Electronic participation in Dutch municipalities

A cross-sectional study into the use of web 2.0 by Dutch municipalities and the citizens' behavioural intention to e-participate.

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Abstract

Aim: This research focusses on the usage of web 2.0 by municipalities and its citizens, in relation to the behavioural intention of those citizens to use electronic participation. In the current society those concepts are getting a bigger role and seem to become more important for municipalities. In contrast, citizens seem to stick to more traditional channels and avoid online governmental participation. Both the concept of web 2.0 and e-participation have been studied in different academic fields. However, while both concepts are closely linked to one and each other, yet no study into the combination is currently performed. Knowledge of the relation and effects of both concepts could be valuable in understanding the lack of citizens' behavioural intention to use e-participation. Also, it could address actions that should be taken by municipalities. Therefore, this study aims to investigate the relation between web 2.0 and citizens' behavioural intention to use e-participation using a cross-sectional study. In addition, current usage of the web 2.0 is taken into consideration.

Method: A cross-sectional study was performed, within 10 municipalities. First, by means of similarity criteria, 10 municipalities were selected. Usage of web 2.0 by municipalities was qualitatively analysed by scoring them by means of a codebook. The behavioural intention of the citizens was measured via a quantitative survey, amongst 523 respondents.

Findings: The findings of this study show that there is no effect of the usage of web 2.0 by municipalities on the citizens' behavioural intention to use e-participation. Also, trust in government seems not to be a significant predictor as well. However, other statistically significant effects were found. The perceived risk of the internet and effort expectancy seemed both to have a significant negative impact on the attitude towards e-participation. While online citizen behaviour and performance expectancy have a significant positive impact on the attitude. Last, attitude seems to have a strong mediating effect towards a citizens' behavioural intention to use e-participation. These findings were in line with the expectations, which were based on earlier technology acceptance models.

Conclusion: This research has shown the effects of the usage of web 2.0 of multiple parties when it comes to e-participation in municipalities. Since the online behaviour of the municipalities seems to be sufficient, municipalities might want to act upon the attitude of their citizens concerning e-participation. Municipalities do need to keep in mind that the current research only explains for 30,7% of the citizens' behavioural intention to use e-participation. Future research into the combination of both concepts would, therefore, be very valuable.

Keywords: web 2.0, electronic participation, e-participation, municipalities, e-governance, technology acceptancy, citizen engagement.

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1. Introduction

All over the world, it has become more relevant to raise the involvement of citizens in the public administration process of municipalities. However, several scholars have confirmed a negative trend concerning political participation over the last decennia. Over the years multiple sorts of platforms have been created and the internet hype has added even more options to create even more different sorts of platforms (Pieterson, 2009). Therefore, Western democracies are being forced to introduce information and communication technology (ICT) into their governance, relevant to their citizens (e.g. Bonson, Torres, Royo, & Flores, 2012; Chun, Shulman, Sandoval, & Hovy, 2010). Although it seemed to be forced, there are many benefits to the introduction of ICT in governance.

While it sometimes seems to be otherwise, the implementation of ICT tools has many advantages for both the citizen and the government. Van Deursen, Van Dijk, and Ebbers (2006) argue that a governmental organization can become more efficient and reduce their costs by implementing ICT tools into their organisation. In addition, ICT can enhance the transparency of the government and improve their services. Concerning the citizens, the use of ICT gives a citizen the possibility to work with the government at any time and any place. Moreover, there is no need to address multiple physical desks of the municipality they live in. Nevertheless, research has shown that there is a gap between the supply of the electronic services (e-service) by the government and the demand of these services by the citizen (Van Deursen et al., 2006).

It has been acknowledged that the internet has raised the possibilities to form communities and provide easy access to participation. However, these multiple communities have not lead to more involved citizens, in fact, that number even decreased (Putnam, 2001). Therefore, the question remains to what extent the internet has an influence on citizens' participation in public administration.

The gap between the citizens' usage preferences and the preferences of the municipality concerning the supply of the service has multiple causes. One of the issues lies within the fact that governments are regularly misjudging the needs and skills of the citizens who need to use the tools (Ebbers, Jansen, Pieterson, & Van De Wijngaert, 2016a). However, multiple studies have established that there are even more origins to the gap. The choice for a channel is not made fully rational, but is also based on irrational factors, most importantly habits seem to be a significant predictor (Ebbers et al., 2016a; Pieterson & Van Dijk, 2007). Additionally, personal characteristics, such as age, gender and educational level, can be of influence on adapting the ICT tool of the government (Pieterson, 2009; Pieterson & Van Dijk, 2007; Reddick, 2005). The latter can be explained by the assumption of a so-called digital divide between citizens (Ebbers, Jansen, & Van Deursen, 2016b; Ebbers, Pieterson, & Noordman, 2008). Although a digital divide has been noticed, this does not mean the internet has been totally dividing citizens.

The use of ICT and the internet created the possibility of introducing tools for electronic participation (e-participation) in the public processes, which gives citizen participation in the public process a new dimension (Lee & Kim, 2014). Thus far, scholars have mentioned the presence of e-participation in the public sphere, but since the concept of e-participation is relatively young, research on this topic has not been extensive. Macintosh and Whyte (2008) have worked comprehensively on developing a framework for e-participation, which have led to a first definition. However, they acknowledged the fact that there is a need for a multi-method approach to evaluate the concept. In addition, continuous evaluation of this young concept is appropriate. Furthermore, other studies have performed research into the defined concept of e-participation. For instance, Kim and Lee (2012) came to a more detailed description of e-participation by means of an analysis of the 2009 E-Participation Survey in Seoul Metropolitan Government. Nevertheless, they argued that the results of the study need to be interpreted cautiously, since the study was based on relatively old data from one country only.

Other studies have focussed on the introduction of new internet tools that are becoming a trend within the government. Over the years the presence of web 2.0 tools, such as RSS feeds, blogs or multimedia sharing has seen growth within the public landscape (Criado, Sandoval-Almazan, & Gil-Garcia, 2013). Whereas Criado et al. (2013) were able to identify three different social media-based government models, they were not able to measure the impact of social media on the government. Hence, research into the relation between web 2.0 and the government needs to be extended.

Furthermore, Bonson et al. (2012) and Criado et al. (2013) argue that there is a need for research into the effects of web 2.0 and social media, detailed per country. A new and, if possible, a bigger sample should be used to confirm older results. Furthermore, an important deficit in available literature lies in the fact that the combination of e-participation and online ties between citizens have not yet been studied thoroughly (Lee & Kim, 2014).

On the other hand, research has been done within the scope of the use of web 2.0 tools, including social media, within municipalities all over Europe to create more transparency (Bonson et al., 2012). Interestingly, studies showed that there is a relatively good presence of social media which enhances the transparency; however, there still seems to be a lack of dialogue between the municipalities and the citizens. Therefore, it seemed that e-participation was not promoted adequately by the municipalities (Bonson et al., 2012).

Undoubtedly, the combination of ICT, web 2.0 and e-participation in Dutch municipalities is comprising two academic fields, namely the field of communication science as well as the field of public administration. On the one hand, research into a possible relation between web 2.0 and the level of e-participation in Dutch municipalities is of added value to the scholarly of the communication sciences. Bélanger and Carter (2008) have argued that there are multiple arguments for citizens not to adopt e-government systems, such as trust in government and risk perception. In addition, the mismatch between citizens' and government's needs and preferences also seem to be a reason to accept nor adopt the new channels (Ebbers et al., 2008; Pieterson & Van Dijk, 2007).

On the other hand, this study could contribute new knowledge to the field of public administration. Van Veenstra, Janssen, and Boon (2011) indicate that the fact that tools for e-participation are relatively new in the spheres of the public policymaking, it is still unclear what the rules are and how it is affecting the public administration. Also, it has been questioned what the effects of e-participation are on the organisation of the municipalities when it comes to the created possibility of co-production of policies (Verschuere, Brandsen, & Pestoff, 2012).

Next to scientific value in two academic fields, this study could become of societal value as well. From a communicative perspective, this study aims to contribute to the requirements of e-participation tools, to come to effective adoption by citizens of these tools, since the citizen can be seen as the client of the government that provides these tools. Furthermore, combining this with the provision of web 2.0 by municipalities, both government to citizen as citizen to government communication can be improved.

As a result of these, the study could also make a contribution to the working field of public administration, since the use of e-participation tools can be of influence on the public policy processes and decision-making processes. Lember, Brandsen, and Tõnurist (2019) deservedly stated that research could have institutional consequences since there is little evidence of the effects of digital developments in the field of co-production. Additionally, results of the study could also impact the administrative processes of the municipalities. Results could implicate that there is need for a formal framework to come with answers to the problem of the current incorrect implementation strategies of the municipalities, or even strategic implications concerning new roles in the administrative process.

Combining abovementioned, there seems to be value into a study which combines the availability and the usage of web 2.0, to investigate the level of e-participation by citizens in the policy process of municipalities. Since this study is combining two fields of academic research, the research question of this study will be more extensive than usual. Consequently, this will also mean that there are more sub research questions, to explain all concepts of the research question. To come to appropriate answers, the following are formulated:

RQ: What are the effects of the citizens' use of web 2.0 as currently available in Dutch municipalities on the level of the citizens' electronic participation?

To answer this research question, the following sub research questions are formulated:

SRQ1: To what extent are the selected Dutch municipalities providing web 2.0?

SRQ2: To what extent are citizens of the selected Dutch municipalities using the provided web 2.0?

SRQ3: To what extent does the level of citizens' usage of web 2.0 affect the level of electronic participation in their municipalities?

SRQ4: To what extent does the level of citizens' online behaviour affect their level of electronic participation?

SRQ5: To what extent are socioeconomic factors affecting the level of electronic participation?

To give proper answers to these questions, first, there will be made an overview of the existing literature on the concepts. Based on this literature overview, hypotheses and a research model will be presented. This research model has lead to a research method. In the fourth chapter, the results of the research will be presented. Hereafter, these results will be interpreted and discussed. In the final section, there will be elaborated on the limitations of the research and implications for future research will be given.

2. Theoretical framework

To come to appropriate research concerning the relation between the provision of web 2.0 by Dutch municipalities and the level of e-participation in these municipalities, the concepts need to be amplified. Therefore, the following section will comprise a literature review of the concepts and possible determinants of them. First, the concept of citizen participation will be discussed. Following that, there will be elaborated on the concept of e-participation. After this, the concept of citizen engagement will be clarified. In addition, the relation between governmental organisations and web 2.0 will be discussed. Last, the theoretical dimensions of socioeconomic differences will be outlined. Based on this literature review hypotheses will be formulated, where after a research model can be presented as well.

2.1 Citizen participation

Preparatory to defining the concept of e-participation, the concept of citizen participation without electronic devices needs to be defined. In early studies citizen participation has been discussed extensively, since it can be seen as a core of the democracy. Arnstein (1969) argued that citizen participation is the redistribution of political power, in that sense the citizens that are not represented in the majority can get a voice in the policymaking process too. Based on this definition, Arnstein (1969) developed the ladder of citizen participation, which consists of eight rungs implying different levels of citizen power.

The eight rungs of the ladder of Arnstein (1969) are categorized into three levels of participation. The first level concerns non-participation, on this level citizens are to no extend participating in the policy process, but merely used by the powerholders. Following on the non-participation, three degrees of tokenism are distinguished, tokenism suggest the voice of the citizen is at least heard. At last, the upper three rungs correspond with the highest level of participation, whereby the citizen has a say in the decision-making (Arnstein, 1969).

Next to Arnstein, Pateman (1970) was also able to differentiate three levels of participation. She distinguished the participation over three different levels, namely pseudo, partial and full participation. The work of Arnstein (1969) and Pateman (1970) were important starting points for defining participation. The ladders of participation (Arnstein, 1969; Pateman, 1970) are both defined as a continuum towards a goal of the citizen. However, next to that there are continuums towards a set of choices, whereby the goals are set by the officeholder. An example of such a continuum is the participation continuum of Shand and Arnberg (1996). This continuum consists of five phases, from minimum participation towards maximum participation. In this continuum, citizens get the option to give information, the minimum for of participation, up to control policy decision-making, maximum participation.

A reviewing article of Bishop and Davis (2002) compared the different typologies of participation, to come to the conclusions that participation is a discontinuous interaction process. Within this process, there are five forms of participation, namely information, consultation, partnership, delegation and control.

2.2 Co-production

Production of a service concerns the process to make an output out of input. In addition, public services are produced in multiple manners. Moreover, citizens participation has been defined as a specific sort of production of the public services. This concerns a collaboration between the governmental organisation and the citizens, so-called co-production of a service. According to Ostrom (1996) co-production concerns the same process, however, the input does not merely come from professionals, but also from citizens as well, as mentioned in the participation ladders too. Ostrom (1996) argued that co-production consists of a potential relationship between a producer of a service and the client of this service. Therefore, she describes co-production as "a process through which inputs from individuals who are not "in" the same organization are transformed into goods and services" (Ostrom, 1996, p. 1073).

In more recent literature the concept of co-production has been deepened out, whereby the definition of co-production of Ostrom (1996) still is used as a starting point. Brandsen and Honingh (2016) did so by redefining the three core points of the definition of Ostrom (1996). The first element they describe is the voluntarism of a citizen. Furthermore, they address the fact that the citizen should have an active and direct input into the relationship with the professional. At last, this professional should be a paid employee of the organisation. After redefining the concepts of Ostrom (1996), Brandsen and Honingh (2016) came with a new working definition whereby they stated that "coproduction is a relationship between a paid employee of an organisation and (groups of) individual citizens that requires a direct and active contribution from these citizens to the work of the organization" (p. 431).

The latest developments in the field of co-production concern the influences of new technologies and the advantages and constraints of it. Lember et al. (2019) do properly address the fact that there is little scientific evidence on the effects of the digital technologies on co-production. More importantly, they mention that there is no research on the institutional consequences of technological developments in the field of co-production. However, three different effects of co-production are addressed. Firstly, digital technologies are able to overcome boundaries, such as geographical or organisational boundaries, and therefore offer possibilities to increase the level of co-production (Lember et al., 2019). In addition, the diversity of ICT provides the ability to vary in the level and forms of co-production.

Last, Lember et al. (2019) argue that ICT can have a substitutive effect on the co-production since citizens can get more control over the service provision and the self-organisation. There is more ability to automize the input collection of the citizen. In this way, however, citizens will get a more passive role in the co-production.

Interestingly, Lember et al. (2019) are also addressing a fourth paradigm which is related to a passive input of citizens. As a consequence of the digital developments, citizens can be bypassed in the decision-making process, when the governmental organisation decides to use big data and complex algorithms.

2.3 Electronic participation

Within the private sector, electronic mediated interaction is experienced as commonly accepted and is seen all over this sector. A simple example of this kind of interaction is the electronic voting systems that are used in all sorts of tv shows for several years now. However, within the public sphere, there is a longstanding resistance to such fundamental changes.

Pratchett and Krimmer (2005) argued that up till 2005 the use of electronics and ICT in democracy was absent, so research stayed rather speculative. Later, electronics became a bigger part of the government, which made it possible for research to become tangible. Research into the field of e-participation in the public spheres started with acknowledging the differences between e-participation in the corporate field. Significant differences can be appointed in the fact that e-participation in the public field does concerns more social and legal components (Edelmann, Krimmer, & Parycek, 2008). However, next to differences concerning the corporate sector, differences should be appointed within the public sector as well.

An important distinction between possible different definitions of e-participation has been made by Edelmann et al. (2008). To prevent any further confusion, they made a distinction between the terms e-democracy, e-participation and e-voting. However, they argued that the latter two should be seen as a part of e-democracy. Hereby e-participation can be seen as the tool for agenda-setting and policy preparation, while e-voting is considered with other later phases of decision making (Edelmann et al., 2008).

Building on this distinction, Macintosh and Whyte (2008) were amongst the first ones who were combining multiple studies into one working definition. They defined e-participation as the “use of ICTs to support information provision and “top-down” engagement i.e. government-led initiatives, or “ground-up” efforts to empower citizens, civil society organisations and other democratically constituted groups to gain the support of their elected representatives” (p. 2). Within this definition there has been made a clear distinction between the top-down e-participation and ground-up, also known as bottom-up, e-participation.

The concept of bottom-up e-participation has been deepened out in later studies. Lee and Kim (2014) defined e-participation in such a manner that a governmental organisation is providing the resources to come to citizen-initiated participation, namely as "e-government applications designed to promote citizen-initiated participation in policy agenda setting and to build online community providing citizens with an opportunity to discuss policy agendas with others and with government agencies" (2014: p. 2045). For this research into e-participation, there will not be any distinction between bottom-up or top-down communication.

Apart from differences between top-down and bottom-up e-participation, discrepancies between active and passive e-participation have been appointed too. According to Vicente and Novo (2014) citizens can adopt two different roles. On the one hand, citizens can take a passive role in e-participation. This can be defined as reading and giving opinions about societal issues. On the contrary, citizens can take an active role in e-participation, by taking part in online petition and consultations (Vicente & Novo, 2014).

A clear definition of the relatively new concept has been provided by the United Nations (2014). In this definition the aspects of bottom-up versus top-down or active and passive communication are set aside, but e-participation is seen as a governing tool:

> "E-participation . . . is the process of engaging citizens through ICTs in policy and decision-making in order to make public administration participatory, inclusive, collaborative and deliberative for intrinsic and instrumental ends. E-participation expands a government's toolbox for reaching out to and engaging with its people." (United Nations, 2014, p. 81)

In this study the definition of the United Nations (2014) will be used, since the main aspects concern inclusion of the citizen in the policy process, on different levels.

2.4 Levels of e-participation

Different scholars have appointed multiple levels of e-participation. Where early literature on participation has highlighted the continuous ladders of participation (e.g. Arnstein, 1969; Pateman, 1970), more recent research has focussed on the discontinuous interactive processes between the citizens and the governmental organisation. Over the years these ladders took different forms, however, most frequently five levels of e-participation are appointed.

Recently, influential scholars (e.g. Macintosh, 2004; Tambouris, Liotas, & Tarabanis, 2007) were bundled into a comprehensive overview of the five levels of e-participation (Bataineh & Abu-Shanab, 2016). The first level of e-participation is defined as e-informing. E-informing consists of one-way communication from government to citizen. In this form of e-participation, the citizens receive information on the policies and their citizenship information.

