Technologies for Citizen Participation in Budgeting Processes
(Working Paper)

The literature on political participation often posits high levels of participation as a desideratum for democratic politics. It has become commonplace to point decreasing turnout in elections as one of the disturbing symptoms of representative democracy's malaise or as a problem *tout court*.

In a similar vein, participatory democracy theorists often depict higher levels of participation as a desirable goal to be attained. Indeed, the desirability of participation becomes evident the discussions on the tension between deliberation and participation: scholars often convey a sense of resignation about the fact that expanding participation may come at the expenses of deepening deliberation and vice-versa. In short, while participation does not remain the only democratic goal to be pursued, when all other things are equal (e.g. deliberation, equality) the higher the levels of citizenry mobilization, the more successful participatory institutions can be considered.

Such a perspective of enhanced participation as a desirable characteristic of participatory institutions is echoed in the literature dealing with participatory budgeting (PB). Whenever possible, authors will portray relatively higher levels of participation as a positive element of PB processes. Yet, a review of the experiences on PB – as most participatory processes - will reveal what is no news for scholars and practitioners in the area: low turnout levels characterize the majority of PB experiences, with only small percentages of the population getting involved in the process.[1] Even more chronic is the situation of so-called "e-participation" initiatives, where apart from a few publicized exceptions, most initiatives fall from delivering on the promises of enhanced citizen engagement.

Conversely, existing evidence suggests that initiatives relying on the use of information and communication technologies (ICT) appear to have significant impact in boosting levels of participation in PB processes. In this paper we shall provide a

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[1] These turnout levels are considered low, for instance, when compared to the average turnout of other political participation mechanisms, such as elections and referendum.

panorama of the use of information and communication technologies (ICT) in PB caes. In the first section, we provide a brief description of PB and its relationship with technological solutions. We then proceed to an international overview of the technological usages in PB processes. Finally, two brief case studies are presented.

1. Participatory Budgeting and e-Participation

Participatory Budgeting (PB) can be broadly defined as the participation of citizens in the decision-making process of budget allocation and monitoring public spending. Participation may take various forms, from effective decision-making power in the allocation of resources to more modest initiatives that confer voice during the development of the budget.

Added to the normative claim that PB gives citizens the opportunity to participate in decisions that directly affect them, it is expected that citizens as end-users of public services are the most suited ones to identify public demands. In this perspective, citizen participation in PB should naturally lead to a better allocation of budgetary resources and there is growing evidence that, when implemented properly, this is the case.

In terms of sustainability, there is significant evidence that once administrations implement PB there is a general trend of continuity of the experience due to, among other factors, the political costs that are associated with the extinction of PBs. Adding to that, there are a number of countries that are inserting PB in their juridical framework, making PB a compulsory practice for local governments, such as Peru, Bolivia, Venezuela and Dominican Republic.

Concerning results, PB has a great virtue that lacks in most e-participation initiatives implemented so far: it is directly linked to the delivery of visible and quantifiable public goods and services that have a direct impact in citizens' welfare. Also, there is strong evidence that PB may lead to citizens' empowerment by acquiring skills and competencies (e.g. budget literacy, networking) that leverage individuals' capacity as social and political agents.

Nonetheless, despite all these virtues, most PB experiences reach a very low level of participation, with most initiatives reaching participation levels between 0.5 and 2 percent of the population. Such a fact is not inherent to PB: surveys in democratic countries have repeatedly shown that very few citizens are willing to participate in political life in ways other than voting.

In this respect, ICTs may play an important role by decreasing the costs incurred by citizens when taking part in PB processes. For instance, instead of having to attend a face-to-face meeting at a certain place and a certain time, ICTs may enable citizens to participate from virtually anywhere at any time in the process by deliberating and casting their votes in the allocation of budgetary resources. Nonetheless, most of the use of ICTs concerning PB practices so far has been restricted to the provision of information about the process to the citizens. At the same time, it is easy to identify an increasing trend in the use of ICTs in PB practices as means to increase participation (*e.g.* Internet voting) and to enhance online deliberation. In the next section we shall provide a brief international overview of these experiences.

