The Social Dimension of Electronic Voting: How the Use of Technology in the Voting Process Can Alter the Meaning of Elections

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Most discussions of the virtues and vices of electronic voting focus on the twin issues of technological feasibility and security. While recognising that these are crucial considerations, this paper takes a somewhat different tack, focusing instead on the socio-political implications of the increasing use of electronic technology in the electoral process, and specifically on the implications of electronic voting for the quality of democratic life.

I would argue that before we even enter into debates about security and feasibility, we need to answer some much more fundamental questions of what it means to cast a vote, and which elements of traditional procedures it is necessary to preserve in the electronic age if we are to safeguard the key features of voting that make it democratic. The more one examines the alternatives to traditional electoral practices, the more it becomes evident that the solution requires careful consideration of the social implications of those practices.

Starting with the basic observation that we employ voting to embody democracy, it goes without saying that any voting system must be designed to meet the requirements of democracy. E-voting has the capacity either to enhance or to harm democracy, depending on the way it is designed. But democracy is an elastic phenomenon, and the design of voting systems can also be expected to shape the *type* of democracy we experience and the way in which we experience it.

We know from democratic theory that democracy is based on the basic principle of citizen control over the political process, which takes two forms: proactive and

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[*] This paper draws in part on an article, co-authored with Bob Watt, entitled 'Remote Electronic Voting: Free, Fair and Secret?', forthcoming in *Political Quarterly* (January, 2004). I would like to thank Bob Watt, Ben Fairweather, and Allen Radtke for drawing my attention to relevant aspects of the debate on e-voting. All errors of fact and interpretation remain mine alone.

retroactive control. Citizens control the political process proactively by voting for electoral options that they prefer. They control the political process retroactively by exercising scrutiny over the policies and procedures that constitute it. If an e-voting system is to embody democratic principles, it must safeguard opportunities for both proactive and retroactive control.

This has at least three implications for the design of e-voting systems, which constitute the three main arguments of this paper:

1. If e-voting is to reflect the principle of proactive control, it must protect the integrity of the expression of genuine voter preferences, free from the undue influence of others (be they politicians, employers, friends, or family).

2. If e-voting is to enhance democracy, it must preserve its civic character.

3. If e-voting is to enable retroactive control, it must be ensure the opportunity for democratic accountability via transparent procedures. Any procedural 'black boxes' – aspects of regulation that are not open to public scrutiny in some form – threaten to undermine the democratic character of elections.

Compared with paper voting, electronic voting has a lot to be said for it. Its main advantage is convenience to voters, especially to voters with special needs. It may also make the electoral process more efficient, it may enhance accuracy, and it could potentially increase the legitimacy of the process. What then, are the costs?

Consideration of the socio-political implications of electronic voting starts from an analysis of how voting by electronic means differs from pencil-and-paper voting. In this context, two relevant features of e-voting are (1) its complexity: voting by electronic means may be just as simple from the point of view of the voter, but it is considerably more complicated from the point of view of the electoral administrator; and (2) lack of geographical specificity: unlike most social and political practices, e-voting can

potentially take place anywhere; it thus has the potential to undermine the public/private distinction.

These features in turn generate a number of potential problems, laid out in schematic form in Table 1, together with possible solutions to them.

Table 1: Socio-democratic Problems with Electronic Voting and Possible Solutions

Problems	Possible solutions
1. Threats to ballot secrecy	Hold electronic voting in supervised or quasi-supervised locations
2. Loss of the civic ritual character of voting	Keep voting 'public'
3. Diminution of democratic accountability	Maintain a legal requirement for some form of source code disclosure and a paper-based audit trail

In the remainder of the paper, I address in turn the three main issues outlined here.