It is shown that when the government is providing more accurate information, the institution is assessed as more transparent. This will lead to a higher intention of the citizen to participate in the policy process (Macintosh & Whyte, 2006).

Secondly, e-consulting is the next level of e-participation. E-consulting is seen as a limited form of two-way communication, whereby citizens get the opportunity to give an opinion. Likewise e-informing, citizens are only using e-consulting when they believe their opinion is taken into account.

Next, e-involving is appointed to be the third level of e-participation. When it comes to e-involving, the government and citizens are working together in an online environment. In this stadium, the ideas and opinions of citizens are actively taken into account by the officeholders (Tambouris et al., 2007).

Fourth, Bataineh and Abu-Shanab (2016) distinguished e-collaboration as another level of e-participation. In contrast to e-consulting, e-collaboration is seen on an advanced level of two-way communication. When using e-collaboration, the citizen and government are working together in a full partnership, not only to hear opinions, but to develop compatible solutions as well.

Last, the highest level of e-participation is the level of e-empowering. In this stage of e-participation, the citizens are involved in the last phases of the policymaking process and they are seen as equivalents in the decision-making process (Macintosh & Whyte, 2006; Tambouris et al., 2007).

A study within the European Union has shown that the first two levels of e-participation are the most commonly used in European politics (Tambouris, Kalampokis, & Tarabanis, 2008). Later, Bataineh and Abu-Shanab (2016) have confirmed this presumption. In addition, e-informing, e-consulting and e-empowering seem to be three predictors of intention to participate. On the contrary, the other two levels of e-participation seem not to be predictive to this intention (Bataineh & Abu-Shanab, 2016).

2.5 Citizen engagement

Together with different levels of e-participation, different levels of citizen engagement are distinguished too. A study to the level of e-participation in frontrunner Dutch municipalities showed a relation between the level of e-participation and the level of citizen engagement. In this study by Van Veenstra et al. (2011) four roles were used to investigate the level of e-participation in these municipalities. Firstly, spectators are distinguished, these are citizens that are reading blogs and watching videos of other users. Additionally, the role of joiners can be appointed which consists of citizens who maintain and participate in social networks. Furthermore, there is a group of critics, who are reviewing, commenting and contributing to existing sites. Last, a citizen can take a role as a creator, which means the citizen is publishing, writing and uploading information.

The findings of Van Veenstra et al. (2011) concerning different roles and patterns are in line with the results of Bataineh and Abu-Shanab (2016) and Tambouris et al. (2008), which show the first two levels of e-participation are mostly used. Van Veenstra et al. (2011) has proven that municipalities are mainly facilitating to the role of spectator or joiner. As a consequence of this, the level of e-informing and e-consulting are primarily adopted in municipalities as well. Consequently, Van Veenstra et al. (2011) conclude that Dutch municipalities seem to be hesitating to offer citizens the possibility for full e-participation.

2.6 Acceptance of technological development

The acceptance and adoption of e-participation tools are for a significant part depending on the acceptance of technological development in general by citizens. Multiple theories have tried to explain the acceptance of technological development, whereby the Technology Acceptance Model (TAM) of Davis (1989) has been used as an important base. The TAM is an extension of the Theory of Reasoned Action of Fishbein and Ajzen (1975), which assumes behavioural intentions are predicted by several factors. Within the TAM two beliefs are added. Next to attitude and subjective norm, the TAM includes the beliefs of perceived usefulness (PU) and the perceived ease of use (PEOU) of the new technology (Davis, 1989). More recently, the extended TAM theory (TAM2) has been used widely, since it includes constructs such as social influences and cognitive processes as well (Venkatesh & Davis, 2000).

In addition to the TAM, Rogers (1995) took another approach to explain the adoption of technology. According to the Diffusion of Innovation (DOI), acceptance and adoption of technology should be seen as a process wherein information is gathered to reduce the uncertainty about technological development. The three main determinants in this process are the search for relative advantages, over the current situation, the compatibility of the technology and the complexity of the technology (Rogers, 1995).

Furthermore, scholars have tried to explain the adoption of technology via the Social Cognitive Theory (SCT). The SCT model tries to explain the acceptance of the technology with variables that concern the outcome of the adoption of technology (Compeau & Higgins, 1995). Next to outcome variables, the construct of self-efficacy and anxiety is taken into account as well.

At last, a possible explanation for the acceptance of technology can be found in the service quality of the device. In contrast to earlier mentioned acceptancy models, these theories do not focus on the intention to use, but on the post-consumption evaluation of the performance of the service (Dabholkar, 1996). An important measure of service quality can be found in the SERVQUAL model of Parasuraman, Zeithaml, and Berry (1985). Which is a disconfirmation model of service quality and measures the gap between the consumer evaluation and the expectations of the provider.

2.7 Acceptance of e-government

The acceptance and adoption of technological development are both requirements for the acceptance of e-government and the e-participation. However, acceptance of technology does not automatically imply acceptance of e-government as well. Literature suggests that there are different benefits for both the government as the citizens, while on the other hand there are several barriers as well.

In a study Gilbert, Balestrini, and Littleboy (2004) were able to prove that two benefits can be appointed when it comes to the implementation of e-governmental tools. The first one concerns the time that can be saved by the use of electronic services. Responsiveness and queuing for the use of the service can change. The second benefit that has been proven is the fact that expenses can be saved when a service is offered electronically. This concerns both organisational as well as individual costs (Gilbert et al., 2004).

Not only does e-government offer benefits to the government and the citizen, but three main adoption barriers can be appointed. A first factor that could be the requirement to provide a high level of information quality. When the information is not relevant, accurate or up-to-date, the quality is low and the willingness to adopt the e-governmental service will be low as well (Gilbert et al., 2004; Tambouris et al., 2008). Besides, Gilbert et al. (2004) addressed the problem of financial insecurity. Since e-services can concern personal (financial) data, the citizen need to be sure that their data is handled confidentially.

At last, trust in the government and the deliverability of the service is a very important barrier (Gilbert et al., 2004). According to several studies (e.g. Kim & Lee, 2012; Pieterson, Ebbers, & Van Dijk, 2005), the lack of trust is seen as a barrier for citizens not to use the e-services. According to Bélanger and Carter (2008) trust for e-governments consists of two components. The first one is the trust in the entity that provides the service, known as trust of government (TOG).

Secondly, they appoint the indicator of trust in the mechanism that the service is providing, in the case of e-services this is the internet so it comes to trust of the internet (TOI). Together, the two different forms of trust are forming the construct of the perceived risk of the internet (Bélanger & Carter, 2008). Bélanger and Carter (2008) incorporated this construct in the TRA of Fishbein and Ajzen (1975), wherein it was predicted to affect the intentions of a person. In a later case study, Seo and Bernsen (2016) were able to confirm that trust plays an important part in the pre-adoption phase of non-users to start using e-services.

2.8 Adoption of e-government

As mentioned, over the years a variety of studies tried to explain the adoption of e-governance, however recently these were bundled into one empirically tested model. A recent study of Dwivedi et al. (2017) elaborated extensively on nine theoretical models that tried to explain the adoption of e-government. By doing so, they were able to present hypotheses whereby all theories were integrated into one model. The combination of these nine theories and models led to the Unified Model of Electronic Government Adoption (UMEGA) (Dwivedi et al., 2017).

The study showed that, out of the nine studies, six variables can be appointed to either directly or indirectly affect the behavioural intention to use e-governmental services (Dwivedi et al., 2017). The first determinant that has a direct influence on the behavioural intention is the attitude of a citizen towards the e-governmental service. However, attitude seems to be a construct that is predicted by four other factors. Namely, social influences, perceived risk, performance expectancy and effort expectancy. In addition, this latter one is being influenced by the level of facilitating conditions. Admittedly, this variable also has a direct influence on the behavioural attention as well. (Dwivedi et al., 2017)

2.9 Web 2.0

Since e-participation is all about the ICT of the municipalities, the municipalities should make use of the advantages of the internet to promote the use of e-participation. All sorts of entities can use web 2.0 in their advantages, as are municipalities. However, up to this moment the use of web 2.0 tools by municipalities is relatively low (Bonson et al., 2012).

The term web 2.0 was first used by O'reilly (2007), who referred to it as the second generation of web-based technologies. While the first generation (i.e. web 1.0) of the internet was mainly concerned with software packages, web 2.0 relates to services. In addition, these services are being improved over time, instead of being redeemed. Third, web 2.0 is making extensive use of the internet by creating networks between devices and individuals, by connecting different communication systems. Where on the other hand there were no possibilities to connect within web 1.0 (Bonson et al., 2012). Also, Chun et al. (2010) argue that:

> "web 2.0 technologies refer to a collection of social media through which individuals are active participants in creating, organising, editing, combining, sharing, commenting and rating web content as well as forming a social network through interacting and linking to each other". (Chun et al., 2010, p. 2)

In that manner, the wisdom of the crowd can be used as well, the crowd will become the creator (O'reilly, 2007). Last, O'reilly (2007) stated that web 2.0 is offering a wider range of user experiences since it becomes possible to combine technologies.

Based on the definition of web 2.0 provided by Chun et al. (2010), web 2.0 could have multiple appearances in governmental organisations, which can be concerned with e-participation, ranging from e-informing to e-collaboration.

Next to the promotion of participation, web 2.0 is leading to a more transparent government, which in its way leads to more participation as well (Chun et al., 2010).

Since the core feature of web 2.0 concerns to connect the users of it, several studies within e-government argue that social media is an important part of web 2.0. Social media within e-government has been defined as "a group of technologies that allow public agencies to foster engagement with citizens and other organizations using the philosophy of web 2.0" (Criado et al., 2013).

By the use of social media and web 2.0, the officeholders come in direct contact with the citizen, who will no longer be just the customer, but have more opportunity to become a co-producer as well (Chun & Luna Reyes, 2012; Criado et al., 2013). Chun et al. (2010) add to these definitions that the web 2.0 technologies enable the citizen to become an active agent in the policy process, for instance via connecting via social networking sites. Mainly, citizens who become part in the policy process are using the web 2.0 and social media to put issues of their interest on the public agenda. Chun et al. (2010) therefore argued that any governmental institution that wants to be an open institution that promotes participation of the citizen, needs to adopt the tools that web 2.0 is offering. Interestingly, it has been stated that local governments have been most successful in adopting online networking, resulting in more political participation (Weber, Loumakis, & Bergman, 2003).

However, several advantages have been pointed out, disadvantages of the web 2.0 should be taken into consideration as well. First, the fact that the web 2.0 and social media are free and easy to use, can result in a big data overload (Chun & Luna Reyes, 2012). Next to the data overload, the data will consist of a lot different sentiments, since opinions are capricious and therefore the sentiment of the data will not be consistent (Bonson et al., 2012; Chun & Luna Reyes, 2012). Others added to this that the internet is creating more barriers for several groups of citizens, and therefore excludes them from e-participation (Weber et al., 2003). Barriers that are addressed are the possible limited skills of citizens, either technological or informational skills can lack. Therefore, the inequality in the democratic process can be enhanced by the e-participation, while the goal is to decrease this.

2.10 Personal characteristics

However web 2.0 is indispensable to the level of e-participation, literature also shows that the use of these online service channels is influenced by multiple personal characteristics (Ebbers et al., 2016a). The first characteristic that seems to be a determinant is age. Smith (1999) argued that young people are more involved in extracurricular activities within their communities. According to self-reports seniors (55+) are lacking operational and informational skills (i.e. skills to operate a computer and ability to find and process information resp.), compared to young people (Van Deursen et al., 2006). These findings might imply that the elderly are less likely to make use of e-government.

Later studies of Ebbers et al. (2016b) confirmed the negative relation between age and the usage of the website of a municipality. Furthermore, young people seem to be more habituated to the internet and therefore more skilled, which leads to a higher level of e-participation (Lee & Kim, 2014; Weber et al., 2003). This does relate to the conclusion that the frequency of use of the internet leads to more habitation and therefore a higher level of usage of e-government (Ebbers et al., 2016b).

Secondly, gender has been appointed to be a predictor for the use of a website for e-services. Multiple studies have shown that males are more frequently using the internet to get in contact with the government (Ebbers et al., 2016a; Ebbers et al., 2016b; Pieterson & Van Dijk, 2007).

Finally, the educational level of the citizen seems to affect the use of the website as well. In early studies, it was already acknowledged that high educated high schoolers are more involved in extracurricular activities, for their communities, in contrast to lower educated high schoolers (Smith, 1999). Later this assumption still seemed to be applicable when it comes to e-participation (Lee & Kim, 2014; Weber et al., 2003). During this study, the classification of Statistics Netherlands was used. This meant all educational levels from elementary school up to MBO was classified as low educational level, HBO and WO were classified as high educational level (Centraal Bureau Voor De Statistiek, n.d.-b)

However, multiple studies have pointed out that not only personal characteristics are playing a role in the choice for e-participation, but emotions, habits and early experience do have a certain effect as well (Pieterson & Van Dijk, 2007; Reddick, 2005). Next to that, the digital divide caused by demographics seems to close (Ebbers et al., 2016a). Nevertheless, there stays a need to study the relation between demographics, e-participation and web 2.0 with municipalities.

2.11 Social capital

Theory showed that the involvement in e-participation is not merely depending on the provision and use of web 2.0, personal characteristics or citizen engagement in the society. Researchers have argued that the social capital of a citizen can be of influence on the level of e-participation as well. In an earlier study, Verschuere et al. (2012) did suggest that social capital, therefore, would also influence the relation between the use of web 2.0 and e-participation. Early research has defined social capital as "features of social organization such as networks, norms and social trust that facilitate coordination and cooperation for mutual benefit" (Putnam, 2001, p. 66). Lee and Kim (2014) argued that social capital should be seen as a concept that is collectively formed, but does belong to every individual and therefore is able to predict the behaviour of this individual and which therefore may relate with the reason to use e-participation.

Lee and Kim (2014) stated that social capital exists of three variables. At first, the level of trust in the government is a predictor of social capital. In addition, more research has confirmed that the level of trust in the government is a predictor of the acceptance of e-government applications (Bélanger & Carter, 2008).

Secondly, the social network of the citizen, and the strength of the ties within these networks, affect the social capital. This means that there are differences found between citizens with mainly online ties versus mainly offline ties, next to that differences between strong and weak ties were appointed too. It is shown that the citizens with weak ties are more likely to be involved in e-participation, since they are less involved in face-2-face communication and therefore more present on the internet (Lee & Kim, 2014).

At last, the civic norms the citizen is experiencing are a predictor of social capital. Civic norms are group beliefs about how the member of a group should behave, also in public society (Lee & Kim, 2014).

2.12 Conceptual model and hypotheses

Taken the concepts together, a theoretical framework can be formed. This should be based on two levels, on the one hand, the framework needs to focus on the municipalities, while on the other hand concepts need to be applied to the citizens as individuals.

Several concepts should come together to measure the role of the municipality in the citizens' intention to e-participation. First, the effort of the municipalities concerning the facilitation of e-participation needs to be taken into consideration. In addition, the similarities between the facilitation of the e-participation and the different roles that are offered to the citizens are important.

Third, the usage of web 2.0 by municipalities seems to be a determinant to the citizens' e-participation, therefore this usages needs to be evaluated, as does the usage of web 2.0 to promote the e-participation to the citizens. Last, the level of information provision concerning the offered services is of influence to the citizens' participation.

Apart from the role of the municipality, citizens do have a role as well that needs to be taken into consideration in this research as well. To start with, the acceptance and adoption of e-government play a role, as mentioned by Dwivedi et al. (2017) the UMEGA is a model that can be used to measure these concepts. Furthermore, the trust of government and the trust of internet, the perceived risk of the internet, and the perceived ease of use are concepts that need to be contained in the theoretical model (Bélanger & Carter, 2008). Last, personal characteristics and the social capital of the citizen need to be included too.

List of concepts

Since the theoretical framework comprises a lot of concepts, whereby some of the concepts are overlapping, an enumeration of these terms will be provided with a definition which will be used in this study.

Citizen engagement (equals role of the citizen):

> Citizens can be involved in society on certain levels. With the term 'citizen engagement' the citizens can be categorised in several levels of involvement/engagement. According to Van Veenstra et al. (2011) there are four levels of citizen engagement, when it comes to e-participation: (a) spectator, (b) joiner, (c) critics and (d) creator. In this research, these levels were used to indicate the level of citizen engagement. When spoken of the role of a citizen (in the society), there is referred to the term of citizen engagement too.

Electronic participation (i.e. e-participation):

> In this study, the definition of e-participation of the United Nations (2014) will be used since it includes all theory that has been revised to form the hypotheses. Therefore, e-participation will be defined as:
>
> ". . . the process of engaging citizens through ICTs in policy and decision-making in order to make public administration participatory, inclusive, collaborative and deliberative for intrinsic and instrumental ends. E-participation expands a government's toolbox for reaching out to and engaging with its people." (United Nations, 2014)

Facilitating conditions:

Action of a governmental organisation is needed to involve the citizen in the e-participation. These actions of the municipalities are seen as facilitating conditions. Similar to citizen engagement, the municipalities can behave on different levels of e-participation facilitation. There are five levels of facilitation, namely (a) e-informing, (b) e-consulting, (c) e-involving, (d) e-collaboration and (e) e-empowering. Next to the different level of e-participation, a municipality can provide, the usage of web 2.0 and social media are seen as facilitating condition too.

Personal characteristics (i.e. socio-demographics):

Based on the literature, e-participation of the citizen can be explained by personal characteristics too. In this study three personal characteristics will be taken into account, (a) gender, (b) age and (c) educational level.

Social capital:

In this research, the term social capital has been specified to the individual, while it can be measured as a concept of the collective society. In this study the predictors of social capital are not deviating from common literature, which means that it is formed by (a) the strength of social ties, (b) the civic norms an individual experiences and (c) the level of trust in the government a citizen experiences.

Web 2.0:

Web 2.0 represents the second generation of the internet. In contrast to the first generation of internet, web 2.0 focusses on interactive relations between the sender (e.g. the municipality) and the receiver (e.g. the citizen). Furthermore, the main focus lies with offering services on a continuous base. These services are always submitted to improvement and adaptation.

Social media:

Web 2.0 offers several platforms to internet users, which facilitates them to communicate with each other, so-called social media. Social media is a group of technologies via which individuals and/or organisations can communicate with other individuals/organisations.

Based on the presented theoretical framework, the following hypotheses can be formulated.

