COMPARING ONLINE WITH OFFLINE CITIZEN ENGAGEMENT FOR CLIMATE CHANGE: FINDINGS FROM AUSTRIA, GERMANY AND SPAIN

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ABSTRACT

The aim of this paper is to study the expectations of environmental senior managers, as experts in this field, about the effect of e-participation in the fight against climate change. Their experiences in, and the fulfillment of their expectations about, citizen participation in local government environmental programs have been analyzed through different questionnaires in order to answer the following research questions. What effects can be expected from citizen participation in environmental programs? What conditions are necessary for, and what barriers are there to, successful participation processes? Is e-participation more effective than traditional citizen participation? The results confirm that e-participation is only an enabler of citizen engagement in citizens in participation processes, but it does not overcome all the barriers to these processes. The success of e-participation cannot be guaranteed merely by introducing ICTs. The integration of e-participation with traditional offline tools for citizen participation is needed.

Keywords: citizen participation**,** e-participation, citizen panels, climate change

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1.- INTRODUCTION

Citizen participation is gaining popularity all over the world, especially at local government level (Bovaird, 2007; Cahn and Gray, 2004; Dunston et al, 2008). Just as, in the 1990s, there was global pressure for undertaking managerial public sector reforms under the New Public Management (NPM) postulates, in the twenty-first century, the demand for new methods of governance is putting governments worldwide under pressure to develop tools for improving information, consultation, and active citizen participation (OECD, 2001). The need to integrate citizen engagement with traditional structures and processes has been defined as one of the three contemporary challenges faced by local governments (Nalbandian et al, 2013).

Both the academic literature (Löffler et al, 2008; Portney, 2013; Wang et al, 2012; Royo et al, 2014a) and international strategies, such as the Local Agenda 21, the Aalborg Charter on Sustainable Cities, and the Local Governments for Sustainability program of the United Nations, have emphasized the strong role of stakeholder involvement in sustainability issues. A citizen who is well informed about environmental policies and initiatives can become part of the global effort for environmental protection. The use of ICTs and, in particular, the Internet, may have an important role in climate protection, given its potential for informing, educating, and empowering citizens. E-participation can help to give the necessary visibility to environmental protection initiatives and to promote the engagement and cooperation of citizens and other key stakeholders (Royo et al, 2014b). However, there are very few studies about the effectiveness of citizen

participation in climate protection and even fewer regarding the effectiveness of e-participation.

To fill this gap, this study focuses on the analysis of the expectations of senior civil servants with many years of experience in managing environmental programs (hereinafter "the managers") about the contribution of e-participation in the fight against climate change. For this purpose, a questionnaire to analyze the previous experience of managers about citizen participation in environmental policies and an in-depth longitudinal analysis (at the start and at the end of a specific long-term citizen participation initiative involving online and offline panels) were designed. The results allow the comparison of the opinion of managers about their expectations and the actual results achieved in citizen participation initiatives. Their experience in climate protection and citizen participation programs gives these managers a solid background that allows them to build an informed opinion about what can be expected from citizen participation in climate protection programs, although these initiatives are relatively recent in local administration agendas.

This research collects the opinion of managers from Austrian, German and Spanish cities or regions. These countries belong to two different public administrations styles (Weberian and Napoleonic) and they share federal and bureaucratic legal frameworks for the organization of the public sector, with similar competences at local level. These characteristics make them comparable in the implementation of public sector reforms at local level. The opinion of managers involved in the study will provide insights into the following research questions. RQ1 What effects can be expected from citizen participation in environmental programs? RQ2 What conditions are necessary for, and what barriers are there to, successful participation processes? RQ3 Is e-participation more effective than traditional citizen participation?

The perceptions and opinion of managers of the cities involved, as experts in citizen participation initiatives, may be useful to other managers and politicians who want to introduce or improve citizen participation in environmental protection programs. The results will also be useful to show whether managers perceive e-participation as being more effective than offline participation. Few studies compare online and offline participation and none address the evaluation of citizen participation effectiveness from the point of view of the managers. Furthermore, only five per cent of e-participation studies in Europe have used e-panels (Panopoulou et al, 2010) and having comparable online and offline panels for the same citizen participation initiative is even less common.

The remainder of this paper is structured as follows. Section 2 presents some background ideas about citizen participation and an analysis of the most relevant research comparing online and offline citizen participation and analyzing managers' opinions about e-participation. The study carried out is presented in Section 3 and its results are analyzed in Section 4. Section 5 discusses the most important findings and the conclusions are presented in Section 6.

2.- THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Theoretical framework for citizen participation in environmental protection

In the shift from government to governance[1], citizen participation is playing an increasingly important role. More participative approaches may be adopted to maximize the efficiency of public policy, to develop social capital and community cohesion, to

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[1] For Weale (2011), 'governance' can simply refer to processes of government, whatever form they take. More recently, it has come to be used to denote ways of governing that are non-hierarchical and involve networks of actors, both public and private, determining policy through negotiation, bargaining and participation.

improve service delivery, to meet local needs, to improve information flows and accountability, to give voice to those most directly affected by public policy, and to address concerns about the 'democratic deficit' (Andersen and van Kempen, 2003; OECD, 2001; Nabatchi, 2012). However, the application of Institutional theory (Meyer and Rowan, 1977) to the analysis of citizen participation initiatives (Yetano et al, 2010) suggests that, very often, the adoption of citizen participation is an attempt to change the perceived image of government without deeper changes in the decision-making processes that really incorporate citizens' points of view.

The daily work of public sector managers and politicians is directly affected by citizen participation developments. Previous literature indicates that these actors can oppose developments in citizen participation initiatives, as they fear losing power and are narrow-minded with regard to innovative processes, novelties, and changes in their everyday work process (see, e.g., Vogt and Haas, 2015; Wagner et al, 2016). As a result, citizen participation sometimes becomes an end in itself (a symbol of responsiveness and 'good management'), rather than a means to achieve other objectives such as strengthening democracy or achieving better service delivery.

