

E-participation

from participation for publication to participation in planning practice

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Foreword

Writing yet another master thesis was a challenging task after cycling through New Zealand for three months. Now and then it took some persistence to keep going, but the combination of an interesting topic and an inspiring study environment made the process go relatively smooth. By defining my thesis topic I was able to connect to my background as planner.

I am grateful to my supervisors, Ron van Lammeren and Guido Vonk. I appreciate the interesting discussions we had. Ron's enthusiasm could always lift my spirits and resulted in new interesting perspectives. His idea to make a couple of articles instead of one thesis inspired me. Guido was always willing to make time and provided me with useful and constructive comments.

I am very grateful to Janneke, who always supported me and took me away from my computer when necessary.

Furthermore, I would like to thank the persons I interviewed: Bauke van den Berg, Mark Veth, Sander van Eijk, Ferry Wahls and Riem de Vries for their time.

My special thanks to other students of the MGI programme. We spent a long hours working together in a one room, and provided each other some necessary work relieve from time to time.

Summary: *E-participation: from participation for publication to participation in planning practice*

Citizens increasingly want to have a say in local decision-making. At this moment the most important channel for citizens to influence decision-making is the traditional participation meeting. These meetings have important disadvantages as participation is restricted in time and space, meetings are often dominated by vocal minorities and the average citizen does not understand the jargon of planners. E-participation has been celebrated as a possible solution to revolutionize participation in planning processes. E-participation can be defined as the effort to broaden and deepen citizen participation using new communication channels. Combining the advantages of GIS and ICT, e-participation can offer citizens a more accessible and understandable platform for participation than the traditional participation meeting. Although since many years scientists signal the potential of e-participation, the actual adoption of e-participation by the planning community seems minimal. This raises the question whether the scientific discussion leaves the planning community with any tangible benefits or might they perform participation for publication?

It is demonstrated that the use of e-participation in formal and informal planning procedures is limited in The Netherlands. Only a small minority of the 100 largest municipalities use e-participation in their planning practice. Nevertheless these applications offer new possibilities, enabling citizens to participate at the time and place of their choosing, and citizens are more able to understand changes when presented in a 3D environment. An interesting but more difficult question is how this limited use can be explained. An important reason for the limited use consists of the limited understanding of how technology can successfully enable participation in a planning process. Positioned in the heart of GIS, ICT and public participation, e-participation is a complex activity by definition. This thesis identifies four obstacles blocking effective use of e-participation originating from its use in the planning process, but also introduces opportunities to deal with these obstacles.

A first obstacle consists of involving the citizens. The risk exists that important citizen groups are excluded from participating and the anonymity of the web might lead to identification problems. A more representative reflection of society might be obtained if citizens are approached by their favorite communication channel (e-mail) and the use of an authentication system takes away the identification problem.

A second obstacle consists of the degree to which participation is enabled in an e-participation application. Both the technical functionality of the application and the political will to enable participation can limit the empowerment potential of e-participation. Although the lack of political will to deepen citizen participation forms an important obstacle, it remains difficult to challenge or solve. The barrier that the technical functionality poses can however to some degree be addressed by adopting a more or less standardized platform for participation with an accessible and understandable interface. The use of a more or less standardized e-participation platform would also improve the learning capacity by enabling the exchange of experiences and best practices .

The third obstacle entails the link between the citizen input and the degree to which they reflect in the formal decision-making process. The lack of a link between citizen input and decision-making can be seen as an intrinsic problem of citizen participation. Representatively chosen bodies often have an ambiguous viewpoint regarding activities that promote direct democracy, because they have to initiate a process that should lead to a decrease in power. In

order to increase the link between the e-participation process and the formal decision making a first approach would be to involve decision-makers in the participatory process from the start. A second and more drastic approach would be to let a non-governmental organization initiate the e-participation process by enabling citizens to report comments and thus indirectly urge authorities to use the citizen input in decision-making.

A fourth obstacle stems from the provision of feedback from the government to the citizen. Although a feedback link to inform citizens on the way their input is used in the process proves useful, this aspect is often neglected in e-participation practice. In order to assure feedback provision, authorities should require citizens to leave their contact information before enabling them to provide input.

By providing obstacles in the e-participation process and introducing opportunities to deal with them, this thesis provides a small step towards participation in planning practice. But before e-participation can play a substantial role in planning, the scope in research needs to adjust from the development of applications towards evaluating their use in a planning process.

1 INTRODUCTION

Context and background

Increasing complexity of spatial planning issues and pressure from citizens to take part in designing and deciding on spatial plans results in a high need for communication processes between governmental actors and citizens. The changing relationship between government, market and civil society, implies that governmental organizations are not solely governors anymore but increasingly tend to fulfill a facilitating role in order to optimize a public good (Riedijk and Van de Velde, 2006). These developments put pressure on the toolkits of planners as they increase the need for participation in the planning process.

Over many years scientific contributions signal that technical developments in information technology have the potential to enable a dramatic change in the role of technology in human-human interaction (Maceachren and Brewer, 2004, Schuurman, 2000). The Web 2.0 trend has quickly made the internet a place to share and create information rather than just collect information (Riedijk and Van de Velde, 2006). This opens up possibilities for people to insert their local knowledge in the planning process. Many environmental decision-making problems have at their core a significant spatial element, which can often be best represented within a GIS (Carver et al., 2001). Within the field of geo-information itself, systems are rapidly becoming more user-friendly, interoperable, cost-effective, standardized and platform-independent (Geertman, 2006). King et al. (1989) describe visualization as the only common language to which both technical and non-technical participants can relate. This statement signals that the use of GIS might be a natural choice to bridge the gap between government and citizens.

The traditional form of participation consists of information meetings where planners have resented a draft of a plan and invited concerned citizens to discuss it. The meetings are quite often confrontational, they can be dominated by vocal minority groups, it is often difficult for the layperson to understand, and the whole process quite often involves highly technical and legal 'jargon' (Kingston, 2007). Practice shows that the traditional methods of participation, such as organised meetings, presentation of the new, planned activities on the analogue maps, do not result in broader participation of the citizens (Krek, 2005). Because of these disadvantages and due to increasing technical possibilities, especially web-based (E-governance) developments are considered promising. Web-based interaction offers an additional channel for participation with many advantages. By providing access to online interactive planning instruments, the public can interrogate policies at particular locations rather than wade through a lengthy document (Kingston, 2007). Additionally, web-based participation is independent of place and time, complements the information meetings, supports dissemination of up-to-date planning information and allows people to study the planning information and to form opinion in their own pace (Mikkonen and Alppi, 2003).

Problem definition

The previous section signals a significant potential for Web-based GIS-enabled applications to improve citizen participation in the planning process. In the scientific field that develops and investigates the use of these types of applications, a wide range of terms have been introduced to cover these types of applications: Public Participation GIS (PPGIS), Internet GIS, Participatory GIS (PGIS), Critical GIS, GIS/2, GIScience, Web-based GIS, GIS for

Participation (GIS-P), web-based public participation system (WPPS) and geocollaboration to name a few. The delineation between these various terms is vague at best, and harmful for the cause of the subject. It shifts away the attention from an important goal the research: aiding the planning community by investigating the potential and bottlenecks associated with the use of (web-based) GIS for participatory purposes. The deliberate choice was made to use the term *e-participation* to refer to the topic. E-participation can be defined as the use of ICTs to broaden and deepen participation by enabling citizens to connect with other citizens and their elected representatives (Macintosh, 2006). Although e-participation formally also comprises non-GIS based participation applications, such as chats and polls, this term is preferred here for a number of reasons. E-participation is a term almost everybody can relate to, comprising the use of ICT to support participation involving government and governance. IT can also be considered a positive development to take the debate on participatory GIS outside the GIS-community by perceiving it as (just) a category of e-participation applications that planners can decide to apply in their practice.

Despite the amount of attention for e-participation in publications and continuous advancements in technology, a major paradigm-shift in the use of GIS for participatory planning practice can not be observed so far. How can this be explained? On the surface, the connection between empowerment and GIS appears certain and replete with possibility (Sieber, 2006). But critiques exist: some state that GIS represents yet another instrument of capital control and government surveillance (Pickles, 1995, Curry, 1998, Aitken, 2002). This lens frames GIS as a return to positivism in which its users quantify passionately held positions and reduce complex societal processes to points, lines, areas, and attributes. In this vision use of the technology lends the illusion of control over decision making when actual control remains within the governing class (Sieber, 2006). An important reason for the limited use of e-participation in the planning practice might be related to the current lack of understanding on to use of technology in a participatory process. E-participation situates GIS within participatory research and planning and therefore the nature of participatory processes itself requires more attention (Craig et al., 2002). Van den Brink et al. (2007) argue that using geo-visualizations in participatory planning, without being certain of their usability can lead to dissemination of unintentional messages and may result in counterproductive processes. Tulloch and Shapiro (2003) suggest that e-participation should be recognized as more than a technology, and ask for more focus on its use in the process. Barndt (1998) and Harris et al. (1995) even suggest that the use of e-participation in a planning process is fraught with danger and the process can have counterproductive effects if not done correctly. When all these comments are summed up, the pretty picture of e-participation that arose in the context, the story of a superior alternative to traditional participation, quickly vanishes. All the comments somehow pinpoint towards a lack of understanding on how to use technology in a participatory process.

Research aims and methods

This thesis, consisting of three articles focuses on the use of e-participation in the planning process. Figure 1 presents the research objectives for the three articles. It also shows the links between the articles as important questions raised in a previous article structure the research objective for the next article. The first article investigates the current use of e-participation in The Netherlands, which turns out to be limited. The second article aims at identifying obstacles that arise from the use of e-participation in a participatory process that explain this limited use. The third article attempts to provide opportunities to deal with these obstacles.

The articles all more or less depart from the notion that although many theoretical advantages can be attributed to the use of such applications for participation the use in the planning practice remains remarkably limited. An overall objective of these three articles is to explain this limited use and provide insights on how to utilize the potential that for citizens participation that e-participation offers.

Figure 1 Internal relation of the articles

	Article 1	Article 2	Article 3
Research aim	Investigating the current use of e-participation in the planning process.	Investigating obstacles when applying e-participation in the planning process	Providing a guideline on how to deal with these obstacles
Main question raised	How can the limited use of e-participation be explained?	Can these obstacles be overcome?	

Different methods are used in the articles. In the first article a quickscan is performed among the websites of the 100 Dutch municipalities with the most inhabitants to explore the availability of e-participation applications. In the second article three e-participation cases found in the quickscan are picked out and evaluated by using a framework that identifies obstacles in the planning process. The third article provides opportunities from literature to deal with these obstacles.

References

- AITKEN, S. (2002) Public participation, technological discourses and the scale of GIS. *Community Participation and Geographic Information Systems*, 357-366.
- BARNDT, M. (1998) Public Participation GIS - Barriers to implementation. *Cartography and Geographic Information Systems*, 25, 105-112.
- CARVER, S., EVANS, A., KINGSTON, R. & TURTON, I. (2001) Public participation, GIS, and cyberdemocracy: Evaluating on-line spatial decision support systems. *Environment and Planning B: Planning and Design*, 28, 907-921.
- CRAIG, W., HARRIS, T. & WEINER, D. (Eds.) (2002) *Community Participation and Geographic Information Systems*, London, Taylor & Francis.
- CURRY, M. R. (1998) *Digital Places: Living with Geographic Information Technologies*.
- GEERTMAN, S. (2006) Potentials for planning support: A planning-conceptual approach. *Environment and Planning B: Planning and Design*, 33, 863-880.
- HARRIS, T., WEINER, D., WARNER, T. & LEVIN, R. (1995) Pursuing Social Goals through Participatory Geographic Information Systems. IN PICKLES, J. (Ed.) *Ground Truth: the social implications of GIS*. New York, The Guilford Press.
- KING, S., CONLEY, M., LATIMER, B. & FERRARI, D. (1989) *Co-design: a process of design participation*, New York, Van Nostrand Reinhold.
- KINGSTON, R. P. (2007) Public participation in local policy decision-making: The role of Web-based mapping. *Cartographic Journal*, 44, 138-144.
- KREK, A. (2005) Rational ignorance of the citizens in public participation planning. *Proceedings CORP 2005 & Geomultimedia05*, 165-169.
- MACEACHREN, A. M. & BREWER, I. (2004) Developing a conceptual framework for visually-enabled geocollaboration. *International Journal of Geographical Information Science*, 18, 1-34.

- MACINTOSH, A. (2006) eParticipation in policy-making: the research and the challenges. IN CUNNINGHAM, P. & CUNNINGHAM, M. (Eds.) *Exploiting the knowledge economy: Issues, applications and case studies*. Amsterdam, IOS Press.
- MIKKONNEN, M. & ALPPI, S. (2003) Web-based GIS to support citizen interaction in land use planning. <http://gis.esri.com/library/userconf/proc03/abstracts/a1069.pdf>.
- PICKLES, J. (1995) Ground truth: the social implications of geographic information systems. *Ground truth: the social implications of geographic information systems*.
- RIEDIJK, A. & VAN DE VELDE, R. (2006) *Virtual Netherlands: Geo-visualization for interactive spatial planning and decision-making: From Wow to Impact* Amsterdam, Vrije Universiteit Amsterdam.
- SCHUURMAN, N. (2000) Trouble in the heartland: GIS and its critics in the 1990s. *Progress in Human Geography*, 24, 569-590.
- SIEBER, R. (2006) Public participation geographic information systems: A literature review and framework. *Annals of the Association of American Geographers*, 96, 491-507.
- TULLOCH, D. & SHAPIRO, T. (2003) The intersection of data access and public participation: impacting GIS users' success? *URISA Journal*, 15, 55-60.
- VAN DEN BRINK, A., VAN LAMMEREN, R., VAN DE VELDE, R. & DÄNE, S. (2007) Introduction - geo-visualisation for participatory spatial planning in Europe. IN VAN DEN BRINK, A., VAN LAMMEREN, R., VAN DE VELDE, R. & DÄNE, S. (Eds.) *Imaging the Future: Geo-visualisation for participatory planning in Europe*. Wageningen, Wageningen Academic Publishers.

E-PARTICIPATIE IN DE RUIMTELIJKE PLANVORMING¹

De mogelijkheden voor inspraak in ruimtelijke planvorming zijn beperkt, tot frustratie van veel burgers. Gemeenten moeten daarom op zoek naar nieuwe instrumenten voor participatie. Het combineren van GIS en Internet biedt ze de mogelijkheid burgers een stem te geven in ruimtelijke planvorming. De combinatie faciliteert interactieve beleidsvorming door het benutten van ruimtelijk inbeeldingsvermogen en de toegankelijkheid van het Internet. In technische zin is dit soort 'online participatie' al mogelijk, maar maken gemeenten er gebruik van?

GIS en burgerparticipatie

Op het gebied van burgerparticipatie ligt er een gat in het instrumentarium van de planner. Traditionele inspraakbijeenkomsten hebben vaak het karakter van een schijnvoorstelling, gebonden aan een specifieke plaats en tijd, gedomineerd door mondige, niet-representatieve minderheden en onbegrijpelijk voor de gemiddelde burger. Tot een inhoudelijke discussie komt het niet vaak en daarmee schieten deze bijeenkomsten meestal hun doel voorbij. In een planvormingsproces willen de meeste burgers enkel weten wat voor gevolgen ruimtelijke besluiten hebben op de woon- en werklocatie. Het lijkt daarom effectiever om met een visualisatie de lokale gevolgen weer te geven en de burger hierop te laten reageren, dan een lang document uit te geven waarin gezocht moet worden naar passages die misschien relevant zijn voor de locatie (Kingston, 2007). Het is geen nieuw gegeven dat gemeenten daarom op zoek zijn naar nieuwe manieren of aanvullende kanalen om met de burger te communiceren over ruimtelijke plannen.

Vanwege de ruimtelijke en visuele component zou gebruik van Geografische Informatie Systemen (GIS) voor de hand liggen om beelden over te brengen aan burgers die zijn betrokken bij planprocessen. Al in de jaren '90 kwam de verbinding tussen GIS als middel voor publieksparticipatie op de wetenschappelijke agenda, met de verwachting dat betere toegang tot ruimtelijke data in een GIS burgers effectiever zou betrekken in lokale besluitvorming. Van oudsher heeft de planningspraktijk echter opmerkelijk weinig gebruik gemaakt van de mogelijkheden van GIS-technologie (Stillwell et al., 1999). Planners geven verschillende motieven voor deze onderbenutting: systemen zijn vaak te complex, te generiek, sluiten niet aan op de communicatieve aard van planningstaken, zijn meer gericht op techniek dan op problemen en gaan teveel uit van rationaliteit. Met andere woorden: in hoeverre kunnen complexe sociale processen worden weergegeven als punten, lijnen, vlakken en attributen? Traditioneel wordt GIS gebruikt door professionals om ruimtelijke data en thematische data te integreren, analyses uit te voeren, scenario's te maken en zo beslissingen te onderbouwen. GIS is daarom vaak neergezet als technocratisch en non-participatief instrument; eigenschappen die funest zijn in het huidige participatieve planningparadigma.

