Statement to the NASEM Committee on the Future of Voting

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My Reflections on this NASEM Committee's Mandate

- document the current state of play in terms of technology, standards, and resources for voting technologies

- examine challenges arising out of the 2016 federal election

- evaluate advances in technology currently (and soon to be) available that may improve voting

- offer recommendations that provide a vision of voting that is easier, accessible, reliable, and verifiable

Elections Integrity Recommendations

- numerous organizations have made recommendations about how to improve elections integrity worldwide over the past two decades

- my R&D work has been instrumental in providing such recommendations in four countries thus far

Past Pointed Recommendations

- at invited talks at NASED and NASS in 2016 and 2017 I made the following recommendations:

  - introduce a security mindset in election officials

  - mandate risk-limiting audits and parallel testing

  - demand that election technologies provide evidence of their correctness and security, preferably in both the RFP and contracting process

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Colorado the Brave, and the Tip of the Iceberg

- enormous thanks and props goes to the Colorado State Legislature, its SoS, and state and local election officials

- likewise, thanks and props to the group of elections integrity experts who are the trailblazers and the "red team" in RLAs

- the RLA in CO—and earlier experiments elsewhere—have gone well, but there is still much work to be done to have robust statutes, rules, processes, and technology for RLAs (see Rivest)

- many other states and jurisdictions will examine the Colorado example and implement, by statute and practice, evidence-based audits in the next decade

Reality Check

- creating elections technology requires time and funding
- convincing vendors to introduce features to support evidence-based audits must be driven by statute
- after a statute lands, developing from-scratch software systems like Colorado's RLA Tool to facilitate evidence-based audits takes resources (time and funding)
    - resources are needed to do the science, write the specifications, issue the RFPs, write proposals, and then finally develop and test the software systems

Resource Limitations

- but we have little time and even less funding
- development of systems to support the 2018 midterm elections should have started this year
- there are nearly 19 bills in congress about elections
  - a handful mandate evidence-based audits
  - none are close to escaping committee, and
  - few have any mention of appropriations

The Utility of Technology in Support of RLAs

- one can run a local RLA without computers
- one can facilitate a local RLA with computers
  - doing so can improve process accuracy, decrease workload, increase transparency, increase voter engagement and confidence in elections' outcomes
- one essentially must use computers to facilitate multi-contest audits and multi-county & state-wide elections

The State-of-the-Art in RLA Technology

- several research demonstrators exist from Profs. Stark and Rivest and their colleagues
    - some of these could be used to experiment with small-scale evidence-based audits of various kinds
- Free & Fair has developed two open source tools to help facilitate evidence-based audits
    - OpenRLA: facilitation of local (un-networked) RLAs
    - Colorado RLA: facilitation of multi-county/state-wide RLAs

RLA Technology Next Steps

- get clarity on many scientific and technical matters
  - how to audit multi-county contests
  - how to define, run, and synthesize results of multiple kinds of evidence-based audits
  - how to efficiently and effectively publish audit artifacts to facilitate evidence-based decision making around contest challenges, recounts, etc.

RLA Technology Next Steps

- get clarity on many scientific and technical matters
- obtain resources to develop support software
- new software iterations should have 6–12 month development windows
- they should be deployed in multiple jurisdictions
- we should support auditing all existing vendors' voting and tabulation systems

RLA Technology Next Steps

- get clarity on many scientific and technical matters
- obtain resources to develop support software
- legislatures and congress must pass statutes mandating evidence-based audits
  - states cannot wait on Washington
  - there is no longer a need to wait—high quality, open source technology is here and ready for use

RLA Technology Next Steps

- get clarity on many scientific and technical matters
- obtain resources to develop support software
- legislatures and congress must pass statutes mandating evidence-based audits
- educate, educate, educate
    - we need a dedicated RLA education campaign for policy makers, election officials, and voters