E-participation versus traditional forms of participation

In recent years, there has been much discussion about the benefits of new technologies to improve government-to-citizen relationship. The Internet, Web 2.0 tools, and social media have emerged as important driving factors for citizen participation because of their potential for informing, educating, and empowering citizens (Bertot et al, 2012; Bonsón et al, 2012, 2015; Linders, 2012; Mergel, 2013). Electronic communication is often viewed as a panacea for all the ills of modern government (King, 2006; Linders, 2012). According to Vragov and Kumar (2013), technology can aid a peaceful transition from thin democracies (where there are very limited avenues of action for citizens to

express their preferences) to strong democracies (where there is a strong emphasis on engaging the citizenry). For Pratchett et al. (2009), e-participation has three main benefits: 1) it offers more opportunities for participation and higher levels of convenience because it is not anchored in time or place; 2) it allows a greater range of participants; 3) it facilitates "better" participation, as new technologies allow participation to be linked to all the relevant information. However, there is little empirical evidence to support these positive claims and for some researchers, for example Alonso (2009) and Macintosh et al (2009), an important challenge for e-participation is to achieve equity in the representation of stakeholders.

Although research on customer satisfaction and loyalty in online and offline environments started in the private sector more than a decade ago (Shankar et al, 2003), research in the public sector is relatively recent and scant. In the public sector, the first papers comparing online and offline forms of participation dealt with political engagement and political mobilization (e.g. Conroy et al, 2012; Wojcieszak, 2009). Previous research comparing online and offline citizen participation within the public administration has found conflicting results with respect to representativeness. Some studies (e.g. Saglie and Vabo, 2009; Smith et al, 2009; Conroy et al, 2012) conclude that online participation is strongly correlated with offline participation while others indicate that online and offline participants seem to have a different sociodemographic profile (Yetano and Royo, 2015), so the combination of these two forms of participation may lead to more inclusive processes. Previous research concludes that offline participants tend to interact with each other to develop ideas more fully (Schweitzer et al, 2012) and that the quality of online discussion tends to be low (Conroy et al, 2012).

A limited number of previous studies, among which we can highlight those of Feeney and Welch (2012), Mahrer and Krimmer (2005), Reddick and Norris (2013) and Royo

et al. (2014b), have analyzed managers' opinions about e-participation. However, these studies either do not compare online and offline citizen participation or are based on the opinions of a limited number of managers in a specific setting (case study methodology). Feeney and Welch (2012) analyze the responses to a survey of 902 public managers at the local level in the US and their results show that managers' perceptions of the outcomes of e-participation initiatives are significantly related to the number of channels used and the frequency of use. After interviewing 201 Austrian politicians, Mahrer and Krimmer (2005) conclude that politicians are inhibiting the evolution of e-democracy. Reddick and Norris (2013) analyze the responses to a survey of 684 public managers at the local level in the US and their results show that citizen demand, formal planning and taking e-participation seriously are the most important factors predicting managerial support for e-participation and the impacts perceived. Royo et al (2014b) analyze the opinions of six Spanish managers regarding a specific e-consultation process, showing that, although these managers seem to know the basic principles for successful citizen participation, they were not applied in practice. Improving the image of the local government and promoting transparency were the most important goals for the managers in this process.

Frameworks for the evaluation of citizen participation initiatives

Previous research has proposed some frameworks for evaluating citizen participation initiatives. For Kubicek and Aichholzer (2016), there is no one-size-fits-all solution and tailored evaluation concepts and measurement tools have to be developed for each specific process –and even for the same process, depending on whether organizers' or participants' opinions are being assessed. Macintosh and Whyte (2008) propose a three-layer framework for evaluating e-participation: socio-technical or tool perspective, project or initiative perspective, and democratic perspective. Nabatchi (2012) states that

public managers should consider two types of evaluations: process evaluations, which examine program management and administration, and impact evaluations, which examine program outcomes and results. Similarly, Nam (2012) proposes a framework for assessing citizen-sourcing initiatives that is based on design evaluation, process evaluation and outcome evaluation. Finally, Kubicek and Aichholzer (2016) propose a generic input–activities–output–outcome–impact model to evaluate e-participation processes. Inputs, activities and outputs evaluate the offer and resources of the organizing entity and outcomes cover the demand-side component (number, profile and activities of the participants, for example). Impacts are the final consequences of the participatory process (e.g., changes of attitudes or behavior, more trust in political institutions, learning, the building of social capital, and so on).

This study contributes to the limited number of previous studies into managers' opinions about the effectiveness of citizen participation by analyzing their opinions before and after a citizen participation initiative involving both online and offline forms of participation.

3.- RESEARCH METHODOLOGY

This paper is a part of a broader project (e2d Project) funded by the European Science Foundation. The objective of the e2d Project was the evaluation of the effectiveness of e-participation initiatives compared to traditional citizen participation through the analysis of the performance of online and offline citizen panels in the cities involved in the Project. This Project can be classified, in accordance with Macintosh and Whyte (2006), as a top-down project in which governments seek to link citizens to local government policies. The citizens participating were expected to reduce their CO_2 emissions by 2% each year they participated. The two panels of citizens per city

involved in the study consisted of two groups of 200 citizens, one of them participating online and the other offline. The instrument chosen to assess the impact of the collaborative participation was a CO_2 footprint calculator, and participants could choose whether to participate online or offline[2].

One specific goal of the e2d Project was to study the opinion of the senior civil servants who manage these processes in the cities/regions involved. In order to know the opinion of the managers, a three-part questionnaire (Part A, Part B1 and Part B2), with closed answers, was designed (e.g. yes/no; three categorical options; Likert scales from 1 to 10, 1 being the lowest and 10 the highest level of agreement with each of the statements).

