Crowdsourcing: a new way to citizen empowerment

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Abstract Empowerment has for a long time held a prominent place in the theoretical development of fields as diverse as development studies, community psychology or studies on social movements and organisations, among other areas. In parallel, multilateral agencies and non-profit organizations have launched empowerment processes in different sociocultural and political contexts with an uneven impact. On the other hand, the advance of Web 2.0 technologies has allowed crowdsourcing to establish itself as one of the most successful collaborative approaches through the internet, particularly in the business world.

In this chapter the authors present a definition of the concept ***empowerment-oriented crowdsourcing*** on the basis of the review of the theoretical and practical developments of both dynamics. The objective is to delineate the framework that facilitates the implementation of processes of citizen empowerment through crowdsourcing projects that seek social benefit.

Keywords: empowerment, crowdsourcing, citizenship, framework, empowerment-oriented crowdsourcing.

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Introduction

This chapter is concerned with the relationship between empowerment, citizenship and crowdsourcing. The authors believe that the interaction of the three elements can help significantly to facilitate the participation of citizens in processes of social change that pursue the creation of a more just society. Under this approach, our paper intends to be a contribution, both from the theoretical reflection and practical application, to the strengthening of citizenship capabilities to achieve this objective.

The notion of empowerment used in this paper is built on contributions made in the field of development and it is complemented with other contributions of disciplines such as education, psychology or social work. On the basis of this review, we establish the elements of the concept of empowerment in the context of a developed country at the present time. From that point, the term crowdsourcing is defined together with its typology, and both a definition and a characterization are suggested for the empowerment-oriented crowdsourcing.

Understanding empowerment

The literature review of the concept of empowerment shows a wide variety of ideas which have in turn resulted in different definitions by different disciplines related to several sociocultural and political contexts. From its origins in popular education approaches, with the development of critical pedagogy described by Paulo Freire (1970), empowerment has received theoretical contributions from other disciplines such as the model established by Julian Rappaport (1987) in the theoretical development of community psychology, the study of power from political science by Max Weber (1977) or Michael Foucault (1999), or the research work on women's empowerment from a gender perspective conducted by Jo Rowlands (1997) and Naila Kabeer (1999), among others. At present, in development studies and practice the concept of empowerment has transcended the gender perspective and has been widely used in development studies, community and social work or development cooperation, and it is widely used by development agencies, the United Nations or the World Bank, among others (Murguialday et al. 2006).

The remarkable variety of application fields has resulted in an excessive laxity which, although it has helped to spread its use, it has also made it significantly difficult to define a framework for its practical use beyond the approaches aimed at specific groups. An overview of the most significant definitions will establish the elements that will compose the framework for understanding empowerment that can be used to define crowdsourcing empowerment-oriented practice.

Among the works aimed at the development of mechanisms for the empowerment of women, the contributions made by Jo Rowlands (1997) stand out. This author believes that empowerment is bringing people who are outside the decision-making process into it. Therefore, empowerment is related to the different ways in which power operates. Thus, in line with the conventional definition of 'power-over', she emphasizes the participation in political structures and formal processes of decision-making. On the other hand, on the basis of "generative" forms of power ('power for' and 'power with'), empowerment has to do with the processes by which people become aware of their own interests and how these relate to those of others. According to this author, empowerment takes place in three dimensions: personal, developing a sense of self and individual confidence; relational, the ability to influence and negotiate the nature of relations; and collective, working together to achieve a more extensive impact.

Awareness and participation in decision-making is associated to the sense of control over one's own life included in the works of Julian Rappaport (1984) in community psychology. According to this author, empowerment means that people have to acquire new competences in the context of everyday life, rather than such competences come from experts. On this basis, only those people involved in the processes of empowerment can decide the success of them. Thus, he emphasizes the rights and abilities rather than the lacks and needs by developing a sense of empowerment from a political conception of the human being as a "citizen" immersed in a political and social context. The idea of the necessity to acquire competences is also found in Charles Kieffer (1984), who suggests a vision of empowerment as a process of learning and long-term development.