2. ICT and Participatory Budgeting: Innovation in Participatory Governance at the Local Level

Since the 1970's the local level has occupied a prominent space in the literature dealing with ICT and citizen participation. As a political *locus* where citizens are likely to be more directly affected by decisions taken - and hence more inclined to participate - the local level has been portrayed as a particularly promising arena for ICT usage as a means to foster citizen participation. It is also argued that due to matters of general costs, innovative approaches are more likely to take place at the local level, with the local environment depicted as a more socially and politically controllable sphere where the costs of implementation – and potential failure – are significantly lower.

Simultaneously, PB, as a participatory practice traditionally taking place at the local level, has been a source of innovation in itself with regards to the use of ICT. Over two decades ago the city of Porto Alegre (Brazil) started to use the Internet as a

means to facilitate citizen monitoring of its budget execution. In 1997, the medium-sized city of Ipatinga (Brazil) started to provide online geo-referenced information about its budgetary allocation and status of public works (Faria & Prado 2003). Noteworthy, both initiatives anticipated practices that years later would become so popular: the use of Internet to foster budget transparency and the mapping of government spending.[2] In 2001 the use of ICT in PB towards increasing citizen participation is put forward, with the municipalities of Ipatinga and Porto Alegre enabling their citizens to submit their demands for budget allocation via the Internet. Although embryonic, these initiatives can be situated at the origin of an entire new field of ICT mediated participation. Since then, the use of ICT to facilitate PB processes has gone beyond the Brazilian context, offering a wealth of innovative practices to be explored.

In Europe, for instance, the issue has gained significant traction in the recent years. In Germany, since 2005 Berlin-Lichtenberg combines face-to-face citizen assemblies with online participation. An online platform enables citizens to discuss and elaborate budgetary proposals to, subsequently, prioritize them (Caddy & Peixoto 2008). In 2008 the city of Freiburg combined online deliberation with the use of a budget simulator, enabling citizens to better assess the impacts of their choices. The results of this deliberative process were then collaboratively aggregated in a wiki and edited by the participants of the process themselves. Similar initiatives have been also conducted in the cities of Bergheim, Cologne, Hamburg and Leipzig[3]. In Italy, developing upon the combination of online and offline methods adopted earlier on in Brazil, in 2006 the city of Modena allowed its citizens to send by e-mail proposals to be discussed by the PB assemblies. Modena citizens could also watch live video streaming of the PB meetings and be updated about the process via SMS. The use of SMS as a means to reach a broader and younger audience, pioneered by the Brazilian city of Ipatinga in 2004, has also been identified in other Italian PB processes, such as those of Rome, Bergamo and Reggio Emilia. The ability to vote via the Internet for the public works in Italy can be illustrated by the experience of the cities of Vimercate

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[2] See, for instance, Baxandall xxxx

[3] For a comprehensive review of German initiatives, see Shkabatur, Jennifer, Cities @ Crossroads: Digital Technology and Local Democracy in America (March 9, 2011). Brooklyn Law Review, Vol. 76, No. 4, 2011. Available at SSRN: http://ssrn.com/abstract=1781484

and Parma. For example, through the Parmesan website votes can be case once ID number is provided, allowing the system to identify the eligible participants, that is, Parma residents. Finally, the website provides geo-referenced information, allowing citizens to visualize the location of the projects and to access further information about each of them. In Spain, the use of the Internet to support citizens' participation have been identified in the cities of Albacete, Cordoba, Getafe, Jun, Petrer, Malaga and Jerez. For instance, in the city of Getafe in 2008, in one of the districts of the city, citizens were allowed to watch live video streaming of the PB meeting and to cast their vote online. Currently, through the Getafe's PB website citizens are able to submit individually or collectively proposals for the PB process. In the municipality of Malaga citizens can submit proposals online and subscribe to SMS updates that inform them on the status of public works selected in the. In Lisbon, Portugal, through the Internet citizens can submit proposals for public works online. Once the municipal services analyze the technical feasibility of the public works and estimate their costs, eligible public works are resubmitted online to be voted for by the public.

