

“Counting on technology: computational voting and electoral law reform”

Burkhard Schafer

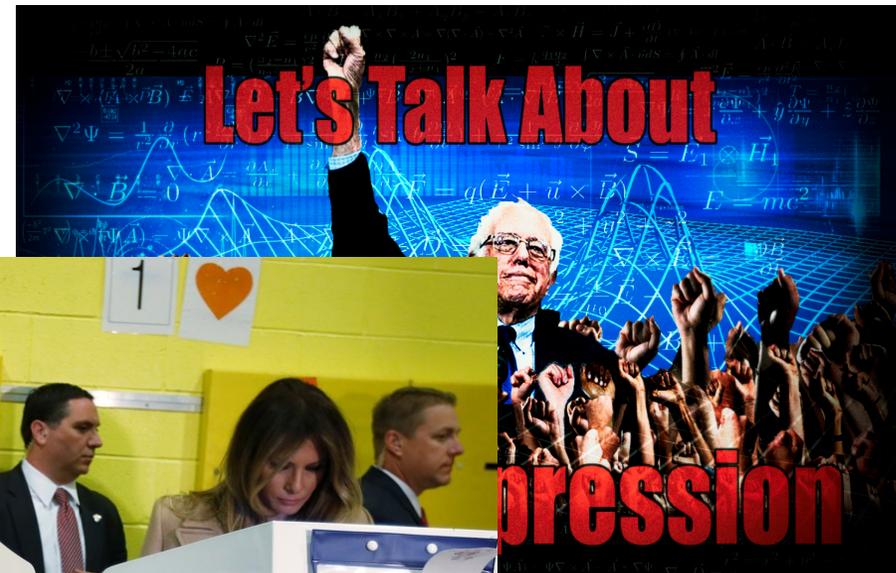
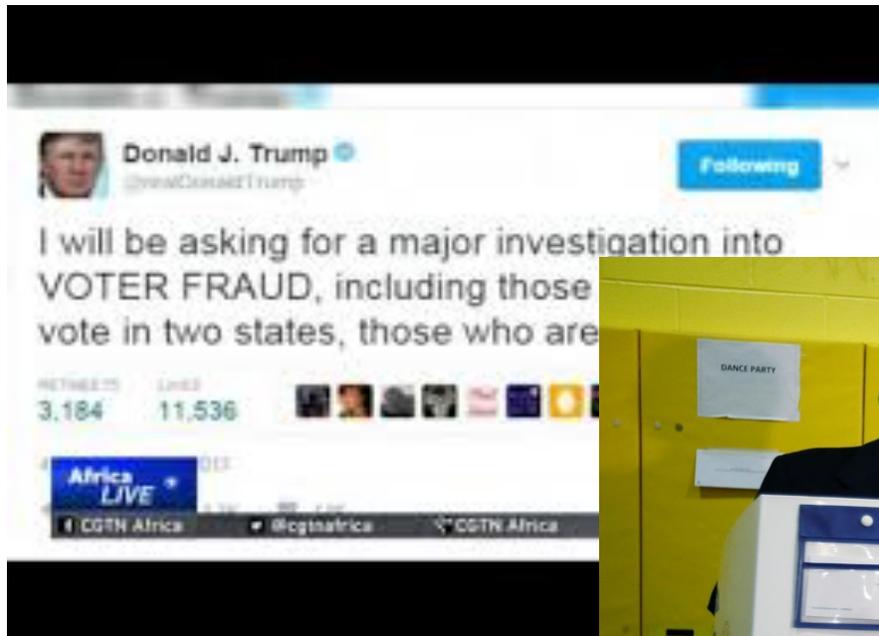
Agenda

1	Introduction
2	Blockchain-based e-voting systems
3	Legal frameworks – a comparative view
4	Discussion
5	Summary/Outlook

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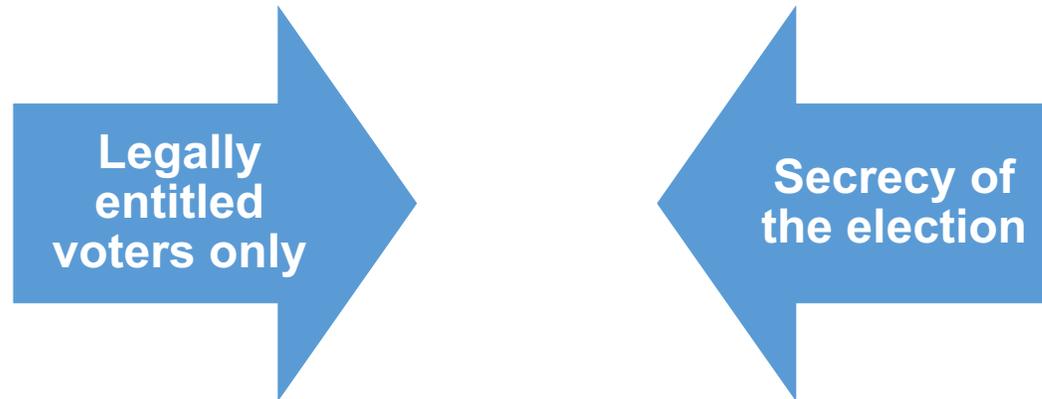
Voter fraud hits the news