At an institutional level, we can find the extensive theoretical and practical work by the World Bank in this field (FRIDE, 2006). The World Bank, in a broad sense, considers empowerment as an expansion of the freedom of both choice and action, which means

that people acquire control over the resources (assets and capabilities) and the decisions that affect life itself. In order to make this possible, the Bank identifies, along with the suitable institutional condition[1], four elements that are often present in empowerment projects, namely (Narayan-Parker, 2002):

- Access to information: informed citizens are better prepared to seize opportunities, access services, exercise their rights, and negotiate effectively.
- Inclusion and participation: it is necessary to create appropriate spaces for people to discuss the issues that affect them, and to participate in the decision-making on such issues (setting priorities, determining budgets, defining services, etc.).
- Accountability: it should be possible to demand that both public and private actors justify and explain their decisions and actions.
- Local organisational ability: it refers to the ability of people to work together, organise themselves and mobilise resources to solve problems of common interest.

In this field, it is worth pointing out the work performed by the United Nations (2012) in the context of poverty reduction, social integration and work for everyone. The group of experts convened by this institution to address these issues carried out an extensive review of the literature and the progress made in promoting the empowerment of individuals and groups. On the basis of this work, the group defined empowerment as an iterative process that requires an enabling environment that allows and encourages the participation of any person throughout their life, individually or collectively, in decision-making on issues that affect their lives from the economic, social and political point of view. This includes the necessary access to knowledge and information, for which information and communication technologies play a key role. In this regard, the studies used by the United Nations suggest that the ability to perform problem analysis is a critical factor for people to feel capable of influencing government decisions.

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[1] This is a concept from political science which is defined as "the set of rules, both formal and informal, to which the different actors try to adjust individually and collectively (...) Institutions define the position of each actor in their mutual relations, how to access these positions, what resources and activities are available and which ones are not, etc." (Vallés, 2010: 171,172).

On the basis of the previous contributions, we can set the elements that we think should be integrated in current empowerment dynamics in the context of a developed society, as well as identify the connection with outsourcing projects based on the use of ICTs. In short, we find the following elements of the empowerment framework:

1. Awareness of both individual and collective capacities, as well as of the current situation of the economic, social and political environment.
2. Acquisition and development of competences[2] that allow active participation, either individually or in group, in decision-making processes on issues deemed important.
3. Development of an enabling environment that establishes both formal and informal institutions, ensures access to information, and sets accountability procedures in order to facilitate participation in decision-making processes at a local, national and even international level.

Among the elements identified, a dynamic and mutually influential relationship exists. That is, we believe that a greater awareness of the reality in which people develop their lives allows them to identify the abilities that would enable them to transform them and, in the absence of such abilities, to activate learning processes in order to reverse this situation. From this point on, a more prepared society can contribute significantly to the development of institutions, be more demanding in their requests for information, and exercise actively their right to accountability. All this restarts the process and contributes to a greater individual and collective awareness with a better understanding of reality.

In the following section we address the definition of crowdsourcing, establish the characteristics of this type of projects and analyse how they can promote citizen empowerment according to the framework we have just defined.

Definition of crowdsourcing

The term crowdsourcing first appeared in 2006 in *Wired* magazine, where journalist Jeff Howe described it as the act of a company or institution outsourcing a function

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[2] We believe that this acquisition of competences is achieve through a process that facilitates the integration of knowledge, skill acquisition, and the development of specific capabilities.

normally performed by an employee or undefined group of people (usually a large one) through an open call. This outsourcing may be peer-production when the work is done collaboratively, or it can be performed individually.

Since then, there have been many new definitions that reflect the evolution of the different types of crowdsourcing that have appeared in recent years. For example, Daren Brabham (2009) argues that crowdsourcing is a strategic model to attract an interested, motivated crowd of individuals capable of providing solutions superior in quality and quantity to those that even traditional forms of business can. For her part, Gabriella Kazai (2011) focuses on the retribution or satisfaction received by participants and defines it as "an open call for contributions from members of the crowd to solve a problem or carry out human intelligent tasks, often in exchange for micro-payments, social recognition or entertainment".