H1: Compared to municipalities that do not use web 2.0, municipalities that do use web 2.0 experience a higher level of citizens' behavioural intention to make use of e-participation.

H2: Compared to citizens that do not use web 2.0, citizens who do use web 2.0 have a higher level of behavioural intention to make use of e-participation.

H3: Perceived risk of the internet has a negative effect on the level of citizens' behavioural intention to make use of e-participation.

H4: Performance expectancy has a positive effect on the level of citizens' behavioural intention to make use of e-participation.

H5: Effort expectancy has a negative effect on the level of citizens' behavioural intention to make use of e-participation.

H6: Attitude towards e-participation has a positive mediation effect towards the level of citizens' behavioural intention to make use of e-participation.

H7: Personal characteristics of citizens have an effect on the level of citizens' behavioural intention to make use of e-participation

> *H7a*: Compared to citizens older than 30 years, citizens younger than 30 years have a higher level of behavioural intention to make use of e-participation.
>
> *H7b*: Compared to women, men have a higher level of behavioural intention to make use of e-participation.
>
> *H7c*: Compared to citizens with a low level of education, citizens with a high level of education have a higher level of behavioural intention to make use of e-participation.

H8: Compared to citizens with low social capital, citizens with high social capital have a higher level of behavioural intention to make use of e-participation.

2.13 Preliminary research model

Based on the hypotheses that are stated above, the following conceptual model can be presented

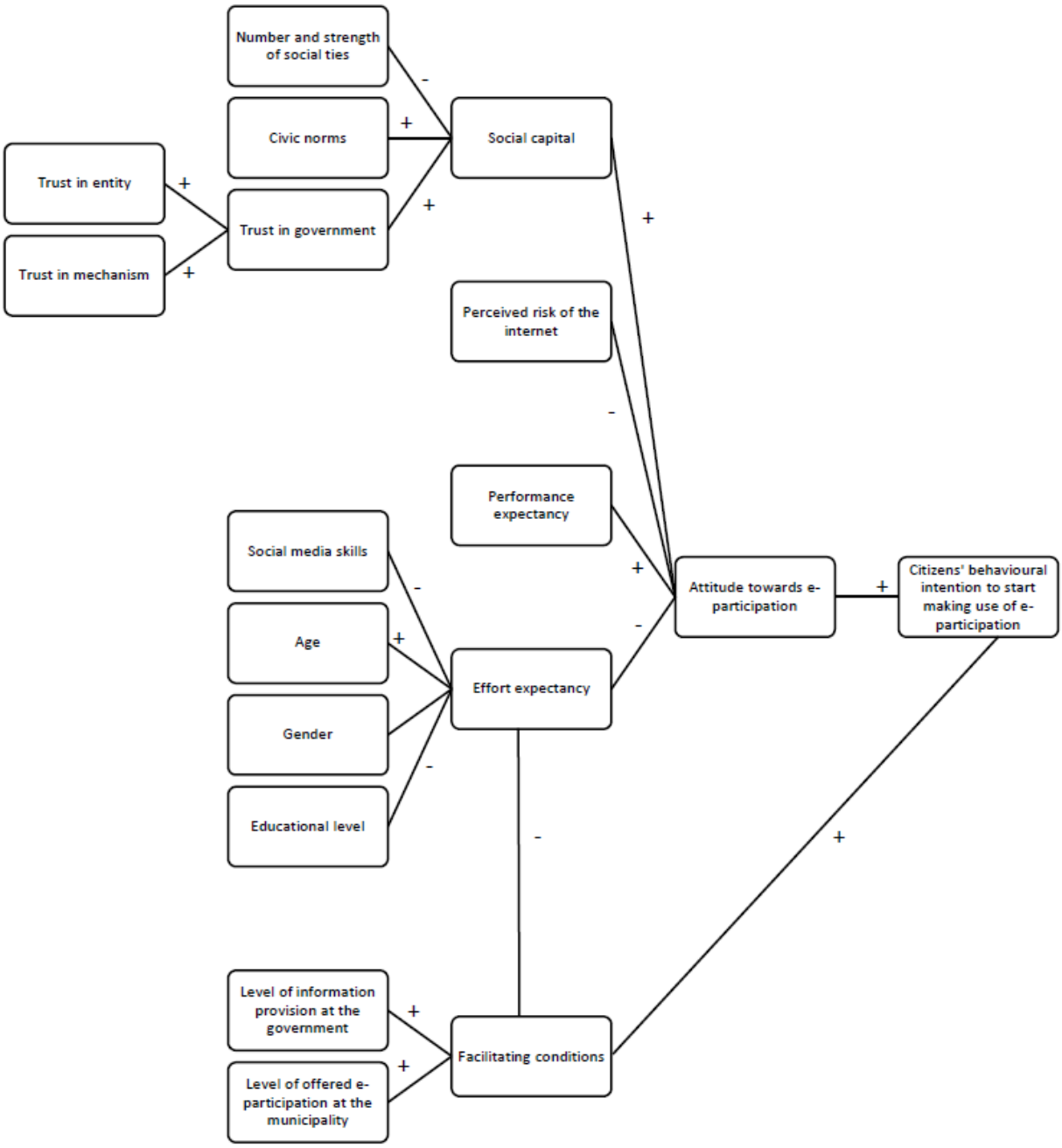

Figure 1: Preliminary research model

3. Method

Based on the theoretical framework hypotheses were formulated regarding the prediction of citizens' intention to make use of e-participation in municipalities, which led to a preliminary research model. The following section will describe the research methods that were used to test the hypotheses. At first, the research design of the study will be described. In addition, there will be deliberated on the operationalisation of the constructs. Following that, there will be elaborated on the data collection and data analysis. Fourth, the instrument will be statistically validated. At last, ethical considerations are taken into account.

3.1 Research design

As the preliminary research model shows, the purpose of this study was to explore the behavioural intention of citizens to become active in e-participation in the Dutch municipality they live in. Next to the intention a citizen can have, the relation between e-participation and the usage of web 2.0 was analysed. Therefore, to test the hypotheses, an empirical explanatory study was conducted. To test the influences of the independent variables the research design consisted of two separated studies. Therefore, a cross-sectional research design was used. The first part of the research concerned measurements to test hypothesis 1, by the use of a qualitative analysis of information of the municipalities. In contrast to that, quantitative data was collected to test hypotheses 2 to 8.

3.2 Operationalisation of the constructs

For testing the hypotheses, which are summarised in the conceptual model, the concepts needed to be operationalised. The items in the questionnaire were compiled from validated instruments and scales that were presented and validated in the literature related to e-participation. However, items needed to be translated from English to Dutch. The full questionnaire can be found in Appendix 1.

UMEGA

Since the core of the conceptual model of this study is based on the UMEGA of Dwivedi et al. (2017), corresponding concepts that are used in the model can be measured based on the survey that has been performed and validated by Dwivedi et al. (2017). In this study, five out of the seven concepts of the UMEGA were measured, (a) the perceived risk of the internet, (b) the performance expectancy of the used tool, (c) the effort expectancy associated by the use of the system, (d) the attitude towards the use of the system and (e) the behavioural intention. In contrast to the original UMEGA model this study will not test the concept of facilitating conditions, an explanation is given in the next paragraph. Furthermore, the concept of social influences is replaced by the concept of social capital.

Facilitating conditions

The preliminary research model showed a wide scope of research, therefore a high number of respondents was needed to test the hypotheses, based on the number of variables. To avoid the risk of having a sample that was not reliable for the measures, it was practically sensible to remove a variable. Moreover, a model as presented would require firm statistical tests to properly test the hypotheses, for which time would not be sufficient. Based on these practical considerations it was decided not to measure the construct of facilitating conditions. The selection of this constructs was based on several theoretical arguments.

First, there seemed to be a discussion on the relation facilitating conditions has with other constructs in technology acceptance models. First, by analysing eight different behavioural models, Venkatesh, Morris, Davis, and Davis (2003) concluded that facilitating conditions is one of the four core constructs in the Unified Theory of Acceptance and Use of Technology (UTAUT) model, next to performance expectancy, effort expectancy and social influences. However, the empirical validations of the UTAUT showed that the presence of performance expectancy and effort expectancy made that the construct of facilitating conditions was no longer significantly related to the behavioural intention, but had a direct relation with the actual usage of technology (Venkatesh et al., 2003).

In contrast to that validation, a meta-analysis of the UTAUT by Dwivedi, Rana, Chen, and Williams (2011) showed that there are some disparities between this assumption in the UTAUT and other acceptance models. While Venkatesh et al. (2003) argued that facilitating conditions did not have a significant influence on the behavioural intention, Dwivedi et al. (2011) argued the contrary based on an analysis of 43 studies. A later study of Dwivedi et al. (2017) also showed that facilitating conditions had a relation with the behavioural intention, which led to the UMEGA.

In addition, Dwivedi et al. (2011) assessed the internal uniformity of all UTAUT constructs across 18 studies. Analysis of these studies showed that facilitating conditions had an average Cronbach's alpha of 0.747, which seemed to be the lowest measure of the six constructs of UTAUT. It has been argued that an alpha of 0.7 is acceptable, however, an alpha of 0.8 is recommended (Hair, Black, Babin, Anderson, & Tatham, 1998). While low intercorrelations can be fairly interpreted, a high Cronbach's alpha is recommended when interpreting constructs (Cronbach, 1951). However the questionnaire is based on validated instruments, it can be assumed that there is a higher chance of a low Cronbach's alpha in this study when compared to the other constructs.

Concluding, due to practical reasons it seemed reasonable to take out one of the constructs. Based on theoretical considerations it was fair to remove the construct facilitating conditions and its predictors from the model, over other constructs.

Social capital

The sixth variable of the UMEGA is the perceived individual social influences a person experiences from people important to them. In the current conceptual model, this variable has been replaced by the variable social capital. Based on the theory, the independent variable of social capital is formed by three predictors, (a) the strength of the offline social network ties of the citizen, (b) the civic norms of a citizen and (c) the trust a citizen has in the government (Lee & Kim, 2014). Since the study of Lee and Kim (2014) has proven these concepts to be accurate, the measures that are used in this study find their origin from the work of Lee and Kim (2014).

To measure the strength of the offline ties of a citizen a self-report of the citizen was used. Based on the validated scale of Lee and Kim (2014), five items were constructed on a 7-point Likert-scale in which the respondent had to indicate to which amount the respondent was in offline contact with five social groups, such as family and co-workers.

To measure the level of civic norms, the respondent had to indicate the regularity of voluntary actions performed by him/her over the last three years, on a 7-point Likert-scale. Since Lee and Kim (2014) argue that voluntarism is socially cooperative behaviour and therefore can be a measure to the extent of civic norms a citizen experiences. Where Gil De Zúñiga and Valenzuela (2011) showed that the size of an offline social network was positively related to civic norms, a self-report of different offline social activities was incorporated to measure the civic norms a respondent would experience. Resulting in a scale with five items instead of one. Last, the voting behaviour of a citizen can be a predictor of civic norms as well, therefore this was measured as well, but items concerning voting behaviour will merely be used as control variables.

Last, to measure the trust in government, Lee and Kim (2014) made use of prior research. However, to measure this concept a single item was used in their study. Since there is a chance to miss different aspects of citizens' trust in the government, in the current conceptual model it was divided into two different concepts, (a) trust in the entity (i.e. the municipality) and (b) trust in the mechanism (i.e. the internet). However, when constructing the questionnaire it seemed appropriate to combine those concepts to one scale, for trust in the government. Therefore, the items used where originated from validated scales of Bélanger and Carter (2008), on a 7-point Likert-scale.

Personal characteristics

As presented in the preliminary research model, the independent variable of effort expectancy is influenced by four other constructs. Together these four constructs formed the personal characteristics of the citizen. The first three variables are socio-demographical data, namely age, gender and educational level.

The fourth variable of personal characteristics is the role a citizen takes on in their contact with the municipality, by Van Veenstra et al. (2011) defined as citizen's engagement. However, since multiple studies have confirmed the impacts of personal characteristics it was assumed that these constructs were not needed to be tested again. Furthermore, due to practical reasons concerning statistical testing of the data these variables were excluded from being tested. Nevertheless, the constructs of personal characteristics were taken into account as control variables when testing the results.

Based on the considerations concerning the constructs facilitating conditions, social influences, social capital, trust in the government and personal characteristics a new research model was drawn up. This model is presented in Figure 2.

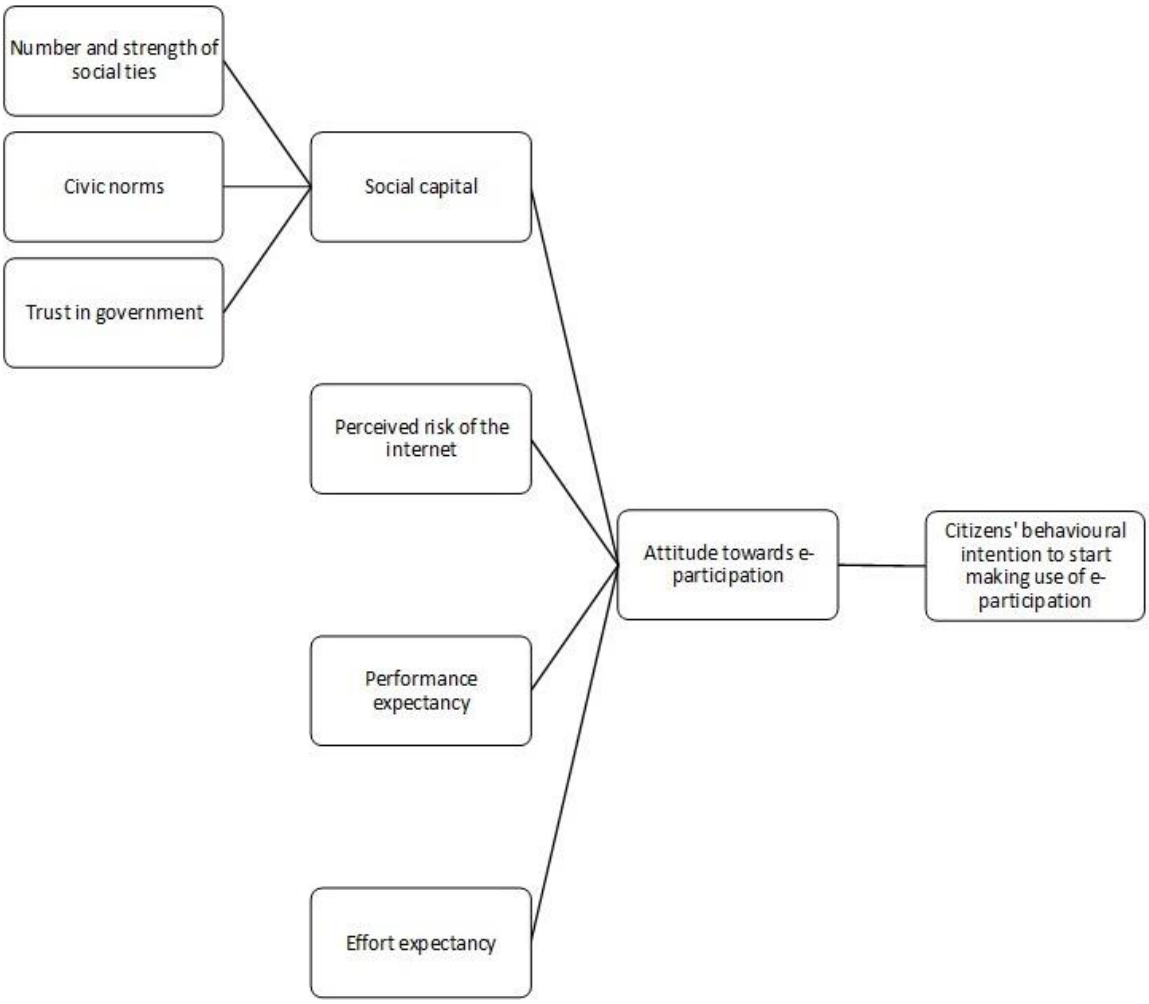

Figure 2: Research model

3.3 Data collection

Case selection

For this study, it was impossible to study all Dutch municipalities, since the total number of Dutch municipalities is 355. Therefore, an appropriate selection was needed. When making this selection, it was important to have a clear view of the purpose of this study. This meant that the selection of the municipality should not be arbitrary, but based on clear criteria.

According to Seawright and Gerring (2008), case selection based on similarities was needed, since the purpose of this study was to explore possible relations between two different variables. When selecting two or more cases based on similarities, the cases should be as similar on most of the variables as possible. However, when little is known about the independent variables, an alternative approach is needed. Seawright and Gerring (2008) suggested identifying variables, other than the variables that will be measured. Nonetheless, the more matching variables are designed, the lower the change of succession to find suitable cases. Since exact matching of municipalities is impossible, approximate matching was employed. In this study, several matching variables were constructed to find appropriate municipalities.

First, several municipalities were excluded from the selection. Municipalities that seemed to be frontrunners in the implementation of e-participation were excluded, since research has already been performed into these municipalities. The results of these earlier studies were also used in composing the current study. It can be assumed that the G4 municipalities can be seen as the frontrunners in e-participation.

Furthermore, municipalities that do not have the organisational capacity to facilitate the use of e-participation were excluded as well. When a municipality does not have the capacity to operationalise or maintain the e-participation for services, citizens cannot make use of any form of e-participation. Therefore, a study into such municipalities would be of no scientific nor practical value. This variable could be measured by assessing the number of FTE that a municipality is able to commit to the digitalisation of the municipality. However, one out of three municipalities is lacking to publish these numbers. Therefore an assessment of the Vereniging Van Nederlandse Gemeenten (2018) (Association for Dutch municipalities, VNG) concerning the digital maturity of a municipality was taken as a reference point to this matching variable. The VNG (2018) assigned a percentage to a municipality based on the digital maturity concerning products for citizens. In 2018, the mean of this assessment was 77%, with a standard deviation of 10%. Based on abovementioned, municipalities which deviated with more than one standard deviation from the mean were excluded from the case selection. Municipalities with an unknown score were excluded as well. This led to an exclusion of 102 municipalities.

Third, the number of residents of a municipality was appointed to be a suitable exclusion criterium. Dutch municipalities are categorised by the Centraal Bureau Voor De Statistiek (n.d.-a) (Statistics Netherlands, CBS) into eight different categories. Based on these categories, municipalities are defined as small, midsized or big municipalities. For this study, midsized municipalities are selected, meaning municipalities in categories 5, 6 and 7 of the CBS are used. Therefore, municipalities with 50.000 up to 250.000 residents are included. This led to an exclusion of 199 municipalities, leading to 54 municipalities that were suitable for selection.

