

Overview

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Democracy and elections have more than 2,500 years of tradition. Technology has always influenced and shaped the ways elections were held. Today elections are the core element of democracy as a society's way to make decisions. Elections are the way to express how societies use technology and as new technologies emerged and evolved, elections changed accordingly. While there have been democratic structures in societies like India or Babylon, the birthplace of democracy is attributed to old Athens in 507 BC. From thereon similar structures of direct democracy, bound by face-to-face societies, also developed in several places around the world like in ancient Rome, with the Vikings or in the Cantons of Switzerland. The next level of democracy developed with the creation of nation-states in the late 18th century with the need for representatives. This form of indirect democracy spread from the United States and France around the globe to today's predominant role of democracy as a rule of government and was mainly limited by the nation's borders.

One can see this development as three comings of democracy:

1. The Face-to-Face Society
2. The Territorial Society
3. The Global Society.

With the latest emergence of technology we face a new challenge to spread the influence of one country around the globe to allow out-of-country voting and enable disenfranchised voters. This leads to multiple effects on the electoral process including e-campaigning, electronic supported candidate nominations, central voter registers, electronic eligibility checks in polling stations, to casting votes electronically and support for result or mandate calculation. This development is not uniform in all countries but can be observed everywhere to some extent.

It is the task of this conference series to enable the discourse amongst researchers, administrators and vendors so that understanding, cooperation and future research can emerge. As such this year's conference concentrates around eight core topics.

The first session deals with the different experiences made with E-Voting in the Netherlands and in Estonia. During the last two years the Dutch E-Voting system has been successfully challenged by activist groups which have led to a stop of electronic voting. The paper of *Leontine Loeber* gives an analysis of the situation. *Epp Maaten* and *Thad Hall* then will give an overview of the Estonian E-Voting experiences. Technically and politically the Estonian system has been used twice in practice. The authors suggest improvements which could be made with regard to enhancing the transparency of the voting system.

In the second session the coherence between electronic voting devices and voting outcome is discussed by *Gabriel Katz*, *Michael Alvarez*, *Ernesto Calvo*, *Marcelo Escolar* and *Julia Pomares*. Their study estimates the effect of different E-Voting technologies on the likelihood that citizens cast their vote for different parties for the National Congress and the Legislature of Buenos Aires and shows considerable effect. *Alicia Kolar Prevost* then presents her findings that programs designed to make voting easier have not succeeded in boosting turnout, and have even had the unintended consequence of exacerbating the demographic biases that already exist in the electorate. She will give an outlook to the implication this could have on future voting reforms.

Session three will deal with the paper by *Komminist Weldemariam* and *Adolfo Villafiorita*. They present a methodology for procedural security analysis in order to analyze and try to make elections more secure. Their approach is based on modelling the electoral procedures in the form of business process models. *Victor Morales-Rocha*, *Jordi Puiggalí* and *Miguel Soriano* will show the importance of an accurate voter register and will present a scheme to improve this vital aspect. Further on recommendations on long-term retention in E-Voting will be given, applying the results of *Rotraud Gitter*, *Lucie Langer*, *Susanne Okunick* and *Zoi Opitz-Talidou* to a state-of-the-art E-Voting scheme. They will also review technical measures to meet the security requirements of long-term retention in E-Voting.

The fourth session deals with comparing the E-Voting experiences in different countries. First *Robert Krimmer* and *Ronald Schuster* present a methodology on how to measure the context of E-Voting in 31 countries. Then *E. John Sebes* and *Gregory A. Miller's* paper compares and analyses the E-Voting experiences in the US, which have been disenchanting, with the experiences in Europe where E-Voting is more and more adopted.

The topic of the fifth session are new and improved protocols. *David Lundin* presents the Prêt à Voter voting system. It is characterized through very high security properties. His working group aims to make the system truly applicable for elections with many races and various candidates by allowing the vote to be formed using a voting machine and by printing a minimalistic receipt. A concept is also presented to secure electronic voting systems. The Farnel voting scheme will be discussed by *Roberto Araújo* and *Peter Y. A. Ryan*. This concept will be improved through trustworthy talliers. Further they will present a novel way to initialize the Farnel box and a new scheme based on combining Farnel with Prêt-à-Voter style encoding of receipts.

Session six's discussion is concentrated around certification of E-Voting systems. *Melanie Volkamer* and *Rüdiger Grimm* present an approach of a formal trust model for remote electronic voting which is needed for an in depth analysis of E-Voting systems. *Jordi Barrit i Esteve* then discusses the different approaches on how to certify E-Voting machines in Europe as well as publication requirements.

Technological issues around code voting are dealt with in session seven, where *Jörg Helbach*, *Jörg Schwenk*, and *Sven Schäge* propose the application of group signatures for it. *Rolf Oppliger*, *Jörg Schwenk* and *Christoph Löhr* use a different approach to code voting with CAPTCHA.

The last session then gives room to political issues. Here *José Rodrigues Filho* goes about E-Voting in Brasil where he discusses the role of institutions. The voting process in participatory budgeting builds the final part of these proceedings where *Cristiano Maciel* and *Gleison Pereira de Souza* present a case study.

As can be seen from the contributions in this conference the discussion on E-Voting has not been decided yet. Moreover the research needs are highly interdisciplinary and discourse amongst the disciplines has to be an aim of any future research. As such we hope that Castle Hofen will give a good place for this in the future.