The use of ICT in PB processes has not been confined to Brazil and Europe however. In Africa, more precisely in the South-Kivu region in the Democratic Republic of Congo, mobile phones have been used to mobilize citizens to attend PB meetings, to vote on budgetary priorities and to update citizens on the status of public works selected. The website of the municipality of Miraflores, Peru, apart from providing citizens with in-depth information about the process (e.g. training modules, meeting minutes), also enables citizen to remotely cast their votes for the prioritization of public works (Leon 2010). In the district of Buk-Gu, Korea, citizens provide feedback on the PB process through the Internet since 2004. In 2006, the district launched the "e-Budget Portal", to provide citizens with detailed budget information and enabling enhanced interactivity amongst the participants in the process (OECD 2008). In Pune, India, citizens submit their priorities for the allocation of budget through the e-Budgeting application, available on the municipality's website. In Solo, Indonesia, with the support of geographic information systems, an online platform provides residents with interactive and downloadable maps for each of the neighborhoods in the city. The resulting maps and visualizations, geo-referencing and highlighting relevant issues to the population (e.g. health, poverty), are printed and used to inform the PB's deliberative process.

Needless to say, the cases described above vary amongst themselves in terms of objectives, impacts, prospects and limits. Nevertheless, they are illustrative of the richness of initiatives that are currently taking place in which ICTs are used to support citizens' participation in the budget allocation process. Last, but not least, they exemplify the variety of ways in which technology can be used to foster citizen engagement, with most of the solutions applicable to participation activities other than participatory budgeting.

In the following sections we shall look at two specific cases in which ICT is being used to foster participation. First, we shall look at how technology can lower the transaction costs associated with the act of participating. In the second case, we examine an example of how telephony may be used to mobilize offline participation.

3. Belo Horizonte: Enabling Remote Participation[4]

In the literature at the intersection of citizen participation and technology, one of the main areas of interest refers to the use of ICT as a means to reduce the transaction costs associated with the act of participating, that is, *participation costs.* This notion derives from a rational choice assumption in which the act of participating is considered to imply both costs and benefits. Thus the link between engagement levels and costs of participation is established in the following manner: all other things equal, the probability of participation will be inversely proportional to the costs of participation. In other words, the more convenient it is to participate (e.g. from anywhere at any time) the more people are likely to participate.

Although not uncontested, such assumption is one of the main hypotheses that have fueled the enthusiasm of scholars and policymakers on the potential of technology – and more particularly the Internet and mobile phones – to foster a democratic renewal. Nevertheless, in practice, such a potential goes largely unattended. At closer examination any observer will realize that when it comes to reaching sustained levels

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[4] This section builds on a previous working paper written by the author, "e-Participatory Budgeting: e-Democracy from Theory to Success", e-Democracy Centre Working Papers, 2008, University of Zurich.

of e-participation, the majority of initiatives – some of them largely celebrated by e-participation consultants and alike– are appalling cases of failure.

One of the few – although not the only – exceptions to that rule refer to some cases of PB in which technology has enabled citizens to remotely participate in the budget allocation process. A paradigmatic example of these cases refers to the Municipality of Belo Horizonte (Brazil), the capital of the state of Minas Gerais with a population of 2.4 million inhabitants.

Since 1993 the city has implemented a PB process, with its District Participatory Budgeting (DPB). In 1996, a Housing Participatory Budgeting (HPB) was also created in order to address an increasing demand for housing in the city. In these processes (DPB and HPB), a series of assemblies are held enabling citizens to allocate budgetary resources, and scrutinize public expenditures. The current PB of Belo Horizonte can be understood in the following manner:

- Every two years, the city administration and community leaders invite citizens to the official opening of the PB and to the district rounds that are to take place in every district, with a total of nine districts in the city.

- During this first round of forums held at the district level, the administration explains the methodology of the PB and distributes amongst the representatives of each neighborhood a form to be filled in with citizens' demands for public works.

- The representative gathers the community in order to establish what the priority public work for their neighborhood is (e.g. renewal of health centers, refurbishing schools).

