INTERNET VOTING TECHNOLOGIES AND CIVIC PARTICIPATION: THE USERS' PERSPECTIVE

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Abstract

In many places e-voting technologies are under development, and an intensive theoretical and normative debate is taking place about the pros and cons. We investigate the opinions of the *users* of this type of technologies, as this is crucial for the shaping and acceptance of the technology. We did not use a survey, but held 14 intensive discussion sessions in different countries with voters and organisers of ballots, using the focus groups methodology. We found consensus that e-voting will not influence turnout. The motivation to start with e-voting therefore seems mainly financial, aiming at reducing costs. This suggests that in the future e-voting will replace traditional ways of voting, and therefore the digital divide can be expected to influence the participation in and the outcome of ballots. Finally, although most respondents expect that e-voting may improve (especially local) democracy through a combination of voting technologies with technologies for supporting deliberation and information dissemination, it remains unclear how this should be done. More detailed studies into political participation and the subtle roles of ICT's herein are needed, as this can inform the design of adequate technologies for e-democracy.

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Introduction

Internet voting is a hot topic. Governments in many countries are eager to speed up its implementation for a variety of reasons. It fits general e-government developments, it may reduce costs, and, more specifically, there is the hope that it may increase turnout, especially among young people. Outside government, Internet voting may find its way into a much wider realm of organisational opinion polling and of participation in organisational decision-making.

The development of the technology is in its infancy, but many technology development initiatives are undertaken, supported by public R&D programs. As is well known but hardly practiced, involving the different categories of users in the early phases of design and implementation of technologies is crucial for the innovation process (Greenbaum and Kyng 1991; Schuler and Namioka 1993; Cherkasky, Greenbaum, Mambrey, and Pors 2000). In this way the technology developers may learn about the crucial 'softer' issues, which encompass a variety of technical, organisational, social and human factors and their interactions (Kling 1999), and users may learn about the opportunities and risks of the technology. A process of mutual social learning may take place, which is even more important in the case of complex and heterogeneous infrastructural technologies, such as Internet voting systems (Oostveen et al. 2002). From this perspective, and as part of a technology development project, we investigate the opinions and needs of the *users* (voters as well as organisers of ballots) of Internet voting technologies. In this way, our research may contribute to a more reflective technology development, and at the same time contribute to the emerging body of knowledge about effects, possibilities and risks of using information and communication technologies (ICT) for civic participation.

The structure of the paper is as follows. We start with an introduction of Internet voting as it stands, and then we review the technological and socio-political opportunities and risks as they dominate the theoretical and normative debate about Internet voting. In the next section we introduce our case, the focus groups method we used, and the five field settings in Finland, France, Italy, and the UK. After that we present the findings of the study, the views and opinions of the voters and organisers of the ballots. In the concluding section we discuss the implications of the findings for the design and use of Internet voting systems for civic participation.

Internet Voting

In the debate on e-democracy, one generally distinguishes between the use of ICT for the provision of information, for political deliberation, and for decision-making (Hacker and Van Dijk 2000; Hague and Loader 1999). Internet voting (or online voting, electronic voting, e-voting) is primarily intended to support decision making, but it can of course also be used for gathering information (opinion polling) and for deliberation. Internet voting is an election system that uses encryption to allow a voter to transmit his or her secure and secret ballot over the Internet. It is essential to recognise that Internet voting is only one part of the full e-democracy agenda and we should not limit our view of online democracy to voting and elections only (Clift 2000). It is also important to acknowledge that new voting technologies alone will not bring about major changes to our democracies.

The use of referenda, deliberative polls and a more direct democracy will have to be justified by more than just the possibilities created by ICT. But ICT does bring about new opportunities.

Until the eighteenth century, the standard view (though not the practice) was that democratic government meant rule by the people through assembling on a central place to vote on laws and policies. By implication, democracy could actually only exist in small units, such as towns. As modern political communities exceed this size by orders of magnitude, the idea of representative democracy replaced the original democratic ideal. In such a democracy, citizens transfer the legislative power to representatives who are held accountable by re-electing or dismissing them in subsequent elections (Dahl 1998, 93-95). Although forms of direct democracy have survived in some places, and experimentally and informally returned on the local level in other places as a means for strengthening the public participation (Coleman and Gøtze 2002), representative democracy is the dominant form. One of the strongest appeals of e-voting is that with today's technology, direct forms of democracy involving entire populations become possible on a regular basis. Apart from replacing representative democracy with direct democracy, ICT could also – and according to many critics even better – help to make representative democracy more responsive (Van de Donk and Tops 1992; Coleman and Gøtze 2002). The introduction of Internet voting may be one of the tools to accomplish this, apart from ICT applications for improving political deliberation, for example.[1] In this paper, however, we focus on Internet voting.

