MASTER THESIS

Application of eParticipation in MIRT-projects

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16-04-2020

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Colophon
Application of eParticipation in MIRT-projects
Master thesis

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PREFACE

This report presents the results of the master thesis I performed in the final phase of the master Construction Management & Engineering at the University of Twente. This research is a collaboration between the Department of Construction Management & Engineering and Royal HaskoningDHV.

The past half-year has been a great experience. This is mostly thanks to the people who have been involved in my graduation. In the first place, I would like to thank Hans en Joanne for their guidance throughout my research proposal and thesis. I always looked up against writing a master thesis, but our meetings were always pleasant and fruitful. You have greatly helped me put my master thesis into words and challenged me to improve my work.

Furthermore, I would like to thank my daily supervisors, Lieke and Willem, for giving me the opportunity to perform my master thesis at Royal HaskoningDHV and guiding me from within the organisation. Additionally, I would like to thank all colleagues of the department of Smart Urban Environments for creating a great working atmosphere and I am looking forward to us working together as colleagues.

Finally, I want to thank my family and friends for keeping me in check and help me focus, relax and distract me, not only during my thesis but during my whole study.

I hope you enjoy reading my thesis

Trung Nguyen

Amersfoort, 16 April 2020

SUMMARY

Stakeholder participation plays an important part in civil engineering projects. With the rise of technology and the availability of the internet, the ways to involve stakeholders are increasing. This development facilitates the growth of eParticipation and there is an increasing interest in eParticipation in the Dutch civil engineering field. The usefulness of eParticipation relative to traditional stakeholder participation is becoming more generally known, but how to effectively use the different tools is still unclear. Therefore, there is a need for further knowledge on how to use eParticipation tools and in which contexts.

This research aims to develop a decision support tool to be used by stakeholder managers for strategical selection of eParticipation tools in projects with a large spatial impact. In order to do so, a research following the design science methodology is executed. The three phases included in this research are the problem investigation phase, the design phase and the validation phase. This research focusses on the stakeholder participation process in MIRT-projects. MIRT-projects are complex and long-term governmental projects in The Netherlands, which need an intensive and prolonged participation process.

The problem investigation consists of a literature study on the stakeholder participation process and the strategic selection of eParticipation tools, a case study on six MIRT-projects and interviews with 11 stakeholder participation experts. The problem investigation showed that there is a separation between the literature on stakeholder participation and on eParticipation. Although eParticipation is a method of stakeholder participation, the literature review shows that eParticipation is rarely considered as part of stakeholder participation. This could be due to the fact that the research strand of eParticipation stems from the field of eDemocracy. Consequently, there is a disconnection between developed stakeholder participation processes and eParticipation processes. eParticipation or its tools are not mentioned in the design methods of stakeholder participation processes. This separation between stakeholder participation and eParticipation is also seen in the case study. The case study shows that in practice the use of eParticipation is mostly limited to project websites, digital newsletters, online surveys and static visualisations, although more tools are available for eParticipation.

When comparing literature and practice, it can be concluded that there is a lack of strategical guidance in implementing eParticipation. In literature, eParticipation is more researched and explained than is known and used in practice. This gap of knowledge in practice has lead to limited applications of eParticipation and inefficient use of eParticipation. Therefore, a strategic framework is needed that closes the gap between literature and practice and combines the knowledge of stakeholder participation and eParticipation.

To address these problems, we designed a decision support tool. Based on the findings from the problem investigation we formulated the following requirements:

1. *The decision support tool represents a decision-making process*
2. *The overall stakeholder participation process is embedded into the decision support tool*
3. *The decision support tool is linked to the methods used in current practice*
4. *The decision support tool is interactive*
5. *The decision support tool supports the decision-making process and is not prescriptive*
6. *The decision support tool is accessible for non-stakeholder managers*
7. *The decision support tool needs to be adaptable*

We applied these requirements to a framework that we identified in the literature. From this, we concluded that the framework does not meet the requirements and a new design was needed. The identified framework was used as a base for the decision support tool. The requirements, base framework and findings from the evaluation together lead to the design of the decision support tool. The resulting decision support tool was validated in an expert meeting with stakeholder participation experts and improved according to their feedback.

Concluding, this study presents the first strategic eParticipation framework that provides a roadmap for selecting eParticipation tools in Dutch civil engineering projects. Furthermore, it provides clear guidance to future research on the integration of eParticipation in stakeholder participation.

Recommendations are made for future research to focus on the implementation and evaluation of the decision support tool and the separate eParticipation tools as well. Additionally, a recommendation is made to combine the findings of this research with other research regarding the development of strategic frameworks for the overall participation process. Knowledge on the effects, risks and trade-offs of combining different participation methods will be valuable for stakeholder participation practice in the future.

SAMENVATTING

Stakeholder participatie speelt een belangrijke rol in civieltechnische projecten. Met de opkomst van technologie en de beschikbaarheid van internet nemen de manieren toe om stakeholders te betrekken in projecten. Deze ontwikkeling faciliteert de groei van eParticipatie en er is een groeiende belangstelling voor eParticipatie in de Nederlandse civiele sector. Het nut van eParticipatie ten opzichte van traditionele stakeholder participatie wordt steeds bekender, maar hoe de verschillende tools effectief gebruikt moeten worden is nog onduidelijk. Daarom is er behoefte aan meer kennis over hoe en wanneer eParticipatie tools gebruikt kunnen worden en in welke contexten.

Dit onderzoek heeft tot doel een beslissings hulptool te ontwikkelen die door stakeholder managers gebruikt kan worden voor strategische selectie van eParticipatie tools in projecten met een grote ruimtelijke impact. Om dit te realiseren wordt een onderzoek uitgevoerd volgens de design science methodologie. De drie fasen in dit onderzoek bevat zijn de probleemanalyse, de ontwerp fase en de validatie fase. Dit onderzoek richt zich op het participatieproces van stakeholders in MIRT-projecten. MIRT-projecten zijn complexe en langdurige overheidsprojecten in Nederland, waar een intensief en langdurig participatieproces voor nodig is.

De probleemanalyse bestaat uit een literatuurstudie naar het participatieproces van stakeholders en de strategische selectie van eParticipatie tools, een casestudie over zes MIRT-projecten en interviews met 11 experts op het gebied van stakeholder participatie. Uit de probleemanalyse is gebleken dat er een scheiding is tussen de literatuur over stakeholder participatie en eParticipatie. Hoewel eParticipatie een methode is voor stakeholder participatie, blijkt uit de literatuurstudie dat eParticipatie zelden wordt beschouwd als onderdeel van stakeholder participatie. Dit kan te wijten zijn aan het feit dat de onderzoeks stroming van eParticipatie is ontstaan uit het veld van eDemocratie. Dit heeft geleidt tot een scheiding tussen ontwikkelde participatieprocessen en eParticipatieprocessen. eParticipatie of de tools ervan worden niet genoemd in de ontwerpmethoden van de participatieprocessen. Deze scheiding tussen stakeholder participatie en eParticipatie komt ook naar voren in de casestudie. Uit de casestudie blijkt dat het gebruik van eParticipatie in de praktijk meestal beperkt is tot project websites, digitale nieuwsbrieven, online enquêtes en statische visualisaties, hoewel er meer tools beschikbaar zijn voor eParticipatie.

Bij het vergelijken van literatuur en praktijk kan geconcludeerd worden dat er een gebrek is aan strategische richtlijnen bij het implementeren van eParticipatie. In de literatuur is eParticipatie meer onderzocht en uitgelegd dan in de praktijk bekend is en gebruikt wordt. Het ontbreken van deze kennis in de praktijk heeft geleidt tot beperkte en inefficiënte toepassing van eParticipatie. Daarom is er een strategisch aanpak nodig dat de kloof tussen literatuur en praktijk overbrugt en de kennis van stakeholder participatie en eParticipatie combineert.

Om deze problemen aan te pakken, hebben we een beslissingshulptool ontworpen. Op basis van de bevindingen uit het probleemanalyse hebben we de volgende eisen geformuleerd:

1. *De beslissings hulp tool vertegenwoordigt een besluitvormingsproces.*
2. *Het algehele participatie proces van stakeholders is ingebed in de beslissings hulptool.*
3. *De beslissings hulptool is gekoppeld aan de methoden die in de huidige praktijk worden gebruikt*
4. *De beslissings hulptool is interactief*
5. *De beslissings hulptool ondersteunt het besluitvormingsproces en is niet voorschrijvend*
6. *De beslissings hulptool is toegankelijk voor niet-stakeholder managers*
7. *De beslissings hulptool moet adaptief zijn*

We hebben deze vereisten toegepast op een framework dat we in de literatuur hebben geïdentificeerd. Hieruit concludeerden we dat het framework niet aan de eisen voldoet en dat er een nieuw ontwerp nodig was. Het geïdentificeerde framework werd gebruikt als basis voor de beslissings hulptool. De eisen, het basiskader en de bevindingen uit de evaluatie leiden samen tot het ontwerp van de beslissings hulptool. De resulterende beslissings hulptool werd gevalideerd in een expertmeeting met experts op het gebied van stakeholder participatie en verbeterd op basis van de resultaten.

Concluderend presenteert deze studie het eerste strategische aanpak voor eParticipatie dat een richtlijn biedt voor het selecteren van eParticipatie tools in Nederlandse civieltechnische projecten. Bovendien biedt het duidelijke richtlijnen voor toekomstig onderzoek naar de integratie van eParticipatie in stakeholder participatie.

Voor toekomstig onderzoek worden aanbevelingen gedaan voor te concentreren op de implementatie en evaluatie van de beslissings hulptool en de afzonderlijke eParticipatie tools. Daarnaast wordt aanbevolen om de bevindingen van dit onderzoek te combineren met de studies naar algehele participatieproces. Kennis over de effecten, risico's en afwegingen van het combineren van verschillende participatiemethoden zal in de toekomst waardevol zijn voor de praktijk van stakeholder participatie.

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1 INTRODUCTION

Stakeholder participation is becoming an increasingly important part of civil engineering projects. “The question is no longer whether or not stakeholder participation is useful, but how to accomplish an effective and efficient collaboration among policy makers, experts and lay people.” (Krywkow, 2009, p. viii). This trend is also noticeable in Dutch civil engineering. In 2021, the new Environmental Law (‘*Omgevingswet’)* will be implemented (Rijksoverheid, 2019). This new law strives for integrated solutions and obligates stakeholder participation to be part of every project decision (Rijksoverheid, 2019).

This focus on stakeholder participation has already been implemented in the government initiated multi-year program for infrastructure, public space and transport (MIRT, *‘Meerjarenprogramma Infrastructuur, Ruimte en Transport’*). This program contains government-led projects that focus on the current and future development of The Netherlands. The MIRT is of great importance to The Netherlands and its regions because they contain plans regarding the infrastructure, public space and transport, for the upcoming 6 to 8 years. Part of the MIRT is the intensive collaboration between the national and local government, public organisations and companies. Because MIRT-projects have a large spatial impact, problems need to be solved collaboratively. Therefore, stakeholder participation plays an important role in these projects. However, in the guidelines of the MIRT and the *‘Omgevingswet’,* only the moments of involvement are stated, but there is no prescription on how the stakeholder participation should be done (Ministerie van Infrastructuur en Milieu, 2016; Rijksoverheid, 2019).

1.1 STAKEHOLDER PARTICIPATION

Stakeholders are generally defined as persons, groups or organizations with interest in the decision or project. Examples of stakeholders are interest groups, local governments or environmental organisations (Winch, 2007). The involvement of stakeholders in decision-making is referred to as stakeholder participation (Krywkow, 2009; Reed, 2008).

There are several reasons why stakeholder participation is organised (Mostert, 2003). For example, stakeholder participation allows for stakeholders to provide important information regarding the local conditions. This could lead to new perspectives and new solutions. Furthermore, participation helps to ensure that all relevant interests are heard, resulting in a better quality of the project (Edelenbos, 2000; Krywkow, 2009; Mostert, 2003; Reed, 2008). Stakeholder participation can also lead to more trust in national and local governments (OECD, 2001; Reed, 2008). The process becomes more transparent and it can enhance democracy, by allowing a more democratic position for the participants (Edelenbos, 2000; Krywkow, 2009; Mostert, 2003). It will contribute to closing the gap between the public and the government (Edelenbos, 2000).

When stakeholders are not correctly involved in the decision-making process, it could lead to discussions about the need and urgency of the project or changes in the scope and substantiations (Commissie Elverding, 2008). This leads to delays, increased costs or even complete stops of projects (Wesselink, 2010). Therefore, stakeholder participation plays an important role in the development of projects.

Realising a participation process does not automatically lead to advantages. There are a few challenges that can arise in stakeholder participation (Mostert, 2003). A first challenge lies in the organisation of participation. Organising participation in a wrong way may lead to disappointment, soured public relations and less acceptance instead of more. Several scenarios are described by Glicken (2000), such as the exclusion of key stakeholders or regarding the information from stakeholders as less valuable compared to the information of scientists. A second challenge is the response of stakeholders. The response is often limited and/or unrepresentative. Usually, well-organised interest groups, well-educated white-collar workers and people living near the location of new projects are over-represented. However, unorganised interests are often not represented at all. This occurs because of several reasons. For example, they could have too little trust in the government or organisation and may feel that their input is not taken seriously. Moreover, they may have too little time to participate, too many other interests or they may not have the financial resources necessary for travelling to give their views. Besides, they may simply feel that it is the task of the government to govern, not theirs.

1.2 EPARTICIPATION

A development in stakeholder participation, that aims to tackle these two challenges, is eParticipation. eParticipation can be defined as a participatory process that includes stakeholders in public decision-making processes through the use of modern information and communication technologies (Wirtz, Daiser, & Binkowska, 2016, p. 3). With the rise of technology and the availability of internet, the ways to connect to stakeholders are increasing (Ergazakis, Metaxiotis, & Tsitsanis, 2011; Medaglia, 2012; OECD, 2001; Sæbø, Rose, & Skiftenes Flak, 2008). This development facilitates the growth of eParticipation and the interest in eParticipation in the Dutch field of civil engineering is also growing (Bruchmann, 2018). eParticipation makes participating more accessible for the generation that works more digital or the stakeholders who do not have the time or resources to join the traditional participation methods (OECD, 2001). Traditional stakeholder participation is time- and site-specific (Glicken, 2000), whilst eParticipation allows for participation regardless of time and site (Tambouris, Macintosh, et al., 2007). Some eParticipation tools are already commonly used, like digital visualisation and websites, and there are many more ways to apply eParticipation. However, the range of tools and how to effectively implement them is unclear for stakeholder managers. The effectiveness of methods can only be examined, when the applied (classes of) methods is related to the achievement of goals (Krywkow, 2009). Additionally, the term ‘strategic’ is used when decisions are made in regards of the goals (Cambridge University Press, 2020). Against this background, this research aims to provide an improved insight into the strategic selection of eParticipation tools with a focus on projects in the Netherlands with a large spatial impact.

1.3 RESEARCH GOAL

This research focusses on the integration of eParticipation in the design of participation processes. While previous studies have investigated the benefits and the possible contexts in which eParticipation can be implemented, the integration of eParticipation into the design of stakeholder participation processes has not been investigated yet. Against this background, the main goal of this research is:

‘To design a decision support tool for stakeholder managers to integrate eParticipation in the stakeholder participation process of MIRT-projects.’

The design of a participation process consists of different choices. These choices are made by stakeholder managers, based on the context of the project. The choice to design a decision support tool was made because it represents the design process. A decision support tool can help stakeholder managers in choosing whether and how to apply eParticipation tools. The goal is specifically tailored

to stakeholder managers whilst the design and execution of the stakeholder participation is part of their task. The part of the research goal, “To integrate eParticipation in the participation process”, alludes to the standard inclusion of eParticipation in the design choices of the participation process. Furthermore, the research goal is tailored to MIRT-projects, which is part of the scope of this research. The scope of this research is elaborated in the next section.

1.4 RESEARCH SCOPE

The context wherein this research is conducted is Dutch MIRT-projects. Besides, research is focussed on the perspective of stakeholder managers. Furthermore, this research focusses on the strategic implementation of eParticipation. The scope considerations are further elaborated in the following three sections.

