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Creating Communities and Practices for a New Common

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Open Data: Creating Communities and Practices for a New Common

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Abstract.
Open Data are increasingly seen as a new and very relevant resource, that can dramatically change the landscape of the services and infrastructure in urban environments. This opportunity is often conceptualized by defining open data as a *new common*. Open data however, are not necessarily a commons, at least in the sense defined by Bollier [1], they are rather a shareable resource, which will only be accessed and used if a community exists around them and a set of practices and rules are defined to manage them. This paper is focusing on those two aspects: the creation of a community of users and a set of practices that regulate and facilitate the use of open data. Communities and practices, the two elements that would turn open data into a common, are not emerging spontaneously; their emergence needs to be appropriately designed.

Keywords: Open data, commons, OpenDataLab, Service Design.

A critical view of open data as a new commons

The increasing amount of computational capabilities is creating the condition to accumulate and process large amount of data, that could not previously be handled. New data are generated either by the footprint left in each moment of our everyday life or by the computational intelligence of machines (sensors, mobile applications, online services) that are regulating the infrastructure supporting contemporary socio-technical systems.

A part of the datasets generated every day is open, that means it should be available to the general public and published by the authorities and the organisations that own those datasets.

Open data are turning to be a new shared resource in our societies, on the basis of which cities and communities will be able to create wealth and regulate their life.

Besides the large corporations, which have immediately seized the opportunities to use such data for commercial purpose, also governments

are now paying increasing attention to this large amount of data and supporting initiatives to publish open data sets.

In their exploration of knowledge as a commons Hess and Ostrom [2] include data as the source of information, which in turns produce knowledge.

The advancement of new technologies gave human beings the opportunity to capture and extract a new resource from what was previously uncapturable: data from behaviours, natural conditions, human conditions, personal choices, etc. While there are good reasons to advocate limitations to access to part of this resource, e.g. the one concerning private data or personal choices, another large part of these data could be available for citizens to share as a common pool of resources that needs to be monitored and managed, also protecting their nature as public good.

Unlike several natural resource though, where their public usability is related to the costs for excluding part of the potential users, the availability of open data depends on the social costs for making this resource available to everybody. Although data are produced and collected in several occasions, their publications in useable formats imply costs of transformation, that data owners are not always willing to bear.

Bollier [1] highlights the difference between a shared resource and a commons by defining commons as *a resource + a community + a set of social practice.* This is particularly true for open data: in order to be considered a common, and used as such, open data need:

- That a set of practices is consolidated, not limited to technical procedures, but extended to design practices for social innovation
- that a community of users is established, that is not limited to large corporations or data experts

If such conditions are met, open data can be considered as a commons and their usage can trigger the creation of a new generation of services, and generate a disruptive change in the way citizens are organizing their cities, their life and their personal choices.

The following sections will focus on those conditions and on the strategy proposed in a EU funded project to generate a set of practices and a community of users.

The practice of working with open data

Working on data is not a new activity, and a broad community of technical users already exist, that has developed a set of practice to deal with data. The perspective suggested on this paper however, is to open the access to open data to a wider community. This implies that the technical practices for the use of open data must be complemented to practices that increase data literacy and support a culture on designing with data.

The technical practice of open data

From the technical point of view, the set of practices that would be needed to activate open data as a resource depend on the possible uses of open data.

Data can be simply extracted for documenting facts, or statistically analysed and visualized to generate information, or combined with interfaces for datasets to be searched and browsed; their format can be adapted to be combined with other data or to integrate them into products and services [3].

