Chapter 8
User Centric Services Under the Web 2.0 Era. Coproduction, Execution and Efficiency of Public Services

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Abstract Public agencies are being pressured for innovation, driving service delivery towards a more personalized, outcome-driven, participative, efficient and collaborative model. This paper captures the perception of policymakers responsible of strategies for e-government in local governments about the influence of Web 2.0 technologies on: (a) the design and coproduction of public services; (b) the easy access to services and the problem solving in the execution of public services; and (c) the evaluation of public services and the improvement of efficiency and accountability. To answer these research questions, an e-survey was sent to policymakers responsible of strategies for e-government in large Spanish local governments. Findings indicate that Web 2.0 technologies are seen as simple adaptations of offline behaviour in public services, which fail to generate meaningful interaction with citizens. It responds to the "representation" strategy, which is focused on the "push" tactic in which no interactions are allowed and a means of "crowdsourced democracy" is produced.

Keywords Web 2.0 technologies • Public services • Policymakers • Local governments

1 Introduction

A recent demand-side survey performed by the European Commission [1] has put emphasis on the need to address the needs and concerns of citizens as well as on the need of more communicative actions to inform those that are unaware of what public services are available on line. In fact, public administrations are being pressured for innovation, driving service delivery towards a more personalized, outcome-driven, participative, efficient and collaborative model [2, 3]. So, public

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administrations are now moving to scenarios in which citizens are involved in both public services creation and the use of public e-services [4]. Also, public administration is monitored regarding the performance of the delivery of public services with the aim at improving efficiency [5] and raising levels of accountability.

In addition, citizens demand participation offers via the Internet and mobile applications, a demand that will promote the use of Information and Communication Technologies (ICT) in public participation [6]. This way, governments have sought to engage citizens through the incorporation of Web 2.0 technologies[1] into the governmental workplace, which have been seen as effective tools to promote public goals [9]. The implementation of these technologies is changing the roles played by citizens, who will no longer be mere 'end-users', but will become partners and co-creators of information and services [10, 11], which promotes to put citizens into the heart of the value chain [12], and expecting them to provide insight and knowledge and thus improve public services.

The use of Web 2.0 technologies could help governments to involve citizens in the coproduction of public services making them more user centric, friendly and efficient. Having Web 2.0 tools available and being used more widely will help governments to better identify the collective public value while still enabling them to respond to individual preferences [13]. These new developments put pressure on government organizations to innovate in their dealings with citizens, introducing new competition for 'nodality' in social and informational networks [14, 15] and offering the potential for 'coproduction' and even 'co-creation' of government services [16].

Nonetheless, despite the great significance of the future implementation of Web 2.0 technologies in public administration and calls for studies to analyse the impact of legal, institutional, and political challenges regarding the use of ICT in local governance [17], little research has been conducted in the field of public administration to analyse the use of these technologies with the aim at examining the capacities that Web 2.0 technologies provide to governmental actors and stakeholders in transforming public services into user centric services and user evaluation of these services.

This analysis is especially relevant in local governments because they are an important subject for the study of social media and interactivity because of traditions of citizen participation at the local level [18] and the tradition of these governments to use more mechanisms that permit direct citizen involvement, in part because they are more manageable at that scale [19] as well as they provide a wide variety of services [20]. Inside local governments, the perception of policymakers responsible of e-government is of great interest taking into account not only their significant role in the policy-making process within local government, but also their direct

[1]In this paper, Web 2.0 should be viewed as a networked platform, spanning connected devices to encourage collaboration, in terms of the creation, organization, linking and sharing of content [7, 8]. Thus, it is related to the technical platform on which social media applications are built to create and exchange user-generated content.

involvement in the possible implementation of Web 2.0 technologies in public sector delivery.

Therefore, this chapter contributes to the current debate on Web 2.0 technologies and its implication for the coproduction of user centric services, aiming at identifying the perceptions of policymakers responsible of e-government in local governments about the influence of Web 2.0 technologies on: (a) the design and coproduction of public services; (b) the easy access to services and the problem solving in the execution of public services; and (c) the evaluation of public services and the improvement of efficiency and accountability. To achieve this aim, a questionnaire was designed and sent to all policymakers responsible of e-government in large Spanish municipalities (those with a population of over 50,000 inhabitants) in order to capture their perceptions to answer each one of the research questions posed in this chapter.

