Between Law and Technology: Internet Voting, Secret Suffrage and the European Electoral Heritage

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Hey! You! Yeah, YOU! I just flew from LA to Memphis to #rockthedvote! No excuses, my good people! There could be early voting in your town too. If not, November 8th! Choose to have a voice! If you don't, then we can't HEAR YOU! Get out and VOTE! #exerciseyourrighttovote
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I. Background:
What drove us here?
Article 21

«(3) The will of the people shall be the basis of the authority of government; this shall be expressed in periodic and genuine elections which shall be by universal and equal suffrage and shall be held by secret vote or the equivalent free voting procedures»

- Universal Declaration of Human Rights (1948)

Article 25

«Every citizen shall have the right and the opportunity […]
(b) To vote and to be elected at genuine periodic elections which shall be by universal and equal suffrage and shall be held by secret ballot, guaranteeing the free expression of the will of the electors»

- International Covenant on Civil and Political Rights (1966)

Article 3 – The Right to Free Elections

«The High Contracting Parties undertake to hold free elections at reasonable intervals by secret ballot, under conditions which will ensure the free expression of the opinion of the people in the choice of the legislature»

European Electoral Heritage (Venice Commission, 2002)

- Universal suffrage
- Equal suffrage
- Free suffrage
- Secret suffrage
- Direct suffrage

A secret ballot is a voting method in which a voter’s choice is confidential – The aim is to ensure that the voter records a choice without any kind of intimidation or bribery.
II. International standards:
Secret suffrage and remote electronic voting
Secret suffrage and remote electronic voting

Hypermedia
Networked Communitarism
Cyberpaternalism
Libertarianism

Declaration of Independence of Cyberspace

Symbiotic Regulation
Rec(2004)11
Rec(2017)5
Infosphere

Cyber Law
Internet voting regulation


?
1) International standards for secret suffrage in remote electronic voting: where are we now?

- International hard law instruments protect secret suffrage but are not specific when it comes to its content

- Soft law regulations offer better guidance:
  
  **Some examples:** Venice Commission
  Parliamentary Assembly of the Council of Europe
  Non-legal documents: Observation Mission Reports, Handbooks, etc.


- What about national case studies: have States had to re-visit their initial / traditional configuration of the principle of secret suffrage when introducing internet voting?
  
  **Some examples:** Estonia, Norway, Switzerland, France
Secret Suffrage – three key requirements:

➢ **Individuality**
   
   Each voter makes an individual choice

➢ **Confidentiality**
   
   Only the voter should know how he / she has voted and the voter should be able to make his / her choice in private

➢ **Anonymity**
   
   There must be no link between the vote cast and the voter’s identity
Rec(2004)11 on legal, operational, and technical standards for e-voting:

«(i) e-voting shall respect all the principles of democratic elections and referendums. E-voting shall be as reliable and secure as democratic elections and referendums which do not involve the use of electronic means»

- §16 «e-voting shall be organised in such a way as to exclude at any stage of the voting procedure and, in particular, at voter authentication, anything that would endanger the secrecy of the vote»;
- §17 «the e-voting system shall guarantee that votes […] are, and will remain, anonymous»;

Venice Commission’s Report on the compatibility of remote voting and electronic voting

«70. […] for non-supervised e-enabled voting, technical standards must overcome different threats […] This form of voting must only be accepted if it is secure and reliable». 
Secret suffrage and remote electronic voting

Traditional paper-based voting
Secret suffrage and remote electronic voting

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Individuality

Traditional paper-based voting
Secret suffrage and remote electronic voting

Individuality

Confidentiality

Traditional paper-based voting
Secret suffrage and remote electronic voting

Individuality

Confidentiality

Anonymity

Traditional paper-based voting
Secret suffrage and remote electronic voting

Anonymity
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Anonymity
Secret suffrage and remote electronic voting

Remote electronic voting
Remote electronic voting
- controlled environments -
Secret suffrage and remote electronic voting

Remote electronic voting
- controlled environments -
Remote electronic voting
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Secret suffrage and remote electronic voting

Remote electronic voting
- controlled environments -
Secret suffrage and remote electronic voting

Remote electronic voting
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Remote electronic voting
- controlled environments -
Remote electronic voting
- controlled environments -
Secret suffrage and remote electronic voting

Remote electronic voting - controlled environments -

Individuality
Secret suffrage and remote electronic voting

Remote electronic voting
- controlled environments -

Individuality + Confidentiality
Secret suffrage and remote electronic voting

Remote electronic voting
- non-controlled environments -
Secret suffrage and remote electronic voting

Remote electronic voting
- non-controlled environments -
Remote electronic voting
- non-controlled environments -
Remote electronic voting
- non-controlled environments -
Secret suffrage and remote electronic voting

Individuality?
Secret suffrage and remote electronic voting

Individuality
Secret suffrage and remote electronic voting

Individuality
Secret suffrage and remote electronic voting

Individuality

Confidentiality ?
Secret suffrage and remote electronic voting

Individuality

Confidentiality?
Secret suffrage and remote electronic voting

Individuality
Confidentiality ?
Secret suffrage and remote electronic voting

Individuality
Confidentiality
False credentials
Secret suffrage and remote electronic voting