Last, out of the 54 municipalities that were as similar as possible to each other, the last selection criterium was based on practical matters. Out of the 54 municipalities nine municipalities were selected, of which the researcher suspected to be able to reach out to the needed number of respondents per municipality.

In addition to this case selection, due to practical matters two municipalities that were excluded based on one or more criteria, were taken into the selection. When the number of respondents was insufficient in the municipalities that fit the criteria, those two municipalities could be used. It was expected that a useful sample of these two municipalities would be achievable. This concerns the municipalities Utrecht and Wijchen. All selected municipalities are summarised in Table 1, with the identification variables that were used.

Table 1

Selected municipalities

Municipality	Number of residents (2019)	Digital maturity (%, 2018)	Average standardised income (x €1.000, 2018)
Amersfoort	156.286	82%	31,8
Apeldoorn	159.265	86%	27,1
Arnhem	162.445	84%	30,0
Deventer	99.957	84%	28,3
Enschede	158.986	87%	26,0
Hengelo	80.683	78%	27,8
‘s-Hertogenbosch	154.205	81%	31,0
Nijmegen	176.731	84%	27,5
Utrecht	352.866	88%	30,9
Wijchen	40.951	83%	31,0
Zwolle	127.497	87%	29,4

Sampling procedure

Next to the data that described the situation at the municipalities, data about the citizens was needed as well, to test the hypotheses 2 to 8. To come to the behavioural intention of a citizen to take a part in e-participation, onetime non-experimental research was conducted, in the form of an online survey, conducted via Qualtrics Survey Software. The full Dutch questionnaire can be found in Appendix 1. The population that is studied consisted of Dutch citizens living in one of the selected municipalities, with an age of 18 or higher. To be able to provide results that were generalisable over the whole population, the level of representativeness should be as high as possible (Babbie, 2016; Dooley, 2009). Since a selection of municipalities was made, the criteria for the respondents was to be living in either one of the eleven municipalities. Therefore, a nonprobability convenience sampling technique was used (Babbie, 2016; Fink, 2014). In addition, snowball sampling was used to get the questionnaire as widespread as possible (Goodman, 1961).

Before the respondents started the questionnaire, informed consent was presented to them. This stated the purpose of the research, the fact that the data was used and anonymised, as well as the possibility to stop the questionnaire at any time and contact details of the researcher were presented. Second, the goal of the study and key terms were explained. Following on that, the items of the abovementioned constructs were presented, all on a seven point Likert-scale. Last, some demographics were gathered.

Period

All data was gathered during the global pandemic of COVID-19. Also in the Netherlands, this led to measures, which could influence the current study. Most importantly, an intelligent lockdown was announced which led to major changes in the society. Amongst others, city halls were closed, leading to merely online communication between citizen and municipality. It can be assumed that this restriction made citizens more active when it comes to e-participation.

Four significant moments can be appointed in during the data collection. The announcement of the start of the intelligent lockdown of the Netherlands on March 15th 2020 by a speech of prime minister Mark Rutte. On March 30th 2020 the survey was distributed, meaning that citizens already got two weeks to adapt themselves to the 'new' society, so to say. March 31st 2020 it was announced that the measures concerning COVID-19 were extended, which was in expectation of earlier messages. Third, on April 21st 2020 extra extension was announced, however, it was widely hoped that some relaxation of the measures could take place. This was demotivating to a lot of people. Last, on May 6th 2020 multiple relaxations were announced, as was a schedule with possible dates for further relaxation of measures.

Because the survey took place in this unusual and new situation, the effects of the COVID-19 pandemic cannot be ruled out. Therefore, some extra tests were conducted to test if the press conferences of the prime minister were of effect. The sample was categorised into three groups; (1) start of the survey up to and including April 20th, (2) April 21st up to and including May 5th and (3) May 6th up to the closing of the questionnaire.

Sample

The questionnaire was started by 1566 persons, whereof 694 ended the questionnaire fully. However, data from 523 respondents were analysed. This number was based on the filtering of the respondents. First, respondents who completed the survey in less than 396 seconds were excluded. This limit was chosen since it was the mode with the lowest value when it came to the duration, also it seemed to be a reasonable timeframe to complete the full questionnaire. Secondly, 1 respondent was younger than 18 years and therefore no part of the target group. Last, since the analyses were performed per municipality, the number of respondents of that municipality needed to be at least 10. Consequently, respondents living in the municipality of 's-Hertogenbosch were excluded from the study, as were all respondents who lived in a municipality other than a municipality that was listed above.

The sample consisted of 144 men, 377 women and 2 people who did not want to disclose gender (27,5%, 72,1%, 0,4% resp.), most of the respondents were between 20 and 29 years old (38,4%). The majority of the sample has finished an educational programme at a university. Of the total number of respondents 79 (15,1%) work for the government, of those 53 work for a municipality (32,9% of governmental employees, 5,0% of the total sample). A major part of the respondents filled in the questionnaire before the presentation of the relaxation of the COVID-19 measures, either before the press conference of April 21st (46,3%) or after this press conference (40,9%). An overview of the demographics of the sample can be found in Table 2. Appendix 2 shows the demographics of the respondents per municipality.

Table 2

Demographics of the sample

	N	%
Gender		
Male	144	27,5%
Female	377	72,1%
Other/preferred not to disclose	2	0,4%
Age cohort		
18-19 years	9	1,7%
20-29 years	201	38,4%
30-39 years	69	13,2%
40-49 years	72	13,8%
50-59 years	101	19,3%
60 years or older	69	13,2%
Preferred not to disclose	2	0,4%
Educational level		
Primary education	2	0,4%
VMBO	28	5,4%
HAVO	30	5,7%
VWO	38	7,3%
MBO	97	18,5%
HBO	169	32,3%
WO, Bachelor	66	12,6%
WO, Master	89	17,0%
Preferred not to disclose	4	0,8%
Municipality of residence		
Amersfoort	25	4,8%
Apeldoorn	46	8,8%
Arnhem	38	7,3%
Deventer	81	15,5%
Enschede	108	20,7%
Hengelo	54	10,3%
Nijmegen	35	6,7%
Utrecht	24	4,6%
Wijchen	79	15,1%
Zwolle	33	6,3%
Works for the government	79	15,1%
Works for a municipality	26	5,0%
Voted during the last municipal elections		
Yes	440	84,1%
No	59	11,3%
Not entitled to vote	10	1,9%
Not sure/preferred not to disclose	14	2,7%
Voted during the last elections		
Yes	436	83,4%
No	67	12,8%
Not entitled to vote	8	1,5%
Not sure/preferred not to disclose	12	2,3%
Moment of finishing the questionnaire		
Start (March 30th) up to April 20th	214	40,9%
April 20th up to May 5th	242	46,3%
May 5th up to end (May 15th)	67	12,8%
Total	523	

3.4 Data analysis

Since a cross-sectional research design was used, multilevel data analysis was performed. Initially, eleven municipalities were selected to gather data. However, this study only focussed on 10 municipalities. This final selection was based on the number of residents per municipality. Of the 11 municipalities that were selected only one was excluded, namely 's-Hertogenbosch as can be seen in Table 2.

First, to test Hypothesis 1, qualitative data analysis was performed on the communication channels of the selected municipalities. As well, coalition agreements of these municipalities were structurally coded. This coding was based on the frequency of mentioning terms related to e-participation and digitalisation. Through this qualitative analysis, the municipalities could be scored, with a maximum of 50 points. The full codebook can be found in Appendix 3.a.

Subsequently, the data of the online questionnaire was export from the Qualtrics Survey Software. Consequently, the data was filtered and made appropriate for statistic measures. All data was analysed by use of the IBM SPSS Statistics 26.0 programme. In addition, IBM SPSS AMOS 23 was used to verify the output of SPSS, include the unobserved errors variables and measure the goodness of fit of the model.

3.5 Validity and reliability

Before analysing the data, the validity and reliability of the instrument needed to be tested. All scales originated from validated scales, however, the fact that they were used in a different sample and unknown situation made it necessary to perform an analysis on these scales. A principal component analysis (PCA) with Varimax rotation was conducted on all items. The Kaiser-Meyer-Olkin measure verified the sampling adequacy of this analysis, KMO = .887 and thus exceeds the recommended value of .5 (Hutcheson & Sofroniou, 1999; Kaiser, 1974). Next to that, the KMO value of every individual item was > .620, also above the acceptable limit of .5 (Field 2009). Based on these analyses none of the items needed to be excluded from further analysis. Furthermore, Bartlett's test was performed, to measure the sphericity. This test showed a significance of the correlations within the R-matrix, indicating relations between the original variables ($\chi^2(1378) = 14523.940$, $p < .01$).

Based on the PCA, 14 factors were engendered, with a cumulative variance of 67,318%. An overview of this analysis is presented in Appendix 4.a. However, the last factor consisted of two items which originally had no relation, an item focussing on civic norms (i.e. voluntarism) and one concerning online citizen behaviour (i.e. uploading a video). Based on these results both items were deleted from the analysis.

Therefore, earlier tested values were no longer applicable a new PCA with Varimax rotation showed an overall KMO of .891, a variable KMO of > .620 and still a significance of the R-matrix by Bartlett's test ($\chi^2(1275) = 14310.361$, $p < .01$). This new analysis showed 13 factors, an overview is presented in Appendix 4.b.

As the analysis shows, most of the scales are measured in congruence with the distinguished components. The variable of online citizen engagement is divided over four factors and the variables of civic norms and social ties, are intertwined with each other over two factors.

Subsequently, the variable trust in government was measured by using two scales, namely trust in the mechanism and trust in the entity (i.e. Q4 and Q5, resp. factor 6 and 2). In further analyses those are combined.

In addition to the PCA, a reliability analysis of the factors was performed by using the Cronbach's alpha measure. The results show an indication of the internal consistency of the items within the construct. Based on the 13 factors as shown in Appendix 4.b, the scale of online citizen behaviour was divided into four components, all with an alpha with a value beneath .70. Noteworthy is the fact that all four of these components are in accordance with the four participatory roles Van Veenstra et al. (2011) distinguish when it comes to citizens who use municipal communication channels. Factor 8 represents the spectators, factor 9 the critics, factor 11 the creators and factor 12 the joiners. However, when using the scale as intended an alpha of .763 was approached.

Furthermore, the PCA showed that the scales of social ties and civic norms should be combined into one scale with 7 items. Based on this analysis the scales were combined into "Offline citizen behaviour", Cronbach's alpha did increase from .614 and .619 (resp.) to .750. For an overview of all values of Cronbach's alpha see Table 3. Based on this PCA a revision of the research model is made, which can be found in Figure 3.

During this study, the period of sampling could affect the results. Therefore, additional factor analyses were conducted to exclude scale differences between the three sampling groups. The results of these tests show some discrepancies between the groups and the total sample. Within group 1 and 2 one item could not be linked to any of the factors. For the first sample group it was found that the items concerning social ties and civic norms were more separated, in comparison to the whole sample. Within group 2 the PCA showed that there was a clear factor concerning the online engagement. Finally, within the last group, the variables perceived risk of the internet and trust in the government were indicated as being one factor. However, reliability tests of the scales as conducted in the earlier PCA show that in all three groups the scales are reliable. Furthermore, the difference between respondents per group is substantial.

Table 3
Cronbach's Alpha of the constructs

Construct	α	n items	Items deleted
Social ties*	.614	5	-
Civic norms*	.619	4	1
Trust in government	.903	10	-
Perceived risk of the internet	.880	5	-
Performance expectancy	.835	5	-
Effort expectancy	.750	5	-
Attitude	.857	4	-
Behavioural intention	.965	3	-
Online citizen engagement	.763	11	1
Offline citizen behaviour**	.750	7	3

Note: *left out of further analyses | **scale exists of a combination of social ties and civic norms.

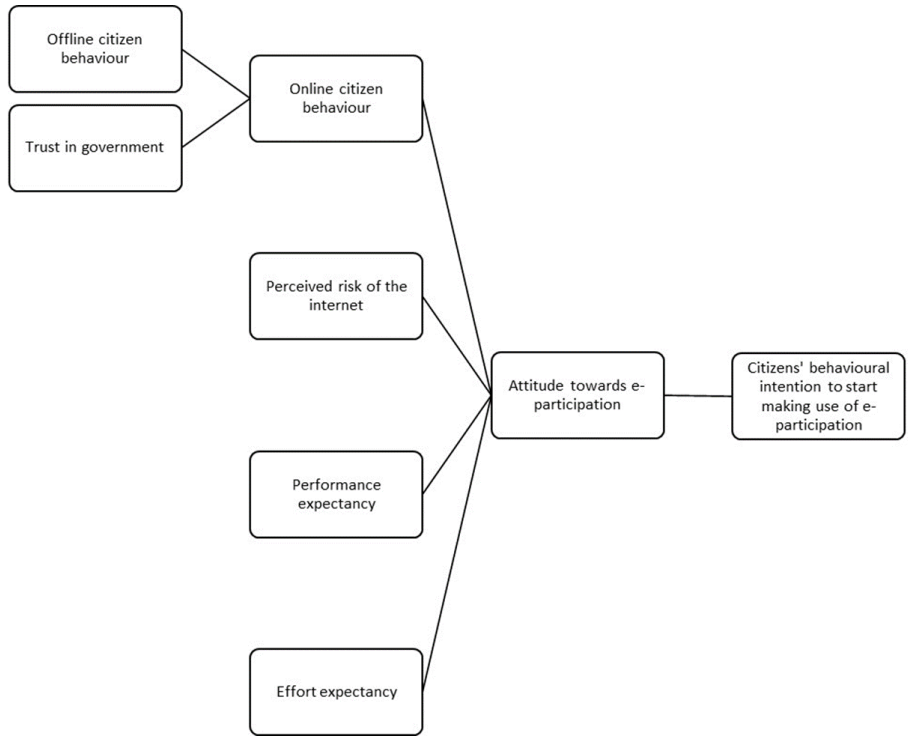

Figure 3: Adapted research model

3.6 Ethical considerations

At the Faculty of Behavioural, Management and Social Science of the University of Twente studies that involve human subjects and/or sensitive data need to be approved by the Ethical Committee of the faculty. Since this study did include human subjects, a request at the Ethical Committee has been filed. By submitting the research to the Ethical Committee, the researcher has shown ethical considerations were taken into account. Since no ethical complications were expected at the respondents, the questionnaire and study were approved by the Ethical Committee of the Faculty of Behavioural, Management and Social Science of the University of Twente, indicated by the application number 200029.

4. Results

In this section, the results of the study will be presented. Since this research comprises two separate studies, the results of those will be presented separately from each other. To start, the results of the qualitative study into the use of web 2.0 by municipalities are discussed. Thereafter, the results of the quantitative study by the means of the survey will be given. First, descriptives results and correlations will be presented. Then, the full model is tested as a whole with all interrelated factors, by means of using structural equation modelling. Last, the predictive value of the model is used to test the hypotheses.

4.1 Results qualitative study

Before analysing the quantitative results of the questionnaire, the results of the qualitative study into the use of web 2.0 by municipalities are analysed. This analysis was done by scoring a municipality that was included in the study on their used channels and coalition agreements. Table 4 shows the total score per municipality, Appendix 3.b shows detailed scoring per municipality. Shortly, the results of this coding will be discussed. Overall, there are several commonalities when it comes to the use of web 2.0 by the municipalities. All municipalities are making extensively use of social media channels, whereof Facebook is used almost daily by every municipality. Another similarity is the fact that most of the municipalities are using an application by which the citizen can report any sort of issues in the municipality. However, in all of the cases, these applications are one-way communication from citizen to municipality.

Some differences should be noted as well, based on the variety of the scores between 29 and 42 points. To start, Apeldoorn, Arnhem and Deventer use RSS feeds which translates into their higher scores. In Utrecht and Enschede a part of the coalition agreement covers e-participation, which can be an explanation for their scores. In addition, Enschede also has an alderman with responsibility for e-participation. Noteworthy are both the outliers. While the municipality of Nijmegen scores 29 points and Arnhem 42, the VNG assessed both the municipalities with 84% of digital maturity. These differences can be caused by the fact that this study analyses the use of web 2.0 and social media, while the assessment of the VNG covers the online products a municipality is offering. Furthermore, in the coalition agreement of Nijmegen e-participation is not mentioned, while other municipalities do have at least one reference concerning the topic.

Table 4
Total score per municipality

Municipality	Number of residents (2019)	Digital maturity (%, 2018)	Average standardised income (x €1.000, 2018)	Score of the analyses
Amersfoort	156.286	82%	31,8	34
Apeldoorn	159.265	86%	27,1	37
Arnhem	162.445	84%	30,0	42
Deventer	99.957	84%	28,3	37
Enschede	158.986	87%	26,0	36
Hengelo	80.683	78%	27,8	31
Nijmegen	176.731	84%	27,5	29
Utrecht	352.866	88%	30,9	36
Wijchen	40.951	83%	31,0	31
Zwolle	127.497	87%	29,4	30

4.2 Results quantitative study

4.2.1 Descriptive results

Controlling the assumptions for parametric data showed some deviations of several criteria that should be met, see Appendix 5. First, to check the assumption of normality Skewness and Kurtosis were tested. Based on these test, the scale for attitude showed deviations on both measures. However, according to Field (2009) when working with a large sample (n=200 or more), numeric tests are not always reliable, therefore analyses by means of the Kolmogorov-Smirnov test was not appropriate. In contrast, a histogram and probability plot is used to assess the assumption of normality. Both showed that the scale is rather normally distributed, although less than others.

In addition, by the use of Levene's test homogeneity of the data was tested. As can be seen in Appendix 5 some scales showed significance on the Levene's test and therefore implying heterogeneity. However, again the sample size should be taken into consideration.

To compute the descriptive statistics, all multiple-item scales were averaged. All scales had a range from 1 to 7. The scale of effort expectancy has been reversed since a high score on an item insinuated a low effort expectancy. The mean and standard deviations of all scales can be found in Table 5.

There are a few findings that stand out when examining the descriptive results. Most of the mean scores are around the 5.0, meaning that the overall judgement was somewhat positive on those scales, but no strikingly high scores were measured. However, the mean score for the scales of the perceived risk of the internet and the effort expectancy are very low in comparison to others.