The objective of Part A was to obtain a picture of the opinions that managers had about the usefulness of citizen participation in environmental issues before participating in the e2d Project. In order to achieve this objective, information about their experience in previous initiatives or processes in which citizen participation was involved (online or offline) was collected. The objective of Part B1 was to collect the expectations of managers about the effect of citizen panels in the reduction of CO_2, at the beginning of the e2d Project. The objective of Part B2 was to collect their opinion about the actual achievements obtained by the citizen panels at the end of the e2d Project. The questionnaires were designed taking as a reference the existing frameworks for evaluating citizen participation initiatives at that point of time, especially as regards impact and outcome evaluation (see Section 2). Each question was thoroughly debated by the research team and tested with a sample of managers before sending the questionnaire to all of managers.

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[2] More details on the e2d Project can be found in Aichholzer et al (2016) and in http://www.e2democracy.eu.

In part A, the opinions of 48 managers, from 19 local governments in Austria, Germany and Spain, with around eight years of experience in managing climate change programs involving citizen participation processes were obtained. All of these managers were, or had been, involved in some of the most important international environmental initiatives, such as the Agenda 21, the Aalborg Commitments, the Covenant of Mayors, the Climate Alliance, the e5 Programme and the R20 Regions of Climate Action. The local governments represented were: Bremen, Munich, Bremenhaven, Frieburg, Hannover, Wasserburg, and Wennigsen, in Germany; Zaragoza, Pamplona, Diputación Provincial de Zaragoza, Alcobendas, Sant Cugat del Valles, Alicante and the Regional Government of Aragon, in Spain; and Bregenz, Mariazellerland, Guswerk, Steiermark and Vienna, in Austria. The questionnaire was made up of fourteen questions grouped into two blocks. The first block, about general issues, included four questions aimed at clarifying in which climate protection and citizen participation activities, the managers had been involved. The second block was made up of ten questions referring to the features of the previous activities, the profile of the citizens who participate in those previous activities and the degree of managers' satisfaction. The answers to these questions are shown in Section 4 and in Tables 1 to 4. The answers were collected from September 2010 to April 2011.

Part B analyzes the evolution of the opinion of the managers involved in the e2d Project. They were 23 managers from Bremen, Bremenhaven and Wennigsen (Germany), Zaragoza and Pamplona (Spain), Bregenz and Mariazellerland (Austria). The questionnaire was presented at the beginning (September, 2010) and at the end (December, 2012) of the e2d Project. Managers were asked, at the beginning of the e2d Project, about what they expected from the citizen panels and, two years later, at the end of the e2d Project, about their views on the effect of the citizen panels

In most cases, managers answered the questionnaires in face-to-face meetings, although some managers indicated that they preferred to answer the questions on the phone or by e-mail. Quantitative analyses were carried out to analyze the data. The results are shown in tables which reflect the distribution of the answers. Where the Likert scale was used to code the responses, the tables report the mean value and the standard deviation (SD) in order to give a measure of the degree of concentration/dispersion of the opinion of managers. The Spearman test[3] was also applied to identify relationships between answers and the *t-test* for related samples was also used in order to detect statistically significant differences between the expectations of managers at the beginning of the Project (Part B1) and their opinion about the actual achievements at the end of the Project (Part B2). Because of the size of the tables, the Spearman test tables have been partially included in the Annex A of the paper[4].

4- ANALYSIS OF RESULTS

The results of the analysis are summarized in Tables 1 to 5. Table 1 and 5 show percentages because the managers had to choose between three categorical options. The figures of Tables 2 to 4 show the mean value of the scores given by managers and the SD figure because a Likert scale from 1 to 10 was used.

Part A: MANAGERS' EXPERIENCES IN CITIZEN PARTICIPATION IN CLIMATE PROTECTION

General issues

The answers to the questionnaire reported a wide range of experience in climate protection projects: more than 64% reported up to ten years' experience and the average

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[3] This is a nonparametric measure of the statistical dependence between two variables. It assesses how well the relationship between two variables can be described using a monotonic function. If there are no repeated data values, a perfect Spearman correlation of +1 or −1 occurs when each of the variables is a perfect monotone function of the other. Spearman's coefficient, like any correlation calculation, is appropriate for both continuous and discrete variables, including ordinal variables.

[4] The full tables can be obtained from the authors upon request.

experience reported was eight years. Most respondents (80%) also reported experience in citizen participation projects in local programs (such as household climate protection, mobility, replacement of bulbs, ecology education, green households, CO_2-reduction habits and recycling). In addition to climate protection programs, some respondents have also been involved in programs included in the Agenda 21. Germany and Spain show the highest level of experience in e-participation with 58% and 43%, respectively, stating that they have been involved in e-participation initiatives, followed by Austria with 12.5%. Questions directly related to e-participation were only answered by managers with prior experience in e-participation.

Benefits of citizen participation

According to the managers, the most outstanding benefits of citizen participation in environmental programs are "increased attention to the climate effects of actions in various fields of life", "better transparency in the development of local measures for climate protection", "an improvement of the image of the city" and "a test of new ways of governance" (see Table 2, Part A column). Just over 50% of German and Spanish managers, and around 25% of Austrian managers, report that their local governments carried out some evaluation of citizen participation programs. Thus, if the other 50% of local governments do not test the results or the impact of their climate protection programs, that may mean that the implementation of these initiatives is an objective in itself (as suggested by Institutional theory). This low level of interest in monitoring their participation programs is consistent with the low values that they give to the benefits of citizen participation, especially in Austrian local government climate protection programs.