Het afgelopen decennium zijn de technische mogelijkheden voor effectieve combinatie van GIS en burgerparticipatie echter explosief gegroeid. Een drijvende kracht hierin is de ontwikkeling van het Internet. De steeds diepere internetpenetratie en de Web 2.0 trend hebben het Internet gemaakt tot een plek waar iedereen informatie kan creëren en delen. Het Internet biedt mogelijkheden om veel van de nadelen van traditionele participatie weg te nemen en zo te dienen als nieuw platform voor participatie. In dit perspectief wordt er ook

¹ Based on a sended article set up (see appendix I) this article is accepted with reservation by Rooilijn. The Rooilijn notes for contributors (see appendix II) were applied, when writing this article. An English summary of this article is provided in appendix III.

wel gesproken van *e-participatie*; het benutten van ICT (met name internet) om burgerparticipatie te verbreden en te verdiepen door burgers in contact te brengen met besluitvorming (Macintosh, 2006). E-participatie lijkt ook nieuwe kansen te bieden voor het gebruik van GIS voor participatie. Zo heeft de doorbraak van Google Earth en de algemene acceptatie van bijvoorbeeld navigatiesystemen het grote publiek bekend gemaakt met het gebruik van GIS; een belangrijkste voorwaarde voor het inzetten van GIS voor participatie. Een bijkomend voordeel van visualisaties is de laagdrempeligheid: ze zijn voor de gemiddelde burger beter te begrijpen en interessanter dan beleidsdocumenten met vakjargon. Door middel van e-participatie kunnen de voordelen van internet en GIS gecombineerd worden om op die manier burgers effectiever te laten participeren. Daarmee zou de vastgelopen discussie over het gebruik van GIS voor participatie weer een impuls kunnen krijgen.

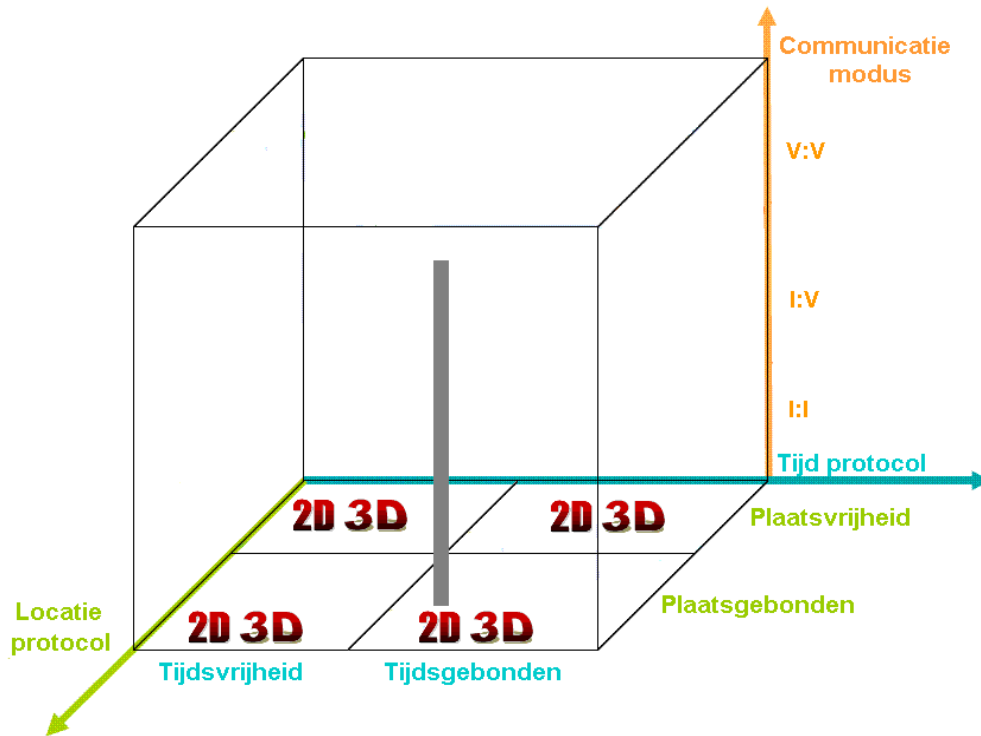
Onder meer door de invoering van digitale uitwisselbare ruimtelijke plannen in het kader van het project DURP komt ook de Nederlandse planningspraktijk steeds meer in aanraking met GIS. Door de verankering van DURP in de nieuwe Wet Ruimtelijke Ordening kunnen planners niet langer om GIS heen. Met de opkomst van e-participatie en de bestuurlijke penetratie van GIS technologie, gaan de vooroordelen van planners tegen GIS niet meer zomaar op. De vraag is in hoeverre zich dit heeft vertaald in daadwerkelijke adoptie door de planningspraktijk van e-participatie applicaties die online burgerparticipatie mogelijk maken. Over het gebruik van dit soort applicaties bij Nederlandse gemeenten is weinig bekend. Dit artikel richt zich op deze blinde vlek. Eerst zullen de applicaties die ter discussie staan nader worden gedefinieerd, waarna wordt ingegaan op het feitelijke gebruik door gemeenten.

E-participatie

Participatie verbreden

Zoals reeds eerder vermeld, spreekt Macintosh (2006) de verwachting uit dat e-participatie burgerparticipatie zal verdiepen en verbreden. Hoe gaat dit theoretisch in zijn werk? De omgeving waarin participatie tot stand komt is cruciaal voor de mogelijkheden tot participatie. Met andere woorden: wanneer, waar en hoe vindt communicatie plaats en welke beperkingen levert dit op. De communicatiekubus (figuur 1) is een hulpmiddel om deze aspecten te visualiseren (van Lammeren et al., 2007).

Figuur 1 Communicatiekubus en uitvouw met de positie van traditionele participatie (kubus met meteen daaronder de drie uitvouwvlakken naast elkaar, met daarin traditionele participatie gevisualiseerd)



(Gebaseerd op: van Lammeren et al., 2007)

Op de assen in de communicatiekubus zijn drie variabelen tegen elkaar uitgezet: tijd, plaats en communicatiemodus. Voor de dimensie tijd wordt onderscheid gemaakt tussen communicatie op een vast tijdstip (tijdsgebonden) en communicatie op een variabel tijdstip (tijdsvrijheid). Voor de dimensie plaats wordt onderscheid gemaakt tussen communicatie op een vaste plaats (plaatsgebonden) en communicatie op een niet vaste plaats (plaatsvrijheid). De communicatiemodus geeft de verhouding tussen zender en ontvanger weer, van één op één (1:1) tot veel op veel (V:V). Communicatie van één overheidsinstantie naar een individuele burger of maatschappelijke actor of vice versa geldt hierbij als 1:1. Communicatie van één overheidsinstantie met veel burgers of maatschappelijke actoren tegelijk geldt als 1:V, of vice versa V:1. Communicatie tussen overheid en burgers, waarbij de burgers niet alleen met de overheid, maar ook met elkaar communiceren geldt als V:V. In de kubus is op het grondvlak een vierde dimensie toegevoegd: immersie. Immersie kan worden gedefinieerd als de mate waarin een (virtuele) situatie als reëel wordt ervaren. 3D-visualisatie zorgt er bijvoorbeeld voor dat gebruikers een gebied herkennen en ruimtelijke veranderingen beter begrijpen en draagt zo bij aan immersie (Riedijk and Van de Velde, 2006).

De beperkingen van traditionele inspraakbijeenkomsten worden duidelijk als ze worden gepositioneerd in de kubus. Zoals in figuur 1 in de uitvouw is weergegeven is participatie in de traditionele inspraakbijeenkomst zowel tijd- als plaatsgebonden. De communicatiemodus varieert. Het is interessant te onderzoeken waar instrumenten voor e-participatie zich op deze dimensies bevinden. Van E-participatie wordt meer flexibiliteit verwacht in termen van tijd, locatie en immersie. Op deze manier kan worden verwacht dat participatie wordt verbreed.

Participatie verdiepen

Naast de omgeving waarin de participatie plaatsvindt is ook de aard van de relatie van belang voor de effectiviteit. Deze aard wordt bepaald door de rol die burger en overheid innemen in hun onderlinge communicatie. Is de relatie tussen overheid en burgers gelijkwaardig of ongelijkwaardig? Is er sprake van eenrichtingsverkeer van overheid naar burgers of scheidt de overheid gelegenheid voor interactie, zodat burgers ook kan antwoorden? Is er daadwerkelijk sprake van tweerichtingsverkeer (OECD, 2001)? Worden ze alleen geïnformeerd over de uitkomsten, worden ze geraadpleegd of kunnen ze zelfs actief deelnemen aan de besluitvorming (UN, 2008)?

Tabel 1. Aard van de relatie tussen overheid en burger bij participatie

Participatieladder (Arnstein, 1969)	Richting (OECD, 2001)	Bijdrage (UN, 2008)
Manipuleren	Eenzijdige relatie	Informatie
Therapie		
Informeren		
Consulteren	Interactieve relatie	Consultatie
Concessies doen		
Partnerschap		Besluitvorming
Gedelegeerde macht		
Burgercontrole		

Arnsteins participatieladder gaat dieper in op de positie die overheid en burger innemen ten opzichte van elkaar. Bij manipulatie, therapie en informeren is er sprake van een eenzijdige relatie en bestaat de bijdrage van de burger uit het geïnformeerd worden over het proces. De overheid heeft bij deze vormen een duidelijk primaat. Bij consulteren en concessies doen heeft de overheid nog wel het primaat maar is er sprake van interactie tussen overheid en burger, waarbij de overheid de burger consulteert over het beleid. Bij partnerschap, gedelegeerde macht en burgercontrole is er sprake van een gelijkwaardige, interactieve relatie tussen overheid en burgers, waarbij de burgers deelnemen aan de besluitvorming.

Traditionele inspraak bestaat veelal uit Arnsteins consultatie. Hierbij heeft de overheid het primaat in een ongelijkwaardige interactieve relatie, waarbij de burger zijn visie kan geven als bijdrage aan de besluitvorming. Van e-participatie wordt verwacht dat burgerparticipatie wordt verdiept door hogere niveaus van participatie mogelijk te maken, waarbij burgers worden betrokken bij de besluitvorming.

Quickscan E-Participatie GIS gemeenten

Methode

Het onderzoek heeft zich gericht op de aanwezigheid van E-participatieve GIS-applicaties bij 100 van de 443 gemeenten in Nederland. De verkenning beperkt zich tot de 100 grootste gemeenten vanuit de verwachting dat grotere gemeenten meer bereid zijn om ICT-applicaties in te zetten voor online planning dan kleinere gemeenten. Onderzoek van Yigitcanlar et al. (2008) onder Australische gemeenten bevestigt dit beeld.

Elke website wordt onderzocht op twee onderdelen. Ten eerste wordt gekeken naar de rol van GIS in de formele planprocedure van het bestemmingsplan. De verplichte inspraakperiodes in het bestemmingsplantraject en de plankaartverplichting lenen zich bij uitstek voor inzet in een participatieve GIS. Ten tweede is op elke website gezocht naar het gebruik van E-

participatieve GIS-applicaties voor andere informele planprocessen. Een gedetailleerde beschrijving van de wijze waarop de gemeentewebsites zijn doorzocht is weergegeven in de Tekstbox.

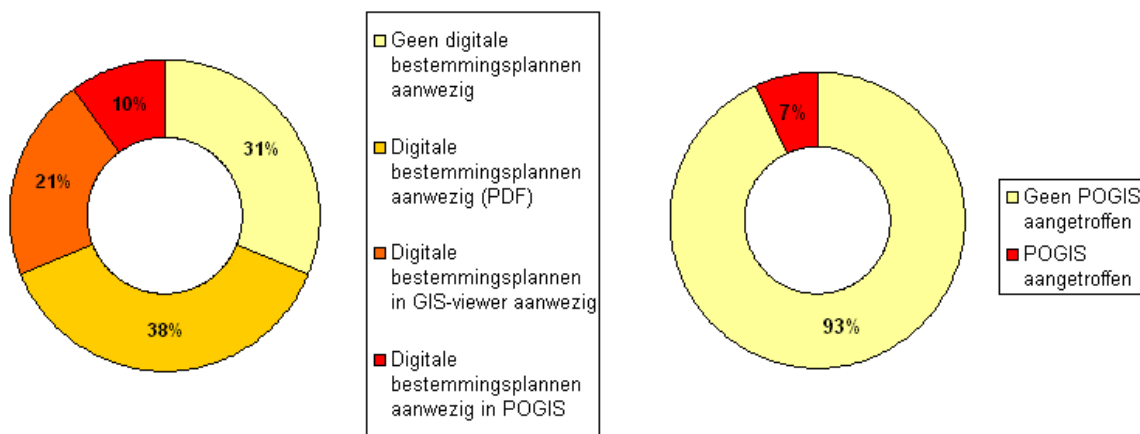
Tekstbox: Methodiek quickscan gemeentelijke websites

Als startpunt is voor elke gemeente de gemeentelijke website gebruikt (www.gemeentenaam.nl). Er is op twee sporen doorgezocht. Voor het eerste spoor is het aanwezige menu op de gemeentelijke website doorlopen. Hier is nadrukkelijk gezocht in de thema's 'Wonen', 'Projecten' en 'Verkeer', aangezien de vindkans van e-participatieve GIS hier het grootst werd geacht. Voor het tweede spoor is de zoekfunctie gebruikt om een aantal signaalwoorden in te voeren, waarvan verwacht wordt dat ze kunnen leiden naar een E-participatieve GIS. De gebruikte woorden zijn participatie, interactie, inspraak, virtuele, GIS, geo-informatie, planvorming, kaart en, indien niet via het eerste spoor gevonden, bestemmingsplan. Aangetroffen GIS-applicaties worden gecontroleerd op aanwezigheid van de vier eerder gedefinieerde eigenschappen van een e-participatieve GIS. De totale zoektijd per gemeente-website is beperkt tot 20 minuten. Er wordt verwacht dat indien aanwezig, een E-participatieve GIS kan worden opgespoord in dit tijdsbestek. Indien niets wordt aangetroffen wordt verwacht dat een burger de applicatie ook niet zou vinden. De gemeentelijke websites zijn bezocht tussen 20 februari en 11 maart 2008.

Resultaten

Met betrekking tot het gebruik van e-participatie bij bestemmingsplanprocedures zijn er grote verschillen te zien tussen de gemeenten. Bij maar liefst 31 gemeenten zijn geen digitale bestemmingsplannen aangetroffen (figuur 2). Aan de andere kant zijn er tien gemeenten die de mogelijkheid bieden om bestemmingsplannen in een GIS-viewer te verkennen én inspraak te plegen op voorontwerp-bestemmingsplannen. Verder in het plantraject is digitale inspraak helaas nog niet toegestaan, omdat wettelijk gezien digitale inspraak nog niet gelijkstaat aan schriftelijke inspraak. Bij de GIS-viewers met inspraakmogelijkheid kon in de meeste gevallen via een link naast de viewer een venster worden opgeroepen waarin de inspraakboodschap kan worden vermeld. Één van deze applicaties (www.crotec.nl), gaat een stap verder en maakt het voor gebruikers mogelijk om de geometrie in de plannen aan te passen en te voorzien van commentaar.

