discussions around visualisation of Open Data, allowing citizens to form or join existing on-line communities to discuss common issues (e.g., local policy, service delivery and regulation). Users can create, reuse, share, and comment visualisations of Open Data. Visualisations are a powerful tool, making easier to understand data, facilitating the identification of trends and their analysis. Indeed, visualisations are often better than thousands of words. Furthermore, groups of citizens can collaborate by co-creating new datasets, which can become public and re-used within public discussions. Citizens will create new datasets when they are not available on the existing portals or when the existing one is poor in quality or need to be extended.

2. DATA-DRIVEN DISCUSSIONS AROUND OPEN DATA

SPOD is a free and open source Social Platform for Open Data, which enables discussions among citizens as well as among public administrations and citizens. Through SPOD, the aim is to stimulate communities of interests around OD, fostering their interpretation, meaning and value. We are designing, developing and testing it in context of the "*Raising Open and User-friendly Transparency-Enabling Technologies fOr Public Administrations*" (ROUTE-TO-PA) [2], Horizon 2020 European funded project. SPOD is web-based, any user can access to it by using its favourite Web Browser.

SPOD has a public place named Agora, recalling the ancient Greek central spaces or squares where people assembled. The virtual Agora hosts public rooms, each one with a specific topic. Citizens can freely join rooms and discuss together, proposing and supporting their argumentation against or in favour of the topic. SPOD supports Data-Driven discussions through visualisations of OD. Discussing within a room means the opportunity to exchange not only textual messages, but also datasets and their visualisations. SPOD introduces the *datalet* concept [1]. A datalet is a web-component, which fetches in real-time the original open dataset directly from its official Open Data platform, applies filters and grouping operations, and finally visualising the data using charts (e.g., line charts, bar charts, geographical maps). In this way, datalets ensure data provenance: 1) by always fetching data from its

source, 2) providing the link to the dataset. Thus, a datalet is not just a visualisation library, but a whole building block capable of interoperate, query, filter, and visualise data from different sources.

Thus, discussions over Open Data evolve around datalets, which are reusable, sharable and changeable. The life of these visualisations exist also outside the SPOD environment, making possible for a user (e.g., data journalist) to reuse the datalet along with its blog article. Technically speaking, datalets can be statically embedded in any web-page (e.g., blog, forum, institutional web-site, and so on) through a copy-and-paste of its source code.

SPOD allows the creation of visualisations from Open Data stored on any external OD platform. In particular, our platform supports CKAN, OpenDataSoft platforms as well as other external sources. Specific data providers are associated with SPOD, and the user can create visualisations from any of the dataset stored on these providers. Associated provider implicitly means that additional functions are provided to the end-user based on this linking; for instance, the dataset search by its name, metadata and content. Of course, SPOD supports the creation of visualisation from any other external dataset by simply copying and pasting its URL. This solution supports the access to heterogeneous data sources. Users creates visualisations through a step-by-step usable Wizard named Controllet.

Every public room provides tools, actually graphs, to analyse ongoing discussions, understanding and determining which users are participating and clusters, which datasets and datalets have been used to support argumentations.

SPOD has a private space, named "My Space", where the user can privately create visualisations, annotate texts and links. The idea is that the user can digest and analyse datasets by creating visualisations to use during discussions in the public room to support argumentation.

3. USE CASE: WI-FI COVERAGE EXTENSION IN PRATO

The SPOD/TET platform will be tested in Prato as a tool to engage the population in the identification of new locations for the displacement of Wi-Fi antennas in the city area.
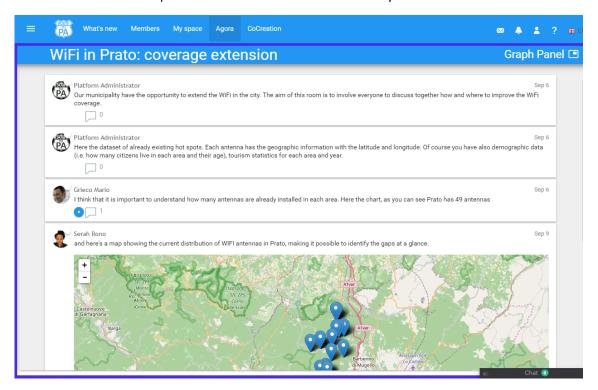

Figure 1- Example of ongoing discussion about the Wi-Fi coverage extension.

