

THE POTENTIAL OF E-PARTICIPATION AS PLANNING SUPPORT SYSTEM

Arjen Koekoek
Geo-Information Student

Abstract. The increasing complexity of spatial planning issues and pressure from citizens to take part in designing and deciding on spatial plans result in a need for improved methods to aid communication between governmental actors and citizens. These developments put high demands on participatory Planning Support Systems (PSS); instruments that can aid planners in doing their planning tasks. By using the accessibility of the internet, e-participation offers opportunities as a PSS. Although many advantages are attributed to participatory PSS, its use in the planning practice remains marginal until now. It is argued here that this is partly caused by the lack of empirical studies that demonstrate potential benefits and problems when applying PSS. This paper provides guidelines for organizations that contemplate on using a participatory PSS. In order to do so, a framework is developed, identifying obstacles that could block effective participation in a PSS. Three planning processes are evaluated to investigate the importance of these obstacles. It is demonstrated that, although e-participation has potential as PSS, the lack of political will blocks effective participation and a more profound link between the citizen input and the decision-making is needed.

Introduction

Changing social and political conditions and the trend towards a democratization of environmental decision-making make it necessary to reconsider the role of participation in planning (Däne and van den Brink, 2007). Citizens increasingly want their voice to reflect in decision-making. More than 4 on every 5 Dutch citizens want to have a say in important decisions on the municipal level (Ernst&Young, 2008). Traditional non-participatory approaches to spatial planning fail to create the societal support necessary to implement plans, causing resistance and delays. Since the 1990s Healey (1993) observed a 'communicative turn' in planning, necessary to cope with the changing need of society. This trend towards more interactive and participatory planning will have major repercussions on the way planning is practised: planning will become more complex and increasingly dependent on information technology instruments (Geertman, 2002 p21). The Web 2.0 trend pressures governments to open up their decision-making processes for citizens to participate over the Internet, in so-called e-participation. E-participation has the potential to establish more transparency in government by allowing citizens to use new channels of influence which reduces barriers to public participation in policymaking (UN, 2008).

In concordance with others (Al-Kodmany, 2003, Däne and van den Brink, 2007), participation is perceived here as a two-way interaction between government and the public. Advantages of e-participation tools over traditional participation tools are that communication is no longer bound to a specific location and a specific time. Tools for e-participation can be categorized in discussions and chats, polls, and (GIS-based) visualizations (Lenos and Buurman, 2000). The use of visualizations, especially when in 3D, is interesting as they are easier for common citizens to understand than policy documents. However, the use of GIS on itself is unlikely to guarantee empowerment in a particular decision-making process (Sieber, 2006). In order for GIS-tools to play a significant role in a participatory planning process, they need to be embedded in a process as a Planning Support System (PSS). PSS are geo-information based tools to support planners in doing their planning tasks (Vonk, forthcoming). Thereby they could help planners in handling the ever-increasing complexity of planning. The use of GIS-technologies, and web-based systems in particular, could help overcome some of the criticisms of traditional planning methods by creating a more level playing field on which to conduct public debate (Kingston et al., 2003).

Various studies underline the limited use of PSS for E-participation in the planning practice (Dunn, 2007, Geertman, 2006, Jankowski and Nyerges, 2003, Kingston, 2007, Laituri, 2003, Sieber, 2006, Geertman, 2002). It is argued here that this limited use is at least partly due to a supply-side bias in research. Studies on public participation GIS-applications (PPGIS) mainly focus on the technical functionality of the application, and put little emphasis on the user demands and the role of the application in the planning process. In order to estimate the potential of E-participation in PSS, the perspective of government as the user of e-participation applications deserves more attention. What kind of citizens might e-participate, do applications guarantee participation and how can these applications be embedded in a planning process? The current lack of insight in these matters poses an important barrier for municipalities to start using e-participation. Surprisingly little is known about the effect of e-participation on the planning process and outcome. This is especially harmful in participatory planning because the link between the citizen input and the decision-making is critical. Citizens might feel pleased and heard, to have the initial opportunity to give an opinion, but if nothing happens with this input or they do not receive feedback, citizens are likely to lose trust in the participatory process. In this way, participation can 'backfire', paralyzing the planning process. Limited knowledge on the risk on backfire and other risks inherent to participatory planning might prevent municipalities to use a PSS. Experiences from real planning examples are therefore necessary to provide municipalities information on the potential of E-participation in a PSS. Awareness of existence of PSS and experiences could increase users' intentions to start using PSS structurally in their planning practice (Vonk et al., 2005).