The chapter is organised as follows. The next section is addressed to analyse the coproduction of public services under the Web 2.0 technologies era, proposing some research questions to be analysed in this paper. Then, an empirical research is performed obtaining the policymakers' perceptions regarding the participation of citizens in the delivery and problem solving of public services. Finally, this paper highlights the main conclusions and discussions of the empirical results and answer the research questions posed previously.

2 Coproduction of Public Services Under the Web 2.0 Technologies Era

The advent of social media using Web 2.0 technologies has opened up unprecedented new possibilities of engaging the public in government work and has changed the public's expectations about how government work should be done [21–23]. Indeed, social media applications provide channels not just for mass dissemination but also for mass production and collaboration [24], which can transform public administration services, enabling the development of better policies and eliminating data silos [25] see Table 8.1.

This way, Web 2.0 technologies have the potential to change the way government delivers services and its relationship with the public. Among the several ways that Web 2.0 technologies can provide added value to the delivery of public services are the possibility of citizens' engagement and collaboration with the government in the design and coproduction of public services with the aim at achieving services more personalized, faster, easier to use and deliverable, as well as the provision of a development tool for internal staff that offers higher productivity than the Web alone can provide [28].

Potential benefits of this engagement with citizens also include the improvement of the citizen-government relationship, and enhanced policy implementation [29]. In this regards, citizen-sourcing can strengthen the relationship between citizens

Table 8.1 Differences between Government 1.0 and Government 2.0

	Direct and Orthodox government	Transformational government
Dimension	Government 1.0	Government 2.0
Operating model	• Hierarchical	• Networked
	• Rigid	• Collaborative
		• Flexible
New models of service delivery	• One-size-fits-all	• Personalized
	• Monopoly	• Choice-based
	• Single channel	• Multi-channel
Performance	• Input-oriented	• Outcome-driven
	• Closed	• Transparent
Decision-making	• Spectator	• Participative

Source: Author based on Deloitte [26] and Taylor [27]

and government, and may boost trust and confidence in government [30] helping government to obtain legitimacy and political support to adopt new policies or test novel objectives [31].

Also, regardless the citizen participation approach, with the help of Web 2.0 technologies, governments could capture citizens' needs and, then, customize services based on personal preferences and needs [32], which would largely enable users' needs to be met [33], and it is a means to enrich citizens' substantive knowledge of issues, broaden their understanding of key actors and the government's role, and hone their civic skills in using governance tools [29]. Finally, Web 2.0 technologies may boost innovation of information and service production modes converting citizens in "makers and shapers" of policies and decisions [29].

Essentially, these new technologies empower the individual to voice opinions and share thoughts on important issues [34]. This way, these technologies are putting pressure on governments to innovate in their dealings with citizens, offering the potential for 'coproduction' and even 'co-creation' of government services [16]. This way, citizens will no longer be mere 'end-users', but will become partners and co-creators of information and services [11], which promotes to put citizens into the heart of the value chain [12], and expecting them to provide insight and knowledge and thus improve public services. Governments must now strengthen their capacity to assess the needs of users and involve user groups through the use Web 2.0 technologies in order to engage users in the production of policies and to forge collective initiatives and interaction [35]. In this regards, a push towards government coproduction of services with citizens has been very clear in behavioural public policy fields, the 'nudge' territory of changing life choices [36].

Despite previous comments regarding the advantages of using Web 2.0 technologies in governments, we cannot ignore potential threats to user privacy and security [37]. Also, while the potential impact of social media technologies on the functioning of government is expected to be "profound," it will come with "challenges in the areas of policy development, governance, process design, and conceptions of democratic engagement" [38]. Indeed, the use of social media introduces a number

of policy problems, such as the interpretation of the information shared in networks or the loss of significant control over the content and applications [39]. Therefore, it would be relevant to know if policymakers are prone to implement Web 2.0 technologies with the aim at involving citizens in the design and coproduction of public services. The first research question is therefore:

RQ1. Do policymakers think that the use of Web 2.0 technologies improves the citizen engagement in the design and coproduction of public services?.