1.4.1 MIRT-projects

The projects and programs, wherein the Dutch government in collaboration with local governments work on the spatial development of the Netherlands, are included in the MIRT. Further elaboration on the process of MIRT-projects comes back in Section 2.1. This research will only focus on MIRT-projects because they are large spatial development projects that are of national interest. The project scope mostly crosses the province and municipality borders, which involves many important stakeholders. MIRT-projects are complex and long-term projects which need an intensive and prolonged participation process.

1.4.2 Stakeholder manager

Stakeholder participation is usually organised and facilitated by a stakeholder manager in MIRT-projects. In the Netherlands, most project teams in governmental projects are organised following the model of Integrated Project Management (IPM)(Ministerie van Infrastructuur en Waterstaat, 2006). Five roles are distinguished in the IPM organisation: project manager, project controller, stakeholder manager, technical manager and contract manager.

The main task of the stakeholder manager is to maintain the relation with the area and the stakeholders. Therefore, organising and designing the stakeholder participation process is part of the role of stakeholder management, which is the focus of this research.

1.4.3 Strategic selection

Many studies have been done on eParticipation (Al-dalou & Abu-shanab, 2013; Ergazakis et al., 2011; Macintosh, Coleman, & Schneeberger, 2009; Medaglia, 2012; Phang & Kankanhalli, 2008; Sæbø et al., 2008; Sanford & Rose, 2007; Tambouris, Liotas, Kaliviotis, & Tarabanis, 2007). However, few scholars have researched eParticipation from a strategic perspective. Therefore, in this research, the focus is on the strategic selection of eParticipation tools. Strategical selection alludes to the selection of the process and methods according to the goals. Moreover, when examining the achievement of goals in relation to the applied (classes of) methods, conclusions about the effectiveness of methods may be drawn. If goals are not or only partially achieved, questions concerning the appropriate selection or application may be posed (Krywkow, 2009).

On the contrary, this research does not delve into the different benefits or disadvantages of applying eParticipation, as it does not add to the objective of instrumental research. Besides, the implementation and evaluation of the specific eParticipation tools are also left outside the scope. This will take a considerable amount of time and does not fit in the timeframe set for this research.

1.5 RESEARCH RELEVANCE

Several scholars point out that eParticipation tools do not substitute but complement traditional participation methods (Ergazakis et al., 2011; Sæbø et al., 2008). However, the current body of literature does not relate eParticipation to traditional participation methods.

Furthermore, the current body of literature does not provide comprehensive concepts for successfully implementing eParticipation (Wirtz et al., 2016). Wirtz et al. (2016) developed an integrated strategic framework for the implementation of eParticipation that integrates the results of prominent research done in the past. However, their research resulted in a framework that mainly focuses on the separate factors that are important when applying eParticipation tools (targets, forms, strategies and instruments) and does not pay attention to the interrelation between the factors.

This research will add to the existing literature, by researching the relation between eParticipation and the traditional participation process by defining the interrelation between eParticipation tools and participation goals and strategies. Researching the compatibility between the traditional participation process and eParticipation connects the two literature strands of stakeholder participation and eParticipation. Furthermore, this research will build upon the framework designed by Wirtz et al. (2016). By integrating their research with existing strategic literature on stakeholder participation, the interrelation between the different eParticipation tools and participation goals and strategies can be defined.

The practical relevance of this research lies in the development of a decision support tool that allows the integration of eParticipation into the design of stakeholder participation processes. This will support the strategic implementation of eParticipation tools. Additionally, the decision support tool is tailored to the current practice. Therefore, the decision support tool is directly applicable, by RHDHV, to future MIRT-projects.

1.6 REPORT OUTLINE

This report is structured as follows: chapter two describes the research methodology that is used, which is the design science methodology. The chapter consists of three sections, each elaborating on one of the phases of the design science methodology: investigation, design and validation. Chapter three shows the results of the research. This chapter, as well, is split up into three sections. Chapter four contains the discussion. Chapter five is the concluding chapter. It contains the conclusions and recommendations of this research.

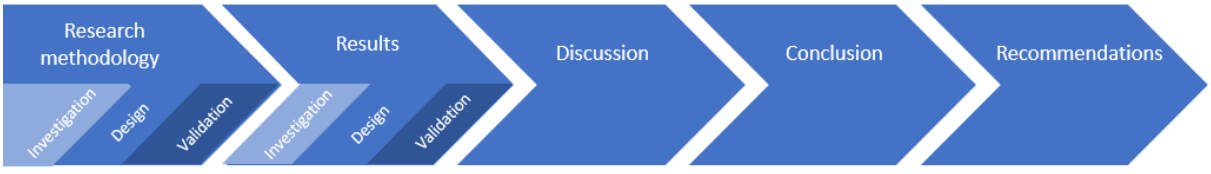

Figure 1 Overview of the structure of this research

2 DESIGN SCIENCE METHODOLOGY

The research design is based on a design cycle methodology (Wieringa, 2014). The whole design cycle consists of 5 tasks. However, the last two tasks, the implementation and the evaluation are beyond the scope of this research project and therefore not included. The design cycle of this research is depicted in Figure 2. In the following sections, each phase of the design cycle is further elaborated on.

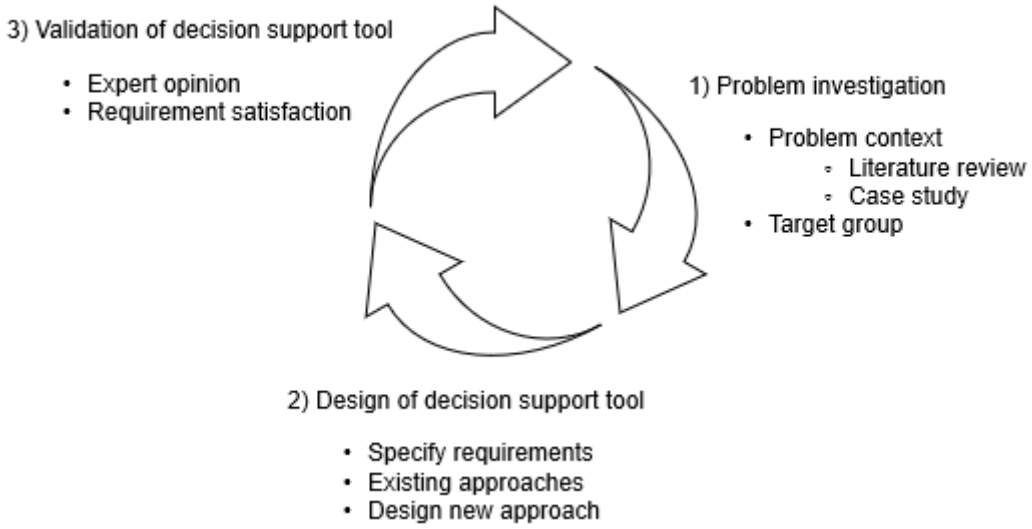

Figure 2 Design cycle adapted from Wieringa (2014, p. 28)

2.1 PROBLEM INVESTIGATION

For the problem investigation, the following methods were applied: a literature review, a case study and interviews. Firstly, the literature review was done to determine the state-of-the-art on the strategical implementation of eParticipation. Subsequently, a case study was done to gain insight into the use and integration of eParticipation in current practice. Additionally, interviews were performed with the target group of this research to gain insight into the current knowledge and considerations for implementing eParticipation. Each method is further elaborated in the following sections.

2.1.1 Literature review

The literature review was done on eParticipation literature, as well as stakeholder participation literature regarding the use of methods and strategies to obtain participation goals. The Scopus literature database was used to identify relevant researches. The terms eParticipation and strategic were used to identify relevant papers. Of the resulting papers, the relevance was determined through reading the abstract. These papers were used as a starting point for the snowball sampling for papers. A similar method was used in searching for relevant literature on stakeholder participation literature regarding the strategic implementation of methods.

2.1.2 Case study

The case study was conducted to determine the current practices of eParticipation. The case study consisted of multiple cases to give a better representation of the different projects in the civil engineering field. The cases that were used in the case study are MIRT-projects. Six projects were selected for the case study research (Table 1).

Table 1 Selected MIRT projects for the case study

#	Project name	RHDHV involved phase	Period	Type
C-1	Zeetoegang IJmond	Realisation	2017-ongoing	Water
C-2	Ruimte voor de rivier	Exploration/Development/Realisation	2011-2018	Water
C-3	Noord-Zuidlijn	Realisation	2008-ongoing	Rail
C-4	A15 Suurhoffbrug	Exploration	2017-Ongoing	Road
C-5	A1 Apeldoorn-Azelo	Exploration	2015-2019	Road
C-6	A1/A30 Barneveld	Exploration	2018-ongoing	Road

The projects were selected using different selection criteria. The main criterion was the involvement of RHDHV. The involvement of RHDHV ensured the availability of information on the case. The second selection criterion was that eParticipation had to be applied in the project. This was necessary to find out the considerations that were made regarding the use of eParticipation. The third selection criterion was the project phase. The MIRT-process is split up into four different phases: research, exploration, development and realisation (Figure 3). In each phase, different decisions need to be made and stakeholders have a changing influence during the project. To give insight into the differences in the participation of each phase, projects in different project phases were selected.

Additionally, the project type was a selection criterion. There are four types of projects in the MIRT-program: road, waterways, public transport, and water (Ministerie van Infrastructuur en Waterstaat, 2019). In order to reflect the diverse collection of projects in the MIRT-program, projects from different types were selected. The last selection criterion was the project timeframe. To ensure the projects reflected the current practices, the focus of selection was on recent projects that were finished after 2016 or ongoing.

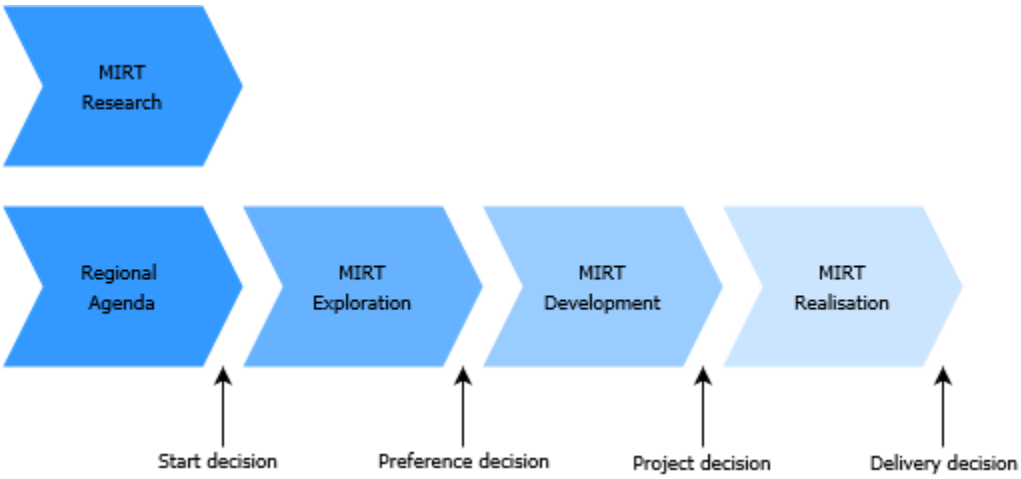

Figure 3 The phases and decision points of a MIRT-Project adapted from Ministerie van Infrastructuur en Milieu (2016, p. 7)

In total, four cases focus on the exploration phase. Three cases focus on the realisation phase and one case focusses on the development phase. Furthermore, the selection consisted of two water-related cases, one rail case and three road cases. For each case, a document review and interviews were performed. The relevant documents for this review were the participation plan, the communication plan and the stakeholder analysis.

In the case study, the focus is mainly on the participation goals, strategies, the eParticipation tool and the considerations made. Additional information that is searched for in the cases was the project goal, the stakeholders of the project, the important conditions for implementing eParticipation and the relation between traditional methods and eParticipation. An overview of the searched project characteristics is given in Appendix B.

2.1.3 Interviews

To also gain more insight into the design process and the considerations made in practice, interviews were held with stakeholder managers. The gained information is analysed in comparison to the findings from the literature review. In total, eleven stakeholder managers were interviewed, as shown in Table 2.

Eight stakeholder managers were interviewed who were concerned with the case projects. These interviews focus on the stakeholder participation process in the cases. Additional questions were asked regarding the current knowledge, experiences and expectations on eParticipation.

To gain more insight into the current knowledge, experiences and expectations on eParticipation in practice from different perspectives, additional stakeholder managers of the target group were interviewed. The target group of this research is stakeholder managers from Rijkswaterstaat, local governments, engineering firms and contractors. They are the target group, whilst this research adds to their current practice and knowledge. Therefore, two stakeholder managers from Rijkswaterstaat and one stakeholder manager of a municipality, who are experienced in MIRT-projects were interviewed.

The interviews were semi-structured and held in Dutch. An overview of the interview protocol and questions is given in Appendix C. Each interview was recorded and the interpretation of the results from the interviews were checked with the interviewees. The interviews were conducted in the period of December 2019 till February 2020.

Table 2 The interviews with stakeholder managers of the target group

#	Organisation	Role
I-1/I-7	Royal HaskoningDHV	Engineering firm
I-8	Infram	Engineering firm
I-9, I-10	Rijkswaterstaat	Client
I-11	Gemeente Woerden	Client

2.2 DESIGN PHASE

The first step in the design phase is to define requirements for the decision support tool. The requirements are based on the findings of the problem investigation. The satisfaction of these requirements determines the quality of the decision support tool. The International Organization for Standardization (2011) proposed a model that categorises the product quality into characteristics and sub-characteristics. The requirements are structured according to the model.

Based on these requirements, existing strategic approaches found in eParticipation literature are evaluated. The literature review resulted in only one strategic framework regarding eParticipation (Wirtz et al., 2016). As the framework did not meet the requirement, a new design is made. The strategic framework, designed by Wirtz et al. (2016), is used as a base for the design of the decision support tool. For the content of the design, a separate literature review is done regarding the different components of the decision support tool. The phase is concluded with the first design of the decision support tool.

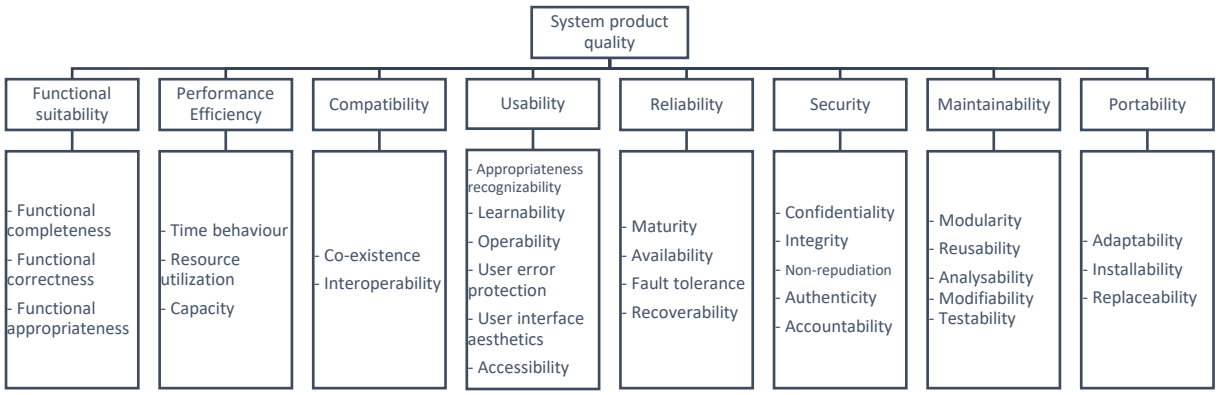

Figure 4 The quality model, adopted from the International Organization of Standardization (2011)

2.3 DESIGN VALIDATION

To validate the satisfaction of the requirements and the content of the decision support tool, an expert meeting was organised. Seven stakeholder managers and two non-stakeholder managers were present at this meeting. In order to validate the accessibility of the decision support tool, not only stakeholder managers were invited to the meeting. The two non-stakeholder managers are both strategic advisors, who are often involved with stakeholder participation and stakeholder managers. They were invited to provide insight from the perspective of non-stakeholder managers.