This study will attempt to bridge the knowledge gap between the application and the process by assessing the potential of Planning Support Systems for e-participation. Only a small number of Dutch municipalities use PSS to enable E-participation. In this study, three of these municipal cases are inspected more thoroughly. Furthermore an attempt is made to identify factors blocking the use of the application as a PSS. A multidisciplinary approach is crucial as the subject is situated at the junction of multiple disciplines: planning, graphic design, GIS and communication. A first but necessary question is whether there is any demand for participatory PSS in contemporary planning. Then, a framework is presented that can be used to assess the potential of a participatory PSS. This framework is used to guide the case study research.

The need for participatory PSS: a planning theoretical perspective

The search for an appropriate role for (a GIS-based) computer-based information and methods in planning must not begin with a particular technology but rather with a conception of planning (Klosterman, 2001). This implies that the character of contemporary planning and its associated needs should always be taken as a starting point when discussing the potential of a PSS. In this section a planning theoretical perspective is used to investigate the potential for participatory PSS. So what type of demands does the dominant planning culture put on planning-support instruments? Since World War II, four different traditions with specific policy models and planning styles can be identified (Geertman, 2006). Table 2 presents an overview of these four planning traditions. This overview shows that the role of participation differs dramatically per planning tradition. In the 'rationality' tradition, planners focus on the planning content, using objective knowledge to work to an optimal end-state. Complex large-scale metropolitan urban models were used to support decision-making. Later on, these models were heavily criticized by many, stating that content is never value free (Brewer, 1973, Lindblom, 1959). This led to a shift in the attention of planning from content to process. A more even distribution of information and knowledge over other actors also characterizes this tradition. In this period citizens are involved in policymaking and get a say in spatial planning

through participation (AVV, 2003). Also, participation was now seen as a solution to democratize decision-making and became a legal right in planning procedures. The Dutch traditional participation meetings find their legal roots in this period.

Table 2: Planning traditions and information needs

Timeframe	Planning tradition	Characteristics of information and knowledge	Characteristics of planning-support instruments
<i>1950s/1960s and onwards</i>	‘Rationality’ tradition	Value free, substantive	Expert-oriented
<i>1960s/1970s and onwards</i>	‘Procedural’ tradition	Value laden, partisan	Process management, empowerment
<i>1970s/1980s and onwards</i>	‘Strategic’ tradition	Strategic	Continuous generation of combined process and substantive information
<i>1980s/1990s and onwards</i>	‘Participatory’ tradition	Socially constructed, value laden, actively produced through social interaction	Facilitation of ‘reasoning together’, empirically based, community supportive, knowledge disseminating

Source: adapted from Geertman (2006)

The ‘strategic’ tradition attempts to combine both the content and process-elements of the previous timeframes. Although all the previous traditions still play a role in contemporary planning, the dominant planning paradigm is known to be participatory. For planning to become effective, not only the quality of the planning process or its substance are important, at least equally important is the degree in which the affected people are actively involved in the implementation. The needs for planning support systems in the participatory tradition consist of facilitating reasoning together, retrieving empirical information, working community supportive and disseminating knowledge. These are all characteristics in which GIS-based e-participation, at least theoretically, should excel. This brief exploration leads to the assumption that the dominant planning paradigm cannot be seen as a major factor blocking the potential of E-participatory applications as PSS.

E-participation in the planning process

Contemporary planning can theoretically be aided by participatory PSS. Although a necessary precondition, this is not enough to prove the potential of e-participation in PSS. The best tools in the world are not going to be effective if they are not integrated into a process that engages stakeholders in the decision-making process at the right time and in the right way (Snyder, 2003). In this section a framework is introduced that identifies possible obstacles when implementing E-participation in a PSS.

A too often forgotten first step for a planner when considering E-participation in a planning process is to define the why of participation. The reason can be instrumental; using participation as a means to achieve a policy aim, as well as normative: participation as an aim in itself (De Graaf, 2007). Woltjer (2002) makes a further distinction in functions (table 1). Participatory planning contributes to efficiency and effectiveness because it yields information and ideas, and because it enlarges public support for the decision and thus averts implementation problems, objections and appeal. Little is known about the potential of e-

participation to fulfil these functions. Table 1 provides examples of the functions of participation. Some studies highlight the potential of E-participation to give citizens a say in decision-making (Al-Kodmany, 2003, Geertman, 2002), or utilize citizens’ local knowledge (Dunn, 2007, Sieber, 2006), involve politically marginalized groups (Van der Eijk and Bos, 2007) or prevent objections (Moody, 2007). However, these functions have not yet been verified in practice.

