Chapter 2

Guidelines for Trialling E-Voting in National Elections

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2.1 Terminology

The current discourse on electronic voting and counting technologies is scattered with various terms and phrases — electronic voting machines, e-voting, e-enabled elections, remote voting, precinct count optical scanning, etc. This array of terminology generally relates to slightly different technological solutions. The field of election technologies related to voting and counting is a rapidly changing field and the conceptual framework for consideration is still emerging. Therefore, it is easy to find the same terminology being used in different ways in different countries or regions, adding to the confusion caused by this proliferation of terms.

When people tend to discuss electronic voting, they are generally referring to two separate but sometimes related technologies — electronic voting and electronic counting. The traditional paper-based voting system consists of a voter manually marking the paper ballot and the ballot being counted by hand by election officials.

In elections using electronic voting or counting technologies one or both of these processes are automated using an electronic device.

In electronic voting an electronic device records the voting preference of the voter. This voting device may be located at the polling station or a remote location; for example, a personal computer is used to cast a ballot over the internet or a mobile phone is used to cast a ballot via text message or SMS. In electronic counting an electronic device is used to count the ballots cast, whether paper or electronic.

Any combination of manual/electronic voting/counting is possible. A full electronic solution involves an electronic voting machine, remote or otherwise, directly recording the preference of the voter through a ballot interface (e.g., a touchscreen), electronically counting the votes received at the end of polling and providing these results to election officials. Partial electronic solutions are also available whereby paper ballots are marked manually but counted by machine (e.g., optical scan solutions) or an electronic device is used to create a printed vote which is placed in the ballot box and counted by hand or electronically.

The various technological solutions offered by electronic voting and counting technologies mean there are many options available for election administrators while considering the introduction of such technologies. Electronic voting and counting technology vendors offer different ways of implementing each specific technical solution. The variety of technologies offered might be one factor which has led to very different experiences in countries which have used and attempted to use electronic voting and counting technologies.

This chapter discusses the guidelines for trialling electronic voting solutions, but the procedures are equally applicable to electronic counting solutions.

2.2 Context for E-Voting

In many areas of modern life today, technology dominates. It is believed that technology is progress; progress is good and should, therefore, be embraced. An initial look at the field of elections may lead to a similar conclusion, with some countries embracing the adoption of technology in the field of elections. Others have taken steps away from using technology in the electoral process, the best example being the Netherlands which used electronic voting machines for many years before withdrawing their use on security grounds. In many countries the use and possible use of voting technologies elicits fierce debate between advocates and opponents of these technologies.

How are we to reconcile these very different approaches to the suitability of electronic voting technologies? For a country considering electronic voting technologies, which is the right approach and when is it advisable to proceed using these technologies? The answer is, of course, that there is no one answer. The factors which may

push one nation towards an electronic voting technology may not be present for another nation, or may indicate a different solution.

Furthermore, elections take place in a highly complex environment, at the meeting point of legal, cultural, political, logistical and environmental considerations. Even small changes can significantly affect the electoral process. In highly charged political environments like this there will always be those who see changes as suspicious, and wonder to whose advantage and to whose disadvantage the change will be.

In many ways election administrators have two major challenges when running elections. They need to deliver an election with integrity, which reflects the will of the voters, and also to deliver an election which the stakeholders believe has integrity. These are two very different challenges, and meeting one of these challenges does not guarantee meeting the other.

Any decision on whether to adopt voting technology has the possibility to affect either or both the integrity of the electoral process or the perception of this integrity, and therefore needs to be very carefully considered by decision makers. What is proposed in this chapter is a methodology for taking this decision. It is based on many years of experience in the electoral field across various election technology projects, and on the comments of other respected experts in the field.

At the core of this methodology is the application of a comprehensive feasibility study process, adapted to the electoral process and environment. It is important to note that feasibility studies take time to conduct. Countries wishing to consider the use of electronic voting technologies should expect the process to take years rather than months, and this is entirely appropriate given the complexity of the electoral process and the need to adequately assess and consult on these technologies. Any attempt to short cut the deliberation process may result in adopting a technology that does not suit the electoral context in question or in taking a decision without the support of key stakeholders.