Figuur 2 Uitkomsten quickscan gemeentelijke websites: aanwezigheid e-participatieve GIS in formele planprocedures (bestemmingsplan) (a) en in informele planprocedures (b)



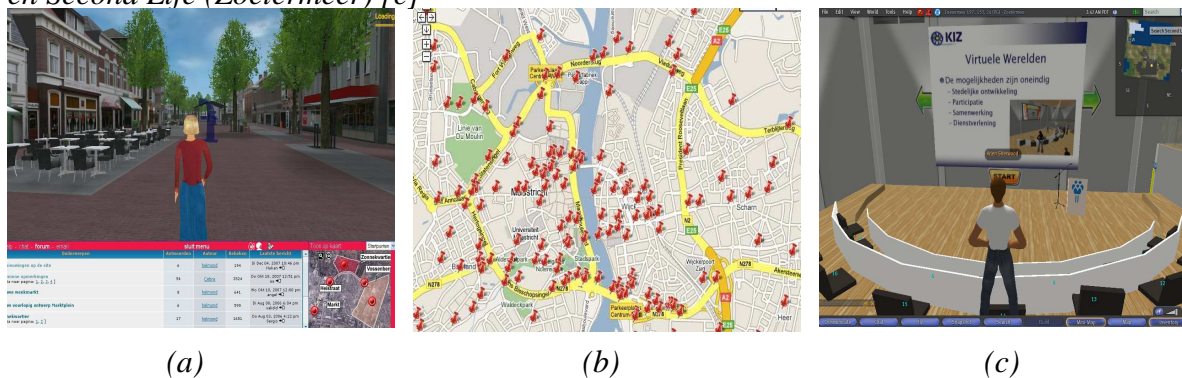
Bron: *appendix IV*

Buiten de omgeving van het bestemmingsplan bieden slechts zeven gemeenten een applicatie aan die kan worden gekwalificeerd als e-participatieve GIS. Bij vier gemeenten gaat het om zogenaamde virtuele steden (www.virtueeltilburg/apeldoorn/helmond/heerhugowaard.nl) die de burger een 'artist' impressie geven van toekomstige wijken. In deze applicatie kan de burger vrij bewegen door een 3D-landschap (figuur 3). De burger krijgt de mogelijkheid om over de inrichting te discussiëren op een forum, of door te chatten met andere gebruikers. Ook wordt soms (in Tilburg en Helmond) de mogelijkheid geboden te stemmen over stedelijke ontwerpen.

In twee gemeenten (Maastricht en Deventer) is er bij de planvorming gebruik gemaakt van E-spraak (www.e-spraak.nl), een interactieve 2D GIS-applicatie. Burgers kunnen zelf locaties selecteren, daar een discussie starten en zo commentaar leveren of suggesties voor verbetering (figuur 3). Deze worden direct inzichtelijk voor andere gebruikers die hierop kunnen reageren en aangeven of ze het eens of oneens zijn met de reactie.

De gemeente Zoetermeer heeft een virtuele stad geopend op Second Life (www.secondlife.nl), een virtuele wereld op internet. De stad is opgebouwd rondom het stadhuis, waar een virtuele raadzaal aanwezig is waar onder andere inspraakbijeenkomsten plaatsvinden (figuur 3). Voordat het stadhuis kan worden bezocht, moet wel eerst Second Life worden geïnstalleerd en een tutorial worden doorlopen. In de toekomst moet het voor burgers mogelijk worden virtueel mee te bouwen aan de stad.

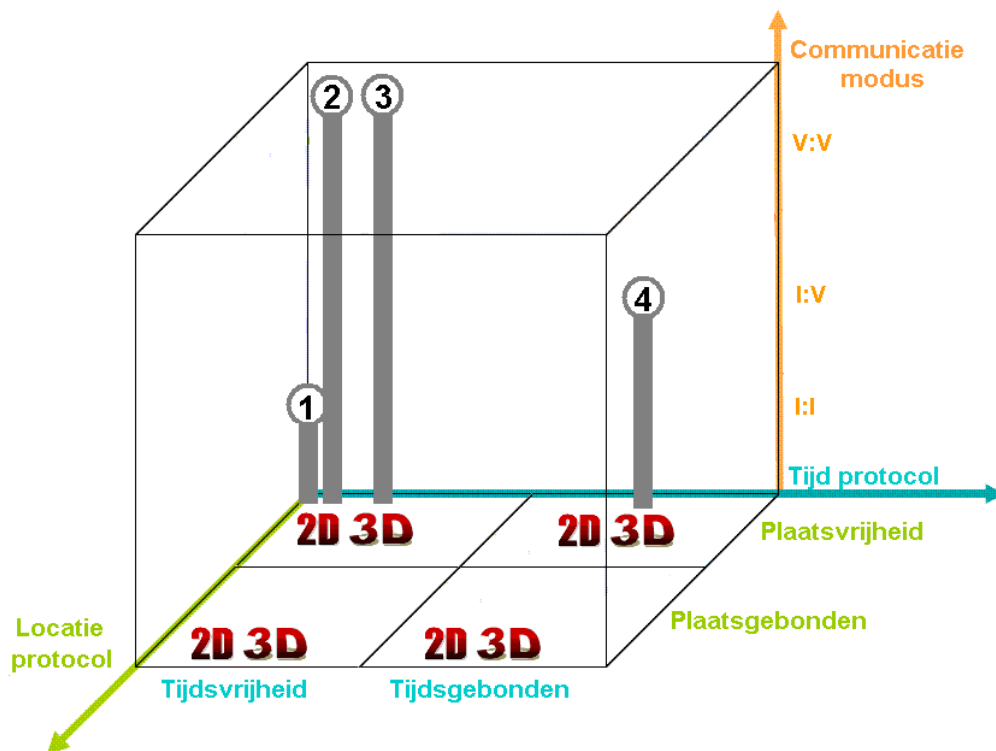
Figuur 3: Impressies van de drie applicaties Virtueel Helmond [a], E-spraak (Maastricht) [b] en Second Life (Zoetermeer) [c]



Interpretatie

Figuur 4 geeft de positie van de verschillende applicaties in de 3 vlakken van de communicatiebus weer. Hieruit spreekt dat E-participatieve applicaties niet over een kam zijn te scheren. De verwachte variabiliteit ten aanzien van tijd, plaats en immersie blijkt zich inderdaad te manifesteren. Wel hebben ze allen gemeen dat ze (meerdere) communicatiemogelijkheden aanbieden waarin traditionele inspraakavonden niet voorzien (vergelijk figuur 1). Daarmee vormen ze een interessant additioneel kanaal voor gemeenten om feedback te ontvangen.

Figuur 4 Communicatiekubus met daarin de positie van Online-bestemmingsplannen (1), E-spraak (2), Virtuele steden (3) en Second Life (4).



Voor wat betreft de aard van de relatie tussen overheid en burger zijn de resultaten te interpreteren zoals weergegeven in tabel 2. De verwachting dat e-participatie instrumenten verder gaan dan consulteren wordt slechts waargemaakt bij de virtuele steden, waar burgers kunnen stemmen over stedelijke ontwerpen. Dit kan worden gezien als een vorm van partnerschap, waarbij de gemeente een voorselectie maakt van ontwerpen en de stem van de burger de doorslag geeft over het uiteindelijke ontwerp.

Tabel 2. Resultaten naar de aard van de relatie tussen overheid en burger bij participatie

Participatieladder (Arnstein, 1969)	Richting (OECD, 2001)	Bijdrage (UN, 2008)	E-participatie instrumenten
Manipuleren	Eenzijdige relatie	Informatie	
Therapie			
Informerend			
Consulteren	Interactieve relatie	Consultatie	<i>online-bestemmingsplannen, Second Life, E-spraak,</i>
Concessies doen			
Partnerschap		Besluitvorming	<i>Virtuele steden</i>
Gedelegeerde macht			
Burgercontrole			

Conclusie: Mentaliteitsverandering gemeenten nodig

Het gebruik van e-participatieve GIS is verre van gemeengoed bij gemeenten. Een klein, maar groeiend aantal gemeenten ziet potentie in de combinatie van GIS, participatie en internet en zet GIS in voor burgerparticipatie. De aangetroffen online-applicaties bieden bredere mogelijkheden voor participatie dan de traditionele inspraakbijeenkomsten door niet afhankelijk te zijn van één locatie en één tijdstip en beter aan te sluiten bij het ruimtelijke inbeeldingsvermogen van burgers. De verwachting dat e-participatie instrumenten ook diepere participatie mogelijk maken wordt slechts door één applicatie waargemaakt.

Uit een recent onderzoek is gebleken dat ruim 80 procent van de burgers via internet betrokken wil worden bij belangrijke gemeentelijke besluiten (Ernst&Young, 2008). In dit licht gebruiken gemeenten GIS nog te vaak als een middel om burgers enkel te informeren, waardoor de potentie van GIS als middel voor communicatie en participatie niet wordt benut. Gemeenten moeten bereid zijn meer verantwoordelijkheid bij burgers te leggen en planners moeten openstaan voor het inzetten van computer-gebaseerde planninginstrumenten.

Dit verkennende onderzoek roept nieuwe vragen op. Wat zijn de ervaringen van de gemeenten die gebruik maken van e-participatie, op welke problemen stuiten ze en hoe vertaalt de input van burgers zich in het planvormingsproces? Om deze vragen te beantwoorden is er een evaluatie nodig van gemeentelijke planprocessen waarbij e-participatie is ingezet. De uitkomsten hiervan zijn interessant voor de desbetreffende gemeenten, maar zeker ook voor gemeenten die hier nog geen gebruik van maken.

Referenties

- ARNSTEIN, S. (1969) A ladder of citizen participation. *Journal of the American Institute of Planners*, 35, 216-224.
- ERNST&YOUNG (2008) Vandaag op morgen. Lokale krant of chat. *Onderzoeksrapport*.
- KINGSTON, R. P. (2007) Public participation in local policy decision-making: The role of Web-based mapping. *Cartographic Journal*, 44, 138-144.
- MACINTOSH, A. (2006) eParticipation in policy-making: the research and the challenges. IN CUNNINGHAM, P. & CUNNINGHAM, M. (Eds.) *Exploiting the knowledge economy: Issues, applications and case studies*. Amsterdam, IOS Press.
- OECD (2001) Citizens as partners: information, consultation and Public Participation in policy-making. Paris, OECD.
- RIEDIJK, A. & VAN DE VELDE, R. (2006) *Virtual Netherlands: Geo-visualization for interactive spatial planning and decision-making: From Wow to Impact* Amsterdam, Vrije Universiteit Amsterdam.
- STILLWELL, J., GEERTMAN, S. & OPENSHAW, S. (1999) *Geographical Information and Planning*, Berlin, Springer.
- UN (2008) UN E-Government survey: from E-Government to Connected Governance. New York, Department of Economic and Social Affairs: Division of Public Administration and Development Management
- VAN LAMMEREN, R., LIGTENBERG, A., SERPA, J., ABREU, A. & PLEZIER, I. (2007) Geo-visualization: the e-interaction factor in spatial planning IN VAN DEN BRINK, A., VAN LAMMEREN, R., VAN DE VELDE, R. & DANE, S. (Eds.) *Geo-visualization for participatory spatial planning in Europe*. Wageningen, Wageningen Academic Publishers.

YIGITCANLAR, T., SAYGIN, O. & HAN, J. (2008) Online Participatory Decision Support Tools for Knowledge-Based Urban Planning. IN YIGITCANLAR, T., VELIBEYOGLU, K. & BAUM, S. (Eds.) *Creative Urban Regions: Harnessing Urban Technologies to Support Knowledge City Initiatives*. Hershey, Information Science Reference.

E-PARTICIPATION: IDENTIFYING OBSTACLES BLOCKING ITS POTENTIAL AS PLANNING SUPPORT SYSTEM¹

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 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 in this paper that this is partly caused by the lack of empirical studies that demonstrate potential benefits and problems when applying PSS. 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 a 'communicative turn' in planning can be observed, necessary to cope with the changing needs of society (Healey, 1993). 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).

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)². The use of visualizations, especially when in 3D, is interesting as they are easier for common citizens to understand than policy documents (Riedijk and Van de Velde, 2006). 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). Due to the more participatory nature of planning practice, the demand for Planning Support Systems (PSS) change. (Geertman, 2002 p21). PSS are geo-information based tools to support planners in doing their planning tasks (Vonk, forthcoming).

¹ An earlier version of this article was handed in for the URISA student paper competition.

² For practical reasons in the rest of the paper the term e-participation will refer to electronically-enabled (GIS-based) participation applications. Unfortunately, until now there is no good term for the use of internet-based GIS-applications to support public participation. Rather than developing a new term, what many others did previously (e.g. PGIS, PPGIS, GIS/2, GIScience, Critical GIS) it is considered best to stick to a well-known term that is self-explanatory.

PSS increasingly need to facilitate reasoning together, retrieve empirical information, work community supportive and disseminate knowledge (Geertman 2006). These are all characteristics in which GIS-based e-participation, at least theoretically, should excel.

However, various studies underline the limited use of PSS for (e-)participation in the planning practice (Geertman, 2002, Jankowski and Nyerges, 2003, Laituri, 2003, Sieber, 2006, Dunn, 2007, Kingston, 2007). How can this be explained? Barber (1997) 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 on participatory PSS, as Geertman (2006) and Jankowski and Nyerges (2003) signal a supply side bias in research. A change in the focus for e-participation research is therefore justified and needed, shifting the attention towards the users of e-participation, government and citizens, and their needs.

So what can a local authority demand from an e-participation applications? 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: 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. 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	
<i>Function</i>	<i>Examples</i>	<i>Function</i>	<i>Example</i>
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)

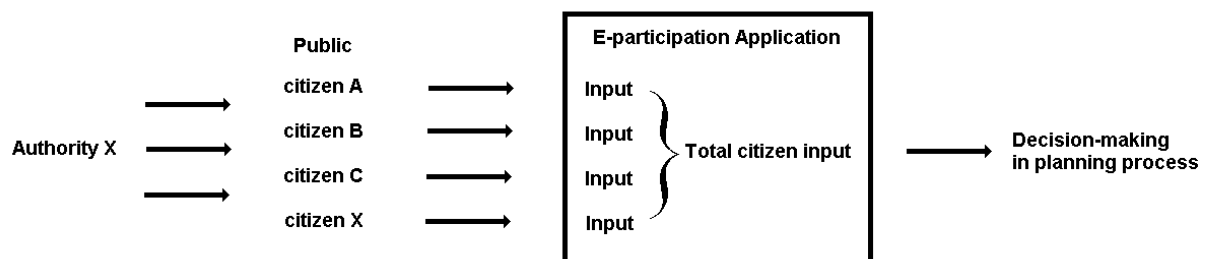
Experiences from real planning examples are therefore necessary to provide municipalities information on the potential of E-participation in a PSS. This study will attempt to make a contribution to close the knowledge gap between the application and the process by identifying obstacles that block the use e-participation as a PSS. A recent study of Koekoek et al. (forthcoming) reveals that, among the 100 largest Dutch municipalities, only a small number (7) of Dutch municipalities apply e-participation outside the formal domain of the land use plan. In this study, three of these seven municipal cases are evaluated by investigating the obstacles in the planning process. A multidisciplinary approach is crucial as the subject is situated at the junction of multiple disciplines: planning, public administration, GIS and communication. 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.

E-participation in the planning process: a framework

The perspective of technology acceptance is useful to identify obstacles that can block the widespread use of a technology. Frambach & Schilleweart (2002) identified five chronological stages (awareness, consideration, intention, adoption decision and continued use) that a technology has to pass in order to be accepted by an organization. Vonk et al. (2005) concluded from a survey among PSS-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 its research. But e-participation as a specific type of PSS situates GIS 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 in that it has to go through exactly the same five stages, but with the multitude of stakeholders involved in its use, the application significantly differs from non-participatory 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 therefore takes the participatory process as a starting point to investigate obstacles when using a PSS.

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. 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 towards influencing the authorities. Out of these four criteria the building blocks that define an e-participation process can be constructed, as represented in figure 1.

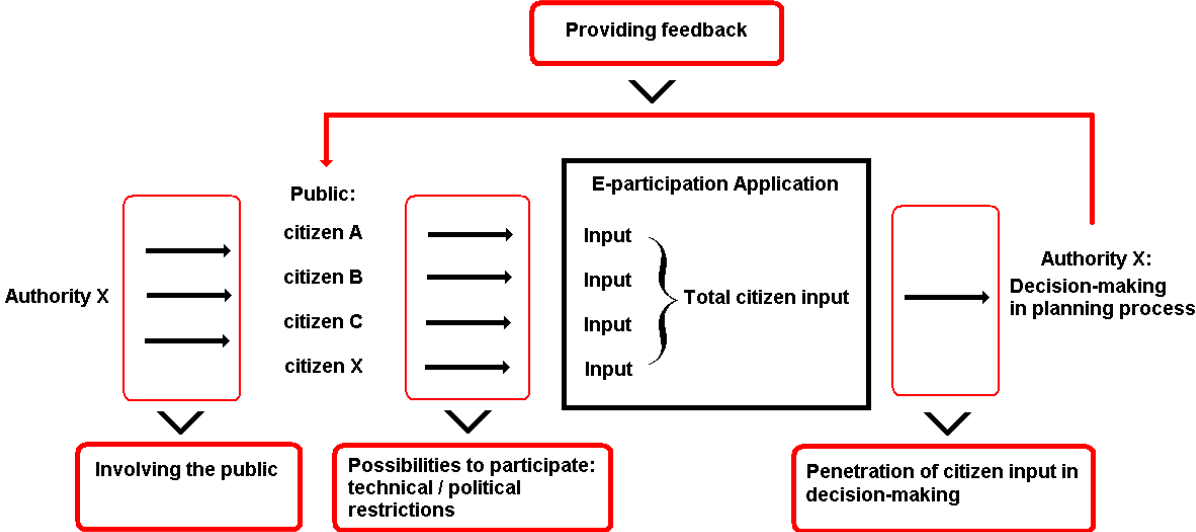
Figure 1 Conceptualization of e-participation in the planning process



Following this definition, in a typical e-participation process, 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 is thus perceived here as a process that should eventually result in a certain influencing of decision-making (Craig, 1998, Harris and Weiner, 1998, Kingston, 2007, van den Brink et al., 2007a). It is however 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. 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). The section below introduces these four obstacles and shortly reflects on the scientific debate around these topics.