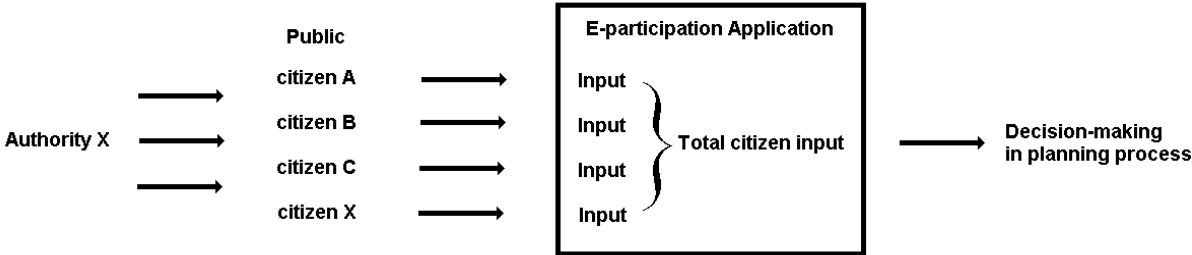
Table 1: Functions of Participation

Normative		Instrumental	
Function	Examples	Function	Example
Functioning of democracy	give citizens a say in decision-making, involving politically marginalised groups	Influence	give citizens a say in decision-making
		Effectiveness	utilizing local knowledge
		Efficiency	prevention of objections

Source: adapted from Woltjer (2002)

Before we can identify obstacles blocking these functions of participation it is useful to take a closer look at the position of e-participation in a PSS. Although many studies implicitly assume a number of ingredients necessary for any participation in practice, these have never been presented together. Therefore the basic building blocks for a participatory PSS are presented here. Achievement of normative and/or instrumental functions of participation will be the starting point for a local authority when considering participation and selecting a suitable application. Däne and Van den Brink (2007) argue that citizen input generated in a participatory process should be integrated within official decision-making. This normative assumption acts as the basis for the perception of a participatory PSS here, resulting in a perception of e-participation in a PSS (figure 1).

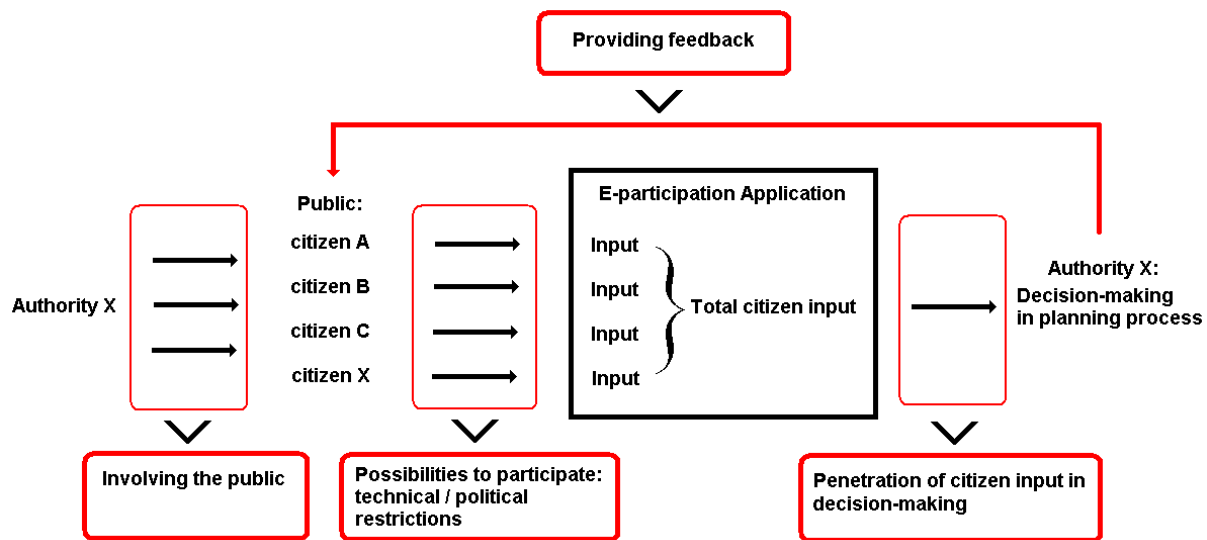
Figure 1 Position of E-participation Application in planning process



In short, a local governmental body stimulates a public to participate using a e-participation application to provide input to the planning process that will affect decision-making to a certain degree. It is presupposed in this model that the final decision-making abilities remain with the municipality, but the degree in which the citizen input reflects in this decision differs. This model therefore excludes the highest levels of participation, categorized as ‘citizen power’ by Arnstein (1969) in which citizens have a say in the decision-making itself. However, many studies revealed that the actual use of applications to achieve these higher levels is minimal (e.g. Berntzen et al., 2005, Däne and van den Brink, 2007, Sieber, 2006). The potential of e-participation as a PSS is fully utilized if municipalities successfully involve the targeted citizens; these citizens can effectively participate using the application and receive feedback on the way their input reflects in decision-making. From literature, four

different obstacles were found that can block effective participation in the planning process (figure 2).

