The Potential of Integrating E-participation in Planning Support Systems

Arjen Koekoek, R. van Lammeren and G. Vonk

Abstract: The increasing complexity of spatial planning issues and pressure from citizens to take part in 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 planning support systems (PSS), instruments that can aid planners in performing their planning tasks. By using the accessibility of the Internet, e-participation seems an attractive shoot of PSS. This integration could facilitate citizen involvement in planning. Although many advantages are attributed to participatory PSS, its use in the planning practice remains marginal until now. According to this paper, this is partly caused by the lack of empirical studies that demonstrate potential benefits and obstacles when applying participatory PSS. To help alleviate this problem, this paper synthesizes three case studies of Dutch municipalities that each implemented some type of e-participation to achieve particular goals. It demonstrates that although e-participation has potential as a PSS, a limited impact on decision making and a feedback provision currently constitute obstacles for effective participation.

INTRODUCTION

Changing social and political conditions and the trend toward a democratization of environmental decision making make it necessary to reconsider the role of participation in planning (van den Brink et al. 2007). Citizens increasingly expect to see their voices reflected in decision making. A recent survey (Ernst and Young 2008) reveals that more than four of every five Dutch citizens would like to have a say in important decisions on the municipal level. Traditional nonparticipatory approaches to spatial planning appear to be insufficiently capable of creating the societal support necessary to implement plans, often causing resistance and delays. Since the 1990s, a "communicative turn" in planning can be observed, necessary to cope with the changing needs of society (Healey 1993). This trend toward more interactive and participatory planning is likely to have major repercussions on the way planning is practiced. Some authors expect that planning will become more complex and increasingly depend on information technology instruments (Brail 2008, Geertman 2002b, Geertman and Stillwell 2009). In our view, this seems in line with the demand to handle the information, views, and opinions from so many more voices in the efficient and effective way that we expect from authorities today.

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-participaion. E-participation has the potential to establish more transparency in government by allowing citizens to use new channels of influence that reduce barriers to public participation in policy making (UN 2008). In concordance with others (Al-Kodmany 2003, van den Brink et al. 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 no longer is 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 three-dimensional, is interesting for they are easier for common citizens to understand than are policy documents (Riedijk and Van de Velde 2006). According to Klosterman (2001), 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. Planning support systems (PSS) have been defined as a subset of geoinformation technologies, dedicated to support those involved in planning to explore, represent, analyze, visualize, predict, prescribe, design, implement, monitor, and discuss issues associated with the need to plan (Batty 1995). Because of the more participatory nature of planning practice, the demand for PSS is likely to change. To meet the demands of participation, PSS increasingly need to facilitate reasoning together, retrieve empirical information, work community support, and disseminate knowledge (Geertman 2006). These are all characteristics in which GIS-based e-participation[1], situated at the focal point of e-government, public participation GIS, and planning support systems, should excel.

However, various studies underline the limited use of PSS for participation in the planning practice (Geertman 2002a, Jankowski and Nyerges 2003, Laituri 2003b, Sieber 2006, Dunn 2007, Kingston 2007, Geertman and Stillwell 2009). How can this be explained? Some argue that citizens are not prepared to effectively participate because of digital and spatial literacy (Eshet-Alkalai 2004, Laituri 2003a). Barber (1997, p. 224) argues that the trouble with the zealots of technology as an instrument of democratic liberation is not their understanding of technology but their grasp of democracy. This statement also seems to apply to participatory PSS, as Geertman (2006) and Jankowski and Nyerges (2003) signal a supply-side bias in research. A change in the focus for participation research, therefore, is justified and needed, shifting the attention

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[1] For the sake of readability in the rest of the paper, the term *e-participation* will refer to electronically enabled (GIS-based) participation applications.

toward the users of participation—government and citizens—and their needs.

The reason for an authority to apply participation 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: Participatory planning can contribute 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. 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 2002a), or utilize citizens' local knowledge (Dunn 2007, Sieber 2006), involve politically marginalized groups (Van der Eijk and Bos 2007), or prevent objections (Moody 2007). For e-participation, these functions have not yet been extensively evaluated from an academic perspective.