Satisfaction with previous initiatives and success factors

The general level of satisfaction was high, 75% of managers expressing their satisfaction with previous experiences in citizen participation. All German and Spanish managers were satisfied with the results of previous projects, and Austrian managers showed some degree of dissatisfaction. According to the managers, the key conditions for the successful participation of citizens were: "clarity of the objectives", "support for citizens through training of participants", "supervision by moderators or similar personnel", "the belief that citizens' opinion will be taken seriously," "the transparency of results", and "the share of responsibility". The "implementation of incentives and competition with other citizens" was not considered relevant by managers. The most outstanding recommendations for achieving successful citizen participation projects were: (1) "to make the objectives of the collaboration clear," (2) "to provide appropriate information," and (3) "broader campaigns for and better integration of citizens" (see Table 3, Part A column).

Barriers to citizen participation

The main reason given by the managers who were not satisfied with their previous citizen participation initiatives was that the same people always took part in them. Some managers stated that they only attracted and reached well-informed and active citizens and that attracting others was also necessary. Other reasons, with mean values of over 5 and over 6 points out of 10, were limited political will and drive, lack of interest from the citizens, lack of personnel and lack of resources (see Table 4, Part A column). Managers stated that strong involvement from local politicians is needed in the participation process.

Notwithstanding these concerns, almost all the managers stated that they would be happy to be involved in further citizen participation initiatives.

Demographics of online and offline participants

Managers did not find significant differences between the gender, income and political orientation of participants in their previous climate change participation programs depending on whether they are carried out online or offline. However, they found more participation by citizens with higher educational and non-immigration backgrounds. Managers with experience in online participation initiatives described the profile of citizens participating online as younger, more highly educated and with non-immigration backgrounds.

Table 1 Demographics of online and offline participants

Compared to the composition of the general population, how much do citizens who participate in climate protection initiatives differ with regard to the following characteristics: (give 1 to 3 points)	offline			online		
	1	2	3	1	2	3
a) Age (1 no difference – 2 more elderly – 3 more younger people)	41%	41%	18%	17%	25%	58%
b) Sex (1 no difference – 2 more men – 3 more women)	38%	35%	26%	58%	33%	8%
c) Education (1 no difference –2 more people with high education level – 3 more people with low education level)	35%	56%	9%	17%	83%	0%
d) Income (1 no difference – 2 more people with high income – 3 more people with low income)	55%	33%	12%	67%	33%	0%
e) Migrants (1 no difference – 2 more people with migration background – 3 less people with migration background)	23%	10%	67%	33%	17%	50%
f) Political Orientation (1 no difference – 2 more left – 3 more right)	62%	32%	6%	50%	42%	8%

Other issues related to online and offline participation

Around 50% of managers reported better online project performance for public administration and citizens in terms of cost, better offline project performance in contributions and in community building, and no differences as regards effectiveness in online and offline projects (e.g., CO_2 reduction) (see Table 5, Part A column). The degree of managerial satisfaction with citizen participation in climate protection

programs does not show noticeable differences between offline projects (mean value of 6.15 points out of 10) and online projects (mean value of 5.54 points out of 10).

In expressing views concerning the number of participants, 25.7% of the respondents were happy with the level of participation in offline groups, 54.3% of respondents show a moderate level of satisfaction and 20% were not happy. The managers were very critical about citizen participation in online projects, with 29.4% of the respondents happy with the level of participation, 29.4% showing moderate satisfaction and 41.2% not happy.

German and Austrian managers were the most critical about the number of participants. Almost all Spanish managers showed a moderate degree of satisfaction with the number of participants. According to the managers, the reasons why citizens did not participate, or decided to abandon the participation activity while it was still operative, were "lack of time" and "decreasing motivation" (over 7 points out of 10).

Managers were critical about the representativeness of the participants, only 23.5% of them giving a score of over 7 points out of 10 to the degree of representativeness of offline projects and 25.1% for online projects.

Spearman test. Experience-satisfaction/skepticism of managers.

Although a high degree of global satisfaction with citizen participation projects was detected, especially among German and Spanish managers, the Spearman test revealed some skepticism about the impact and contribution of citizen participation when the experience of managers in citizen participation increased. That is to say, the more experience in this field, the lower the level of global satisfaction (Spearman-test correlation (SC) -0.477**).

Managers with experience in citizen participation projects through the Internet showed a higher level of satisfaction (SC 0.499**) and highlighted a user–friendly online interface as a factor for the success of e-participation (SC 0.508**). This is consistent with previous research finding indicating that managers' perceptions of the outcomes of e-participation initiatives are significantly related to the number of channels used and the frequency of use, which indicate more experience of the managers (Feeney and Welch, 2012).

Part B: OPINION OF THE MANAGERS BEFORE AND AFTER THE CITIZEN PANELS

Part B deals with the opinion of the managers involved in the citizen panels' study, at the beginning of the e2d Project and at the end, about the effects of the citizen panels to climate protection programs.

Tables 2 to 5 summarize the managers' answers. "Part A column" shows the opinion of managers about their previous experiences in citizen participation. "Part B1 column" collects the expectations of the managers at the beginning of the e2d Project and "Part B2 column" includes their opinion about the effect of the citizen panels at the end of the e2d Project.

Benefits of citizen participation

Table 2 collects the opinion of managers about the benefits of citizen participation. As can be seen, the mean values given to the expectations about the effect of citizen participation in panels on the reduction of CO_2 footprint are over 6.2 points in all cases, so the managers had high expectations when starting the e2d Project (see Table 2, Part B1 column). The highest scores of managers' expectations about the benefits from the citizen panels were for "increased attention to the climate effects of actions", followed

by "a reduction in the CO$_2$ emission level among participants", "better image of the city administration" and "better transparency in the development of local measures for climate protection". The lowest scores were for "the improvement of social cohesion", "testing new forms of governance" and "citizen engagement in city affairs", which show the lowest mean values.