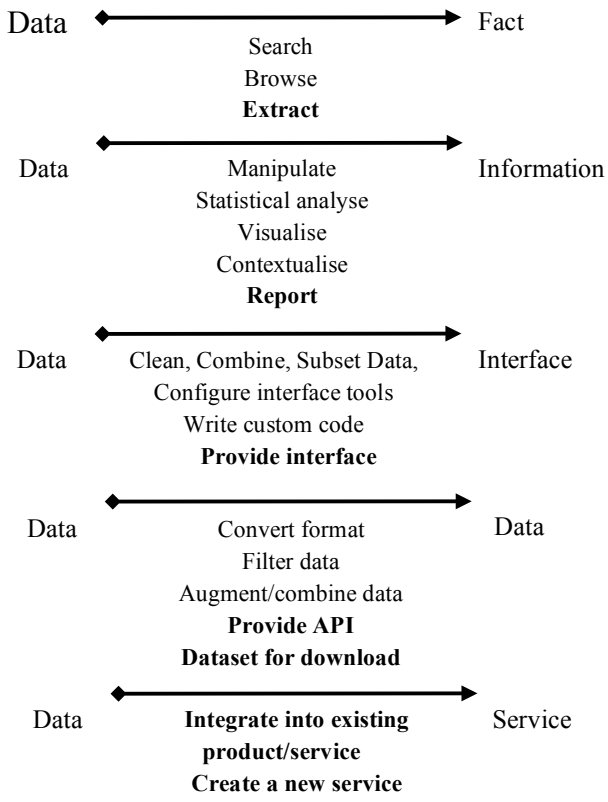

Figure 1 Practice for technical transformation of open data (source [3])

The strategies to work on those technical aspects may consist of combining tools for different purposes, such as visualizing datasets, proposing interfaces to *play* with data or providing API to integrate data into new services.

The citizens' practice for using open data

Citizens' engagement into the use of open data should overcome the low average level of data literacy, which implies a lack of awareness of the potential of open data. As a consequence of this, an evident gap can be observed, between technological potentials and effective use of data. The lack of utilization of open data is in fact not only due to the technical treatment of those data, but also to the lack of a widely diffuse demand for such data, due to a general lack of a common set of practices to man-

age this new resource. Before trying to learn how to use open data, citizens should know what to do with them, what services can be designed, that will change their everyday life, and what kind of control they can have over the process of construction of new services based on open data. This is the focus of the Open4Citizens (O4C) project.

Building a community around open data

The existence of a community that share the use of a resource through a set of practice is essential for that resource to be used as a common. Being this resource immaterial and not related to a specific place, the construction of the community could be geographically independent, i.e. virtual, or online communities could be built.

The last few years however, provided some good example of how the construction of some *communities of practice [5]* have grown because of the presence of physical places of aggregation. This is the case of the diffusion of digital fabrication communities.

One of the characteristics of this phenomenon has been the strong collaboration between members of new communities, that were aggregating online around common projects – e.g. the Linux platform or just the development of a new model of kitesurf [4] – and physically around spaces where facilities are available for physical fabrication. Individuals would not ordinarily have access to these facilities due to their high purchase or running costs or because of their size. With the development of digital fabrication and 3D printing, the 'shared machine shops' have developed into several different initiatives, such as 'hackerspaces', i.e. community operated physical spaces, where people can meet and work on their own projects [5]

[6] or FabLabs, short for 'fabrication laboratory'. FabLabs have been conceptually generated as a global community of spaces, promoted and monitored by the Centre for Bits and Atoms at the MIT Media Lab in the Massachusetts Institute of Technology [7]. FabLabs are small scale workshops with an array of computer controlled tools; the aim of such a workshop is to democratize manufacturing technologies previously available only for expensive mass production [8].

The workshops are bound to a loose set of rules about the use of the machines, legal protection of the outcome of the work done at the FabLab and knowledge sharing. They are also linked to each other by a video-conferencing system hosted at MIT, which gives all members of

the community access to shared knowledge, video-conferences and training courses. [5] (Troxler 2010).

Places for digital fabrication are now present in many cities. They also play the function of facilitating the access to digital fabrication for those who have low technical skills and would otherwise be excluded by the exploitation of the potential of digital fabrication.

A physical community can directly exchange personal or uncodified knowledge and translate this knowledge in new ideas and in some cases, also in new start-up and concrete initiatives.

The case: the Open4Citizens project

The Open4Citizens (O4C) project has been funded in 2016 under the CAPS H2020 call, which aims at promoting initiatives and platforms to increase collective awareness and promote sustainability and social innovation[1]. The activities of the project are distributed in five pilots: Barcelona, Copenhagen, Karlstad, Rotterdam and Milano. The project is based on the hypothesis that the new practices for the use of open data will come from a design approach and on the vision of an extended community of open data users, which will consolidate the demand for open data.