1. Threats to ballot secrecy

In addition to potentially compromising the transparency of the electoral process, certain forms of e-voting may also threaten ballot secrecy. Under international and most national law voters – together with the state – have a duty to ensure that if they opt to exercise their franchise, their vote is cast in secret. This is to prevent the exercise of 'undue influence'. The secret ballot was first invented in Australia in the late nineteenth century, and its export to other states took place amid a variety of competing views. John Stuart Mill was decidedly anti. For Mill, voting was a civic duty that ought to take place in public in order that people would have an incentive to vote in the public interest. His fear was that in the furtive secrecy of the polling booth, citizens would vote for their own personal benefit rather than in the interest of the community at large. Though arguments to this effect have occasionally broken the surface of scholarly debate at various points

since mass enfranchisement, the principle of the secret ballot was widely accepted by the end of the nineteenth century, so widely accepted that its inclusion in documents such as the Universal Declaration of Human Rights, the International Covenant on Civil and Political Rights, and the European Convention on Human Rights has been uncontentious. Indeed, the secret ballot is, together with the right not to be tortured, the only right in the European Convention from which there can be no derogation.[1] And there is virtually no debate about this; there are no serious voices calling for us to relinquish the fundamental principles on which voting has been based for over a century. Not in so many words.

Yet there are grounds for concern that some recent proposals in the UK, Spain, Switzerland, Estonia, the EU and elsewhere to introduce remote forms of electronic voting may have the unintended consequence of undermining the ballot secrecy we have so long cherished. The main aim of these proposals is to make voting more convenient for people. For most people, the inconvenience of voting is the hassle of having to make their way to their designated polling station, which is often located in a place they visit for no other purpose. Some of this inconvenience could be readily overcome by connecting up electoral registers all over the country electronically. This would enable voters to vote in the polling place of their choice, and when they had done so, this information would automatically be recorded on every register in the country, preventing them from voting at more than one place. Were such systems developed, voting procedures would already be considerably improved. Polling stations could be set up in libraries, post offices and other places that people visit regularly. Yet plans in a number of jurisdictions go considerably further than this, taking voting out of polling stations of any kind and into the home through the introduction of remote electronic voting.

Taking voting into the home means taking the most universal civic act out of the public sphere and into the domestic sphere. This is an important move in a number of ways. It is important because it means that voting will no longer be supervised – indeed it cannot be supervised in the private sphere because the right to privacy and a family life is also

[1] Bob Watt, 'Human Rights and Remote Voting by Electronic Means', *Representation* 39.3 (2003), pp. 197-208.

guaranteed under international law, including the European Convention. The 'domestication' of voting will also mean that it takes place in a context charged with domestic power relations and domestic values, which may be at considerable odds with the tightly regulated norms of equality, civic responsibility, and universal rights that govern life in public.

We have a right to family life, but we also have rights within family life – the right to be free from physical coercion, for example. If we introduce into this complex equation civic rights, the situation gets more complicated still. We then have a civic right – and a civic duty – that must be protected in the context of the home. But this is difficult. In the domestic context, civic duty could well give way to immediate personal duty, civic norms of equality could give way to cultural domestic norms of dependence, honour and obedience. This is where the distinction between the public and the private breaks down, where the voter is caught uncomfortably between competing value systems. A person should be able to be both a good citizen and a good family member without having to sacrifice one of these roles. Yet that is what the seemingly innocuous move of bringing voting into the home has the power to do: it may place voters in the difficult position of having to make choices between performing their family duties or their civic duty. It is all too plain that family duties will in most cases win the day; many voters will simply not be able to afford to jeopardise their domestic harmony and financial security or the sake of preserving the integrity of their miniscule contribution to the electoral process.

Moreover, regular abdications of electoral responsibility may eventually tend to undermine notions of civic duty altogether. Young voters are likely to be most willing to allow another household member vote for them, because they tend to be the least politically knowledgeable and interested members of society; at the same time they are also often the most financially and emotionally dependent adults in a household. By forfeiting their opportunity to make an electoral choice, they are missing out on a key stage in the development of civic consciousness and active party support – characteristics that political scientists have found to be closely linked to propensity to vote. If the element of genuine choice is removed for many voters, they will become even less

committed to the political process than is currently the case. In the medium-to-long term, ‘convenience’ could spell the death of civic duty.

