A Presentation of the
Open Source Election Technology Institute

a silicon valley digital public works project

of the people, by the people, for the people

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millions of philanthropic dollars have been spent studying how to improve elections…
• end long lines;
• reduce recounts;
• minimize contests; and
• increase confidence in the most fundamental right of democracy.

but a key issue is increasing trust in the technology of voting...worldwide!
VOTING INFRASTRUCTURE IMPENDING CRISIS
8 issues driving this crisis...

1. inherent design flaw in reliance on commodity PC hardware due to a...
2. lack of security-centric engineering principles exacerbated by...
3. incapable legacy vendors lacking core technology design competence resulting in...
4. obsolete systems requiring cyber-security triage in a digital arms race dependent on...
5. contracts to guarantee spare parts in an insecure supply chain aggravating...
6. partisan fights for funding in light of critical infrastructure designation leading to...
7. slow progress on design guideline updates further driving a...
8. complete lack of commercial incentive for industry to solve on it’s own.
focusing on the U.S. for the moment…

~36 43 STATES NEED TO FIGURE IT OUT BY 2022
a radical departure; a new arrival…
with a global solution…

Public Election Software Technology

catalyzes…

New business model for finished systems delivery

results in…

Lower cost, higher integrity, easier to use systems
(that are more verifiable, accurate, secure, and transparent)

provides enormous social benefit…

Increased confidence in elections and their outcomes
(with greater trust in accessibility and ballots counted as cast)

protected sovereign right to free & fair elections

open data
open standards
open source

legacy vendors
existing I.T. providers
new entrants

highly auditable
user-centered design
security-centric engineering

systems integration
cloud services
verifiable COTS hardware

new entrants
existing I.T. providers
legacy vendors

better defends and
preserves democracy

highly auditable
user-centered design
security-centric engineering

systems integration
cloud services
verifiable COTS hardware

new entrants
existing I.T. providers
legacy vendors
the OSET Institute’s approach...

Corporate Partners collaborates

OPEN STDS PROJECT

uniform draft
open data, audit, &
certification standards

informs

TRUST THE VOTE PROJECT

research & development for
publicly available
election administration software

populates

SOURCE CODE REPO

curated & managed
election software
technology repository

guides

stakeholders: elections administrators;
managers; officials; & poll workers Input

Election Management Bodies
the democracy ecosystem we exist in…

PROCESS

PEOPLE

PLATFORM

POLICY

POLITICS
and the element we’re focused on…

PLATFORM
a (very) loose “operating system” metaphor…
…to deliver on a “VAST” mandate
ElectOS™ is for voting machines; sort of like android® for mobile devices

(But far more secure!)
6 main building blocks comprise ElectOS™…

<table>
<thead>
<tr>
<th>Registering</th>
<th>Voting</th>
<th>Reporting</th>
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<tbody>
<tr>
<td><strong>1</strong> Voter Services Portal</td>
<td><strong>2</strong> Digital Poll Book, Voter Kiosk, Accessible Ballot Marker, Precinct Ballot Counter</td>
<td><strong>3</strong> VoteStream</td>
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<tr>
<th>Managing</th>
<th>Data Standards</th>
<th>Guiding Principles</th>
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<tbody>
<tr>
<td><strong>4</strong> Election Data Manager, Ballot Design Studio, Device Manager, Registrar</td>
<td><strong>Election Definitions</strong>, <strong>Registration Data</strong>, <strong>Results Data</strong></td>
<td>Accuracy, Security, Transparency, Verifiability</td>
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1. Voter Services Portal
2. Digital Poll Book, Voter Kiosk, Accessible Ballot Marker, Precinct Ballot Counter
3. VoteStream
4. Election Data Manager, Ballot Design Studio, Device Manager, Registrar
5. Election Definitions, Registration Data, Results Data
6. Accuracy, Security, Transparency, Verifiability
ElectOS™ represents 10-years of patent-pending election official reviewed system architecture & engineering
in the U.S. we have a shrinking window to finish…

...or another **decade** of status quo!
our strategy is delivery because…
we’ve built a beachhead of software.
we’re helping drive open standards
with election officials’ encouragement
to increase integrity & lower cost…

black box

1/3 COST

glass box

CRITICAL DEMOCRACY INFRASTRUCTURE
for the U.S., creating enormous social benefit with massively global scalable impact...
here’s where we are…

<table>
<thead>
<tr>
<th>ElectOS Element</th>
<th>Concept</th>
<th>Requirements</th>
<th>Specification</th>
<th>Prototype</th>
<th>Alpha</th>
<th>Beta</th>
<th>Release</th>
<th>Certification</th>
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<tbody>
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* Notes
1. Elements incorporate their contributions to the data layer and API services.
2. Elements embody RFC (Request For Comment) work.
3. Electorate v.1 embodies the Voter Services Portal ("VSP").
4. Electorate v.2 will embody the Election Management System ("EMS").
5. Electorate v.3 will embody the "Registrar" system respectively, as labeled in the Architecture.
6. Electorate v.4 will embody a new Voter Database ("VRDB").
7. This ETF Progress chart does not reflect work on any of: repository and configuration management, open data standards working group efforts, or documentation.

Accessible ballot marking device
Precinct-level optical scan counter (lowering priority with migration to central count)
Central optical scan counting system
Ballot tabulation system
Critical mechanism for trusted boot with hardware attestation
Cloud-based ballot design & layout studio
Cloud-based elections results reporting system
Cloud-based election management system
Multi-tenant strong authentication and security administration service
Cloud-based voter administration services
here’s how it makes impact…

Publicly Available Election Software Technology

builds & publicly releases…

Systems Integrators and/or Managed Services Providers
delivers to…

Global Democracies in Need of Electoral Technology

Sample Hardware Providers
Sample GovCloud Services Providers

Finished Voting Systems +
GovCloud Election Administration Services

OSET INSTITUTE
ElectOS™

accenture
DXC
DXC.technology
IBM

builds commercial systems & solutions on…

DELL™
HP
amazon web services
Azure

Google Cloud

chromebook
toshiba

salesforce
discussion