The feasibility study methodology proposed here has four stages. Initially there is a largely desk-based study about the suitability of the voting technology from the perspective of the technical feasibility — the advantages likely to be achieved, the financial feasibility and the likely reaction from the stakeholders. If this recommends further investigation into the use of voting technologies then the next stage is to set the parameters for the conduct of a pilot project to trial the technology. Once these parameters are in place the pilot project can be conducted, and fully assessed afterwards. Then a final decision on the adoption, or non-adoption, of the technology can be taken. These four stages will be fully outlined later in the chapter, after a brief summary of international electoral standards that apply to electronic voting.

2.3 International Electoral Standards

When considering a change in any sort of system, especially an important one such as a voting system, it is vital that the underlying standards by which different systems can be judged are kept in mind. There are a number of different approaches to the

challenge of judging electoral processes. In recent years, opinion appears to have coalesced around the concept of international electoral standards as defined by public international law [266].

Public international law based electoral standards are well elaborated in documents issued by the United Nations [241], the European Commission [167], the Organization for Security and Cooperation in Europe [243] and the Venice Commission [165]. The way these electoral standards are categorized by the different institutions is not exactly the same, but it does illustrate a common understanding of the content of international electoral standards. Drawing directly from the wording of Article 25 of the International Covenant on Civil and Political Rights (ICCPR), the core of these international electoral standards can be defined as the following:

- **Fair Elections (without any distinctions)** – Elections should be conducted so as to ensure equal conditions for participation in the electoral process for all eligible candidates and voters, irrespective of gender, religion, ethnicity, political affiliation, language, literacy or disability.
- **Genuine Elections** – Elections must be held for institutions which have authority, must be conducted in a credible manner, must present voters with real choices between candidates for election, with the results of elections representing the will of the people.
- **Periodic Elections** – Elections must be held frequently enough to ensure that governmental authority continues to reflect the will of the people and that there is regular opportunity for the voters to change government.
- **Universal Suffrage** – Legal and operational limitations on access to candidacy or the right to vote must be minimized and must not be discriminatory in nature, except where such limitations are reasonable or necessary.
- **Equal Suffrage** – Voters should each be provided the same number of votes in each election being conducted and electoral districts should be reasonably equal in size so that each vote cast has a similar weight.
- **Secret Ballot** – In order that voters be able to freely express their electoral preferences in the absence of intimidation, the ballot should be completed in private and it must not be possible to link a voter to a voting preference.
- **Free Elections** – The electoral environment must be such that information on electoral contestants can be made available to voters, informed discussion about electoral options can take place and voters are able to make electoral choices without intimidation.

These political/electoral rights and standards do not operate in a vacuum. In fact political rights work in parallel with other human rights and a healthy electoral environment relies on the realization of these broader human rights. Human rights relevant to the conduct of elections include the rights to freedom of expression, freedom

of information, freedom of assembly, freedom of association, freedom of movement, to non-discrimination and to self-determination (ICCPR).

Transparency is also an essential component for a credible electoral process. The requirement for transparency is derived in part from some of the human and political rights standards outlined above, such as the right to information and that elections are credible and conducted in a free and fair manner. It is also based on other international standards, such as anti-corruption standards, which require public affairs to be conducted in a transparent manner [561].

The international electoral standards outlined above are equally relevant for the use of technologies to assist the processes of voting and counting, as clearly stated in the Council of Europe's 2004 Recommendation on Legal, Operational and Technical Standards for E-voting, which states:

> "e-voting shall respect all the principles of democratic elections and referendums" [428].

Increasingly, the use of new technologies for voting is fundamentally changing the way these components of the electoral process are conducted. As a result, the use of technologies for voting is also challenging this body of international electoral standards.

Some of these standards are no longer adequate to deal with electronic voting technologies. Other technology-related operations are not covered at all by the existing set of standards. For example, it is clear that the use of electronic voting technologies will have little or no impact on the right to freedom of movement or freedom of association. However, other standards such as the secrecy of the vote or the fairness of the electoral process may be significantly impacted by the use of such technologies.

As a result, there have been initiatives in recent years to evolve these international electoral standards in order to cope with the challenges of using voting and counting technologies. The Council of Europe's 2004 Recommendation on Legal, Operational and Technical Standards for E-voting [428] did much to set the agenda for this adaptation of existing standards for electronic voting technologies. The Council of Europe has followed up this recommendation with the publication of an e-voting handbook [128] presenting guidelines for implementing e-enabled elections and guidelines on certification and transparency for e-enabled elections [430]; [431]. In 2006 the European Commission also published a report titled Methodological Guide to Electoral Assistance, which covers support for the introduction of election technologies, including electronic voting technologies and the standards that might be applicable in their use [166].