Internet Voting Categories

Internet voting systems can be grouped into three general categories. First of all there is the *poll site* Internet voting option. This option refers to the casting of ballots at public sites where election officials control the voting platform. The advantage to Internet voting at poll sites is that voters can visit any polling place to cast their ballot. This means that the voter can choose from hundreds of polling places, including ones that may be closer to home, work or school. Secondly, there is the possibility of *kiosk* voting. Kiosks could be located in convenient public places like community centres, libraries, supermarkets, post-offices, train stations or schools. Thirdly, *remote* Internet voting refers to the casting of ballots at private sites where the voter or a third party controls the voting client. Remote Internet voting allows voters to cast their ballots from any computer connected to the Internet from anywhere in the world. Voting is not constrained by geography, that is, it is not limited to the area in which the election takes place. This means that voters who in the past had difficulties to vote may be able to do so, such as military personnel, and housebound, institutionalised or disabled persons. Also voters who know they will be out of town or unable to visit an election site on the day of the election, may use a remote Internet voting system to cast their ballots. But for 'normal' voters too a remote voting system will facilitate the casting of their ballots, as they would be able to do so from any location connected to the Internet, including workplaces or their homes. This is what Lindsey Arent (1999) called: "Voting in your underwear".

Besides the distinction between different voting sites (poll site, kiosk, or remote), we should distinguish between public elections for citizens' representatives

in local, regional, national and supranational legislative bodies, and private elections within unions, organisations or companies. Technologies for public elections generally have to meet more rigid and rigorous legal standards and technical tests than technologies for private elections.

Internet Voting: Opportunities

Critics of Internet voting express concern about security and about the lack of equal access to the Internet for all citizens. Advocates of e-voting cite the potential to increase civic participation by making the voting process more convenient, as well as the potential for reduced election costs (Dictson and Ray 2000). But there are many more advantages and disadvantages to online voting, which we will now consider. Most proponents of Internet voting argue that the adoption of such systems would increase voter participation, especially among young people, overseas personnel, business and holiday travellers, and institutionalised or housebound voters. Increasing voter participation is of interest because voter turnout has been low and declining in most countries. The ever-dwindling numbers of younger voters at the polls frustrates most public officials and interest groups. They argue that this Internet savvy age group would show up at the polls in record numbers if they were allowed to vote online (Dictson and Ray 2000). Because young people are already active on the Internet they are expected to take up this method of voting.

A second advantage of Internet voting is the possibility for increased voter access. Those in favour of Internet voting say that the current voting system we use in democratic countries is not completely fair because many people have work schedules or other conflicts that prevent them from visiting their designated polling place on election day. Internet voting would offer these people an option that they did not previously have and would enable them to exercise their right to vote (Mohen and Glidden 2001).

A third reason to favour Internet voting is increased convenience. Convenience encourages participation, which should lead to a stronger electorate. Some surveys among non-voters indicate that one of their primary reasons for not voting is the inconvenience of having to travel to a voting booth, or thinking ahead about getting an absentee ballot. According to some scholars legalising Internet voting will allow people to do something online that they want to do anyway, but have been unable to do because they are too busy and the traditional process is too inconvenient, not because they are apathetic (Strassman 1999).

Fourthly, some people also suggest that Internet voting would, in the long run, substantially reduce the costs of elections. This has not been tested yet, and the (partly hidden) costs of complex technologies are generally high. The cost of online voting would vary enormously depending on the type of system employed and the type of security used such as passwords, software, or biometric identification (Coleman et al. 2002).

A last advantage is the possibility for more direct forms of democracy. Supporters of direct democracy believe in the influence of free individuals and are afraid that intermediary organisations misrepresent the preferences of the people. [2] Today's technology makes it perfectly possible and relatively easy to introduce computer-based voting into the political systems of Western countries at any moment, involving the whole population on a regular basis.

Internet Voting: Risks

The most extreme critique expects the electronic revolution to produce Orwellian forms of surveillance and control of citizens (Van de Donk and Tops 1992). Although most critics do not take this extreme position, many of the elements are prominent in the discussion on the risks of e-voting. Among those, the technological threats to the security, integrity and secrecy of Internet ballots are the most significant (California Internet Voting Task Force 2000). Security is one of the biggest problems, as the Internet has never been a very safe way to send any kind of information, let alone something as vital as a vote. With online financial transactions, customers can be issued with a receipt, which confirms exactly what happened and when. This is not possible with voting, as the identity of the voter must be separated from his or her 'transaction' to guarantee the secrecy of the vote.