Table 1. Functions of participation

NORMATIVE		INSTRUMENTAL	
Function	*Examples*	*Function*	*Examples*
Functioning of democracy	Give citizens a say in decision making	Influence	Give citizens a say in decision making
	Involve politically marginalized groups	Effectiveness	Utilize local knowledge
	Inform citizens	Efficiency	Prevent objections

Source: Adapted from Woltjer (2002).

Experiences from real planning examples, therefore, are necessary to provide municipalities information on the potential of e-participation. This study will attempt to make a contribution to close the knowledge gap between the application and the process by identifying obstacles that block the use of e-participation as a PSS. First, a framework is presented that can be used to identify obstacles in the e-participation process. This framework is used to guide the case study research in which we focus on three Dutch municipalities that started experimenting with e-participation.
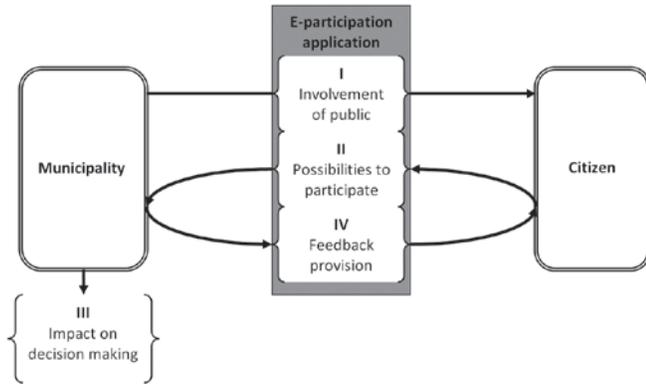
E-PARTICIPATION IN THE PLANNING PROCESS

The perspective of technology acceptance is useful to identify obstacles that can block the widespread use of a technology. Frambach and Schilleweart (2002) identified five chronological stages (awareness, consideration, intention, adoption decision, and continued use) that a technology has to pass to be accepted by an organization. Vonk et al. (2005) concluded from a survey among experts that for PSS the main bottlenecks in this adoption process consist of limited awareness among planners of the existence of PSS and the purposes for which it can be used; a lack of experience with PSS and its potential benefits; and a low intention to start using PSS among possible users. The study of Vonk

et al. (2005) took PSS in general as a starting point for research. But e-participation as a specific type of PSS situates it within participatory research and planning and therefore the nature of participatory processes itself requires more attention (Craig et al. 2002). An e-participation application is identical to any other PSS for it has to go through the same five stages, but with the multitude of stakeholders involved in its use, the application significantly differs from nonparticipatory PSS, resulting in a number of additional obstacles associated with the use of e-participation in the planning process. Innovation adoption literature does not provide suggestions on how to investigate obstacles associated with the use in a participatory planning process. This paper, thus, takes the participatory process as a starting point to investigate obstacles.

Before we can identify obstacles blocking these functions of participation, it is useful to take a closer look at the position of e-participation as a PSS. The conceptualization of the role of e-participation in a planning process starts with a concept of participation itself. The four criteria for participation specified by Brezovsek (1995) are a starting point to define e-participation in the planning process. According to these criteria (1) individuals (citizens) should be included, (2) participation is voluntary, and (3) it should refer to a specific activity, which is (4) directed toward influencing the authorities.

Following these criteria, in a typical e-participation process as considered in this paper, a (local) authority attempts to include citizens in the process, some of these citizens decide to participate and do so using an e-participation application, resulting in citizen input that will affect decision making. Along with others, participation thus is perceived as a process that eventually should result in the exertion of influence on decision making (Craig 1998, Harris and Weiner 1998, Kingston 2007, van den Brink et al. 2007). It is presupposed here that the final decision-making abilities remain with the municipality, but the degree in which the citizen input reflects in this decision differs. 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. In the Netherlands, real success stories of such full utilization are scarce. In a wider context, real success stories also seem to be scarce, although some healthy partnerships between agencies and citizens have occurred (Geertman and Stillwell 2009). This brings up the question where obstacles occur in a participatory process. To get a grip on where these obstacles prevail in the participation process, a framework was constructed from literature, identifying four possible obstacles that can block effective participation in the planning process. The resulting conceptual framework is visualized in Figure 1. The following section introduces the obstacles associated with the identified stages in the planning process: involvement of public, possibilities to participate, impact on decision making, and feedback provision, and shortly reflects on the scientific debate around these topics.