Multiple voting

Individuality
Confidentiality
Secret suffrage and remote electronic voting

Individuality
Confidentiality

Multiple voting
Secret suffrage and remote electronic voting

Individuality

Confidentiality
Secret suffrage and remote electronic voting

Anonymity?
Secret suffrage and remote electronic voting

Anonymity?
Secret suffrage and remote electronic voting

Anonymity?
Secret suffrage and remote electronic voting

Anonymity?
Secret suffrage and remote electronic voting

Anonymity?
Secret suffrage and remote electronic voting

Mixnets
Secret suffrage and remote electronic voting

Mixnets
Secret suffrage and remote electronic voting

Mixnets
Secret suffrage and remote electronic voting

Mixnets
Secret suffrage and remote electronic voting

Anonymity
Secret suffrage and remote electronic voting

Anonymity
Secret suffrage and remote electronic voting

Homomorphic Tallying
Secret suffrage and remote electronic voting

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Secret suffrage and remote electronic voting

Homomorphic Tallying
Secret suffrage and remote electronic voting

Homomorphic Tallying
Secret suffrage and remote electronic voting

Anonymity
Secret suffrage and remote electronic voting
Secret suffrage and remote electronic voting

Double-agency authentication
Secret suffrage and remote electronic voting

Double-agency authentication
Secret suffrage and remote electronic voting

Double-agency authentication
Secret suffrage and remote electronic voting

Double-agency authentication
Secret suffrage and remote electronic voting

Double-agency authentication
Secret suffrage and remote electronic voting

Anonymity
Secret suffrage and remote electronic voting

Anonymous channels
Secret suffrage and remote electronic voting

Attribute-based credentials
Secret suffrage in remote electronic voting:

- **Individuality** | Robust authentication
- **Confidentiality** | Multiple voting
  - False credentials
- **Anonymity** | Mixnets
  - Homomorphic encryption
  - Double agency authentication…
2) *normative lacunae*: are these mechanisms enough guarantee to protect the legal assets behind secret suffrage?

- **Individuality** | Robust authentication
- **Confidentiality** | Multiple voting
  - False credentials
- **Anonymity** | Mixnets
  - Homomorphic encryption
  - Double agency authentication…
4th Biennial Review meeting (2012) - need to update the Recommendation

Several reasons:
- Internal: vagueness, lacunae, inconsistencies, over- and under-specification, redundancy and repetition of provisions; etc.
- External: relevant developments in national legislation and case-law, taking advantage of practical and academic experience, addressing the implications of emerging technical concepts (e.g. end-to-end verifiability); etc.

Ad-hoc Committee of Experts (2015). Update in two steps:
1. Clarify scope and format of the Recommendation (2015); and
2. Update of individual provisions (2016)
14 June 2017: Rec(2017)5

➢ Recommends
  – Respect all the principles of democratic elections and referendums;
  – Assess and counter risks by appropriate measures;
  – Be guided by standards in Appendix I
    • Universal, Equal, Free and Secret Suffrage
    • Regulatory and organisational requirements; Transparency and observation; Accountability; Reliability and security of the system
  – Review mechanism (at least every two years)

+ Guidelines on implementation
  – Agrees to regularly update the provisions of the Guidelines
Secret suffrage and remote electronic voting

Secret suffrage

- §19 Secrecy of the vote
  - Encryption
  - Mixing; etc.
- §20 Data minimisation
- §21 Data management
- §22 Access to voter data
- §23 Receipt-freeness
- §24 Election fairness
- §25 Secrecy of previous choice
- §26 Anonymity
Secret suffrage and remote electronic voting

- Election fairness?
- Everlasting / long-term privacy?
- Privacy vs verifiability?
Do these mechanisms offer more or less guarantees that those associated to accepted voting technologies?

Case 1 - Remote voting

- Voting by proxy
- Personal voting at diplomatic missions or other designated places
- Postal voting
- Phone and fax voting
- Diaspora voting
  - e-ballot delivery
  - e-ballot marking
  - online ballot return

Case 2 - Assisted voting
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The Netherlands will count every vote by hand to stop hackers influencing parliamentary election

Interior Minister Ronald Plasterk warns Russia could be one of the external actors trying to affect the results

The Cyber Threat To Germany's Elections Is Very Real

Authorities say they're ready for the worst, but recent attacks suggest otherwise.

Le gouvernement renonce au vote par Internet pour Français de l'étranger votant aux législatives, pour des raisons de sécurité empêchant d'assurer la fiabilité du vote à distance. Une décision qui a été diversement appréciée par les élus.

US election 2016: Trump says election 'rigged at polling places'
3) *axiological loopholes*: what if the practices persist, but the way they take place is transformed? Can the values assigned to legal assets change over time?

- *Requirements for secret suffrage should be able to adapt to new contexts (non-originalist approach to secret suffrage)*

**What to study?**

- Social network functionalities that allow users to echo that they have voted in an election;
- The phenomenon of *stemfies* and selfie voting;
- Voting Advice Applications;
- Delegated – liquid democracy;
- Statistical uses of (anonymised) election-related data
III. What next:
Our research proposal
**Secret suffrage and remote electronic voting: Research proposal**

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Secret suffrage and remote electronic voting: Research proposal

Goal 1
• Descriptive analysis (1): which possible configurations for secret suffrage?

Goal 2
• Descriptive analysis (2): when is internet voting compliant with secret suffrage?

Goal 3
• Normative analysis: which configuration for i-voting are more desirable?
III. Q&A
Thanks!