With any form of remote voting, undue influence is difficult to address. Bribery and vote buying and selling are easier from remote sites than from supervised polling stations. When people cast a ballot away from the watchful eye of an election officer there are security risks. This applies equally to a home computer, a computer based in a workplace or an unsupervised kiosk in a public place. With Internet voting via personal computers, attacks on voter's machines in the form of viruses form a significant risk, since these machines are unlikely to have the same levels of protection as the election site computers and will not be scrutinised by officials. Another security danger is the unauthorised interception or reading of ballots between the vote being cast and being received by the system. A potential weakness of Internet voting is its vulnerability to a variety of hacker created problems (web site spoofing, denial of service attacks, etc.). Individual hackers, criminals, and foreign intelligence services are among those who might try to manipulate the vote or destroy the technology used to run the election.

Besides the technical dimension, vulnerability also has a social dimension. Voter participation is a very important reason to change the existing voting systems. However, previous reforms designed to make voting more convenient – simpler registration procedures, liberal absentee balloting, extended voting times, voting by mail, and satellite voting – have had very little (if any) effect on turnout levels and virtually none on the composition of the electorate. Also, the variety of voting technologies, such as paper ballots, mechanical lever machines, punch cards, optical scan devices and direct recording electronic devices have had little effect on turnout (Internet Policy Institute 2001; Kitcat 2002). Internet voting is now expected to change this, although it did not in the 2002 and 2003 UK local votes. Postal voting did show a higher turnout (BBC News 2003). Research suggests that information, motivation and mobilisation are much more powerful forces shaping voting participation. Internet voting could actually depress voter participation in the long run if it is perceived to undermine the legitimacy of the balloting process or feelings of civic participation (IPI 2001). The fact of the matter is that the more votes the average citizen is expected to participate in, the more apathetic he becomes.

Access remains a problem for e-voting. Despite the narrowing of the 'digital divide', Internet connections are still not distributed evenly across racial, gender, age, regions and socio-economic lines. This is even stronger for the skills needed to use the technology (Wellman and Haythornthwaite 2002). Demographic groups with less access and less familiarity in using computers might find some types of

electronic voting difficult or intimidating. Government may be making it easier for some people to vote, but not for others (Alvarez and Nagler 2000). In the end, electronic elections may be even less representative than traditional ones.

The loss of the civic ritual is also commented upon in many academic articles about Internet voting. Critics argue that it would make elections less of a community event, which might create a greater gap between citizens and government, thereby decreasing participation. What some people believe is that voting is more than the simple act of indicating one's political preference, it is a vital public ritual that increases social solidarity and binds citizens together (Mohen and Glidden 2001).

Voter privacy and ballot secrecy has always been a fundamental requirement for elections. Secrecy should be provided during the voting process, while the vote is en route to the election official over the Internet, and after the ballot has been received. Casting votes online causes problems with secrecy, which are less of a concern in conventional voting systems. Also with remote voting (such as voting by mail) family members, colleagues, or employers may try to influence or control the voter's decision. However, with current voting systems, the effects of this are marginal. Internet voting is expected to substantially increase the scale of these problems. Finally, there is a trade off between including technical means for checking that votes have been counted correctly and to determine electoral fraud, and making the voting system secret. The first requires votes to be attributed to individual voters, and this means the secrecy of an individual's vote cannot be 100% assured. The risk is that in a less favourable political climate parties may be able to use such methods to identify opponents (Fairweather 2002).

Data and Methodology

In our case study, we will investigate how (potential) users of e-voting technologies think of these risks and opportunities. At the European level, R&D policies stimulate the development of Internet voting technologies, for example, through the IST program. The TruE-Vote project is one of these projects, and addresses technical issues, as well as implications of using the system in public and private elections, in referenda, opinion polls and surveys. Our research for this paper is based on our work within the TruE-Vote project.

The Case

The TruE-Vote project aims at developing a safe, secret, and user friendly system for e-voting, by integrating cryptography and smart card technologies. An important consideration is interoperability with Public Key Infrastructures for digital signatures. A detailed discussion of the technical aspects of the TruE-Vote system is beyond the scope of this article. However, apart from technology development, the project aims at learning from users and other stakeholders for the design and implementation of the technology. Therefore, users were involved from the start of the project, firstly to inform about user needs and requirements, and secondly to use the developed prototype in field experiments in five different sites.