A week prior to the validation session, the first design of the decision support tool is shared with the experts in advance, for them to get acquainted with the tool. As an assignment, the experts are asked to test the tool, using one of their projects as the context, in preparation of the validation meeting.

One and a half hours was scheduled for the meeting, which was facilitated by myself. In the first part of the validation session, a short introduction was given on the research and the key concepts as defined in the research. After the introduction, time was given for the stakeholder managers to further test the decision support tool. In the second part of the validation session, the list of requirements was validated. Each requirement was discussed individually. The last part of the session consisted of a discussion on the usability of the decision support tool. In this discussion, the focus is on the content of the decision support tool.

After the validation session, the results from the expert meeting are sent to the invited expert to check if they are interpreted well. Finally, the design of the decision support tool is adjusted according to the results of the expert meeting, leading to the final design of the decision support tool.

3 RESULTS

In this chapter, the results from each phase of the design cycle are summarised. This is done following the order of the design cycle methodology. The first section shows the results of the problem investigation. In the second section, the results of the design phase are shown, and lastly, the results of the validation phase.

3.1 PROBLEM INVESTIGATION

The problem investigation aims to discover the state-of-the-art on the strategical implementation of eParticipation and the current practice of eParticipation. The problem investigation was done through a literature review, a case study and interviews. The results of each method are elaborated in the following sections. In the synthesis, the finding from the literature and case study are compared.

3.1.1 Literature review

eParticipation is becoming more prominent in decision-making. During the last two decades, there has been a significant increase in the number of projects that implement eParticipation (Santamaria-Philco, Canos Cerda, & Penades Gramaje, 2019). This trend is also seen in literature. More research is done regarding eParticipation (Ergazakis et al., 2011; Medaglia, 2012; Sæbø et al., 2008; Sanford & Rose, 2007; Santamaria-Philco et al., 2019). For example, Tambouris et al. (2007) focussed on the evaluation of eParticipation in practice. Macadar et al. (2019) researched the influence of eParticipation on individual capabilities. Furthermore, many case studies have been performed (Soria, 2007; Tambouris, Macintosh, et al., 2007). However, the body of literature remains fragmented. Scientists have been and are still calling for models and frameworks that can reduce the fragmentation of the research field (Johannessen & Berntzen, 2019; Porwol, Ojo, & Breslin, 2016; Sæbø et al., 2008; Santamaria-Philco et al., 2019).

Many theoretical frameworks have been developed in order to increase the understanding of eParticipation and reduce the fragmentation of literature (Kersten, 2003; Kim, 2007; Loukis, Xenakis, & Charalabidis, 2010; Macintosh, 2004; Macintosh & Whyte, 2008; Phang & Kankanhalli, 2008; Tambouris, Liotas, & Tarabanis, 2007). However, the degree of complementarity of these models and the extent to which they collectively cover the scope of eParticipation is limited (Porwol et al., 2016). There is a lack of knowledge on how and when to use eParticipation tools and in which context to use them (Macintosh et al., 2009; Macintosh & Whyte, 2008; Medaglia, 2012; Toots, 2019). Additionally, research regarding the strategical use of eParticipation tools, i.e. the application of methods or tools aiming to achieve certain goals, is missing (Wirtz et al., 2016). Concequently, Wirtz et al. (2016) developed a strategic framework regarding the implementation of eParticipation.

When reviewing literature on stakeholder participation, more literature can be found on the strategic implementation of participation methods. However, most literature regarding strategic processes are more than 10 years old (Edelenbos, 2000; Karlsen, 2002; Krywkow, 2009; Mostert, 2003; van Asselt, Mellors, Rijkens–Klomp, Greeuw, & Molendijk, 2001; Winch, 2007). More recent studies regarding stakeholder participation focus on case studies and conceptual development (Pedrini & Ferri, 2019), e.g. Leonidou et al. (2018) researched the integration of stakeholder engagement for innovation management and entrepreneurship, while Singh et al. (2018) researched the implementation of stakeholder participation and building information modelling, Xia et al. (2018) researched the integration of risk management with stakeholder management. Most recent researches build upon the mentioned researches regarding strategical processes but do not extend on those researches.

According to stakeholder participation literature, the design of a participatory management strategy can be characterised by three distinct indicators: (1) process (2) constraints and (3) objectives (Hare & Krywkow, 2005). Participation methods should be selected and tailored to the decision-making context, considering the objectives, type of participants and appropriate level of engagement (Hare & Krywkow, 2005; Reed, 2008; van Asselt et al., 2001). Classes of participation methods are the key concept in linking the methods with objectives of a participation process (Hare & Krywkow, 2005). A complete methodological framework for participation processes in water resource management was developed by Krywkow (2009) based on these notions.

What is notable from literature on stakeholder participation, there is no mention of eParticipation or eParticipation tools. However, certain eParticipation tools have found their way in the classification of participation methods (websites, social media and online fora). eParticipation is a method for stakeholder participation and is, therefore, part of the stakeholder participation process (Phang & Kankanhalli, 2008; Tambouris, Liotas, & Tarabanis, 2007). However, in eParticipation literature, only a few studies build upon stakeholder participation literature. For example, the evaluation framework for eParticipation, designed by Terán and Drabnjak (2013), is built upon stakeholder participation literature regarding the participation ladder. Furthermore, OECD (2001), Ergazakis et al. (2011) and Sæbø et al (2008), mention traditional participation methods and argue that eParticipation does not substitute traditional stakeholder participation, but should be used in combination with traditional methods.

The disconnection between the literature strands of eParticipation and stakeholder participation studies can be explained by the origination of eParticipation from the field of eDemocracy (Ergazakis et al., 2011; Macintosh, 2004; Susha & Grönlund, 2012). Wherein eDemocracy concerns itself with strengthening the mechanisms of representative democratic decision-making through technology, eParticipation focusses on the means, through supporting citizen involvement in deliberation and decision-making processes (Macintosh, 2004).

3.1.2 Case study and interviews

Findings from the literature review regarding participation goals and strategy formed the base for the interpretation of the results for the case study and interviews. The results from the case study are summarised in Table 3.

The participation goals are related to commonly found goals in stakeholder participation literature: improvement of trust, improvement of support and improvement of quality (Edelenbos, 2000; Mostert, 2003; OECD, 2001; Reed, 2008; van Asselt et al., 2001). Furthermore, in each project, the SOM-method was used to design the participation process. It is a stakeholder participation method developed by Marc Wesselink (2010) and, according to the interviewees, is adopted by many stakeholder managers in the Netherlands. In the SOM-method, the participation process is designed following four main steps:

1. Setting goals
2. Identification of issues and stakeholders
3. Identifying/analysing positions and interest
4. Determine strategy per stakeholder

It proposes a participation ladder on which the strategies per stakeholder are categorised. Therefore, the categorisation of strategies as suggested by Wesselink (2010) is adopted in the results.

In the case study, six projects MIRT-projects were studied. The project Zeetoegang IJmond is a long-running project. In this project, the largest sea lock of the world is developed. Due to the complexity of the task, the project has been delayed in the design and realisation phase. The interviewed stakeholder manager got involved in the realisation phase. Not many documents were found on the participation process regarding the Zeetoegang IJmond. In the current phase, the realisation, stakeholder participation is mainly used to inform stakeholders.

Ruimte voor de rivier is a program that was set up to ensure flood protection in The Netherlands. The interviewed stakeholder managers mentioned two projects wherein eParticipation was applied: The overnight port at Spijk and project Stroomlijn. For the overnight port, the focus of the stakeholder participation was on trust. The project is currently in the contract formation phase. The planning phase is at its end, so the design is finished. So the strategy is to inform the stakeholders on the progression and the fulfilment of the made agreements. The project Stroomlijn was about the maintenance of the vegetation in the floodplains of the major rivers in the Netherlands. The floodplains are privately owned plots of land. Therefore, more than 300 stakeholders were involved in this project. Gaining the support of the stakeholders was of key importance of the project. However, eParticipation was only used to inform the stakeholders. The interviewee points out that it was a missed opportunity to apply eParticipation to also gather information and knowledge from stakeholders.

The Noord-Zuidlijn was a project regarding the development of a metro line from the North-Amsterdam to South-Amsterdam. The project was initiated in 2003 and was projected to be finished in 2011, however, the project was officially finished in 2018. Due to several subsidences and leakages, the project was delayed. Due to the many problems in the project, stakeholder participation became more important for the continuation of the project. Stakeholders were involved more in project decisions and constantly kept up-to-date with the progression and changes.

The project A15 Suurhoffbrug encompasses the renovation of the Suurhoffbrug. This bridge plays is an important link between the Maasvlakte and the western part of Voorne-Putten and Botlek, Europoort and Rotterdam. The goal of the participation process was the gain support for the project. This was done by giving extensive information on the design and the design choices. According to the interviewee, the use of several kinds of visualisations gave more insight into the integration of the design in the surroundings, which provided more support from the stakeholders.

The project A1 Apeldoorn-Azelo is about the upgrade of the highway A1 between Apeldoorn and Azelo. The highway covers a distance of over 50 km. Therefore the stakeholders of the project are spread over a large area. The goal of the participation process was to communicate well with the stakeholders on the impact of the upgrade of the highway on the surroundings. The interviewee pointed out that eParticipation was mainly used to provide information and to gather feedback on the decisions.

The project A1/A30 Barneveld regards an upgrade of an intersection between two highways. The upgrade does not only impact the traffic on the highways, but also the underlying infrastructure. Stakeholders were already closely involved during the exploration phase of the project. In this project, eParticipation was used for active communication with the stakeholders.

Table 3 Case study results

Project name	Project goal	Participation goal	Strategy used	eParticipation used
Zeetoegang IJmond	Replacement of a large flood defence	Improvement of support Improvement of trust	Information provision	-website -online surveys -blogs
Ruimte voor de rivier	High water safety	Improvement of quality Improvement of support Improvement of trust	Information provision/ communication	-Website -online surveys -newsletters
Noord-Zuidlijn	Construction of a new metro line	Improvement of support Improvement of trust	Information provision/ involvement	-Website -online fora -online surveys -newsletters -visualisations
A15 Suurhoffbrug	Upgrade of the infrastructure A15	Improvement of support	Information provision/ communication	-website -newsletters -visualisations
A1 Apeldoorn-Azelo	Develop a route design for the A1 Apeldoorn-Azelo	Improvement of quality Improvement of support	Information provision/ communication	-Website -online surveys -newsletters -visualisations
A1/A30 Barneveld	Upgrade of the cross-section between the A1/A30	Improvement of quality Improvement of support	Information provision/ involvement	-website -blogs -newsletters -visualisations

The results show that the cases aim at three different goals: the improvement of quality, the improvement of support and the improvement of trust. Additionally, the found strategies in the cases also overlap. Only three different strategies were applied in the participation process: information provision, communication and involvement. These are the three lowest tiers on the ladder of participation of the SOM-method (Wesselink, 2010).

The eParticipation tools that were applied are websites, newsletters and visualisations to provide information to the stakeholders and blogs and online surveys to gather reactions and feedback (I-2, I-3, I-4). An online forum was used once, in the project Noord-Zuidlijn, to have a continuous flow of feedback and comments during the realisation phase (I-4). Websites and online surveys were used in all of the cases. In two of the cases, Noord-Zuidlijn and A1/A30, these tools were also utilized for active communication with the stakeholders (I-4, I-6). The eParticipation tools that were regularly applied were done so because they are often used in daily life, like e-mail (to send newsletters) or websites (I-8, I-11). Several other reasons given for the use of eParticipation were to reach a bigger audience, a continuous information flow, the new standard way of communication and easier to document the information (I-4, I-6, I-7).

According to the interviewees, the execution of the eParticipation was not always flawless. Lack of clarity on how to initially reach stakeholders and lack of clarity about the time and effort it takes to implement eParticipation were the main causes (I-2, I-4, I-8, I-9). In one of the 'Ruimte voor de rivier' projects, the use of eParticipation did not match with the stakeholders of the project. There was a preference for a physical newsletter, instead of a digital newsletter (I-3).

In other projects, eParticipation was often considered after the initial participation process was determined for the concerned project phase (I-4, I-8, I-9). Therefore, there was little room for implementation because the budget and contracts were already fixed (I-2, I-8, I-9, I-11). In addition, there was less room for stakeholders to have an influence on the project. The level of influence became increasingly smaller as the project progressed because more decisions were already made (I-2, I-8, I-9, I-11).

Furthermore, the application of eParticipation was limited, because there was little knowledge and experience on the application of eParticipation and not all options were known. Therefore, either the stakeholder manager or the client did not want to take the risk (I-2, I-6, I-8, I-10, I-11).

3.1.3 Synthesis

The main finding from the problem investigation is the separation between the literature on stakeholder participation and literature on eParticipation. Although eParticipation is a method of stakeholder participation, the literature review shows that eParticipation is rarely considered as part of stakeholder participation. This could be due to the fact that the research strand of eParticipation stems from the field of eDemocracy. Consequently, there is a disconnection between developed participation processes and eParticipation processes. eParticipation or its tools were not mentioned in the design methods of stakeholder participation processes.

This separation between stakeholder participation and eParticipation was also seen in the case study. According to the interviewees, the use of eParticipation is often seen as a goal of the project and not as a means (I-2, I-5, I-9). This corresponds with the findings of Bruchmann (2018), who concludes that this is one of the pitfalls in implementing eParticipation. According to Macintosh (2004), OECD (2001), and Sæbø et al. (2008), the opposite should be the case. eParticipation should be seen as a means to a goal.

Furthermore, the case study shows that in practice the use of eParticipation is mostly limited to project websites, digital newsletters, online surveys and static visualisations, although more tools are available for eParticipation.

When comparing literature and practice, it can be concluded that there is a lack of strategical guidance in implementing eParticipation. There is more researched and explained on eParticipation in literature, than is known and used in practice. This lack of knowledge has lead to limited applications of eParticipation and inefficient use of eParticipation tools. Therefore, a strategic framework is needed that closes the gap between literature and practice and combines the knowledge of stakeholder participation and eParticipation. In the design phase, necessary information and requirements are obtained to design such a strategic framework. The results of this phase are elaborated on in the next section.

3.2 DESIGN PHASE

In this chapter, the design of the decision support tool is elaborated. It starts with the requirements for the decision support tool based on the findings of the problem investigation. The next section shows the results of the literature review and evaluation of existing strategical frameworks. Thereafter, the design of the decision support tool is elaborated on. The content of the components of the decision support tool is substantiated in separate sections, sections 3.2.4 to 3.2.8.

3.2.1 Requirements for the decision support tool

Seven requirements were defined, which are shown in Table 4. The requirements are structured according to the classification of quality characteristics (International Organization for Standardization, 2011). Each of the requirements is elaborated in the following sections.

Table 4 List of requirements categorised by (sub)characteristics adopted from the International Organization for Standardization (2011)

#	Characteristic	Sub-characteristic	Requirement: The decision support tool …	Source
1	Suitability	Appropriateness	The decision support tool represents a decision-making process	Interviews
2	Compatibility	Interoperability	The overall stakeholder participation process is embedded into the decision support tool	(Ergazakis et al., 2011; OECD, 2001; Sæbø et al., 2008)
3		Interoperability	The decision support tool is linked to the method used in current practice	& Interviews
4	Usability	Interface aesthetics	The decision support tool is interactive	Interviews
5		Learnability	The decision support tool supports the decision-making process and is not prescriptive	Interviews
6		Accessibility	The decision support tool is accessible for non-stakeholder managers	Interviews
7	Portability	Adaptability	The decision support tool needs to be adaptable	Interviews

3.2.1.1 Functional suitability

Functional suitability represents the degree to which a product or system provides functions that meet stated and implied needs when used under specified conditions (International Organization for Standardization, 2011). Most theoretical frameworks are of a conceptual nature and, therefore, not directly applicable in practice. Either, a framework does not reflect the process in practice well or certain content is missing, limiting the use in practice. According to the interviewees, different choices have to be made, in designing a stakeholder participation process, by stakeholder managers based on the context of the project. Therefore, the decision support tool should represent a decision-making process.