The hypothesis: a design learning approach

The hypothesis of the project is that the potential of open data will become more visible once people will start using and designing new applications and services based on open data. The assumption is that a design approach, rather than a more traditional pedagogical approach, would be more effective to raise the average level of data literacy. Learning by designing implies the capability to fuse, bring together, and compose different elements, together with the ability to envision and evaluate what is *not-yet-present*, but only imagined [9]. Together with a better understanding of open data, this approach is also supposed to increase citizens' sense of ownership of the solutions developed with open data.

The O4C approach therefore aims at defining a set of design practices, which support citizens in the creation of new services. For this purpose, the O4C project is engaging citizens, together with technical experts,

[1] https://ec.europa.eu/digital-single-market/en/collective-awareness

public administrators and other relevant actors through a number of hackathons, i.e. co-design sessions in which all the participants can co-design new services. Hackathons are certainly not new, especially among IT experts; the O4C hackathons however, have two new characteristics:

- the general co-creation environment is very heterogeneous, as not only IT experts are participating in the event, but also people with lower technical skills. In the most known form, the homogeneity of the participants often produces very advanced technological solutions, although the absence of real users in the co-design process often hinder a clear problem definition
- the heterogeneity of the participants requires an adequate process of aggregation of relevant stakeholders in the hackathon. It is very important that the hackathon collects the relevant elements of the social, technical and institutional ecosystem that frames relevant problem areas. For this reason the O4C hackathons are not simply 2-3 days events of full time engagement of the participant, but rather a process including a pre-hack phase and a post-hack phase. The pre-hack phase is essential to define a relevant problematic area (a challenge) and collect a relevant ecosystem of actors around it. The post-hack phase is instead the phase in which the outcomes of the outcome event are developed, tested and incubated (Figure 2).

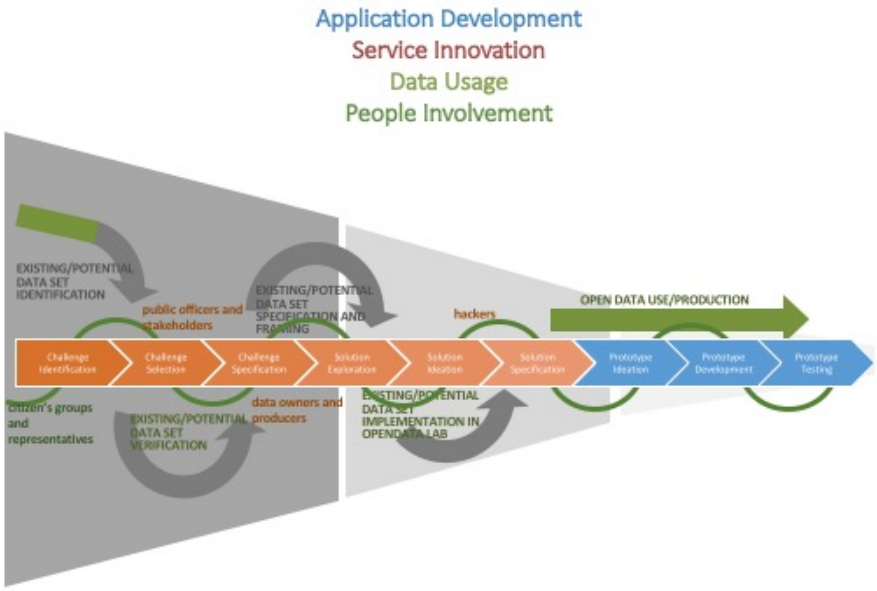

Figure 2 the O4C hackathon process(Source [10])

In order to support the co-creation process in the hackathon a set of tools have been defined by the O4C project team:

1. A hackathon starter kit, that is a collection of tools to support the co-creation process. The tools are organized along the logical sequence of a design process, from the early phases (inspiration, need definition) to the latest phase of development and testing.
2. An online platform, that would support the facilitation of the hackathon process, from group formation, to data management, also including the tools of the starter kit in electronic version.
3. A citizens' data toolkit, which is supposed to facilitate citizens' understanding of how data can be used or are currently used for designing services based on open data. It includes tools to classify different kinds of data, basic data methods and techniques and examples of *reverse engineering* of existing applications Figure 3