- Once the form is filled in with the demands and handed to the administration, the feasibility of each demand is technically assessed and, if considered unfeasible, a new demand must be made.

- The second round of forums takes place at the sub-district level. The administration presents the budget available to each sub-district, which is proportional to a sub-district's population size and inversely proportional to the sub-district's quality of life index.

- The sub-district forums pre-select a maximum of 25 public works for each district. In these forums each sub-district also elects their delegates. The number of sub-district delegates elected is proportional to citizen attendance at the forums in each sub-district. Traditionally, this is the stage with the highest level of participation

- Tours are organized during which the sub-district delegates visit together the sites of the 25 pre-selected works. These tours allow the delegates to gain a better understanding of the demands that have been made across the whole district.

- The Districtal Forum is the last deliberative stage of the PB, where the city administration indicates the estimated costs of each of the 25 pre-selected works. Based on these indications and on what the sub-district delegates consider to be priorities, they choose a maximum of 14 works. During this forum the sub-district delegates also elect the district delegates that will follow-up and oversee the execution of the public works.

- The final stage is the Municipal Meeting of Budgetary Priorities, where the elected district delegates present to the mayor the public works selected by the PB to be executed by the administration.

In 2006, along with the beginning of the regular PB as explained above, the city administration of Belo Horizonte launched the Digital Participatory Budgeting (e-PB). Independent of the budget of US$43 million allocated for the traditional PB, a fund of US$11 million was allocated to the new initiative. The e-PB consists of a scheme where citizens registered as electors in Belo Horizonte, independent of their place of residency in the city, vote exclusively online for 1 out of 4 public works for

each of the nine districts of the city. With a total number of 172,938 voters taking part in the ballot, which corresponds to 10% of the city's electors, the first e-PB involved nearly 7 times more participants than the traditional PB of the same year in Belo Horizonte (and using a budget nearly seven times smaller).

The use of technology however, should be nuanced: it plays a mediating role in facilitating participation, rather than fostering. One can suggest a number of possible factors for the increase in public participation in the e-PB if compared to the traditional PB.

- Increasing the "window of time" for voting reduces the costs of participation for citizens. By extending the voting time frame, citizens are able to vote at their convenience. In the case of Belo Horizonte, citizens had the opportunity to vote over a period of 42 days, where some were even able to vote at any time of the day or night.

- Widespread access to voting points also reduces participation costs, provoking an increase in the number of voters. In addition to the traditional points of Internet access (e.g. home, work), the 187 voting points strategically placed in the town, a mobile voting unit targeting relevant regions, and the computers made available by supporters may be considered as factors that helped to alleviate the effects of the digital divide and, at the same time, prompted citizens to cast their vote.

- The scope and relevance of the public works: The budget of US$1.2 million for a single work was unprecedented and the scope of the proposed works much larger than before, where many of the works proposed corresponded to recurrent demands from citizens. In this sense, one might hypothesize that such relevance had an effect on citizens' participation, where the assessment of the relative importance and benefit of the proposed public works would influence the decision to participate or not, and, if so, to what extent: either by simply casting a vote or actively supporting aparticular public work by engaging in canvassing campaigns.

- The salience of the initiative: The intense communication campaign involved in the ePB deployed by the city administration before and during the voting period, and the canvassing campaign organized by supporters, is considered by the unanimity of the stakeholders as some of the main explanations of the high turnout of voters.

- The binding vote: experience shows that citizens are quite sensitive to the measure of their impact on decision-making processes. In this respect, citizens are concerned by the extent to which their participation is significant: in other words, whether they are simply being consulted or if their participation will be really be taken into account. Thus, considering that the e-PB was to generate binding effects, with the results of the voting being the only and decisive factor, citizens may have perceived it as a unique opportunity to participate directly in a budgetary decision of large scope, considering that, even in the traditional PB, the final vote is made indirectly by the sub-district delegates.

Noteworthy, none of the factors above are mutually excluding. In fact, the most likely hypothesis is that is the interplay between these different factors that led to the success of Belo Horizonte's initiative.