Blockchain-based e-voting systems

Main Characteristics

- Two conflicting demands



- “Follow my vote”: separated registrars and ID-verifiers
- Use of anonymous voter –ID’s to ensure secrecy of the election
- Can be used on fixed computers and mobile devices

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www.europarl.europa.eu/RegData/etudes/ATAG/2016/581918/EPRS_ATA(2016)581918_EN.pdf

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At a glance

Scientific Foresight: What if ...?



European Parliament

What if blockchain technology revolutionised voting?

Is blockchain the revolution in security and transparency that is needed to enable e-voting and, if so, what are the implications for the future of democracy?

Despite the digitalisation of several important aspects of modern life, elections are still largely conducted offline, on paper. Since the turn of the century, e-voting has been considered a promising and (eventually) inevitable development, which could speed up, simplify and reduce the cost of elections, and might even lead to higher voter turnouts and the development of stronger democracies. E-voting could take many forms: using the internet or a dedicated, isolated network; requiring voters to attend a polling station or allowing unsupervised voting; using existing devices, such as mobile phones and laptops, or



The Scottish Dimensions

- Law Commissions of England, Scotland and Northern Ireland submit Electoral Law An Interim Report in 2016

- Suggestions have included
- moving polling to the weekend,
- requiring voters to produce identification documentation at the polling station,
- replacing postal voting on demand by to make it available only where a reason for requiring it is shown,
- making provision for electronic or internet voting
- and abolishing the possibility of an elector being registered to vote in more than one district.
- We return to some of these topics later in this report. All of them are, however, are issues of policy rather than of law

- The policy question of whether any adjustment should be made to the balance between access to polls and security from fraud remains a matter for Government and the legislature. We note that Sir Eric Pickles has been tasked with investigating the issue of electoral fraud and the response to it.

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Legal framework in Germany

Art. 38, paragraph 1 Grundgesetz

«Members of the German Bundestag shall be elected in
general, direct, free, equal and secret elections.

They shall be representatives of the whole people, not bound by orders or instructions, and responsible only to their conscience.»

- Additional criterion: Publicity of the election
- 2009: Judgment of the Constitutional Court regarding “Nedap“ voting machines
- Concretisation by § 35 Bundeswahlgesetz

Legal framework in Germany

§ 35 Bundeswahlgesetz

(1) **Voting machines** may be used instead of ballot papers and ballot boxes to facilitate the casting and counting of votes.

(2) Voting machines as defined in subsection (1) above must guarantee the **secrecy of the ballot**. For use at elections to the German Bundestag, their **design must be officially approved** for individual elections or on a general basis. The Federal Ministry of the Interior shall decide on the approval of a voting machine on the application of the manufacturer. The permission of the Federal Ministry of the Interior must be obtained before an officially approved voting machine can be used. This permission may be given for individual elections or on a general basis.