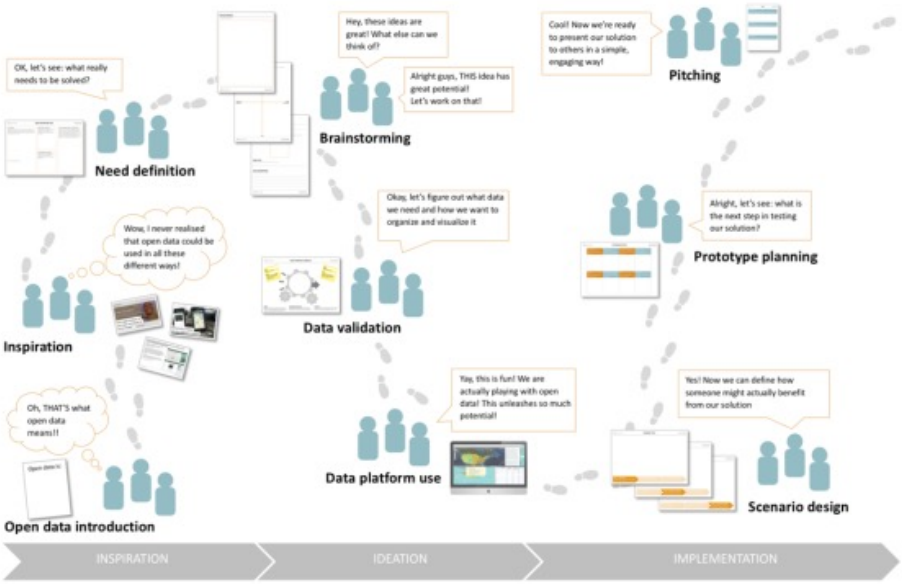

Figure 3 the Hackathon Starter Kit to facilitate co-creation process during the hackathon event. Source [10]

The vision: institutionalizing open data

The vision of the project is to widen the community of open data users as to include ordinary citizens, in the perspective that such a wide group would increase the demand for the publication of new data, lower the costs of such publication and consolidate standard procedure for data treatment and usage.

Creating logical connection between users may not be sufficient to create a consolidated community. With the inspiration of the diffusion of physical fabrication, the O4C project is proposing the creation of physical places, called *OpenDataLabs*, where knowledge and practice about open data can be exchanged among people with different background and skills.

OpenDataLabs will be a reference place for all individual and authorities that want to develop initiatives on open data. They will include educational activities, visualization and information sections and support for the organization of hackathons on different issues.

In the different pilot locations of the project different business scenarios are being explored for the OpenDataLabs. The logical proximity with digital fabrication spaces would suggest a first scenario, in which OpenDataLabs could be developed as an extension of the activities offered by a FabLab or Maker Space.

The educational value of OpenDataLabs also suggests that they could start-up as innovation centres connected to Universities, where they would also work as incubator for spin-off connected to educational activities. Finally their clear function as promoter of innovation, especially in urban context, would suggest that they could be proposed by public administrations, as a public support to local innovation.

As it happened for digital fabrication spaces, OpenDataLabs will not necessarily have a consolidated configuration; they will most probably be designed in relation to specific local activities and initiatives.

Conclusive remarks

The consolidation of the usage of open data is clearly depending on the social constructions that will be generated around them. At the moment the possible use of open data is subject to a wide interpretative flexibility while several social mechanisms (such as the predatory use of large cor-

poration, public regulations and institutional intervention, individual initiatives, are working to limit such flexibility and will possibly create mechanisms of closure [1] in the future.

In this logical context this paper contributes to the debate by highlighting possible mechanisms to increase social participation and generate new social practices. The two interventions proposed in this paper, consolidation of practices on open data and creation of open data communities are touching different aspects of this magmatic context and are expected to have different impacts.

The definition of practices to deal with open data will support public participation to the development of new solutions. The tools proposed by the O4C project are quite certainly producing niche changes, that will consist in projects, services, new initiatives developed in the hackathons.

Other solutions resulting from the individual use of the O4C platform and the data toolkit can also have an impact on local contexts.

The O4C strategy to create communities around open data is instead supposed to have an impact on the creation of a new landscape, i.e. a new institutional context in which open data solutions can be systematically developed. The O4C strategies are inspired to analogies with other *success stories* of the last decade, and specifically to the diffusion of digital fabrication; the story of open data however, may not necessarily be the same; other factors, not considered or not visible at the moment, may lead the development of this area towards different configurations.

In this sense O4C, as many other projects on open data, is exploring the realm of possibilities, creating possible catalyzers around which new socio-technical configurations could appear.

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