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The Technological Face of Kenyan Elections: A Critical Analysis of the 2013 Polls.

A Presentation by Martin Andago



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Our mandate is:

- To monitor and report on the development of Kenyan jurisprudence through the publication of the Kenya Law Reports;
- To revise, consolidate and publish the Laws of Kenya; and
- To undertake such other related publications and perform such other functions as may be conferred by law.

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Elections in Kenya

The last Kenyan presidential elections were characterized by unexpected and cataclysmic violence. Some 1,200 people lost their lives and more than 600,000 were displaced from their homes, after Mwai Kibaki won over Raila Odinga by an exceedingly narrow margin in an election widely believed to be compromised by irregularities. The road back to recovery was difficult, as the country tried to reconcile ethnic tensions and strengthen institutions to prevent this horrific scenario from re-occurring.

But the greatest violence was to the Kenyan sense of self. Other countries in Africa had killed over elections, over tribal affiliations, but not Kenyans, at least not to the degree seen in other parts of the region. Now that innocence is gone, replaced by a grim determination to arrest this slide into chaos.

Much has happened since. Most significant is a new constitution that was passed in a largely peaceful and well-run referendum in August 2010. The adoption of the new constitution marked the culmination of decades of debates over the management and division of power.



General Elections 2013

The March 4th, 2013 election was unique and unprecedented in both scale and complexity. Each Kenyan citizen was required to elect a total of **six candidates** for the post of President, Senator, Governor, Member of Parliament, County Representative and Women Representative.

Kenya had joined the league of African countries keen to test the new frontiers in election process and eliminate ballot stuffing, violent rigging of elections and remove fuzzy maths in final voter figures. In the words of western media analysts, there has grown a need to demonstrate “**some resemblance between public opinion and eventual outcome**”.

The elections were the first in Kenya to attempt to use electronic facilitation. The IEBC, at various stages of the election, deployed the following technologies: (i) **Biometric Voter Registration** (BVR) during voter registration; (ii) **Electronic Voter Identification** (EVID) on polling day; and (iii) **Results Transmission System** (RTS) during tallying.



Biometric Voter Registration

The B.V.R system uses a computer fingerprint scanners and digital cameras to capture the bio-data of an applicant. The personal details of finger-prints and face photo technology are used to verify the authenticity of the voter, and to ensure greater **transparency and credibility** in the elections.

The use of BVR has provided Kenya with the largest and cleanest registry in the country's history. It removed the '**dead voters**' that plagued earlier registries and prevented people from registering twice.

The voter registration exercise culminated in approximately **14 million voters** being registered across the country.



Fig 1: BVR Kit consisting of a laptop, a finger-print scanner and a mountable camera to capture a facial scan.

B.V.R Challenges

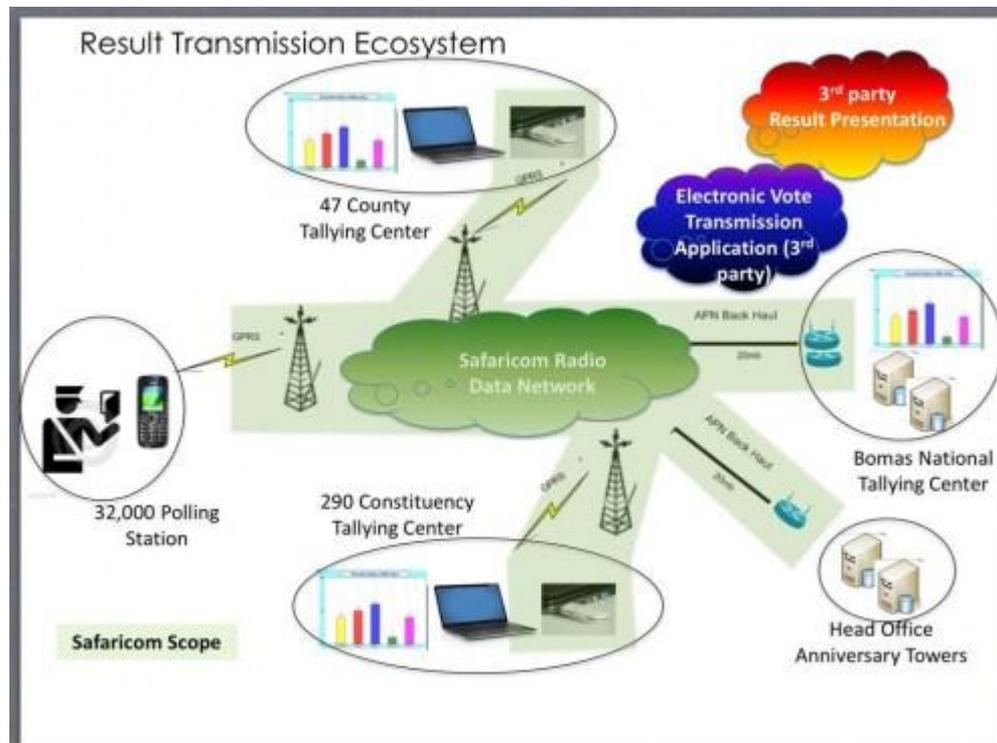
1. Use of new inexperienced staff.
2. Hardware can be adversely affected by the environment (e.g. heat, humidity and rain)
3. Technological limitations (Lack of power supply and/or internet bandwidth).
4. Statutory time-frame and the people's response to the deadline.
5. Some form of disabilities preventing registration.
6. Misconception by some people that the BVR kits are harmful to the body.