Method: Focus Groups

There are many tools and techniques to involve users. Examples include scenario workshops, rapid prototyping, task analysis, focus groups, mock-ups, and ethnographic fieldwork. Using focus groups has become a key method for the col-

lection of qualitative data. A focus group is a small group of individuals, usually between six and ten people, who meet together to express their views about a particular topic defined by the researcher. A facilitator moderates the sessions and guides the discussion between the participants. In general, focus groups last about one and half-hours and are tape-recorded. The tape-recording can be transcribed for analysis. The focus group enables the researcher to explore participants' views and experiences on a specific subject in depth, in our case the use of the Internet for casting a vote. In the normal course of a discussion participants will raise issues relating to the subject that the researcher might not have previously considered and comment on each other's experiences and attitudes (Cronin 2001, 168).

The focus group sessions were organised as follows. Two categories of users are considered: the *voter*, who will use the system to express his/her opinion on a given issue, and the *pollster*, who is in charge of collecting and elaborating the poll results, or who is otherwise involved with voting systems and processes. Both these categories have different expectations of how a polling system should perform. Moreover, they also have different opinions about the possible effects. In order to make the results comparable, we prepared various materials to be used in all of the sessions: questionnaires, power point presentations about technical, social and political issues around e-voting, and focussing exercises. The original material was written in English, and translated into Italian and Finnish. The moderators of the sessions were native speakers.

Every focus group started out with the participants filling in a short questionnaire. Some basic socio-demographic information was required for analysis purposes and this was collected immediately before the groups started. But the questionnaire involved the collection of more than just socio-demographic background data. We did not only want to establish the age profile of the group members but also their experiences with computers and the Internet, and their voting behaviour. After the questionnaire the facilitator gave a short presentation about Internet voting. A power point presentation and an accompanying text were prepared so that the different focus groups all received the same introduction.

Besides a list of issues that needed to be discussed, the facilitator also had the aid of a so-called 'focusing exercise'. A focusing exercise is an attempt to concentrate the group's attention and interaction on a particular topic (Bloor, Frankland, Thomas, and Robson 2001). The groups were required to perform a *ranking exercise* in which the participants were offered a list of statements about Internet voting and were asked to agree among themselves on a ranking of the statements in order of importance. The discussions about the rankings serve to illustrate the tacit understandings of the participants.

We received oral and written reports from the sessions, including the outcomes of the exercises, and the completed questionnaires, which together form the empirical base for this paper. From the received documents we extracted the most important opinions and expectations in a project wide group session of the researchers involved.

The Field Research Sites

Five partners of the project organised in total twelve focus groups and one online forum; see Table 1. We will briefly describe the five partners and focus group sessions they have organised.

Abacus is an Italian full-service market research company. Abacus held one pollsters' focus group at their office in Milan.

CGIL Lombardia (Italy), with more than 800.000 members, is the most widespread trade union in Lombardia and one of the biggest in Europe: it counts fourteen regional and local structures, covering the territory with 100 provincial branches and more than 300 local offices. CGIL is mostly represented in medium- and large-sized enterprises in communication, public administration, transports, and chemical factories. CGIL organised two focus groups, one with people working for the trade union (pollsters) and one with workers who are also delegates of trade unions in big companies (voters).

Glocal Ltd. is a Finnish company established as a result of The Learning Upper North Karelia project. Upper Karelia is a remote rural area located in the eastern forest periphery of Finland with a total area of 4500 km2 and a population of about 20,000 inhabitants. Glocal organised three focus groups: two focus groups were held with voters and one workshop with pollsters.

Newham Council is the local authority responsible for administering the area covered by the London Borough of Newham. Newham is situated to the East of London and has a population of around 230,000 people. The London Borough of Newham Carpenters Estate is an inner city housing estate (750 households) with a culturally and ethnically diverse population. Ethnic minority groups make up almost 80% of the total estate population with more than 30 languages spoken by significant numbers of residents. The estate is among the most socially deprived areas in the UK. Newham organised two focus groups with voters at the Carpenters Estate Community Centre.

The *Rete Civica di Milano* (RCM) is the community network in Milan, which was founded in September 1994 at the Computer Science Department of the University of Milan. This network brings together private citizens, non-profit organisations, local government, and private companies. The university organised two focus groups with voters and two focus groups with pollsters. They also initiated an online forum about Internet voting on the RCM community network.