On the other hand, a growing number of public policy tasks involve "wicked problems" that are ill-defined, difficult to respond to, require specialized knowledge, involve a large number of stakeholders, and carry a high potential for conflicts [40]. Indeed, even more interventionist European governments acknowledge that government-only interventions are unlikely to be successful [16] and the implementation of Web 2.0 technologies by government has become an expression of the recognizant that conventional governments are unable to address society's challenges alone.

In this regards, evolving Web 2.0 applications will demand a new environment of collaborative culture within government agencies and organizations [7]. Such novel approaches of connecting with citizens through Web 2.0 technologies create conditions for improving transparency and fostering innovation [41]. Indeed, Web 2.0 technologies have the potential to share knowledge and enable problem solving in the network [42].

Despite previous comments, little is known about how Web 2.0 technologies can affect to the ease of access to reaching public services and to knowledge-sharing purposes. Therefore, it could be relevant to focus research on the use of Web 2.0 for this access and the resolution of problems in the execution of public sector services. This way, the second research question is:

RQ2. Do policymakers think that Web 2.0 technologies promote easy access to public services and problem solving?

Finally, according to the second eGovernment Action Plan [43], governments will use eGovernment to increase their efficiency and effectiveness and to constantly improve public services in a way that caters for users' different needs and maximizes public value [43]. This way, policymakers looking for public service cuts could be prone to implement Web 2.0 technologies, which could lead to new interest in Digital Era Government type models [16]. In fact, with public spending reductions squeezing public services at all levels, the strategies adopted by public agencies have been aimed at achieving higher levels of on-line service uptake and at developing public e-services [44, 45], as well as obtaining the anticipated cost efficiencies [27].

Accordingly, local governments are increasingly embracing Web 2.0 technologies to encourage the use of means of bidirectional communication to change how they interact with stakeholders and to become more efficient in their response to stakeholders' demands, thus providing the greater efficiency and accountability demanded [46, 47]. Nonetheless, whether or not citizens actually participate online, a municipal presence on social networks may convey the message that government

is more responsive, open, and democratic, by allowing citizens to express their views via this channel [48]. Therefore, the last research question is:

RQ3. Do policymakers think that Web 2.0 technologies enable the evaluation of public services and the improvement of efficiency?

3 Policymakers' Perceptions About the Use of Web 2.0 Technologies for User Centric Services in Spanish Local Governments

3.1 Sample Selection

Social networks are becoming increasingly important to local governments due to the long tradition of citizens' participation at the local level [49]. Indeed, local governments tend to use more mechanisms that permit direct citizen involvement [19], in part because they are more manageable at that scale—see also Briggs [50] and Sirianni [51]. Furthermore, local governments are a prime target for public sector reforms [52], especially the largest cities, which have generally been at the forefront in the adoption of innovations in e-government [32, 53] and the greater complexity involved for public sector delivery [54]. Finally, the quantity and variety of services delivered by these administrations are very comparable.

This paper is part of a wider research undertaken in Spanish local governments, taking into account the legislative reform policies applied to administrative structures in Spain in the 1990s [55], the managerial devolution process implemented in this country [56] and the rapid introduction of new technologies by these local governments, which has been fostered by new legislation in this respect in recent years. Thus, the Information Society Services and E-Commerce Act (No. 34/2002) guaranteed access to government information, while the Local Government Modernization Act (No. 57/2003) promoted the use of new technologies in order to enhance participation and communication with citizens and enhance interaction with municipal authorities. Finally, the Electronic Access to Public Services Act (No. 11/2007) guaranteed the access of all citizens to online public services and the rights of all citizens to interactive communication with the government. As a result of these legislative measures, all levels of public administration were required to develop a wide range of Web-delivered services.

According to recent studies, 61% of Internet users in Spain make use of social networks to chat with friends or organizations as well as to generate content, which could indicate that Spanish Web users are sufficiently familiar with these new technologies and could make use of e-services if local governments introduced Web 2.0 applications.

Therefore, the present empirical study is based on a sample of large Spanish municipalities, defined as those with a population of over 50,000 inhabitants,

together with municipalities that are provincial capitals, regional capitals or in which the headquarters of regional institutions are located. In total, 148 Spanish municipalities meet these conditions, and account for over 50% of the total population of Spain [57].