Figure 2 Obstacles for successful E-participation in planning process



Obstacle 1: Involving the public

Exactly what public do municipalities want to involve in the process? A logical, but necessary question. Schlossberg and Schuford (2005) categorize two possible criteria: *Those affected by a decision or program*, or *those who can bring important information to a decision or program*. Either way, both definitions exclude people. Sieber (2003) on the other hand suggests that use of e-participation, by definition, succeeds when as many community members as possible can utilize spatial information in the public decision-making process. Tackling the question of what constitutes the public in E-participation becomes especially difficult with web-based applications, that are designed to expand public outreach (Sieber, 2006). The anonymity of the web blurs the identity of the citizens. To maintain a degree of control over the citizen input, municipalities can use different types of (local) media to stimulate citizens to use the applications. Additionally, when offering services online, developers need to take the impatient behaviour of the user into account. Citizens seem unwilling and cautious to register or download programs (Moody, 2007). This puts government for a dilemma: to ensure the use by a certain public (for example inhabitants of the city), digital authentication measures (such as DigiD¹) are needed, which pose a barrier for participation themselves.

Opposing viewpoints exist regarding the effect of e-participation on the normative function of participation. By some, internet access problems have been put forward as the most important disadvantage of e-participation (Mayer et al., 2005, Moody, 2007, Obermeyer, 1998). Citizens without Internet-access or with limited computer skills are excluded from participation, reducing the representative value of the citizen input. Others see online participation as an opportunity to involve groups that are underrepresented in traditional meetings (Kingston, 2007, Carver et al., 2001). But what people are exactly underrepresented? A Dutch study focussing on the reasons for people not to participate in traditional meetings revealed that motivations can be categorized in five groups (AVV, 2003). Table 3 reveals that more than half of these non-participants do not have a problem with participation in itself but with the

¹ DigiD (from Digital ID) is a web-based Dutch personal authentication system, currently in use by different governmental institutions to provide citizens with services.

way participation takes place. If E-participation offers opportunities to participate at the time and place of choosing, and at ones own pace, E-participation has the potential to address extra groups. Addressing these politically marginalized groups through E-participation can be a goal in itself when defining the public

Table 3 Motives for non-participation in traditional planning meetings

Types of non-participants	Motive	Percentage (AVV, 2003)	Opportunity for e-participating
Distrustful	Do not believe in participation	34 %	Not plausible
Busy	Do not have time to participate	27 %	Plausible
Researchers	Need time to research plan backgrounds	18 %	Plausible
Unsure	Feel unsure about their opinion	10 %	Plausible
Indifferent	Do not care about participation	10 %	Not plausible

Obstacle 2: possibilities to participate

The second barrier consists of the empowerment potential. A supporting PSS instrument should assist and not hinder the user in the process of giving ones opinion (Geertman, 2002, Jankowski and Nyerges, 2003). If citizens decide to participate using the application, their input is determined by two factors. First of all, the possibilities for participation are limited by the technical aspects of the application. This means that the instruments should be at least transparent, understandable and user friendly for people to participate successfully (Geertman and Stillwell, 2003). But technical aspects also include the functionality of the application. The format of the application determines the way people can express themselves, for example by voting in polls or starting discussions. But secondly, the possibilities can also be limited by the political will to empower citizens. Studies on community development projects involving public participation highlight this relation, suggesting that cultural and political context rather than hardware and software are the main obstacles to successful public participation in decision-making (Craig et al., 2002, van den Brink et al., 2007).

Obstacle 3: penetration of citizen input in decision-making

The total amount of citizen input gathered via the application should find its way in the decision-making process. But participation in the creation of GIS knowledge does not necessarily give any power to those involved in, and affected by, the decision-making (Aitken and Michel, 1995). This last step might therefore be the most crucial one in the process. Critics argue that use of the technology lends the illusion of control over decision making when actual control remains within the governing class (Sieber, 2006). If the citizen input does not penetrate in the decision-making process or if the use of the citizen input is not communicated back to the citizens, the risk of backfire exists. In other words, as Carver et al. (2001) formulate: how do planning authorities ensure that information reaches local people and that genuine responses from local people are acted upon? Edelenbos (2005) suggests that there is a ‘missing institutional link’ between the interactive process and the formal municipal decision-making process. He suggests that interactive governance needs better institutional embeddedness in order to prevent the interactive process from becoming meaningless and useless in formal decision making.

