

# **Explaining eDemocracy development: a quantitative empirical study**

Paul van der Graft

Jörgen Svensson

University of Twente

School of Business, Public Administration and Technology

## **Abstract**

The increased usage of information and communication technology and especially the Internet as a vehicle for democratic participation may be regarded in very different ways. First of all, the development of 'eDemocracy' may be seen as a matter of increased instrumental opportunity: these applications are purposively developed because the Internet provides new and better ways of reaching the citizen and thereby improving democracy. In second place, eDemocracy development can be viewed as an expression of political will: speed and direction of this development are determined by decisions and actions of political stake holders. Last but not least, it may be argued that eDemocracy is especially the result of autonomous technological development: with the advent of information and communication technology eDemocracy is a more or less unavoidable consequence, regardless of the potential benefits and hazards.

This article investigates the explanatory power of these three perspectives, taking the empirical case of eDemocracy development in Dutch municipalities. A quantitative analysis leads to the conclusion that, at least in this specific context, eDemocracy development is not so much a result of objective needs and opportunities or of political steering. Instead, it is first and foremost explained as a result of the advancement of ICT in the municipal administration and of the development of municipal e-service provision in particular.

## **1. Introduction**

In recent years, electronic information and communication technologies (ICTs), such as the Internet and the World Wide Web have created many new possibilities for communication between government and citizenry (Van de Donk and Tops, 1994; Hoff et al., 2000; Kersting and Baldersheim, 2004). First of all, the new technologies can be used to provide the citizen with more and better information. Through the internet, citizens may get easy access to governmental data and information sources. They may learn about governmental programs, law and regulation and they may follow in more detail than before processes of political decision making (e.g. via on-line agenda's, on-line minutes and even live broadcasts of meetings). Second, ICTs may be used in the reverse way, to

collect, regularly or ad hoc, information from the citizen. The Internet, especially, is regarded as an interesting instrument for opinion polling. As this technology provides excellent opportunities to collect opinions from large samples of people in a short time, and at low costs, internet polls and on-line surveys are already becoming accepted practices to get a quick (and sometimes dirty) impression of public opinion regards societal issues. Third, the new technology provides opportunities for on-line deliberation and discussion. Not only via email, but also via discussion lists and so-called on-line chats, political representatives as well as individual citizens may become more active participants in democratic debates. Finally, there is the suggestion that the Internet provides new opportunities for a more direct involvement of citizens in political decision-making. With the development of proper techniques for on-line identification and secure on-line communication, it seems just a matter of time before on-line referenda and even on-line elections will be implemented (Kersting and Baldersheim, 2004).

With the observation of these new technological opportunities, a range of new questions arises, concerning their meaning and their actual adoption for existing democratic institutions. To what extent may these new technologies help to improve and invigorate our democracies? Are these new technologies really benign, or may they have unintended and unforeseen consequences in terms of altering existing democratic institutions? And, a more empirical question: how will the application of eDemocracy develop in practice and what will determine the speed and the direction its development?

Although such questions about the role of ICT's in the democratic sphere have been the topic of various studies over the past decades. To our knowledge they always have been addressed in the form of philosophical and/or theoretical analysis and argumentation or in the form of case studies comprising no more than few cases at the time. In this article, however, we present the results of a *quantitative* study with regard to eDemocracy development on a local (municipal) level, in the Netherlands.

The central question of this study is:

*To what extent do individual municipalities in the Netherlands apply Internet-based eDemocracy technologies and what explains variation in this usage?*

In order to answer this question, the remainder of this article is structured as follows. Next, section 2 discusses three different perspectives on the adoption of eDemocracy technologies. Then, section 3 explains the research carried out to compare the explanatory power of these three perspectives in the empirical setting of the Dutch municipalities. Section 4 presents the results of this research, immediately followed by a discussion in section 5. Finally, section 6 sums up the main conclusions.