There are several possible objections to the line of reasoning taken here. Some might argue that vote secrecy is a right but that it should not be a legal duty. If guaranteeing vote secrecy were not a legal duty, then voters would have a right to disclose their vote. There are two problems with this argument; firstly secret voting is undeniably both a right and a duty under current international law. Secondly, if voters had a right to disclose their vote, this would create a market in votes; it is not hard to imagine unscrupulous politicians buying votes from those who were willing to reveal them. If citizens have no means of proving how they voted, however, this market functions but poorly.

It might also be argued that the notion of individuals deliberating over vote choice in private is at best a myth, and at worst an unwelcome normative model. Politics is embedded in social relations, and people come to hold political views though interaction and discussion with others. The absence of such deliberative processes would impoverish the voting act to the point of making it virtually meaningless. In this sense it could be said that voting is a social act and that it is politically valuable for precisely that reason. This is an argument I do not wish to contest. Nevertheless, there is a distinction to be made between the formation and the expression of electoral preferences. Whereas it is perfectly appropriate - even desirable – for electoral preferences to be formed collectively through discussion and debate, the voter still must have the ability to express those preferences free from coercion or undue pressure. Only then can the result of the deliberative process be manifest undistorted. If deliberative activities do shape genuine voter preferences, there is little danger that this shaping will be undone in the journey from home to polling place. It may, however, be distorted if vote expression is overlooked by a small and unrepresentative section of the people with whom the voter has deliberated. It is in this sense that the privacy of vote expression can be seen as a guarantee of the free play of social influences on the formation of electoral preferences.

A third possible objection is that the norm of the secret ballot is so engrained in the public consciousness in most democratic states that people would respect that norm also in the home. But just because ballot secrecy has been with us for over a century, that is not grounds for taking it for granted. Habits and lifestyles change, and behaviour is strongly structured by the context in which it takes place. Even where there are legal mechanisms to encourage individuals to vote in secret, these will be virtually impossible to enforce, and there are many reasons to believe they would be violated in a not insignificant minority of households. They might be violated for perfectly 'innocent' reasons such as differentials in technological proficiency, or they might be violated due to apathy on the part of family members who do little to protect their votes from being appropriated. Even if this happens relatively infrequently, it is still a cause for concern, given the small number of votes needed to swing the result in some constituencies, and given the fact that everyone deserves to have their rights protected, even if they are in a small minority. To introduce a voting system that undermines civic rights – even if only for a minority of citizens – is counter-productive, and to do so in the name of 'modernisation' would be laughable, were it not being seriously considered by a number of democratic states. In order to protect the secrecy of the ballot, voting must take place in a supervised setting, or at least in a public context (e.g. a kiosk in a post office or library) where invasions of privacy would violate social norms.

2. Loss of the civic character of voting

A second way in which the introduction of e-voting might erode the quality of democracy is by altering the social role that elections play in our lives. Again, remote voting is the mechanism that most obviously threatens many of the aspects of elections that are valuable in a modern democracy (over and above the basic function of selecting leaders). Voting is a civic act; indeed it is the key civic act in which the large majority of citizens in most democratic politics engage. The public ritual of voting is a value in itself in many democratic contexts, and the 'civic' component of civic behaviour is enhanced by the public setting in which it is conventionally carried out. As Rick Vallely argues, voting in

public places helps to defend the principles of equality and citizenship that characterise democratic elections:

> On Election Day, we must leave our homes and offices, travel to a polling place, and physically mingle with people who are plainly our equals that day, no matter what other differences we may have. Voting, as we currently do it, is a civic ritual, however brief it may be.[2]

Citizens experience no direct gain from voting; if they vote at all it is mainly due to a sense of duty that may well be conditioned by the context in which it is performed. To change the context of voting may well also be to change the degree of importance citizens attribute to civic values when performing this act.