Table 1: Focus Groups Conducted During the First Research Phase

Partner	Method	Participants
Abacus (I)	Focus group	Pollsters
CGIL (I)	Focus group	Voters trade union
CGIL (I)	Focus group	Pollsters (political, operating managers)
Glocal (Fi)	Focus group	Online users (voters) of community network
Glocal (Fi)	Focus group	Offline users (voters) of community network
Glocal (Fi)	Focus group	Pollsters
Newham (UK)	Focus group	Voters
Newham (UK)	Focus group	Voters
RCM (I)	Focus group	Registered users (voters) of community network
RCM (I)	Focus group	Non-registered users (voters) of community network
RCM (I)	Focus group	Pollsters from province of Milan
RCM (I)	Focus group	Pollsters from province of Milan
RCM (I)	Online forum	Registered users (voters) of community network

There are vast differences in the socio-demographic makeup across the respondents in the different demonstrator groups, including ethnic diversity, migrant

populations and income inequality. For instance, the respondents at the Carpenter Estate in Newham have very diverse cultural and ethnic backgrounds, whereas in Italy all participants are Italian. The participants of the Finnish workshops are mainly from a rural area with a high rate of unemployment, while the other participants are all from large cities. The underlying socio-economic status of communities is important as it may be reflected in differences between voting behaviour, computer literacy, and consequently in opinions about online voting.

Results

Socio-demographic Characteristics

The questionnaire for the participants consisted of twenty closed questions. The first category asked general demographic information about the respondent. From the total of 61 respondents, 31 group members were male and 30 were female. The results show that the mean age of the participants is 41. The youngest respondent was 15, while the oldest was 81. About two-third of the people involved were voters, whereas the other participants were professionally involved with voting and polling. Within the 'pollsters' focus groups we tried to achieve a heterogeneous group of individuals with professional interests in Internet voting. The pollsters involved in the focus groups had different functions. First of all, members of the pollster groups were people who had worked as local election officials or as election officials in postal voting. Secondly, city council representatives and city council administration officials were invited. Also present were experts in market research and communication, researchers using social and political surveys, experts in political communication, experts in development of ICT as a means of user participation, and researchers involved in online surveys. The largest group of respondents is employed fulltime; twelve percent is employed part-time, while about a quarter of the respondents were students. In other words, the participants provide a broad representation in terms of age, gender, background and qualifications.

We also asked the respondents about voting behaviour and the results show that older people are more politically engaged. The results show that people over the age of 44 are far more likely to cast their vote. This is in line with the literature reporting that young people are becoming increasingly alienated from the political process (Coleman et al. 2002; Electoral Commission 2002; Henn and Weinstein 2001). We also found that our respondents vote 'always' more often at national elections than at local elections, but the differences are not large. However, voting for European elections shows a significantly lower turnout than voting at local and national level. This also corresponds with the general findings in elections research.

Over half of our respondents *always* inform themselves extensively about the running candidates of an upcoming election. Thirty percent of the respondents do this *sometimes* and about 13 percent *never* inform themselves at all. The people who do inform themselves use different sources to look for political information. The most popular medium to gain knowledge about candidates is the newspaper, but television and conversations with friends and family also score high; see Table 2.

Table 2: Information Sources

Sources for political information	%
Newspaper	92
Television	87
Friends / Family	57
Radio	49
Internet	43
Flyers / Brochures	38
Political meetings	25
N = 61	

Finally we asked some questions about computer and Internet use. Out of the 61 participants, 28 men and 22 women have a computer at home. Thirty men and 25 women use the Internet. Most people use the Internet at home or at work, although there are some differences between the different demonstrator areas. We found that using the Internet at community centres and libraries was more popular in Newham than in the other areas, especially among UK respondents with an African cultural background. People who consider themselves to be computer literate are over-represented in our focus groups: 64 percent computer literates as compared to 8 percent computer illiterates. The rest of the people do not call themselves computer literate, but feel they know enough about computers to get around.[3] In general, the distribution over the relevant variables is large enough to expect that most relevant opinions about Internet voting may come up in the focus group sessions.

Table 3: Location of Internet Use

Location	%
Home	70
Work	59
School	21
Library	16
Friends/Family	13
Community center	11
Internet café	7
Other	8
N = 61	

The Expectations of the Users

Most of the participants in the focus groups were moderately positive about Internet voting, in particular about the promised increased convenience. They would like to be able to vote 24 hours a day for more days and they feel that being able to vote at more locations or at home is very handy: "If you are ill or have a cold and just don't want to go out it is good that you can vote from home". Some people find it difficult to vote on certain days and feel that e-voting would be more convenient for them. Other advantages mentioned by the respondents were that e-voting might give people more confidence to use a computer; that it will help people without a car to go to vote; it can be taken round hospital wards; and if people cannot get out it can be brought to them (mobile units can go round the estates).

