

Standards & Certification of the Automated Election Systems

By: Maria Corazon M. Akol

I will not be too ambitious to present a set of standards for adoption in the implementation of an Automated Election System nor come up with specific tests required for certification of components of the System and/or the integrated system as a whole. What my paper would like to present is what probably should be done to arrive at realistic and achievable standards within the framework of our domestic environment, and done by Filipinos, to ensure that we are able to achieve reliability, transparency, security, and auditability of an Automated Election System so that the Philippine electorate will accept with confidence that the sanctity of their ballot is upheld beyond doubt.

The second part of the Paper will delve on the Certification of the System by a body other than the body that framed the Standards. The Certifying Body should conduct tests in all phases of the election process to ensure adherence to the set Standards.

Background

The first Philippine Automated Elections held last May 10, 2010 was a truly controversial one and the final decision of its success or failure depends on the perspective of the observer. Surely it cannot be hailed as a truly successful exercise we can be proud of nor can it also be classified as a failure for we do have a majority of our elected officials accepted by the electorate.

However, being the first of its kind in the national level can be the excuse for several glitches in the implementation of the System. But a discerning public will surely not be fooled to accept it lock, stock, and barrel a second time.

Fear of a violent backlash and people disgruntled with election results rioting in the streets should encourage a professional, sober and scientific development of standards to ensure that the voting systems that COMELEC gets and that the Public will use works accurately and reliably.

Standards depict a way of practice. Standards allow people to see what has to be done, how to do them and what results or outputs to expect and measure. As such, when the action or output do not comply with expected results, corrections can and should be done in the preparation, implementation, and production of such outputs.

In the 2010 elections, however, the standards could have been the basis for deliberation (what should people do), monitoring (what are people doing now), and remediating (what can we do to improve, speed up, and correct or continue) people's actions and result-producing activities.

Where there are no standards agreed upon from the start and monitored during the progress of the operation of the system, each party or player will use his best judgment and/or influence public and private opinion to pursue active or corrective action.

And such was the case in the last election. When one party: legitimate, angry or supportive, could get enough media exposure to influence public opinion, the COMELEC, or specifically, the Smartmatic representatives were in the frontline news to answer, address, and legitimize the "concern" as either, under control or will be attended to or is already resolved.

From the point of view of the masses, it looked like, if the COMELEC/Smartmatic team could respond quickly and brilliantly to the questions posed, then everything was okay and proceeding as expected.

On the other hand, the COMELEC/Smartmatic team was prejudged to fail as a result of their poor reaction to the complaints and demands placed by civic groups who wanted transparency in their conduct of the Automated Election System.

The reason for the many questions on the AES was because of the absence of a common understanding and agreement on what was to be expected of the Automated Election System. The "expected results" were obvious: honest, clean, and peaceful elections. But how to achieve the obvious was more of a hope rather than a clear action.

What the COMELEC should have done first was to get an agreement on the final make-up and shape of the AES as it will be seen, appreciated, touched, and finally implemented in this country. And why has the COMELEC not done this? Two reasons: one is that the COMELEC itself did not and could not comprehend what the system would be like before, during and after it has been implemented; and, secondly, COMELEC did not have enough ICT expertise as an ICT agency of government. This is like saying that a Bank, which is in the Finance Sector, does not have in its ranks, Banking and Finance experts.

What then are these Standards that ought to be developed?

What standards need to be put in place if we are to try our hand again at automating the coming elections?

Setting up Standards for understanding (a common language), communicating (agreed channels and avenues), monitoring (acceptable measures and reporting), and remediating (official responsibilities) are needed in the implementation of the Automated Election System.

Without these standards the COMELEC will again be at the mercy of the many organizations trooping to its doors with their own sets of criteria, approach, strategy, and solutions on how to implement the AES.

The Election System Standards are documented criteria specified as the minimum requirements needed to ensure that the Automated Election System, be it paper-based or otherwise, are able to deliver accurate, reliable, secure and auditable results. These standards should include functional criteria of all components of the system, a complete documentation of what the System is expected to do but not how it is to be done.