## 2. Perspectives on eDemocracy development

The possible use of modern information and communication technologies in democratic practices, raises important questions concerning the actual development of this type of applications. To what extent and in what form do applications of eDemocracy develop and especially under which conditions do these developments take place? With respect to these questions, three general perspectives may be distinguished, which will be discussed below:

- eDemocracy as an instrumental opportunity to increase and improve democratic participation by citizens;
- eDemocracy as an issue of political will;
- eDemocracy as an autonomous, predominantly technologically inspired process.

The first, and in a practical sense most central, perspective associated with technological innovation is that of new opportunities of improvement. Technological innovation is often regarded a means to improve a societies' fate. In this perspective new technology is associated with progress because, essentially, it provides alternatives and additions to existing tools and in this way increases available options. New technologies thus provide opportunities to realize existing aims more effectively and efficiently. That this perspective applies to information and communication technologies and their promises for the public sphere is especially evident in view of many technology inspired policy discussions and policy papers which have appeared over the past decades and during the Internet boom in particular. The opportunities perspective is present in many e-Government programmes published in this era and, in general, it boils down to the idea that the Internet provides massive opportunities for enhancing democratic citizen participation as it allows an increased and presumably better exchange of information:

“Information and communication technology (ICT) provides a means by which public participation can be increased, and we hope that with an active government policy the potential benefits can be maximised. e-Democracy offers new ways of participating and seeks to complement rather than replace existing structures.”

(Robin Cook, Leader of the House of Commons and President of the Council, 2002: 5).

“The age of the internet also offers new forms of dialogue, communication and cooperation. State and administration must organise their dealings so that they do justice to the significance of the internet for the democratic process. This includes the possibility of voting via the internet as well as better and quicker access to

administrative information.” (Otto Schily, German Federal Minister of the Interior 2001: 9).

“Informatie- en communicatietechnologie scheppen daarbij nieuwe mogelijkheden. Nader uitgewerkt betekent dit: verbetering van dienstverlening aan burgers en bedrijven; grotere betrokkenheid van burgers bij het openbaar bestuur en omgekeerd; betere toegankelijkheid en openbaarheid van overheidsinformatie [...]”<sup>1</sup> (Dutch Ministry of Internal Affairs, 1995: 5).

Part and parcel of this instrumental opportunities perspective is the suggestion that current democratic practices really *should* be improved, as they are to some degree insufficient to reach the (modern) public. So, eDemocracy is especially targeted as a means to solve (presumed) deficiencies, such as limited citizen participation in political debate (especially among the young and the higher educated, who would expect governments to communicate in more modern ways) and low and decreasing levels of voter turnout (Pratchet, 2002; Kersting et al., 2004).

Where in many government publications eDemocracy is presented as a promising development, with undeniable potential, many political scientists regard eDemocracy from a rather different perspective, that of eDemocracy as an expression of political will. From this perspective, the idea that eDemocracy is an objective necessity, is considered flawed because it is recognised that what is and what is not desirable in this respect is dependent on specific beliefs of what democracy is and should be. These beliefs about democracy may vary to a considerable extent. As argued by Van de Donk and Tops (1994) and also by Hoff et al. (2000) a variety of “democratic traditions” can be distinguished, with very different conceptions of democracy and of the roles therein of politicians, political parties and citizens. A most central issue of variety concerns the question whether democracy would be served by letting citizens participate more directly in decision making on concrete issues or whether informed debate and negotiation between elected representatives is to be preferred. As noted in several discussions, a position in this debate will have important implications for the way in which eDemocracy initiative as on-line polls and especially on-line referenda are regarded (e.g. Hoff et al, 2000, Edwards, 1994). From a collectivist perspective on democracy such on-line referenda may be welcomed as a more direct way of expressing the will of the people. From a liberal or republican

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<sup>1</sup> Translation by the authors: “Information en communication technology thereby creates new opportunities. Elaborated further, this means: improved service provision to citizens and companies; greater involvement of citizens in government and vice versa; better accessibility and publicity of government information [...]”

tradition, however, the idea of a “push button society” may be regarded as a dangerous perversion that undermines political leadership and may strangle the quality of the democratic debate.