Requirement 1: The decision support tool represents a decision-making process

3.2.1.2 Compatibility

Compatibility represents the degree to which an approach can exchange information with other approaches and/or perform its required functions while sharing the same environment (International Organization for Standardization, 2011). A prominent problem found in literature was the disconnection between the research fields of eParticipation and stakeholder participation. Traditional participation methods should not be substituted by eParticipation methods but should be used in addition to each other (Ergazakis et al., 2011; OECD, 2001; Sæbø et al., 2008). This was also mentioned in four of the interviews (I-1, I-5, I-6, I-8). Therefore, it is important that the decision support tool is compatible with the overall stakeholder participation process.

Requirement 2: The overall stakeholder participation process is embedded into the decision support tool

Not only must the decision support tool be a good reflection of the process, but there is also a need for a link with current practice (I-1, I-2, I-5, I-9, I-10). In each of the researched cases, the participation process was designed following the SOM-method.

Requirement 3: The decision support tool is linked to the methods used in current practice

3.2.1.3 Usability

Usability is the degree to which a product or system can be used by specified users to achieve specified goals (International Organization for Standardization, 2011). According to the interviewees, the decision support tool needs to be interactive and requires the involvement of the user. This regards the design of the interface and the learnability of the decision support tool. The tool should be intuitive and interactive, showing the results of the choices made.

Requirement 4: The decision support tool is interactive

Additionally, the tool should not remove the thinking process. When using the tool, the stakeholder manager must remain involved in the project and make conscious choices for the process. Therefore, the decision support tool must support the decision-making process and not prescribe the choices that need to be made.

Requirement 5: The decision support tool supports the decision-making process and is not prescriptive

Furthermore, the decision support tool should be accessible. The tool should not only be tailored to stakeholder managers, but it should also be understandable and useable for other members of the project team that are concerned with stakeholder participation.

Requirement 6: The decision support tool is accessible for non-stakeholder managers

3.2.1.4 Portability

The last requirement regards the portability of the tool, in specific, the sub-characteristic adaptability. The adaptability is the degree to which a product or system can effectively and efficiently be adapted for changes in the environment (International Organization for Standardization, 2011). A change, mentioned by the interviewees, was the development of new eParticipation methods or tools. The decision support tool should be able to include these new developments.

Requirement 7: The decision support tool needs to be adaptable

3.2.2 Existing approaches

In the literature, several frameworks for eParticipation were identified. According to Wirtz et al. (2016), there are three different types of frameworks: application-oriented frameworks, system-oriented frameworks and evaluation-oriented frameworks. Application-oriented frameworks focus on the usage and realization of eParticipation, system-oriented frameworks focus on the eParticipation system and processes and the evaluation-oriented frameworks focus on the assessment of eParticipation.

However, Wirtz et al. (2016) argued that there was no integrated strategic eParticipation framework. The identified frameworks all served a specific purpose. Their research resulted in the design of an integrated strategical framework (Figure 4). The framework is composed of six different components: drivers, targets, forms, strategies, instruments and demand group.

Starting with the drivers, positioned on the four corners of the framework. The drivers are external factors that stimulate the implementation of eParticipation. Wirtz et al. (2016) included the factors: transparency, accountability, technology and stakeholders.

The first component within the strategic framework is the eParticipation targets. In other literature, the eParticipation targets are also referred to as objectives (Hare & Krywkow, 2005) or goals (Edelenbos, 2000; Mostert, 2003; van Asselt et al., 2001; Winch, 2007). In the continuation of this research, the term ‘goals’ is used.

The targets are followed by different eParticipation forms. The eParticipation forms are also referred to as participation levels (Arnstein, 1969; Edelenbos, 2000; Hare & Krywkow, 2005; Mostert, 2003) and are based on the participation ladder as proposed by IAP2 (2007).

After the associated forms are selected, the determination of a strategy is the next step. The strategies included by Wirtz et al. (2016) are based on the theory of transaction costs. The theory of transaction costs assumes that different levels of integration lead to different transaction costs (Wirtz et al., 2016). The strategies determine the degree of integration and coordination of the eParticipation instruments.

The eParticipation instruments are also referred to as tools, as by Santamaria-Philco et al. (2019) and Johannessen and Berntzen (2019). For the categorisation of eParticipation instruments, they refer to Tambouris et al. (2007). In the continuation of this research, the term ‘eParticipation tools’ is used in contrast to the base framework.

Finally, the eParticipation tools are tailored to the demand group. The demand group is the focus of the eParticipation initiatives and the success of the initiative depends on the engagement of these groups (Gummerus, Liljander, Weman, & Pihlström, 2012).

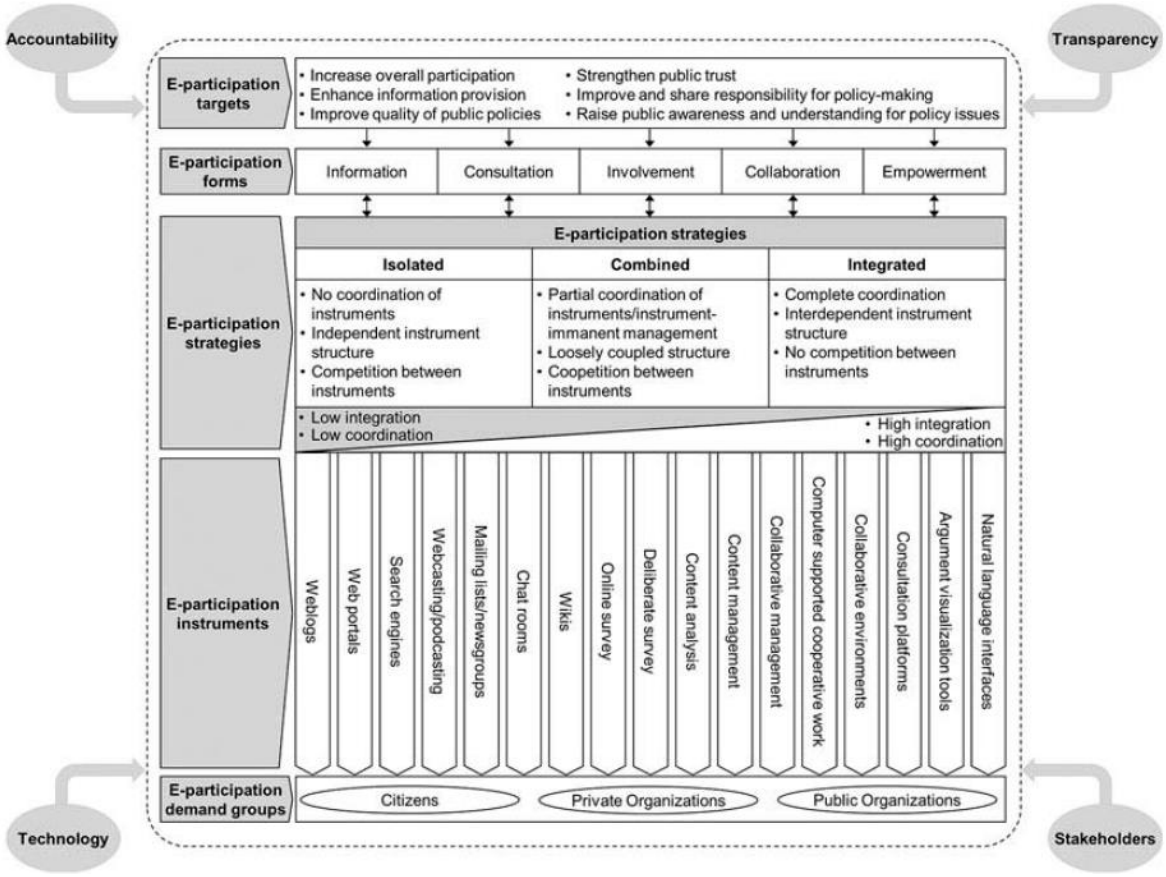

Figure 5 Integrated strategic eParticipation framework (Wirtz et al., 2016, p.8)

Applying the requirements to the framework of Wirtz et al. (2016) shows that there are several points that it does not meet the requirements. The first requirement states that the framework should represent a decision-making process. The base framework does represent a decision-making process to a certain extend (requirement 1). The different decision-making steps are shown, starting with the goals and followed by the strategies and tools. However, it does not describe the relation between the different steps. Therefore, it does not support the different choices that have to be made regarding the stakeholder participation process.

Secondly, the framework is not linked to the overall stakeholder participation process (requirement 2). The only interrelation is made in the eParticipation levels, which are based on the research of IAP2 (2007). However, the base framework contains separate goals and strategies for eParticipation to the overall stakeholder participation process. These separate goals and strategies result in a disconnection between the eParticipation initiative and the overall participation process.

Additionally, the framework is of a conceptual nature, which is acknowledged by Wirtz et al. (2016). Consequently, it is not related to a specific context and, therefore, not linked to methods used in current practice (requirement 3).

Finally, according to the requirements four and six, the framework must be interactive and useable by non-stakeholder managers. However, the base framework does not interact with the user but represents a roadmap for the eParticipation initiative. Furthermore, no additional information, explaining the different components and contents, is included. This makes the framework less useable to non-stakeholder managers, who might not know the different terms and substantiations.

3.2.3 Decision support tool

Using the defined requirements and the strategic framework designed by Wirtz et al. (2016) as a base, a first design was made for the decision support tool (Appendix D). The main part of the decision support tool is depicted in Figure 5. It shows the five different components of the framework, Participation goals, eParticipation goals, strategies, ePartcipation levels and eParticipation tools. The content of each component is substantiated in sections 3.2.4 to 3.2.8. The relations between each of the components are shown by the green lines between the options in Figure 5. These relations are further elaborated in the following sections as well.

The decision support tool is designed as a decision tree because it represents a decision-making process (Krywkow, 2009). A decision tree can help stakeholder managers in choosing whether and how to apply eParticipation tools. 'The specific goal of a decision tree for participatory management is the generation of an array of methods that are in their composition an appropriate choice to efficiently achieve the desired goals of a given process' (Krywkow, 2009).

The complete tool also consists of user instructions on how to use the interactive functions of the tool. By clicking one of the green checkmarks, a choice can be made and the related options in the next component are highlighted. Choices are made in each component, resulting in a selection of suitable eParticipation tools for the chosen goals and strategy. More information is linked to the eParticipation tool and can be accessed by clicking on the name. Furthermore, the eParticipation levels are further elaborated in another slide, linked with the tool by clicking on one of the names of the levels. The constraint 'stakeholders' is represented as a knowledge question when choosing eParticipation tools.

The decision support tool is designed completely in Dutch because the tool is tailored to a Dutch context and will, therefore, be used by Dutch native speakers. Besides, the tool is designed in Microsoft Powerpoint. Powerpoint was chosen based on the accessibility and usability of the program. Royal HaskoningDHV had a subscription to all Microsoft Office software and Powerpoint was one of them. So, the employees had easy access to the software and could use it regularly. Microsoft Powerpoint was chosen over the other Microsoft programs, due to its interactive nature with the user and the audience. This is a commonly used program for presentations, but it can also be used to design a decision support tool. Furthermore, Microsoft Powerpoint ensures the accessibility of the tool and intuitive useability because most people are experienced with the program. Animations are used to show the results of the choices made by the user and extra slides are added including descriptions on the use of the decision support tool and the different eParticipation tools. The results of the choices made by the user are based on the relation between the different factors.

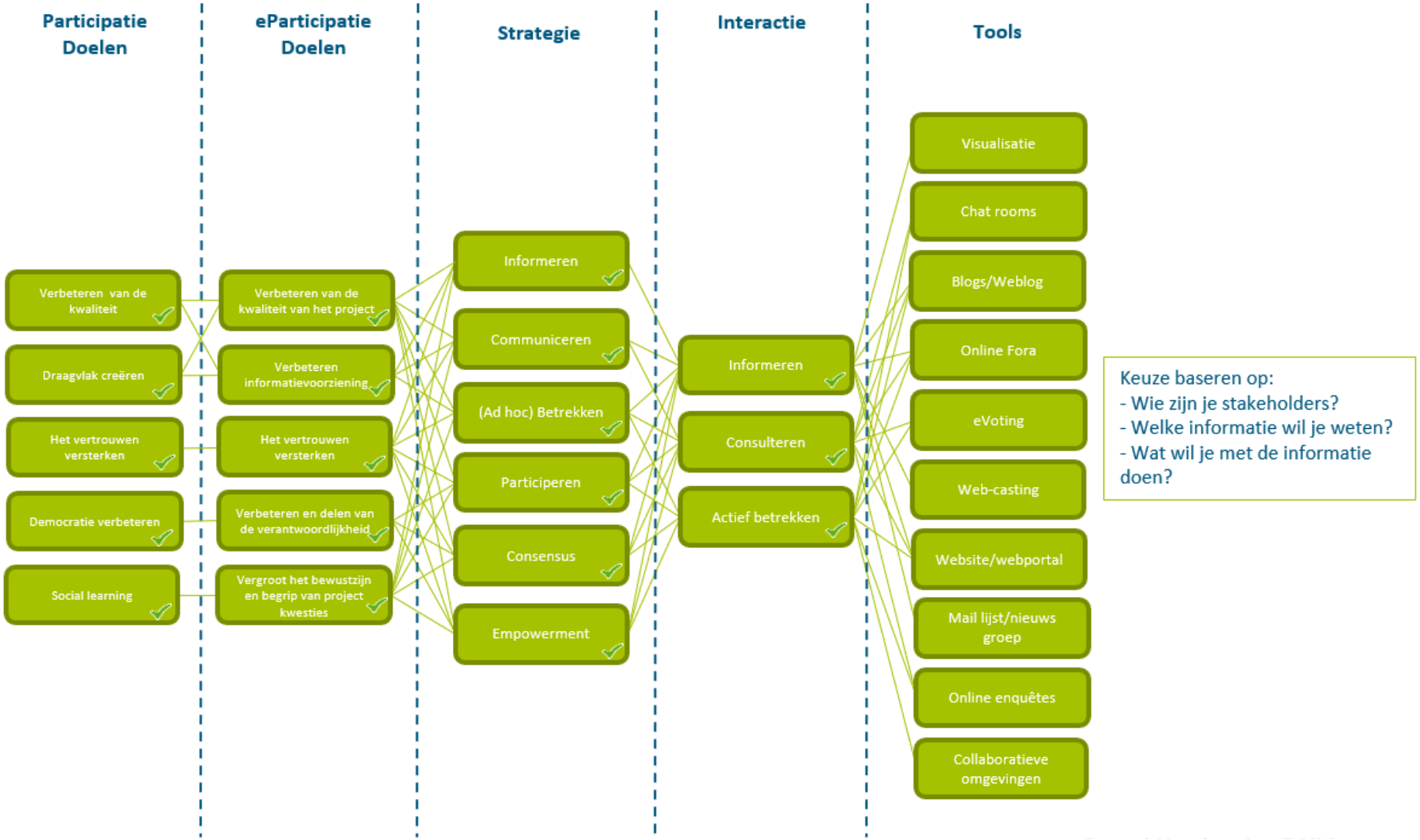

Figure 6 The first design of the decision support tool

3.2.4 Goals

The first component of the decision support tool is the stakeholder participation goals and eParticipation goals. The definition of goals is the first step in the participation process (Hare & Krywkow, 2005; Krywkow, 2009; Reed, 2008; van Asselt et al., 2001). Additionally, the goals were integrated as the first step in the base framework (Wirtz et al., 2016), as well as in current practice, such as in the SOM-method (Wieringa, 2014).

As stated in the problem investigation, the goals defined for eParticipation are not related to the goals for the stakeholder participation process. However, eParticipation literature and the case study argue that eParticipation is part of stakeholder participation (Ergazakis et al., 2011; Sæbø et al., 2008, I-1, I-5, I-6). In order to integrate the overall stakeholder participation process into the decision support tool, the goals for eParticipation are linked to the goals set for the stakeholder participation process.