Security

The lack of security and secrecy of e-voting systems was mentioned as a major problem. Many of the participants believe that governments have a lot of information about citizens and are afraid that e-voting will only add to that information. Some respondents are afraid that the ballot is not secret: "This can always be used against you. It can be traced back to you. With the current system it can't be traced back to you". There is fear that the vote is not anonymous since the operations would be registered on the computer. Because the system is not transparent, participants argue that you cannot see what happens to your vote and therefore cannot be sure it will be counted. The panels also expressed the fear that hackers can get into the system as easy as into other computer programs. People do not fear that hackers will obtain individual voting results, but mainly that they mess up the entire system. Security problems were considered rather important, but on the other hand the majority of the panellists were rather trustful for the possibilities to build a secure system, because banks have also been able to create network banking systems which they trust. Technical faults or possible breakdowns were not considered serious problems, they would be only temporary.

The greatest risk of e-voting, according to a majority of panellists, is the possibility that a voter can be forced by someone else to vote for a certain alternative. As an Italian voter expressed it: "At first I thought it was a good idea but now I fear about the influence and pressure that family members could use on voters". We found some differences in trust, as overall the Finnish participants trust Internet voting more than the English and Italian. The Finnish believe that the use of a smart card and a separate personal pin code would make voting safer: "The use of a voting card can be compared to the use of the bank card. Most people are used to bank cards and that will in a way ease the use of voting cards".

Turnout

The majority of the voters expect that Internet voting will increase the turnout slightly among young people. They think that it may increase overall turnout at least in the beginning because of curiosity for new technologies and that the effect would not be lasting. Although most focus group respondents feel that Internet voting might have an impact on turnout among the young, they also think that the impact will be rather marginal because they are aware of the general declining trends in political participation. They do not expect that voting methods or technologies make a difference. The voters appreciate the convenience that Internet voting will bring them, but they do not think it will be a sufficient measure to encourage current non-voters to cast a ballot. One person argued: "People are disillusioned and that is why they don't vote". Other people think that Internet voting will not increase turnout because "it complicates the ballots".

Like the voters, the participants in the pollsters' focus groups were not very optimistic about the ability of Internet voting to increase voter turnout. According to the pollsters electronic voting cannot solve voting turnout. As one Italian city council representative states: "About the participatory level or turnout we have to say that the electronic tools won't give any improvement to the problem: electronic voting does not have an 'educational effect' to increase the access to vote but only provides a tool".

The pollsters are very concerned about the loss of the "civic ritual" of casting a ballot and consequently the loss of the importance and the value of voting. The fear is that the system could be considered 'too cold' by the voters. The loss of the civic ritual could decrease the significance related to voting and hence overall turnout. They go even further by pointing out the fact that to make the current voting procedures easier might produce an increase of "spread ignorance," that is an increase of "superficial behaviour" and/or a growing oversimplification of voting behaviour.

Digital Divide

Although most of the voters involved in our research would be willing to use Internet voting systems themselves, they are of the opinion that Internet voting should be used only as one alternative voting possibility. According to the respondents such a system cannot be used exclusively because: "For elderly people traditional voting is often a kind of important tradition". The voters also fear that Internet voting will discriminate against older voters because of their limited experience and knowledge of computers. It was said: "Yeah… the older you are the less willing you are to change and it will discourage elderly people to vote" and "Older people panic about computers and will be put off from voting". However, the voters do think that the system can be designed in such a way that it will be easy to understand and use, even for those who have never used computers before. The voters from the ethnically very diverse Carpenters Estate in Newham did not think that e-voting would discriminate against ethnic minorities. They stated that a lot of ethnic minorities had a computer. As one respondent argues: "It's financial rather than to do with ethnic origin. The middle class will be more likely to have a computer but the working class will not so it will enhance the vote of those middle class people".

Political Information

An issue that came up was the relation between e-voting and using ICT for informing the public about the candidates at the election. Although the Finnish respondents believe that the Internet may increase the amount of information available, they do not see this as an effect of a diffusion of e-voting. Internet voting would not increase or improve the availability of information about elections because in Finland "information availability is good enough". Unlike the Finnish respondents, the English voters felt that e-voting would make it easier to give and obtain political information online about the candidates and that this is something they would very much appreciate. Some of the respondents considered themselves not well informed enough about politics to vote consciously for parties that reflect their own views in order to influence the policies that affect them.