With regard to the importance of democratic tradition in evaluating the promises of eDemocracy, and also in view of more direct interests of political parties and politicians, it is generally expected – in both meanings of the word – that eDemocracy development will be the subject of political steering. Politics and political tradition should determine the way eDemocracy develops, in speed, extent and direction.

A third, perspective with regard to ICT development, is that of technological determination. In general, the idea of technological determination is that new technologies, when they become available have a tendency to turn into more or less autonomous forces, which have an “impact” on social practices as though they are forces of nature (Markus and Robey, 1988). In its extreme form, this perspective is generally considered untenable, as it denies human agency in the process of technological development. However, it may be applied in a more relaxed manner, that is: technologies are often developed outside of the societal spheres in which they are ultimately adopted. From this perspective, it can be argued that ICT’s, such as Internet service technologies, originate from a societal sphere, which until recently has been largely unconnected to the sphere of democratic institution building. As these new technologies now enter into this democratic sphere, they bring with them particular beliefs, norms, values and technological artefacts, which are essentially alien to that sphere and which may affect existing democratic institutions in ways which may or may not be desirable.

An example of such a possible change of democratic institutions, which, for a large part, may be regarded as the result of “technology push” is on-line voting – which in recent years has gathered momentum in several countries (Svensson and Leenes, 2003). Analysis shows that this development, which touches the core of our democratic institutions, is generally not directed by concerns of democratic institution building, but much more part and parcel of broader eGovernment and eSociety programmes, which are driven to a large extent by economic considerations.

Thus, to summarize, the advent of eDemocracy technologies may be regarded from very different perspectives and these perspectives offer different explanations to why, under certain conditions certain forms of eDemocracy may be suggested and implemented. An empirical question is now, to what extent these perspectives do indeed provide explanatory power for any specific eDemocracy developments at a specific place and a specific time, and to what extent they can explain differences in development. For instance, (a) to what extent do these perspectives explain the development over time, of eDemocracy in one country, (b) to what extent do these perspectives explain differences in eDemocracy development between different countries, or (c) to what extent do these perspectives explain differences in eDemocracy development at the local level, within one particular country?

This paper takes the latter question as point of departure for an empirical investigation, in which the three alternative perspectives are regarded as possible explanations for the application of eDemocracy technology within Dutch municipalities.

### **3. Method**

The study focuses on explaining the application of Internet-based eDemocracy techniques by Dutch municipalities. This may be done by two different approaches. One would be a qualitative case study, in which the development of eDemocracy in a smaller number of municipalities is reviewed, thereby focussing on actors, structures and processes and on decisions and on argument used. Another method of investigation is a quantitative approach in which, as a first step, the different perspectives are used to derive hypothesised relationships, which then in a second step are submitted to an empirical test of a statistical nature. In this study the latter approach is selected.

#### **3.1. Formulation of testable hypotheses**

To compare the explanatory power of the three different perspectives regards the development of eDemocracy, for the case of Dutch municipalities; each of the three perspectives is investigated in search for hypothesised relationships, which reflect these perspectives and which also refer to variables considered measurable on the level of the individual Dutch municipalities.

This investigation leads to the following decisions.

First, as explained above, the instrumental opportunity perspective explains eDemocracy development as an attempt to enrich and improve democratic practices, especially in response to shortcomings of existing channels of democratic communication. In this respect, two shortcomings are generally mentioned: a) limited and in many place decreasing voter turnout in elections and b) the suggestion that the modern, higher educated citizenry is more demanding than that of the past and thus demands additional channels of political expression. Both assumptions are translated to formal hypotheses:

H1a: eDemocracy applications are more prevalent in municipalities which have experienced lower voter turnout during municipal elections;

H1b: eDemocracy applications are more prevalent in municipalities which have a larger proportion of higher educated citizens.