According to stakeholder participation literature, five general goals of stakeholder participation can be identified (Edelenbos, 2000; Mostert, 2003; OECD, 2001; Reed, 2008; van Asselt et al., 2001):

- Increase quality - to increase the quality of the project by integrating information from stakeholders
- Increase support - to increase the support and public acceptance of project decisions
- Increase trust - to increase the trust of stakeholders in the project organisation,
- Enhance democracy - to strengthen the democratic legitimacy in the decision-making process
- Social learning – to facilitate social learning, the collective learning process of all parties.

Each eParticipation goal, as defined by Wirtz et al. (2016) can be related to one of the goals for stakeholder participation (Figure 7). However, the eParticipation goal to increase participation is not included in the decision support tool, because this is a general reason for the implementation of eParticipation and is not determinative for the choice of eParticipation tools.

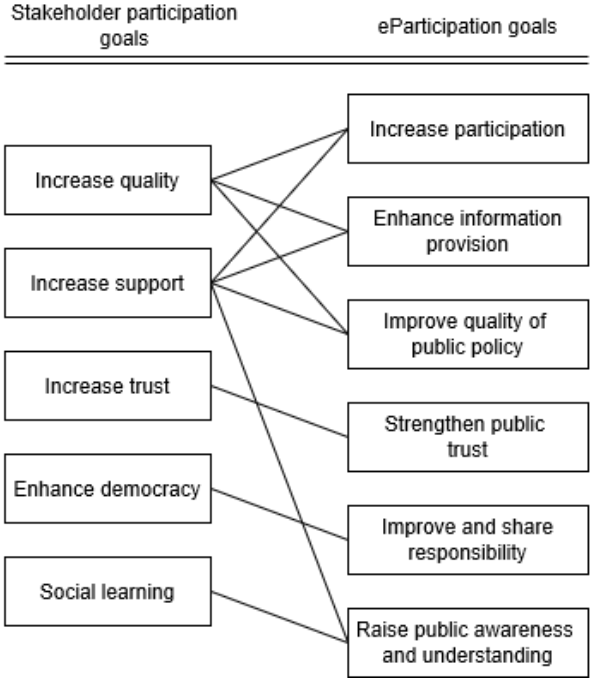

Figure 7 Linking eParticipation goals (Wirtz et al., 2016) to the goals for stakeholder participation (OECD, 2001)

3.2.5 Strategies

The participation strategies are the second component of the decision support tool. The strategy determines the approach of the stakeholder participation process, which stakeholder to involve in which way and with which method (Wesselink, 2010). The implementation of eParticipation is also part of this design step in the stakeholder participation process. Therefore, the choice of eParticipation tools is dependent on the strategy that is adopted.

According to the interviewees, the participation strategies are chosen based on the participation ladder in practice. In stakeholder participation literature and eParticipation literature, many interpretations of the participation ladder can be found (Arnstein, 1969; IAP2, 2007; Macintosh, 2004; OECD, 2001; Tambouris, Macintosh, et al., 2007; Teran & Drobnjak, 2013). Two different approaches, regarding the participation ladder, can be identified in literature. The first approach classifies participation according to influence, i.e. Arnstein (1969) and IAP2 (2007). The other approach classifies participation according to engagement or interaction, i.e. Macintosh (2004) and OECD (2001).

In all studied cases, the participation ladder proposed by the SOM-method (Wesselink, 2010) was used. Therefore, this participation ladder was integrated as the selection of strategies. This ensures the integration with common practice. The participation ladder is shown in Figure 8. This ladder is in line with the first approach, which classifies participation according to influence. However, it does show the change in engagement between the levels.

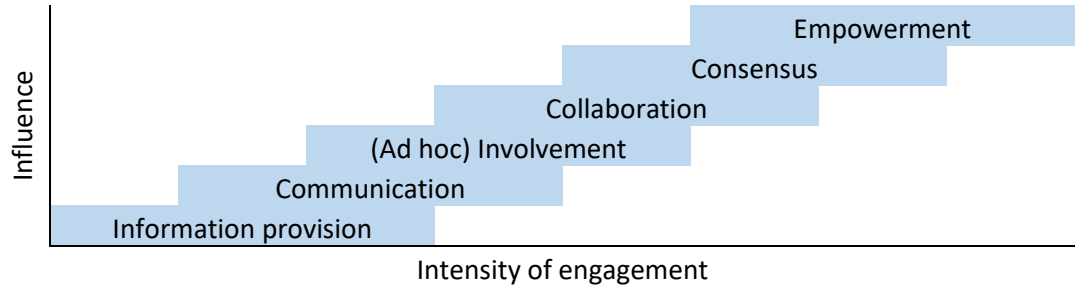

Figure 8 Participation ladder SOM adapted from Wesselink (2010, p. 96)

Not every strategy is suitable for each goal. This is shown in Figure 9. Only the goals 'enhance information provision' and 'improve and share responsibility' have a limited pool of strategies. The other goals can to a certain extent be achieved with every strategy. However, for the goal to 'enhance information provision', the strategies collaboration, consensus and empowerment are less suitable, because this goes beyond the objective and, in addition to providing information, also gives stakeholders influence in the project. For the goal 'improve and share responsibility', it is the other way around. Without a chance to have input in the project the sense of responsibility of stakeholders will not strengthen. Therefore, collaboration, consensus and empowerment are the only suitable strategies to improve and share responsibility.

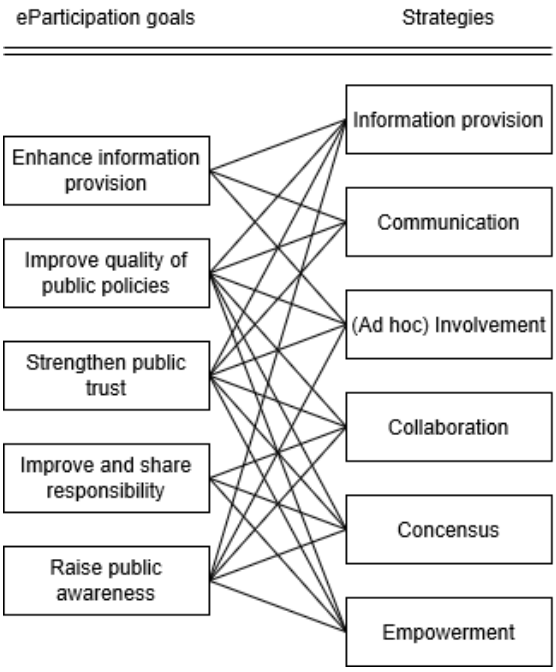

Figure 9 The relation between the eParticipation goals (Wirtz et al., 2016) and participation strategies (Wesselink, 2010)

3.2.6 Interaction

Relating the different participation methods to the participation strategies is done based on the interaction of the method. Certain methods allow for certain types of interaction (one-way, two-way). Several studies used interaction as a base in developing a participation ladder (Hare & Krywkow, 2005; Macintosh, 2004; OECD, 2001). Comparing these three studies, all contain levels regarding a one-way interaction, a limited two-way interaction between the stakeholder and decision-maker and an active two-way interaction. Additionally, Hare & Krywkow (2005) propose a fourth level, named social learning. Hare & krywkow (2005) approach social learning as an interaction. However, we identified social learning as a goal. Social learning is the collective learning of all parties. Conforming to this interpretation, social learning does not introduce a new type of interaction and does not need inclusion as an interaction.

Concluding, only three interactions are adopted in this research. Following the research of OECD (2001), these interactions are referred to as 'informing', 'consulting' and 'active engagement'. Based on the definitions of the interactions, they are connected to the strategies (Figure 10). Each level of eParticipation is defined by OECD (2001) as:

> *Informing* - A one-sided relationship in which information is produced and published by the project team to the stakeholders. It contains the (passive) access to information by stakeholders and the (active) dissemination of information from the project.
>
> *Consulting* - A two-way relationship in which stakeholders are allowed to provide feedback on the project information. Insight from stakeholders on certain issues is sought. It provides a limited two-way relationship.
>
> *Active engagement* - An active two-way relationship in which stakeholders contribute and participate in the project.

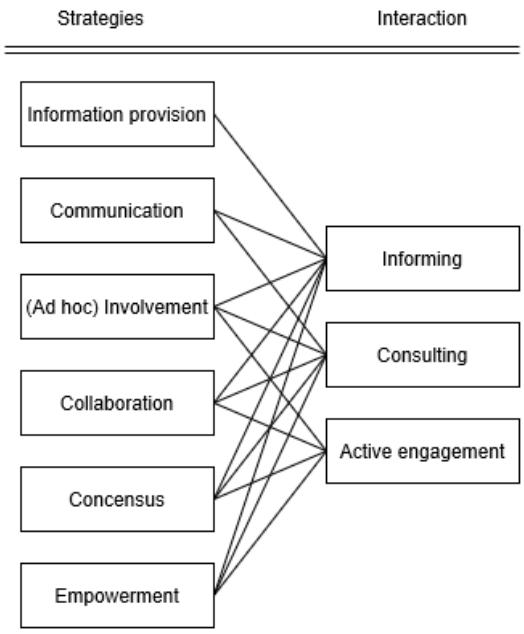

Figure 10 The relation between strategies (Wesselink, 2010) and eParticipation levels (OECD, 2001)

3.2.7 Tools

The list of eParticipation tools, adopted by Wirtz et al. (2016), was based on the work of Tambouris et al. (2007). However, there is a 13-year gap between the two studies, so new tools could have been developed. Furthermore, Wirtz et al. (2016) did not review the proposed categorisation of Tambouris et al. (2007) to other research, for example, the more recent study into the state-of-the-art of eParticipation by Ergazakis et al. (2011). Therefore, it is not known whether the list is complete or up-to-date.

In the literature review regarding eParticipation tools, multiple lists of tools were found (Ergazakis et al., 2011; Santamaria-Philco et al., 2019; Tambouris, Liotas, & Tarabanis, 2007). However, their research encompassed different research contexts, i.e. political governance, or are of conceptual nature. An overview of these lists is given in Appendix A, including a description of each tool. Only one of the researches (Santamaria-Philco et al., 2019), elaborates on the considerations to include or exclude a tool. In this research, the multiple lists of eParticipation tools are compared and evaluated whether to include them in the decision support tool. A list of all found eParticipation tools can be found in Appendix A. However, the excluded tools are crossed out. The list of eParticipation tools that are included in the decision support tool is shown in Figure 11.

Several reasons were used to exclude an eParticipation tool from the list. Firstly, tools were excluded because its use is not generally initiated by the project team, but by the stakeholders. Stakeholder participation in this research context is an 'invited' space, where decision-making authorities invite stakeholders to provide input. Besides, there are 'created' spaces, made by stakeholders for engagement rooted in shared identities and common interests (Berry, Koski, Verkuijl, Strambo, & Piggot, 2019). ePetitioning tools and search engines are examples of methods initiated or used by stakeholders and therefore are excluded from the selection.

Secondly, several tools in the lists are not tools by itself but a collection of other tools (ePanels, eConsultation, eCommunities, social media). Some tools were included several times in the lists but under different names. Besides, tools have been mentioned that fall under another tool categorisation. An example of this is ePolls. Polls are a certain form of voting. That is why it was decided to include eVoting and not ePolls. Similarly for wikis, which are collaborative environments.

Thirdly, the tools, natural language interface, content analysis and content management tools, are tools that translate or analyse information. However, this does not play a role in participation as defined in this research, whilst they do not facilitate participation. Therefore, they were excluded from the list of tools.

Finally, decision-making tools are tools which give stakeholder more insight into the decision-making process, which can help in making those decisions. However, in practice, the responsibility for making project decisions never lies with the external stakeholders. Therefore, decision-making tools are excluded from the list of tools.

Each eParticipation tools is applicable in one of the eParticipation levels. Based on eParticipation literature, the applicability of each tool is determined (Coleman & Gøtze, 2001; Ergazakis et al., 2011; Phang & Kankanhalli, 2008; Soria, 2007). Several of the tools are only suitable for one-way communication: visualisation, web-casting, mailing lists/newsgroups. All other tools allow for a two-way interaction between the project team and the stakeholders. However, collaborative environments are only suitable for active engagement, because it allows stakeholders to directly implement their input into the design. Therefore, the influence of the stakeholder goes beyond the level of Consultation.

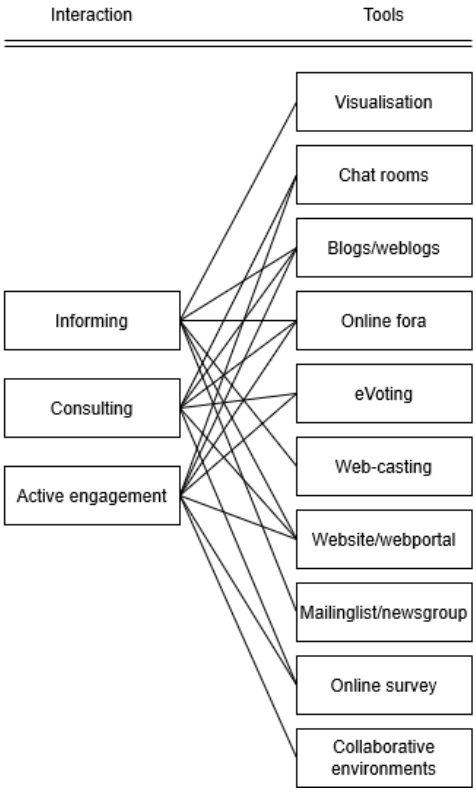

Figure 11 The relation between the interaction and eParticipation tools

With the selection of eParticipation tools, the design process is complete. However, conforming to Hare & Krywkow (2005), the design of a participatory management strategy does not only consist of the goals and the process, but also constraints.

3.2.8 Constraints

According to Hare and Krywkow (2005), the constraints for participation management strategies include:

- the physical environment such as land use, size of a river basin, climate and weather, geology, slope;
- the stakeholders and laypeople who are involved in a particular land-use activity or have a particular interest in the management of the region under investigation;
- the available resources: budget, time and staff;
- legal constraints such as planning permissions, the right of the public to comment/object to planning proposals;
- cultural and behavioural differences which distinguish countries or regions.

For eParticipation, the constraint of the physical environment does not act as a boundary condition. eParticipation methods themselves are applicable regardless of time and place (Tambouris, Macintosh, et al., 2007). However, the population density of the project can act as a boundary condition for eParticipation. When the demand group of the participation process is small the use of traditional participation methods could be sufficient, deeming eParticipation unnecessary.

The stakeholders and lay people act as a boundary condition for participation as well as eParticipation. eParticipation tools are only useful when the demand group is able to interact with them. The ability to interact with the tools are not only dependent on socio-economic factors, but also on socio-personal factors (OECD, 2003; Sæbø et al., 2008). Examples of these factors are access to ICT and skills in the use of technology.

The available resources for the project remain as a boundary condition for eParticipation. According to the interviewees, the budget is often the main reason why eParticipation is not implemented (I-2, I-8, I-9, I-11). eParticipation should be considered together with the implementation of stakeholder participation early on in the process. This allows for the adaptation of resources to the implementation of eParticipation. When considered at a later stage in the project, budget, time and human resources are already fixed to the process chosen, making the addition of eParticipation harder or even not possible (I-2, I-4, I-8, I-9, I-11). Besides, the resources time and staff are often underestimated leading to overruns in time or budget or an ineffective process (I-5, I-11). Online consultations on political debates can involve thousands of participants with individual contributions (Macintosh et al., 2009) and can take place regardless of time and space. This requires a different way of working from the project team.

As for legal constraints, an agreement was made in 1998, granting the public the rights to access information, public participation and to access justice in governmental decision-making processes on matters concerning the local, national and transboundary regions (United Nations, 1998). Additionally, no laws prevent project organisations from applying eParticipation. However, certain laws do propose challenges in applying eParticipation. For example, the General Data Protection Regulation regulates the process of personal data. As a result, more preparation is required in order to utilize certain eParticipation tools to gather personal information. As the law and regulations only provide challenges and no constraints, they are not included in the decision support tool as a constraint.

Cultural and behavioural differences can pose a boundary condition. They are contextual conditions that provide challenges for the successful application of eParticipation. Resistance from clients or governmental institutions could limit the application of eParticipation (Macintosh et al., 2009). There are many more factors that propose challenges for eParticipation (Macintosh et al., 2009; Medaglia, 2012; Toots, 2019). However, these factors are left out of the scope of this research because they do not interfere with the integration of eParticipation into the stakeholder participation process.