Figure 1. Potential obstacles in the e-participation process

OBSTACLE I: INVOLVEMENT OF PUBLIC

A necessary question to start with addresses the interest of the authority in what public exactly should be involved. 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 are directed toward particular groups, which logically implies that some others are excluded. Good governance implies that citizens, depending on their interest, may expect that they become involved. Sieber (2003) 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 behavior of the user into account. Citizens seem unwilling and cautious to register or download programs (Moody 2007). Opposing viewpoints exist regarding the effect of e-participation on the normative function of participation. Some consider Internet access problems as the most important disadvantage of e-participation. Citizens without Internet access or with limited computer skills are excluded from participation, reducing the representative value of the citizen input (Mayer et al. 2005, Moody 2007, Obermeyer 1998). Others see online participation as an opportunity to involve groups that are underrepresented in traditional meetings (Carver et al. 2001, Kingston 2007). But what people are exactly underrepresented? A Dutch study of the Dutch Traffic Advisory Agency (AVV 2003) focusing on the reasons for people not to participate in traditional meetings revealed that motivations can be categorized into five groups. More than half of these nonparticipants do not have a problem with participation in itself but with the way participation takes place (see Table 2). If e-participation offers opportunities to participate at the time and place of choosing, and at one's own

pace, it has the potential to address traditional nonparticipators. Addressing these politically marginalized groups through e-participation could be considered a goal in itself.

Table 2. Motives for nonparticipation in traditional planning meetings

Types of Non-participants	Motive	Percentage (AVV 2003)	Involvement through E-participation
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 II: 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 one's opinion (Geertman 2002a, Jankowski and Nyerges 2003). If citizens decide to participate using the application, their input is determined by at least three 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). Secondly, the possibilities for participation are affected by functionality of the application. An often-used categorization of citizen participation levels is composed of three levels: nonparticipation, tokenism, and citizen power (Arnstein 1969). In terms of this categorization, not all applications enable the highest levels of citizen participation. 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 also can 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 III: IMPACT ON DECISION MAKING

The total amount of citizen response gathered via the application ultimately should find its way in the decision-making process. But participation in the creation of citizen input does not necessarily give any power to those involved in, and affected by, the decision making (Aitken and Michel 1995). This last step, therefore, might 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. For example, he concludes that in the Netherlands, interactive governance needs better institutional linkaging to prevent the interactive process from becoming meaningless and useless in formal decision making. Participation results now are often set aside in formal decision making for a range of reasons, which makes the participatory process look like window dressing.
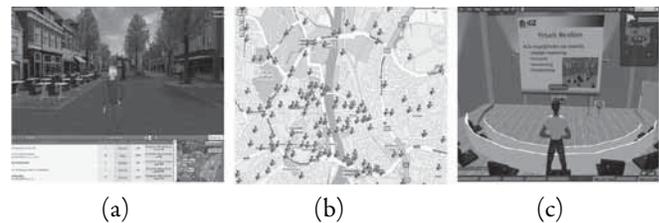
OBSTACLE IV: FEEDBACK MECHANISM

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 (Mayer et al. 2005). Government thus should inform citizens about the way their input reflects in decision making. If this feedback link does not exist, the risk of cherry-picking may occur (Edelenbos 2005). Decision makers will pick a selection of citizen contributions and include these in the decisions. This can make the rich diversity of the total citizen input evaporate.