Obstacle 4: providing feedback

The fourth obstacle originates from the third obstacle. For e-participation to be successful, governments should not merely allow citizens to voice their views online; it is more important to construct a feedback mechanism that shows citizens that their views are taken seriously

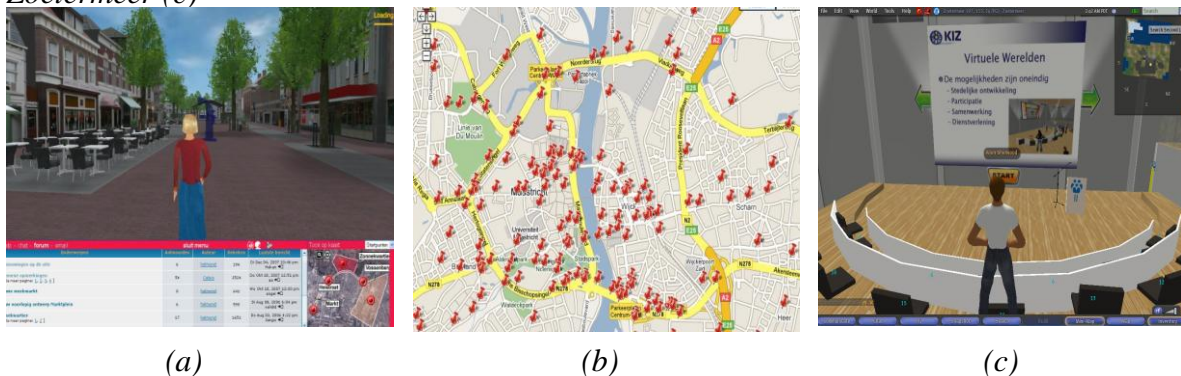
(UN, 2008). Citizens will judge an interactive process primarily by the degree of direct or indirect influence they are able to exercise (2005). Government should thus inform citizens about the way their input reflects in decision-making. If this feedback-link does not exist the risk of cherry-picking exists (Edelenbos, 2005). Decision-makers will pick a selection of citizen contributions and include these in the decisions. This will make the rich diversity of the total citizen input evaporate.

Little is known about the importance of the identified obstacles in e-participatory processes. The developed framework will be used to evaluate e-participation cases, focussing on the functions of participation and the potential of e-participation as a PSS.

Method

In order to select suitable case studies, first a quickscan was applied. This scan was conducted on the websites of the 100 largest Dutch municipalities. Each municipal website was scanned for 20 minutes to find applications that enabled E-participation in a 2D- or 3D-environment. Although many municipal websites use GIS-technology, only seven municipalities used the technology in an interactive way, giving citizens the opportunity to discuss and suggest spatial designs. Four of these municipalities applied Virtuocity, two applied the application E-spraak and one applied Second Life. For the case study research one municipality was selected per application (see figure 3). All three applications were intended to function as additional channels for participation, used parallel to a traditional more formal participation process. The developed framework offers the possibility to evaluate the three case studies. To get the information needed, 5 involved professionals were interviewed. The interviews are semi-structured, containing open and close questions and enabling additional questions. Additionally, formal and informal documents concerning the cases were used. The interviews focussed on the potential of the application as a PSS. The following section introduces the three cases.

Figure 3: Application interfaces: Virtual Helmond (a), E-spraak Maastricht (b), Second Life Zoetermeer (c)



Virtual Helmond

Helmond was the first of four municipalities to introduce a virtual city in 2006 (www.virtueelhelmond.nl). The application gives a 3D design of the proposed spatial changes. Citizens can freely move around in this virtual world and can compare the old and new situation using panoramic photos. Participation is enabled by discussion forums, chatting, and occasionally voting polls for the choice of designs. The project has been initiated by the municipality of Helmond. The city needed a way to communicate proposed changes for inner-city redevelopment with the inhabitants. These inhabitants typically had low education and were expected to have difficulties interpreting 2D maps. An additional reason of the municipality for searching a new tool was the frustration about the domination of traditional

participation meetings by a vocal few. In order to log in, a citizen first has to download a plugin, and pick a character. The website is still online and regularly refreshed when new designs are ready. The goal of Virtual Helmond is two-sided, on the one hand to provide information to citizens in an accessible way and on the other hand to enable participation.

