



Chapter V

Internet Voting: Embracing Technology in Electoral Processes

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The 1960 presidential election outcome, its razor-thin margin, and its inaccuracies and slowness of vote count, once again call attention to the antiquated technology of our voting procedures. [...] On Election Day, Mr. Smith goes to his telephone and dials this voter code number. He hears a buzz over the receiver, followed by a recorded announcement that tells him: "The Televoter is now ready to receive your ballot." [...] This Televoter proposal is likely to excite the interest of the producers of electronic computing equipment as well as telephonic companies. It is also likely to be greeted with solid resistance by the producers of contemporary voting machines, printers of paper ballots and political party officials. Among conscientious voters, however, the thought of being in convenient telephonic touch with one's government may be too tantalizing to resist very long.

Public elections in an electronic world

Telephony, Journal of the Telephone Industry, USA, January 28, 1961

INTRODUCTION

Through time, electoral processes have been incorporating more and more technology. The voting methods in the U.S., for example, have evolved from lever machines to punch cards, optical scanning and Direct Recording Electronic (DRE) machines. (A good survey

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of different voting technologies currently used in the U.S. can be found in Cranor (2001.) Even in those countries where paper ballots and traditional ballot boxes are used, the ballot tabulation process is likely to be using some form of computerized transmission or processing at some point.

The next step in this electoral evolution seems to be Internet voting. This is actually a hot topic these days. After the electoral mess in the state of Florida (US presidential election, November 2000), partly caused by a “user-unfriendly” punch card ballot design, some people rushed to promote Internet voting as the very solution to all the problems of modern democracy.

Internet voting is not so miraculous but still it is promising and, if correctly implemented, it may be helpful in enhancing our democratic processes. Internet voting indeed may offer several potential advantages over traditional methods of voting:

- Reduction in cost for printing, distributing, collecting and tabulating ballots.
- Speed and accuracy of ballot tabulation and ballot recounting.
- Greater mobility of voters.
- Potential increase of voter turnout.

However, the implementation of Internet voting in public elections must be done correctly. Some technical problems have to be carefully studied (and solved) in order to incorporate the Internet as a new medium for casting binding ballots, especially if voters are allowed to vote from any Internet connection instead of using special Internet voting equipment at polling places. Reliability and availability, for example, are basic requirements to ensure voters' franchise and to offer the adequate quality of service. Usability issues are also very important: poorly designed computer screen ballots could easily result in the same type of confusion suffered by many Florida voters. The whole voting infrastructure must also be sufficiently scalable. The existence of adequate contingency plans and the capability of handling recounts are other important requirements.

The list of technological challenges faced by Internet voting is indeed not short. Nevertheless, when discussing the feasibility of Internet voting in the public sector, there is one main concern often highlighted: security (California Internet Voting Task Force, 2000). Of the spectrum of technical issues concerning the use of Internet voting for public elections, security is indeed currently considered the most important one. Internet-based elections must therefore take into account (and fulfill) an extensive list of security requirements to ensure the integrity of the whole electoral process. This chapter explores such fascinating topics, providing an extensive survey of the security hazards faced by the deployment of Internet voting in the public sector. Special significance is given to the case of remote Internet voting (voters casting their ballots remotely from any location) because it is the most challenging option (California Internet Voting Task Force, 2000). The chapter introduces also the most promising approaches to solve some of the security hazards presented.

Not only security and technology issues must be taken into consideration when debating Internet voting. Some social challenges need a satisfactory answer as well. The gradual use of new technologies in the politico-electoral scene must indeed consider the social risks derived from the information society unfolding process (e.g., the digital divide) and from the possible distrust coming from some sectors of the population. For these reasons, the discussion on security issues is complemented in the chapter with an insight into socio-political considerations.

The rest of the chapter is structured as follows. The next section defines Internet voting and the several alternatives to implement it. This section also offers a list of previous experiments of remote Internet voting, which is the most challenging alternative. The third

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