METHODOLOGY

Little is known about the importance of the identified obstacles in the e-participatory processes. For that reason, we select suitable e-participation case studies to find out what functions were originally intended and what obstacles were recognized that could block effective participation. In February and March of 2008, we conducted a quick scan on the Web sites of the 100 largest Dutch municipalities. Each municipal Web site was scanned for 20 minutes to find applications that enabled e-participation in a two-dimensional or three-dimensional environment. In this time span, different searching strategies were applied, both by performing queries in the municipal search engine, as well as by

Figure 2. Application interfaces: Virtual Helmond (a), E-spraak Maastricht (b), Second Life Zoetermeer (c)

(a)   (b)   (c)

using the Web menu. Although many municipal Web sites 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 2). The three selected municipalities all have about 100,000 inhabitants. 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 score the three case studies on functions of participation and evaluate the degree in which the obstacles prevail. In April and May of 2008, five involved professionals were interviewed. We held semistructured interviews with both the municipal process managers and the application developers. The interviews focused on both the functions of e-participation and the role of obstacles. This division into two topics also is used to present the results. Additionally, formal and informal documents concerning the cases were used. The following section introduces the three cases.

Virtual Helmond Helmond was the first of four municipalities to introduce a virtual city in 2006 (http://www.virtueel-helmond.nl). The city was involved in a national subsidy program and thus had a considerable budget for innovative information and communication technologies (ICT) projects. Out of four competitors, the Virtuocity application, developed by Cebra, was chosen. This application was selected for it would best match two important goals of Helmond. First of all, the city needed a way to communicate proposed changes for inner-city redevelopment with the inhabitants. These inhabitants typically had little education and were expected to have difficulties interpreting two-dimensional maps. An additional reason of the municipality for searching for a new tool was the frustration about the domination of traditional participation meetings by a vocal few. The application gives a three-dimensional design of the proposed spatial changes. Citizens can freely move around in this virtual world and can compare the old and new situations using panoramic photographs. 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. To log in, a citizen first has to download a plug-in and pick a character. The Web site still is online and is regularly refreshed when new designs are ready.

E-spraak Maastricht The municipality of Maastricht applied E-spraak (http://www.espraak.nl/Maastricht) as a first step to consult citizens for a new bicycle plan before starting the official planning procedure. The municipality required a participatory platform to receive citizens' suggestions for improved cycle-friendliness of the city. Because most cycling suggestions are geographically specific, a general forum discussion or survey was not likely to return the required input. The Web application E-spraak, developed by the company Goudappel Coffeng, was selected for this purpose. E-spraak is a two-dimensional application that 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. 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. To react, people had to register and leave their name, user name, and mailing address. No specific downloads were necessary to participate.

Second Life Zoetermeer To strengthen its image of an ICT-innovative city, the municipality of Zoetermeer searched for a new communication channel. Unlike the previous two municipalities, Zoetermeer used an already existing platform (http://www.secondlife.nl) as offered by Linden Lab. Citizen participation is not the sole purpose of the municipality with Second Life. City branding and attracting business are other equally important goals. Second Life is a virtual world with users worldwide. Because the application was not intended to enable citizen participation, the application developer was not interviewed in this case. Developers constructed a three-dimensonal replica of the town hall in Zoetermeer. Zoetermeer officially opened this electronic town hall in March of 2007 as the first municipality worldwide. Before users can visit Zoetermeer in Second Life they need to install the program and register. The possibilities for participation are limited to attending virtual meetings where land-use plans are discussed
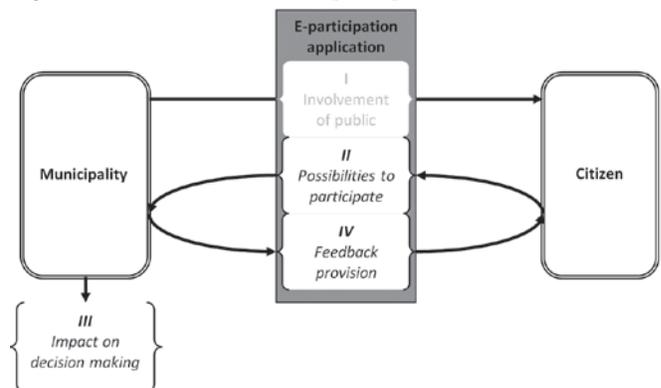
RESULTS

Functions of E-participation
The e-participation applications 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. The municipality respondents were asked to rank the application on the functions of e-participation derived from literature in Table 1 (see Figure 3). The application E-spraak seems best suitable to utilize the 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

Figure 3. Normative and instrumental functions of e-participation (1 = very insignificant to 5 = very significant)1

Figure 4. Perceived obstacles for e-participation

E-spraak and Virtual Helmond prevent objection and appeal. Especially the more or less "objective" representation of the future situation in Virtual Helmond makes people less suspicious than do design sketches. Ironically, the city council of Helmond was initially reluctant about using the high degree of detail, thinking it could cause protests on every plan detail. The municipalities argue that informing citizens remains an important aspect of the application. Both Maastricht and Helmond claim that use of e-participation leads to better decision making. Zoetermeer does not claim this.

