

City Data 3.0 - A generic initiative to promote and assess the reuse of geographic information in cities - Early steps

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Abstract

Authorities around the world discuss on the way to engage their data users and involve being part of open data initiatives in cities. Thereby, assess the re-use level of available information through those portals is an important challenge to achieving the real potential of Open Data in cities. This article presents the early steps of an initiative called CityData 3.0 which is a generic strategy to improve and assess the re-use and discovery level of available open geographic data in cities. Using an on-line survey to know the current status of cities' open data portals and a set of participatory workshops in cities in Colombia and Spain. To understanding which barriers can affect data re-users and attend data authorities to assess the re-use level of open data initiatives in cities.

Keywords: Open Data, Open Cities, Data Re-use, Open Government, Data Discoverability.

1 Introduction

City Data 3.0 is a user-center initiative can be beneficial for two city stakeholders. Initially, data authorities who needs to assets and improve the re-use and impact level of available open data in cities and data consumers that having an efficient and easy way to access open data can transform data into useful information.

One of the main authorities' concern during last years was to populate open data portals with high data quality (Attard et al. 2015) enriching those websites with extensive data catalogs.

However, data consumers are demanding different ways to re-use and identify relevant data to supporting applications (Schmidt et al. 2016).

In this article, we summarize the first findings based on perspective's data user to understanding current barriers that prevent taking full advantage of available open data in cities, especially open geographic data.

2 Method used

The methodology used to create and promote the initiative CityData3.0; it has three phases to cover the requirements and analysis steps, the definition of strategy and test.

Phase No1. Contains two sub-phases, *Discovery* which was an on-line survey to assess the current status of open data portals in cities, especially for our selected cities. Moreover, the second sub-phase was *Participatory Workshops* which was a set of hands-on activities to interact with data users not matter is the role is geographic or not geographic.

Phase No2. Contains also two sub-phases, *Strategy design*, and *Proof-of-concept*, this strategy and indicators assess the

reuse level, developing a website to display available open data according to perspective's consumer.

Phase No.3 *Test and Evaluate* is about testing the website created, the strategy and its usefulness level having feedback from re-users.

2.1 On-line survey results

To understand, how data consumers find available data in cities for their projects and would be the main barriers to re-use official open data portals, the first step was developing an on-line survey.

On-line Survey. We used Google forms to create the questionnaire, and we shared to open data users from several communities such as, researchers, developers, analysts and overall people who are actively involved with data especially open geographic data.

From 9 August 2016 to 16 March 2017, on-line survey gathers 195 responses. Through, selected cities (Bogotá, Medellín, Cali in Colombia, and Valencia in Spain), the form was shared with developer communities and a GIS online Spanish forum.

The survey had 22 questions some of them were non-mandatory, i.e. could be skipped by respondents. However, this article only presents some findings and remarks related to on-line sub-phase.

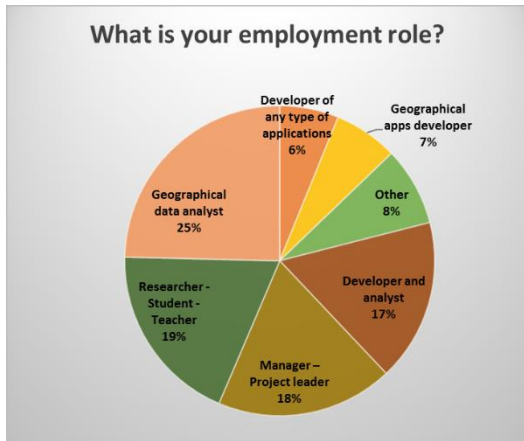
The on-line survey had several sections, but we will present a summary as follows.

General information. Overall data gathered from 16 countries and several cities based on the information of 195 valid responses.

Your Work. For section related to respondent's role, 25 % of roles are geographical data analysts, and the next categories are researchers (19%), project managers (18%) and developer

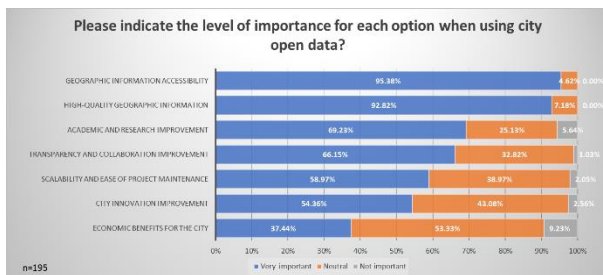
role with 17%. (n = 195 valid responses). It means most of the respondents have a critical role to improve the re-use level due to they are truly data consumers; besides, they have the knowledge to create analysis process to develop applications, and to lead projects where the financial concern is considered (see figure No1).