Listed below are suggested standards that are **needed** to be included in the Automated Election System (**MUST HAVE Standards**):

1. Standards in **Understanding the AES** – This will include formal and written documentation on what the AES is, its components and processes and the common nomenclature for discussion, deliberation, and reference that all concerned will be using in the AES. At the moment, relying on the law does not give the people an understanding of the AES or of what the computerized election is all about. As a matter of fact, many people in COMELEC never had any idea of what will actually happen during E-day and this is the reason why on the first hour of elections, pandemonium in the Polling places broke out and long lines of people snaked their way in the streets outside the Polling stations while the inner premises of the Polling places were kept clean and clear of people because being close to the PCOS machines was not allowed. Perceived secrecy in what the vendor was doing made people suspicious of “Hocus PCOS”. If the people in COMELEC themselves did not even have a clear understanding of what was going to happen or how the whole exercise will be made to happen, how could they even communicate this to the voters?

The standards should include testing procedures to demonstrate that the system meets the minimum requirements needed to carry out an Automated Election System.

2. Standards in **the Security of the AES** - The standards should also require the vendors to supply both the System Model as well as the Threat Models. Anticipated or perceived breaches to the System must be addressed. All perceived threats, be they from within COMELEC or from procedural controls (or lack of it), among the components of the system should be included in designing the standards to be adopted. Among these threats is the often perceived connivance of organic personnel with political candidates. In order to regain confidence in the integrity of the electoral process, the threats from within and without must be factored in.

3. Standards in the **Project Management of the AES** - This will contain full documentation of policies and management procedures of the entire process. The standards should provide Administrative procedures and a description of duties and responsibilities of all personnel involved in the voting process, from the moment the Precinct opens to the time the election closes and the system operation terminates. The Audit trails are developed and made integral parts of the reports.

Project Management documentation should also include Access Control of the system in all stages of the electoral process, the granting of authorized access and the prevention of unauthorized access. The system must be able to record intrusions and flag these as well as set alarms on these intrusions. The standards should also include procedures for modifications that can be permitted to be done on the Access Control, how this can be modified, and who can carry out this modification. Documentation of all modifications, be they authorized or unauthorized, must be indicated in the design of the Standards to be adopted.

An intrinsic part of Project Management is documentation of all transmissions done within the system with the corresponding time logs synchronized nationwide, using the internationally-recognized atomic clock. Project Management should also include the monitoring procedures to be undertaken with these Telecommunication Carriers.

4. Standards in **Communicating the AES** – Some systems require expert understanding before they can even be communicated. And some channels of communications are suited for certain messages depending on their intended audience and level of understanding to be achieved. If these “means of communication” are left to people with either limited understanding of the message to be sent or disregard for creating understanding through effective communication, the message can be misappropriated or lost in the transmission and translation. To pre-empt this from happening, a standard on communicating the AES should be set at a professional level. Adopting a song jingle to convey the voting process via dancing girls over a “bilog na itlog” theme might be an attractive and even award-winning choice but this must be subjected to certain pre-agreed and pre-defined communication standards that meet budget, media reach, time and resource functionalities, and which eventually must be measured for their eventual effectiveness, relevance and contribution value in meeting the desired output or standards. In Monitoring the AES- any implementation will never go as planned. The AES, like any system, will veer off track during its take-off and while on flight. A system of checks and measures, say on a weekly or semi-annual basis must be agreed among the country’s stakeholders in the coming election. The important thing to consider is

defining the procedures for taking the measurements, how often, by whom, and in what manner. The problem to avoid is when a group or agency suddenly comes up with their own measure to confirm adherence to a process or activity using their own measuring stick, after the fact, and without reference to pre-approved courses of action.