Of the 148 municipalities that comprised the survey sample, seven stated that neither had experience of Web 2.0 nor dedicated human resources to this area. Therefore, the questionnaire was sent to 141 local governments and 47 complete replies were received from policymakers (minimum response rate: 33.33%). Nonetheless, some policymakers of local governments responded to some items without finishing the full e-survey. In consequence, for some questionnaire items, the response rate exceeded the above-mentioned minimum (see Tables 8.2, 8.3 and 8.4 in the analysis of results—see Annex).

According to Roscoe [58], a sample size between 30 and 500 is considered satisfactory. By contrast, a high number of responses could be also damaged to obtain a good picture of the perceptions of the sample policymakers due to the problem of saturation. Data saturation is reached when there is enough information to replicate the study when the ability to obtain additional new information has been attained, and when further coding is no longer feasible [59]. Nonetheless, there is no one-size-fits-all method to reach data saturation with many authors proposing different figures and methodologies [60] because study designs are not universal and there are numerous factors that can determine sample sizes in qualitative studies [60]. Indeed, the point of saturation is a rather difficult point to identify and of course a rather elastic notion and depends on the research skills of the researcher [60, 61]. This way, the research undertaken in this paper has taken the saturation as the guiding principle for the qualitative data collection, which is necessary in a qualitative research like this [60], obtaining data from a random sample of policymakers that come from sample municipalities with different characteristics like size of the municipality, Web 2.0 technologies used, political factors in the municipality and so on. This way a good overall picture of the perceptions of the policymakers have been obtained in our results.

3.2 Questionnaire Design

This paper is part of a wider research focused on the use of Web 2.0 technologies for citizen engagement in public services. Data were obtained by sending a link to perform an e-survey, and this was sent to the policymakers of all the local authorities studied, via email. The contact details were obtained from the Spanish central government's website. The global questionnaire of the research contained a total of 75 questions including the reasons for using Web 2.0 technologies, the advantages of using Web 2.0 technologies for public services, the technological innovation of public services with the use of Web 2.0 technologies, the improvement of efficiency in public sector delivery with the use of Web 2.0 technologies, the legitimacy of government in the use of Web 2.0 technologies and so on.

For the purpose of the analysis in this paper, we focus our efforts in analysing 15 questions covering the following issues: design and coproduction of public services (in Table 8.2 in Annex—five questions); advantages of using Web 2.0 technologies for access to services and resolution of problems (in Table 8.3 in Annex—five questions); the evaluation of public services and the improvement of efficiency (Table 8.4 in Annex—five questions).

Policymakers were addressed in this survey taking into account not only their significant role in the policy-making process within local government, but also their direct involvement in the possible implementation of Web 2.0 technologies in public sector delivery. In fact, recent research has confirmed that policymakers usually act as "leaders" and "interpreters of the societal trends" by defining the general policies for the continuous innovation of the service provision in the public sector [62]. Before the e-survey was sent out, every policymaker in the sample population was contacted and asked to participate in the study, after being informed of the study goals and of what was required by the questionnaire.

Two draft versions of the survey were pre-tested on a selected group of stakeholders. First, the research team drafted a preliminary version based on the conclusions of previous research in the field of Web 2.0 technologies, justifying the items selected on the e-survey. All these items were based on prior research with the aim at capturing perceptions of sample policymakers regarding the use of Web 2.0 technologies for participating in the design and coproduction of public services (five items—items 1.1 and 1.2 for design of public services and items 1.3, 1.4 and 1.5 for coproduction of public services), regarding the introduction of Web 2.0 technologies to achieve an easier access to services and to solve problems in the execution of public services (five items—items 2.1 and 2.2 for the ease of access to public services and items 2.3, 2.4 and 2.5 for resolution of problems in the execution of public services) and their perception about use of Web 2.0 technologies for the evaluation of public services and the improvement of efficiency (five items—items 3.1 and 3.2 for the evaluation of public services, items 3.3 and 3.4 for analysing the efficiency of public services and item 3.5 for analysing the improvement of accountability).