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). 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. 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). Bharat et al. (2004) refer to this as the existence of a ‘Digital Divide’. 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 focussing on the reasons for people not to participate in traditional meetings revealed that motivations can be categorized in five groups, adding up to a 100 percent (AVV, 2003). Table 2 reveals that more than half of these non-participants do not have a problem with participation in itself but with the 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 2 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., 2007b).

Obstacle 3: reflection 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 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 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.

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 (Mayer et al., 2005). Government should thus inform citizens about the way their input reflects in decision-making. If this feedback-link

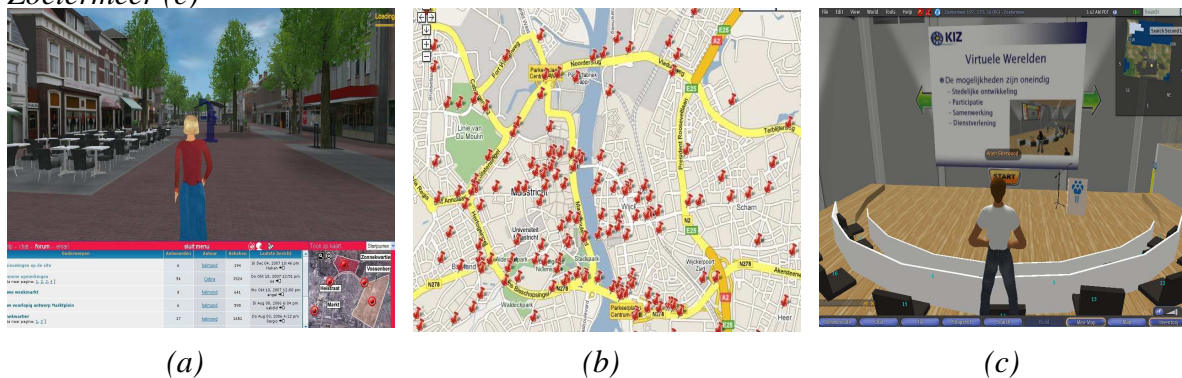
does not exist the risk of cherry-picking exists (Edelenbos, 2005). Decision-makers will pick a selection of citizen contributions and include these in the decisions. This will make the rich diversity of the total citizen input evaporate.

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 (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 closed questions and enabling additional questions. In every interview three topics were dealt with: municipalities were asked for what functions of participation they apply e-participation, they were asked what obstacles the municipalities perceive in the process (subjective), after which these obstacles are investigated in more detail and with more objectivity by posing additional questions **(added in the appendixes V and VI)**. This division in three topics is also used to present the results. Additionally, formal and informal documents concerning the cases were used. 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

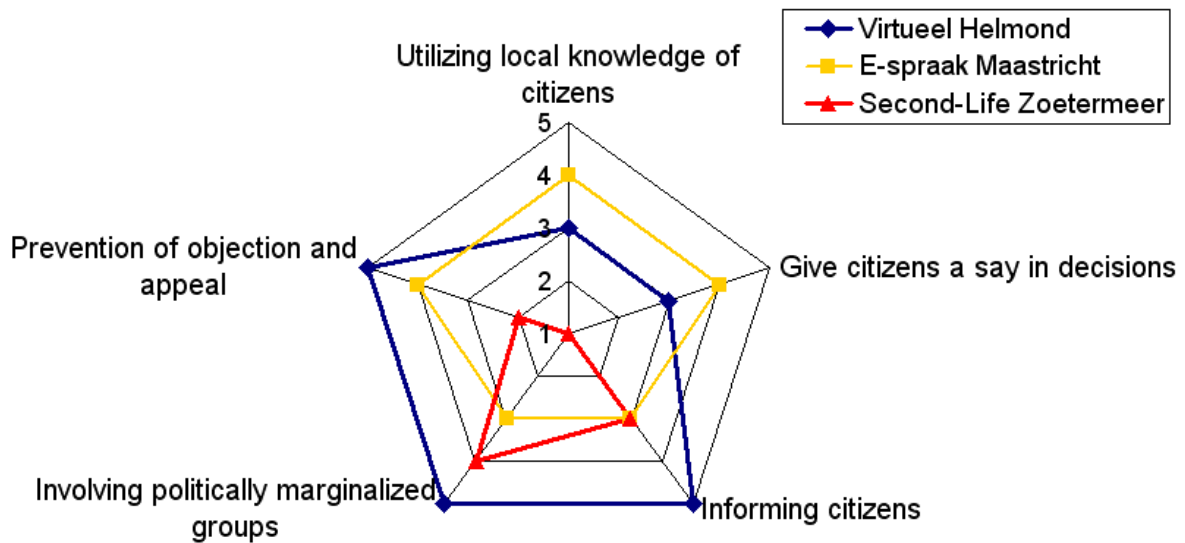
Instead of the previous two municipalities, Zoetermeer used an already existing platform (www.secondlife.nl) to reach citizens. Second Life is a virtual world with users worldwide. Because the application was not intended to enable participation, the application developer was not interviewed in this 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

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. 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 prevent objection and appeal. 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 1. 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)

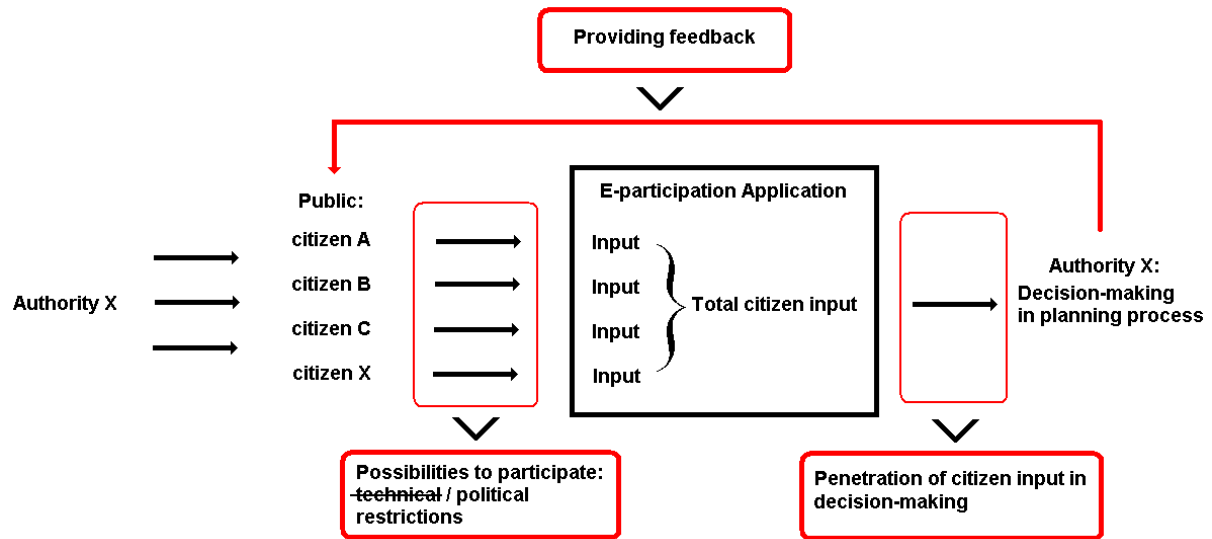


Source: municipality interviews

Reflecting on the obstacles: the opinion of municipalities

This section reflects how the municipalities themselves observe the obstacles. Figure 5 gives an overview of the perceived obstacles. The municipalities 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 can be observed, especially in Zoetermeer and Helmond. Although the e-participation applications already offer possibilities for higher levels of participation municipalities choose not to adopt these. Also the reflection of citizen input in decision-making is limited. The municipalities use the applications to get an indication of what the average person thinks, rather than as a basis to guide spatial changes. Until now, citizens received little feedback on their contributions, however, municipalities consider feedback important and as the processes are still ongoing, they still have the opportunity to do so.

Figure 5 Municipality perspective on the obstacles in e-participation



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. 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%
Higher education %	>50%	X ⁴	17%
Age 50+ %	>50%	38%	30% ⁵

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. 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 chooses to limit the amount of votes to 2 per IP-address. 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'. In Zoetermeer the possibilities to participate are limited to virtually attending participation meetings. 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: reflection of citizen input in decision-making

Is the citizen input actually used in the decision-making process? This question is quite difficult to answer as the investigated planning processes are still ongoing. However, the intentions of the municipality to use the citizen input can be retrieved in the interview. 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

⁴ 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.

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

decision-making, as 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 as they received nearly the same amount of votes. 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.

Obstacle 4: providing feedback

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. As stated above, Maastricht plans to mirror the 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 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.

Conclusion & discussion

E-participation applications can aid planners by giving citizens a say in the process, using citizens’ local knowledge and preventing objection and appeal. The degree to which these functions are achieved depends on the e-participation application used. The interviewees do not regard all of the four obstacles derived from literature as real obstacles. Municipalities do not observe e-participation as an obstacle to obtain a representative citizen input. However, as face-to-face contacts are not possible and no authentication is needed it still remains difficult to get a good picture of who the citizen is and the risk of a Digital Divide exists. Evaluation of the case studies reveals that 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. Despite the claimed advantages and the technical possibilities to deepen participation, local governments still hesitate to empower citizens. The translation from citizen input to decision-making also largely remains a black-box operation and citizens often do not receive the necessary feedback on the comments they made.

The four identified obstacles provide planners that implement e-participation with an overview of issues that should be considered in advance. Further research is necessary to address the identified obstacles and thus utilize the potential of e-participation as PSS. 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 decision-making is necessary, for example by showing the input procedure or periodically briefing citizens on the way their input is used 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 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.

References

- AITKEN, S. & MICHEL, S. (1995) Who contrives the 'real' in GIS? Geographic information, planning and critical theory. IN CRAIG, W., HARRIS, T. & WEINER, D. (Eds.) *Community participation and Geographic Information Systems*. London, Taylor and Francis.
- AL-KODMANY, K. (2003) Web-based tools and interfaces for participatory planning and design. IN GEERTMAN, S. & STILLWELL, J. (Eds.) *Planning Support Systems in Practice*. Berlin, Springer.
- AVV (2003) Burgerbetrokkenheid bij beleid. Rotterdam, Ministerie van Verkeer en Waterstaat.
- BARBER, B. (1997) The new telecommunications technology: endless frontier or the end of democracy. *Constellations*, 4, 208-228.
- BHARAT, M., CECILIA, M. & BISHOP, A. (2004) The internet for empowerment of minorities and marginalized users. *New media and society*, 6, 781-802.
- BREZOVSEK, M. (1995) Political Participation. . *Theory in practice*, 17, 199-211.
- CARVER, S., EVANS, A., KINGSTON, R. & TURTON, I. (2001) Public participation, GIS, and cyberdemocracy: Evaluating on-line spatial decision support systems. *Environment and Planning B: Planning and Design*, 28, 907-921.
- CRAIG, W. (1998) The internet aids community participation in the planning process. *Computers, Environment and Urban Systems*, 22, 393-404.
- CRAIG, W., HARRIS, T. & WEINER, D. (Eds.) (2002) *Community Participation and Geographic Information Systems*, London, Taylor & Francis.
- DÄNE, S. & VAN DEN BRINK, A. (2007) Perspectives on citizen participation in spatial planning in Europe. IN VAN DEN BRINK, A., VAN LAMMEREN, R., VAN DE VELDE, R. & DÄNE, S. (Eds.) *Imaging the future: Geo-visualisation for participatory planning in Europe*. Wageningen, Wageningen Academic Publishers.
- DE GRAAF, L. (2007) Stakeholder Support for Participatory Policy-making. *Eburon, Delft*. Delft, Utrecht University.
- DUNN, C. E. (2007) Participatory GIS - A people's GIS? *Progress in Human Geography*, 31, 616-637.
- EDELENBOS, J. (2005) Institutional implications of interactive governance: Insights from Dutch practice. *Governance*, 18, 111-134.
- ERNST&YOUNG (2008) Vandaag op morgen. Lokale krant of chat. *Onderzoeksrapport*.
- FRAMBACH, R. & SCHILLEWAERT, N. (2002) Organizational innovation adoption: A multi-level framework of determinants and opportunities for future research. *Journal of Business research*, 55, 163-176.
- GEERTMAN, S. (2002) Participatory planning and GIS: A PSS to bridge the gap. *Environment and Planning B: Planning and Design*, 29, 21-35.
- GEERTMAN, S. & STILLWELL, J. (2003) Interactive Support Systems for Participatory Planning. IN GEERTMAN, S. & STILLWELL, J. (Eds.) *Planning Support Systems in Practice*. Berlin, Springer.
- GEMEENTE_HELMOND (2007) Virtuele Binnenstad van Helmond. Helmond, Fontys Hogeschool.
- HARRIS, T. & WEINER, D. (1998) Empowerment, Marginalization, and "Community-integrated" GIS. *Cartography and Geographic Information Science*, 25, 67-76.
- HEALEY, P. (1993) Planning through debate: the communicative turn in planning theory. IN FISCHER, F. & FORESTER, J. (Eds.) *The argumentative turn in policy analysis and planning*. Durham, NC, Duke University Press.
- INTOMART (2001) De Inspraakmonitor. Hilversum, Intomart.

- JANKOWSKI, P. & NYERGES, T. (2003) Toward a framework for research on Geographic Information-Supported participatory decision-making. *URISA Journal*, 15, 9-16.
- KINGSTON, R. P. (2007) Public participation in local policy decision-making: The role of Web-based mapping. *Cartographic Journal*, 44, 138-144.
- KLOSTERMAN, R. (2001) Planning support systems: a new perspective on computer-aided planning. IN BRAIL, R. & KLOSTERMAN, R. (Eds.) *Planning Support Systems: Integrating Geographic Information Systems, Models, and Visualization Tools*. Redlands, ESRI.
- KOEKOEK, A., VAN LAMMEREN, R. & VONK, G. (forthcoming) E-participatie in de ruimtelijke planvorming. *Rooilijn*.
- LAITURI, M. (2003) The issue of access: an assessment guide for evaluating public participation Geographic Information Science Case studies. *URISA Journal*, 15, 25-32.
- LENOS, S. & BUURMAN, M. (2000) Internetgereedschappen voor interactieve beleidsvorming. Instituut voor Publiek en Politiek.
- MAYER, I., EDELENBOS, J. & MONNIKHOF, R. (2005) Interactive policy development: undermining or sustaining democracy? *Public Administration*, 83, 179-199.
- MOODY, R. (2007) Assessing the role of GIS in E-government: A Tale of E-participation in Two Cities. IN WIMMER, M., SCHOLL, H. & GRONLAND, A. (Eds.) *EGOV 2007*. Berlin, Springer.
- OBERMEYER, N. J. (1998) Evolution of public participation GIS. *Cartography and Geographic Information Systems*, 25, 65-66.
- RIEDIJK, A. & VAN DE VELDE, R. (2006) *Virtual Netherlands: Geo-visualization for interactive spatial planning and decision-making: From Wow to Impact* Amsterdam, Vrije Universiteit Amsterdam.
- SCHLOSSBERG, M. & SHUFORD, E. (2005) Delineating "public" and "participation" in PPGIS. *URISA Journal*, 16, 15-26.
- SIEBER, R. (2003) Public participation geographic information systems across borders. *The Canadian Geographer*, 47, 50-61.
- SIEBER, R. (2006) Public participation geographic information systems: A literature review and framework. *Annals of the Association of American Geographers*, 96, 491-507.
- UN (2008) UN E-Government survey: from E-Government to Connected Governance. New York, Department of Economic and Social Affairs: Division of Public Administration and Development Management
- VAN DEN BRINK, A., VAN LAMMEREN, R., VAN DE VELDE, R. & DÄNE, S. (2007a) Introduction - geo-visualisation for participatory spatial planning in Europe. IN VAN DEN BRINK, A., VAN LAMMEREN, R., VAN DE VELDE, R. & DÄNE, S. (Eds.) *Imaging the Future: Geo-visualisation for participatory planning in Europe*. Wageningen, Wageningen Academic Publishers.
- VAN DEN BRINK, A., VAN LAMMEREN, R., VAN DE VELDE, R., DANE, S. & SCHOLTEN, H. (2007b) Epilogue: reflection on the lessons learned. IN VAN DEN BRINK, A., VAN LAMMEREN, R., VAN DE VELDE, R. & DANE, S. (Eds.) *Geo-visualizations for participatory spatial planning in Europe*. Wageningen, Wageningen Academic Publishers.
- VAN DER EIJK, S. & BOS, R. (2007) *Inspraak: vorm of inhoud. Verkeersplanologisch speurwerk*. Antwerp.
- VONK, G. (forthcoming) Planning with PSS empirical lessons to enhance PSS use in practice. *Applied Spatial Analysis and Policy*.
- VONK, G., GEERTMAN, S. & SCHOT, P. (2005) Bottlenecks blocking widespread usage of planning support systems. *Environment and Planning A*, 37, 909-924.