In this sense, it is worth highlighting the definition by Estellés and González (2012b: 9) in the article "Towards an integrated crowdsourcing definition", which accurately integrates most of the numerous definitions of crowdsourcing:

> "Crowdsourcing is a type of participative online activity in which an individual, an institution, a non-profit organization, or company proposes to a group of individuals of varying knowledge, heterogeneity, and number, via a flexible open call, the voluntary undertaking of a task. The undertaking of the task, of variable complexity and modularity, and in which the crowd should participate bringing their work, money, knowledge and/or experience, always entails mutual benefit. The user will receive the satisfaction of a given type of need, be it economic, social recognition, self-esteem, or the development of individual skills, while the crowdsourcer will obtain and utilize to their advantage that what the user has brought to the venture, whose form will depend on the type of activity undertaken".

On the other hand, crowdsourcing receives input from other concepts such as open innovation (Chesbrough, 2003) and collective intelligence (Schenk and Guittard, 2009) developed in the Internet through Web 2.0 tools[3]. The characteristics of this type of tools allow us to extend crowdsourcing to various areas by performing modular tasks

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[3] The development of collective outsourcing defined in crowdsourcing would be impossible without the interaction characteristics that define the Web 2.0.The development of tools and contents 2.0 that allow a two-way communication between the users and those responsible for the websites has encouraged the necessary participation and interaction among the users in order to conduct crowdsourcing processes.

executed in parallel by multiple users. This evolution has given rise to many different types of crowdsourcing projects in which countless users perform remotely different sets of tasks.

Types of crowdsourcing projects

In recent years, various attempts have been made to classify crowdsourcing projects based on different criteria. Among all the proposals, it is worth noting the one made by Geiger *et al.* (2011) from the perspective of both the organisation and the mechanisms of the process, or that given by Estellés and Gonzalez (2012a) based on the type of task to be performed and which integrates previous classifications suggested by Howe (2008), Brabham (2008), Geerts (2009), Reichwald and Piller (2006), and Burger-Helmchen and Penin (2010).

With the aim of bringing the concept of crowdsourcing closer through actual practice, we have compiled the classifications proposed by these authors with illustrative examples of projects that have achieved widespread impact. The categories included are:

- **Crowdcasting:** it includes those initiatives where the participant who first or better solves the challenge posed receives a reward. An example of this type of project can be found in the challenge issued by the company SunNight Solar in the *Innocentive* platform. The company challenged users to develop a dual-purpose solar light that would function as a lamp and a flashlight to be used in African villages and other areas of the world without electricity. Two months after the Challenge was posted, an electrical engineer from New Zealand solved the Challenge and was awarded $20,000 in March 2008[4].

- **Crowdcollaboration:** it includes projects in which participants bring their knowledge to solve problems or raise ideas collaboratively, usually without reward. The promoting company remains outside the communication between individuals. The following subtypes fall under this category:
  - **Crowdstorming:** it includes initiatives for which online brainstorming sessions are held, solutions are proposed, and the crowd participates with

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[4] Further information on Innocentive website: https://www.innocentive.com/innocentive-solvers-make-difference-rural-africa-and-india. Accessed 6 October 2014.

their comments and votes. This group includes the session held by Citibank's Global Transaction Services at the IBM platform *Jam Events*[5]. The session was opened to 25,000 people in 88 countries and more than 6,000 employees registered for the 55-hour event. The purpose was looking to tap into the knowledge of individuals in the field to validate its future strategy and identify growth opportunities (Lesser *et al.,* 2012). Another example is the session held by the toy company LEGO Group, which allowed customers to submit ideas for new products, and even to share the future revenues derived from those ideas (Antorini *et al.,* 2012).

o **Crowdsupport:** projects that allow customers themselves to solve the questions or problems of others, without resorting to the technical support or customer after-sales service. The company Hootsuite provides an example through the *GetSatisfaction* platform [6] with over 2,600 community members and 1,769 topics posted in the community.