E-spraak Maastricht

The municipality of Maastricht applied E-spraak (www.espraak.nl/maastricht) as a first step in developing a bicycle plan for the city. E-spraak is a 2D application which enables citizens to start discussions on specific locations, for example to signal dangerous crossings. Local discussions appear as thumbnails on the map, so other citizens can react. Using E-Spraak the municipality wants to get an idea of what citizens want before starting the official planning procedure. The municipality started using E-spraak because of the associated disadvantages of traditional participation meetings: the stereotype of the older, highly educated white male participant and meeting domination by a vocal few. In the end of 2007, during a month, citizens could give input for the cycling plan. In order to react, people had to register and leave their name, username and mail address. No specific downloads were necessary.

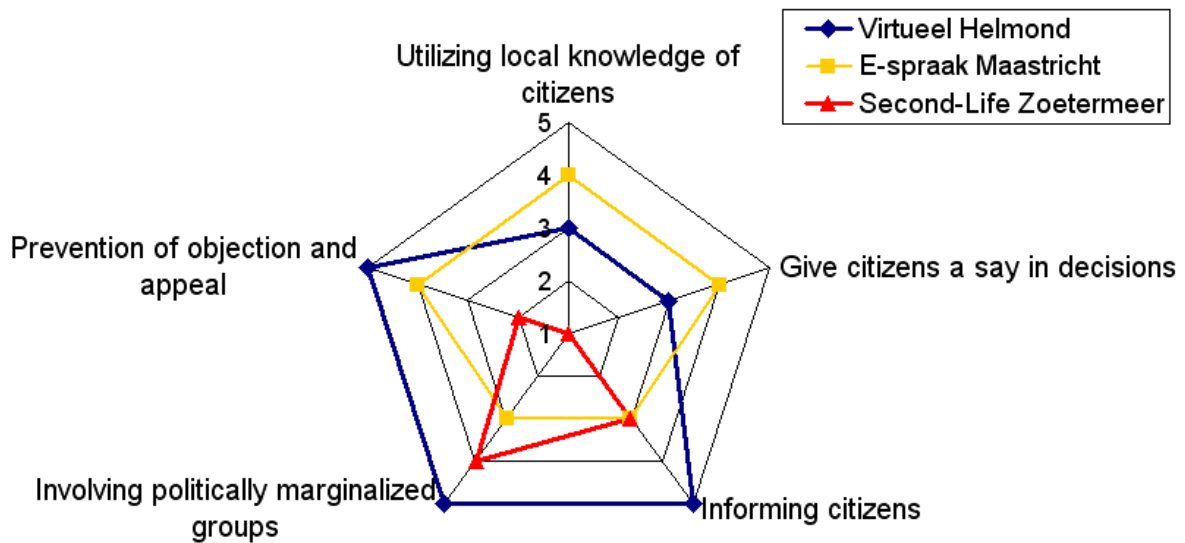
Second Life Zoetermeer

Instead of the previous two municipalities, Zoetermeer used an already existing platform (www.secondlife.nl) to reach citizens. Second Life is a virtual world with users worldwide. Because the application was not intended to enable participation, the application developer was not interviewed in this case. Two developers made a 3D-representation of the Town Hall in Zoetermeer. Zoetermeer has officially opened its Town Hall in march 2007, as the first municipality worldwide. Before users can visit Zoetermeer in Second Life they need to install the program and register. The current possibilities for participation are limited to attending virtual meetings. Participation is not the primary purpose of the municipality. City branding and attracting business are other important goals. However, ideas exist to develop a virtual design of a neighbourhood that will be redeveloped. This might offer opportunities for citizens to react or vote on designs.

Results

The E-participation application facilitate different functions of participation. For Helmond, Maastricht as well as Zoetermeer frustrations with the traditional methods for participation were an important reason to introduce E-participation. Different functions of both normative and instrumental participation are observable in the studied cases (figure 1). This figure shows how the municipality respondents rank the applications on their functions for participation, previously introduced in table 2. The application E-spraak seems best suitable to utilize local knowledge of citizens in the process and give citizens a say in decisions. Citizens know best which cycling situations in the city are unsafe and what other problems occur. Virtual Helmond seems more suitable to increase the involvement of citizens in policy and address marginal groups. In Second Life, the participation is limited to normative functions. An interesting result is that both E-spraak and Virtual Helmond decrease the amount of opposition in the planning process. Especially the more or less 'objective' representation of the future situation in Virtual Helmond makes people less suspicious than design sketches. Ironically, the city council of Helmond was initially reluctant to the high degree of detail, thinking it could cause protests on every plan detail. Interestingly, the municipalities argue that informing citizens remains an important aspect of the application, although informing is not participatory in nature and thus not included in table 2. Both Maastricht and Helmond claim that use of E-participation leads to better decision-making. Zoetermeer does not claim this.