WOLTJER, J. (2002) The "Public Support Machine": Notions of the Function of Participatory Planning by Dutch Infrastructure Planners. *Planning Practice & Research*, 17, 437-453.

THE FUTURE OF E-PARTICIPATION: FROM OBSTACLES TO OPPORTUNITIES

Introduction

At first sight, it might look as an odd concept to confer technology the potential to enhance public participation in decision-making, but that is exactly what happened with ICT and GIS (Sieber, 2006). However, there is indeed a deeper rationale behind the increasing interest for technology in participatory planning. Practice shows that the traditional methods of participation, such as organised meetings, presentation of the new, planned activities on the analogue maps, do not result in broader participation of the citizens (Krek, 2005). Information technologies offer citizens opportunities to participate on the time and place of their choosing (Maceachren and Brewer, 2004). It is also believed that visualizations are easier for average citizens to grasp and react upon than formal policy documents (Carver et al., 2001, Kingston, 2007). The use of ICT to broaden and deepen citizen participation is referred to as e-participation (Macintosh, 2006)

Proponents of e-participation, argue that it provides citizens with a powerful instrument for participation (Peng, 2001, Berntzen et al., 2005). Others are not so sure about the potential of technologies to enhance planning, arguing that the use of technology lends the illusion of control over decision-making but the actual control remains within the governing class (Pickles, 1995, Aitken, 2002). It leaves no doubt that the use of ICT and GIS technology, divorced from its specific socioeconomic and organizational context, cannot guarantee citizen participation in a decision-making process. In the last decade many scientific publications emerged in the domain of e-participation, discussing technical and social issues of such applications (Krek, 2005, Knapp et al., 2007). This scientific attention until now however, did not result in a significant increase of the use of e-participation in the planning practice (Tulloch, 2007, Drummond and French, 2008). This makes some accuse researchers of 'participation for publication', thus leaving the planning community with little tangible benefits (Dunn, 2007).

The limited use of GIS-based tools for planners in the planning practice can be addressed from different perspectives. Vonk et al (2005) produce three main factors explaining the limited use of GIS-based tools among planners in organizations: awareness, experience and a low intention to start using these applications. Although these factors indeed play an important role in the limited use of GIS-based tools, it would be too easy to blame current limited use only to external factors. Internal factors, related to the use of GIS-based tools in actual planning processes, also might partly explain the limited use of GIS-based tools in general and specifically for e-participation. Some researchers highlight the existence of internal factors, arguing that the use of GIS to support local empowerment through participation is indeed fraught with dangers and potential contradictions (Harris et al., 1995, Obermeyer, 1998, Dunn, 2007, Moody, 2007).

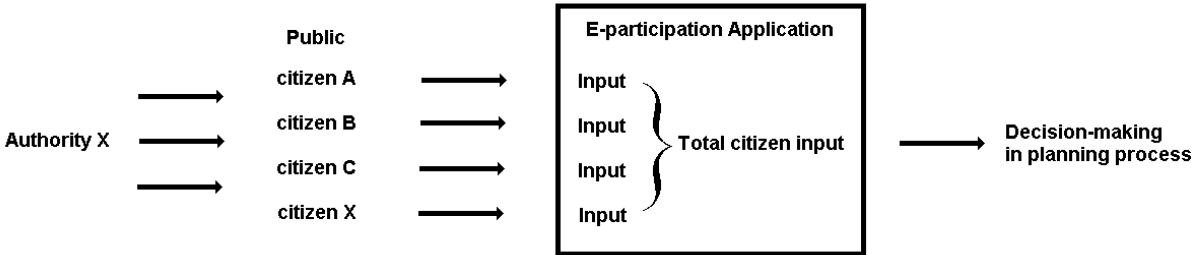
So what obstacles are experienced when these tools *are* actually used in practice? Until now little clarity exists on the character of these dangers and contradictions and their position in the participation process. The limited available knowledge on these dangers might make e-participation a risky and unwanted activity for local governments. This paper attempts to identify these internal factors (termed obstacles) in e-participation practices. A literature study is performed to identify these obstacles, after which these obstacles are put in perspective by pinpointing their position in the planning process. When these obstacles are made visible,

insights from GIS, public administration and communication literature will be used to develop strategies to battle some of these obstacles. Experiences from planning practices are used to support these strategies.

Obstacles blocking the potential of e-participation

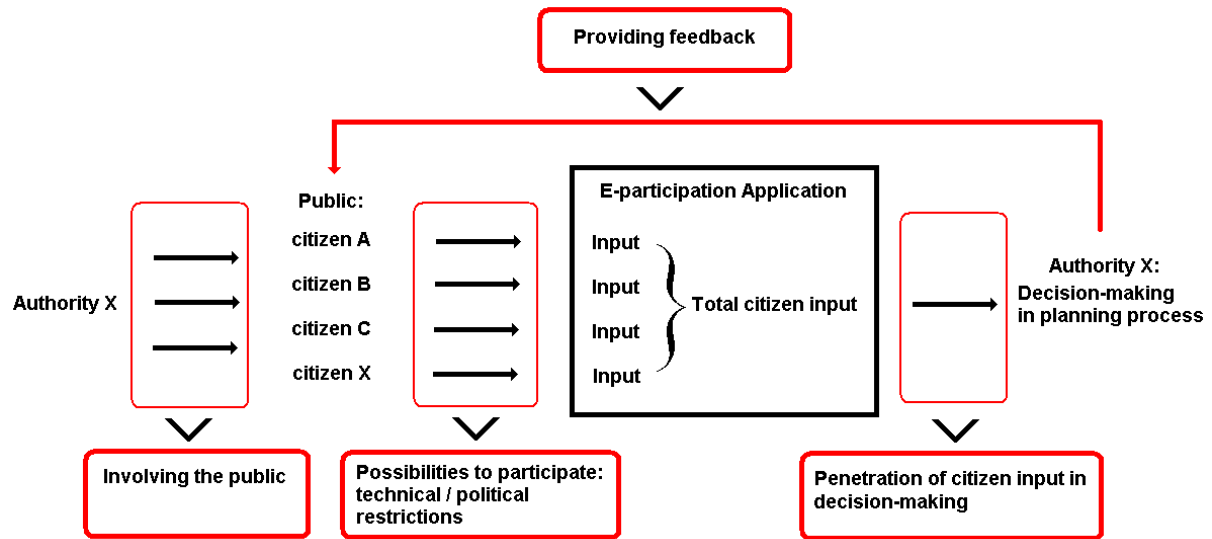
E-participation situates GIS within participatory research and planning and therefore the nature of participatory processes itself requires more attention (Craig et al., 2002). The position of e-participation within the planning process is therefore taken as primary subject of study in this paper. The four criteria for participation specified by Brezovsek (1995) are a useful starting point to define obstacles that hinder successful e-participation. According to these criteria: (1) individuals (citizens) should be included, (2) participation is voluntary, (3) it refers to a specific activity, which is (4) directed towards influencing the authorities. These four criteria are the basis for the building blocks that define an e-participation process in figure 1. Following this definition, in a typical e-participation process, a (local) authority attempts to include citizens in the process, some of these citizens decide to participate and do so in a specific activity, resulting in citizen input that will affect decision-making.

Figure 1 The e-participation process



What obstacles block the successful use of e-participation in this planning process? Although many researchers point at a specific obstacle, a structured overview of the different obstacles is not yet available. From literature, four different obstacles were found that can block effective participation in the planning process. Figure 2 compiles these obstacles and positions them in the planning process. The chronological order of the participatory process is taken as the basis for discussion of the obstacles below.

Figure 2 Obstacles blocking successful participation in a planning process



Obstacle 1: involving the public

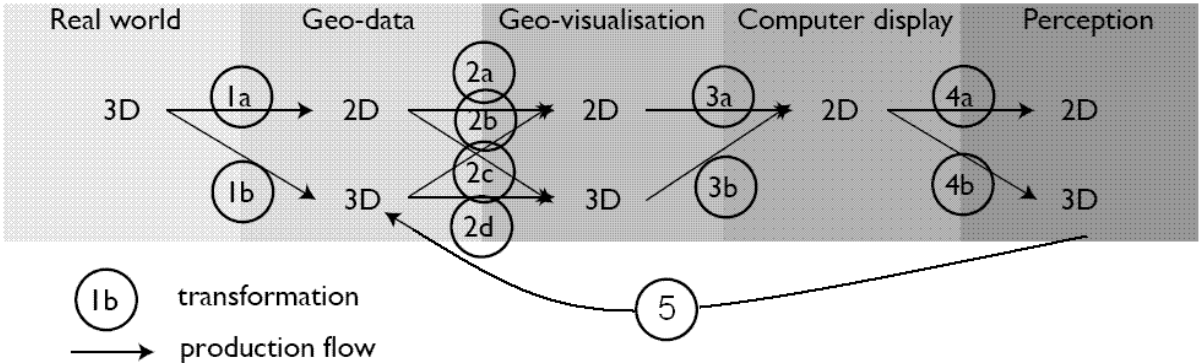
Exactly what public do municipalities want to involve in the process? A strong and persistent critique holds that e-participation only empowers a small and already powerful minority (Aitken and Michel, 1995, Pickles, 1995, Harris and Weiner, 1998, Obermeyer, 1998, Dunn, 2007). A recent study underlines this sentiment, revealing that e-participation typically empowers politically active, wealthy, white, middle aged men, and thus only represents about five percent of society (Hansen, 2006). Authority should thus try hard to make citizens aware of the participatory process. Sieber (2003) argues that participation, by definition succeeds when as many community members as possible can utilize spatial information in the public decision-making process. If this is not assured and the public do not have easy access to an e-participation application the whole process becomes ineffectual (Carver et al., 2001 p.919). But how can one know which citizens participate in e-participation? 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, and increases the risk of quasi-participation (Knapp et al., 2007). Opposing viewpoints exist regarding the effect of e-participation on the normative function of participation. Bharat et al. (2004, p782) senses a *Digital Divide*: ‘a troubling gap between those who use computers and the Internet and those who do not’. Citizens without Internet-access or with limited computer skills are excluded from participation, reducing the representative value of the citizen input (Obermeyer, 1998, Mayer et al., 2005, Moody, 2007). Others see online participation as an opportunity to involve groups that are underrepresented in traditional meetings (Carver et al., 2001, Kingston, 2007).

Obstacle 2: possibilities to participate

The second barrier consists of the empowerment potential. A planning 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). Among others, Drummond and French (2008) argue that using traditional GIS for this purpose is still dominant, but slow, difficult to implement, and often

too difficult to use for non-professionals. Figure 3 highlights the impact of this statement by reflecting the many transformations needed in an e-participation application. Based on their perception and their opinion, citizens are able to add geo-data in the process. If noise exist in one of the transformations, chances are that the citizen input (transformation 5) also becomes noisy. Van den Brink et al. (2007a) support this statement, arguing that using geo-visualizations in participatory planning, without being certain of their usability can lead to dissemination of unintentional messages and may result in counterproductive processes. Thus, the availability of a transparent and understandable application is paramount in e-participation.

Figure 3 Relation between transformations and usability of e-participation applications



(Based on: van Lammeren et al., 2007)

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 might be the main obstacles to successful public participation in decision-making (Craig et al., 2002, van den Brink et al., 2007b). They argue that politicians decide not to enable further participation despite technical opportunities to do so.

Obstacle 3: penetration of citizen input in decision-making

The total amount of citizen input gathered via the application should ideally 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. This feedback link from the authority towards should If this feedback-link does not exist the risk of cherry-picking exists (Edelenbos, 2005). In face-to-face contacts this feedback is often automatically assured, but in e-participation this will require extra effort. 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.

Opportunities for e-participation: addressing the obstacles

How should the planning community overcome these obstacles that block effective participation when applying e-participation in the planning process? Of course not all of these obstacles can simply be addressed with an advice. In this sense, Sieber (2006) argues that nuancing the applications with extra attributes and lowering the entry costs of computing cannot dispel what are considered to be intrinsic problems with GIS. For example, one has to realize that participating citizens will never really represent all classes of society (Van Lammeren and Hoogerwerf, 2003). Some sort of Digital Divide will always remain in place. Thus, it is an illusion to think that all the obstacles can easily be handled. Nevertheless, once the described obstacles are acknowledged one can investigate which parts of the problems can be addressed. Using insights derived from a combination of GIS, public administration and ICT literature several opportunities can be compiled that can aid planners in handling the obstacles. In the section below suggestions will be made to deal with the obstacles. To make these opportunities more concrete a number of international best practices have been added that support these suggestions.

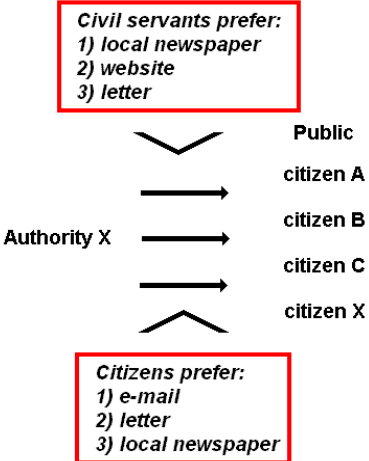
Challenging obstacle 1: Using new communication channels

It is paramount for the future role of e-participation to increase this representative value by involving groups that until now do not participate. A recent study revealed that 80% of the Dutch citizens want to have a say in important decisions in their municipality (Ernst&Young, 2008). This suggests that the willingness among citizens to participate is not the problem.

The concept of rational ignorance is helpful to understand and address this matter. According to rational choice theory, ignorance about an issue is rational when the cost of educating oneself about the issue sufficiently to make an informed decision can outweigh any potential benefit one could reasonably expect to gain from that decision, and so it would be irrational to waste time doing so (Krek, 2005 p.1). For most citizens these costs of participation outweigh the potential benefits. If an authority can lower the barrier to participate, more citizens can be involved in the process, increasing the legitimacy of the process. Mitchell et al. (1997) argue that the ones for which participating is rational are 'definitive stakeholders'. These are citizens that have (1) power, (2) a legitimate role in the process, *and* (3) have an urgent claim for action. These definitive stakeholders do not need to be addressed actively by the local authority to participate, they will do so by themselves (Hansen, 2006). In terms of the rational choice theory: for these citizens the benefits of participation outweigh the costs. A municipality thus needs to actively involve the non-definitive stakeholders to ensure a less biased pool of participants.

A logical first step to do so consists of using the right communication channel to reach citizens. Although a vast majority of the citizens want to have a say in policymaking, many feel restricted to do so because they do not know where to go, are not informed about possibilities and do not receive feedback on their input (TNO, 2008). At this moment, citizens are mostly informed by newspapers and websites, even though citizens seem to prefer being addressed personally by e-mail (Ernst&Young, 2008, see figure 4). When applying e-participation, municipalities might therefore consider the use of email to increase participation rates and the representative value of the citizen input. A possible way for a municipality to inform as many citizens as possible is to send e-mails, stating the topic and the importance of participation in the matter. By first sending them to a number of strategic hubs in the local arena, for example neighborhood organizations. These organizations can mobilize citizens to participate.

Figure 4 Preferred government-to-citizens communication channels



(based on: Ernst&Young, 2008)

Another issue described, regarding the first obstacle relates to identification problems in e-participation. In order for e-participation to make a step forward toward institutionalization it is necessary to address the problems of anonymity and quasi-participation. In the case of Tilburg (Box 1), this issue was only partly addressed. Although people got the opportunity to make a vote, people from outside the city were able to vote and the problem of anonymity largely remained. The Dutch government already possesses an excellent tool to guarantee authentic participation of municipal citizens. This tool is called DigiD, a web-based Dutch personal authentication system currently used by municipalities to provide services. The technology is already available to do this. A recent study revealed that citizens are not repelled by privacy issues when using online municipal services (Ernst&Young, 2008).