4. Technologies for Mobilization: the Ipatinga Case

While the literature on participatory innovations tends to focus on their participants (e.g. who they are, what's the impact on them), less attention has been given to the non-participants and, even less, on their reasons for not participating. The existing evidence, however, suggests that a significant number of citizens do not take part in engagement initiatives precisely because they were not aware of the opportunities to participate. In this respect, practitioners and scholars have frequently highlighted the importance of mobilization campaigns as a means to leverage participation.

At the same time, the growing access to mobile phones (and telephony in general) – as a nearly ubiquitous and personal communications device - in the last two decades

brought about new prospects of the use of telephony as a means to mobilize participation. The first use of mobile technology with the purpose of mobilizing citizens in PB processes can be traced back to 2004, in the Municipality of Ipatinga, in Brazil.

Supported by an intense media campaign (e.g. TV, radio, newspapers), the city administration launched a pioneering experiment in four of its nine districts using telephony in its PB as a supplementary mobilization tool to increase attendance in face-to-face PB assemblies. First, SMS messages were sent to citizens who registered on the PB website and provided their phone numbers, encouraging them to participate in the process by indicating their preferences and by attending the deliberative PB meetings. Secondly, an automated system of phone calls was deployed, with calls to citizens' landlines with a recorded voice message from the mayor inviting citizens to the PB meetings, followed by an indication of the date and location (specific to each district) of the assembly. In this respect, 2.950 SMS were sent to the citizens living in the districts participating in the experiment (treatment group). Also, a total of 30,817 calls effectuated by the system to the landlines of those residing in the experiment's districts.

A first element to observe in such as an experiment refers to the actual impact of mobile phones in mobilizing citizens to attend PB face-to-face meetings. As the results of an independent evaluation showed[5], compared to previous years, in the treatment groups participation increased by 14.7% percent, whereas in control group participation was 16% higher. In other words, a difference of 30% of participation could be observed between the treatment (districts receiving SMS and calls) and control groups (districts not receiving SMS and calls).

However, if the use of telephony appears to be an important means of mobilization for face-to-face participation, a second question refers to how telephony fares when compared to other means of communication. In this respect, a survey conducted with participants in PB meetings was carried out to compare – among others – the impact

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[5] Evaluation conducted by the Electronic Democracy Centre, University of Zurich, 2004.

of the use of telephony when compared to other means of communication used by the city administration. The results are illustrated in Figure 1 below.

Figure 1) Effectiveness of different means of communication
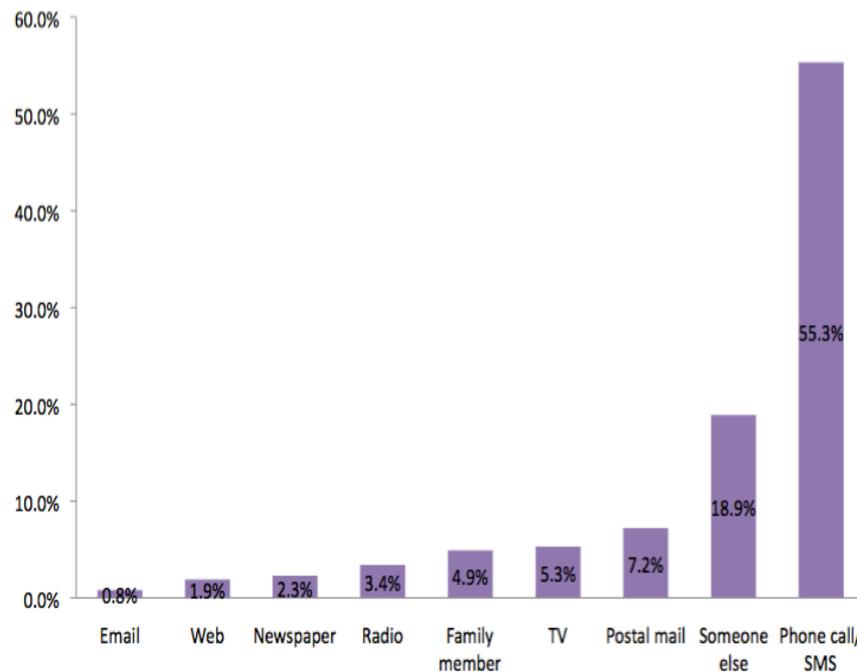
Source: Electronic Democracy Centre 2004