An overall view of the figures included in Table 2 shows higher scores in Part B1 and Part B2 than in Part A. This means that managers involved in the citizen panels initiative expected (Part B1 column) better results than they have had in previous experiences (Part A column). E-participation is in its infancy and, because of this, learning processes improve their outcomes as suggested by Feeney and Welch (2012).

Notwithstanding, except for the effect of the initiative in the behavior of other citizens, the *t*-test for related samples did not find statistically significant differences between the answers at the beginning and at the end of the e2d Project. This means that, in general, the results of the e2d Project confirmed the expectations.

Table 2. Managers' opinion about benefits of citizen participation

	Part A	SD	Part B1	SD	Part B2	SD	t	Sig
Degree of achievement of the following effects of the citizen participation (give points from 0 to 10)	Opinion based on previous experience on citizen participation		Expectations about the performance of citizen panels at the beginning of the e2d Project		Opinion of the performance of citizen panels at the end of the e2d Project			
Better image of the city administration	4.57	1.8	7.37	1.7	6.09	1.9	1.743	0.098
Proof that public administration is testing new forms of governance	4.56	2.7	6.32	2.6	6.61	2.8	.116	0.909
Improvement of social cohesion	4.48	2.8	6.26	2.6	6.55	1.4	-.531	0.602
Better transparency in the development of local	4.84	2.6	7.26	2.1	6.82	1.9	1.165	0.260

measures for climate protection								
Increased attention to the climate effects of actions in various fields of life	4.94	2.2	8.11	1.3	7.78	1.9	0.857	0.403
On the whole, a reduction in the CO_2 emission level among participants	3.77	2	7.84	1.8	7.78	1.9	-0.189	0.852
A positive effect on climate protection behavior among other citizens in the area	3.98	2.5	6.74	1.6	4.91	2.2	3.473	0.003
A significant improvement in citizen engagement in city affairs	4.01	2.7	6.39	2.4	5.18	2.3	2.885	0.011

*Likert Scale 1–10 points, with 10 being "totally agree" and 1 "totally disagree".

Another question asked the managers about the different fields in which citizen participation could be effective with respect to CO_2-reduction, (giving points from 0 to 10). For the managers, citizen CO_2 reduction can be achieved through changes in all the habits analyzed in the Project (energy saving, mobility, nutrition -buying regional/seasonal/ecological food-, and smart consumption) and especially through changes in their domestic habits, such as saving energy.

Satisfaction with previous initiatives and success factors of citizen participation

Table 3 shows the opinion of managers about the factors that influence the success of citizen panels in the achievement of the objectives of the e2d Project namely the reduction of CO_2) comparing their opinion based on previous experiences (Part A column), their expectations at the beginning of the e2d Project (Part B1 column) and their opinion at the end of the e2d Project (Part B2 column). As can be seen, most items increase their mean value when referring to expectations. However, the opinions at the end of the e2d Project are closer to previous experience figures than to those of expectations. The mean value of the items "clarity of the objectives", "the provision of support to participants" and "the level of transparency of the process" were over 8 points out of 10, so there appears to be a wide consensus among managers in

considering these items as key factors of success. From previous experiences to expectations, the mean value of "the variety of channels and media used in order to mobilize participation" and "the level of user-friendliness of the ICTs to enhance citizen participation" increases from 7.55 and 6.71 to 8,26 and 8.56 points respectively, although the opinion of managers at the end of the e2d Project do not confirm this expectation, as the t-test shows. The low scores of the expectations at the beginning and the opinions at the end of the e2d Project about the effects of "the signature of commitments to the improvement of citizen participation" reflect a skeptical view of the effectiveness of international programs sponsored by institutions, which is also consistent with previous research (Krause, 2012; Royo et al, 2014a) and Institutional theory. The t-test does not find other statistical differences in the opinion of managers at the beginning and at the end of the project, except for the time dedicated to give assistance to participants that, at the end of the project, is not considered a relevant success factor.

Table 3. Managers' opinion about success factors of citizen participation panels

	Part A	SD	Part B1	SD	Part B2	SD	t	Sig
Importance of the following conditions for successful participation of citizens (give points from 0 to 10):	Opinion based on previous experience on citizen participation		Expectations about the performance of citizen panels at the beginning of the e2d Project		Opinion of the performance of citizen panels at the end of the e2d Project			
The level of changes in personal lifestyles required to meet the reduction objectives	4.86	3.1	5	2.6	4.32	1.7	0.437	0.668
The level of coordination among panelists	4.59	2.8	5.89	2.6	4.48	2.4	0.727	0.478
The level of clarity of the objectives	8.27	2.6	8.37	1.8	7.09	1.7	4.115	0.001
The level of support provided, such as advertising, supervision by moderators or similar	8.6	1.7	8.47	1.6	7.22	2	2.732	0.014
The level of incentives provided (lotteries) to maintain interest in the participation process	3.03	2.6	5.63	2.4	5.68	1.9	-.143	0.888

The level of transparency in the process and traceability of the results	8.77	1.2	7.68	2.2	6.45	2.4	2.135	0.048
The variety of participation modes offered for different target groups: online, offline	6.63	3.2	7.53	2.3	7.30	1.7	0.754	0.461
The timespan for monitoring citizen engagement	5.12	3.8	7.37	2.4	4.50	2.2	3.421	0.003
The level of regular input demanded from panelists	6.36	3.6	7.05	2.3	5.23	1.9	3.474	0.005
The level of competition among panelists	2.08	2.4	5.11	3.1	5.05	2.5	-.288	0.777
The variety of channels and media used in order to mobilize participation	7.55	2.5	8.26	1.4	6.55	1.4	4.605	0.000
The level of user-friendliness of the ICTs employed	6.71	3.2	8.56	1.6	5.00	2.2	6.476	0.000
The existence of commitments signed in national or international programs to reduce CO_2-emissions or to engage in citizen participation activities (e.g. Aalborg Commitments, Covenant of Mayor and Climate Alliance).	7	3.5	5.89	2.8	5.00	2.5	2.046	0.056

*Likert Scale 1–10 points, with 10 being "totally agree" and 1 "totally disagree".

