"How to use modern technologies securely

by combining them with traditional methods

throughout electoral processes"

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Note: This speech, the accompanying visuals and the mentioned preliminary data security resource list are available upon request and can also be downloaded from this link: https://tinyurl.com/yap5jhxn. This paper and its presentation are based on research and analysis made possible by:

Ladies and gentlemen, friends. Good morning.

I am truly honored to stand in front of such a great group of friends, colleagues and electoral authorities. I, and IFES, thank the Venice Commission, the Council of Europe & the Norwegian Ministry of Local Government and Modernisation, and all of you, for this opportunity.

Today I will share with you our thoughts on **"How to use modern technologies securely by combining them with traditional methods throughout electoral processes"**. My thoughts on this include inspiration from all the excellent presentations at this conference.

My daytime job is that of an electoral manager, but I must confess that I am also a technology geek - passionate about how technology can contribute to a better future for my, for our, children and future generations. In my 20 something years of working on elections worldwide, I have led, assisted and observed major technology projects being implemented. I have been a proud participant in successes, and I have suffered in failures. It has been a sobering journey and I would like to share a few thoughts with you on why I think **traditional thinking and approaches are fundamental for the evolution and implementation of new electoral technologies** - in the context of our overarching shared pursuit of more effective, more transparent and trusted electoral processes and outcomes.

For decades, many have **hoped that technology would fundamentally revolutionize how elections are conducted**. Replacing traditional paper-based approaches with technology was believed would present a dramatic **improvement in the ease of voting, faster results with higher accuracy, increased transparency and public trust, and, importantly, lower cost**.

Unfortunately, **this promise has yet to be fulfilled.** In an overwhelming number of incidents, **electoral technologies have proven vulnerable to failure and security breaches, distrust by both contestants and voters, inflated cost, and to legal challenges**.

In recent years we have experienced massive security breaches of electoral systems throughout the world. As an example, you might recall what is today considered the largest government data breach which happened April 2016, affecting 55 million voters in the Philippines. Voters' data was widely distributed on both the normal and the dark web and included over 200,000 email addresses; 1.3 million passport data of overseas Filipinos; and, 15 million fingerprint records. Another illustrative example; in 2015 in Indonesia, a white hat hacker captured login information by phishing an election commissioner, penetrated key election systems, and proceeded to publicly educate and humiliate the EMB about their vulnerable systems. The examples go on and on, and obviously include the unfolding revelations of Russian interference in European elections. **By now it is blatantly clear that not only must we implement systems that are as well protected as possible, but also systems and methodologies that assume penetration, data theft, and even destruction, will indeed happen**. We no longer face a disgruntled teenager in a hoodie, hacking out of his parent's basement. **We face an industrial complex of government sponsored computer scientists, and elite hackers, working out of immensely well-resourced facilities. EMBs are no match for these, and besides, it is far easier to break into a house than it is to build it.**

Looking at this reality and the breaches themselves, there is a **distinct need to focus on the human element of technology security**: As Bruce Schneier of Harvard stated: "only amateurs attack machines; professionals target people". The massive attack on Google by China in 2009 was a result of phishing, which relies on human vulnerabilities in dealing with emails. **Technology systems are as vulnerable to human error as are manual systems, but humans may be targeted in new and more subtle ways when dealing with data systems in elections**.

In addition to actual vulnerabilities, electoral technologies are susceptible to misperceptions and suspicions, which can serve as powerful tools to delegitimize elections - a tactic that is increasingly being exploited by losing political contenders, and their high-paid sophisticated advisers, especially in closely

fought, high-stakes elections. **Many electoral institution struggle to manage that perception, today, is as important as is fact**.

Electoral management bodies are under enormous pressure to implement new technologies; by politicians, by civil society, by vendors, and by the misperception that progress, or being modern, equates to using cutting-edge technology wherever possible. Electoral leaders must resist these pressures and let good judgement, patience and common sense prevail.

At IFES, we sincerely believe that **electoral technologies can indeed significantly improve the quality of the electoral process, if wisely used to enhance traditional approaches**, **not as an immediate and wholesale replacement of these**.

We believe that **traditional paper-based approaches and electronic systems both have significant advantages and weaknesses. Used together, they mutually reinforce each other, leveraging the significant synergy between the old and the new**.