Central to the second perspective is not the objective need for innovation, but the expression of political will, and the suggestion that the application of eDemocracy in general and that of certain eDemocracy technologies in particular is dependent on political tradition. Combined with the

observation that in Dutch politics, we do indeed witness fundamental debate between different political parties on such issues as the introduction of more direct forms of democracy, this perspective suggests that eDemocracy development in municipalities will reflect differences in political orientation, which may be expressed in two different hypotheses:

H2a: the *extent* of eDemocracy development in municipalities depends on the political ideology of the dominant political party;

H2b: the *type* of eDemocracy applications provided by municipalities depends on the political ideology of the dominant political party.

Finally, the third perspective, which sees eDemocracy first and foremost as an expression of the general ICT development, is translated in the following hypotheses:

H3: the extent of eDemocracy development in municipalities is positively related to the general advancement of eGovernment.

The question now is: which of these hypotheses regarding the development of eDemocracy, and thus which of the underlying perspectives do find (most) empirical support, in this particular context?

### **3.2. Population and general approach**

The quantitative study of eDemocracy adoption takes as its unit of analysis the municipality and as the population under investigation all Dutch municipalities, with the exception of the four larger cities (N=479). The exclusion of the larger cities is decided both on fundamental as well as practical grounds. A more fundamental argument is that the larger cities in the Netherlands are not really comparable with the rest of the population, as they tend to function very differently. Amsterdam and Rotterdam, in particular, are divided into boroughs, with their own borough-councils. A practical reason to except these cities from the investigation is that including them would lead to statistical problems, as they are clearly outliers in many respects (e.g. Amsterdam and Rotterdam are approximately 50 times larger in terms of population size than the average Dutch municipality).

Furthermore, it is decided not to take a sample from the population selected, but to investigate the population as a whole, using existing data, readily available from several sources.

### 3.3. Dependent variables: extent and type of eDemocracy development

The objective of this study concerns the explanation of eDemocracy development at the local level. With respect to this objective, we distinguish two relevant dependent variables: first the **extent** to which eDemocracy has been developed and second the **type** of eDemocracy development. Each municipality is scored on both variables, using the results of the eGovernment monitor: [advies.overheid.nl](http://advies.overheid.nl) (as presented on February 20, 2004). This monitor scores each municipality on the availability of: a) an electronic newsletter, b) an on-line overview of policy themes and their background, c) an on-line activities index, d) electronic opinion polls, e) on-line surveys, f) an on-line discussion platform and g) on-line chat function.

The **Extent of eDemocracy** is defined as the total score of a municipality on all these issues taken together and ranges from a minimum score of 0 to a maximum score of 98 points.

With respect to the **Type of eDemocracy**, four categories are distinguished:

- Non-adopters (N.A.): municipalities that do not use any of the techniques;
- Electronic Information Providers (E.I.P.): municipalities that only use the internet to provide their citizens with municipal information;
- Electronic Opinion Pollers (E.O.P.): municipalities that (also) use the internet to acquire data from their citizens, via electronic polls and on-line surveys;
- Facilitators of Electronic Discussion (E.D.): municipalities that facilitate on-line discussion via platforms and chats.

### 3.4. Independent variables: voter turnout, education, political ideology and eGovernment

The four independent variables used to explain the variance in eDemocracy in extent and type are voter turnout, proportion of higher educated citizens, political tradition and eGovernment development.

Both **average voter turnout** during the last municipal elections (varying from 38.8 to 88.8 percent) and the **political ideology** (measured as the ideology of the largest political party in the municipal council) are determined based on data regarding the municipal elections of 1998 and 2002, provided by the web archive of a Dutch national newspaper [www.telegraaf.nl](http://www.telegraaf.nl), as well as on data found on municipal websites (in the case of special municipal elections held in between).