Opportunities for Local Democracy

Governments actually do increasingly use online techniques as a means of gathering public opinion, ranging from online surveys and opinion polls to local referenda (Coleman and Gøtze 2002). Participants expressed considerable distrust of the possibilities for Internet voting to promote local democracy. Because Internet voting promises to be cheaper and easier to set up than the traditional methods of voting it will be easier for local governments to include citizens in political deci-

sion making with the use of opinion polls and referendums. The voters feel that the possibilities are larger on the local level than on the national level.

The pollsters have no doubt that the Internet is a very useful instrument to improve citizen participation and, maybe, awareness: Internet is spreading on a large scale, it is quite easy to use, it is less expensive than other means such as inviting people to take part in meetings, assemblies, and so on. Especially for local governments the Internet may be a useful instrument to involve more people in the process, whereas until now few people have been able to actually exercise their right to take part in the decisions. According to the respondents the 'deliberative poll' could be a good model: it is a step-by-step process, the first step is to 'launch' a voting event on a particular issue, the second is to promote discussion by people involved, the third to invite them to actually vote on it. Polls like this and Internet-based referenda create actual opportunities for interaction between citizens and institutions.

The pollsters are convinced of the positive impact that Internet voting could have on local democracy. New technology allows new ways of engaging with the public about issues that affect them. The pollsters think that e-voting applications could be very useful for surveys, opinion polls and referendums. The community would be able to express its opinion more often. Polls can be quick and decisive and involve large numbers of people. People do respond in huge numbers to polls where they have an interest. For the local government it would be a possibility to have a direct check with their citizens on all sorts of issues. Surveys could be organised on 'hot' topics. Indeed, some local authorities have already started to use polls or referendums that give people a limited but clear range of choices (Triesman 2002).

Voting Results

According to the pollsters the techniques used to cast a ballot do affect the voting results. This is an issue that did not come up during the voters' discussions. The pollsters emphasised that with Internet voting the following aspects need to be considered: *Presentation*: How are the ballots presented online? Could the different layouts of electronic ballots and traditional paper ballots influence voting behaviour? *Randomisation*: With electronic ballots the ranking of political parties or candidates may be randomised. Is it legitimate to use such randomisation? And, does this generate significant differences in the final results? *Correction*: In the traditional vote it is possible to correct a 'wrong' vote by asking the election officials for a new ballot. Will it be possible to correct an online vote? And if this is the case, how will it be done? Will this influence the voting behaviour? *Voting time*: How long can people stay online and vote? Could allowing more or less time influence the results? *Ranking*: Internet voting offers the opportunity of ranking the vote. In this case people should choose more than one party or candidate and rank them. Is it useful to think about the use of these opportunities? How could they influence the final result? In order to get more people to cast a vote, they need to trust the voting system. According to the pollsters, voters need to have confidence in the 'integrity' of the results. This means that it is important to find out in which ways the actual voting procedure will influence the voting results (Oostveen and Van den Besselaar 2003).

Conclusion and Discussion

Our investigation of users' opinions, expectations and demands regarding Internet voting leads to the following observations, and to new questions for research and design.

With respect to turnout, the participating voters did not think that Internet voting would have an effect on overall turnout, and as far as it does, the effect is expected to be temporal and to disappear as soon as the curiosity is over. Our first observations in the field trials – in the same populations where we had our focus groups – seem to support this (Van den Besselaar, Oostveen, de Cindio and Ferazzi 2003). Although this curiosity argument may not apply to young voters, as they generally have substantial Internet experience, the participants did expect a slightly positive impact on the turnout of youngsters, as the young are significantly more likely to use the Internet than the elderly. The Internet thus may represent an important venue for mobilising younger voters, who have historically been underrepresented in the electorate (Tolbert and McNeal 2001). However, the study on 'Youth and Voting Behaviour in Britain' (Henn and Weinstein 2001) shows that to the question "would you be more likely to vote in the future if you could use Internet voting", young people are more responsive to issues of political substance than they are to the procedural mechanisms of voting. In other words, Internet voting is not considered by young people to be a substantial reform within the political system and therefore will only marginally modify their behaviour. According to Henn and Weinstein's research, young people would be more likely to vote if they had more information about parties, if there was a party that they considered to represent their views, if there was evidence that their views would be seriously listened to by politicians and decision makers, or if there was a greater choice of political parties available. This debate relates to the results of our focus groups, where the role of civic engagement and political culture for voting participation was emphasised. We return to this issue below.

More striking is that the pollsters also did not expect e-voting to impact substantially on turnout, despite the fact that this is one of the major selling points, especially by politicians. This suggests that this argument is merely ideological, covering the main reasons for introducing e-voting: financial savings and the larger e-government agenda, which is also motivated by financial arguments.