In the second phase of questionnaire design, the initial text was presented to two specialists on Web 2.0 technologies and to ten policymakers, to ascertain their opinions on: (a) the understandability of the questionnaire; (b) the clarity of the questions posed and possible ambiguities; (c) the possible inclusion of other questions relevant to the study aims. The comments and suggestions made were analysed and, when considered appropriate, incorporated into the text of the questionnaire.

Local governments provided an institutional response to the questionnaire, one that was non-personal and non-subjective. A single liaison officer was appointed in each case, this being the person in the organization who was responsible for implementing new technologies on public services. The institutional response was supervised and supported by the policymakers of each local government. Moreover, the possibility of clarifying any remaining doubts was offered before completing the questionnaire and thus we may be reasonably sure that the questions measured the intended constructs.

Based on prior studies on attitude analysis [63], the respondents were asked to describe their degree of agreement with each statement on a five-point Likert scale (ranging from strongly disagree, "1" to strongly agree, "5"). Although the Likert scale has some limitations, such as its inability to approximate intervals of ordinal data [20] and its closed response format [64], it was used in this research due to its suitability for attitude studies [65, 66]. Also, a 5-point scale can alleviate the psychological distance between categories [67] and, as observed by Norman [66], the closed nature of the Likert scale avoids the need to draw inferences about differences in the underlying, latent characteristic, without this invalidating the conclusions drawn.

After the questionnaire was completed, each item was analysed separately using the median and the mode of the responses because it has been proved to be useful in order to analyse data obtained using Likert scale [68].

3.3 Analysis of Results

RQ1. Do policymakers think that the use of Web 2.0 technologies improves the citizen engagement in the design and coproduction of public services?

Table 8.2 in Annex collects the information collected from policymakers regarding the improvement of citizen engagement in the design and coproduction of public services with the use of Web 2.0 technologies. As it can be seen, policymakers think that Web 2.0 technologies could mainly help to collect information from citizens regarding their preferences and needs of public services (see median and mean scores of item 1.1 in Table 8.2). It could make to obtain well-targeted public services (see median and mean scores of item 1.2 in Table 8.2), which could help governments to better decide how to design the services for the citizenry.

By contrast, results indicate that policymakers are not prone to the active participation of citizens in the design or coproduction of public services. Indeed, respondents indicate that citizens should not be encouraged to participate in the generation of content or information about public services (see median and mean scores of item 1.3 in Table 8.2), perhaps due to the additional "noise", destructive behaviour by users or the manipulation of content by interested parties and privacy infringements [69]. These issues could make policymakers to stop the effective involvement of citizens in the coproduction of public services.

By contrast, policymakers think that Web 2.0 technologies could foster the collaboration with citizens in the delivery of public services (see median and mean scores of item 1.4 in Table 8.2), although the experience in public services before their final implementation is not seen essential for respondents (see median and mean scores of item 1.5 in Table 8.2). In fact, policymakers did not show interest in promoting spaces or tools where citizens could use public services as a trial prototype before their final implementation. It means that policymakers only think relevant to involve citizens to capture their needs but not to test whether these needs have been met.

In brief, results indicate that, according to policymakers' perceptions, Web 2.0 technologies could be the means to collect information and to collaborate with the government but not the means of citizens to actively participate in the design and coproduction of public services.

RQ2. Do policymakers think that Web 2.0 technologies promote easy access to public services and problem solving?

Results shown in Table 8.3 in Annex indicate that Web 2.0 technologies could facilitate the access of citizens to all public services (see median and mean scores of item 2.1 in Table 8.3), as well as the reduction in time on obtaining the public services (see median and mean scores of item 2.2 in Table 8.3). Therefore, it seems that policymakers think that Web 2.0 technologies could help to make public services more available for the citizenry.

In addition, according to the results, policymakers think that Web 2.0 technologies could help them to collect suggestions of citizens to enhance the quality of public services and the information about them (see median and mean scores of item 2.3 in Table 8.3). This result seems to be contrary to that in which they think that citizens should not participate in the generation of content and information about public services (see item 1.3 in Table 8.2). Nonetheless, the difference between these results lies in the active (item 1.3) or passive (item 2.3) attitude of citizens in the execution of public services.