5. Standards in **remediation for the AES** - How can changes be carried out when deemed necessary by a responsible party or person. Although there may be brilliant solutions and recommendations on what to change or remediate when things do not happen as planned, it is important to set standards on the who, when, why, where, what, and how remediation is to be done when needed. The people responsible cannot be faulted for making a wrong decision. But they should be faulted for making decisions without the authority and responsibility when the proper standards are in place.

Who should develop these standards?

A Special R & D Project under the auspices of the Dept. of Science & Technology (DOST), independent of COMELEC (to remove suspicion of tailor fitting the AES to some favored supplier/s) is hereby proposed to be conducted by a Standards Body, with reputable members coming from Technology Experts of DOST, CICT, NTC, the Academe and Industry- a good working model of a Public-Private-Partnership (PPP). The Standards Body to be formed, will design and develop the Standards, in consultation with COMELEC. COMELEC in turn will develop its TOR/Bid Specs based on the recommended Standards formulated. COMELEC, and not the vendor/supplier of technology, should be managing the Project. Therefore training of COMELEC personnel on the standards formulated by the Standards Body should be done to ensure a successful implementation of the Automated Election System.

Certification of the Automated Election System

It is suggested that a separate Body be formed to handle the Certification of the Automated Election System selected by COMELEC. The Certifying Body will conduct tests on the system to make sure that all standards set by COMELEC, as recommended by the Standards Body, are met by the vendor.

Building the Filipinos' capability to certify Automated Election Systems is encouraged. The Certifying Bodies can be formed by local IT companies with Management and Audit capabilities, for who can know the local conditions and election eccentricities of the Filipino voter better than a Filipino.

It is further suggested that the Certifying Bodies should be independent of COMELEC and accredited and contracted by the Commission on Audit (COA) to test the AES before full implementation and deployment.

A Source Code review as well as a thorough examination of the software of all components of the election process should likewise be conducted and certified as satisfactorily meeting specified standards.

Tests should be conducted on the hardware under actual conditions or simulated conditions on how the system will be transported, stored, operated and maintained in the different environments it will be subjected to, before the hardware is certified as acceptable. Actual test under rigorous and harsh conditions in remote areas is part of the certification process.

Operational tests should be conducted to verify that the entire system works in counting the ballots accurately, in transmitting the results, and in canvassing in the municipal, provincial and national levels. These tests should be conducted in accordance with Threat Models specified in the Standards, to make sure that the system is secure and reliable.

Should the vendor's system fail in any of the standards set, modifications/corrections to the system are allowed until it is deemed acceptable and functioning properly.

Certifying bodies can be accredited to perform individual tests on specific components of the system as well as on the entire system.

Harsh penalties, like fine and imprisonment (to be classified as election offenses), are likewise suggested to be imposed on erring Certifying Bodies that connive with COMELEC personnel and/or vendors in accrediting systems that fail to meet standards. Subsequent blacklisting of these Certifying Bodies and barring them from engaging in government contracts should be part of the punitive actions on these entities.

Conclusion

Our Election System is uniquely Filipino and far more complex than that of most countries with its many combinations of offices and candidates included in one Vote! Who but the Filipino can better appreciate its nuances and various points where lapses in the system can easily be taken advantage of by unscrupulous individuals sometimes in connivance with the very people tasked with safeguarding the sanctity of the Ballot!

Let us learn from our first experience in the nationwide election automation of May 2010 and provide the Filipino people with a better and far more acceptable Automated Election System by the Filipino, of the Filipino, and for the Filipino!

The importance of setting Standards cannot be overlooked and downplayed in the rush of implementing haphazardly an Automated Election System. These Standards must be known and accepted by all Stakeholders and properly disseminated to the Filipino people in all corners of the world.

Of equal importance is the Testing and Certification of the entire Automated Election System and all of its components and processes to avoid System Failure and last-minute remedies that might compound the problem and provide room for doubt on veracity of results.

Let's secure our Democracy and not provide the occasion for malicious Intruders to control our Democracy!

Let the Filipino prove his capability to do IT. Mabuhay ang Filipino IT for Elections!