Reflecting on the Obstacles: the Opinion of Municipalities
How do the municipal process managers themselves observe the obstacles? Figure 4 gives an overview of perceived obstacles (*italic*). The officials do not seem to regard involving the citizens as an important obstacle. An important reason for this is that they use the e-participation process parallel to a traditional participation process. The interviewees also do not regard technical restrictions as a factor that limits possibilities for participation. However, a lack of political support to fully utilize the applications potential

can be observed, especially in Zoetermeer and Helmond. In both cases, the applications offer possibilities for higher levels of participation, yet the municipalities choose not to utilize these. Also the reflection of citizen input in decision making is limited. All municipalities use the applications to obtain an indication of what the average person thinks, rather than as a basis to guide spatial changes. For these three cases, citizens received little feedback on the input they delivered.

OBSTACLE 1: INVOLVEMENT OF 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 Web site, the local newspaper, and press releases were used to involve citizens, and in Helmond local television also was used. In Maastricht, 322 people registered, resulting in more than 800 reactions. In Helmond, 30 to 40 people visited the virtual city per day, up to hundreds after updates; in Zoetermeer, around 20 per day visited. Downloading the needed software and registration efforts did not seem to discourage citizens for 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 participated. This approach seems to fit in best with Siebers' (2003) recommendation to involve as many community members as possible.

Although limited access to the Internet and little IT knowledge are believed to exclude large groups from participation, the municipality representatives argue that the traditional methods of participating seem to exclude an even larger group. More than half of the citizens probably will never attend a traditional participation meeting. Helmond made sure that people without Internet access or having difficulties with the application could visit an information center in the city center. Computers and assistance were made available there. When comparing the demographic characteristics of traditional participants and e-participation users, the available data indicates that the latter tend to be less dominated by older, highly educated males (see Table 3). Both Maastricht and Helmond consider this an important strength. The city of Maastricht even suggests that users of the application form a better representation of society than the participants in traditional meetings. Because of the limited availability of user characteristics and the rough character of the data in Table 3, it is not yet possible to justify this statement. These user statistics are not available for the Second Life application.

OBSTACLE 2: POSSIBILITIES TO PARTICIPATE

The input of the citizens is first restricted by the format of the application. In all cases, reactions are monitored and censured. 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 have 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 three types of designs. This city considered using DigiD[2] but eventually choose not to, because the city feared this would repel many people. Instead, the city chose to limit the amount of votes to two per IP address. 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, allowing people to vote for the design of the main city square. In total, more than 4.000 people voted and the winning design will be constructed. As a municipality communication adviser 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" (Interview, Van den Berg 2008). In Zoetermeer, the possibilities to participate are limited to virtually attending participation meetings. All three applications currently are still under development, increasing the opportunities to participate by giving citizens the option to add pictures (E-spraak), enabling citizens to build their own designs (Virtuocity), and enabling citizens to rank three-dimensional urban redevelopment projects (Second Life).

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2   DigiD (from Digital ID) is a Dutch nationwide personal authentication system (sometimes called a digital passport) currently in use by different governmental institutions to verify citizens who use Web services of governmental organizations.

Table 3. User characteristics in traditional participation and e-participation

	Traditional Participation Meeting	E-spraak (N = 737)	Virtueel Helmond (N = 53)
Source	Inspraakmonitor (2001)	Van der Eijk and Bos (2007)	Gemeente Helmond (2007)
Male %	75%	67%	40%
Higher Education %	>50%	X[1]	17%
Age 50+ %	>50%	38%	30%[2]

OBSTACLE 3: IMPACT ON DECISION MAKING

Is the citizen input actually used in the decision-making process? This question is quite difficult to answer for the investigated planning processes still are ongoing. 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 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. In Zoetermeer, citizens could react on proposed plans in a virtual meeting, but it is unclear to what degree their comments affected decision making. In Helmond, voting was the most important opportunity to influence decision making, for the forum and the chats served mostly to inform people. However, the city council decided not to build the design with the most votes, but a combination of the designs for they received nearly the same amount of votes. Maastricht and Helmond as well as Zoetermeer state they 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.