This way, it seems that policymakers are prone to collect information about the public services from citizens but no participation of citizens is encouraged by them. In addition, they are not prone to use the knowledge, skills and talent of the population to help them in solving problems in the execution of public services (see median and mean scores of item 2.4 in Table 8.3) or to use tools like Wikis to create knowledge to solve problems in the delivery of public services (see median and mean scores of item 2.5 in Table 8.3).

Thus, no active participation is fostered by governments. Respondents seem to indicate that the use of Web 2.0 technologies could only be helpful for information disclosure and for putting available public services. So, Web 2.0 technologies seem only to be used as a means for communication and crowdsourcing which involves the use of technology to foster the exchange of information and ideas among participating agents.

RQ3. Do policymakers think that Web 2.0 technologies enable the evaluation of public services and the improvement of efficiency?

As it can be seen in Table 8.4 in Annex, policymakers think that Web 2.0 technologies could be used as tools for evaluating the efficiency and transparency of public services (see median and mean scores of item 3.1 in Table 8.4) but they are not relevant for improving the quality of public services (see median and mean scores of item 3.2 in Table 8.4).

In addition, according to the policymakers' perceptions, Web 2.0 technologies can be used to improve efficiency of public services because these technologies allow the reduction in costs and the increase in revenues (see median and mean

scores of item 3.3 in Table 8.4). Also, these technologies allow the better allocation of financial resources (see median and mean scores of item 3.4 in Table 8.4) because, among other reasons, governments can be led to meet the citizens' needs directly in an electronic way since governments can capture the data necessary to achieve this aim (see median and mean scores of item 1.1 in Table 8.2).

Finally, respondents indicate that Web 2.0 technologies should be used for disclosing information regarding the performance of the government in public sector delivery. This way, local governments could accomplish better their duty of accountability (see median and mean scores of item 3.5 in Table 8.4).

Therefore, respondents think that Web 2.0 technologies could help to improving efficiency but also accountability. According to our results, these technologies could be used, firstly, as a means of collecting the need of citizens regarding public services and, later, these technologies could help to disclosing information about them and to putting them available in an electronic way. All these actions make public services to achieve a better efficiency because they are driven to meet citizens' needs, and cost cutbacks and higher revenues are achieved. Also, the higher volume of information disclosed could help citizens to evaluating better the accountability of the government.

4 Conclusions and Discussions

Citizen participation is not always good for efficient and effective government decision making. It may entail poor decisions and a significant expenditure of resources that could be used elsewhere to achieve better on-the-ground results [70]. Nonetheless, the use of innovative participation technologies can reduce administrative costs and raise instrumental benefits, reinvigorating the frequently criticized public hearing [71]. In this regard, the advent of Web 2.0 technologies has allowed the two-way communication and rich data exchange among different actors for purposes of communication to the network, knowledge exchange, and problem solving [42]. These technologies have raised expectations in citizens and other stakeholders about the quality, availability, and effectiveness of public services and these stakeholders are demanding tailored services [72, 73].

Nonetheless, findings indicate that sample policymakers seem to think that Web 2.0 technologies should mainly play the role of simple adaptations of offline behaviour in public services, which fail to generate meaningful interaction with citizens, because they do not offer active participation to involve citizens in the design, coproduction or problem solving in public services. This finding does not confirm prior literature that indicates that social media could be related to solving specific problems and/or coproducing a specific good or service [74]. In contrast, our findings confirm recent research which points out that the desires and expectations of the citizens and public sector differ significantly [6]. Our findings show that policymakers do not simply reject the idea of additional public participation in the generation of content of information about public services (see median and mean

scores of item 1.3 in Table 8.2); rather, they are restrained in terms of a desire for more public participation in the delivery of public services.

Therefore, why to use Web 2.0 technologies? Recent research has indicated that the use of Web 2.0 technologies in public sector is positively related to satisfaction and perceptions of public sector trustworthiness, because they are used to convey less detailed information than other forms of e-government such as e-government websites [75]. The main purpose from this point of view could be to increase trust in government operations by providing more frequent and transparent online information, which makes government to accomplish better its duty of accountability (see median and mean scores of item 3.5 in Table 8.4).