Figure 4: Normative and instrumental functions of e-participation (1 = very insignificant to 5 = very significant)



Source: municipality interviews

Obstacle 1: involving the public

The cities of Maastricht, Helmond and Zoetermeer used multiple media to inform citizens about the possibility to E-participate. In all cases the front page of the municipal website, the local newspaper and press releases were used to involve citizens and for Helmond also local television. In Maastricht 322 people registered, resulting in over 800 reactions. In Helmond, 30-40 people visit the virtual city per day, up to hundreds after updates, in Zoetermeer around 30 per day. Downloading the needed software and registration efforts did not seem to discourage citizens as these rates are far higher than the number of citizens participating in traditional ways. All the municipalities tried to involve as many citizens as possible and did not object if citizens from other municipalities would participate. This approach seems to fit in best with Siebers' (2003) recommendation to involve as many community members as possible.

Limited access to the Internet and little IT-knowledge are believed to exclude large groups from participation. However, municipalities argue that the traditional methods of participating seem to exclude even a larger group. More than half of the citizens will probably never attend a traditional participation meeting. Helmond made sure that people without Internet access or having difficulties with the application could visit a information centre in the city centre. Computers and assistance were made available there. When comparing the demographic characteristics of traditional participants and E-participation-users the data indicates that the latter tend to be less dominated by older, highly educated males (table 3). The city of Maastricht even suggests that users of the application form a better representation of society than the participants in traditional meetings. The cases of Maastricht and Helmond seem to prove that E-participation is useful to encourage those who will probably never attend a traditional meeting to participate over the internet. In Second Life these user statistics are not available.

Table 3 User characteristics in traditional participation and E-participation

	Traditional participation meeting	E-spraak (N=737)	Virtueel Helmond (N=53)
Source	<i>Inspraakmonitor (2001)</i>	<i>Van der Eijk and Bos (2007)</i>	<i>Gemeente Helmond (2007)</i>
Male %	75%	67%	40%
High education %	>50%	X ²	17%
Elderly (50+) %	>50%	38%	30% ³

Obstacle 2: possibilities to participate

The input of the citizens is first of all restricted by the format of the application. In all cases reactions are monitored and censured, if necessary. In practice this is hardly necessary. In E-spraak citizens can put locations on the agenda and react on discussions started by other citizens. The municipality did not interfere in this process. Citizens had the possibility to vote to agree or disagree with reactions of others. Although available, this last function was not used by the municipality when the reactions were analyzed. In Virtual Helmond the forum was hardly used by citizens. The reactions on the forum mainly consisted of questions, answered by the municipality. Some citizens used the opportunity to chat with the aldermen and walk with them through the virtual world to give their opinion or to ask questions. In one occasion, citizens could vote for the design of playgrounds, choosing from 3 types of designs. This city considered using DigiD but eventually choose not to, because the city feared this would repel many people. Instead, the city choose to limit the amount of votes to 2 per IP-address. Based on the outcome of the poll, the city developed a plan for the playgrounds. However, overall citizens had little opportunity to actually have a say in decision-making using the application. This had more to do with the political will than the functionality of the application. Tilburg, another city using the same Virtuocity-application, decided to take participation a step further, letting people vote for the design of the cities main square. In total, over 4.000 people voted and the winning design will now be constructed. As a Helmond municipality communication advisor put it: 'Technically seen, participation can already go much further, the application offers this functionality, but the political will to do this in Helmond does not yet exist'. All three applications are currently still under development, enabling more participation by giving citizens the opportunities to add pictures (E-spraak), letting citizens build their own designs (Virtuocity), and enabling citizens to rank 3D urban redevelopment projects (Second Life).

Obstacle 3 & 4: penetration of citizen input in decision-making and providing feedback

Is the citizen input actually used in the decision-making process? In Maastricht all the citizen reactions were analyzed by a person who had to distinguish 'main trends', leaving room for cherry-picking. These main trends were published in a concept-discussion cycling plan. This plan will be then be discussed with local stakeholder organizations after which an implementation plan will be formulated. Maastricht plans to mirror this implementation plan once more to the original citizen input. The people who registered and left their mail address, will be contacted to participate in the formal participation procedure of the cycling plan later in the planning process. In Zoetermeer citizens could react on proposed plans in a virtual meeting. However, they did not receive feedback on their comments. In Helmond voting was

² Van der Eijk and Bos (2007) estimate that the average user had a lower education based on spelling errors, this however cannot be statistically proven.