Box 1: Heuvel square Tilburg

Tilburg was the first municipality that enabled citizen to vote on a key city venue through e-participation. City officials selected three designs for a new central square to be displayed on the application Virtual Tilburg, a 3D model of the city, in which citizens can freely move. For the duration of one month at the end of 2006, citizens could visualize the three squares, and make their vote. Citizens were very enthusiastic about the initiative. Over 4.000 citizens voted for their favorite square. The city choose to choose to limit the amount of votes to 2 per IP-address. Eventually, the design with the most votes was chosen.

e-participation website: www.virtueeltilburg.nl

Both technical and political factors can restrict the potential for participation. More political will to enable effective participation cannot be enforced and requires a change in the mindset of decision-makers and politicians. However, some of the technological limitations can be addressed. Geertman (2002) argues that no one exactly knows what is going on in field of participatory GIS, nor where and by whom advances are being made, resulting in overlapping work done by competing researchers and developers. Developers are naturally tempted to develop a system that perfectly meets the needs of the planning situation. But this causes a lack of flexibility that rather seems to be a weakness of e-participation (Geertman, 2006). Every planning situation represents a different configuration of planning content, public, participation level and scale. In contrast, an e-participation application is typically build to be applied in a certain planning situation, and once build it fails to be useful in a different planning situation. Indeed, the current applications are not flexible and adaptable enough to match these changing configurations in planning situations (Geertman and Stillwell, 2003).

Thus, it seems that many developers are reinventing the wheel simultaneously and applications are not well-suited to deal with differing planning situations. This negative spiral in which e-participation is currently in, asks for a more standardized application that is both flexible and adaptable. The premise of internet-based mapping offers opportunities for planners to make a forward move to a participatory platform (Drummond and French, 2008). Butler (2006) and Miller (2006) argue that such a platform is already at hand, both in a 2D and 3D environment, in the form of Google Maps and Google Earth. About two years ago the major internet companies Google, Microsoft, and Yahoo! began providing free, web-based and user friendly mapping services that include more GIS functions. These companies succeeded in what traditional e-participation applications lack - providing a user-friendly and transparent application. Although Google Maps is more user friendly than any other application in the field (Miller, 2006) it is the 'mashability' of Google Maps that has potential to bring e-participation to a higher level. Mashups are web-applications that combine information of varying granularity from different sources (Murthy et al., 2006). Google Maps mashups are the resultant combination of the existing Google Maps query/display with geospatial information provided by other sources (Miller, 2006 p.192). When applied in an e-participation application, this can result in a flexible application, that most citizens already know to operate from their Google Maps experience.

With the upcoming popularity of Google Earth, the interest in using 3D-models online grew enormously and many cities already started to integrate their models into Google Earth to make them available for the public (Knapp et al., 2007). Tulloch (2007) argues that the explosion of Google Earth activities resulted in a higher engagement in a few months than achieved by the PPGIS-community in ten years. Although Google Earth lacks the easy 'mashability' of Google Maps, it offers another interesting option that enhances e-participation. The program Google Sketchup enables planners and citizens to build their own 3D objects and insert them in Google Earth. This can give citizens an unequalled level of freedom in developing alternatives. Although these possibilities just start to take form, some cities already used Google Sketchup to envision their cities in Google Earth and let citizens adapt the proposals, such as Amherst, in the US (see box 2). Drummond and French (2008) argue that the use of these kinds of programs has the opportunity to revolutionize planning, by performing virtual charrettes in which planners and citizens communicate on several alternate plans. Citizens can submit spatially referenced comments, and planners can respond to these comments. The comments can then be vetted and published as a new GIS-layer so that citizens can review the plan and the comments. Box 2 presents a case that comes close to such a virtual charrette.

Box 2 Amherst, Massachusetts

To help citizens visualize proposed changes that would take place as part of a new community master plan, the town government of Amherst commissioned the development of a 3D model of Amherst Centre. Using Google SketchUp a model was published, that anyone can explore using Google Earth. The model was put on the website. Residents could use this model to develop alternatives and some actually went to a town meeting with prints of models to gain favour for a re-zoning plan, which finally was accepted.

E-participation website: <http://gis.amherstma.gov/3D/>

‘Virtual globe’ tools such as Google Maps and Google Earth are incorporating increasing levels of interactivity and data manipulation, increasing the potential for improved democratization of GIS and active participation (Dunn, 2007). Of course one should not blindly focus on the major companies mapping products. Until now however, non-commercial initiatives like wikimapia and openstreetmap are promising but do not equal the large companies in quality and quantity of material. Of course the possibilities for participation are limited in Google Maps and Google Earth, they do not allow for complex interactive scenario-building activities that traditional GIS-applications enable. But one should ask himself whether these complex applications are helpful to address the ordinary citizen. Drummond and French (2008) argue that planning entities should move toward soliciting relatively simple citizen input, using web-based GIS to link locations to citizen-generated text, photographs, and graphics. Choosing a standard platform for e-participation also provides important advantages: it is easier for planners to exchange ideas and applications. For citizens the risk of noise (as depicted in figure 4) decreases if they are familiar with the interface of the application.

Challenging obstacle 3: bridging the gap towards decision-making

The limited will of politicians to enable participation in the planning process (obstacle 2) and the limited effect on decision-making (obstacle 3) both stem from the same cause. Four centuries ago, Burke (1968) already stated that citizen participation contains an inherent conflict. This is not a problem of using technology for participation purposes. It is rather an intrinsic problem of public participation. It can best be perceived as part of a natural field of tension between bottom-up interactive decision-making and representative democracy.

Often, the outcomes of the interactive process are eventually not used in the formal decision-making process (Klijn and Koppenjan, 2000, Woltjer, 2002, Brody et al., 2003, Edelenbos and Klijn, 2005, Mayer et al., 2005). Although politicians often initiate interactive decision-making processes, they do not actively support these processes when they are in progress (Klijn and Koppenjan, 2000 p.365). An important motive for politicians to start an interactive process is to ‘score’, increasing the popularity by involving citizens in the policymaking process. Later in the process the same politicians can be surprised by the content of the citizen input and experience them as bothersome (Edelenbos and Klijn, 2005). This often leads to limited penetration of the citizen input in the decision-making process. How can such a problem in interactive decision-making be addressed in an e-participation process? Two different lines of thought are presented here.

A first option would be to create more linkages between formal decision-making processes and the interactive processes. Organizing this linkage is called ‘process architecture’ of interactive policymaking and a number of guidelines can be provided to achieve this (Edelenbos, 2000, Edelenbos et al., 2001, Teisman, 2001):

1. Government should create clarity on the influence of the citizen input on the formal decision-making process by specifying the status of the process.
2. Involve civil servants and external experts in the process and let them insert their knowledge in the process. This increases the feasibility of the plan and provides citizens with limiting conditions.
3. Politicians and decision makers should have an active role in following the progress in the participatory process, to grasp the essence of the citizen perspective.

A second and more drastic approach would be to make e-participation a real bottom up process. Sieber (2006) correctly signals that the word participation is problematic, as it always requires a role for an intermediary. This is especially problematic if this intermediary is the organization responsible for local policy-making, that should bind in a bit of its policy freedom. An option would be to give citizens more direct control over the process, decreasing their dependency on the municipality. Talen (2000) launched the concept of a bottom up GIS, initiated by citizens. With the increase in user generated content, this development is already taking place, as more and more citizens create (geographic) content on the Internet. Most citizens however, cannot participate from scratch, and need to mediate their voice through a (community) organization. These more or less independent organizations can publish the citizen reports and contact municipalities to inform them about the problems. Municipalities are often sensitive for negative attention and will then consider changing the status quo. Box 3 represents an interesting example from the UK in which such an approach was successfully applied. This example strikingly illustrates what Goodchild (2007) considers ‘using citizens as sensors’.

Box 3: Fixmystreet

Fixmystreet is a website available for all UK citizens. Citizens can report problems in the public sphere, ranging from dangerous road holes to missing road signs, by pinpointing a location and adding text and a picture. Fixmystreet is not organized by a municipality, but by an intermediate organization. This organization reports the problems to the local councils and shows the reports on a map. The website shows which reports have been fixed and which still need action. It also gives citizens the possibility to follow the status of their comment by RSS-feeds.

e-participation website: www.fixmystreet.com

Citizen participation is increasingly mediated by organizations, not only in the UK, also in The Netherlands. Uitermark and Duyvendak (2008) refer to this as ‘neighborhood governance’, arguing that the fragmentation and destabilization of the governmental landscape encourages such ‘institutional entrepreneurs’ to provide quick responses to citizen participation demands. In The Netherlands a number of young ‘neighborhood governance’ organizations are available, such as Forum (<http://www.forum.nl/>), Movisie (<http://www.movisie.nl/>) and the Neighborhood Alliance (www.wijkalliantie.nl), that could take on similar responsibilities as fixmystreet. This development offers opportunities in the

field of e-participation mainly in the domains of maintenance and supervision (Goodchild, 2007, TNO, 2008).

Challenging obstacle 4: assure feedback

Providing citizens with feedback should be an integral part of e-participation. Citizens have the right to know how their input is being used in the decision making process. Feedback makes the process transparent and makes citizens feel they are taken seriously. A feedback message in a newspaper or on a website might not be sufficient as it will not get through to all the participants. So how should this be achieved in e-participation? The most important point here is that a municipality needs to acquire contact information of individual participants during the process, preferably an e-mail address, as participation also takes place on the Internet. Box 4 shows a case where this strategy was successfully applied.

Box 4: Königslutter am Elm

The German city Königslutter am Elm choose to involve its citizens in developing a landscape plan between 2002 and 2005. Planning office Entera developed a interactive web-application to enable participation. Citizens had to register before they could enter the application. Once registered, the users can draw objects and make written comments related to certain areas. This way citizens were able to correct wrong information in the plan. Planners read and consider these comments and ensure they always provided feedback on every post in the form of an email. The city officials feared a flood of (non-issue) comments, but this proved untrue. With 860 comments participation turned out to be manageable (Halama and Roccasalva, 2006). Citizens were enthusiastic about the application and providing input for the planning process (Warren-Kreuschmar and Tiedtke, 2005).

e-participation website: <http://www.koenigslutter.de/landschaftsplan.php>

Politicians and decision makers should give political responsibility at the end of the process. Thereby they can explain on their motives for accepting or denying the recommendations from the citizen input. Edelenbos et al. (2001) highlight the positive effect of such an approach in the case of an municipal development plan¹ in the municipality De Bilt, that was a product of an interactive decision-making process. In a final meeting the city's decision-makers explained why they did not incorporate all the comments issues by the citizens. The attending citizens had the opportunity to pose critical questions.

Conclusion and Discussion

This paper signals that it is not so much the technical side of e-participation that poses a bottleneck; problems are more likely to find their roots in the participatory process. As long as local authorities are not ready to involve citizens in decision-making, e-participation will not be able to make a jump forward. Some small steps in the good direction can be provided, however. The obstacle of involving citizens can be addressed by using new communication channels such as email and by using an authentication system e-participation can get a more

¹ Structuurplan in Dutch. This is a plan that reflects the expected and desired spatial developments for a municipality SPIT, T. & ZOETE, P. (2002) *Gepland Nederland: een inleiding in de ruimtelijke ordening en planologie*, Den Haag, Sdu publishers..

serious character. To increase the link between the citizen input and decision-making council members should be involved in the participatory process from the start and municipalities should clearly state beforehand what happens with the citizen input. To assure feedback provision towards citizens, citizens can be required to leave contact information before they can deliver input.

In some aspects a revision of e-participation and its participatory process might be necessary. The boom in web-based mapping applications, more flexible and user-friendly than traditional GIS-applications, already results in participatory spin-offs in the form of mash-ups. If e-participation applications are able to exploit these advancements and internalize them in planning practice this could empower citizens. Another interesting development is the start of bottom-up GIS applications, set up by non-governmental actors to collect citizen reports and pressure governments to act upon them.

A number of recommendations for further study can be made in order to improve the role of e-participation in planning practice. On the one hand scientists can contribute to the future development of e-participation. Positioned in the heart of GIS, ICT and public participation, e-participation is a complex activity by definition. This makes it necessary for scientists to use a multidisciplinary approach in order to contribute to the e-participation debate. On the other hand, the planning community itself can also strengthen the future of e-participation. The planning community should monitor best practices in e-participation, experiment with similar set-ups and publish their experiences.

References:

- AITKEN, S. (2002) Public participation, technological discourses and the scale of GIS. *Community Participation and Geographic Information Systems*, 357-366.
- AITKEN, S. & MICHEL, S. (1995) Who contrives the 'real' in GIS? Geographic information, planning and critical theory. IN CRAIG, W., HARRIS, T. & WEINER, D. (Eds.) *Community participation and Geographic Information Systems*. London, Taylor and Francis.
- BERNTZEN, L., STEINMANN, R. & KREK, A. (2005) Innovative use of Geographic Information Systems to facilitate collaboration between the government and citizens. *E-challenges*. Ljubljana, Slovenia.
- BHARAT, M., CECELIA, M. & BISHOP, A. (2004) The internet for empowerment of minorities and marginalized users. *New media and society*, 6, 781-802.
- BREZOVSEK, M. (1995) Political Participation. . *Theory in practice*, 17, 199-211.
- BRODY, S., GODSCHALK, D. & BURBY, R. (2003) Mandating citizens participation in plan making. *Journal of American Planning Association*, 69, 245-264.
- BURKE, E. (1968) Citizen participation strategies. *Journal of the American Planning Association*, 34, 287-294.
- BUTLER, D. (2006) The web-wide world. *Nature*, 439, 776-778.
- CARVER, S., EVANS, A., KINGSTON, R. & TURTON, I. (2001) Public participation, GIS, and cyberdemocracy: Evaluating on-line spatial decision support systems. *Environment and Planning B: Planning and Design*, 28, 907-921.
- CRAIG, W., HARRIS, T. & WEINER, D. (Eds.) (2002) *Community Participation and Geographic Information Systems*, London, Taylor & Francis.
- DRUMMOND, W. & FRENCH, S. (2008) The future of planning in GIS. *Journal of American Planning Association*, 74, 161-174.

- DUNN, C. E. (2007) Participatory GIS - A people's GIS? *Progress in Human Geography*, 31, 616-637.
- EDELENBOS, J. (2000) Proces in vorm. Procesbegeleiding van interactieve beleidsvorming voor lokale ruimtelijke projecten. Utrecht, TU Delft.
- EDELENBOS, J. (2005) Institutional implications of interactive governance: Insights from Dutch practice. *Governance*, 18, 111-134.
- EDELENBOS, J. & KLIJN, E. (2005) Managing stakeholder involvement in decision making: a comparative analysis of six interactive processes in the Netherlands. *Journal of Public Administration Research and Theory*, 16, 417-446.
- EDELENBOS, J., TEISMAN, G. & REUDINK, A. (2001) De LAT-relatie tussen interactief beleid en besluitvorming. Rotterdam, Centrum voor Publiek Management.
- ERNST&YOUNG (2008) Vandaag op morgen. Lokale krant of chat. *Onderzoeksrapport*.
- GEERTMAN, S. (2002) Participatory planning and GIS: A PSS to bridge the gap. *Environment and Planning B: Planning and Design*, 29, 21-35.
- GEERTMAN, S. & STILLWELL, J. (2003) Interactive Support Systems for Participatory Planning. IN GEERTMAN, S. & STILLWELL, J. (Eds.) *Planning Support Systems in Practice*. Berlin, Springer.
- GOODCHILD, M. (2007) Citizens as sensors: the world of volunteered geography. *GeoJournal*, 69, 211-221.
- HALAMA, G. & ROCCASALVA, G. (2006) From government to governance: e-government as an intermediate step? Stockholm.
- HANSEN, H. R., K. (2006) The citizens in e-participation. IN WIMMER, M. (Ed.) *EGOV*. Springer-Verlag.
- HARRIS, T. & WEINER, D. (1998) Empowerment, Marginalization, and "Community-integrated" GIS. *Cartography and Geographic Information Science*, 25, 67-76.
- HARRIS, T., WEINER, D., WARNER, T. & LEVIN, R. (1995) Pursuing Social Goals through Participatory Geographic Information Systems. IN PICKLES, J. (Ed.) *Ground Truth: the social implications of GIS*. New York, The Guilford Press.
- JANKOWSKI, P. & NYERGES, T. (2003) Toward a framework for research on Geographic Information-Supported participatory decision-making. *URISA Journal*, 15, 9-16.
- KINGSTON, R. P. (2007) Public participation in local policy decision-making: The role of Web-based mapping. *Cartographic Journal*, 44, 138-144.
- KLIJN, E. & KOPPENJAN, J. (2000) Politicians and interactive decision making: institutional spoilsports or playmakers. *Public Administration*, 78, 365-387.
- KNAPP, S., BOGDAHN, J. & COORS, V. (2007) Improve public participation in planning processes by using web-based 3D-models for communication platforms. IN SCHRENK, M., POPOVICH, V. & BENEDIKT, J. (Eds.) *Real Corp*. Vienna, Corp.
- KREK, A. (2005) Rational ignorance of the citizens in public participation planning. *Proceedings CORP 2005 & Geomultimedia05*, 165-169.
- MACEACHREN, A. M. & BREWER, I. (2004) Developing a conceptual framework for visually-enabled geocollaboration. *International Journal of Geographical Information Science*, 18, 1-34.
- MACINTOSH, A. (2006) eParticipation in policy-making: the research and the challenges. IN CUNNINGHAM, P. & CUNNINGHAM, M. (Eds.) *Exploiting the knowledge economy: Issues, applications and case studies*. Amsterdam, IOS Press.
- MAYER, I., EDELENBOS, J. & MONNIKHOF, R. (2005) Interactive policy development: undermining or sustaining democracy? *Public Administration*, 83, 179-199.
- MILLER, C. (2006) A beast in the field: the Google Maps Mashup as GIS/2. *Cartographica*, 41, 187-199.