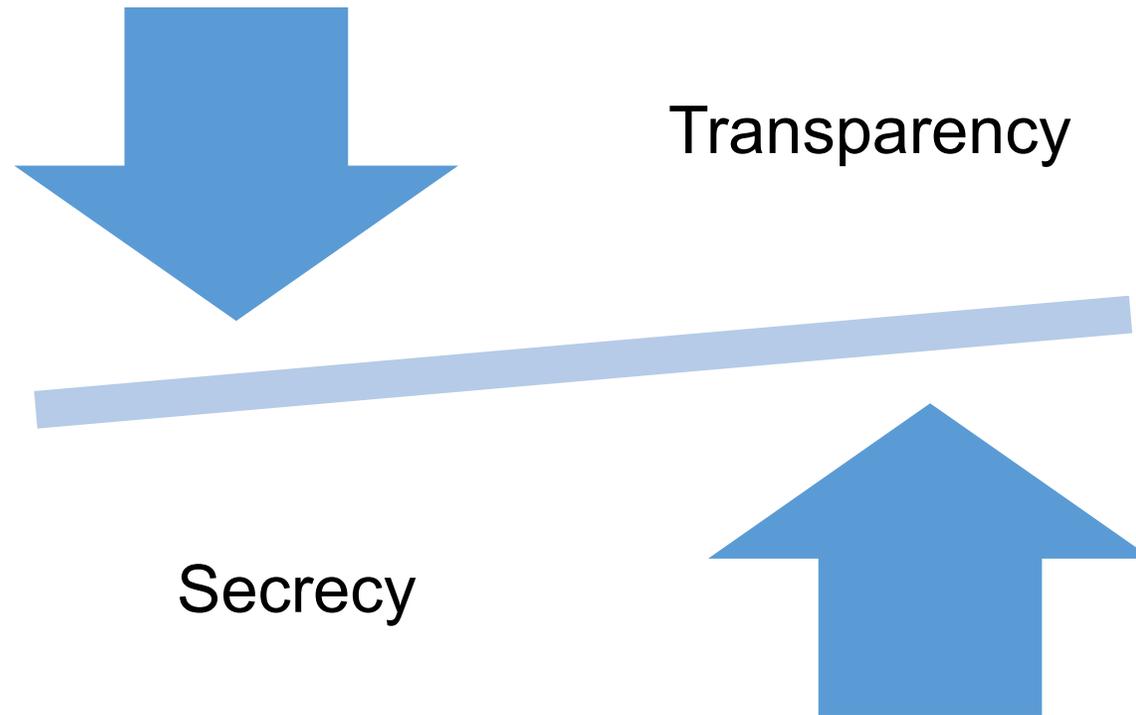
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Legal frameworks

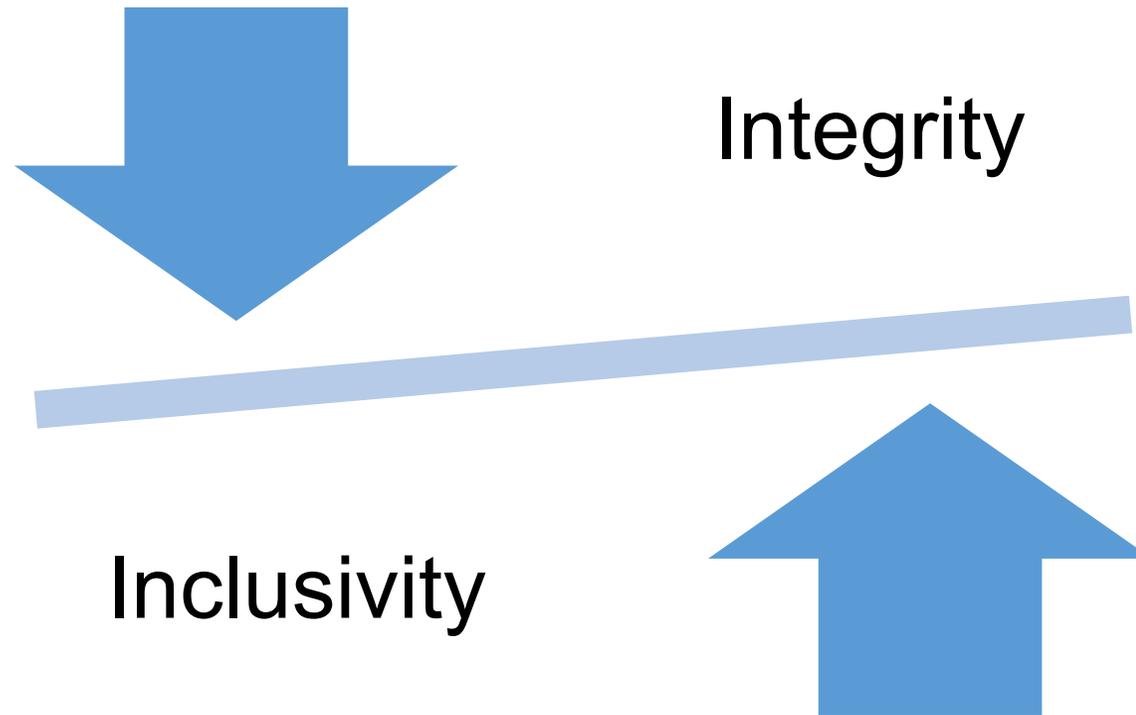
The main challenge 1: Balancing transparency with secrecy



- secrecy of voting should only be “unlocked” by judges. For UK Parliamentary elections, there is a vestigial power of the House of Commons to order the inspection of ballot papers and corresponding number lists, which is in our view an anachronism. We provisionally proposed that this should be abolished;

Legal frameworks:

The main challenge 2: Balancing inclusivity with integrity



High transparency and integrity, low inclusivity and no secrecy



High inclusivity, medium transparency and low integrity



High transparency and integrity, low inclusivity and no secrecy



The role of cryptography



An early precursor: the birth of democracy



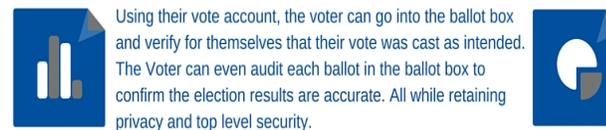
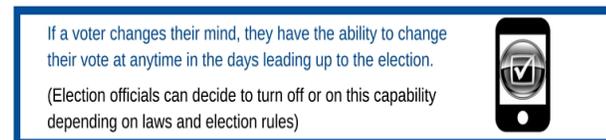
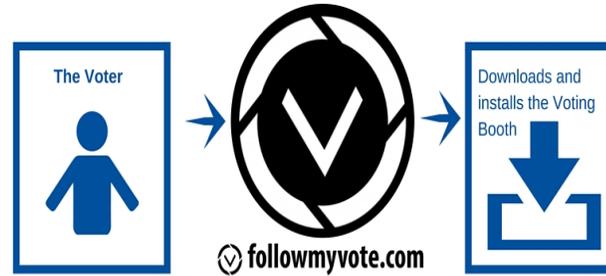
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Turning an intuition into technology: Followmyvote

Blockchain Voting

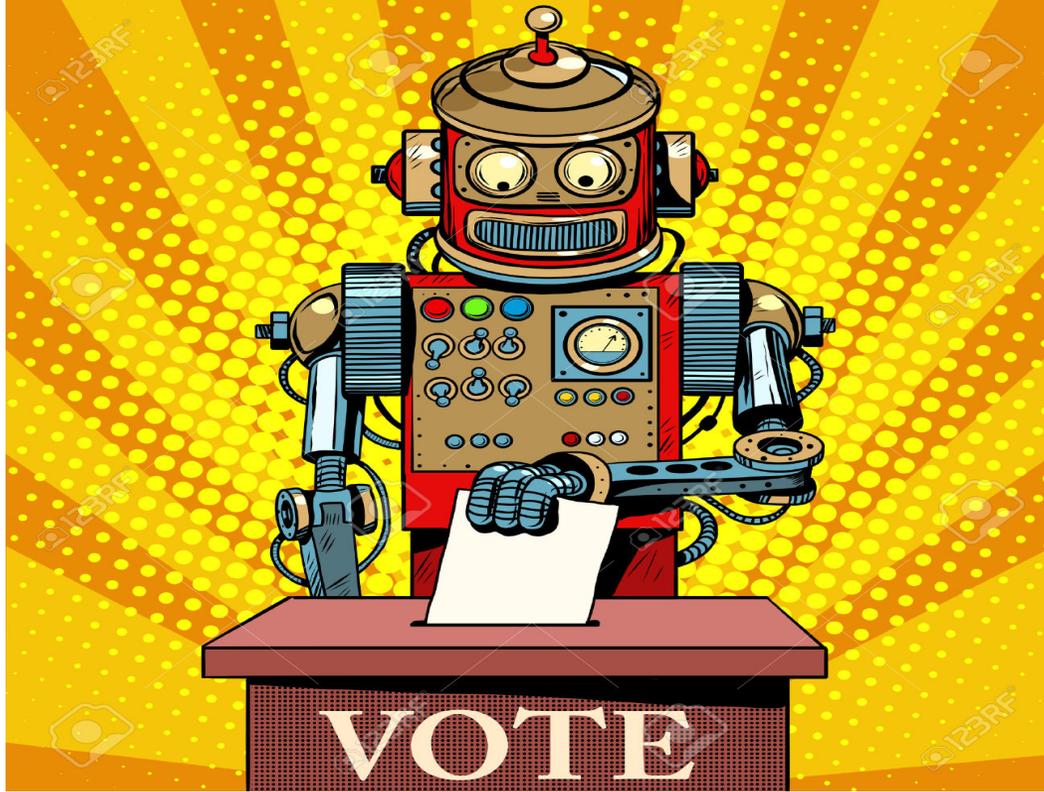
— THE FOLLOW MY VOTE WAY —



Beyond transparency and secrecy

- The problem of early voting and political disengagement.
- Changing your vote once it was cast
- Incentivizing public participation in the political process

- ***Recommendation 5-2: The obligation to store sealed packets after the count should specify that they should be stored securely.***
- ***Recommendation 5-3: Secrecy should be unlocked only by court order, with safeguards against disclosure of how a person voted extended to an innocently invalid vote; however nothing in such safeguards should prevent public reporting of electoral fraud.***



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