Figure 1: The level of importance of use city open data.



City open data. In this section, the respondents shared their understanding about cities open data portals and the reasons to use this geographic information. Those who provided a response (n=195 valid responses), only 37,4% consider *very important* use city open data for economic benefits for our cities. However, 95,38% consider *very importantly* the accessibility of geographic information and 92,2% recognize data quality as well important as we expected. (see Figure 2).

Figure 2: The level of importance of use city open data.



Barriers and features. Overall, the most important barriers to use cities’ open data portals were a lack of updates of published data, low integration of data sources, and low relevance of URL to access published data (see Figure 3). Over 90 % of respondents (n=194 valid responses) considered time spent searching open data as a major and moderate barrier likewise.

In contrast to barriers, respondents provided information related to the most used functionalities available in cities’ open data portals in the question displayed in Figure 4 (n=186 valid responses). Filters for advanced search (61,29%), Data categories (59,14%) and access data through URL (54,30%) were marked up as *every time*. Nevertheless, feedback from other data users (25.27%), terms of re-use were less pronounced (22.58%).

Figure 3. Barriers to use open data portals

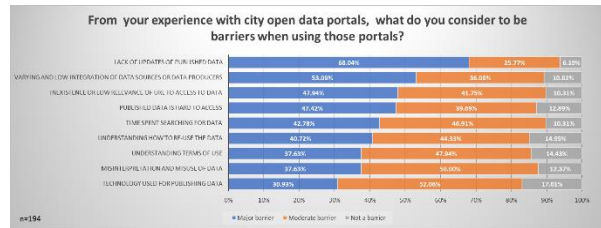
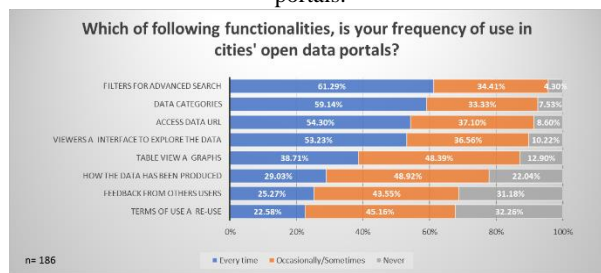


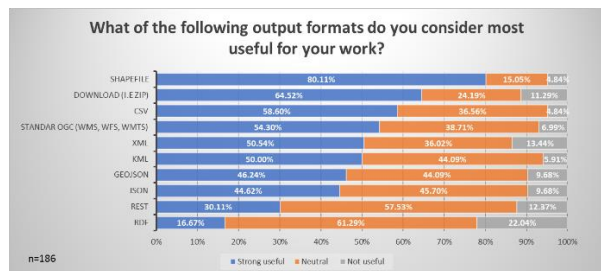
Figure 4. Frequently functionalities in cities ‘open data portals.



Searching for geographic data. The survey also asked about output formats more usable where data consumers are choosing open data in the city. Overall respondents (80.11%) still want to have access to shapefiles format and downloadable files (64.52%).

Surprisingly, one of the recent formats to access open data RDF only has 16.67%, and formats as JSON and REST services are seen least useful (44.62%, 30,11%) (see Figure 4).

Figure 4. Output formats most useful for data consumer work.



3 Remarks

Regarding barriers faced by data consumers, we found that terms to use and understanding about how to re-use data were the options least marked in contrast with the argue where terms of use are not clear in current cities’ open data portals according to workshops attendants’ opinion. Despite most of the open data portals have the terms of use available, probably the language used is not natural, these terms come from legal perspectives which are not a common skill for re-users.

Access to URL and advanced filters to search data were common requirements present in both on-line survey and workshops. It means that data users expect to have the enough

accessibility to find and re-use the available data in external applications. Data quality criteria was likewise an important fact mentioned by data consumers. However, update data and better integration along authorities are the main requirements of reusers.

Criteria such as date of publication, how data was produced and which authority has created the data are valuable when users are looking for data. Authorities should put more relevance in those features to engage more users and most importantly, not lose the user confidence.

Finally, another interesting finding of the survey was the persistence to have access to downloadable data. Re-users want to have an easy and quick way to download data and process by themselves.

4 Conclusions

In this article, we present the preliminary results of phase No.1 of this initiative. We identified the important barriers and features requirements of cities' open data portals based on 195 responses' reusers, and finally, we tested with other data users with different backgrounds through a set of participatory workshops called Open data for Open Cities to discuss the economic and social benefits and real impact in targeted cities.

5 Acknowledgement

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