



# **KEY ISSUES AND LESSONS LEARNED IN THE USE OF ELECTORAL TECHNOLOGY**

Michael Yard

November 2017



A decade ago – IFES publication documented international experiences in election technology

Included very high level functional specifications for election system

... and proposed steps that should be followed to increase probability of success.

FROM POWER OUTAGES TO PAPER TRAILS:  
EXPERIENCES IN INCORPORATING TECHNOLOGY INTO THE ELECTION PROCESS

MARCH 2007

GEO CONFERENCE PAPER

PANEL ON ELECTORAL TECHNOLOGY



APPLIED RESEARCH CENTER  
FOR DEMOCRACY AND ELECTIONS

*Bridging Theory and Practice*



- Understand the mission of the EMB
- Set clear goals for the tech project
- Promote realistic expectations
- Be open to necessity of new laws and new procedures
- Choose appropriate technology – simple, proven, sustainable

FROM POWER OUTAGES TO PAPER TRAILS:  
EXPERIENCES IN INCORPORATING TECHNOLOGY INTO THE ELECTION PROCESS

MARCH 2007

GEO CONFERENCE PAPER

PANEL ON ELECTORAL TECHNOLOGY



APPLIED RESEARCH CENTER  
FOR DEMOCRACY AND ELECTIONS

*Bridging Theory and Practice*

# Functional Requirements for Election

---

- A system must be in place to distinguish those people who are eligible to vote from those who are not eligible; it must also provide a mechanism that ensures each eligible person is allowed to vote only once.
- A voter must have an instrument on which to express his or her voting intent, whether by pen on a paper ballot or by touch on a DRE.
- The security and secrecy of the vote must be maintained, whether by sealed ballot box or secured electronic data storage device.
- Voters' votes must be read accurately, by human eye, optical reader and/or digitally.
- Precinct returns must be transmitted, by personal delivery or secure electronic transmission.
- Results must be consolidated, whether manually or by machine.
- Preliminary and final results must be reported accurately and on a timely basis, whether electronically or manually, on the Internet or in printed form.

FROM POWER OUTAGES TO PAPER TRAILS:  
EXPERIENCES IN INCORPORATING TECHNOLOGY INTO THE ELECTION PROCESS

MARCH 2007

GEO CONFERENCE PAPER

PANEL ON ELECTORAL TECHNOLOGY



---

APPLIED RESEARCH CENTER  
FOR DEMOCRACY AND ELECTIONS

---

*Bridging Theory and Practice*



# Elections are not a business

- Different goals: EMB goal is not profit, or efficiency, or product development
- Requirement for universal enfranchisement – 80/20 Rule does not work
- We have “Customers” whose goal is our failure



# Elections are not a business

- Unique technology requirements that enable a process that must always be more human than computer
- Life cycle of technology is 1 to 3 elections
- Long time between usage
- Transparency requirements
- Importance of perception & credibility
- Vote in private, count in public



# Models we can learn from

- Enterprise tech – availability, reliability, scalability
- Consumer tech – importance of mass testing; little things can make or break
- Aerospace engineering – massive preparation, one chance to get it right
- Medical tech – lives are at stake; do no harm
- Each other



# One common denominator – inadequate testing

- Types of testing
  - Feasibility
  - Demonstration
  - User Interface
  - Stress
  - Security
  - End user (beta test)
  - Develop training materials
  - Other





# Lessons learned from other EMBs

- Why Ghana OMR was such a success (appropriate model)
- Why DRE has failed in so many places (inappropriate model)
- Why DRE failed in Kazakhstan (inadequate user testing) and USA (not auditable)
- Why SMS RTS worked in Indonesia, but failed in Kosovo (training)
- Why early attempts at biometrics failed in Yemen and others (corruption in procurement)
- Why EVID failed in Kenya (inadequate time, authoritarian decision)
- Why EVM succeeded in India and why it's being criticized now (trusted institution encounters growing public awareness)
- Why PCOS succeeded in Philippines



Thank you