3.3 DESIGN VALIDATION

The results of the validation session are presented in this chapter. The requirements are presented in the first section. This is followed by a discussion on the content of the decision support tool.

3.3.1 Validation of requirements satisfaction

Each requirement was discussed separately. This is shown in Table 5. Summarizing, the validation session showed that the tool met most of the requirements. Requirement two, four and six were not fully met. Additionally, there were still some discussion points on the content of the decision support tool. These are elaborated in the next section.

Table 5 The validation of the requirement satisfaction

#	Requirement	Discussion	Satisfaction
1	The decision support tool represents a decision-making process	The decision-making process was integrated by using a decision tree design. According to the experts, this is a good way to represent a decision-making process. Therefore, this requirement is met.	Met
2	The overall stakeholder participation process is embedded into the decision support tool	The goals and the process were clearly integrated into the design of the decision support tool. However, the constraints were not all clear. They were integrated as questions when selecting a tool but not all constraints were included. For example, the resources were not included in the questions. Therefore, this requirement is partially met.	Partially
3	The decision support tool is linked to the method used in current practice	The method used in all researched cases was the SOM-method. The decision support tool covers the first four steps of the method and integrated the participation ladder as proposed in the SOM-method. As stated by the experts, the link is recognisable and done correctly.	Met
4	The decision support tool is interactive	There were a few comments on this requirement. It was unclear that the PowerPoint had to be set to the presentation mode in order to gain the full functionality and interactivity of the decision support tool. Without this step, the tool is not interactive. Therefore, this requirement is partially met. Additionally, the function of deselecting a choice was present. As a result, it was not easy to correct errors. Concluding, recommendations were made on adding an undo function and adding the activating the presentation mode as a first step in the instructions	Partially
5	The decision support tool supports the decision-making process and is not prescriptive	When using the decision support tool, the tool does not propose or suggest the best option. It only eliminates the options that are not suitable according to theory. Therefore, this requirement is met.	Met
6	The decision support tool is accessible for non-stakeholder managers	Background information on the eParticipation tools and the level of interaction were included. However, no information was included regarding the different goals and strategies. This could lead to inconsistency with interpreting the levels. Therefore, this requirement is partially met.	Partially
7	The decision support tool needs to be adaptable	While the decision support tool is designed in Microsoft Powerpoint, most users know how to make adjustments in the tool. Therefore, this requirement is met.	Met

3.3.2 Validation of content

Out of the discussion, regarding the content of the components, could be concluded that certain aspects were still unclear. The user instructions missed certain details, for example, the step that the user has to set the PowerPoint to presentation mode. Furthermore, it was unclear when in the project the tool should be used. Several choices on the stakeholder participation process can be made prior to the use of the decision support tool as well as the stakeholder analysis. Therefore, recommendations were made to expand the user instruction and add more details on the context of use. Besides, instructions need to be structured more as step-by-step instructions.

A second discussion point that came up regarded the inclusion of both the participation goals as well as the eParticipation goals. As it was integrated into the first design of the decision support tool, a choice had to made for both. An argument was that the choice for the participation goals could be unnecessary whilst this choice for eParticipation goal is already dependent on the choice of participation goal, which comes first. However, one of the strategic managers found the inclusion of both of added value, whilst it shows the complete line of argument and represents the whole design process better. After the discussion, it was agreed to keep showing both types of goals but to only have to choose the eParticipation goal.

The inclusion of the goal, social learning, was also subject of discussion. Firstly, it was unclear what the concept of social learning entailed. Social learning is generally understood as: “a change in understanding, that goes beyond the individual to become situated within wider social units through social interactions between actors within social networks” (Reed et al., 2010, p. 6). Stakeholder participation is a method that can facilitate social learning (Mostert et al., 2007; Pahl-Wostl, 2006). After the clarification, a discussion continued to the relevance of social learning within a project context.

A first argument stated that no benefits can be obtained from the learning process in a single project. Not everyone agreed with this statement, whilst during a complete project, several project phases are gone through. In each of the phases, a new participation process is started, which could benefit from the previous participation process. Besides, the goal of social learning is also relevant in case of a program of projects, i.e. Ruimte voor de rivier. In this case, benefits can be gained through social learning in successive projects of the program. Additionally, local governments often deal with the same stakeholders and can, therefore, benefit from social learning by stakeholder participation. Concluding, it was decided that the goal ‘social learning’ is relevant in practice and did not have to be removed.

The final discussion was about the added value of the decision support tool and possible extensions. All the experts agreed that the decision support tool is a valuable first step to integrate eParticipation into the stakeholder participation process. It shows the different possibilities and to which goals they connect. It not only adds to the current knowledge of stakeholder managers but also shows the links to current practice in stakeholder participation. Possible information that could increase the value of the decision support tool is an indication of the costs of the methods, the addition of traditional methods into the tool with the reinforcing or weakening effects of the methods on each other.

3.4 FINAL DESIGN

This section describes the final design of the decision support tool (Figure 12). This final design is the result of the first three phases of the design cycle. The complete design is shown in Appendix E. Comparing the final design to the first design, several changes can be pointed out

Firstly, a description was added explaining the goal of the decision support tool, when to use it and how to use it. Furthermore, each of the user steps is also explained in the tool itself. Secondly, the function of selecting an option was moved from the checkmarks to the name of the option and the option to undo a selection was added. Thirdly, the link to further information on each option was moved to an information icon to the right of the component title. Additionally, information was added for all the components, showing the interpretation of each term in this research. Lastly, all the constraints were added as knowledge questions.

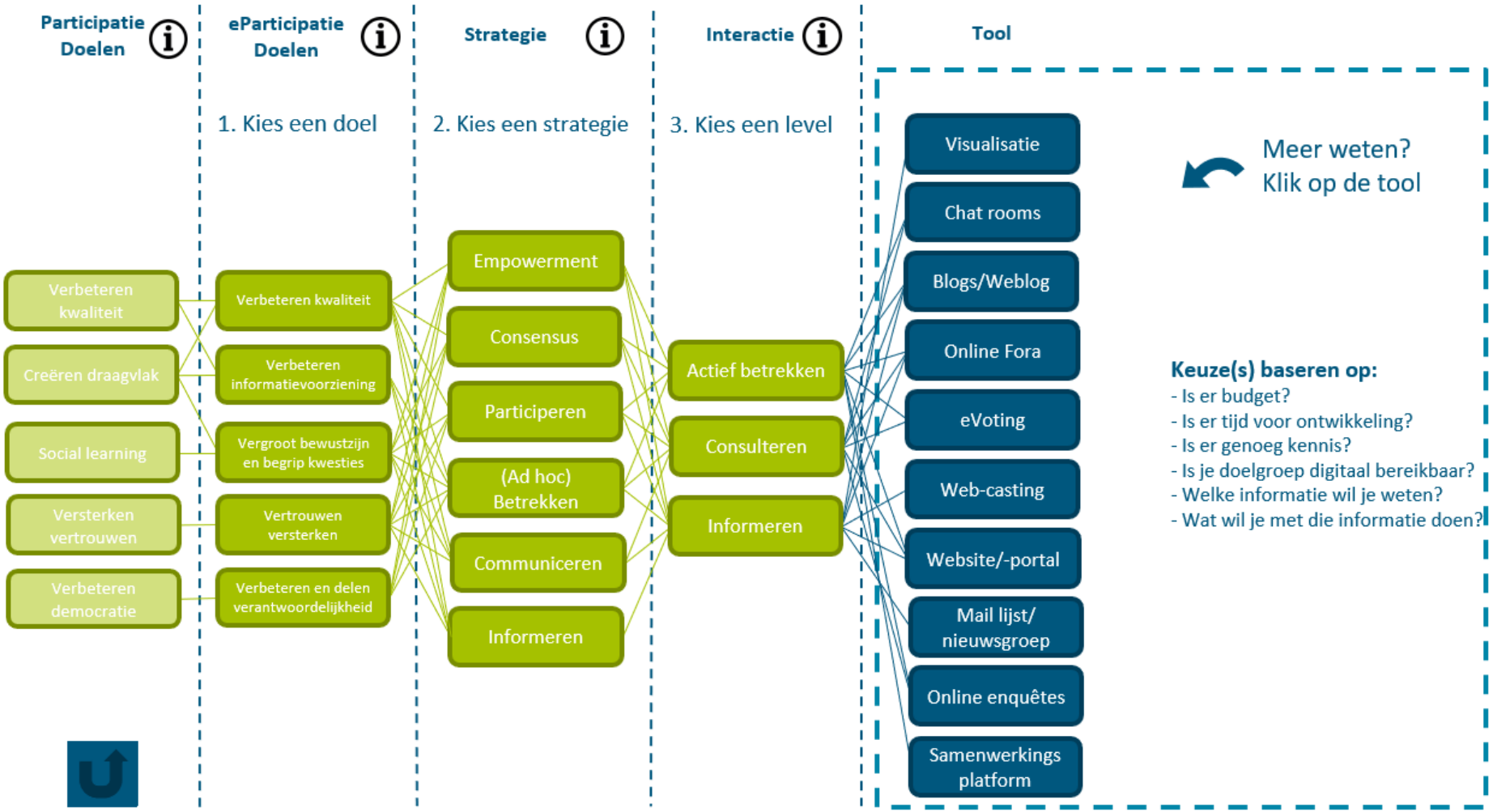

Figure 12 The final design of the decision support tool

4 DISCUSSION

The section provides a discussion about the key findings of the research and the added value of this research to scientific literature and practice.

4.1 ADDED VALUE TO LITERATURE

The context of this research is stakeholder participation processes of spatial planning project in the Netherlands. There have been previous studies related to this context. For example, studies regarding stakeholder participation in spatial planning (Buist, 2012), in water management (Van Ast & Gerrits, 2017; Vinke-de Kruijf, Hommes, & Bouma, 2010) or eParticipation (Koekoek, 2008; M.E.J. Donders, 2011; Primus, Effing, Groot, Veenstra, & Vries, 2018; Wetering, 2019) in the Netherlands. However, these studies focus on the general stakeholder participation process and not on the used participation methods and the selection process of the methods. Other studies also highlight the selection of participation methods in environmental assessment (Hage & Leroy, 2008) or water management (Krywkow, 2007). However, these studies mainly include traditional participation methods. This study adds to the current body of literature by building upon existing research regarding the selection of participation methods, with the focus on eParticiption tools, within spatial planning projects in the Netherlands.

Furthermore, over the years, scholars have tried to shape the concept of eParticipation. However, the literature regarding eParticipation is still fragmented (Macintosh et al., 2009; Sæbø et al., 2008; Santamaria-Philco et al., 2019). Different approaches can be seen in literature. Some scholars approach the research field of eParticipation as part of the field of eDemocracy (Ergazakis et al., 2011; Macintosh, 2004; Susha & Grönlund, 2012). Other scholars argue that eParticipation activities are not new, but rather an evolution of many existing activities in stakeholder participation (Sæbø et al., 2008) and that eParticipation is a method of stakeholder participation (Phang & Kankanhalli, 2008; Tambouris, Liotas, Kaliviotis, et al., 2007). However, little literature was found that connects eParticipation to the general stakeholder participation process.

eParticipation tools are already used parallel to, in combination with, or even as substitution of the traditional stakeholder participation methods in practice. It is inevitable that these two research areas will be intertwined, as has already been shown in this research. This research shows that to integrate eParticipation into current practice, the interface between both eParticipation and stakeholder participation is of importance. This corresponds with the findings of the OECD, who claim that: 'The integration of tools is of special importance when using new ICT' (OECD, 2001, p. 44).

It is necessary to connect the theoretical base of eParticipation and stakeholder participation to bring research in both strands further. Although the decision support tool only includes eParticipation tools as methods, this research is a theoretical contribution as it identifies and interprets the overlap between eParticipation and stakeholder participation literature. Future studies will have to research the interrelation between traditional participation methods and eParticipation tools.

4.2 APPLICATION OF THE DECISION SUPPORT TOOL

For the application of the decision support tool, there are several points to discuss. Firstly, conclusions regarding the effectiveness of methods can only be drawn when examining goal achievement in relation to the applied methods (Krywkow, 2009). Within the studied cases, none of the eParticipation tools were applied according to the goals that were set. The proposed decision support tool shows which eParticipation tools are suitable in regards to the participation goals. This can help to convince clients to accept the application of eParticipation.

Secondly, the decision support tool shows that to select eParticipation tools, the design process does not have to change. The decision support tool links eParticipation tools to current practices. This lowers the threshold for considering eParticipation in stakeholder participation processes, leading to more applications of eParticipation tools. With more applications, more experience will be gained regarding eParticipation and more insight will be gained on what the best practices might be.

Finally, the application of the decision support tool in projects does not automatically lead to more effective use of eParticipation methods. The application of eParticipation tools does bring new constraints to the stakeholder participation process. Although the decision support tool does not influence the constraints, it does create awareness of the various factors that influence eParticipation initiatives. For example, the digital divide will not become smaller with more applications of eParticipation. It can only become smaller with the adoption of technology by the stakeholders. The decision support tool is a first step in integrating eParticipation into current practice. The effects the eParticipation tools on the projects and the adoption of eParticipation are still unknown and are subject for future research.

4.3 GENERALISABILITY OF THE RESULTS

Regarding the generalisability of the decision support tool, we have to look back at the scope of this research. The research focusses on MIRT-projects. According to the case study results, only the lower three strategies have been applied. It can be questioned whether this is a correct representation of current practice. MIRT-projects are initiated by the national government and the decision-making is always done by formal decision-makers. Therefore in practice, the upper strategies are rarely applied in MIRT-projects. This, however, does not mean that these are not relevant in spatial planning. Outside of the scope of this research, there are many other projects, initiated by private organisations or local governments. In those projects, the upper strategies have been applied. For example, the strategy of consensus in the renovation of Roombeek (Projectbureau Wederopbouw Roombeek, 2000). The strategies included in the decision support tool are based on the SOM-method. The SOM-method is not a standardised method. Different strategies might be applied as opposed to the included strategies, resulting in a disconnection. However, different strategies can still be related to the decision support tool, because a description is included in the decision support tool. This allows for a comparison to other strategies and the possibility to adapt the decision support tool. When looking at an international scale, a similar relevance is expected, but different constraints might play a more prominent role in the stakeholder participation process, such as legal constraints or cultural differences.

5 CONCLUSION AND RECOMMENDATION

In this last section of the report, a summary is given of the conclusions that result from this research. Furthermore, recommendations are made for stakeholder participation in practice and future research on stakeholder participation and eParticipation.

5.1 CONCLUSIONS

The goal of this study was to design a decision support tool for stakeholder managers to integrate eParticipation in the stakeholder participation process of MIRT-projects. To achieve this goal, a design science methodology was followed.

From the problem investigation can be concluded that a gap exists between the literature on stakeholder participation and eParticipation. Unexpectedly, eParticipation is rarely mentioned in stakeholder participation literature and studied as a different field of research. For example, separate goals, strategies and processes are developed for eParticipation independently of stakeholder participation literature. This separation in research causes that eParticipation is not approached as a method of stakeholder participation but as a whole new discipline. Similar results were found the other way around. In eParticipation literature, knowledge of stakeholder participation is rarely used as a base. This is remarkable because the practices are intertwined, have similar goals, similar demand groups and are applied in similar areas.

Another gap is experienced between eParticipation in literature and practice. Out of the problem investigation can be concluded that there is limited knowledge on eParticipation in practice. This research uncovers different causes of why eParticipation has not been fully adopted. Few eParticipation tools are mentioned as a method for stakeholder participation, such as mailing lists, surveys, visualisations and websites. Of these tools, only online surveys are utilized to gain insights from stakeholders. The others are used for information provision. The other tool options are relatively unknown to stakeholder managers. Not knowing what the options are, makes it impossible to consider them. Moreover, not knowing how to apply eParticipation leads to a higher risk for the project and results in not implementing eParticipation.