This way, Web 2.0 technologies can be seen as a means of "crowdsourced democracy" because it is used or thought to be used as a means of communication and crowdsourcing of collected information regarding public services, but their use is limited to a passive role of citizens. Recent research has indicated that importance of online platforms in crowdsourcing can have a consistent impact on services delivery system in local public administration [76]. Our findings confirm previous comment, because sample policymakers think that Web technologies could be relevant to collect information about citizens' needs, to foster the effective collaboration between citizens and governments in the delivery of public services, to disclose information regarding public services, to put them available in an electronic way and to serve as an instrument to evaluate efficiency and accountability of local governments. It describes the "representation" strategy in the use of Web 2.0 technologies pointed out by Mergel [77], which is focused on the "push" tactic in which no interactions are allowed. This way, this new form of representation can be seen as the lowest degree of online engagement and is oftentimes misinterpreted as true citizen participation.

Nonetheless, recent research [62, 78] and international organisations [79] have indicated that public innovation, focused on service innovation, may generate complex processes of social change that will eventually lead to the emergence of new modes of public governance [62], taking their underpinnings in the Networked Governance model [80]. Therefore, it seems that ICT can be used to support and enable bureaucratic practices in favour of government reforms and service delivery improvements [81].

In fact, Web 2.0 technologies should enhance the ability of citizens to democratically engage with political discourse and decision-making and hence influence meaningful change in public policy with the aim at achieving citizen-centric e-governance [82]. Citizen centric e-governance argues for "we government", meaning that citizens work collaboratively with government and promote real and meaningful change together [83]. In fact, governance is not about what governments do but about the outcomes of interactions between all actors in the public domain [84]. This way, according to Reddick et al. [82] citizen-centric e-governance aims to explain the postulated theoretical relationships between political efficacy and civic engagement, and fosters citizens to take power and engage themselves actively and democratically to influence public affairs and policy.

So, based on the use of Web 2.0 technologies, citizens should be encouraged to play a more active role to become more and more able to influence the rate and direction of innovation and often coproduce it. This is especially relevant at the local level of government, because these governments hold key positions in the development of digital spaces for civic participation in the issues that directly impact citizens' everyday lives [85]. In addition, cities around the world are ever increasingly piloting new technologies to become "smart" by providing data for new management platforms, informing authorities, businesses, and citizens with relevant information and evidence to make informed decisions regarding policies and daily life activities [86]. The engagement of citizens in all the steps of smart city initiatives have been identified as key challenges in the successful scaling up of the smart city initiatives in the pioneering cities in America and Europe [87].

But, why not to involve citizens in an active participation in the design, coproduction and problem solving in the delivery of public services? Recent research has demonstrated that technology, organisation, and environment factors including perceived benefits, perceived security risks, compatibility, and degree of formalisation are important predictors of social media impact in local government [88]. In this regards, the implementation of Web 2.0 technologies make policymakers to potentially fear the loss of power and influence through greater public participation [89, 90], which could lead to a defensive reaction toward greater public participation. Perhaps, the existence of a clear regulatory framework for the activities related to social networks or the establishment of a process to combat unauthorized or fraudulent postings could mitigate this risk and could make policymakers to be more prone to the effective involvement of citizens in the coproduction of public services.

In addition, the defensive reaction of policymakers could be due to the fear that their control will be weakened [91]. Perhaps this is the result of the current inexperience of local governments in Spain in managing social media tools, in providing public sector services with Web 2.0 technologies and in the way of interaction with individuals through these technologies [92]. Indeed, experience has been shown to be a highly significant factor for networking and network management [93] and, in Spain, we are viewers of the early stage in the development and implementation of social media tools into governments. Therefore, future research should analyse if experience in using Web 2.0 technologies for the delivery of public services could be a main factor to solve this defensive reaction shown in our study by sample policymakers.

On another hand, do citizens really want to interact with government and discuss all important (local) public affairs?. Prior research has demonstrated that citizens wish to participate in public affairs [94] but their participation depends on the different conceptions of democracy they have [95], on the need to perceive advantages (cost savings, less time to contact with government, etc.) for their e-participation [96] and on the organizational capacity of the government to be transparent and innovative [97]. Also, recent research has demonstrated that the information quality characteristics, i.e., accuracy and completeness, and the channel characteristics, i.e., convenience and personalization, have also significant effects on citizens' intentions to use e-government [98]. Thus, the improvement of the

government capacity and the existence of educational programs to "create" good citizens could be key aspects to foster a higher participation of citizens in public affairs [99]. Educating for democratic citizenship is possible but educational choices we make have consequences for the kind of society we ultimately help to create [99].