OBSTACLE 4: FEEDBACK MECHANISM

When using any of the applications, citizens cannot find information about the way their input might affect decision making or what feedback they can expect. As stated previously, Maastricht plans to mirror the implementation plan once more to the original citizen input. The people who registered and left their mailing addresses will be contacted to participate in the formal participation procedure of the cycling plan later in the planning process. In Helmond, feedback was guaranteed only when citizens posed questions on the forum. In Zoetermeer, the citizens did not receive feedback on their comments. Nevertheless, both developers and municipalities underline the risk of backfire if citizens do not feel their suggestions are taken seriously.

Discussion and Conclusion

E-participation has the potential to involve more citizens than does traditional participation meetings and seems to attract a different public. A user-friendly application that offers typical normative and instrumental participation functions can be seen as a precondition for an effective e-participation project. But, eventually, the participatory value of a project depends on the political will to utilize these functionalities and use the citizen input in decisions. Not all the investigated applications show the same suitability for participation. Both the E-spraak and Virtual Helmond applications provide little technical barriers and prove promising new channels for different functions of participation. Second Life proved a less suitable participation platform. Only recently, after the interviews have been conducted, Zoetermeer

decided to stop Second Life Zoetermeer for the application was too difficult for many citizens and required a long installation and registration procedure (Van Rossum 2009). In all three cases, the translation from citizen input to decision making largely remains a black-box operation and citizens often do not receive the necessary feedback on the comments they made. Despite the claimed advantages and the technical possibilities to deepen participation with e-participation, local governments still hesitate to empower citizens.

The identified obstacles provide planners who implement e-participation with an overview of issues that can prove useful when starting a process. However, the current work of developers to improve participation in the applications might prove regretful if policy makers are not yet ready to involve citizens in decision making. The planning community should take responsibility for this problem and bring successful cases of e-participation to the attention of policy makers. A simple step to improve participation is by creating transparency: Inform citizens on how their input is used in the process and require mailing addresses to keep citizens involved in the process.

A blind spot still exists concerning the role of citizens in e-participation. Only one study performed a small survey among citizens (Carver et al. 2001). There is an urgent need to assess the position of citizens in a PSS. What citizens participate, how do they experience e-participation, and what limitations do they feel? The potential disadvantages of e-participation concerning authentication should receive attention. As face-to-face contacts are not possible, quasi-participation remains a risk until now. Experiments with digital authentication seem useful.

It is worth highlighting that this study focused on the rare municipalities that experiment with e-participation; additional research is necessary to investigate the considerations of the majority of the municipalities currently not applying e-participation.

About the Authors

Arjen Koekoek obtained a MSc in Land Use Planning (2006) at Utrecht Univerity and a MSc in Geographical Information Science in 2008 at Wageningen University, both in The Netherlands. He is currently working as GIS-consultant at Geodan Next, where his interests include the use of GIS for interactive planning purposes.

Ron van Lammeren, originally educated as a landscape planner, obtained a PhD in Environmental and Agricultural sciences (1994) at Wageningen University, the Netherlands. His dissertation discusses the GIS support of the early 90's Dutch regional planning. He is currently working as an associated professor in Geo Information Science at Wageningen University. His research focus is on geo-visualisation, PPGIS, and Interactive Location Based Services impacts on education and planning.

Dr. Guido Vonk is an independent researcher and consultant. The focus of his research work is on Urban Sustainability and Planning Support Systems. In his research, he investigates these systems from the viewpoint of their adoption by the planning community and their application in planning practice.

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Footnotes

1   Van der Eijk and Bos (2007) estimate that the average user had a lower education based on the amount of spelling errors in the citizen input.
2   55+-years old instead of 50+-years old.