As the results above illustrate, when participants were asked by which means they were the most motivated to attend to PB meetings, over half of the participants responded that it was via the phone calls / text messages that were sent. Noteworthy, a number of other means of communication in which the government had spent significant amount of money with when compared to the telephony had a rather weak effect on mobilizing citizens to participate.

The usage of telephony as means of mobilization in PB have since then been used in experiments conducted by the World Bank in the Democratic Republic of Congo, the Dominican Republic and Cameroon. The impact of telephone usage as a means to foster political participation has also been identified in other types of political participation. For instance, a number of experimental studies have looked at the effects of text messages in electoral processes (Imai & Strauss 2007, Dale & Strauss

2009, Malhotra et al. 2011), all of them indicating substantial boost in turnout following SMS mobilization.

While technology may increasingly play a role in reducing the barriers to participation, they are far from replacing traditional face-to-face interactions. This is particularly so when it comes to process where strong deliberation and broad inclusiveness are considered an essential component. In this case, the use of telephony as means to promote offline participation might be something for policy makers to take into account when designing citizen engagement initiatives.

5. Concluding Remarks

As the cases above illustrated, the use of technology may leverage the prospects for enhanced citizen participation. First, by rendering participation more convenient through remote participation may boost levels of participation. Second, the use of mobile technologies may constitute an important strategy to foster offline mobilization. The use of each of these solutions is not mutually exclusive. Both practitioners and scholars tend to agree o the importance of the adoption of multi-channel approaches in citizen engagement. Combining online (and mobile) participation with more traditional forms of participation (face-to-face) is not only more likely to produce better results from a decision-making perspective: they are also more likely to promote inclusiveness.

However, while technology may play an important role in promoting civic engagement, practitioners and policymakers should beware of its limits. Despite much enthusiasm (and public funding), an examination of most e-participation initiatives calls for caution. Indeed, very few are the cases in the field of e-participation that can be considered as successes when confronted to some minimal standards, such as participation levels, inclusiveness and impact on decision-making.

The factors why PB cases emerge as an exception to that grim e-participation landscape are several. However, the evidence suggests that one of the main reasons why citizens are willing to engage in PB is because these spaces are not conceived as tokenistic forms of participation. Rather, PB builds upon a participatory design in

which citizens know beforehand what impact they will have on the decision-making process. This lesson goes beyond the realm of participatory budgeting.

1: How does ICT provide innovative ways for citizen to interact, get involved and become empowered and how do these relate to more traditional approaches?

Swedish Association
of Local Authorities
and Regions

• By reducing the cognitive load associated with understanding governmental information

• By enabling third parties to build applications and analytical tools based upon governmental data

• By reducing the transaction costs associated with the act of participating

• By the reducing the coordination costs amongst dispersed constituencies

• By informing decision-making processes that take place in more traditional approaches

•By fostering citizens external political efficacy

Swedish Association
of Local Authorities
and Regions

- Redefinition of mediating organizations' roles
    - traditional civil society organizations
    - technomediators

- Technological enactment pact between elected officials, political appointees and career civil servants (costs and benefits)

- Understanding of ideational constituencies as fluid and adhocratically organized

- Content generation as a widely dispersed capability

3: What practical and achievable recommendations would you make to governments, and particularly local authorities, about how to optimize the impact of e-participation in the short and longer term?

Swedish Association
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and Regions

• Build-upon existing infrastructures of interface with citizens (cross-selling citizen participation)

• Build-upon existing institutional (traditional) opportunities for citizen engagement

• Allow for participation to take place through different methods of participant selection (e.g. open, randomized, mediated)

• Enable self-organization

• Manage expectations, provide feedback on results

• Learn to evaluate, evaluate to learn