Election Day

What was expected:

Biometric identification kits would be used to double-check names on a computerized voting register. Election officers would then transmit provisional results to a tallying center set up by the Independent Electoral and Boundaries Commission in Nairobi, using the SMS system of a Kenyan mobile-phone company. There, the election returns would flash up in real time on a massive screen.



The Results Transmission System (RTS) was funded via IFES (International Foundation for Electoral Systems) who issued an RFP late 2012 with a closing date of Jan. 2013 & project delivery date of 10th Feb 2013.



The IEBC ICT Director, Dismas Ong'ondi and IFES Country Director, Mike Yard should explain **who was contracted to update the software initially delivered by Next Tech? Did IEBC make changes in-house without proper skills?**

Software for phones was initially designed by Next Technologies Ltd – www.next.co.ke - for 2010 referendum but **IEBC now have source code and copyright**



Safaricom supplied **17,900 phones** and provisioned data over VPN for 32,000 phones (IEBC had 20,000 more from Referendum).

Head of Special Projects – **Shaka Kwach** is in charge at Safaricom Ltd



Data to servers at National Tallying Centre (Bomas, Anniversary?, Cloud?)



Copy of Data to laptop at County Tallying Centre (**47 laptops**)



Copy of Data to laptop at Constituency Tallying Centre (**290 laptops**)

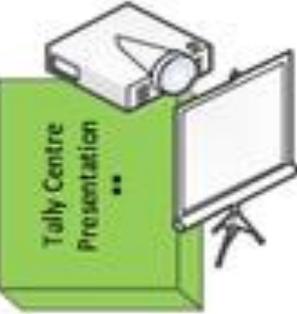
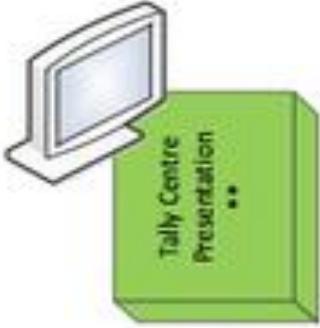
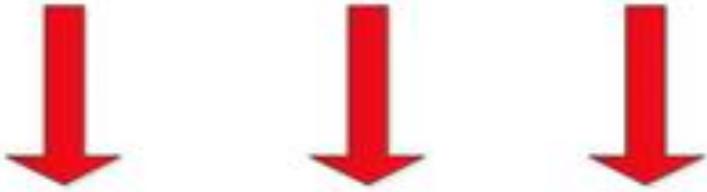


Copy of results data to API – api.iebc.or.ke – hosted by Google for media and public to retrieve.

