LA County VSAP Testimony:
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A. Overview of Open Source Digital Voting Foundation (OSDV)

What does OSDV do?

1. The Open Source Digital Voting Foundation is a CA public benefits corporation.
   - 1.1. Organized exclusively for the purposes of researching, designing, and developing an open source elections technology framework that meets or exceeds a minimum standard of integrity.
     - 1.1.1. Integrity measured by degrees of accuracy, transparency, verification, and security.
   - 1.2. Dedicated to sustaining technology development efforts that create freely available, open source U.S. election technology.
     - 1.2.1. Doing the "heavy lifting" of R&D for which the commercial elections technology industry (what is left of it) has neither the economic interest nor compulsion to perform.

What is your organization's vision?

2. Elections technology is tantamount to critical democracy infrastructure.
   - 2.1. The imperative of high assurance casting and counting devices is too great to leave to the private sector whose appropriate business objectives in serving shareholder interests are perpetually on a collision course with the public interest.
     - 2.1.1. Basis on which R&D investment is made
     - 2.1.2. Intellectual property conflicts
     - 2.1.3. Return on investment challenges
   - 2.2. We envision the standards, blueprints, and a reference implementation for a holistic and comprehensive elections technology framework that encompasses the entire election ecosystem being freely available for adoption, adaptation, and deployment by any jurisdiction.
     - 2.2.1. Highly malleable standards-based software technology framework based on certified commodity hardware
     - 2.2.2. Ballot of record based on a physical paper artifact; potentially created by a marking device, and counted by a machine, but available for audit and verification as a durable evidentiary artifact
     - 2.2.3. Based on a solid foundation of data models and data interoperability standards
     - 2.2.4. A componentized certification process (aspirational but real progress occurring)
     - 2.2.5. Benefits of a application specific OSS license—the OPL
     - 2.2.6. The Perpetual Harvest

B. Voting Systems Market

Why is there little innovation in the voting systems market?

3. The voting technology industry is a malformed and dysfunctional market.
   - 3.1. Little to no business incentive or mandate to innovate
   - 3.2. Lack of market opportunity (e.g., size, revenue, COGS) limits investment in R&D
   - 3.3. Structural barriers to new entrants: e.g., oligopoly, regulatory requirements)
   - 3.4. Innovation amounts to discussions about spare parts

What could voting system innovation look like?

4. There is an enormous wealth of digital innovations already developed and available in different application spaces.
   - 4.1. Much can inform innovation in voting systems

4.2. Some of it, however, cannot and is commonly misunderstood as applicable, useful models, or portable (e.g., most all of digital banking is NOT reference material)
4.3. Voting systems innovation requires a mindset that elections technology is "critical democracy infrastructure" and should be treated as such.
4.4. We believe voting systems innovation comes from creating a public trust of technology (roadmaps, blueprints, best practices designs, and reference implementations)

What could spur innovation?

5. Enable election officials to directly shape election technology, rather than being limited to making "customer requests" that have to make "business sense" to vendors
6. Restructure the current industry to salvage its best parts (e.g., deployment, maintenance and services) while passing the heavy lifting of R&D into a public trust
   6.1. A bit self-serving, but this is our mission and the reason for our non-profit
   6.2. That is, create a well-funded public digital works project wherein funding can come from a combination of government and private philanthropic grants
   6.3. This restructuring cannot and will not occur through legislation or regulation but only by making available an open source blueprint and reference implementation that can be freely adopted, adapted, and deployed
7. Open Source is <u>not</u>, in-of-itself, sufficient! The typical processes of OSS development are likewise insufficient.
   7.1. This is high assurance computing development at its best and requires a combination of the Cathedral and the Bazaar approaches. This isn't a web browser or database management server.
   7.2. TrustTheVote Project, for example, achieves this through a CORE Design & Engineering Team (the Cathedral approach) and combine it with a more traditional, agile OSS community development team (the Bazaar approach)
8. Required: open data standards, and re-structuring certification process

What is your view of the certification process?

9. An archaic hindrance that is ripe for re-formation
   9.1. Archaic because it fails to address a growing mandate of modularity
   9.2. Hindrance because it creates barriers to entry and innovation; exacerbates the deployment cycle
   9.3. Certification needs a re-boot and reinvention; it's happening now: EAC, NIST, IEEE, …
   9.4. Innovation in certification could become hamstrung by political or regulatory hurdles.

How can the certification process encourage innovation?

10. Restructuring the process will invite new participants and lower if not eliminate the market barrier imposed by the current system, which favors legacy incumbents. New entrants will surely bring with them new innovations
    10.1. By modularizing the certification process, best practices and real innovations can be focused on specific components of the system rather than fostering a monolithic model
    10.2. Modularization will catalyze the common data model approach and thereby encourage application-specific innovations at all points in the ecosystem.
    10.3. Modularization will also encourage far greater interoperability thereby enabling further application specific innovation (i.e., the more types of ballot marking devices available, given underlying open data and open source software structures, the more improvements in user experience—for example—we will likely witness)