The OSCE's Office for Democratic Institutions and Human Rights [242]; [244]; [240], the Organization of American States [432], The Carter Center [137] and the National Democratic Institute for International Affairs [470] have also approached the issue of standards for electronic voting technologies from the perspective of observing elections in which these technologies are used. Elections using electronic

voting technologies are inherently less transparent than paper-based elections, as electronic events take place which cannot be observed with the naked eye [244]. This makes it more difficult to determine the credibility of the electoral process and whether any fraud or mistakes have taken place in their conduct. In fact leading experts in the field of e-voting argue that the lack of transparency with electronic voting systems is the greatest challenge facing the implementation of such technologies [354].

As a result, the use of electronic voting technologies has presented particular problems for organizations attempting to observe and evaluate the conduct of elections. Publications by these leading election observation organizations are consequently highly relevant to the debate on emerging standards for the use of electronic voting and counting technologies.

In analyzing these important publications it is clear that some trends are emerging in the recommendations being made by all of these organizations about the conduct of elections using electronic voting technologies. Common themes can be seen in the following areas:

- **Transparency** – Transparency is related to many of the more specific emerging standards below, but is important enough to merit discussion separately. Transparency is a general electoral standard, but one which is particularly challenged by the use of electronic voting technologies. Special focus needs to be placed on the realization of transparency while using these technologies. This means that as much as possible of the operation of the process using electronic voting technologies is transparent or observable [428]; [432]. However, access should be provided for observers in a manner that does not obstruct the electoral process [470].

- **Public Confidence** – Closely related to and relying heavily upon transparency, is the requirement that voters understand and have confidence in the electronic voting technology being used [428]. Public confidence requires that stakeholders are involved in the introduction of electronic voting technologies [137], are provided information so they understand the technologies being used [428]; [432], simulations of the systems take place [470] and voters are informed well in advance about the introduction and what is required to participate [428]; [244].

- **Usability** – Electronic voting technologies must be easy to understand and use for as many voters as possible [428]; [244]; [432]. Users (voters) should be involved in the design of electronic voting technologies [428] and in public testing [244]. Furthermore, these electronic voting technologies must try to maximize the accessibility of the voting system for persons with disabilities [428]; [244]; [432]; [470] and afford voters the possibility to stop and cancel their vote before confirmation of their choice [428]; [244].

- **System Certification** – Electronic voting technologies must be certified by an independent body before use and periodically thereafter. This ensures the system continues to meet the requirements of the electoral jurisdiction as well as the technical specifications for the system. Furthermore, the certification process should be conducted in a transparent manner providing electoral stakeholders access to information on the process [428]; [244]; [470]; [137].

- **System Testing** – Any electronic voting system should be subjected to a comprehensive range of testing before it is approved for use by an EMB [428]; [244]; [432]; [137]. This testing should take place transparently and with access for political actors [432]; [470].

- **System Security** – The opportunities for systematic manipulation of the results mean that system security needs to be taken extremely seriously. Security measures need to be taken to ensure that data cannot be lost in the event of breakdown, only authorized voters can use an electronic voting or counting system, system configuration and results generated can be authenticated and only authorized persons are allowed to access electronic voting, counting and results management functionality [428]; [137]; [432]. Attempts to hack into electronic voting machines or the election management system into which results are received, need to be detected, reported and protected against [244].

- **Audit and Recount** – Electronic voting technologies must be auditable [428]; [244]; [432] so it is possible to determine whether they operated correctly. It must be possible to use an electronic voting system to conduct a recount [428]; [244]. Such recounts must involve meaningful manual recounts of ballots cast electronically [244] and not merely a repetition of the electronic result already provided [470].

- **Voter Verified Audit Trail** – In addition to the above requirements for auditability in any electronic voting system, it must also be possible to assure voters that their votes are being counted as cast [137] while also ensuring that the secrecy of the vote is not compromised [244]. This requires that electronic voting systems create an audit trail which is verifiable. It should provide the voter with a token/code with which to perform the verification externally and not show the way in which the vote was cast. The most common solution to this for in-person electronic voting machines is through the production of a VVPAT, and this solution is emerging as a standard in this regard [244]; [470]. It should be noted that this VVPAT solution is not appropriate for remote electronic voting which uses electronic voting machines (e.g., internet voting, text message voting, etc.) as there would be nothing to stop a voter from removing the paper record of the vote, making vote buying and voter coercion possible.