Barriers to citizen participation

Table 4 shows the opinion of the managers about the reasons for the failure of the citizen participation panels to achieve the reduction of CO_2, comparing their opinion based on previous experiences (Part A column), their expectations at the beginning of the e2d Project (Part B1 column) and their opinion at the end of the e2d Project (Part B2 column). There are some items about expectations (part B1 column) whose mean values are over 7, which shows an acceptable consensus about the importance of appropriately handling these factors to avoid failure (although the standard deviation is high), including "limited political will and drive", "lack of interest of citizens" and "lack of consideration of citizen input in decisions". The scores of these issues at the end of the e2d Project are lower than the expectations at the beginning of the e2d Project, with all scores below 6 at the end of the project. The t-test shows that the lack of interest of citizens and the lack of consideration of citizen input in decisions are not viewed by managers, at the end of the project, as relevant barriers in citizen panels.

Table 4: Managers' opinion about barriers to citizen participation panels

Reasons for failure (give points from 0 to 10)	Part A — Opinion based on previous experience on citizen participation	SD	Part B1 — Expectations about the performance of citizen panels at the beginning of the e2d Project	SD	Part B2 — Opinion on the performance citizen panels at the end of the e2d Project	SD	t	Sig.
Limited political will and drive	5.33	3.6	7.21	2	4.13	3	2.703	0.022
Lack of interest of citizens	5.56	1.8	7.84	1.9	4.67	2.5	3.912	0.001
Lack of financial resources	5.44	2.5	6.11	2.2	4.14	3.1	1.363	0.192
Lack of personnel resources	6.33	2	6.79	2.4	5.45	3	0.750	0.465
Cooperation with other actors, e.g. with enterprises, is more effective	4.11	2.3	4.68	2.6	3.85	2.9	0.288	0.777
To risk being criticized by steering committees or political bodies if the participation activity fails to meet expectations	2.89	2.7	4.74	3	5	3	-1.091	0.295
To risk getting unwanted results or ones that are difficult to implement	3.38	3	4.95	2.8	4	4	0.101	0.921
Limited attractions offered to citizens to motivate them in practice	-		6.37	1.7	2.65	1.9	4.291	0.001
Time citizens are willing to spend on participation processes	-		6.58	2.3	5.95	1.4	0.967	0.347
Lack of economic incentives for citizens	-		4.16	2.5	3.53	2.3	0.859	0.404
Lack of consideration of citizen input in decisions			7.05	2.3	4.05	2.5	3.598	0.002

*Likert Scale 1–10 points, with 10 being "totally agree" and 1 "totally disagree".

Other issues related to online and offline participation

As can be seen in Table 5, managers envisage better results in online than in offline participation in terms of cost whereas, in terms of community building, they expected better results offline than online. There were no outstanding changes in the opinions of managers from previous experience to expectations of citizen panels, or from expectations to the actual results.

Table 5: Comparison of online and offline results

	Part A			Part B1			Part B2		
	1	2	3	1	2	3	1	2	3
Costs for public administration	50%	19%	31%	79%	21%	0%	65%	17%	17%
Costs for citizens	63%	19%	19%	63%	32%	5%	32%	59%	9%
Value of the content of the contributions	18%	35%	47%	16%	63%	21%	0%	64%	36%
Effectiveness (i.e. concerning CO_2-reduction)	25%	63%	13%	21%	53%	26%	22%	30%	48%
Their influence on (future) measures by public administration	20%	67%	13%	26%	53%	21%	17%	70%	13%
Community building	0%	39%	61%	21%	26%	53%	9%	26%	65%
Enhancing democracy at local level	0%	60%	40%	44%	33%	22%	9%	65%	26%
Sustainability of achieved results and continuity	0%	71%	29%	17%	39%	44%	5%	50%	45%

* 1 = online is better than offline; 2= No differences; 3 offline is better than online

Spearman test.

The correlations detected by the Spearman test in the results of Part B2 of the questionnaire show that:

1. Managers considered that the contribution of the citizen panels to testing new forms of governance was positive in the following items: "strengthening of ties among the local community" (SC 0.739**), "citizenship engagement in city affairs" (SC 0.666**), and "transparency in the development of local measures for climate protection" (SC 0.661**).

2. The number of participants in citizen participation projects (as a success factor) is explained by "the level of clarity of the objectives" with high correlations with other elements such as "the level of transparency in the process and traceability of the results" (SC 0.580**), "the variety of participation modes offered for different target groups (online and offline)" (SC 0.580**) and "the existence of commitments signed in

national or international programs to reduce CO_2 emissions or to engage in citizen participation activities". (SC 0.632**)

3. The Spearman analysis shows a correlation between "to risk getting unwanted results or ones that are difficult to implement" and "to risk being criticized by steering committees or political bodies if the participation activity fails to meet expectations" (SC 0.691**). These findings confirm that public managers can sometimes oppose developments in citizen participation initiatives, as they can involve changes in their everyday processes (Vogt and Haas, 2015).

5- DISCUSSION

This research shows that citizen participation initiatives on environmental issues (both e-participation and traditional participation) at local level are not new in the EU. In the cities studied, most participation initiatives started in the second half of the 1990s, concurrently with the publication of feedback studies about NPM reforms and the warnings of academics about the doubtful benefits of and the decline of public trust in governments derived from such reforms.