³ 55+-years old in stead of 50+-years old

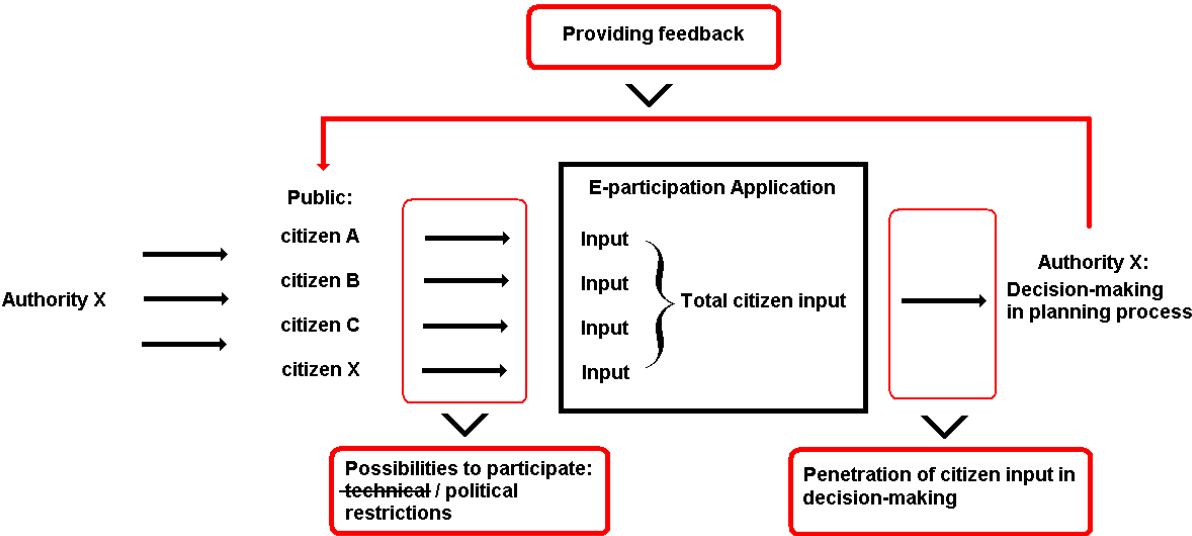
the most important opportunity to influence decision-making, as the forum and the chats served mostly to inform people.

Both developers and municipalities underline the risk of backfire, if citizens do not feel their suggestions are taken seriously. However, Maastricht and Helmond as well as Zoetermeer use the application to get an idea of what the ‘average person’ thinks, and not directly to guide spatial changes. This clearly marks the limited impact of the citizen input on the decision-making process. When using any of the applications, citizens can not find information about the way their input might affect decision-making, or what feedback they can expect.

Conclusion & Discussion

E-participation enables both normative and instrumental functions of participation. The applications can aid planners by giving citizens a say in the process, using citizens’ local knowledge and preventing objection and appeal. Municipalities do not observe e-participation as an obstacle to obtain a representative citizen input. To the contrary, e-participation involves more citizens than traditional meetings and also attract people that will not attend traditional meetings. However, some important obstacles still hinder the potential for participatory PSS (figure 5). Effective participation in a PSS is not so much restricted by the technical functionality of the application as it is by the political will of the city council. The functionality of the e-participation systems already enables higher degrees of participation. However, despite the claimed advantages, local governments still hesitate to empower citizens. The translation from citizen input to decision-making largely remains a black-box operation. This is potentially dangerous, because citizens who feel ignored will lose trust in local government.

Figure 5: Evaluation of the obstacle blocking the potential of e-participation as PSS



The changing reality of planning increases the needs for participatory PSS. For e-participation to play a substantial role in planning it is paramount to convince local policymakers of the advantages of e-participation and participation in general. The current work of developers to improve participation in the applications might prove worthless if policymakers are not yet ready to involve citizens in decision-making. Furthermore a more profound link between citizen input and decisions is necessary, for example by showing the procedure or periodically briefing citizens on the way their input is used in the process.

An amazing blind spot still exist concerning the role of citizens in e-participation. Only one study performed a small survey among citizens (Carver et al., 2001). There is a dramatic need for assessment of the position of citizens in a PSS. What citizens participate, how do they

experience e-participation and what limitations do they feel? Also, this study focussed on the rare municipalities that experiment with e-participation; additional research is necessary to investigate the considerations of the gross of the municipalities currently not applying e-participation.

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About the author:

Arjen Koekoek is currently finishing his Master in Geo-Information Science at Wageningen University. Having a background in planning (MSc degree at Utrecht University) his interests lie in assessing the potential of GIS for planning professionals.

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