This indicates that the respondents do not experience big risks on the internet nor have a high effort expectancy of the used platforms of the municipalities. In addition, it should be addressed that the online behaviour of the citizens is relatively low as well, meaning that respondents are rather passive users of the availabilities of web 2.0 as measured in the questionnaire. Appendix 6 shows the descriptives and variances per variable per municipality, which shows no serious difference between the municipalities or deviations from the overall sample.

Table 5
Mean, standard deviation and Pearson correlation of variables

	Descriptives		Correlations						
	Mean	Standard deviation	1	2	3	4	5	6	7
1. Performance Expectancy	4.77	1.104							
2. Effort expectancy	2.97	.912	-.445**						
3. Perceived risk of the internet	3.18	1.188	-.182**	.235**					
4. Trust in government	4.81	.933	.417**	-.381**	- .629**				
5. Offline behaviour	4.67	.962	.122**	-.135**	-.270**	.267**			
6. Online behaviour	3.33	.842	.111*	-.188**	-.087*	.103	.139**		
7. Attitude	5.10	1.024	.494**	-.471**	-.423**	.609**	.204**	.211**	
8. Behavioural intention	4.54	1.448	.361**	-.377 **	-.252**	.341**	.118**	.246**	.554**

Note: * p < .05 | ** p < .01

Correlations

A Pearson correlation analysis was conducted to measure the strength of underlying coherence between the latent variables. Table 5 shows that all variables are significantly correlating with each other. All variables that were part of the original UMEGA strongly correlate with each other ($p < .01$). All predictors correlate with attitude; performance expectancy correlated positively ($r = .494$, $p < .01$), effort expectancy correlates negatively ($r = -.565$, $p < .01$) and perceived risk of the internet correlates negatively ($r = -.423$, $p < .01$). On its turn, attitude correlates positively with the behavioural intention ($r = .554$, $p < .01$).

Of the variables related to online citizen behaviour, both trust in the government ($r = .103$, $p < .05$) and offline citizen behaviour ($r = .139$, $p < .01$) correlated positively with online citizen behaviour. Subsequently, online citizen behaviour correlates positively with attitude as well ($r = .211$, $p < .01$).

4.2.2 Structural model testing

Before examining path coefficients and evaluating the hypotheses, the goodness of model fit needs to be calculated. To do so, the programme IBM SPSS AMOS 23 was used. To test the fitness of the model, three fitness categories are distinguished, namely absolute fit, incremental fit and parsimonious fit. Assessment of the model fitness is based on all three categories. The analyses show that some of the indices are met, however not all seem to be sufficient.

First, the statistics of the Chi-Square test provides information about the closeness of the model to the population. Both the parsimonious fit as the discrepancy of the Chi-Square show indices that the model fit is less than desirable ($\chi 2$ (11) = 109.467, p = .000). However, model testing with Chi-Square statistics can give some problems. While a large sample size is desired to provide valuable statistical results, a high sample size (> 200) will most likely reject every model since the Chi-Square statistics are a direct function of the sample size (Sawyer & Page, 1984). Therefore, it is inappropriate to measure the model fitness of this model only based on these numbers.

Earlier research showed that if multiple theoretical assumptions are proven to be correct and a large sample is used, the fit indices based on statistics can be questioned (Mackenzie & Lutz, 1983). Both are the case in this current study. Sawyer and Page (1984) argue that the incremental goodness of fit indices can be useful to complement the statistical tests. Except for the TLI, all incremental fitness indices are acceptable, as is the GFI of absolute fit. Moreover, Anderson and Gerbing (1988) found that the CFI seems to be one of the most stable indices, which is met in the current model. In sum, the overall model fit of the current model fit seems to be adequate. Hence, it seems reasonable to interpret the result to test the hypotheses. A summarisation of the model fitness indices is presented in Table 6.

Table 6
Model fit summary

Category	Name of fit index	Level of acceptance	Literature support	Model value
Absolute fit	Discrepancy Chi-Square (χ^2)	p > .05	(Wheaton, Muthén, Alwin, & Summers, 1977)	.000
	Root Mean Square Error Approximation (RMSEA)	≤ .080	(Brown & Cudeck, 1993)	.131
	Goodness of Fit Index (GFI)	≥ .900	(Hoyle, 1995)	.950
Incremental fit	Adjusted Goodness of Fit Index (AGFI)	≥ .800	(Chin & Todd, 1995)	.835
	Comparative Fit Index (CFI)	≥ .900	(Bentler & Bonett, 1980)	.913
	Tucker-Lewis Index (TLI)	≥ .900	(Bentler & Bonett, 1980)	.779
	Normed Fit Index (NFI)	≥ .900	(Bollen, 1989)	.906
Parsimonious fit	Chi-Square ($\chi 2$)/Degree of Freedom (DF)	< 5.0	(Marsh & Hocevar, 1985)	109.467/11 = 9.952

4.2.3 Predictive value

Having established the relative adequacy of the model's fit, it is appropriate to examine the path coefficients. To discover the relative contribution of the various variables, a series of single linear regression analyses were performed. The results of these regression analyses are shown in Table 7. The analyses show that all individual variables have a predictive value in the model.

Most relations are significant with $p < .01$, while there is a slight deviation in the predictive value of trust in government on online citizen behaviour ($p < .05$). Furthermore, all predictive variables have a significant part of the variance in these regression analyses. However, the level of explained variation in the outcome variables are rather low, ranging from 0,9% to 30,7%.

Table 7
Single regression analyses

Variable	B	SE	β	*t*	*p*	R^2	F	Df	*p*
Online citizen behaviour									
Trust in government	.093	.039	.103	2.369	.018*	.009	5.613	1,521	.018
Offline citizen behaviour	.122	.038	.139	3.201	.001***	.019	10.249	1,521	.001
Attitude									
Performance expectancy	.458	.035	.494	12.975	.000***	.244	168.361	1,521	.000
Effort expectancy	-.529	.043	-.471	-12.195	.000***	.222	148.711	1,521	.000
Perceived risk of the internet	-.365	.034	-.423	-10.651	.000***	.179	113.439	1,521	.000
Online citizen behaviour	.256	.052	.211	4.921	.000***	.044	24.212	1,521	.000
Behavioural intention									
Attitude	.783	.052	.554	15.198	.000***	.307	230.976	1,521	.000

Note: * p < .05 | *** p < .001 (2-tailed)

After performing single linear regression analyses, multiple regression analyses were performed to investigate the predictive value of the different latent variables towards the dependent variable. Results of these analyses are shown in Table 8. The regression analyses indicate that the model explained 30,7% of variance towards the behavioural intention and that the model was a significant predictor of the behavioural intention to e-participate, $F(521) = 230.976$, $p < .001$. In contrast to the single regression analysis, one variable does no longer have a significant relation. Trust in government is no longer seen as a significant predictor of the online behaviour of a citizen ($\beta = .071$, $t(2,520) = 1.585$, $p > .05$).

Table 8
Multiple regression analyses

Variable	B	SE	β	*t*	*p*	R^2	F	Df	*p*
Online citizen behaviour						.024	6.396	2,520	.002**
Constant	2.527	.232		10.873	.000***				
Trust in government	.064	.041	.071	1.585	.114^{ns}				
Offline citizen behaviour	.105	.039	.120	2.667	.008**				
Attitude						.420	93.716	4,518	.000***
Constant	4.870	.307		15.849	.000***				
Performance expectancy	.299	.035	.322	8.582	.000***				
Effort expectancy	-.267	.043	-.238	-6.205	.000***				
Perceived risk of the internet	-.258	.030	-.299	-8.650	.000***				
Online citizen behaviour	.127	.042	.104	3.050	.002**				
Behavioural intention						.307	230.976	1,521	.000***
Constant	.543	.268		2.024	.043*				
Attitude	.783	.052	.554	15.198	.000***				

Note: * p < .05 | ** p < .01 | *** p < .001 (2-tailed)

Since SPSS has limited possibilities to take unobserved error variables into account, an additional analysis of the estimations is performed by the use of IBM SPSS AMOS 23. All analyses by AMOS confirmed the calculations made in SPSS. An overview of the results of the analyses made in AMOS and both models can be found in Appendix 7. In combination with the SEM testing in AMOS, it is appropriate to interpret the results and test the hypotheses.

To test Hypothesis 1 extra multiple regression analyses were performed, to look for deviations in the predictive values per municipalities. Table 9 shows an overview of the relation between attitude and the behavioural intention, as well as the scoring per municipality. The data shows that the standardised β-value of Apeldoorn, Deventer, Nijmegen, Wijchen and Zwolle exceeds the β-value of the whole sample. With exception of Zwolle, the R^2-values also exceed the value of the total sample. To control for variance between these numbers a one-way ANOVA was performed, which showed F (9,513) = .948, p = .482^{ns}. This shows no significant differences occur, based on the municipality of the citizen.

However, the scoring of the usage of web 2.0 in those municipalities varies a lot. Only Apeldoorn and Deventer exceed the mean score of 34,3, while Nijmegen has the lowest scoring, but a experiences a higher β-value and R^2-value. On the other hand, Enschede scores high when it comes to web 2.0, but has both a low β-value and R^2-value. Next to that, when looking into the self-reports of the respondents, the percentages of respondents who do use e-participation is not higher in municipalities who score high on web 2.0. An example is Arnhem which is the municipality with the highest score on web 2.0, but is scoring lower according to the citizens. While Zwolle has a high self-reported percentage of usage, but a low score on the usage of web 2.0 by the municipality.

Nor the statistical analysis, nor the self-reports of the citizens can support Hypothesis 1.

Table 9
Relation between attitude and behavioural intention and web 2.0 scoring per municipality

Municipality	β	p	R^2	n	Scoring of municipality web 2.0	% of respondents who know one or more web 2.0 channels	% of respondents who have used one or more tools for e-participation
Amersfoort	.501	.011*	.251	25	34	96.0%	48.0%
Apeldoorn	.614	.000***	.377	46	37	93.5%	34.8%
Arnhem	.554	.000***	.307	38	42	97.4$	44.7%
Deventer	.592	.000***	.351	81	37	92.6%	53.1%
Enschede	.477	.000***	.227	108	36	90.7%	46.3%
Hengelo	.538	.000***	.290	54	31	96.3%	63.0%
Nijmegen	.624	.000***	.390	35	29	88.6%	37.1%
Utrecht	.539	.007**	.290	24	36	95.8%	50.0%
Wijchen	.640	.000***	.410	79	31	84.4%	51.9%
Zwolle	.559	.001***	.312	33	30	87.9%	54.5%
Total	.554	.000***	.307	523	m = 34,3	91.6%	48.9%

Note: * p < .05 | ** p < .01 | *** p < .001 (2-tailed)

To test Hypothesis 2, the self-reported variable online citizen engagement was used. By summing all self-reports of this variable a total was calculated. Since 11 items with a 7-point Likert-scale were used, a respondent that continuously uses the web 2.0 would gather 77 points, while a non-user would score 11 points. Based on this, three groups are distinguished. The first group was categorised from 11 up to 33 points, the second group consisted of 34 up to 55, third 56 up to 77. By performing a one-way ANOVA differences between the three groups are measured. The results showed that there are differences when it comes to behavioural intention ($F(2,520) = 9.909$, $p < .001$). Performing a Tukey post hoc test showed that behavioural intention for low users of web 2.0 ($m = 4.20$, $sd = 1.384$) is significant different than medium users ($m = 4.72$, $sd = 1.444$), with a p-value of .000. In addition, significant differences were also found between the low users and high users ($m = 5.18$, $sd = 1.519$) with a p-value of .019. The differences between medium and high users seemed not to be statistically significant, with a p-value of .411. While not all groups show statistically significant differences, Hypothesis 2 can be supported.

Besides, Hypotheses 3 up to 6 all can be supported. The effects of perceived risk of the internet and effort expectancy both have a significant negative impact on the attitude towards e-participation, while performance expectancy has a significant positive impact on the attitude towards e-participation. Furthermore, as was expected attitude has a significant positive relation with the level of citizens' behavioural intention to make use of e-participation. Figure 4 shows the validated research model, with the path coefficients and the significance of all relations. In addition, the explained variance per independent variable is shown as well.

Moreover, to test Hypothesis 7 independent sample T-Tests were performed between groups. Concerning Hypothesis 7a, no significant differences of behavioural intention where found between citizens younger than 30 years ($m = 4.42$, $sd = 1.429$) and citizens older than 30 year ($m = 4.62$, $sd = 1.458$), since $t(521) = 1.556$, $p = .120$. Therefore Hypothesis 7a can not be supported.

When looking into difference concerning gender, the difference in behavioural intention between men ($m = 4.76$, $sd = 1.541$) and women ($m = 4.44$, $sd = 1.401$) seemed to be significant with $t(519) = 2.261$, $p < .05$. Hence, Hypotheses 7b is supported.

Last, the difference between lower educated citizens ($m = 4.38$, $sd = 1.448$) and higher educated citizens ($m = 4.64$, $sd = 1.442$) seems to be significant as well, $t(517) = -1.974$, $p < .05$. Hence, Hypothesis 7c can be supported as well.

While age seems to make no difference, gender and educational level do. This leads to the conclusion that Hypothesis 7 can be partially supported since two of the three personal characteristics do have a significant effect on the behavioural intention of citizens to use e-participation.

The fact that the preliminary research model was adapted because of the principal component analyses, led to the fact that Hypothesis 8 no longer focusses on individual social capital. However, offline behaviour and trust in government can be seen as predictors of online citizen behaviour. In this model, offline citizen behaviour seemed to be a significant predictor of online citizen behaviour (β = .120, t (2,520) = 2.667, p < .01). While trust in government did not have any statistically significant influences. However, online citizen behaviour has a significant influence on the rest of the model. Taking the changes of the model and the relation between trust in government and online citizen behaviour into account, Hypothesis 8 can not be supported.

To summarise the above-tested hypotheses Table 10 provides an overview of the eight hypotheses that were formulated and the results.

To rule out differences caused by the period the study took place, a one-way ANOVA is performed as well. It can be concluded that the press conferences of the Dutch prime minister during the COVID-19 pandemic did not have statistically significant influences on the results, since F (2,520) = .259, p = .772.

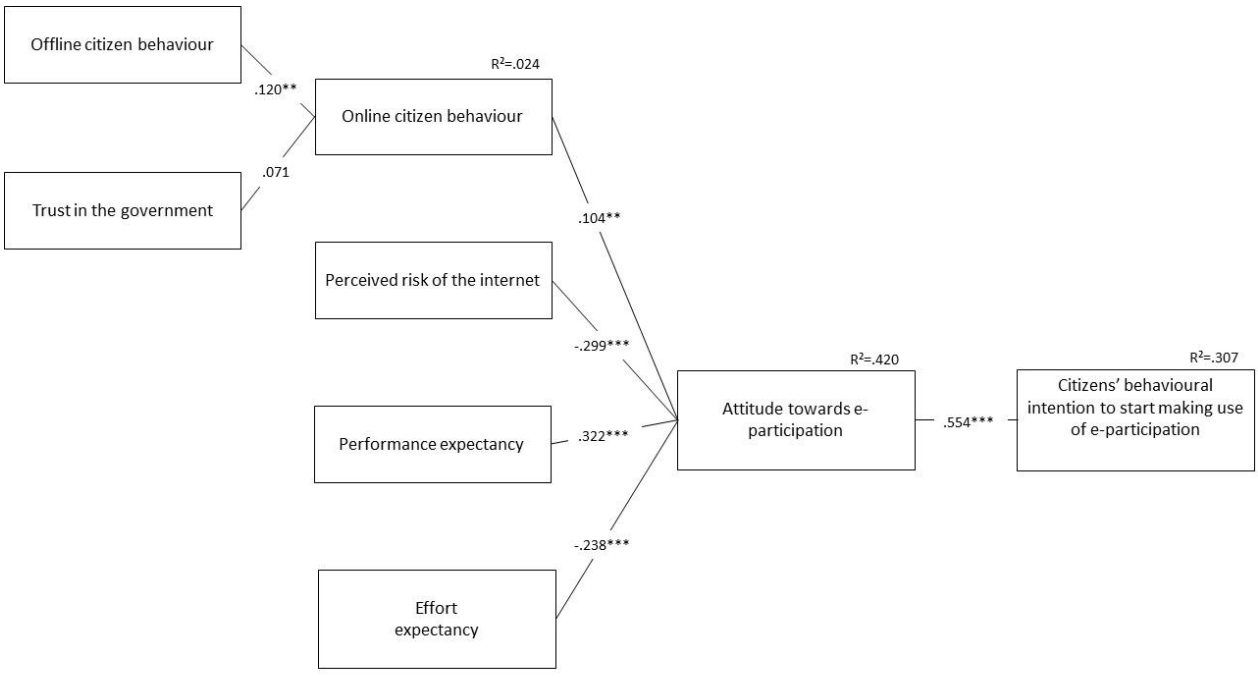

Figure 4: Validated research model

Table 10
Overview of results for hypotheses

Hypothesis	Supported/rejected	Remark
H1: Compared to municipalities that do not use web 2.0, municipalities that do use web 2.0 experience a higher level of citizens' behavioural intention to make use of e-participation.	Rejected	Both statistical analyses as self-reports reject the hypothesis.
H2: Compared to citizens that do not use web 2.0 and/or social media, citizens who do use web 2.0 and/or social media have a higher level of behavioural intention to make use of e-participation.	Supported	Differences between medium and high users of web 2.0 are not found.
H3: Perceived risk of the internet has a negative effect on the level of citizens' behavioural intention to make use of e-participation.	Supported	
H4: Performance expectancy has a positive effect on the level of citizens' behavioural intention to make use of e-participation.	Supported	
H5: Effort expectancy has a negative effect on the level of citizens' behavioural intention to make use of e-participation.	Supported	
H6: Attitude towards e-participation has a positive mediation effect towards the level of citizens' behavioural intention to make use of e-participation.	Supported	
H7: Personal characteristics of citizens have an effect on the level of citizens' behavioural intention to make use of e-participation	Partially supported	
H7a: Compared to citizens older than 30 years, citizens younger than 30 years have a higher level of behavioural intention to make use of e-participation.	Rejected	
H7b: Compared to women, men have a higher level of behavioural intention to make use of e-participation.	Supported	
H7c: Compared to citizens with a low level of education, citizens with a high education have a higher level of behavioural intention to make use of e-participation.	Supported	
H8: Compared to citizens with a low social capital, citizens with a high social capital have a higher level of behavioural intention to make use of e-participation.	-	Hypothesis could not be tested, because of adaptation of the model based on the PCA.