The **proportion** citizens with a **higher educational background** is gathered from available data at the Netherlands' Central Bureau of Statistics

The **level of eGovernment development** is based, again, on the eGovernment monitor [advies.overheid.nl](http://advies.overheid.nl). Here the total scores of each municipality is taken, whereby it is important to note that any scores a municipality has gained on eDemocracy are excluded, this to avoid contamination between dependent and independent variables.

### 3.5. Analysis

To test the respective hypothesised relationships, SPSS was used, applying different (bivariate) statistical tests depending on the measurement levels of the variables involved.

- For hypothesis H1a and H1b the correlation was tested between voter turnout and proportion highly educated, on the one hand, and the extent of eDemocracy on the other;
- For testing hypothesis H2a an analysis of variance was performed;
- For hypothesis H2b a Chi-square test was conducted;
- For hypotheses H3 the correlation was tested between general eGovernment development and the extent of eDemocracy.

## 4. Results

The main results of the analysis described above are presented in tables 1 to 4.

As shown in table 1, the usage of eDemocracy technologies in Dutch municipalities is noticeable but still rather limited. Less than 40 percent of all municipalities has implemented any eDemocracy technologies. However, in those municipalities that have, the rather advanced form of two-way interaction - facilitated electronic discussion - is most common.

Where the explanation of differences between municipalities is concerned, the following findings are most relevant.

With regard to hypotheses H1a and H1b, table 2 shows a small but nonetheless significant relationship between voter turnout and eDemocracy ( $r = -.15$ , proportion of variance explained .02). The hypothesised relationship between the proportion higher educated and eDemocracy, however, is not supported.

Also, both hypotheses that explain eDemocracy as an expression of political will, hypotheses 2a and 2b, do not find any support. As presented in table 3, the analysis of variance does not show any significant differences in the extent of eDemocracy for municipalities which support different political ideologies (alpha is .98). Furthermore, the results of a Chi-square test performed on table 4 reveals no significant relationship between political ideology and the type of eDemocracy implemented. (alpha is .95).

Finally, with respect to hypothesis 3, reflecting the perspective that eDemocracy development is technologically determined, table 2 presents a larger and significant correlation. Around 27 percent of the variation in eDemocracy is explained by the variation in general eGovernment development ( $r = .52$ ).

**Table 1:** Internet based eDemocracy implemented in Dutch municipalities

eDemocracy type	N	Percent
Non adopters	300	62,6%
Electronic information providers	33	6,9%
Electronic opinion pollers	54	11,3%
Facilitators of electronic discussion	92	19,2%
<i>Total</i>	<i>479</i>	<i>100%</i>

**Table 2.** Correlations of eDemocracy with independent variables

	Turnout	Educ.	EGov.	EDem.	N	Mean	St. dev.
<b>Turnout</b>	1	-.15**	-.13**	-.15**	471	63.61	7.53
<b>Prop. higher educated</b>	-.15**	1	.06	.05	397	19.33	7.47
<b>eGovernment</b>	-.13**	.06	1	.52**	479	49.16	12.81
<b>eDemocracy</b>	-.15**	.05	.52**	1	479	11.99	20.84

\*\* Correlation is significant at the 0.01 level (2-tailed).

**Table 3.** Extent of eDemocracy and the political ideology of the largest party

Largest party	N	Means	st.dev
Christian	128	11,84	21,47
Socialist/leftwing	47	10,77	18,64
Liberal	28	12,50	22,55
Local party	62	13,06	22,86
Other, unclear	214	11,98	20,25
<i>Total</i>	<i>479</i>	<i>11,99</i>	<i>20,84</i>

**Table 4.** Type of eDemocracy and the political ideology of the largest party

Largest party	Type of eDemocracy implemented				Total
	N.A.	E.I.	O.P.	D.D.	
Christian	79	10	15	24	128
Socialist/leftwing	30	3	5	9	47
Liberal	19	2	1	6	28
Local party	38	6	4	14	62
<i>Total</i>	<i>166</i>	<i>21</i>	<i>25</i>	<i>53</i>	<i>265</i>