In order to overcome these gaps, a strategic framework was designed, connecting the two research fields and relating it to practice. Requirements for the strategic framework were defined according to insights from literature and experts. Based on existing strategic research and the requirements a decision support tool was designed. The decision support tool shows the constraints for implementing eParticipation and the relation between the participation goals and eParticipation tools. For each goal and strategy, several eParticipation options are suitable. From the decision support tool can also be concluded that there are three eParticipation tools that are suitable for each of the participation goals; websites, online fora and weblogs. This, however, does not imply that those are the best eParticipation tool, but it implies that they are the most versatile.

Concluding, this study presents the first strategic eParticipation framework that provides a strategic roadmap for implementing eParticipation tools in Dutch civil engineering projects. It is a tool to organize participation processes in a strategic and modern way from the start. It supports everyone who is closely involved in designing participation processes, from consulting firms to governments and project developers. It can be concluded that the objectives of this study are met, because the decision support tool has already been put to the test and has proven its value in practice, facilitating eParticipation in times of the COVID-19. Additionally, it provides clear guidance to future eParticipation research and supports public officials in organising and implementing eParticipation initiatives.

5.2 RECOMMENDATIONS FOR FUTURE RESEARCH

Several recommendations can be made for future research. Firstly, in this research, only the first three phases of the design cycle were executed. Therefore, future research is needed to evaluate the implementation of the decision support tool and challenge the findings of this research. Furthermore, this research is focussed on integrating eParticipation into the design process of stakeholder participation. The developed framework only encompasses the selection of eParticipation tools and the constraints that play a role in the selection. Further research will have to be conducted on the implementation of eParticipation tools and the resources needed for the development and implementation of each tool. Moreover, the best practices of each eParticipation tool are yet to be defined.

Secondly, the decision support tool is tailored to MIRT-projects. However, with the coming of the new Environmental Law (O*mgevingswet*), it will also be interesting to implement and evaluate the decision support tool in other types of projects, i.e. area transition or building renovation projects. The new law obliges all spatial planning projects to consider stakeholder participation in their project. Therefore, the implementation of the designed decision support tool will also become relevant in all types of projects.

Finally, it is recommended to combine the finding of this research with other research regarding the development of strategic frameworks for stakeholder participation. Combining them will lead to a complete overview of all stakeholder participation methods and match all methods to the goals set for the participation process. Additionally, future research needs to be done in the implementation of several participation methods within the same process. The effects, risks and trade-offs of combining different participation methods are unknown but very interesting for stakeholder participation in practice. These future researches facilitate the ability to work on a project in a structured way from the start. Building up from the project goals to the project means leads to a constructive and substantiated participation process. This will be valuable for stakeholder participation practice in the future.

5.3 PRACTICAL RECOMMENDATIONS

Additionally, there are several recommendations for stakeholder managers in practice.

The decision support tool is not intended to prescribe the best eParticipation methods. It only provides suggestions for eParticipation tools based on the goals and strategies that are being used. The choice of a specific tool and its implementation remain dependent on the constraints of the project.

It is important to keep in mind that eParticipation requires a different way of working than traditional methods. Stakeholders must also be considered from a different perspective. Not only with regards to the project and the issues but also to accessibility for information and preferences of media. Furthermore, eParticipation allows stakeholders to comment on the project continuously and independent of time and space. This creates new challenges but also opportunities. In situations where physical meetings are not possible, due to i.e. geographical distance or natural disasters, eParticipation tools maintain the possibility for stakeholders to participate.

In using the decision support tool, do not only use it to design the stakeholder participation process but use it as a medium to discuss and substantiate the choices made to the project team and the clients. By sharing this knowledge, new steps are made towards the adoption of eParticipation into standardised practice.

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7 APPENDICES

7.1 APPENDIX A - LIST OF EPARTICIPATION TOOLS

Table 6 shows all the eParticipation tools found in literature. In the first column, the name of the tools is given. In the second column, a description is given of the tool. The study by Ergazakis et al. (2011) is the only one that included descriptions of the tools. These descriptions were used as a base. If descriptions are missing other scientific sources were used. In the next three columns, the three studies containing an overview of eParticipatoin tools are shown. If the tool is found in one of the studies, it is marked with an 'x'. The last shows if the tool is included in the decision support tool.

Table 6 List of eParticipation tools

Tools	Description	(Ergazakis et al., 2011)	(Tambouris, Liotas, & Tarabanis, 2007)	(Santamaria-Philco et al., 2019)	DST
Chat rooms	A virtual space where a chat session takes place. Technically, it is the instant relay of text between two computer users, such that once a chat has been initiated, either user can type in information and the entered text appears on the other user's screen (Patent No. 5,828,839, 1998).	x	x	x	x
Blogs/weblog	"A 'blog' or 'weblog' is a shared online journal where people can post diary entries about their personal experiences, opinions and events. Blogs invite comments from their readership on each post and are very easy to populate. A weblog is often used for communicating personal opinions and widespread information instead of sending a large number of e-mails, or trying to find another way to approach potential supporters of this opinion."	x	x	x	x
Online Fora	Online fora are online discussion board where users, usually with common interests, can exchange open messages. "An online discussion, using a forum, begins with an initial thread in which users reply on messages or post new messages, creating in such a way a rolling dialogue."	x			x

Tools	Description	(Ergazakis et al., 2011)	(Tambouris, Liotas, & Tarabanis, 2007)	(Santamaria-Philco et al., 2019)	DST
ePetitions	"ePetitions are online tools that are mostly used by public administrations or organizations as a mean of pressure towards decision-makers. ePetitions are not interactive but collective tools that call people to support for or rally against an issue of their interest by signing the petition so as to collect a significant number of signatures."(Ergazakis et al., 2011)	x		x	
ePanels	ePanels make use of other e-participation tools such as discussion forums, deliberative polling tools, expert online chats, e-Petitioning and e-consultation tools, in order to bring participants together in a time-specific debate.	x			
eVoting	eVoting is a term encompassing several different types of voting, embracing both electronic means of casting a vote and electronic means of counting votes.	x		x	x
ePolls	ePolls or quick polls are internet-based instant. They also allow participants to select one answer from a list of alternatives in response to a simple statement of questions. ePolls are mostly used as an unofficial tool for gathering initial opinions, or short time surveys which collect the public opinion via interviewing a random sample of people on a specific question with a simple yes/no answers.	x			
eCommunities	These eCommunities are created by users that share common interests and opinions. By using new media and several other small scale applications, they try to further advance the dialogue on the issue they participate in.	x			

Tools	Description	(Ergazakis et al., 2011)	(Tambouris, Liotas, & Tarabanis, 2007)	(Santamaria-Philco et al., 2019)	DST
Decision-making Tools	Decision-making tools are tools that support the deliberation behind decision making. An example of a decision-making tool is a 'serious game', where stakeholders have a chance to interact with each other and simulate relevant aspects of issues in the project	x			
eConsultation tools	eConsultation tools are fora and blogs that provide information to citizens in multiple ways.	x	x	x	
Web-casting tools	Webcasts use streaming media technology to capture content from a single source and make it available online to the public who are interested in listening or viewing this specific information.	x	x		x
Web portals	Web sites are a set of related web pages located under a single domain on the World Wide Web. A web portal is a specially designed website that brings information from diverse sources, like emails, online forums and search engines, together in a uniform way.	x	x	x	x
Search engines	Search engines are online applications that assist users to find and retrieve information from the web, relevant to the keywords they have selected and they are interested in.	x	x		
Mailing lists/newsgroups	A newsgroup is a repository for information posted from many users in different locations. Whereafter the information is pushed to the audience. A mailing list is a collection of names and addresses used by an individual or an organization to send information to multiple recipients.	x	x		x

Tools	Description	(Ergazakis et al., 2011)	(Tambouris, Liotas, & Tarabanis, 2007)	(Santamaria-Philco et al., 2019)	DST
Wikis	Wikis are collaborative platforms where users with common interests are cooperating in order to produce the best possible result. Wikis are applications on the web that allow a user to view content that has been submitted by other users, edit this content, add more content, or comment on it.	x	x		
Online surveys	Surveys that are presented using an online source. Surveys are usually short series of questions, that calls the user to answer using tick boxes or combo boxes, based on material that has been provided by a public authority during consultation on a specific issue. Surveys are commonly implemented in a number of close-ended questions, with ordered response categories, and some open-ended ones.	x	x		x
Content analysis tools	Content analysis is a research method for studying documents and communication artefacts, which might be texts of various formats, pictures, audio or video. Social scientists use content analysis to examine patterns in communication in a replicable and systematic manner. (Bryman & Bell, 2001)		x	x	
Content management tools	Content management (CM) is a set of processes and technologies that supports the collection, managing, and publishing of information in any form or medium. (Boiko, 2005, p. 66)		x	x	

Tools	Description	(Ergazakis et al., 2011)	(Tambouris, Liotas, & Tarabanis, 2007)	(Santamaria-Philco et al., 2019)	DST
Collaborative management tools	'By using social media tools, the enhanced visibility and transparency are pursued. Instead of using standalone tools, the use of collaborative platforms is promoted. In this way, every project member can have an equal access to all project information and ability to track the progress of the project.'(Ollus, Jansson, Karvonen, Uoti, & Riikonen, 2011, p. 545)		x	x	
Computer-supported cooperative work	'Computer Supported Cooperative Work (CSCW) is a generic term that combines the understanding of the way people work in groups with the enabling technologies of computer networking an associated hardware, software, services and techniques.' (Wilson, 1991, p. 1)		x		
Collaborative environments	Working practices in a collaborative working environment evolved from the traditional or geographical co-location paradigm. In a CWE, professionals work together regardless of their geographical location. In this context, people use a collaborative working environment to provide and share information and exchange views in order to reach a common understanding.		x		x
Visualisation tools	Visualization tools provide designers with an easier way to create visual representations of data sets or designs. These data visualizations can then be used for a variety of purposes: dashboards, annual reports, sales and marketing materials, and virtually anywhere else information needs to be interpreted immediately.		x	x	x

Tools	Description	(Ergazakis et al., 2011)	(Tambouris, Liotas, & Tarabanis, 2007)	(Santamaria-Philco et al., 2019)	DST
Natural language interfaces	Natural language processing is the use of computers for processing natural language text or speech. It essentially provides an abstract layer between users and computers. (Zhou, 2007)		x		
GIS/Map-based tool	GIS or Map-based tools that allow users to create interactive queries (user-created searches), analyze spatial information, edit data, maps, and present the results of all these operations. (Kietzmann, Hermkens, McCarthy, & Silvestre, 2011)	x		x	
Social media platforms	Social media platforms are interactive computer-mediated platforms that facilitate the creation or sharing of information via virtual communities and networks			x	

7.2 APPENDIX B - CASE STUDY PROTOCOL

During the problem investigation phase of the research, a case study was performed. The methods used to gain information on the case were document review and interviews. The case study was aimed to gain information on certain elements of the case. These elements are shown in Table 7.

Table 7 Targeted case information in the case study research

#	**Characteristic**
	Personal
1	Work Experience
2	Roles fulfilled in projects
	The case:
3	The project goal
4	The project timeline
	The participation process:
5	The project context (issues, tension?)
6	The involved stakeholders
7	The participation goals
8	The participation strategy
9	Successfullness of the strategy
	eParticipation in the project:
10	The different considerations made in applying eParticipation
11	The different considerations made in selecting a tool
12	Which eParticipation tools were not used
13	Which eParticipation tools were used
14	Contribution of the tools to the participation goal
15	The combination of traditional participation methods and eParticipation methods
16	The requirements for successful implementation of eParticipation
	eParticipation in general:
17	The requirements for succesfull implementation of eParticipation
18	The requirements for the decision support tool

7.3 APPENDIX C - STAKEHOLDER MANAGER INTERVIEW PROTOCOL

In preparation for the interview a few things need to do in advance:

1. Set a date and location for the interview with the interviewee
2. Required equipment for the interview:
    a. Laptop
    b. An energy source for the laptop
    c. Fully charged mobile phone
    d. Enough memory space on mobile phone
    e. Something to drink
    f. A printed version of the interview template
3. Be on time

Receive the interviewee and start with the introduction

Introduction:

"Hallo, mijn naam is Trung Nguyen. Bedankt dat je de tijd wil nemen voor dit interview. Voordat ik officieel aan dit interview begin wil ik je graag vragen of je akkoord bent met het opnemen van dit gesprek. Ten tweede, wil je anoniem blijven in dit onderzoek?

Start recording on mobile phone

Het interview is onderdeel van mijn afstudeeronderzoek, waarin ik onderzoek welke methoden van eParticipatie geïntegreerd kunnen worden in het participatieproces van MIRT projecten. Wat ik onder eParticipatie versta is: 'Stakeholder participatie die mede mogelijk wordt gemaakt door informatie en communicatie technologieën (ICT), dus participatie zonder fysieke interactie en onafhankelijk van de locatie of tijd'. Onder participatie versta ik, naast communiceren, betrekken, participeren, en meebeslissen, ook informeren. Daarnaast bedoel ik met stakeholder alle externe partijen die belang hebben in het project. Rijkswaterstaat, gemeentes, mileuorganisaties, maar ook burgers.

Het doel van mijn onderzoek is om een keuze tool te maken waarin de keuzes in de participatie strategie leiden tot de geschikte eParticipatie tools. Om omgevingsmanagers die overwegen om eParticipatie te gebruiken hiervoor een concreet afwegingskader te bieden.

Dit interview dient als input voor het afwegingskader. In het interview zal ik aantal onderwerpen afgaan. De eerste vragen zullen gaan over jou als omgevingsmanager, Vervolgens over het project zelf, het participatie proces in het project, de eParticipatie in het project en eParticipatie in het algemeen. Als je zelf nog vragen hebt, stel ze gerust."

Start the interview. Use the template to guide the interview.

Close the interview by thanking the interviewee and telling them what will be done with the gained information.

	Interview template (NL)	
	Project naam	…
	Datum van het interview	…
	Functie in het project	…
#	**Eigenschap**	**Vraag**
	Persoonlijk	
1	**Werk ervaring**	Hoeveel jaar werkervaring heb je in dit vakgebied?
2	**De verschillende functie die degene heeft vervuld in projecten**	Welke rollen heb je vervuld in projecten?
	Project gerelateerd	
3	**Het doel van het project**	Wat is het doel van het project?
4	**Welke fase zat het project en is die fase afgerond?**	In welke fase zat het project? Is deze fase afgerond
	Het participatie proces:	
5	**De context van het project (problemen of spanningen?)**	Waren er specifieke aandachtspunten voor de stakeholder participatie?
6	**De belangrijkste stakeholders in het proces**	Wie waren de belangrijkste stakeholders gedurende het proces?
7	**De doelen van het praticipatie proces**	Wat waren de doelen van het participatie proces?
8	**De participatie strategie**	Welke participatie strategiën zijn gebruikt?
9	**Het succes van de strategie**	Waren de doelen van het participatie proces gehaald? Zo niet, waarom niet?
	eParticipatie in het project:	
10	**De afwegingen die gemaakt zijn in het kiezen voor eParticipatie**	Wat was reden om eParticipatie toe te passen?
11	**De afwegingen die gemaakt zijn in het kiezen van een tool**	Welke eParticipatie tools waren overwogen?
12	**De niet gebruikte eParticipatie tools**	Welke eParticipatie tools zijn niet toegepast? En waarom?
13	**De gebruikte eParticipatie tools**	Welke eParticipatie tools zijn wel toegepast? En Waarom?
14	**De toegevoegde waarde van de tool voor de participatie doelen**	Op welke manier heeft elke tool bijgedragen aan het participatie doel?
15	**De relatie tussen traditionele participatie methodes en eParticipatie tools**	Is het toegepast in combinatie met traditionele participatie methodes
16	**De voorwaardes voor succesvol implementatie van eParticipatie**	Waren er problemen in het toepassen van eParticipatie? Wat waren deze?
	eParticipatie in het algemeen:	
17	**De voorwaardes voor implementatie van eParticipatie**	Wat zijn de randvoorwaardes voor het succesvol implementeren van eParticipatie?
18	**De voorwaardes voor de decision support tool**	Wat zijn de voorwaardes voor de keuzeboom voor het implementeren van eParticipatie in het participatie proces?