5. Discussion

This study aimed to contribute bring two academic fields together. On the one side web 2.0 and its effects were analysed, while on the other side electronic participation within municipalities was deepened out. By doing so, the concept of electronic participation at municipalities could be analysed on a new level. Next to that, the concept was studied from two sides, as well as the availability of web 2.0 at a municipality, as the usage of the citizen was taken into account.

It was hypothesised that the availability of web 2.0 per municipality would have an influence on the experienced level of behavioural intention to make use of e-participation in this municipality as well. In addition, the level of usage of web 2.0 by a citizen was also expected to have an influence on the behavioural intention. Furthermore, it was expected that trust in government and offline citizen behaviour would affect online citizen behaviour. Subsequently, it was expected that this would have an influence on the attitude towards e-participation. As would have perceived risk of the internet, performance expectancy and effort expectancy. Last, it was hypothesised that attitude would be a predictor of the behavioural intention of a citizen to make use of e-participation.

5.1 Discussion of the results

First of all, it can be concluded that there are differences between the importance of usage of web 2.0 between the municipalities and the citizens. The results of this study showed that the usage of web 2.0 by municipalities did not affect the behavioural intention of citizens, while their own usage did. This can be explained by the fact that Dutch municipalities are still scoring low on the level of e-participation distinguished by Van Veenstra et al. (2011). The current study has confirmed those earlier findings, as the vast majority of municipalities is active on the social network sites, but is not focussing on the higher rungs of the participation ladder. And thereby neglecting e-participation. Results also confirm the fact that e-informing and e-consulting are still the most used forms of e-participation in Dutch municipalities, which is bounding the citizens to several channels (Van Veenstra et al., 2011). Data did confirm this since it was shown that joiners experience a higher behavioural intention.

This was in contrast with other literature since Chun et al. (2010) stated that local governments would become more transparent when officeholders are active on the SNS. Besides, Weber et al. (2003) also mentioned that transparency would imply better online networks and automatically lead to better political participation. However, those arguments can not be supported by the current study. Also, this could be due to the fact that citizens are still experiencing some barriers to go online, are acting out of habit or make choice based on task complexity (Ebbers et al., 2016a; Weber et al., 2003).

Furthermore, this research did show that different technology acceptance models are also applicable to e-government, also on a local level. In this research, an important part of the model was based on the Unified Model of Electronic Government Adoption (UMEGA) by Dwivedi et al. (2017), which was a combination and validation of several technology acceptance models.

Moreover, the proven significant negative impact of effort expectancy indicates that the level of ease of use of an e-governmental instrument does affect the individual's behavioural intention to use such a system. This aligns with the expectations, as it is proven by early studies (Davis, 1989; Moore & Benbasat, 1991), but also confirmed in more recent studies (Hung, Chang, & Kuo, 2013; Venkatesh & Davis, 2000).

Then, the confirmed negative relation between perceived risk of the internet indicates that a lower perceived risk would contribute to a higher behavioural intention to use e-participation. Perceived risk of the internet is an individual subjective expectation, which may be subjected to change as well. This could explain the strong significant relation between the variable and the behavioural intention to use e-participation.

Furthermore, a positive relation between performance expectancy and the behavioural intention was proven. This is in line with expectation, as well with early as recent technology acceptance models, such as TAM, UTAUT and UMEGA (Davis, 1989; Dwivedi et al., 2017; Venkatesh et al., 2003).

Subsequently, this study incorporated attitude towards acceptance of e-governmental instruments as a mediator of the predictive variables towards behavioural intention, which seems to have a significant impact on the behavioural intention. This relation was expected, since various theories on behaviour and ICT adoption included the construct of attitude to measure behavioural intention (Davis, 1989; Fishbein & Ajzen, 1974; Taylor & Todd, 1995). Based on the proven model of this study, it can be argued that the construct of attitude has a considerable part in the acceptance and adoption of an e-governmental instrument.

In conclusion, it can be stated that the tested and validated model proves the value of several technology acceptance models, when it comes to acceptance and adoption of e-governmental systems on a local level.

However, in contrast to the confirmatory findings concerning technology acceptance, this study did not find evidence for predictive value of trust in government, when it comes to participation. Meanwhile, the literature did suggest a relation. Already in early research trust in government seemed to be an important predictor when it comes to the acceptance of e-governance (Bélanger & Carter, 2008). Bélanger and Carter (2008) did distinguish between two concepts of trust in government. In the current study, both were taken into account, but against expectations showed no relation.

The first reason for this observation was the fact that trust in government was incorporated in measuring the individual social capital, as suggested by Lee and Kim (2014). Subsequently, Seo and Bernsen (2016) suggested that trust in government can be a predictor within the pre-adoption phase. This could be an explanation for the fact that no effects were found. Since most of the Dutch municipalities and citizens are digital matured, it can be argued the pre-adoption phase has passed. Consequently, this would lead to the fact that trust in the government no longer affects the behavioural intention to make use of e-participation.

Last, this study has tried to verify the influences of personal characteristics, when it comes to e-participation in municipalities. Earlier studies over the years (e.g. Ebbers et al., 2016b; Pieterson et al., 2005; Van Deursen et al., 2006; Zhao, Collier, & Deng, 2014) repeatedly showed the existence of a digital divide, based on several personal characteristics. This study was able to contradict the digital divide based on the age of older or younger than 30 years. However, the research was not able to disprove the assumption of a digital divide based on educational level or gender.

5.2 Theoretical implications

This research has possibilities to contribute to the current theoretical knowledge in different ways. First, this study explored the relationship between web 2.0, technology acceptance and e-participation in Dutch municipalities. Admittedly, those concepts were studied separately to some extent in earlier studies. However, in this study, the concepts were deepened out on multiple levels and relations between them were encountered. This study proved the relevance of technology acceptance models in relation to e-participation in Dutch municipalities. It may be considered that the combination of the individual aspects of the intention to use e-participation with the collective offer of the platforms by the municipalities in this study is new and valuable to the academic scholars.

The current study proposed and tested a model with the mediating exogenous variable attitude towards e-participation as an individual user, based on the validated UMEGA (Dwivedi et al., 2017). In addition, by including social aspects of the citizen, this study extended the knowledge of the relation between offline citizen behaviour and the behavioural intention of the citizen to use e-participation. However, the presence of trust in government as an exogenous variable in relation to online citizen behaviour seemed to weaken the model. Future research should therefore focus more on these relations.

Third, this study proved that the citizens' performance expectancy of the platform seems to be the most important factor in the model. Hence, the current research is able to amplify existing literature and models of technology acceptance in general. This confirmed relation indicates that citizens are more likely to use the platforms, if they expect that their voice by e-participation is heard.

Last, this study was performed during the early months of the global pandemic COVID-19. Never before was such a study performed during such a crisis. The combination of electronic participation, web 2.0 and this pandemic offers a variety of knowledge. Most importantly, the study shows that citizens did not experience any influences of the crisis, which indicates that the behavioural intention to use e-participation is not influenced by major situations. In contrast, the variables that were incorporated in the model seemed to have a higher impact on the behavioural intention to use e-participation.

Nevertheless, it should be taken into consideration that this study focussed on municipalities. Therefore, a generalisation to governmental e-participation on different levels seems not to be accurate, but needs to be confirmed by future research.

5.3 Practical implications

Besides the theoretical implications, some practical implications that should be addressed as well. First of all, a citizen's attitude towards e-participation has a highly significant impact on the behavioural intention of a citizen. This implies that a municipality that is implementing any form of e-participation, may find it beneficial to shape the individual's attitudes. Based on the current study, the citizens' performance expectancy of the implemented tools for e-participation seems to have the highest predictive value towards this attitude. The fact that usage of e-participation in municipalities is rather low, can be allocated to the expectations of the citizens towards the effect of their input via e-participation. As the data of the questionnaire showed, citizens do not have the idea that they are heard when using e-participation. Hence, to stimulate e-participation, municipalities should not only work on the platforms, but, more importantly, they have to focus on the usage of the output of the platforms.

Furthermore, this study proved an impact of gender and educational level, this implies that Dutch municipalities should consider this in the conceptualisation of the systems. Designing the e-participation systems should be done by user experience design. In this manner, the process of designing the system will be iteratively and based on direct feedback and the system will have a higher chance to meet the skills of all possible users.

Moreover, by making use of user experience design, the citizen will experience a direct effect of their input towards the municipality. If these experiences are positive, it is likely that this will lead to a higher performance expectancy. In this manner, the designing process will have an indirect effect on the attitude of the citizen towards the behavioural intention to use e-participation systems.

Last, since no concrete effects of the usage of web 2.0 by municipalities were found, policy changes might not be needed. However, active use and policymaking concerning e-participation should not be avoided. It even may indirectly affect the attitude of a citizen towards e-participation.

5.4 Limitations and directions for future research

Although multiple results of this study seemed to be significant, even after structurally testing the model, limitations should be taken into account. First, some theoretical limitations are being discussed, then methodological limitations are being discussed to take the interpretation of results into account.

First, the theoretical framework that was constructed for this study and led to the hypotheses was very extensive. This was due to the fact that two concepts needed to be brought together. While the construct of web 2.0 is already widely used in the field of communication science, e-participation is rather new in the field of public administration. In addition, when cross-examining both constructs on both academic fields, barriers would be encountered. However this combination led to the current study, it should be taken into account that the structure of the framework could be too extensive. This assumption can be confirmed by the fact that the proposed preliminary research model was of such size, that testing it seemed to be rather impossible. Furthermore, not only two concepts were brought together, but also underlying constructs of these concepts were deepened out. Future research should start by evaluating the concepts, while not including underlying constructs. When both concepts can be combined, the underlying constructs should be examined in that combination.

Concerning the methodology of this study, some limitations should be pointed out as well. Most importantly, the study is subjective to self-reported biases. For instance, the survey in which a respondent needs to estimate their usage of web 2.0 and report the frequency of different forms of offline citizen behaviour. However, since literature has suggested that social influences can have a predictive value in technological adoption, it could not be ruled out in this research. Also, a bias could occur based on different relations between the citizen and his municipality. However, during this study, it was tried to cover most of the self-report biases through triangulation via the qualitative scorings of the municipalities. By doing so, data about the information was not only based on the reports of its citizens.

Similarly, according to Favero and Bullock (2014) usage of a single survey can easily lead to wrongly interpreted results, because of common method bias. One of the problems they appoint is the fact that a survey is measuring the dependent and independent using the same form of data collection. Sharma, Yetton, and Crawford (2009) have even found evidence that the correlation between perceived usefulness of technology (the perception) and the actual use of the technology (the behaviour) is inflated when a perceptual instrument, such as a survey, is used. Since both are used in the current study, it can be argued that the found relations are not trustworthy to the greatest extent.

To overcome the common source bias, Favero and Bullock (2014) address multiple approaches. One of those is the usage of structural equation modelling to test the variances of the model, as is used in the current study. While they mention several strengths of SEM, they do appoint one important limitation. SEM models can perform poorly if there are not multiple sources to measure one construct, which is the case in this research.

In future studies, it could be relevant to decrease the common source bias by using marker variables to check the data or use split sample methods to measure the dependent variables separately form the independent variables (Favero & Bullock, 2014). However, Favero and Bullock (2014) argue that the most reliable technique to overcome common source bias is to find an independent source of data. Concerning the current research subject, objective numbers of the actual usage of e-participation should be gathered. These can be compared with the perception of the citizen. Additionally, qualitative data of the citizens can be gathered as well.

Another methodological limitation is the research model, as mentioned earlier. Since the theoretical framework drafted an extensive preliminary research model, adaptations needed to be made throughout the whole process. This meant that some of the hypotheses were no longer fully testable, next to the fact that some variables were excluded. It can be argued that excluding the facilitating conditions was not the best choice, since the current model was based on the UTAUT and UMEGA. Both of these models argue that facilitating conditions is an important factor. Therefore, it is recommended that future research tries to find a method to incorporate the facilitating conditions.

Finally, when interpreting the results of this study, this should be done with deliberation. Since the research model was extensive, several errors could occur during the analyses. While the model was tested through structural equation modelling and it was tried to take those errors into account, they cannot be ruled out. As the results show, only 30,7% of the variance of the behavioural intention to use e-participation could be explained by means of this study. Further research should therefore test the boundaries of the model and identify more of the variances to explain the concept of behavioural intention fully.

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Appendices

Appendix 1: Questionnaire (Dutch)

Introduction and Informed consent
Q0

Beste respondent,

Als eerste wil ik u hartelijk bedanken voor uw deelname aan dit onderzoek. Op dit moment ben ik hard aan het werk om mijn masterdiploma's voor de opleidingen Bestuurskunde en Communicatiewetenschap aan de Universiteit Twente te behalen. Het laatste onderdeel daarvan is dit onderzoek. Mijn onderzoek gaat over online participatie bij gemeenten, ik leg u straks uit wat dat betekent.
Voor dit onderzoek heb ik uw hulp nodig. Ik heb een vragenlijst gemaakt, ik hoop dat u deze wil invullen. Dit kost slechts 8-10 minuten tijd. Ik vraag u in deze vragenlijst om uw mening. Ieder antwoord is dus een goed antwoord. Het invullen is anoniem, uw antwoorden zijn niet naar u terug te leiden. U mag ieder moment en zonder uitleg stoppen met het invullen van de vragenlijst. Ook kunt u het invullen van de vragenlijst altijd even stop zetten, om daarna op een later tijdstip verder te gaan.
Mocht u vragen of opmerkingen hebben over mijn onderzoek, dan kunt u mij mailen. Mijn e-mailadres is: b.smulders@student.utwente.nl.

Nogmaals hartelijk dank voor uw deelname.
Bart Smulders
Master student Public Administration en Communication Studies
Universiteit Twente

- ○ Ik heb bovenstaande tekst gelezen en begrepen. Ik stem in met deelname aan dit onderzoek. (1)
- ○ Ik stem niet in met deelname aan dit onderzoek. (2)

Defining the concepts

Q0

Voordat u begint aan de vragenlijst, leg ik graag het doel van mijn onderzoek uit. Het is belangrijk dat u dit goed doorleest, zodat u weet wat ik bedoel in de vragenlijst. Neemt u dus rustig de tijd om dit door te lezen. Met dit onderzoek probeer ik een relatie vast te stellen tussen web 2.0 en online participatie binnen uw gemeente.

- **Web 2.0** is het **internet** zoals wij het nu kennen. Hierbij kan iedereen de inhoud van het internet bepalen, zonder dat een beheerder dat doet. Het internet is dus een middel om te communiceren met andere mensen of organisaties.
- **Online participatie** bij gemeente kunt u doen door gebruik te maken van uw elektronische apparaten, zoals uw telefoon, tablet of laptop. Wanneer u online participeert bij uw gemeente krijgt u van de gemeente (in)directe invloed op wat er in uw gemeente gebeurt. U kunt op veel manieren online participeren. Enkele voorbeelden zijn het tekenen van een online petitie, het online invullen van een klachtenformulier of het online deelnemen aan een discussie over uw gemeente.
- Om deze online participatie te laten plaats vinden, moet uw gemeente een **platform** gebruiken. Onder andere de website van de gemeente, een app op uw telefoon, social media en de e-mail van de gemeente zijn online platformen die u en uw gemeente kunt gebruiken.

  Als alles duidelijk is, kunt u op de knop 'Volgende' drukken om de vragenlijst te starten.

Q1 – Performance expectancy

Q1 Geef hieronder aan in hoeverre u het eens bent met de volgende stellingen.	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Neutraal (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Ik heb het idee dat ik een grotere kans heb om inspraak te hebben bij mijn gemeente, door het gebruik van de online platformen. (1)	○	○	○	○	○	○	○
Ik heb het idee dat ik makkelijker inspraak heb bij mijn gemeente, door het gebruik van de online platformen. (2)	○	○	○	○	○	○	○
Ik heb het idee dat ik sneller inspraak heb bij mijn gemeente, door het gebruik van de online platformen. (3)	○	○	○	○	○	○	○
Ik heb het idee dat ik beter contact heb met mijn gemeente, doordat ik gebruik kan maken van de online platformen van mijn gemeente. (4)	○	○	○	○	○	○	○
Ik vind de online platformen van mijn gemeente nuttig. (5)	○	○	○	○	○	○	○

Q2 – Effort Expectancy

Geef hieronder aan in hoeverre u het eens bent met de volgende stellingen.	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Neutraal (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Ik vind de online platformen van mijn gemeente makkelijk te gebruiken. (1)	○	○	○	○	○	○	○
Ik kan mijzelf het gebruik van de online platformen makkelijk aanleren. (2)	○	○	○	○	○	○	○
Ik vind het gemakkelijk om de online platformen van mijn gemeente te gebruiken op een manier hoe ik dat wil. (3)	○	○	○	○	○	○	○
Ik vind het gemakkelijk om ervaring op te doen voor de platformen van de gemeente. (4)	○	○	○	○	○	○	○

Q3 – Perceived risk of the internet

Geef hieronder aan in hoeverre u het eens bent met de volgende stellingen.	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Neutraal (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Het gebruiken van de online platformen van mijn gemeente kan er toe leiden dat mijn persoonlijke gegevens gestolen worden. (1)	○	○	○	○	○	○	○
Ik voel mij niet op mijn gemak wanneer ik de online platformen van mijn gemeente gebruik. (2)	○	○	○	○	○	○	○
Vanwege privacyredenen denk ik dat het onveilig is om gebruik te maken van de online platformen van mijn gemeente. (3)	○	○	○	○	○	○	○
Vanwege veiligheidsredenen denk ik dat het onveilig is om gebruik te maken van de online platformen van mijn gemeente. (4)	○	○	○	○	○	○	○
Ik geloof dat het gebruik van de online platformen van mijn gemeente negatieve gevolgen zou kunnen hebben voor mij. (5)	○	○	○	○	○	○	○

Q4 – Trust in the government

Geef hieronder aan in hoeverre u het eens bent met de volgende stellingen.	○	○	○	○	○	○	○
Ik ervaar de online platformen van mijn gemeente als een veilige omgeving om persoonlijke gegevens uit te wisselen met mijn gemeente. (1)	○	○	○	○	○	○	○
Ik ervaar de online platformen van mijn gemeente als een prettige omgeving om persoonlijke gegevens uit te wisselen met mijn gemeente. (2)	○	○	○	○	○	○	○
Ik voel mij beschermd voor problemen op de online platformen van mijn gemeente door juridische regels. (3)	○	○	○	○	○	○	○
Ik voel mij beschermd voor problemen op de online platformen van mijn gemeente door technische regels. (4)	○	○	○	○	○	○	○
Over het algemeen is het internet een veilige omgeving om te communiceren met mijn gemeente. (5)	○	○	○	○	○	○	○

Q5 – Trust in the government (continued)

Geef hieronder aan in hoeverre u het eens bent met de volgende stellingen.	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Neutraal (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Ik heb het gevoel dat ik mijn gemeente kan vertrouwen. (1)	○	○	○	○	○	○	○
Ik vertrouw erop dat mijn gemeente online transacties trouw uitvoert. (2)	○	○	○	○	○	○	○
Ik vertrouw erop dat mijn gemeente online handelingen eerlijk uitvoert. (3)	○	○	○	○	○	○	○
Ik vertrouw erop dat mijn gemeente mijn belangen in acht neemt. (4)	○	○	○	○	○	○	○
Naar mijn mening zijn gemeenten betrouwbaar. (5)	○	○	○	○	○	○	○

Q6 – Attitude

Geef hieronder aan in hoeverre u het eens bent met de volgende stellingen.	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Neutraal (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Ik vind het een goed idee om een online platform van mijn gemeente te gebruiken. (1)	○	○	○	○	○	○	○
Ik vind het een slim idee om een online platform van mijn gemeente te gebruiken. (2)	○	○	○	○	○	○	○
Ik vind het een leuk idee om een online platform van mijn gemeente te gebruiken. (3)	○	○	○	○	○	○	○
Ik vind het gebruiken van een online platform van mijn gemeente interessant. (4)	○	○	○	○	○	○	○

Q7 – Behavioural intention

Geef hieronder aan in hoeverre u het eens bent met de volgende stellingen.	Helemaal mee oneens (1)	Mee oneens (2)	Een beetje mee oneens (3)	Neutraal (4)	Een beetje mee eens (5)	Mee eens (6)	Helemaal mee eens (7)
Ik heb de intentie om een online platform van mijn gemeente binnen een half jaar te gaan gebruiken. (1)	○	○	○	○	○	○	○
Ik denk dat ik een online platform van mijn gemeente binnen een half jaar ga gebruiken. (2)	○	○	○	○	○	○	○
Ik ben van plan een online platform van mijn gemeente binnen een half jaar te gaan gebruiken. (3)	○	○	○	○	○	○	○

Q8 – Social ties

Geef hieronder aan hoe vaak u contact heeft met ...
Denkt u er aan dat dit gaat over uw contacten **voor de Corona-crisis** (COVID-19).