This relates to the next point, the digital divide, which was put on the agenda by the voters, but interestingly enough not so much by the pollsters. Internet voting should not replace the traditional voting systems in the near future, as it may exclude from participating, groups who are able to use the traditional ways of voting. Now this may be a legitimate claim, and politicians in favour of e-voting do generally agree with it. However, if the aspect of saving money is dominant in the introduction of e-voting, the inclination to keep expensive parallel systems alive may in practice be low. Experiences in other sectors support this. Whereas the credit card started as an additional means for paying bills, increasingly transactions are becoming exclusively related to credit cards, such as reserving a hotel room.

There was also a big difference between the voters and pollsters in emphasis of technical issues. Pollsters were very sensitive to many of the technical details, the voters were more optimistic about solving existing technical problems. The end-users (the voters) are concerned about the security of Internet voting, but seem to

be quite confident that these security problems can be solved in time. They were much more focused on the normative issues like turnout, digital divide, opportunities for improving local democracy, and the problems of preserving the secrecy and privacy of the vote. But these two issues were also more conceived as social issues than as technical problems (Is government trustworthy? Will voters be able to protect themselves against others trying to influence their vote?). Awareness of these risks results in opposition against e-voting as such, more than in thinking about technical alternatives.

The focus groups identified that e-voting only works if it is embedded in a participatory political culture of active information exchange, deliberation and participation in decision-making. This relates to the issue mentioned by several participants that the traditional voting procedures are also a ritual that should be preserved. As e-voting may destroy these rituals it can have a negative influence on the political culture and therefore is best avoided.

Voters as well as pollsters see Internet voting as a means to improve local democracy, but only if it relates to better informing voters, to better supporting deliberation and to involving voters more in the decision-making process. The question remains as to whether this should be done by means of surveys, polls and referenda. However, two different positions can co-exist. More information can support citizen's participation, but also the control of citizens by the administrations that gather the information.

New Internet voting systems should somehow be linked to the provision of more information to the voters (Coleman and Gøtze 2002; Tsagarousianou, Tambini and Bryan 1998; also Dahl 1998). However, it is not yet clear how this should work. Should e-voting sites provide links to web sites of candidates or political parties or should there be an independent body, which provides an overview of the candidates or parties' policies? It is important to realize, however, that simply increasing the amount of information available to the voter will not help. The human mind can only encompass a limited amount of information. The quality and credibility of sources of voter information, and the relative 'costs' of accessing these resources are more important for the quality of an individual's decision than the amount of information available. How Internet voting should be implemented to offer better access to high quality and balanced information needs to be further explored. Similar questions can be asked about systems for deliberation between voters and politicians. The existing experiences with Internet-based discussion forums are not very promising. The use of referenda and deliberative polls seem to politicians to be useful tools to re-engage citizens. However, governments should be careful not to use too many referenda to gather people's opinions since evidence suggests that the more votes the average citizen is expected to participate in, the more apathetic he/she becomes (IPI 2001). And although there is an undoubted advantage that local governments could eliminate the mediators between the people consulted and the people consulting, we have to be aware that by using Internet voting systems for consulting citizens there is the risk of reducing the significance of the vote due to excessive use.

This leads to three conclusions. Firstly, the expectations that e-voting will positively effect political participation and turnout seem more a hope and a selling point than something the various stake holders believe in. Secondly, e-voting seems more a part of an e-government agenda to economise on government expendi-

tures, than an agenda for extending democracy. This is cause for concern that e-voting may soon be the dominant mode of voting which may hamper the participation of specific social groups. Thirdly, although most arguments suggest that, in order for e-voting to become beneficial it should be part of a larger e-democracy agenda, we actually do not know enough about how this could work.

We are only beginning to understand how technologies may support democracy and, therefore, we need a better knowledge of the micro dynamics of political participation and communication, and how ICT's intervene in these processes. An agenda of social experimentation should be developed for this, accompanied with a research agenda of detailed observations in and comparison of many different cases. Only then may we understand the subtle effects of ICT based tools on the democratic process.

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Notes:

1. One can think of tools for information dissemination enabling voters to monitor politics, or tools for improving communication between citizens and politicians.

2. The Movement of Direct Democracy (http://home.swipnet.se/~w-38823/jiri1.htm).

3. The level of computer literacy may influence respondents' opinions about online voting, in a positive way (familiarity with computer systems) as well as in a negative way (extra concerns about security and privacy issues).

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