- **Crowdcontent:** it differs from *crowdcasting* in that it is not a competition on a single task to be performed, but a final compilation of the work of all participants (not only the fastest or the best). The following subtypes fall under this category:

  o **Crowdproduction:** they are projects through which content is created by collaborating with other people or performing tasks of varying difficulty like, for instance, writing articles in *Wikipedia*[7], or microtasks that humans can perform more efficiently than computers, such as translating short fragments or labelling images of projects published on *Amazon Mechanical Turk*[8] platform.

  o **Crowdsearching:** in this type of projects the participants seek content available online for a particular purpose. The project *Peer to Patent Peer* by the United States Patent and Trademark Office (USPTO) that opens the patent examination process to public participation is a widely referenced initiative. Peer to Patent is an online system that aims to improve the quality of issued patents by enabling the public to supply the

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[5] Website of the platform https://www.collaborationjam.com. Accessed 6 October 2014.
[6] Website of the platform http://www.getsatisfaction.com. Accessed 6 October 2014.
[7] Website of the Wikipedia http://www.wikipedia.org. Accessed 6 October 2014.
[8] Website of the Amazon Mechanical Turk platform: https://www.mturk.com. Accessed 6 October 2014.

USPTO with information relevant to assessing the claims of pending patent applications9.

- o **Crowdanalysing:** similar to the above subtype but in this case the search is performed in text or multimedia documents such as images or videos. A representative example is the American company *BlueServo*, which allows participants to locate illegal immigrants in the United States-Mexico border with by means of the images taken by the cameras placed on the border. The participants can communicate their findings anonymously to the United States Border Patrol so that they can be arrested[10].

- **Crowdfunding:** it includes projects seeking to be funded by the crowd in return for a reward. There are numerous platforms which can be general or specialised by sectors or cultural areas. The platform *Kikstarter* is a representative example that has room for creative projects seeking collective funding for the development of products or services[11].

- **Crowdopinion:** it includes projects aimed at getting feedback from users on a particular topic or product, for which the participants contribute their opinion or evaluation. If this is carried out by voting, it is called *crowdvoting*. One of the most representative international projects is *Tripadvisor[12]*, the world's largest travel site, which contains over 170 million of reviews and opinions [13] of travellers on more than four million lodgings, restaurants, activities, and attractions that allow other visitors of the website to plan their trips.

To get a precise approach to the concept of crowdsourcing, it is important to consider the evolution experienced by the sector in recent years. A review of current outlook shows the development of new crowdsourcing projects focused on social interests and away from commercial interests. In this case, their classification requires the introduction of criteria related to the nature of the promoter.

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[9] Website of the Peer to Patent Peer project: http://www.peertopatent.org. Accessed 6 October 2014.

[10] Website of the *BlueServo* initiative: http://www.blueservo.net. Accessed 6 October 2014.

[11] Website of the Kickstarter platform: http://www.kickstarter.com. Accessed 6 October 2014.

[12] Tripadvisor website: http://www.tripadvisor.com. Accessed 6 October 2014.

[13] According to its web http://www.tripadvisor.co.uk/PressCenter-c4-Fact_Sheet.html. Accessed 6 October 2014.

In recent years, several governments around the world have applied crowdsourcing as a way to involve citizens in the political process from the paradigm of Open Government [14]. In line with this approach, Ortiz de Zárate (2012) proposes to use crowdsourcing as a tool for co-creation in the participatory design of policies. For this author, the same way some companies put in value the concept of openness for enriching the design of their services and products, the Administration can enrich the design of public policies thanks to the intelligence of the people. Tanja Aitamurto (2012) agrees on how governments use crowdsourcing to achieve a final purpose like producing of a budget, preparing strategies or drafting a law.

One of the characteristics of this type of crowdsourcing projects is that the participation is non-profit. That is, the participants do not receive any compensation for the tasks. Ortiz de Zárate (2012:15) reminds us that this fact moves the emphasis from the number of participants in these initiatives of political collaboration to the "fact of diversity; that is, we must ensure the participation of agents from all the sectors with an interest in the matter. In other words, we need to engage those who know (epistemological legitimacy), and those with an interest (stakeholders)".

But we cannot talk only about citizens as participants in institutional crowdsourcing projects for Open Government development. Citizens and civil society organisations can create their own platforms or collaborative initiatives intended to improve their environment, contribute ideas, denounce certain situations, or provide further and better transparency and clarity to the information that may be of social interest. Such projects favour the generation of new citizen organisations which, in the words of Gutiérrez-Rubí and Freire (2012), transform lifestyles and the governance of society with proposals.

At another level and more uncommon, there are private initiatives that are developing crowdsourcing projects to encourage critical thinking, solidarity and cooperation in solving common problems. In these cases, the ultimate indirect goal of the company is usually to improve their brand image or to increase product sales or visits to a particular website.