Voting is also a social act, particularly for those with limited opportunities to socialise. The social aspect of voting is valuable in and of itself for many people; election day is a time when people see each other, go out together, and the may well plan other social events around a trip to the polls. The social function of voting is thus of value in its own right, but far more important from the democratic perspective is the fact that the social aspect of voting is one of the main attributes that contributes to voter mobilisation. Parties are able to mobilise their supporters to go to the polls by providing transport, a friendly face, and the promise of meeting friends and neighbours on the way. In addition to organised mobilisation drives by politically interested groups, there is also a considerable amount of spontaneous informal mobilisation among friends. People who might not otherwise have made it to the polls (though neglect or lack of interest) might be urged to go along by friends or relatives. It is difficult to estimate what proportion of turnout can be accounted for in any society by mobilisation of the two types described, but the amount is undoubtedly considerable, and quite possibly enough to off-set any gains in electoral participation to be had by the increase in convenience that remote voting would entail.

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[2] 'Voting Alone: The Case Against Virtual Ballot Boxes', *New Republic* 13-20 September, 1999, p. 21.

Finally, as suggested in the above quotation, voting is a levelling event in which everyone participates on equal terms. Presidents and prime ministers vote the same way as the poorest of citizens. It is the quintessential act in that it both constitutes and embodies democratic principles. This would not be true if the rich had the option of voting at home on their computer if they so chose, while the poor had no choice but to vote in polling stations. Polling station based voting would then undoubtedly be stigmatised, which could well put further downward pressure on electoral participation among the most deprived sectors of the electorate.

With the quality of democratic participation already in decline in many Western democracies, it makes little sense to place both the quantitative and the qualitative aspects of participation under further strain by attempting to introduce voting into the inauspicious environment of the home through electronic (or other) means. Rather than enhancing opportunities for civic engagement, such a seemingly innocuous change to voting practices could contribute to a further 'hollowing out' of democracy. Electoral reformers may be forced to conclude that voting is a public act that can only be effectively carried out in public, for it is when citizens can be confident that their vote will be secret that they are most likely to promote the common good. Certain technological 'advances' in electoral practice could well represent a substantial step backward in democratic terms.

3 Loss of democratic accountability

One of the key features of democratic political processes is the fact that they are open to public scrutiny, or retroactive citizen control. This makes it possible for those to whom public officials are ultimately accountable – the people – to assess the extent to which their chosen political system is serving their needs. People have confidence in political procedures because they can see how they work, they can scrutinise their functioning and thereby hold the political leaders of the day accountable for their acts. But while transparency and openness are increasingly becoming the hallmark of public service

delivery in many contexts, the advent of electronic voting risks moving the electoral process away from an open and transparent form of activity and toward an opaque, unaccountable mode of delivery.

There are in fact two distinct issues at play here. Firstly, there is the question of whether it is appropriate to operate a system that only those with a degree of specialised expertise can evaluate. The complexity of electronic voting systems dramatically raises the level of technical proficiency of anyone who would seek to examine the way votes are processed; casual party activists and ordinary voters require little if any specialised knowledge to scrutinise the paper vote process and the paper vote count. Once voting moves into the technological realm, however, the knowledge and skill thresholds increase significantly, such that only those individuals and organisations endowed with specialised technical skills (or the resources to purchase technical experts) have the wherewithal to see how votes have been cast and counted. This makes democratic scrutiny an elite undertaking and excludes the majority of citizens from what ought to be their democratic right to hold the government of the day to account.

An even more worrying issue is that the increase in complexity entailed by a move to electronic voting means that many jurisdictions will find it convenient or even necessary to out-source voting technology to private firms. Private firms naturally have an interest (and, they might argue, a right) to protect their trade secrets, chief among which is the software through which they process votes. The dictates of the market thus mean that there is a strong incentive to discourage transparency, and to supplement the skill threshold with an opacity that cannot be overcome even through the deployment of skills and resources.

