

### Horrible Reviewer 3 words:

However, I was quickly disappointed by the quality of the manuscript. First, it is not clear what this paper offers that [1] (Internet voting in Estonia 2005–2019: Evidence from eleven elections) does not. More importantly, you also did not cite the book "E-voting in Estonia: technological diffusion and other developments over ten years (2005-2015)" by Mihkel Solvak and Kristjan Vassil (or if you did, it is not easy to check due to the reference section being incomplete). This is a 200+ page book on Estonian E-Voting which seems very important to at least mention (even if it is not directly related, cite and explain why).

I'm the one who is disappointed to read such a rejection reason from such a prestigious conference. Clearly an 2025 paper discussing a certain system evolution and remaining challenges will contain discussions about the years 2019-2025; that's something the 2019 paper and the 2015 book cannot offer. Nearly 80% of the paper is dedicated to events, attacks, fixes, vulnerabilities, quantum threat... all in the few recent years; this is even clear from the abstract. A reader (most probably a researcher) interested in the Estonian i-voting experience, will probably be more interested in reading more details about the last few years (to pursue research about) and still know about the milestones of the earlier years (with available references to go through the details of the past if wanted).

-My understanding is that SoKs should gather and collect (brings to the academic literature) important stuff that happened but was not presented in the academic literature before; I believe an individual coding his own voting application is one example, the possibility of using other e-service in the Estonian e-government to find how many multiple votes (myID) and revealing the president vote through his QR snapshot from TV are other examples.

-Besides, all the reviewers comments (not just reviewer 3) are kind of editing and style comments; none of them discussed the core of the paper except reviewer 2 saying " *there are some well structured pieces (section 6)* " where section discusses remaining challenges and vulnerabilities.

Examples include:

- Asking to put a name from the reference authors when citing (reviewer 2).
- Asking to write " population of 1.35 million" instead of "population of 1.35m" (reviewer 3).
- Figs 1,2 and footnote 7 started with a small letter (reviewer 1)
- Some typing errors like PQC once written as PCQ, proofs as proves,... (reviewer 2)
- Omitting some references details : this happened in the last minutes adjustment to fit the page and/or word limit and can easily be rewritten complete after limits had been adjusted with some parts completely moved to the extended version.

The only "somewhat" objective comments, all about statements being ambiguous, and my defense to them:

- "...it is appropriate to mention that Ukraine is Estonia's closest neighbor...". Not clear in what sense? It feels that the argument is rather political, and not scientific, hence not necessarily important for a technology research paper. (reviewer 1)

What seems like a political argument could provide a technical insight about the power and incentives of possible attackers; if this means an incentive for a powerful nation to attack then it is relevant to the system security.

- "...European elections was also rejected objectively...". Not clear, why "also", while the reasons above seem to be not objective. You are contradicting yourself here. (reviewer 1)

"Also" here means more complains, but "objectively" means unlike the above this one's rejection was justified (the reasons were listed in the following sentence *"Among the three listed reasons, being an observer not an auditor seems to be the dominant one, where auditing is organized by the State Electoral Office in all elections [13]."*)

- "...some kind of shadow e-voting site called virtual threshold survey...". How is this connected to the other complaints presented, this is not a complain at all. It is an activity though, but not necessarily a complain. (reviewer 1)

This seems like a discussion between two reviewers and one of them has already answered for me that it is an activity and activities are part of the section.

- "...earlier complaint about the election desktop is also alarming...". What is the election desktop, and why is it important. You haven't given any general overview of the i-voting system's component, and workings, how should the reader know to what you are referring to, and understand the challenge here?! (reviewer 1)

The problem was about the desktop of the computer used for key generation in the setup phase, so it is obvious that it is risky to download any applications on it (the risk happens during key generation and doesn't depend on the system architecture so that I have to defer it till I explain the system design in section 4)

- This is very easy to note in section 2. There is no clear criteria how the activities were identified, prioritized, and presented. Refer to last paragraph of section 2, "...Finally, although not an opposition activity...", which stands in contradiction with the title of the section.

The statement was meant as a closure to the section that even an unbiased academic source identified 6 security problems with risk level higher than small; i.e., the listed above opposition activities/complains reflect real issues.

- "...a commentator from IVXV team stated...". Where is the evidence? What exactly was stated?

- "...whos risk class is higher than small...". Reading footnote 6, you state that the risk class was medium. Where is the evidence for that, and according to what threat analysis framework that risk class was determined. Medium can also be smaller than higher! (reviewer 1)

The commentator is the past reviewer of E-Vote\_ID 2024, and for the same argument I presented the statement only as a footnote because they gave it as defensive response to the strength of their system when I only have a public proof that risks are higher than small (if they were all medium and none is high for example why didn't they say so in the public minutes of meeting?)

- Section 3.1: You are mixing issues with respect to cryptographic key management, issues of vendor, with issues of the used algorithm. It is a mix of issues presented, but not clear, what and which was/is relevant to the i-voting system?

All kinds of problems in the digital identity used may jeopardize the results of any i-voting system that uses them, that's why section 3.1 seemed relevant and European digital identity project mentioned later in the paper are relevant. I believe it is also the reason they concentrated first on manufacturing the first post quantum digital identity chip. Don't forget the effect of applications querying digital identity transactions like "MyID".

- "...Hence, since 2017 the Estonian...". Not clear how you come to the conclusion that only because of those other systems, the Estonian i-voting system was improved? Where is the evidence, did you interview the developers, or is there any statement from them? What is then the learning period, as it is not clear when the other systems were introduced? (reviewer 1)

I may add more details on this paragraph if needed, since reviewer 2 is also asking to add a separate reference for mixnets, Schnor based NIZKPs, Merkle Trees, El Gamal Encryption (although i thought it is enough to trace these primitives in other references like the reference discussing  $cl=g^r$  attack, the thesis in [14], the reference discussing Authenticated Data Structures ADS, the 25 mins SNARK video,...)

- "passing on a 3-days from election deadline without objective investigation" not clear wht this means (reviewer 2)

This statement was from the older version in 2024 about Estonian courts dismisses without further investigation complains that pass the 3 days deadline from election; the reviewer from the system objected on it saying that the authors did not provide an evidence or let them explain from where did they draw this conclusion. In this newer version i gathered some examples starting from the university student complain in 2011 that was first dismissed then handled through the verifying code since 2013 to more dismissed complains in 2023.

- "voting results cannot ... the compromise would be revealed immediately" not clear that this phrase is trying to say (reviewer 2)

This statement is an exact quote from the court verdict (not my phrasing), from the paper: he pursued the matter further to the supreme court where they responded that *"voting results cannot be compromised with malware, because with the help of the reading certificate issued when determining the voting results, the compromise would be revealed immediately"*

-The authors dont do a great job of staying anonymized by referring to themselves as the authors of published papers (e.g. [30]). (reviewer 2)

Would you please tell reviewer 2 that I'm not one of the authors of [30]. Does he or she really believed I'm so or is it just another joke like reviewer 3 comment about seeing nothing new beyond 2019?