	Nooit (1)	Eens per jaar (2)	Meerdere keren per jaar (3)	Eens per maand (4)	Meerdere keren per maand (5)	Wekelijks (6)	(Bijna) dagelijks (7)
Een of meerdere familieleden (1)	○	○	○	○	○	○	○
Buren (2)	○	○	○	○	○	○	○
Vrienden (3)	○	○	○	○	○	○	○
Kennissen (4)	○	○	○	○	○	○	○
Collega's of studiegenoten (5)	○	○	○	○	○	○	○

Q9 – Civic norms

Op een schaal van 1 tot 10, hoe betrokken voelt u zich bij de **de Nederlandse maatschappij**? Een 1 betekent hierbij "totaal niet betrokken", een 10 betekent hierbij "enorm betrokken".

Denkt u er aan dat dit gaat over uw betrokkenheid bij de Nederlandse maatschappij **voor de Corona-crisis** (COVID-19 crisis).

	0 1 2 3 4 5 6 7 8 9 10
()	

Q10 – Civic norms (continued)

Hoe vaak bent u betrokken bij onderstaande activiteiten?

Denkt u er aan dat dit gaat over uw betrokkenheid bij de onderstaande activiteiten voor de Corona-crisis (COVID-19 crisis).

	Nooit (1)	Eens per jaar (2)	Meerdere keren per jaar (3)	Eens per maand (4)	Meerdere keren per maand (5)	Wekelijks (6)	(Bijna) dagelijks (7)
Sportieve activiteiten (1)	○	○	○	○	○	○	○
Een bezoek aan vrienden (2)	○	○	○	○	○	○	○
Vrijwilligerswerk (3)	○	○	○	○	○	○	○
Een bezoek aan een theater of andere culturele evenementen (4)	○	○	○	○	○	○	○
Een bezoek aan een café of restaurant (5)	○	○	○	○	○	○	○

Q11 – Online citizen engagement

Geef hieronder aan hoe vaak u ...	Nooit (1)	Eens per jaar (2)	Meerdere keren per jaar (3)	Eens per maand (4)	Meerdere keren per maand (5)	Wekelijks (6)	(Bijna) dagelijks (7)
Een weblog leest (1)	○	○	○	○	○	○	○
Een podcast beluistert (2)	○	○	○	○	○	○	○
Een video bekijkt van andere personen (3)	○	○	○	○	○	○	○
Een forum leest (4)	○	○	○	○	○	○	○
Berichten leest op een online sociaal netwerk (bijv. Facebook, Twitter, Snapchat, LinkedIn) (5)	○	○	○	○	○	○	○
Berichten plaatst op een online sociaal netwerk (bijv. Facebook, Twitter, Snapchat, LinkedIn) (6)	○	○	○	○	○	○	○
Een online beoordeling schrijft van een product of service (7)	○	○	○	○	○	○	○
Een reactie plaatst bij een weblog of forum (8)	○	○	○	○	○	○	○
Een toevoeging doet aan een informatieve site (bijv. Wikipedia) (9)	○	○	○	○	○	○	○
Een weblog of website publiceert en/of onderhoudt (10)	○	○	○	○	○	○	○
Een muziekclip of videoclip uploadt (11)	○	○	○	○	○	○	○
Een online artikel of verhaal schrijft (12)	○	○	○	○	○	○	○

Q12 – Societal engagement
Heeft u gestemd tijdens de meest recente gemeentelijke verkiezingen op 21 maart 2018?

- ○ Ja (1)
- ○ Nee (2)
- ○ Ik mocht niet stemmen (3)
- ○ Weet ik niet meer (4)
- ○ Zeg ik liever niet (5)

Q13 – Societal engagement (continued)
Heeft u gestemd tijdens de meest recente verkiezingen in Nederland? Dit waren de Provinciale Statenverkiezingen op 20 maart 2019.

- ○ Ja (1)
- ○ Nee (2)
- ○ Ik mocht niet stemmen (3)
- ○ Weet ik niet meer (4)
- ○ Zeg ik liever niet (5)

Repetition definition of concepts

De volgende vragen gaan over uw deelname aan verschillende vormen van online participatie binnen uw gemeente op mogelijke platformen. Ter verduidelijking nogmaals de definities van de termen.

Met de term **online** participatie wordt bedoeld dat u via elektronische apparaten (zoals uw telefoon, tablet of laptop) uw gemeente informatie geeft. Met het geven van deze informatie krijgt u een (in)directe stem in wat er in uw gemeente gebeurt. U kunt op veel manieren online participeren. Voorbeelden zijn het online tekenen van een petitie, het online melden van schade binnen de wijk, het online mee praten over iets wat speelt binnen uw gemeente, etc. Dit kan plaatsvinden op verschillende platformen, hierbij kunt u denken aan de website van de gemeente, een app, de sociale media van uw gemeente of e-mail.

Q15 – Societal engagement (continued)

Van welke online platformen weet u dat deze gebruikt worden door uw gemeente? Meerdere antwoorden mogelijk.

- ☐ Website (1)
- ☐ Mobiele app (2)
- ☐ Sociale media (3)
- ☐ E-mailadres van de gemeente (4)
- ☐ Online discussie platform (5)
- ☐ Anders, namelijk (6) _____
- ☐ ⊗ Geen / Weet ik niet (7)

Q16 – Societal engagement (continued)
Heeft u naar uw idee het laatste jaar deelgenomen aan online participatie binnen uw gemeente?

- ○ Ja (1)
- ○ Nee (2)
- ○ Weet ik niet (3)

Q17 – Societal engagement (continued)
Aan welke vorm van online participatie bij uw gemeente heeft u het laatste jaar nog deelgenomen? Er zijn meerdere antwoorden mogelijk.

- ☐ Ik heb online een melding gemaakt van iets dat speelde in mijn gemeente. (1)
- ☐ Ik heb online een poll van de gemeente ingevuld. (2)
- ☐ Ik heb online suggesties ingediend voor beleid van de gemeente. (3)
- ☐ Ik heb online deelgenomen aan een samenwerkingsplatform van de gemeente. (4)
- ☐ Anders, namelijk (5) _____
- ☒ Ik heb het afgelopen jaar niet deelgenomen aan online participatie binnen mijn gemeente. (6)

Demographics

Q18 Wat is uw geslacht?

- ○ Man (1)
- ○ Vrouw (2)
- ○ Anders (3)
- ○ Zeg ik liever niet (4)

Q19 Wat is uw leeftijd?

- ○ Jonger dan 18 jaar (1)
- ○ 18-19 jaar (2)
- ○ 20-29 jaar (3)
- ○ 30-39 jaar (4)
- ○ 40-49 jaar (5)
- ○ 50-59 jaar (6)
- ○ 60 jaar of ouder (7)
- ○ Zeg ik liever niet (8)

Q20 Wat is uw hoogst afgeronde opleiding?

- Geen opleiding (1)
- Basisonderwijs (2)
- VMBO (3)
- HAVO (4)
- VWO (5)
- MBO (6)
- HBO (7)
- WO, Bachelor (8)
- WO, Master (9)
- Zeg ik liever niet (10)

Q21 In welke gemeente woont u?

- Amersfoort (1)
- Apeldoorn (2)
- Arnhem (3)
- Deventer (4)
- Enschede (5)
- Hengelo (6)
- Nijmegen (7)
- 's-Hertogenbosch (8)
- Utrecht (9)
- Wijchen (10)
- Zwolle (11)

○ Anders, namelijk (12) _____

Q22 Werkt u voor de overheid?

○ Nee. (1)

○ Ja, ik werk voor de overheid. (2)

Q23 Werkt u voor een gemeente?

○ Nee. (1)

○ Ja, namelijk (2) _____

END OF QUESTIONNAIRE

Appendix 2: Demographics per municipality

Demographics per municipality										
	Amersfoort	Apeldoorn	Arnhem	Deventer	Enschede	Hengelo	Nijmegen	Utrecht	Wijchen	Zwolle
Gender										
Male	8	14	12	11	44	17	4	7	13	14
Female	17	32	26	70	64	36	31	17	66	18
Other/preferred not to disclose	0	0	0	0	0	1	0	0	0	1
Age cohort										
18-19 years	1	1	0	0	3	0	0	0	3	1
20-29 years	3	18	11	18	70	8	21	16	23	13
30-39 years	6	2	7	20	5	9	1	5	10	4
40-49 years	4	6	8	15	11	11	2	0	12	3
50-59 years	7	13	6	16	11	13	9	1	18	7
60 years or older	4	6	6	12	8	12	2	2	12	5
Preferred not to disclose	0	0	0	0	0	1	0	0	1	0
Educational level										
Primary education	0	0	0	0	0	2	0	0	0	0
VMBO	1	3	0	6	5	1	3	0	7	2
HAVO	3	5	2	10	2	3	0	0	3	2
VWO	0	3	1	0	23	3	1	1	5	1
MBO	6	9	4	24	13	12	3	0	19	7
HBO	9	15	14	28	15	26	7	2	37	16
WO, Bachelor	1	3	6	1	31	3	13	5	2	1
WO, Master	5	8	11	11	19	3	7	16	6	3
Preferred not to disclose	0	0	0	1	0	1	1	0	0	1
Works the government	5	8	8	11	9	7	3	2	15	10
Works for a municipality	3	2	6	3	3	0	0	1	5	4
Voted during the last municipal elections										
Yes	20	36	30	66	99	46	29	21	65	28
No	4	8	5	11	6	7	4	1	9	4
Not entitled to vote	0	2	3	0	2	0	1	0	2	0
Not sure/preferred not to disclose	1	0	0	4	1	1	1	2	3	1
Voted during the last elections										
Yes	19	37	31	63	97	45	29	19	69	27
No	5	6	5	14	10	8	4	2	8	5
Not entitled to vote	0	3	2	1	0	0	1	0	1	0
Not sure/preferred not to disclose	1	0	0	3	1	1	1	3	1	1
Moment of finishing the questionnaire										
Start (March 30th) up to April 20th	13	20	12	12	73	7	17	19	32	9
April 20th up to May 5th	12	17	26	68	35	15	18	5	46	0
May 5th up to end (May 15th)		9	0	1	0	32	0	0	1	24
N	25	46	38	81	108	54	35	24	79	33

Appendix 3: Qualitative analyses web 2.0 of the municipalities

Appendix 3.a: Codebook of the scorings

Coding scheme municipalities		
Code	Sub code	Description
1		Social media channel mentioned on the website
	11	Facebook
	12	Twitter
	13	Instagram
	14	YouTube
	15	LinkedIn
	16	Application
	19	Other, specified
	1X2	Mentioned on site
	1X1	Not mentioned on site
	1X0	Not present
2		Frequency of channel use
	21	Facebook
	22	Twitter
	23	Instagram
	24	Youtube
	25	LinkedIn
	26	Application
	29	Other, specified
	2X(0-5)	0 = never, 1 = yearly, 2 = 1-3 per month,
		3 = > 3 per month, 4 = 1-3 per week, 5 = > 3 per week
9		Coalition agreement
	9(1-X)	Count of mentions of (words related to) (e-)participation
Total score	*Max. 50*	*Based on all individual codes*

Appendix 3.b: Detailed scorings per municipality

Coding of municipalities

Municipality	Code 1 / 9	Remarks	Code 2 / total score	Remarks
Amersfoort	112, 122, 132, 142, 151, 162	Neighbourhood reporting app, not easily found	215, 225, 234, 243, 255, 260	App is one-way communication by citizen
	192	Whatsapp*	290	
	9.1	Participation mentioned	*Total*	*34*
Apeldoorn	112, 122, 132, 142, 152, 160		215, 224, 234, 244, 253, 260	
	192	RSS feeds	293	
	9.2	Vision and related alderman	*Total*	*37*
Arnhem	112, 122, 132, 141, 152, 162	Neighbourhood reporting app, not easily found	215, 225, 235, 242, 253, 260	App is one-way communication by citizen
	19a2, 19b2	a: RSS feeds; b: direct link to newsletter	29a3, 29a4	
	9.0		*Total*	*42*
Deventer	112, 122, 132, 142, 151, 161		215, 225, 233, 242, 253, 260	
	192	RSS feeds	294	
	9.3	Vision concerning participation, including online participation and alderman	*Total*	*37*
Enschede	112, 122, 132, 141, 151, 161		215, 225, 233, 242, 252, 260	App is one-way communication by citizen
	192	Direct link to newsletter	294	
	9.4	Vision concerning participation, online and electronic included, alderman	*Total*	*36*
Hengelo	112, 122, 132, 142, 152, 160		215, 222, 234, 244, 254, 260	
	192	Whatsapp*	290	
	9.0		*Total*	*31*
Nijmegen	112, 122, 132, 141, 151, 161	Neighbourhood reporting app	215, 225, 234, 242, 254, 260	App is one-way communication by citizen
	9.0		*Total*	29

Utrecht	112, 122, 132, 141, 152, 161 9.5	Neighbourhood reporting app Section concerning participation, referring to online participation and communication, including alderman.	215, 225, 233, 244, 254, 260 *Total*	App is one-way communication by citizen *36*
Wijchen	112, 122, 132, 142, 151, 160 9.5	Vision given (i.e. incorporating citizens and organisations), concrete reference to (e-)participation (e.g. ladder mentioned), projects named	215, 225, 234, 241, 252, 260 *Total*	*31*
Zwolle	112, 122, 132, 141, 151, 160 9.3	Alderman inclusion and digital transition, subject of digital transition incorporated in all sections of coalition agreement	225, 224, 234, 243, 253, 260 *Total*	*30*

* Whatsapp is no longer supporting governmental communication, therefore this score is not included in the total

Appendix 4: Principal Component Analyses

Appendix 4.a: Original Principal Component Analysis

Rotated factor loadings

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Q3.4	-.846													
Q3.3	-.795													
Q3.2	-.765													
Q3.5	-.718													
Q3.1	-.663													
Q5.1		.792												
Q5.3		.780												
Q5.5		.774												
Q5.2		.758												
Q5.4		.753												
Q1.2			.825											
Q1.1			.807											
Q1.3			.799											
Q1.5			.570											
Q1.4			.567											
Q8.3				.770										
Q10.2				.759										
Q8.4				.643										
Q10.5				.606										
Q8.5				.519										
Q10.1				.494										
Q10.4				.478										
Q7.2					.899									
Q7.3					.887									
Q7.1					.883									
Q4.4						.777								
Q4.3						.734								
Q4.1	.526					.547								
Q4.5	.436					.540								
Q4.2						.528								
Q2.3							.769							
Q2.1							.749							
Q2.2							.636							
Q2.4							.612							
Q11.1								.753						
Q11.4								.735						
Q11.2								.584						
Q11.3								.575						
Q11.9									.706					
Q11.8								.407	.639					
Q11.7									.598					
Q6.3										.731				
Q6.4										.710				
Q6.2										.478				
Q6.1	.411									.470				
Q11.10											.854			
Q11.12											.763			
Q11.5												.805		
Q11.6												.665		
Q8.2													.670	
Q8.1													.627	
Q10.3														.600
Q11.14														.479
Eigenvalues	4.589	4.142	3.263	3.160	3.063	2.626	2.580	2.343	2.065	2.002	1.599	1.499	1.457	1.290
% of variance	8.659	7.815	6.157	5.962	5.780	4.955	4.868	4.421	3.896	3.777	3.018	2.828	2.750	2.433
α	.880	.904	.835	.750	.965	.860	.750	.699	.620	.857	.657	.490	.384	.137