An EMB should be proud of its performance if able to deliver a well-organized election that is transparent and trusted. The technologies used to accomplish this is secondary. For example, an excellent election can be based on **traditional paper balloting, a well observed manual count and formal paper results, combined with secure electronic results transmission. Even better if, for example, pictures of hand-signed results forms, and associated digital results, in open data format, are immediately made available online for public scrutiny and extensive parallel vote tabulation efforts** - all of which increase the transparency and accountability of the process. **Today, the majority of mature democracies indeed hold effective and trusted elections with paper and pen, and this will only increase until we find better alternatives than are in sight today.**

Another fundamental problem is that the discussion, decision and implementation of new technology are too energy-draining for many EMBs who have limited time and resources. **Not only do many EMBs struggle to establish appropriate procedures and training for the new technologies, unfortunately, they also then neglect to maintain their primary traditional mechanisms. These two factors together create immense risks for their elections.**

The last decade has been sobering when it comes to the opportunities and risks associated with emerging electoral technologies. Now, more than ever, we believe that modernization has to be approached carefully. **All available options must be considered; not only through a careful examination of existing new technologies, but also exploring the option to create homegrown solutions that perform better in the national context - and, importantly, examining the pros and cons of adopting or strengthening existing and more manual approaches**. Many developed, high-tech democracies have recently reviewed their technology ambitions and decided to stay with or even return to more traditional approaches, most notably regarding paper balloting. Examples include Norway, Australia, Germany, Denmark and others.

At IFES we offer simple advice: **solid, patient management and excellent leadership when considering modernization - and the role that technology will play within this**.

When considering new technology, traditional aspects must receive particular attention. It took centuries to develop the processes and procedures that make the paper-based system transparent and trustworthy. Developing similar processes and procedures for new technologies is much more challenging, but we often neglect its importance. **Aspects of traditional approaches that deserve attention include:**

- **a comprehensive, clear and transparent legal and procedural framework;**
- **basic training and clear accountability;**
- **building trust through public information, education and interaction; and,**
- **inclusive and consultative system design, choice and implementation;**

Yes, we believe that **electoral leaders must demand a broader, more open, and careful deliberation of technology choices.**

EMBs should seek to change the optics when introducing technology into the electoral process from a "black box" into a "glass box". This means that there should be a public dialogue in advance to any decisions made about which part of the election process needs modernization. **Particularly, we have seen a need for a more open dialogue on procurement processes**. In far too many countries, the only information made available on procurement is merely to deflect charges of corruption or favoritism, rather than cease the important opportunity to truly involve and to educate relevant external stakeholders on the procurement process.

Adding to this, the fact that **involvement of vendors in itself presents a risk to both effectiveness and trust in EMBs and election processes**. The election technology business has become extremely competitive and permeated by questionable business practices; unrealistic promises, budgetary overruns and near enslavement of EMBs in webs of contracts and proprietary systems. **EMB must be alert to the profound need for ethical and well-managed vendor involvement, and also see this as fundamental to the security of their election**.

Secure and safe utilization of technology in elections is a multi-stakeholder responsibility. Parliaments and governments should dedicate significant care and attention to this, and make sure that changes are implemented properly and with due diligence. The IT community should be engaged in finding vulnerabilities, and then in designing ways to fortify these. Civil society should take a greater interest in this sphere and develop the technical skills to properly monitor and assess the environment. Additionally, practitioners and academics should work together to harness national and global experiences towards long term improvements in this field.

To inspire all of this, electoral leaders can insist that the introduction of new technology be subject to a multi-stakeholder, comprehensive, well-resourced feasibility study. Such a feasibility study can be structured in many ways. We, at IFES, have strived to capture the best practices from around the world in our **published methodology for feasibility studies**.

If anything, my presentation today may have shown how complex, misunderstood and risk prone the promise of modernization through new electoral technology is. **In order to assist EMBs to better study and analyze this conundrum, IFES, under our DATA project, will be adding a comprehensive and carefully curated list of election technology resources into a dedicated portal on ACE, the Electoral Knowledge Network practitioners' website**. This is to ensure there will be one updated portal where practitioners, academics and others can go for resources - for discussion on technology and data security in elections. **A preview of this resource list can be downloaded from this link**: **https://tinyurl.com/yap5jhxn.** We welcome suggestions for additions and comments on this resource!

In closing, knowing how much information has come your way, I hope that you may leave with **three key points** from my presentation:

- Electoral **technology is not a panacea**, but if chosen wisely, and combined with sound, proven traditional approaches, it can have a very positive impact;
- **Resist pressure** from external actors, especially from vendors and contestants, and carefully approach the notion of having to be "modern"; and,
- Control the process by tempering it within well mandated, deliberate, transparent and participatory **feasibility study**.

Thank you for your immense patience with me.

IFES and I hope that we can be of assistance to many of you in the years to come.