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[14] New form of governance based on the principles of transparency, collaboration and accountability. Further information http://www.opengovstandards.org. Accessed 7 October 2014.

The above considerations allow us to establish a new classification based on the criterion of the promoter that activates and energises the crowdsourcing projects. According to this criterion, we define the following categories:

- **Crowdsourcing initiatives promoted by public institutions:** These are collaborative projects promoted by the government, administrations or agencies. This group offers different examples at both international and national level. The first group includes projects such as *"Be A Martian"*, conducted by *NASA* in 2009[15], the constitutional reform in Iceland in 2010 and 2011[16], the participatory budgeting in Chicago (USA) in 2011[17], the public consultation on Transparency Act, access to public information and good governance made by the government of Spain in 2012[18] or the process launched by the FBI in 2013 to collect videos and photographs that could help to investigate the Boston Marathon bombing[19].

- **Crowdsourcing initiatives promoted by citizenship:** they include projects promoted by citizens or NGOs who are ahead of public institutions and generate their own crowdsourcing applications using sometimes open data from the administration and, usually, free opensource software. Some significant examples are: the *Ziudad* project launched in 2009[20] as a website of citizen collaboration, and a way to help solve urban problems, the initiative *"Adopt an MP"* promoted in 2012 by the organisation *What do MPs do[21]*, which asked for the cooperation of the citizens to complete and standardise a spreadsheet with the properties of the MPs, or the collective creation of free geographic databases promoted in recent years by *OpenStreetMap[22]*.

- **Crowdsourcing initiatives promoted by companies:** initiatives undertaken by private entities seeking public participation in solving problems of social interest. This category includes the project carried out by the British newspaper

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[15] Website of the project: http://beamartian.jpl.nasa.gov/welcome. Accessed 24 September 2014.
[16] Website: http://stjornlagarad.is. Accessed 22 September 2014.
[17] Crowdsourcing platform used: http://askchicago.org. Accessed 22 September 2014.
[18] Website: http://www.leydetransparencia.gob.es/index.htm. Accessed 22 September 2014.
[19] Website: https://bostonmarathontips.fbi.gov. The website currently redirects to https://tips.fbi.gov which shows a general form of collaboration with the FBI. Accessed 24 September 2014.
[20] Website: http://ziudad.es. Accessed 24 September 2014.
[21] Website: http://blog.quehacenlosdiputados.net/adopta-a-un-diputado-y-vuelca-su-patrimonio-a-formato-reutilizable. Accessed 22 September 2014.
[22] Website: http://openstreetmap.org. Accessed 24 September 2014.

The Guardian in 2011 [23] for the readers to contribute to the analysis of information about MPs expenses. The information generated was subsequently published openly, which made politicians accountable for their activities, with some of them even resigning over scandal. A second and more recent example is the initiative *Tomnod* by the company *DigitalGlobe*[24]. Through this platform people can participate in the analysis of satellite images to locate, for instance, the wreckage of *Malaysia Airlines plane MH370,* disappeared on the 8th of March, 2014, or the search for the *Tunante* sailboat wrecked on the Brazilian coast in September of that year.

Definition of empowerment-oriented crowdsourcing

The analysis of the initiatives set out shows a mixed picture with diffuse boundaries between the different established categories. In fact, the classification of a particular project as a particular type of crowdsourcing can sometimes be obvious; however, some of them can be placed in several categories. Despite this fact, it is possible to identify and define the elements that are integrated into the crowdsourcing projects, namely:

- **Promoter:** it refers to the characteristics of the organisations, both public and private, that implement this type of projects.
- **Objective:** it refers to the type of problems to be solved, whose solution can be addressed by the concurrent performance of individual tasks, and the expected outcomes.
- **People involved:** the selection criteria and the characteristics of the people for whom the participation is open in order to solve the problem.
- **Working method:** it defines the nature of tasks, the rules of the process, and the mechanisms that articulate the participation.
- **Tools:** it refers to the set of ICT 2.0 tools that materialise the project and define the working environment.
- **Benefits:** it indicates the results obtained and the satisfaction of the participants during and after the project.