Benefits of citizen participation

For the managers, the most outstanding benefits of citizen participation initiatives are the increased attention to the climate effects of actions in various fields of life, the enhanced transparency of local government and a better image of the city administration (see Table 2). However, more than 40% of local governments do not monitor the results of citizen participation programs. Those who do not monitor the achievements of environmental programs consider the benefits of e-participation to the strengthening of ties among the local community as important. Thus, it appears that some local

governments are more interested in implementing citizen participation initiatives than in achieving the specific objectives of that participation. These results are consistent with the Institutional theory, which states that institutional image is a driver of public sector reforms. Citizen participation initiatives may reflect local governments' concerns to implement new horizontal modes of governance and enhanced responsiveness, rather than a will to achieve specific climate protection objectives.

The managers agree that citizens can make a noticeable contribution to CO_2 reduction, especially through changes in their domestic habits such as saving energy. They consider that the achievements of the citizen panels of this project in individual CO_2 reduction have been higher than expected. Notwithstanding, they report that they do not expect citizen panels to influence other citizens not involved in the participation process.

Success factors of, and barriers to, citizen participation

For the OECD (2003), the online provision of information is an essential precondition for engagement, but quantity does not mean quality. Active promotion is critical for effective e-participation. This assertion is consistent with the opinion of the managers, who consider that "the variety of different channels of communication" and "the level of user-friendliness of the ICTs to enhance citizen participation" are important aspects of successful citizen participation initiatives (see Table 3).

For the managers, the difficulties involved in taking on citizens for participation initiatives are the citizen perception of both the lack of effectiveness of their collaboration and the lack of true interest of politicians in their contributions (see Table 4). Therefore, citizen perception that participation does not make a difference in the development of

public policies seems to be an important cause of failure, as suggested by previous research (Feeney and Welch, 2012; Nam, 2012).

Demographics of online and offline participants

In the opinion of managers, the profile of online participants is young, educated and with a non-migrant background. However, no statistical differences were found between the socio-economic profile of online and offline participants. These findings are consistent with previous research (Saglie and Vabo, 2009; Smith et al, 2009; Conroy et al, 2012) indicating that there is no evidence that web-based participation fundamentally alters the long-established association between offline participation and socio-economic factors such as education, age and income. So, contrary to the hopes of some advocates, for the moment, the Internet is not changing the socio-economic character of citizen engagement in the EU.

The opinion of managers about whether online tools permit a greater range of participants seems to be negative or, at least, doubtful. This is an important finding of this research, since the *a priori* prevalence of online over traditional offline methods was not clearly confirmed by the managers. Some managers were critical about the number of participants and stated that the participants are always the same. These results confirm a common concern about the representativeness of the results because participants may have higher or special motivations or interest in the topic than the average population, or may be more politically active. Therefore, the introduction of ICTs does not overcome the barriers to citizen engagement.

Other issues related to online and offline participation

Managers find better results in online than in offline participation with respect to cost, and better results in offline than in online participation with respect to community

building and the sustainability of results (see Table 5). These results are consistent with previous studies in other countries (e.g. Schweitzer et al, 2012). Studies carried out by the OECD (2003) show that successful online participation requires real commitment, a tailored approach to fit a target group, integration of online with traditional methods, feedback and coherence.

Limitations and areas for further research

The number of countries may be considered a limitation of this study. Notwithstanding, undertaking studies based on panels of citizens makes it difficult to extend the number of countries because each additional country requires a domestic research team to achieve the engagement of two or three cities (and their corresponding online and offline citizen panels). Further research in this field could include the application of the citizen panel approach to other local policy areas in which the participation of citizens is well developed. Nevertheless, the results of this study may also be useful for managers of other countries which are considering citizen participation as a way of strengthening and enhancing the relationship between governments and citizens.

6.- CONCLUSIONS

This article aimed to contribute to closing the evaluation gap of the effectiveness of e-participation. The managers' views have allowed the identification of the conditions for, and barriers to, successful citizen participation processes, as well as the determination of what "can be expected" from e-participation with respect to traditional citizen participation.

According to the managers, the most outstanding benefits of citizen participation initiatives are the increased attention to the climate effects of actions in domestic habits,

the enhanced transparency of local government and a better image of the city administration. Almost half the local governments do not evaluate the results of citizen participation programs, so it seems that many local governments are more interested in implementing citizen participation initiatives than in achieving the specific results of that participation.

According to the managers, the factors that influence the success of citizen participation panels are setting clear objectives, the provision of support to participants and the level of transparency of the process. By contrast, managers give a skeptical view of the effectiveness of international programs sponsored by institutions. As for the barriers to achieving successful participation processes, managers state a common concern about the representativeness of the results because participants may have special motivations or higher interest in the topic than the average population, or may be more politically active. Some managers were also critical about the number and representativeness of the participants. Other barriers they mention are citizen perception of both the lack of effectiveness of their collaboration and the lack of true interest of politicians in their contributions. Managers should carefully consider all these factors if they want to promote successful citizen participation initiatives and avoid the frustration of the participants.

As regards representativeness, the managers did not find noticeable differences between online and offline participants and expect only slight improvements in future projects resulting from the use of ICTs. E-participation is not allowing local governments to access a wider range of citizens, but rather to access the same well-informed, educated and politically active citizens as the traditional model of participation. Thus, the assumption that ICT leads to a greater range of participants is not confirmed by the results of the study.

With respect to whether e-participation is more effective than traditional citizen participation, managers found better results in online than in offline participation with respect to cost, and better results in offline than in online participation with respect to community building and the sustainability of results. The results confirm that e-participation is only an enabler of citizen engagement in citizens in participation processes, but it does not overcome all the barriers to these processes. The success of citizen participation initiatives cannot be guaranteed merely by introducing ICTs. It seems that the integration of e-participation with traditional offline tools for citizen participation is needed.