- MITCHELL, R., AGLE, B. & WOOD, D. (1997) Towards a theory of stakeholder identification and salience: defining the principle of who and what really counts. *The Academy of Management Review*, 22, 853-886.
- MOODY, R. (2007) Assessing the role of GIS in E-government: A Tale of E-participation in Two Cities. IN WIMMER, M., SCHOLL, H. & GRONLAND, A. (Eds.) *EGOV 2007*. Berlin, Springer.
- MURTHY, S., MAIER, D. & DELCRAMBE, L. (2006) Mash-o-mathics. *ACM symposium on document engineering*. Amsterdam, ACM.
- OBERMEYER, N. J. (1998) Evolution of public participation GIS. *Cartography and Geographic Information Systems*, 25, 65-66.
- PENG, Z. R. (2001) Internet GIS for public participation. *Environment and Planning B: Planning and Design*, 28, 889-905.
- PICKLES, J. (1995) Ground truth: the social implications of geographic information systems. *Ground truth: the social implications of geographic information systems*.
- SIEBER, R. (2003) Public participation geographic information systems across borders. *The Canadian Geographer*, 47, 50-61.
- SIEBER, R. (2006) Public participation geographic information systems: A literature review and framework. *Annals of the Association of American Geographers*, 96, 491-507.
- SPIT, T. & ZOETE, P. (2002) *Gepland Nederland: een inleiding in de ruimtelijke ordening en planologie*, Den Haag, Sdu publishers.
- TALLEN, E. (2000) Bottom-up GIS: a new tool for individual and group expression in participatory planning. *Journal of American Planning Association*, 66, 279-294.
- TEISMAN, G. (2001) *Ruimte mobiliseren voor cooperatief besturen. over management in netwerksamenlevingen*, Rotterdam, Erasmus Universiteit Rotterdam.
- TNO (2008) Naar een 'User Generated State'? De impact van nieuwe media voor overheid en bestuur Delft, TNO Informatie- en Communicatietechnologie.
- TULLOCH, D. (2007) Many, many maps: Empowerment and online participatory planning. *first monday*, 12.
- UITERMARK, J. & DUUVENDAK, J. (2008) Citizen participation in a mediated age: neighborhood governance in The Netherlands. *International Journal of Urban and Regional Research*, 32, 114-134.
- UN (2008) UN E-Government survey: from E-Government to Connected Governance. New York, Department of Economic and Social Affairs: Division of Public Administration and Development Management
- VAN DEN BRINK, A., VAN LAMMEREN, R., VAN DE VELDE, R. & DÄNE, S. (2007a) Introduction - geo-visualisation for participatory spatial planning in Europe. IN VAN DEN BRINK, A., VAN LAMMEREN, R., VAN DE VELDE, R. & DÄNE, S. (Eds.) *Imaging the Future: Geo-visualisation for participatory planning in Europe*. Wageningen, Wageningen Academic Publishers.
- VAN DEN BRINK, A., VAN LAMMEREN, R., VAN DE VELDE, R., DANE, S. & SCHOLTEN, H. (2007b) Epilogue: reflection on the lessons learned. IN VAN DEN BRINK, A., VAN LAMMEREN, R., VAN DE VELDE, R. & DANE, S. (Eds.) *Geo-visualizations for participatory spatial planning in Europe*. Wageningen, Wageningen Academic Publishers.
- VAN LAMMEREN, R. & HOOGERWERF, T. (2003) Geo-Virtual Reality and participatory planning. Wageningen, Centre for Geo-Information.
- VAN LAMMEREN, R., LIGTENBERG, A., SERPA, J., ABREU, A. & PLEZIER, I. (2007) Geo-visualization: the e-interaction factor in spatial planning IN VAN DEN BRINK, A., VAN LAMMEREN, R., VAN DE VELDE, R. & DANE, S. (Eds.) *Geo-*

- visualization for participatory spatial planning in Europe*. Wageningen, Wageningen Academic Publishers.
- VONK, G., GEERTMAN, S. & SCHOT, P. (2005) Bottlenecks blocking widespread usage of planning support systems. *Environment and Planning A*, 37, 909-924.
- WARREN-KREZSCHMAR, B. & TIEDTKE, S. (2005) What role does visualization play in communication with citizens? A field study from the Interactive Landscape Plan. IN BUHMANN, E., PAAR, P., BISHOP, I. & LANGE, E. (Eds.) *Trends in Real-Time landscape visualization and Participation*. Heidelberg, Wichmann.
- WOLTJER, J. (2002) The "Public Support Machine": Notions of the Function of Participatory Planning by Dutch Infrastructure Planners. *Planning Practice & Research*, 17, 437-453.

5 CONCLUSIONS AND RECOMMENDATIONS

E-participation offers interesting advantages that make it an alternative to traditional participation meetings. It offers citizens an opportunities to participate at the place and time of their choosing, at their own pace and without the difficult jargon. The use of e-participation in the Dutch planning practice is still minimal even though a vast majority of the citizens want to participate in local decision-making over the Internet.

Overall, it seems that technology is not the biggest factor blocking widespread use of e-participation, problems rather occur due to a lack of knowledge on how to implement e-participation in the participatory process. Although e-participation has the potential to legitimize policy, utilize the local knowledge of citizens and prevent objection and appeal, these outcomes are not guaranteed. This can be attributed to a number of identified obstacles that block effective participation in the planning process. These obstacles relate to the involvement of citizens, technological and political restrictions, the reflection of the citizen input in the decision making and the provision of feedback. If these factors are neglected in e-participation the process can have a counterproductive effect.

A number of opportunities to deal with this obstacles can be formulated. Planners can use new communication channels such as e-mail to involve more citizens, and prevent quasi-participation by inserting a digital authentication system. Adoption of a more or less standardized and user-friendly e-participation platform would be very helpful for the planning community. In order to assure feedback provision, authorities should require citizens to leave their contact information before enabling them to provide input.

Not all of the obstacles can be addressed that easily. The lack of political will to deepen citizen participation will continue to be a major factor blocking the widespread use of e-participation. In such situations it might be an interesting option to circumvent local government by letting a independent party organize the e-participation process and collect and publish citizen input. This pressures local authorities to internalize the citizen input in the decision-making process.

This thesis provides a small step towards participation in planning practice by assessing the Dutch e-participation situation, identifying obstacles and providing some suggestions to deal with them. For a more profound impact of e-participation on spatial planning a number of key recommendations for further research can be made:

- At this moment, e-participation processes have a more or less experimental character. In the rare e-participation cases, the applications are build up from scratch. In many e-participation cases the wheel is thus reinvented. If e-participation does want to go beyond this experimental phase, the insights gained by these experiments should function as a starting point for other e-participation initiatives. In order to create such learning capacity, consensus is needed on the role of e-participation in the planning process. A more standardized form of e-participation could result in a situation in which there is a clear overview of risks and obstacles and in which best practices can be exchanged more easily so the technology can mature.
- E-participation is a complex process by definition, centred at the heart of GIS, ICT and public administration. In order to contribute to the discussion on e-participation, and leave the planning community with benefits, it is important that this complexity is acknowledged. This implies that a multidisciplinary approach is a must.

- The focus in the scientific debate needs to shift from the supply side towards the demand side. The viewpoint of the municipality as user of e-participation received attention in this thesis. But the position of citizens in e-participation remains a mystery. There is an urgent need for research that investigates the wishes and experiences of citizens in e-participation.

Appendix I : Research set-up send to Rooilijn

Date send: 2/5/2008

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Titel: E-participatie in de ruimtelijke planvorming

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1. Introductie

De mogelijkheden voor inspraak in ruimtelijke planvorming zijn beperkt en ineffectief, tot frustratie van veel burgers. De traditionele inspraakbijeenkomst heeft vaak het karakter van een schijnvoorstelling, gebonden aan een specifieke plaats en tijd, gedomineerd door mondige, niet-representatieve minderheden en onbegrijpelijk voor de gemiddelde burger. De inhoudelijke discussie komt veelal niet in zicht en daarmee lijkt deze bijeenkomst meestal zijn doel voorbij te schieten.

Om plannen inhoudelijk voor te leggen aan burgers en met hen te bespreken ligt het gebruik van Geografische Informatie Systemen (GIS) voor de hand. Bovendien tonen diverse vormen van internetgebruik dat hiermee ook een bruikbaar platform voor participatie gereed staat, waarmee wellicht een aantal obstakels van de traditionele inspraak zijn te doorbreken. Deze combinatie van inspraak in ruimtelijke planvormingsprocedures via internet met behulp van GIS duiden wij aan als E-participatie.

Helaas is GIS te vaak neergezet als technocratisch en non-participatief instrument; eigenschappen die funest zijn in het huidige participatieve planningparadigma. De komst van talloze GIS-gebaseerde webservices tonen aan dat burgerparticipatie wel degelijke mogelijk kan zijn en tonen ook een voortgaande maatschappelijke en bestuurlijke penetratie van GIS-technologie. Dit betekent dat de eerdere vooroordelen van planners tegen de inzet van GIS aan herziening toe zijn. Al in de jaren '90 kwam de verbinding tussen GIS als middel voor publieksparticipatie op de wetenschappelijke agenda, met de verwachting dat betere toegang tot ruimtelijke data de burgers effectiever zou betrekken in lokale besluitvorming. Tegen deze achtergrond stellen wij nu de vraag in hoeverre deze verwachting is omgezet in daadwerkelijke adoptie van GIS-gebaseerde applicaties voor *E-participatie* in de praktijk van de ruimtelijke planvorming.

2. Theoretisch kader

In deze paragraaf wordt ingegaan op zowel op de communicatievorm (ECP cube) als de niveaus (participatieladder van Arnstein) van participatie. Bij de behandeling van de communicatievorm worden de beperkingen in tijd, locatie en inbeeldingsvermogen bij traditionele inspraakbijeenkomsten weergegeven en de kansen voor E-participatie. Bij de behandeling van de niveaus van participatie wordt de relatie tussen overheid en burger centraal gesteld; de participatieladder wordt gebruikt om dit te illustreren.

3. Methodiek

Het onderzoek heeft zich gericht op de aanwezigheid van E-participatie instrumenten op de websites van de 100 Nederlandse gemeenten met de meeste inwoners. Als startpunt is voor elke gemeente de gemeentelijke website gebruikt (www.gemeentenaam.nl). Elke website wordt onderzocht op twee aspecten. Ten eerste ten aanzien van de bestemmingsplanprocedure. De verplichte inspraakperiodes in het bestemmingsplantraject en de gewijzigde plankaartverplichting (mede onder invloed van DURP) lenen zich bij uitstek voor E-participatie. Ten tweede is op elke website gezocht naar het gebruik van E-participatie voor andere ruimtelijke plantypen.

4. Resultaten

Een kleine minderheid van de gemeenten (10 bij bestemmingsplannen en 7 bij overige ruimtelijke planvorming) doet iets met E-participatie in de ruimtelijke planvorming. De gevonden applicaties (zie oa www.virtueeltilburg.nl www.e-spraak.nl/maastricht) worden kort beschreven en gepositioneerd op basis van de communicatievorm en het niveau van participatie. De gevonden voorbeelden tonen ook onderling een sterke variatie.

5. Conclusie

Het aantal gemeenten dat het internet gebruikt om de burgers op adequate wijze te informeren en te laten participeren in bestemmingsplanprocedures en andere ruimtelijke plantypen is momenteel nog zeer beperkt. De gemeenten die dit wel doen gebruiken GIS via internet vooral om burgers te informeren, waardoor de potentie van GIS als middel voor hogere niveaus van participatie niet wordt benut. De gevonden E-participatie applicaties zijn het best te typeren als instrumenten om burgers te consulteren. Door middel van deze applicaties leggen de gemeenten plannen voor en bieden zij de burgers mogelijkheden om te reageren.

Dit verkennende onderzoek roept ook nieuwe vragen op. Wat zijn de ervaringen van de gemeenten die gebruik maken van de gevonden vormen van E-Participatie, hoe vertaalt de input van burgers zich in het planvormingsproces en hoe beleven de burgers deze vorm van participatie?

Appendix II Notes for contributors Rooilijn

Het interessegebied van Rooilijn is verwoord in de ondertitel: *tijdschrift voor wetenschap en beleid in de ruimtelijke ordening*. Rooilijn stelt zich open voor zowel het genereren van wetenschappelijke kennis als het verspreiden van kennis in de beleidspraktijk.

Werkwijze

- Een artikel kan ongevraagd aan de redactie worden gezonden of worden geschreven op verzoek van de redactie. In beide gevallen dient eerst een opzet te worden gestuurd. Deze opzet bevat in ieder geval een focus in de vorm van een doelstelling of onderzoeksvraag, de toegepaste onderzoeksmethode, de bevindingen en een (voorlopige) conclusie. Bij voorkeur is er een paragraafindeling van het artikel, alsmede een korte beschrijving van de inhoud van de paragrafen.
- Is overeenstemming over de opzet bereikt, dan kan in overleg met de redactie worden begonnen met het schrijven van het artikel.
- De auteur verklaart met de aanbieding van een artikel dan wel een opzet daartoe dat een soortgelijk artikel door hem/haar niet op hetzelfde moment elders ter publicatie wordt aangeboden.
- Over beeldmateriaal dat door de auteur ten behoeve van het artikel wordt aangedragen, wordt door *Rooilijn* geen auteursrecht betaald. Het materiaal dient dus vrij te zijn van auteursrechten of er moet toestemming zijn van rechthebbende tot plaatsing.
- De uiteindelijke beslissing of en wanneer een artikel wordt geplaatst, wordt genomen door de redactie. De redactie kan altijd een artikel weigeren of doorschuiven naar een volgend nummer.
- De redactie kan een artikel, in overleg met de auteur, inkorten of wijzigen. Veranderingen in de tekst die slechts de leesbaarheid van een artikel ten goede komen, zonder noemenswaardige inhoudelijke gevolgen, kunnen door de redactie zonder overleg met de auteur worden aangebracht.
- Overname van *Rooilijn*-artikelen in andere tijdschriften of op websites dient altijd in overleg met de *Rooilijn*-redactie te gebeuren.

Vorm

- Een artikel dient te worden opgemaakt in **Word 7.0** (Office 2000) of een vergelijkbare versie van dit programma en ingeleverd in elektronische vorm (email of eventueel op cd).
- De lengte van een varia-artikel bedraagt **maximaal 2500 woorden** inclusief lead, autobiografische noot en literatuur.
- De lijst van literatuur mag niet te lang te zijn (maximaal tien titels).
- Houdt de **titel** van het artikel kort en bondig (maximaal 5 woorden). Gebruik geen ondertitel.
- Elk artikel gaat vergezeld van een zogenaamde **lead**, die boven het artikel wordt geplaatst: een prikkelend stukje tekst van 75 woorden waarin op een aansprekende manier de essentie van het artikel is weergegeven. De lead is dus niet zomaar een inleiding, maar bedoelt om de aandacht van de lezer te trekken. De redactie behoudt het recht om de lead te herschrijven.
- Om de leesbaarheid te verhogen is het aan te raden in de tekst regelmatig bondige **tussenkopjes** te plaatsen (maximaal 3 woorden).
- De **opmaak** van de tekst dient zo 'plat' mogelijk te zijn. Gebruik dus zo min mogelijk toevoegingen als onderstrepingen, vet of cursief en witregels. Lever de tekst aan zonder paginanummering. Alinea's worden van elkaar gescheiden door een harde return (regel wit).
- Rooilijn maakt geen gebruik van voet- of eindnoten.