	Interview template (EN)	
	Project name	…
	Date of the interview	…
	Function within the project	…
#	**Characteristic**	**Question**
	Personal	
1	Work Experience	How many years of work experience do you have in this field?
2	Roles fulfilled in projects	Which roles have you fulfilled in projects?
	The case:	
3	The project goal	What was the goal of the project?
4	The project timeline	In which phase was the project at the moment you were involved? Is this phase completed yet?
	The participation process:	
5	The project context (issues, tension?)	Were there specific points of attention for the stakeholder participation?
6	The involved stakeholders	Who were the most important stakeholders during the process?
7	The participation goals	What were the goals of the participation process?
8	The participation strategy	Which participation strategies were used?
9	Successfullness of the strategy	Were the goals met? If not, why?
	eParticipation in the project:	
10	The different considerations made in applying eParticipation	What was the reason to apply eParticipation?
11	The different considerations made in selecting a tool	Which eParticipatie tools were considered?
12	Which eParticipation tools were not used	Which eParticipatie tools were not applied? And why?
13	Which eParticipation tools were used	Which eParticipatie tools were applied? And why?
14	Contribution of the tools to the participation goal	In which way did each tool add value in achieving the participation goals?
15	The combination of traditional participation methods and eParticipation methods	Were eParticipation methods applied in combination with traditional methods?
16	The requirements for successful implementation of eParticipation	Did problems occur in applying eParticipation? Which were there?
	eParticipation in general:	
17	The requirements for succesfull implementation of eParticipation	What are the requirements for succesfull implementation of eParticipation?
18	The requirements for the decision support tool	What are the requirements for a decision support tool regarding the implementation of eParticipation in the stakeholder participation process?

7.4 APPENDIX D - FIRST DESIGN

Royal HaskoningDHV
Enhancing Society Together

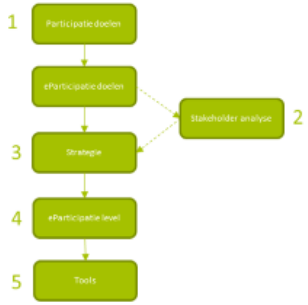
Decision Support Tool

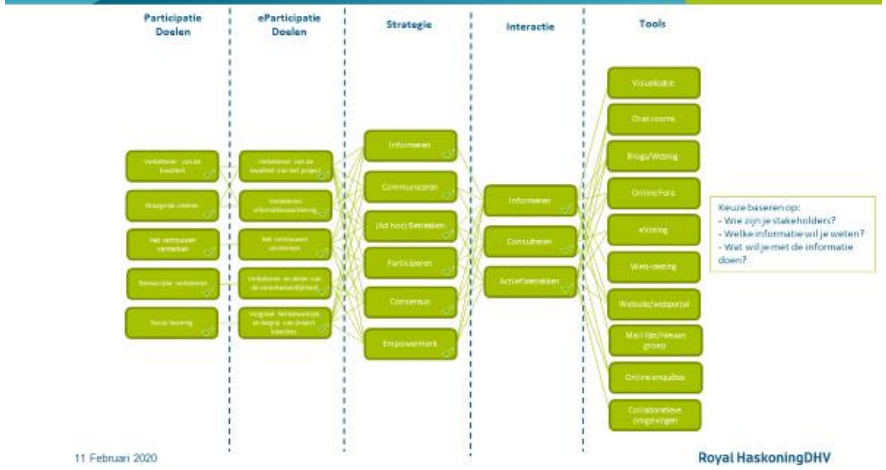
Integratie van digitale tools in de SOM-methode

Trung Nguyen
11 Februari 2020
Internal use only

Gebruikswijze

1. Bepaal de doelen voor het participatie proces en de eParticipatie.
2. Voer de stakeholder analyse uit.
3. Bepaal de strategie per stakeholder.
4. Welke type communicatie wordt vervuld door eParticipatie (eParticipatie level)?
5. Gebruik de decision support tool om geschikte tools te vinden om de strategie uit te voeren.
   - Druk op de ✓ om de keus te maken
   - Druk op de E-Consulteren voor verdere informatie over de Tool of eParticipatie level





Interactie

- **Informeren**
  Een eenzijdige relatie waarin informatie wordt geproduceerd en gepubliceerd door het projectteam aan de stakeholders. Het bevat het 'passieve' toegang tot informatie door stakeholders en het actieve verspreiden van informatie vanuit het project.

  Project ➡ Stakeholder
- **Consulteren**
  Een tweezijdige relatie waarin stakeholders feedback geven over het project. Inzichten van stakeholders op bepaalde issues worden gezocht. Het zorgt voor een beperkte tweezijdige relatie.

  Project ⇌ Stakeholder
- **Participeren**
  Een actieve tweezijdige relatie waarin stakeholders bijdragen en meebeslissen in het project. Tegelijkertijd ligt de verantwoordelijkheid voor eindbeslissingen bij de overheid.

  Project ⇔ Stakeholder

OECD. (2001). *Citizens-as-Partners*

Visualisaties

- Er zijn vele verschillende manieren om het project te visualiseren en er komen steeds meer opties bij.
- Voorbeelden:

  3D, 4D (veranderend in de tijd), geïntegreerd in de huidige omgeving, 360°, sfeerimpressies, GIS.
- Toegevoegde waarde:

  Zorgt voor een ander beeld en interpretatie van informatie. Het laat minder aan fantasie en inbeeldingsvermogen over. Geeft een complete beeld van het project en niet alleen de details waarop gefocussed wordt.
- Toepassing:

  Visualisaties worden nooit op zichzelf staand toegepast. Er is altijd een platform nodig om het over te brengen aan het publiek. Zoals, een website of een inloopavond.

Chat rooms

- Een virtuele ruimte op het internet waar men met elkaar kan converceren ongeacht de locatie van de personen.
- Voorbeelden:

  klantenservice chats van verschillende bedrijven (NS, Ziggo, Vitens)
- Toepassing:
  - Beheerder nodig om de chatroom te onderhouden. Denk hierbij aan taalgebruik en relevantie van inhoud.
  - Kan gebruikt worden in combinatie met webpagina's, webcasts of op zichzelfstaand.

Blogs/weblogs

- Een logbook van informatie dat de auteur wil delen met zijn publiek.
- Heeft de optie om het publiek te laten reageren op de blog.
- Verschillende type media mogelijk: Tekst, afbeeldingen, video's (vlog), audio.
- Voorbeelden uit de praktijk zijn:

  Facebook, LinkedIn, maar ook elke nieuws website is een voorbeeld van een weblog

Online fora

- Online discussieruimte waar gebruikers berichten kunnen plaatsen en mensen hier op kunnen reageren. Gebruikers kunnen onafhankelijk van tijd en ruimte met elkaar discussiëren.
- Voorbeelden uit de praktijk zijn:

  Yammer
- Toepassing:

  Beheerder nodig om het forum te onderhouden. Denk hierbij aan taalgebruik, relevantie van inhoud en correctheid van inhoud.

eVoting

- Bevat zowel elektronische middelen voor het uitbrengen en tellen van stemmen, als het online stemmen en tellen van de stemmen.
- Stemmen kan gedaan worden op verschillende manieren: Anoniem, locatie gebonden, een korte poll.
- Vaak geïntegreerd in een webpagina/webportal

Web-casting

- Maakt gebruik van media streaming technology om beeld of geluid op te nemen en deze direct online te delen.
- In geval van geluid wordt het een podcast genoemd.
- Mogelijkheid om in realtime een presentatie te geven en via een chatroom reacties te krijgen.

- Voorbeelden van media dat hier veel voor wordt gebruikt zijn Youtube en Instagram (IGTV)
- Voorbeelden die reeds zakelijk worden gebruik is bellen via Skype met video of schermdelen.

Website/webportals

- Websites kunnen veel functies hebben en kunnen in verschillende modes worden gebruikt. Alle openbaar toegankelijke websites vormen samen het World Wide Web, terwijl privéwebsites, zoals de website van een bedrijf voor zijn werknemers, doorgaans deel uitmaken van een intranet.
- Een webportal is een webpagina waar na inloggen bepaald wordt welke inhoud weergegeven wordt. Op deze manier kan een betrokken stakeholder andere informatie of rechten krijgen dan een geïnteresseerde burger
- Websites kunnen gebruikt worden om informatie te presenteren maar ook als platform om input te verzamelen.
- Een voorbeeld hiervan is de www.het iReport.

Maillijst/nieuwsgroep

- en mailinglijst ofwel verzendlijst is een lijst met (e-mail-)adressen van geadresseerden voor (regelmatige) verzending van (al dan niet elektronische) post (een 'mailing'). Geadresseerden kunnen zich over het algemeen aan- of afmelden bij degene die de lijst beheert.

Online Enquetes

- Online enquetes (eSurveys) zijn meestal korte vragen, die de gebruiker oproepen om te beantwoorden met behulp van selectievakjes, keuzelijsten of tekst, op basis van materiaal dat door een overheidsinstantie is verstrekt tijdens een raadpleging over een specifiek onderwerp. Enquêtes worden meestal geïmplementeerd in een aantal korte vragen, met geordende antwoordcategorieën en enkele open vragen.
- Dit kan gedaan worden in verschillende vormen: Locatie gebonden (interactieve kaarten), issue gebonden of anders.
- Voorbeelden uit de praktijk:
  Google forms, Mentimeter.

Collaboratieve omgevingen

- Een collaboratieve omgeving is een werk platform waarop verschillende partijen tegelijkertijd samen kunnen werken
- Dit zorgt voor een transparanter process en een manier voor stakeholder om director input te geven.
- Een risico hierin is dat de stroom van informatie minder georganiseerd is, omdat er vanuit meer kanten informatie wordt toegevoegd.
- Voorbeelden:
  Wikis, Google docs, Autodesk 360, Microsoft online of een CDE (ontwerpen).

7.5 APPENDIX E - FINAL DESIGN

Royal HaskoningDHV
Enhancing Society Together

Decision Support Tool

Integratie van digitale tools in de SOM-methode

Trung Nguyen
11 Februari 2020
Internal use only

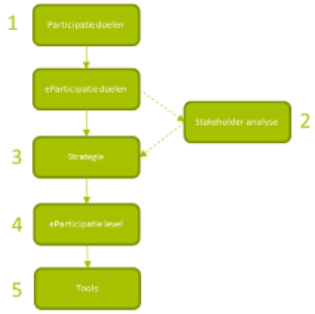
Decision support tool

- De decision support tool is een ondersteunende tool bij het opstellen van je participatie process.
- Het neemt je mee door de verschillende stappen en laat je de verschillende eParticipatie mogelijkheden zien
- De tool is bedoeld om te gebruiken tijdens het opstellen van je participatie strategie, omdat je hierin de keuzes maakt welke methode of tools je wil gaan gebruiken om je doelen te bereiken.

2 Decision Support Tool | 11 Februari 2020 Royal HaskoningDHV

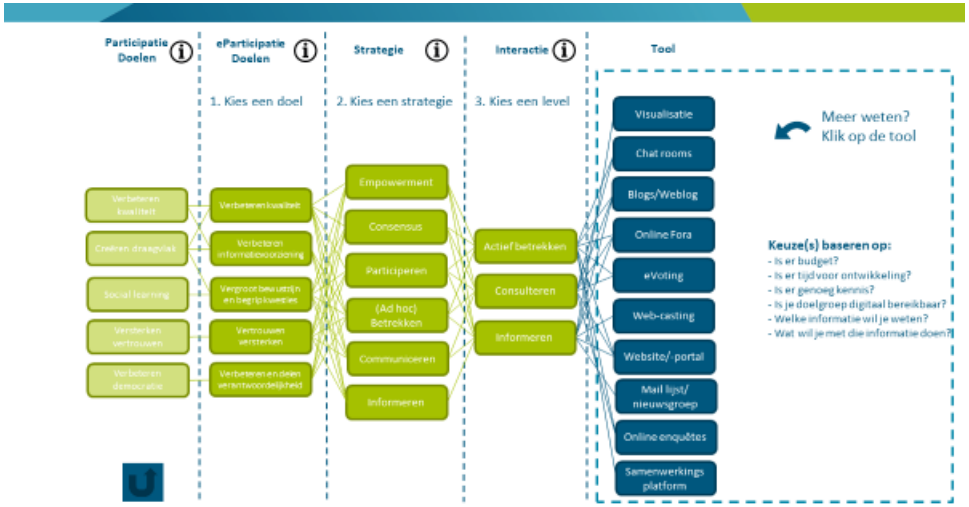
Gebruikswijze

1. Zet de powerpoint in presentatie stand
   - Druk op een Keus om de keus te maken
   - Druk op de ⓘ voor verdere informatie over de keuzes per onderdeel
2. Bepaal de doelen voor het eParticipatie proces aan de hand van de participatie doelen.
3. Bepaal aan de hand van de stakeholder analyse uit de strategie per stakeholder
4. Bepaal welk type communicatie wordt vervuld door eParticipatie (eParticipatie level)?
5. Geschikte tools worden gegeven om de gekozen strategie uit te voeren.
   - Klik op een Tool om meer informatie te krijgen over de eParticipatie tool.



Voor verder informatie mail: Trung.Nguyen@rhdhv.com

3 Decision Support Tool | 11 Februari 2020 Royal HaskoningDHV



4 Decision Support Tool | 11 Februari 2020 Royal HaskoningDHV

Participatie doelen

- Verbeteren kwaliteit

De kwaliteit van het project verbeteren. Dit kan in de vorm van beter aansluiten op de omgevings, beter proces, enz.

- Creeeren draagvlak

Het verbeteren van de informatie voorziening gedurende het project

- Social learning

Het collectieve leerproces van de stakeholders over het project, het proces, de wetgeving enz.

- Vertrouwen versterken

Het versterken van het vertrouwen in de project organisatie

- Verbeteren democratie

Het verbeteren van de democratische legitimiteit van het project

eParticipatie doelen

- Verbeteren kwaliteit

De kwaliteit van het project verbeteren. Dit kan in de vorm van beter aansluiten op de omgevings, beter proces, enz.

- Verbeteren informatie voorziening

Het verbeteren van de informatie voorziening gedurende het project

- Vertrouwen versterken

Het versterken van het vertrouwen in de project organisatie

- Verbeteren en delen verantwoordelijkheid

Het verbeteren en het delen van de verantwoordelijkheid over het project

- Vergroot bewustzijn en begrip project kwesties

Het vergroten van het bewustzijn en het begrip voor project kwesties

Strategie

Participatie ladder	Omschrijving
Empowerment	Stakeholders controleren de besluitvorming over bepaalde kwesties
Consensus	Stakeholders hebben een dominante autoriteit in de besluitvorming over een bepaald kwestie
Participeren	Besluitvorming wordt verspreid via onderhandelingen tussen stakeholders en overheid
(Ad hoc) betrekken	Stakeholders hebben een (ad hoc) lichte invloed op bepaalde kwesties
Communicatie	Stakeholders worden geraadpleegd over bepaalde kwesties
Informeren	Stakeholders worden geïnformeerd over bepaalde aspecten van het project

Interactie

- **Informeren**

Een eenzijdige relatie waarin informatie wordt geproduceerd en gepubliceerd door het projectteam aan de stakeholders. Het bevat het 'passieve' toegang tot informatie door stakeholders en het actieve verspreiden van informatie vanuit het project.

Project → Stakeholder

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Project ⇄ Stakeholder

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Project ↔ Stakeholder

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- Een voorbeeld hiervan is de www.rijkswaterstaat.nl of het iReport.

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- Dit kan gedaan worden in verschillende vormen: Locatie gebonden (interactieve kaarten), issue gebonden of anders.

- Voorbeelden uit de praktijk:
  Google forms, Mentimeter.

Samenwerkings platform

- Een samenwerkings plaform is een digitale werk omgeving waarop verschillende partijen tegelijkertijd samen kunnen werken
- Dit zorgt voor een transparanter proces en een manier voor stakeholder om director input te geven.
- Een risico hierin is dat de stroom van informatie minder georganiseerd is, omdat er vanuit meer kanten informatie wordt toegevoegd.

- Voorbeelden:
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