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ANNEX A RHO-SPEARMAN

Rho Spearman *. The correlation is significat at 0.05 (bilateral). **. The correlation is significat at 0.001 (bilateral).	A1 since when working on climate change project	Grupos de experiencia cada 5 años	A2_did it involve citizen participation	A3_involved in other participation projects	A4_did it involve communication via Internet	A5a_better image	A5b_new forms of governance
A9h_sustainability	-0.161	-0.221	.	-.676**	0.236	-0.067	-0.027
A10_global satisfaction	0.056	0.098	-.477**	0.318	.499**	-.350*	-0.237
A10_global satisfaction	.	.	.	.	.	.	.
A11l_regular input	-0.03	0.035	.	0.189	-0.235	0.326	0.07
A11m_competition	0.264	0.272	.	.481*	.409*	0.205	0.114
A11n_different channels	-0.13	-0.048	.	0.062	0.15	0.213	0.061
A11o_userfriendlyness	0.259	0.185	.	0.205	.508**	0.096	0.077
A11p_committment	-0.257	-0.254	.	-0.044	0.154	.461*	0.349
A12a_political will	-0.231	-0.053	0.35	0.266	-0.228	0.148	0.23
A12b_lack of interest	-0.43	-0.561	0.575	-0.469	-0.303	-0.211	-0.107
A12c_always the same people	0.169	0.174	-0.437	0.466	0.446	0.646	-0.199

Rho Spearman *. The correlation is significat at 0.05 (bilateral). **. The correlation is significat at 0.001 (bilateral).	B1d_ Better transparency in the development of local measures for climate saving	B1g_ A positive effect on climate-saving behaviour among other citizens in the area	B1i_ A feeling of enhanced influence on common welfare ….	B1j_ A strengthening of ties among the local community	B1k_ A significant improvement in citizen engagement in city affairs	B6_The level of clarity of the objectives	B6_The level of support provided, such as advertising, supervision by moderators or similar	B6_The level of transparency of the process and traceability of the results	B6_The variety of participation modes offered for different target groups: online, offline	B6_The variety of channels, media and multiplicators used in order to mobilise participation	B6_The level of user-friendliness of the ICTs employed	B6_The existence of commitments signed in national or international programmes to reduce CO_2- (e.g. Aalborg Commitments, Convenant of Mayors, Climate Alliance).
B1a_ Better Image of the city administration	0.361	0.25	0.255	.441*	.526*	0.035	-0.155	-0.04	-0.222	0.257	-0.27	0.172
B1b_ Proof that public administration is testing new forms of governance	0.259	0.205	.429*	.485*	.511*	0.188	.549**	0.365	0.327	.719**	0.022	0.234
B1d_ Better transparency in the development of local measures for climate saving	1	.661**	.620**	.739**	.666**	0.032	-0.001	0.152	-0.128	0.059	0.272	-0.014
B1g_ A positive effect on climate-saving behaviour among other citizens in the area	.661**	1	.644**	.730**	.574**	0.215	0.143	0.245	0.151	0.206	0.081	0.209
B1i_ A feeling of enhanced influence on common welfare as a community of citizens	.620**	.644**	1	.723**	.621**	.438*	0.229	.553**	0.195	0.339	-0.011	.485*
B1j_ A strengthening of ties among the local community	.739**	.730**	.723**	1	.777**	0.086	0.179	0.261	0.062	0.342	0.107	0.189
B1k_ A significant improvement in citizen engagement in city affairs	.666**	.574**	.621**	.777**	1	0.066	0.217	0.319	-0.04	.449*	0.221	0.209
B2_mobility	0.025	0.3	0.094	0.225	.432*	-0.058	0.154	0.148	-0.041	0.285	0.279	-0.004
B6_The level of clarity of the objectives	0.032	0.215	.438*	0.086	0.066	1	.489*	.724**	.580**	0.39	-0.195	.632**
B6_The level of support provided, such as advertising, supervision by moderators or similar	-0.001	0.143	0.229	0.179	0.217	.489*	1	.586**	0.354	.439*	0.161	0.299
B6_The level of transparency of the process and traceability of the results	0.152	0.245	.553**	0.261	0.319	.724**	.586**	1	.501*	.464*	0.001	.509*
B6_The variety of participation modes offered for different target groups: online. offline	-0.128	0.151	0.195	0.062	-0.04	.580**	0.354	.501*	1	0.416	-0.144	.655**
B6_The length of the timespan for monitoring citizen engagement	0.024	0.16	0.264	0.168	0.087	0.003	-0.188	0.295	0.419			
B6_The level of regular input demanded from panellists	0.204	0.111	.503*	0.175	0.228	.572**	0.414	.723**	.638**			
B6_The level of competition among panellists	-0.139	-0.083	0.002	-0.066	0.053	0.145	0.185	0.215	0.108			

Rho Spearman *. The correlation is significat at 0.05 (bilateral). **. The correlation is significat at 0.001 (bilateral).	B7_The level of financial resources	B7_The level of personnel resources	B7_The extent of risk perceived among organisers of being criticised by steering committees or political bodies in case the participation activity fails expectations	B7_The extent of risk perceived among organisers of getting results that are not wanted or that are difficult to implement	c) value of the content of the contributions
B7_The level of financial resources	1.000	.793**	.366	.084	.654**
B7_The level of personnel resources	.793**	1.000	.381	.276	.552*
B7_The extent of prioritisation of other strategies than citizen participation for climate policies (e.g. cooperation with other actors. e.g. with enterprises)	.278	.379	.705**	.104	.375
B7_The extent of risk perceived among organisers of being criticised by steering committees or political bodies in case the participation activity fails expectations	.366	.381	1.000	.691**	.345
c) value of the content of the contributions	.654**	.552*	.345	.079	1.000
h) sustainability of achieved results and continuity	.221	.223	.107	.013	.621**