The city of Prato is going to enlarge its Wi-Fi network that is currently including 132 hot spots due to a merge of two networks: the one previously owned by the Province of Prato and the one set up by the City Council. The Municipality has already identified some new locations to increase the network coverage, but would now like to take the opportunity given by the Route-to-PA project to involve the population in the task, in order to meet possible connection requirements and address the needs of different city communities. This will represent a good opportunity to test the SPOD/TET platform in a real environment by giving the citizens the chance of basing discussions on real data and making their proposals to the administration in a context-based way.

In principle, the pilot experience will be opened to all citizens who have access to the Internet through a PC, but some specific groups will be particularly involved since they might be more interested in the proposed topic, like for example students and immigrants who very often use the Wi-Fi connection to communicate with relatives far away. Some advertising events will be organised and promotional material will be distributed, although it is expected that the social structure of the platform will support the engagement of a certain number of users by its own.

While planning the pilot activities, it was assumed that discussions on this topic might be influenced by several factors, e.g. the population distribution by age and nationality and the dislocation of aggregation points such as sport plants, libraries, schools, parks and green areas.

Starting from this assumption, several datasets have been set up by the Administration to support the discussion on SPOD, which are accessible through the CKAN platform ckan.comune.prato.it.
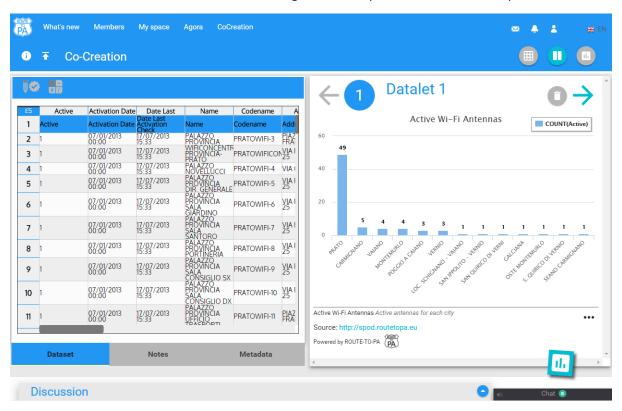

Figure 2 - The co-creation room to build a dataset in collaborative way

They are: (a) location of the current Wi-Fi network antennas; (b) *population distribution by age and Elementary Statistics Units (the city is divided into 34 ESU representing the city zones);* (c) *foreign population distribution by range of age and Elementary Statistics Units*; (d) *location of schools*; (e)

location of green areas; (f) *location of libraries*; (d) *location of squares*; (e) *post offices (they are equipped with their own Wi-Fi spots); national broadband coverage maps.*

The users will log in the SPOD platform and will access a specific room in the Agorà where the provided datasets will be available for analysis and visualisation, but they will also have the possibility of searching autonomously for other information to support the discussion. Through the co-creation feature, the users will also be involved in the building of one or more new datasets containing the proposed Wi-Fi locations and will eventually produce a shared document to present their proposal to the Administration as a contribution to the Wi-Fi network enlargement.

A moderating role will be also present and the Administration will take part to the discussion as much as possible, particularly to give information and clarifications if necessary.

The expectation is to verify the effectiveness of the SPOD/TET platform as a social tool to support data-based discussions and to increase the collaboration between the Administration and the citizens, but also to pave the way to a greater awareness of the opportunities given by open data to increase transparency in the public administration processes.

4. CONCLUSIONS

Our leading research question is how to engage citizens in the practical use of Open Data, reducing the gap between public institutions (e.g., governments), who publish datasets, and end-users. Our approach provides a Social Platform for Open Data (SPOD), enabling data-driven discussions within public rooms of an Agora, around visualisations, named datalets, of open datasets. Visualisations that can be reused anywhere, inside SPOD discussions and outside the social platform (e.g., blogs). SPOD supports the creation of visualisation from any Open Data portal based on CKAN or OpenDataSoft, the most used Open Data portals by the public institutions.

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