Appendix 4.b: Corrected Principal Component Analysis

Rotated factor loadings

Item	1	2	3	4	5	6	7	8	9	10	11	12	13
Q3.4	-.851												
Q3.3	-.809												
Q3.2	-.756												
Q3.5	-.696												
Q3.1	-.674												
Q5.1		.788											
Q5.3		.777											
Q5.5		.771											
Q5.2		.756											
Q5.4		.752											
Q1.2			.833										
Q1.1			.813										
Q1.3			.806										
Q1.5			.549										
Q1.4			.549										
Q8.3				.769									
Q10.2				.755									
Q8.4				.652									
Q10.5				.601									
Q8.5				.529									
Q10.1				.528									
Q10.4				.502									
Q7.2					.897								
Q7.3					.883								
Q7.1					.880								
Q4.4						.785							
Q4.3						.735							
Q4.1	.497					.584							
Q4.5	.411					.566							
Q4.2						.551							
Q2.3							.766						
Q2.1							.749						
Q2.2							.641						
Q2.4							.605						
Q11.1								.744					
Q11.4								.723					
Q11.2								.593					
Q11.3								.580					
Q11.9									.708				
Q11.8									.656				
Q11.7									.598				
Q6.3										.725			
Q6.4										.704			
Q6.2										.478			
Q6.1										.473			
Q11.10											.850		
Q11.12											.802		
Q11.5												.788	
Q11.6												.599	
Q8.2													.762
Q8.1													.528
Eigenvalues	4.491	4.096	3.212	3.205	3.089	2.739	2.592	2.319	2.005	1.972	1.602	1.502	1.422
% of variance	8.807	8.032	6.298	6.285	6.056	5.371	5.083	4.547	3.931	3.867	3.141	2.944	2.789
α	.880	.904	.835	.750	.965	.860	.750	.699	.620	.857	.657	.490	.384

Appendix 5: Controlled assumptions for parametric data

Normality and homogeneity							
	Skewness	Kurtosis	Levene statistics	Df1	Df2	Sig.	Variance
1. Performance Expectancy	-.829	.535	1.450	9	513	.164	1.220
2. Effort expectancy	-.690	.476	1.793	9	513	.197	.832
3. Perceived risk of the internet	.490	-.269	2.629	9	513	.006**	1.411
4. Trust in government	-.772	.626	1.286	9	513	.242	.871
5. Offline behaviour	-.983	.907	.857	9	513	.564	.925
6. Online behaviour	.396	.393	2.523	9	513	.008**	.709
7. Attitude	-1.072	2.002	.870	9	513	.552	1.049
8. Behavioural intention	-.446	-.375	2.669	9	513	.005**	2.097

Note: * p < .05 | ** p < .01

Appendix 6: Data sorted per municipality

Appendix 6.a: Descriptives per municipality

Mean and standard deviation per municipality										
	Amersfoort	Apeldoorn	Arnhem	Deventer	Enschede	Hengelo	Nijmegen	Utrecht	Wijchen	Zwolle
Performance	m 4.20	m 5.00	m 5.15	m 4.56	m 4.76	m 4.78	m 4.81	m 4.92	m 4.74	m 4.83
Expectancy	s 1.332	s 1.001	s .955	s 1.047	s 1.110	s 1.186	s 1.109	s .789	s 1.232	s .913
Effort expectancy	m 3.01	m 2.98	m 2.93	m 3.13	m 2.89	m 3.00	m 3.17	m 2.88	m 2.86	m 2.92
	s 1.091	s .800	s .972	s .906	s .872	s 1.073	s .837	s .680	s .948	s .861
Perceived risk of the	m 3.50	m 3.19	m 2.92	m 3.45	m 2.85	m 3.36	m 3.00	m 2.80	m 3.30	m 3.50
internet	s 1.103	s 1.206	s .938	s 1.262	s 1.100	s 1.430	s 1.192	s .973	s 1.057	s 1.287
Trust in government	m 4.70	m 4.90	m 5.00	m 4.58	m 5.06	m 4.57	m 4.76	m 5.08	m 4.76	m 4.66
	s 1.002	s .953	s .919	s .916	s .824	s 1.131	s .917	s .747	s .852	s 1.026
Offline behaviour	m 4.60	m 4.54	m 4.62	m 4.27	m 5.02	m 4.33	m 5.00	m 5.17	m 4.75	m 4.43
	s .911	s .987	s .933	s 1.101	s .870	s .993	s .791	s .507	s .782	s 1.061
Online behaviour	m 3.38	m 3.41	m 3.35	m 3.44	m 3.35	m 3.34	m 3.40	m 3.47	m 3.12	m 3.07
	s .880	s 1.038	s .946	s 7.94	s .801	s .818	s .731	s .747	s .848	s .798
Attitude	m 4.97	m 5.23	m 5.40	m 4.80	m 5.21	m 5.19	m 5.14	m 5.32	m 5.01	m 4.95
	s1.279	s .917	s 1.021	s 1.144	s .883	s 1.166	s .852	s .757	s 1.017	s 1.080
Behavioural intention	m 4.97	m 4.56	m 4.67	m 4.46	m 4.64	m 4.77	m 4.35	m 4.43	m 4.39	m 4.15
	s 1.716	s 1.370	s 1.262	s 1.560	s 1.458	s 1.388	s 1.525	s 1.306	s 1.405	s 1.436
n	25	46	38	81	108	54	35	24	79	33

Appendix 6.b: Explained variances per municipality

Variance per municipality										
	Amersfoort	Apeldoorn	Arnhem	Deventer	Enschede	Hengelo	Nijmegen	Utrecht	Wijchen	Zwolle
1. Performance Expectancy	1.773	1.002	.912	1.097	1.232	1.406	1.229	.622	1.519	.833
2. Effort expectancy	1.190	.640	.945	.820	.761	1.152	.701	.462	.899	.741
3. Perceived risk of the internet	1.217	1.454	.879	1.594	1.211	2.044	1.421	.946	1.118	1.655
4. Trust in government	1.003	.908	.845	.839	.679	1.278	.841	.558	.726	1.052
9. Online behaviour	.774	1.077	.895	.631	.642	.669	.535	.558	.720	.636
10. Offline behaviour	.830	.974	.870	1.211	.757	.986	.626	.257	.612	1.126
5. Attitude	1.637	.841	1.042	1.308	.779	1.359	.725	.573	1.034	1.166
6. Behavioural intention	2.944	1.877	1.592	2.435	2.126	1.927	2.326	1.705	1.974	2.063
n	25	46	38	81	108	54	35	24	79	33

Appendix 6.c: Multiple regression analysis per municipality

Multiple regression analyses per municipality									
Municipality / variable	B	SE	β	*t*	*p*	R^2	F	Df	*p*
Amersfoort									
Online citizen behaviour						.010	.108	2,22	.898
Constant	2.872	1.120		2.563	.018*				
Trust in government	.057	.199	.065	.285	.778				
Offline citizen behaviour	.053	.219	.055	.240	.813				
Attitude						.435	3.845	4,20	.018*
Constant	6.641	1.685		3.941	.001***				
Performance expectancy	.311	.174	.323	1.784	.090				
Effort expectancy	-.483	.209	-.374	-2.097	.049*				
Perceived risk of the internet	-.328	.205	-.283	-1.596	.126				
Online citizen behaviour	-.150	.256	-.103	-.587	.564				
Behavioural intention						.251	7.708	1,23	.011*
Constant	1.634	1.240		1.318	.201				
Attitude	.672	.242	.501	2.776	.011*				
Apeldoorn	B	SE	β	*t*	*p*	R^2	F	Df	*p*
Online citizen behaviour						.135	3.351	2,43	.044*
Constant	1.048	.943		1.112	.273				
Trust in government	.211	.157	.194	1.339	.188				
Offline citizen behaviour	.292	.152	.277	1.918	.062				
Attitude						.466	8.962	4,41	.000***
Constant	6.081	1.072		5.674	.000***				
Performance expectancy	.171	.117	.186	1.457	.153				
Effort expectancy	-.361	.154	-.315	-2.351	.024*				
Perceived risk of the internet	-.292	.093	-.384	-3.127	.003**				
Online citizen behaviour	.089	.109	.101	.819	.417				
Behavioural intention						.377	26.645	1,44	.000***
Constant	-.238	.943		-.253	.802				
Attitude	.917	.178	.614	5.162	.000***				
Arnhem	B	SE	β	*t*	*p*	R^2	F	Df	*p*
Online citizen behaviour						.017	.306	2,35	.739
Constant	3.127	1.050		2.977	.005**				
Trust in government	-.077	.179	-.075	-.430	.670				
Offline citizen behaviour	.131	.176	.129	.743	.463				
Attitude						.668	16.574	4,33	.000***
Constant	7.276	1.005		7.239	.000***				
Performance expectancy	.169	.123	.158	1.378	.178				
Effort expectancy	-.579	.115	-.551	-5.015	.000***				
Perceived risk of the internet	-.451	.116	-.414	-3.901	.000***				
Online citizen behaviour	.080	.110	.075	.730	.470				
Behavioural intention						.307	15.967	1,36	.000***
Constant	..967	.942		1.027	.311				
Attitude	.685	.171	.554	3.996	.000***				
Deventer	B	SE	β	*t*	*p*	R^2	F	Df	*p*
Online citizen behaviour						.027	1.094	2,78	.340
Constant	2.786	.535		5.204	.000***				
Trust in government	.040	.098	.046	.408	.685				
Offline citizen behaviour	.110	.081	.153	1.354	.180				
Attitude						.486	17.948	4,76	.000***
Constant	4.143	.901		4.596	.000***				
Performance expectancy	.407	.103	.372	3.950	.000***				
Effort expectancy	-.265	.125	-.210	-2.125	.037*				
Perceived risk of the internet	-.394	.078	-.435	-5.033	.000***				
Online citizen behaviour	.288	.125	.200	2.315	.023*				
Behavioural intention						.351	42.685	1,79	.000***
Constant	.583	.610		.956	.342				
Attitude	.808	.124	.592	6.533	.000***				
Enschede	B	SE	β	*t*	*p*	R^2	F	Df	*p*
Online citizen behaviour						.013	.691	2,105	.504
Constant	2.702	.584		4.630	.000***				
Trust in government	.096	.098	.099	.976	.331				
Offline citizen behaviour	.033	.093	.036	.354	.724				
Attitude						.357	14.271	4,103	.000***
Constant	3.700	.623		5.938	.000***				
Performance expectancy	.360	.072	.452	5.023	.000***				
Effort expectancy	-.095	.098	-.094	-.972	.333				
Perceived risk of the internet	-.126	.067	-.157	-1.879	.063				
Online citizen behaviour	.127	.094	.115	1.355	.178				
Behavioural intention						.227	31.159	1,106	.000***
Constant	.543	.745		.729	.468				
Attitude	.787	.141	.477	5.582	.000***				
Hengelo	B	SE	β	*t*	*p*	R^2	F	Df	*p*

Online citizen behaviour						.010	.253	2,51	.777
Constant	2.970	.619		4.800	.000***				
Trust in government	.068	.104	.094	.652	.517				
Offline citizen behaviour	.014	.118	.017	.118	.907				
Attitude						.564	15.822	4,49	.000***
Constant	4.469	.972		4.599	.000***				
Performance expectancy	.348	.114	.354	3.049	.004**				
Effort expectancy	-.313	.121	-.288	-2.584	.013*				
Perceived risk of the internet	-2.48	.080	-.304	-3.089	.003**				
Online citizen behaviour	.245	.137	.172	1.793	.079				
Behavioural intention						.290	21.227	1,52	.000***
Constant	1.441	.739		1.949	.057				
Attitude	.641	.139	.538	4.607	.000***				
Nijmegen	B	SE	β	*t*	*p*	R^2	F	Df	*p*
Online citizen behaviour						.024	.398	2,32	.675
Constant	3.357	.877		3.830	.001***				
Trust in government	-.128	.158	-.161	-.811	.423				
Offline citizen behaviour	.130	.183	.141	.711	.482				
Attitude						.213	2.024	4,30	.116
Constant	5.075	1.124		4.515	.000***				
Performance expectancy	.185	.149	.241	1.242	.224				
Effort expectancy	.120	.185	.118	.647	.522				
Perceived risk of the internet	-.248	.136	-.347	-1.831	.077				
Online citizen behaviour	-.135	.204	-.116	-.661	.514				
Behavioural intention						.390	21.073	1,33	.000***
Constant	-1.397	1.269		-1.101	.279				
Attitude	1.118	.244	.624	4.591	.000***				
Utrecht	B	SE	β	*t*	*p*	R^2	F	Df	*p*
Online citizen behaviour						.249	3.481	2,21	.049*
Constant	-.019	1.945		-.010	.992				
Trust in government	.511	.194	.511	2.638	.015*				
Offline citizen behaviour	.173	.285	.117	.606	.551				
Attitude						.428	3.554	4,19	.025*
Constant	5.391	1.500		3.593	.002**				
Performance expectancy	.020	.188	.021	.106	.917				
Effort expectancy	-.254	.214	-.228	-1.187	.250				
Perceived risk of the internet	-3.29	.137	-.423	-2.400	.027*				
Online citizen behaviour	.428	.178	.423	2.402	.027*				
Behavioural intention						.290	8.988	1,22	.007**
Constant	-.514	1.665		-.308	.761				
Attitude	.929	.310	.539	2.998	.007**				
Wijchen	B	SE	β	*t*	*p*	R^2	F	Df	*p*
Online citizen behaviour						.049	1.973	2,76	.146
Constant	1.744	.704		2.476	.016*				
Trust in government	.104	.115	.105	.905	.368				
Offline citizen behaviour	.185	.126	.171	1.475	.144				
Attitude						.461	15.817	4,74	.000***
Constant	4.796	.806		5.950	.000***				
Performance expectancy	.319	.085	.387	3.762	.000***				
Effort expectancy	-.264	.114	-.246	-2.309	.024*				
Perceived risk of the internet	-.254	.086	-.264	-2.957	.004**				
Online citizen behaviour	.092	.105	.077	.883	.380				
Behavioural intention						.410	53.429	1,77	.000***
Constant	-.035	.618		-.057	.955				
Attitude	.884	.121	.640	7.310	.000***				
Zwolle	B	SE	β	*t*	*p*	R^2	F	Df	*p*
Online citizen behaviour						.150	2.638	2,30	.088
Constant	1.976	.772		2.558	.016*				
Trust in government	-.046	.133	-.060	-.347	.731				
Offline citizen behaviour	.296	.129	.393	2.296	.029*				
Attitude						.367	4.054	4,28	.010**
Constant	5.329	2.033		2.621	.014*				
Performance expectancy	.203	.228	.171	.887	.382				
Effort expectancy	-.221	.248	-.176	-.891	.381				
Perceived risk of the internet	-.299	.158	-.357	-1.899	.068				
Online citizen behaviour	.110	.226	.081	.486	.631				
Behavioural intention						.312	14.067	1,31	.001**
Constant	.469	1.004		.467	.644				
Attitude	.743	.198	.559	3.751	.001***				

Note: * p < .05 | ** p < .01 | *** p < .001 (2-tailed)

Appendix 7: Results of analyses run by IBM SPSS AMOS 23

Appendix 7a: Calculations by IBM SPSS AMOS 23

Means and Pearson correlation of variables measured by IBM SPSS AMOS 23

	Descriptives		Correlations			
	Mean	Variance	1	2	3	4
1. Performance Expectancy	4.767	1.217				
2. Effort expectancy	2.972	.830	-.445**			
3. Perceived risk of the internet	3.178	1.408	-.182**	.235**		
4. Trust in government	4.810	.869	.417**	-.381**	-.629**	
5. Offline behaviour	4.668	.923	.122*	-.135*	-.270**	.267**
6. Error on online behaviour	0	.690				
7. Error on attitude	0	.608				
8. Error on behavioural intention	0	1.450				

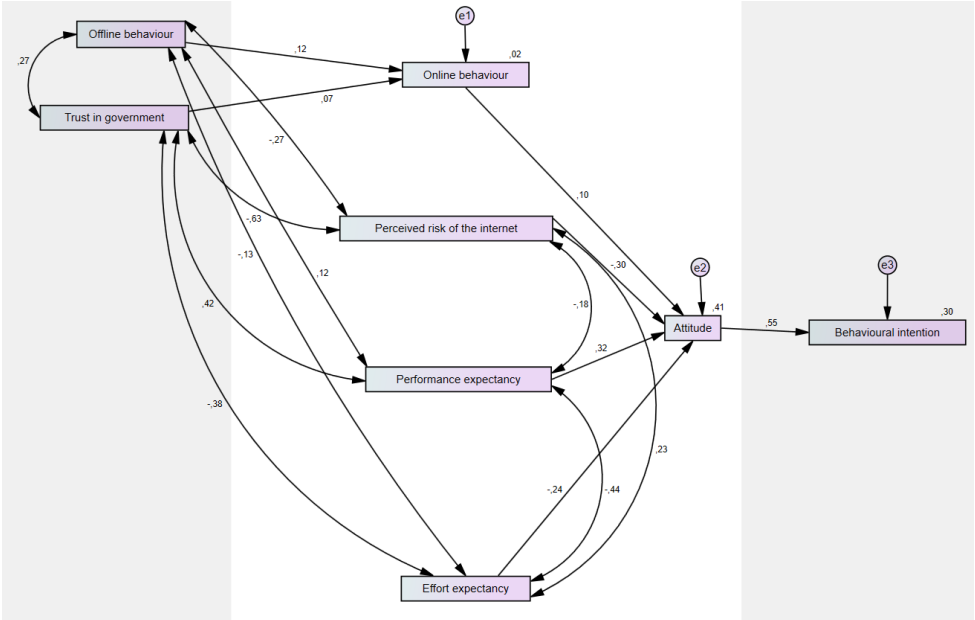
Note: * p < .01 | ** p < .001 (2-tailed)

Multiple regression analyses by IBM SPSS AMOS 23

Variable	B	β	p	R^2
Online citizen behaviour				.024
Constant	2.527		.000***	
Trust in the government	.064	.071	.112^{ns}	
Offline behaviour	.105	.120	.008**	
Attitude				.413
Constant	4.870		.000***	
Performance expectancy	.299	.324	.000***	
Effort expectancy	-.267	-.240	.000***	
Perceived risk of the internet	-.258	-.301	.000***	
Online behaviour	.127	.105	.002**	
Behavioural intention				.305
Constant	.543		.044*	
Attitude	.783	.552	.000***	

Note: * p < .05 | ** p < .01 | *** p < .001 (2-tailed)

Appendix 7b: Standardised model calculated by IBM SPSS AMOS 23



Appendix 7c: Unstandardised model calculated by IBM SPSS AMOS 23