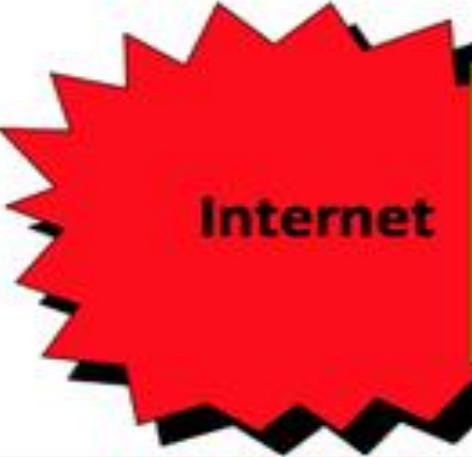
IEBC visualization of results on vote.iebc.or.ke
- Poor /late testing
- Data delayed and changes to 9000 polling stations made late - until 9pm on 4th March by **JapakGIS** contracted by Google

Laptops even in South C Ward of Langata in Nairobi were off by 8:00am

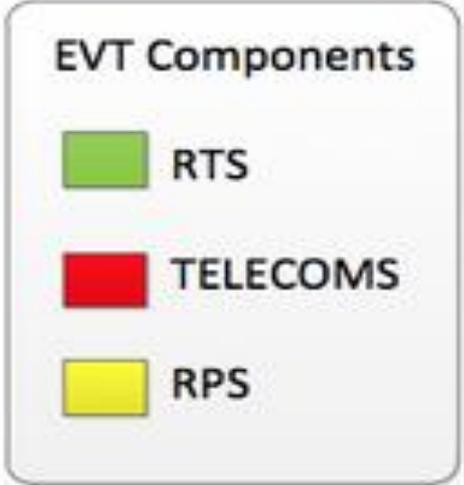
Is the data on the laptops available?



**basic tabular and chart reports



*digital mapping, visualization etc



Election Day

What really happened:

The triumph of **Murphy's law**.

- Laptops and cell phones used ran out of battery power; additionally, some polling stations (particularly in the rural areas) had no power outlets.
- Many poll workers forgot basic PIN numbers and passwords needed to operate equipment.
- Secure servers intended for results transmission were unable to handle the volume of data being uploaded, leading to the breakdown.
- An error with the results transmission system source code that multiplied the actual number of invalid ballots by 8 (an '8x error')





Project Management Issues

We must view the problems faced by the IEBC as **managerial, rather than technological**. This is exemplified by the delays in key processes that adversely impacted the management of election technology. These include:

- The **short timeframe** between the development of the RTS and the election limited the amount of testing for the system before the election.
- **Delays** in several key processes, which include—the competitive procurement process for a BVR system, a three month delay in the commencement of voter registration, and the procurement process for EVID — directly impacted the ability of the IEBC to test all three of these technologies.
- Although the 2011 Elections Act mandated a 90-day period between the end of voter registration and the election, Kenya’s National Assembly compressed it to 60 days, giving the IEBC a **tight timeline** in which to train their staff and prepare for any contingencies.



Are we alone?

A growing swathe of African countries recently adopted technology with the support of western aid.

They include: Sierra Leone, the Democratic Republic of Congo (DRC), Nigeria, Zambia, Malawi, Rwanda, Senegal, Somaliland and Ghana.

Electoral commissions have all recently introduced biometric technology — which recognizes both fingerprints and facial features — as a first step towards brand new electoral registers.

Election technology comes with a stunning price tag requiring the participation of donor support for many countries in Africa to afford it. In DRC, the elections cost was a staggering \$360 million with 31 million registered voters, with \$58 million of that money spent on biometrics. Ghana, the country with 14 million voters spent \$124 million with \$76 million spent on BVR. In Kenya's case, the elections cost \$293 million (Sh25 billion) against 14 million voters, with donors putting in \$100 million (Sh8.7 billion).



Conclusion

1. Planning more thoroughly for technological failures may have prevented the abandonment of the RTS. However, the relationship of technology to the overall outcome of the election, and the ensuing political conflict over votes, is less apparent.
2. Regardless of whether technical difficulties had occurred or not, all electronically transmitted results were provisional, and while this provided the IEBC with an accountability mechanism, the official results were solely based on paper. Each presiding officer of a polling station would have had to fill out a paper form with results details, and official results would have had to be determined by manually tallying all votes
3. Kenya's many challenges on Election Day, therefore, must be understood as problems of project management, rather than a consequence of voter technology.
4. Kenyans are re-examining the power of political choice, and the country is acting as a laboratory for how technology can help ease and balance transitions of power in demanding times.