- Er worden geen typografische hulpmiddelen gebruikt bij opsommingen zoals de *bulleted lists* of *numbered lists* van Word. Neem opsommingen op in de tekst en niet in een puntenlijstje.
- **Literatuurverwijzingen** in de tekst:
 - Volgens Gershuny (1983) is het ...
 - ... van de wereld wordt genoemd (Burgers, 1988).
 - ... in het grotenstedenbeleid (Korteweg & Van Weesep, 1983).
 - "een direct citaat", stelt Nowotny (1990, p. 140-141)
 - ... wordt gesteld in de *Nota stedelijk vernieuwing* (Ministerie van VROM, 1997)
- De **literatuurlijst** volgens dit stramien:
 - Korteweg, P.J. & J. van Weesep (red.) (1983) *Ruimtelijk Onderzoek. Leidraad voor opzet, uitvoering en verwerking*, Unieboek, Bussum
 - Groenendijk, J. (1993) 'Mainport-gericht beleid', *Rooilijn*, nr. 2, p. 94-98
 - Vroon, P. (1992) 'Chaostheorie en menselijk gedrag', C. van Dijkum & D. de Tombe, *Gamma chaos. Onzekerheid en orde in de menswetenschappen*, p. 45-56, Aramith Uitgevers, Bloemendaal
 - Ministerie van VROM (1997) *Nota stedelijke vernieuwing*, Den Haag
- Zet aan het eind van het artikel een **korte autobiografische noot** met de namen van de auteurs inclusief e-mail adres (tussen haakjes) en een functieomschrijving van maximaal 20 woorden per auteur. Het is beleid van Rooilijn om titulatuur achterwege te laten.

Spelling en woordgebruik

- Voor de spelling hanteert Rooilijn de regels uit de Woordenlijst Nederlandse taal van de Nederlandse Taalunie, vastgelegd in het zogenaamde Witte boekje.
- Bij het gebruik van afkortingen wordt het begrip bij het eerste gebruik volledig uitgeschreven met de afkorting erachter tussen haakjes. Daarna kan aan de afkorting worden gerefereerd. Gebruik geen afkortingen als een begrip maar weinig wordt gebruikt in de tekst.
- Voor buitenlandse uitdrukkingen wordt, indien mogelijk, een Nederlands equivalent gebruikt.
- De 'ik'- en 'wij'-vorm wordt vermeden.

Illustraties

- Indien mogelijk stelt *Rooilijn* het op prijs als er een aantal **illustraties** (bijvoorbeeld foto's) worden bijgeleverd.
- Tabellen en figuren worden aangeleverd in een apart Word-document, dus niet tussen de tekst.
- Grafieken, diagrammen en dergelijke dienen, ook bij verkleining, goed reproduceerbaar te zijn. Ze dienen op papier maar ook elektronisch te worden aangeleverd in de daartoe gangbare bestandsformaten als tiff, eps, pc, pict en gif. Gebruik geen bestanden met een *lossy* compressietechniek, zoals jpeg. Stuur geen bestanden per email die groter dan 1 MB. Neem bij twijfel contact op met de redactie.
- Grafieken en diagrammen dienen voor layout doeleinden vergezeld te gaan van de onderliggende cijfers waarop deze zijn gebaseerd.

APPENDIX III Summary article 1: E-participation in spatial planning

The current possibilities for participation in the spatial planning process are limited and ineffective, which is frustrating for many citizens. The traditional participation meeting seems ill-suited to reach the intended goal, with participation bounded in place and time and meetings often being dominated by a group of loudmouths. Additionally, the use of jargon makes meetings incomprehensible for the average citizen.

Because visualizations can be understood more easily by lay people, the use of Geographical Information Systems seems a logical choice to communicate spatial plans. Furthermore, the Internet provides an interesting platform for participation. The combination of GIS and Internet can thus be considered promising for citizen participation and is referred to here as e-participation.

Unfortunately, GIS has often been portrayed as a technocratic and non-participative instrument, properties that are unwanted in the current participatory planning paradigm. However, the recent boom in GIS-based webservices shows an ongoing social and administrative penetration of GIS. This might imply that planners need to set aside their bias towards GIS. Since the '90s the possibilities for GIS for citizen participation have been a topic on the scientific agenda. This study investigates whether this has led to an adoption of e-participation and whether e-participation offers broader and deeper possibilities for participation.

In order to investigate the use of e-participation, a quickscan was conducted on the websites of the 100 largest Dutch municipalities. This scan revealed that both in formal and informal planning procedures the use of e-participation is minimal. However, the applications found, generally offered opportunities for broader participation, offering citizens more freedom to participate at the time and place of their choosing and offer a more understandable medium to communicate spatial changes. Most of the applications do not allow for deeper participation, giving citizens no more power than in traditional participation.

Appendix IV results quickscan

Gemeente	Datum websitebezoek (maand/dag)	formele planprocedures (digitale bestemmingsplannen niet aanwezig = 0		
		digitale bestemmingsplannen aanwezig = 1	Digitale bestemmingsplannen in GIS-viewer aanwezig = 2	informele planprocedures (e-participatie instrument niet aanwezig = 1 e-participatie instrument wel aanwezig = 2
Amsterdam	2.2	1	1	1
Rotterdam	2.2	2	1	1
's-Gravenhage (gemeente)	2.2	2	1	1
Utrecht (gemeente)	2.2	3	1	1
Eindhoven	2.2	3	1	1
Tilburg	2.2	1	2	2
Groningen (gemeente)	2.2	1	1	1
Almere	2.2	0	1	1
Breda	2.2	3	1	1
Nijmegen	2.2	1	1	1
Apeldoorn	2.2	1	2	2
Enschede	3.11	1	1	1
Haarlem	3.11	1	1	1
Arnhem	3.11	3	1	1
Zaanstad	3.11	0	1	1
Amersfoort	3.11	1	1	1
Haarlemmermeer	3.11	1	1	1
's-Hertogenbosch	3.11	1	1	1
Maastricht	3.11	0	2	2
Dordrecht	3.11	1	1	1
Leiden	3.11	1	1	1
Zoetermeer	3.11	1	2	2
Zwolle	3.11	0	1	1
Emmen	3.11	0	1	1
Ede	3.11	1	1	1
Westland	3.11	2	1	1
Sittard-Geleen	3.11	1	1	1
Deventer	3.11	1	1	1
Delft	3.11	1	1	1
Alkmaar	3.11	3	1	1
Venlo	3.11	1	1	1
Leeuwarden	3.11	1	1	1
Heerlen	3.1	2	1	1

Helmond	3.1	1	2
Hilversum	3.1	2	1
Hengelo (O.)	3.1	2	1
Amstelveen	3.1	0	1
Purmerend	3.1	0	1
Roosendaal	3.1	0	1
Oss	3.1	1	1
Schiedam	3.1	2	1
Spijkenisse	3.1	2	1
Leidschendam- Voorburg	3.1	1	1
Vlaardingen	3.06	0	1
Almelo	3.06	0	1
Lelystad	3.06	2	1
Gouda	3.06	1	1
Alphen aan den Rijn	3.06	2	1
Hoorn	3.06	3	1
Velsen	3.06	1	1
Bergen op Zoom	3.05	0	1
Capelle aan den IJssel	3.05	0	1
Assen	3.05	2	1
Veenendaal	3.05	1	1
Nieuwegein	3.05	1	1
Katwijk	3.05	0	1
Zeist	3.05	1	1
Den Helder	3.05	0	1
Hardenberg	3.05	0	1
Doetinchem	3.05	0	1
Terneuzen	3.05	2	1
Smallingerland	3.05	2	1
Hoogeveen	3.05	2	1
Oosterhout	3.05	3	1
Barneveld	3.05	2	1
Heerhugowaard	3.05	1	2
Kerkrade	3.05	0	1
Kampen	3.05	0	1
Utrechtse Heuvelrug	3.05	3	1
Weert	3.05	0	1
Woerden	3.05	1	1
Rijswijk (ZH.)	3.05	0	1
Middelburg (Z.)	3.05	0	1
Zutphen	3.1	0	1
Waalwijk	3.05	2	1
Noordoostpolder	3.05	2	1
Roermond	3.05	0	1
Berkelland	3.05	0	1
Soest	3.05	2	1
Vlissingen	3.05	1	1
Ridderkerk	3.05	0	1
Zwijndrecht	3.05	1	1
Houten	3.05	1	1

Rheden	3.05	1	1
Lingewaard	3.05	0	1
Veldhoven	3.05	0	1
Steenwijkerland	3.05	2	1
Heusden	3.05	1	1
Heerenveen	3.05	1	1
Overbetuwe	3.05	0	1
Huizen	2.25	1	1
De Bilt	2.25	2	1
Pijnacker-Nootdorp	2.25	3	1
Harderwijk	2.25	0	1
Barendrecht	2.25	0	1
Tiel	2.19	3	1
Etten-Leur	2.19	1	1
Oude IJsselstreek	2.19	2	1
Uden	2.19	1	1
Hellevoetsluis	2.19	0	1

Appendix V: Interview gemeente X:

[Aangezien het een semigestructureerd interview betreft kunnen de onderstaande vragen het beste als topiclijst worden gezien. Indien hier aanleiding toe was is er van de lijst afgeweken en is er doorgevraagd]

Korte introductie van de achtergrond van het onderzoek en mijn persoonlijke achtergrond.

Keuze voor applicatie X

Wat is oorspronkelijk de belangrijkste reden geweest om applicatie X in te zetten?

Wat is momenteel de voornaamste reden voor de gemeente om applicatie X in te zetten?

Wat is het belangrijkste nadeel van toepassing van applicatie X?

Wat is de belangrijkste reden dat andere gemeenten (nog) geen gebruik maken van applicatie X? Onwetendheid, kostenafwegingen, overig?

Zijn er ook andere applicaties overwogen naast applicatie X?

Is er doelbewust gekozen voor een 2D/3D omgeving? Waarom?

In wat voor categorie liggen de all-in kosten van een eenmalige toepassing van applicatie X?

- a) minder dan 10000
- b) 10000-25000
- c) 25000-50000
- d) 50000 of meer

Keuze voor applicatie X Likert-schaal (1 = zeer mee oneens' tot '5 = zeer mee eens')

Beoordeel de onderstaande vijf stellingen ('1 = zeer mee oneens' tot '5 = zeer mee eens') en geef in volgorde aan welke eigenschappen voor de gemeente het meest belangrijk zijn (1 = minst belangrijkst 5 =meest belangrijkst tot; resultaat bijv. 42315)

- (1) applicatie X informeert burgers over ruimtelijke ontwikkelingen
- (2) applicatie X benut de lokale kennis van burgers
- (3) applicatie X geeft burgers een stem in het planproces
- (4) applicatie X bereikt burgers die met conventionele methoden niet worden bereikt.
- (5) applicatie X versoepelt het verloop van het planproces

applicatie X leidt tot betere besluitvorming (12345)

applicatie X verkleint de 'kloof' tussen bestuur en burger (12345)

We worden als gemeente beperkt door de mogelijkheden in de functionaliteit van de applicatie X? 12345

We zijn tevreden over het gebruik van applicatie X (12345)

Gebruik burgerinput

Op welke manieren wordt de burger gewezen op de aanwezigheid van applicatie X?

We zijn als gemeente (wel/niet) actief op het forum.

We proberen de discussies op applicatie X (wel/niet) te sturen

We behandelen de burgerinput als de stem van het volk (representatief), ongeacht de omvang van de reacties

Wat gebeurt er met de burgerinput na inwinning?

Welk traject legt de inputdata af voordat deze bij de besluitvormer terecht komt?

Hoe wordt omgegaan met de representativiteit van de inputdata bij de besluitvorming?

Vind er een terugkoppeling richting de burgers plaats van de uiteindelijke acties die voortkomen uit de burgerinput?

Welke van onderstaande stellingen geeft de plaats van de burgerinput in het uiteindelijke besluitvormingsproces het beste weer?

- (1) de burgerinput wordt vooral gebruikt om inzichtelijk te maken wat er onder burgers leeft, niet direct om sturend te zijn voor ruimtelijke aanpassingen
- (2) de burgerinput wordt door professionals geanalyseerd op relevantie en bruikbaarheid; een selectie van de oorspronkelijke input wordt gebruikt om ruimtelijke aanpassingen te sturen
- (3) de burgerinput wordt gebruikt als één van de sturende elementen bij ruimtelijke aanpassingen, naast bijvoorbeeld de standpunten van gemeentelijke specialisten
- (4) de burgerinput is richtinggevend in het besluitvormingsproces

In welke fase in de planvorming heeft toepassing van applicatie X de meeste meerwaarde?

Toekomst e-participatie

In de toekomst wordt het gebruik van innovatieve tools als applicatie X voor gemeenten onontkoombaar (12345)

In de toekomst willen we als gemeente het gebruik van interactieve GIS-applicaties vergroten (12345)

Als gemeente zouden we ook openstaan voor applicaties waarin participatie een stap verder gaat en de burger nog meer te zeggen zou krijgen (12345)

Dienen gemeenten door provincie/rijksoverheid te worden gestimuleerd gebruik te maken van applicaties? (12345)

-Hoe? (financieel/wettelijk/onder aandacht brengen)

Appendix VI Interview ontwikkelaar X:

[Aangezien het een semigestructureerd interview betreft kunnen de onderstaande vragen het beste als topiclijst worden gezien. Indien hier aanleiding toe was is er van de lijst afgeweken en is er doorgevraagd]

Korte introductie van de achtergrond van het onderzoek en mijn persoonlijke achtergrond.

Achtergrond applicatie X

Hoe is de applicatie X ontstaan?

Wat is momenteel de voornaamste reden voor gemeenten om applicatie X in te zetten?

Op welke manieren wordt gemeenten/overheden gewezen op de aanwezigheid van applicatie X?

Wat is de belangrijkste reden dat andere gemeenten (nog) geen gebruik maken van applicatie X? Onwetendheid, kostenafwegingen, overig?

Waarom is gekozen voor een dergelijke 2D/3D (wat van toepassing is) omgeving?

In wat voor categorie liggen de all-in kosten voor de gemeente voor een eenmalige toepassing van applicatie X?

- e) minder dan 10000
- f) 10000-25000
- g) 25000-50000
- h) 50000 of meer

Hoe worden gemeenten benaderd? Welke afdeling neemt het op zich?

Keuze voor applicatie X Likert-schaal ('1 = zeer mee oneens' tot '5 = zeer mee eens')

De meeste grote gemeenten zijn op de hoogte van het bestaan van applicatie X 12345

Beoordeel de onderstaande vijf stellingen ('1 = zeer mee oneens' tot '5 = zeer mee eens') en geef in volgorde aan welke kenmerken van applicatie X voor gemeenten het meest belangrijk zijn (1 = meest belangrijkst tot 5 = minst belangrijkst; resultaat bijv. 42315)

- (1) applicatie X informeert burgers over ruimtelijke ontwikkelingen
- (2) applicatie X benut de lokale kennis van burgers
- (3) applicatie X geeft burgers een stem in ruimtelijke ontwikkeling
- (4) applicatie X bereikt burgers die met conventionele methoden niet worden bereikt
- (5) applicatie X versoepelt het verloop van het planproces

applicatie X leidt tot betere besluitvorming (12345)

applicatie X verkleint de 'kloof' tussen bestuur en burger (12345)

applicatie X is een ideaal instrument voor interactieve beleidsvorming (12345)

Gebruik burgerinput open vragen

We zijn als ontwikkelaar (wel/niet) actief op het forum.

We proberen de discussies op applicatie X (wel/niet) te sturen

Welk traject legt de inputdata af voordat deze bij de besluitvormer terecht komt?

Hoe wordt omgegaan met de representativiteit (burgers/meningen) van de inputdata bij de besluitvorming?

Vind er een terugkoppeling richting de burgers plaats van de uiteindelijke acties die voortkomen uit de burgerinput?

In welke fase in de planvorming heeft toepassing van applicatie X de meeste meerwaarde?

Toekomst e-participatie

Wat is het belangrijkste nadeel van toepassing van applicatie X?

Wat voor toevoegingen in functionaliteit zijn er denkbaar in toekomstige uitbreidingen op applicatie X?

Zijn er al ideeën voor een applicatie waarin participatie een stap verder gaat en de burger nog meer te zeggen zou krijgen?

In de toekomst wordt het gebruik van webtools als applicatie X voor gemeenten onontkoombaar (12345)

Dienen gemeenten door provincie/rijksoverheid te worden gestimuleerd gebruik te maken van applicaties? 12345

-Hoe? (kosten/wetten/aandacht)

Zou het technisch mogelijk zijn applicatie X achter bijvoorbeeld DigiD te plaatsen om oneigenlijk gebruik te voorkomen?

Vragen gemeenten hier ook naar?