Unfortunately the imperatives of the market are not entirely compatible with the imperatives of democracy, for undisclosed source code means that citizens are not able to exercise their democratic right to scrutiny at all, no matter what their level of expertise. Not only will parties, civil society, journalists, and ordinary citizens be deprived of any means of determining whether the vote casting, counting and tabulation processes have

been carried out according to democratic principles, even the officials charged with running elections will find it virtually impossible to evaluate the functioning of the products they have purchased. With most conventional products it is possible to assess their quality with reference to measurable outputs or results. Not so with voting, where built-in errors could systematically bias election results for years with no means of this being detected. If there is no independent way of verifying that a piece of equipment is doing the job expected of it, then the system of which that equipment forms part is open to a whole range of vulnerabilities, including the risks of malign activity by insiders (manufacturers, election staff) as well as attacks on the system from outsiders (voters and others who may have an interest in altering the results).[3] The election authority will simply be obliged to take it on trust that the firm employed to process votes has done so in they way they said they would do. Such leaps of faith are hardly in conformity with the basic principles of democracy, and they also put election officials in an invidious position: they have responsibility for the integrity of the electoral process, yet they have no way of reliably verifying what exactly it is that they have purchased.

The only clear way round this problem is through a legal requirement for open source code or code disclosed to accountable independent experts. If private firms are not able to compete to run elections on this basis, then the state will have to hire the relevant specialists directly and keep the process in-house. Open source code must also be supplemented by some way of verifying that the source code disclosed is indeed identical to that used to process votes. It is therefore useful to have a paper-based back-up system in place for cross-checking the results in case of doubt. As Rebecca Mercuri points out, that 'Fully electronic systems do not provide any way that the voter can truly verify that the ballot cast corresponds to that being recorded, transmitted or tabulated'.[4]

Thus transparency and verifiability must be built into any e-voting system for it to conform to modern standards of democratic accountability. The social consequence of

[3] Ben Fairweather and Simon Rogerson, 'Internet Voting – Well at Least It's Modern', *Representation* 39.3 (2003), pp. 182-86.
[4] Rebecca Mercuri, 'Rebecca Mercuri's Statement on Electronic Voting', http://www.notablesoftware.com.).

doing otherwise would be lack of popular confidence in the electoral process. Opacity breeds distrust and conspiracy theories, especially in today's world of ever more transparent government. If a key aspect of the electoral process is shrouded in mystery, any shred of evidence that it may be inadequate or corrupt threatens to destroy confidence in the electoral process as a whole. This is what we are currently witnessing in the US, where the erupting scandal over a piece of allegedly deficient electoral software source code is being used by those opposed to e-voting quite effectively to discredit this entire mode of voting.[5] This certainly is not in the long-term interests of the citizenry, because e-voting, if properly designed, has many possible benefits.

Conclusion

The recent e-voting scandal in the US underlines the importance of carefully thinking through issues of democratic design, even when they do not on the face of it appear to be particularly relevant to most citizens now.

In many countries, popular support for e-voting is widespread but shallow. It certainly sounds like a good idea, so people welcome it, but it is not something they have any deep commitment to. As soon as problems arise, there is likely to be a swift and sharp popular backlash. Rather than relying on ephemeral and possibly deceptive opinion poll results in deciding what is 'democratic', it makes more sense to think through issues of democratic design from the point of view of the basic principles of democracy.

If implemented intelligently, e-voting can enhance democracy. But if due care is not given to safeguarding the key democratic features of the electoral process, the use of

[5] See, for example, Andrew Gumbel, 'All the President's Votes', *The Independent Review* [daily supplement to the *Independent* newspaper] 14 October 2003, pp. 2-5; Bev Harris and David Allen, *Black Box Voting: Ballot-Tampering in the 21st Century*, Plan Nine Publishing, forthcoming, 2004, available at www.blackboxvoting.com; John Schwartz, 'Computer Voting Is Open to Easy Fraud, Experts Say', *New York Times* 24 July, 2003, p. A16; Tadayoshi, Kohno, Adam Stubblefield, Avel D. Rubin, and Dan S. Wallach, 'Analysis of an Electronic Voting System', Johns and Rice Universities, unpublished manuscript, available at http://avirubin.com/vote.pdf.

technology can open the door to a number of threats that could undermine the aims of elections. The main lessons from the brief analysis presented here are that voting needs to take place in a supervised public place and that it must be subject to rigorous measures to ensure openness and accountability.