1. Municipalities with a largest party with an unclear political orientation (Leefbaar Nederland, N=5) or without a clearly largest party (n=209) have been excluded

## 5. Discussion

The results of the investigation of Dutch municipalities clearly indicate that at this point in time and in this population, eDemocracy development can not be explained as an innovation in answer to serious problems of existing democratic institutions, nor as a politically motivated enterprise sprouting from particular political ideology or party interests. The development is clearly linked, however to the general advancement of eGovernment. Boldly stated, when Dutch municipalities use the Internet for delivering municipal services they are likely to use the same technology to innovate local democracy as well, irrespective of the question whether such innovation is objectively or politically desirable.

Thus, although the perspective of technological determinism has often been considered fundamentally flawed in a theoretical sense (with good arguments), in an empirical sense, it still delivers the most significant explanatory power.

How may such finding be interpreted? Having discussed these findings with several persons knowledgeable about local politics in the Netherlands, our impression is that they are less surprised than one might expect. Although the arguments and analyses by politicians and political theorists are intelligent and valuable, it is recognised that, at least at the local level in the Netherlands, actual implementation of this type of technologies is far more pragmatic and down to earth. If there is information available which seems interesting for the citizens, why not put it on your website? Is it not simply nice to make the website a little more interactive by asking the citizen some questions about....? It is a political reality in most Dutch municipalities, that when such suggestions are made, it is highly unlikely that they will lead to a more fundamental debate, then some questions on whether this is indeed practically possible and not too costly.

Thereby it should be remarked that with respect to the development of ICT and the Internet, the opinion that more-is-better, is deeply rooted in Dutch national policy with regard to ICT. This is not only expressed in policy documents which for instance stress that “every service that can be provided on line has to be provided on-line”, but also in the way results of national benchmarks are defined and interpreted. Typically, municipalities earn points for each service they bring on-line and there is always the suggestion that the one that collects most points in the end is “leader” in the information age. As is evident from other studies (e.g. Leenes and Svensson, 2005) this suggestion translates into pressures within government to (a) give ICT departments much freedom to develop as many services as possible without too much political interference and (b) to press ICT departments in achieving high benchmark scores by developing all electronic services that are thinkable irrespective of whether they are really desirable or not.

Following these specific insights, it has to be stated here, that it is of course unclear to which extent the results of this investigation are representative for other settings, as well. Although this study has been a quantitative population study, on a higher level of abstraction, it only reflects one case of eDemocracy development, namely that of Dutch municipalities in the year 2004. It is thus unclear

whether the same explanations apply for municipalities in other countries, for local eDemocracy developments in the future, or for such developments on a national or even supra-national level.

Thus, similar research in other settings, nationally and internationally would certainly be welcome, not in the least because, from the perspective of political science there is a fundamental issue at stake. To what extent are we witnessing another age in which new media slowly but surely transform our democracies? Is this indeed a desirable transformation? And, what is the role of politicians in this setting? Are they just “innocent” bystanders or do they actively take charge?

## 6. Conclusion

Theory on the deep meaning of ICT for the democratic process has developed over the years and has gained a high level of sophistication, the actual practice of eDemocracy development in Dutch municipalities, however is rather disenchanting. Especially on the level of the Dutch municipalities, the take-up is rather limited and the reasons for doing anything in this field are rather prosaic. There is no indication that the use of eDemocracy is really related to manifest problems of voter turn-out and, although political science literature expresses concerns about some forms of eDemocracy, there is no sign of deliberate political steering by political parties. Instead, the extent to which eDemocracy is applied is basically determined by the availability within each municipality of this technology in the context of general electronic service provision via a municipal website. This determines the availability of means (technical and financial) and know-how that is necessary to develop and maintain these applications and seems to lead, almost automatically, to playful experimentation with established democratic institutions.

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