In brief, local governments must make greater efforts to improve their relational strategies regarding the use of Web 2.0 technologies in providing public services. These technologies could be good tools for citizen engagement in public policies and in the delivery of public services, but the technology has not yet changed the interactions considerably. In fact, our findings demonstrate that policymakers do not consider them as the main channel for citizen participation. A recent research undertaken by Díaz-Díaz and Pérez-González [100] have found that several elements are required: the determination and involvement of the government, a designated community manager to follow up with the community of users, the secured privacy of its users, and a technological platform that is easy to use. Also, citizens' willingness to participate in public affairs should be built by governments, firstly improving their organizational capacity, second with educational programs to foster deliberative actions and, finally, with the implementation of tools to disclose information for taking informed decisions and for making citizens to perceive advantages about their participation (collective or personal advantages of their participation). The questions are: are there only technical and organisational issues necessary to implement Web 2.0 technologies for citizen participation? Or is it a cultural change needed to include these technologies as a main vehicle for citizen participation in the delivery of public services?. These questions remain without answer and future research should contribute to answer them.

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Annex

Table A.1 Design and coproduction of public services with the use of Web 2.0 technologies

Questionnaire	Frequency	Response rate (%)	Median	Mean	Mode	Standard deviation	Maximum	Minimum
1.1. Web 2.0 technologies improve the communication between public administrations and stakeholders, and to better identify the needs of public services	53	37.59	4	3.38	4	1.06	5	1
1.2. Web 2.0 technologies enable the design of well-targeted public services to meet the needs of end users	49	34.75	4	3.71	4	1.08	5	1
1.3. Citizens may participate in the generation of content and information about public services.	53	37.59	3	3.15	4	1.20	5	1
1.4. Web 2.0 technologies foster the effective collaboration between citizens and governments in the delivery of public services	54	38.30	4	3.67	4	0.95	5	1
1.5. Web 2.0 technologies allow the development and promotion of tools and spaces where user can proof new online public services before their general availability	52	36.88	3	2.75	3	1.10	5	1

Table A.2 Ease of access to public services and resolution of problems with the use of Web 2.0 technologies

Questionnaire	Frequency	Response rate (%)	Median	Mean	Mode	Standard deviation	Maximum	Minimum
2.1. Web 2.0 technologies facilitate the access of citizens to all public services	50	35.46	4	3.72	4	0.97	5	1
2.2. Web 2.0 technologies reduce time on obtaining public services	55	39.01	4	3.95	5	1.22	5	1
2.3. Web 2.0 technologies allow the collection of suggestions from citizens regarding public services, which enhances the quality of public services and the information about them	53	37.59	4	3.96	5	1.14	5	1
2.4. The local government opens up a problem or activity for resolution or co-execution by citizens in order to tap into the unique skills, talents, and knowledge of the population	54	38.30	3	3.13	4	1.20	5	1
2.5. Wikis allow the creation of knowledge to solve problems in the delivery of public services	51	36.17	3	3.24	4	1.07	5	1

Table A.3 Evaluation and efficiency of public services with the use of Web 2.0 technologies

Questionnaire	Frequency	Response rate (%)	Median	Mean	Mode	Standard deviation	Maximum	Minimum
3.1. Web 2.0 technologies facilitate citizens to evaluate the efficiency and transparency of public services	47	33.33	4	3.74	4	0.99	5	1
3.2. Web 2.0 technologies offer citizens the means to evaluate the quality of public services	50	35.46	3	3.18	3	1.00	5	1
3.3. Web 2.0 technologies promotes the cut of the costs and the increase of financial resources in the delivery of public services	49	34.75	4	3.61	3	1.15	5	1
3.4. Web 2.0 technologies enable the better allocation of financial resources	48	34.04	4	3.77	4	1.10	5	1
3.5. Governments use Web 2.0 technologies to disclose proactive information with the aim at making transparent the performance achieved by the government to improve its accountability	48	34.04	4	3.92	4	0.85	5	2

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