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[23] Website: http://www.theguardian.com/news/datablog/2009/jun/18/mps-expenses-houseofcommons. Accessed 22 September 2014.
[24] Website: http://www.tomnod.com. Accessed 24 September 2014.

On the basis of these elements, it is possible to establish the relationship between crowdsourcing projects and the empowerment framework described in the previous point. Thus, we see how such projects cover the two dimensions of empowerment: the individual one (related to the awareness that occurs with the decision to participate and with the performance of tasks), and the collective one (related to the collaborative framework that is established in order to address the problem). On the other hand, the benefits obtained by performing tasks include the acquisition of useful skills and abilities for the active participation in the new environment of deliberation and online decision, some of them related to the use of ICT. In addition, the solution reached can also increase the knowledge about the current situation and activate the awareness of the problem addressed.

Furthermore, a closer synergistic relationship between the two dynamics is generated in projects of information analysis. These crowdsourcing projects allow the analysis of complex information, in many cases accessible thanks to the empowerment processes that promote the transformation of the environment. And as a result of these projects, knowledge about reality increases, which facilitates citizen awareness who, in turn, demand more information.

However, despite the potential described, most crowdsourcing projects do not cover the whole process of empowerment. Both dynamics share the need of an environment that, among other things, provides adequate formal and informal institutions or ensure accountability processes that promote the control by citizens.

On the basis of the above reasoning, we propose a definition of what we call *empowerment-oriented crowdsourcing,* which could set out as follows:

> Online collaborative and non-profit process open to the participation of diverse citizenry in order to perform tasks whose final result brings social benefits to the political, social, economic and/or environmental field, in which the knowledge generated can be accessed, shared and reused freely.

The approaches included in the definition have been implemented by the authors of this chapter through the website *analizo.info*[25]. It is a crowdsourcing non-profit initiative open to all public, which facilitates the active participation of citizens in the process of

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[25] Website of the initiative http://www.analizo.info. Accessed 7 October 2014.

analysis of different types of information[26], which are aimed at the improvement of society in the political, social, economic and/or environmental fields. The initiative maintains a threefold profile: first, it acts as a technology platform[27] for non-profit organizations wishing to set crowdsourcing projects based on the analysis of information[28]; second, it is configured as a community of analysts in order to foster collaboration and a sense of belonging to a group; finally, as a non-profit entity responsible for providing advice and ensuring that the principles set in its code of ethics are respected[29].

Conclusions

Throughout the chapter we have addressed the relationship that can be established between the processes of empowerment and crowdsourcing projects. The contributions support the conclusion that both dynamics share elements that can make crowdsourcing a tool at the disposal of citizen empowerment. However, this conclusion can not be expanded to all the crowdsourcing projects which have been materialised in recent years.

The definition we have specified for the ***empowerment-oriented crowdsourcing,*** despite its introductory nature, can serve as a framework for determining which projects can be considered as such. Similarly, not all the projects with established features contribute in equal measure to empowerment. Despite the empowering potential of such projects, it is necessary to consider their limitations. In this sense, mechanisms for evaluating the extent of empowerment must be established, both individually and collectively. Moreover, the participants should take part in it.

Finally, we would like to mention the central element in any *empowerment-oriented crowdsourcing* process: the participants. Our experience in the different projects published in *analizo.info* has shown the difficulty of achieving citizen participation. Despite the awakened interest by the media and having become widespread, the number

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[26] Website of information analysis projects http://proyectos.analizo.info. Accessed 7 October 2014.

[27] The analysis platform is developed using the open-source solution for social data analysis PyBossa. Website: http://pybossa.com. Accessed 7 October 2014.

[28] There are currently published projects of text analysis in election programs, description of media news related to development cooperation, and identification of green spaces in the city of Valencia (Spain).

[29] The code of ethics of analizo.info is available at http://proyectos.analizo.info/codigo-ethical. Accessed 7 October 2014.

of people involved, with some exceptions, has been considerably low. We believe it is necessary to reflect on the factors that contribute to motivate and mobilise the citizens to participate in such processes. Beyond the dependent relationship that exists between these processes and the characteristics of the environment in which they are developed, it is essential to go more deeply in the elements and characteristics that define this type of processes.

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