- **Mandatory Audit of Results** – The existence of an audit trail for electronic voting systems achieves little if it is not used to verify that the electronic results and the audit trail deliver the same result. Doing so also serves to build public confidence in the operation of the electronic voting technologies. A mandatory

audit of the results generated by electronic voting technologies should be required by law and take place for a statistically significant random sample of ballots [429]; [244]; [470].

- **Secrecy of the Ballot** – The secrecy requirement is not a new standard but it is one that is made more difficult by electronic voting technologies. This is especially the case for remote electronic voting systems where voters have to first identify themselves and vote electronically using the same interface. The use of electronic voting technologies must comply with the need for secrecy of the ballot [428]; [244]; [137]; [432].
- **Incremental Implementation** – Whenever electronic voting technologies are introduced they should be deployed in an incremental manner and should start with less important elections. This will allow public understanding and trust to develop in the new system, and provide time to deal with problems and resistance [244]; [137].

It is far too early at this stage to say that international standards have completed their evolution in order to adapt to the challenges posed by electronic voting technologies. Nevertheless, the trends that can be seen in these emerging electoral standards for the use of electronic voting technologies should be carefully considered as any new technology is assessed.

2.4 Decision in Principle

The "decision in principle" is the first stage in the feasibility study process. This critical stage aims to identify the objectives that are sought through the introduction of new technology before measuring available technologies against these objectives. Establishing this foundation, the agenda for change, first and foremost will do much to ensure that a well-considered decision is initially taken as to whether electronic voting technologies can meet the requirements of the elections in question. The issue of cost will also be addressed in this stage. This issue determines whether the technology is feasible from a financial perspective and whether the benefits to be obtained from the technology are sufficient to justify additional costs.

All the components identified in this stage are seen as important in reaching a decision in principle on the feasibility of electronic voting technologies. Other issues, specific to the electoral context, may be included for consideration. There is logic to the order in which these components are listed. The suggestion is that this order be roughly maintained while implementing this stage of the feasibility study. Components later in this stage are more productive if preceded by the earlier ones. However, the components of the decision in principle may need to be adapted to the specific electoral requirements being considered.

2.4.1 Decision in Principle Foundations

There are a number of building blocks to a well-constructed feasibility study process that should be clearly established at the start of the process.

2.4.1.1 Feasibility Study Mandate

It is critical at the outset of the feasibility study that the mandate of the study is clearly defined by the authority which initiated the feasibility study. This mandate should clearly outline the purpose of the study, the organization of the project, the timeline for the study, and the outputs of the study.

- **Purpose** – The objectives the study intends to meet need to be clearly identified, specifically the kinds of technologies that it is meant to address. A clear definition of the technologies to be addressed will have significant impact on the conduct of the feasibility study.
- **Feasibility Study Project Organization** – Management of the feasibility study will need to be entrusted to an organizational unit which plans and oversees the process. Often a Feasibility Study Committee will be established for this purpose.

  Including multiple stakeholders in the Feasibility Study Committee is an advantage because these voting technologies straddle the boundaries between legal, technical, social and political considerations. The Election Management Body (EMB) will need to be part of the Feasibility Study Committee since they will have a unique perspective on the possibility of implementing voting technologies. Information technology, government stakeholders, political party representatives, election-related civil society organizations (e.g., domestic observer organizations), organizations providing election technical assistance to the EMB, technology institutes and parliamentarians might all be considered for membership of the Feasibility Committee.

  A balance will need to be found between including stakeholders in the Feasibility Study Committee process and the effectiveness of the Committee.
- **Timeline** – An indication should be provided to the Feasibility Study Committee as to how long it should be before they report back to the mandating authority on their findings. A suitable amount of time should be provided for the study. A minimum of six months is required for a suitably comprehensive decision in principle to be reached. The later stages of the feasibility study could take years to complete as electronic voting technology specifications are developed, pilot machines procured and tested, legislation amended, procedures developed, training and voter education delivered, post-pilot consultations conducted and follow-on pilot projects implemented.

- **Format of Report and Recommendations** – The mandate of the feasibility study should also indicate the recipient and the format of the report from the Committee on the decision in principle. The report may be required to provide recommendations on whether to proceed with piloting electronic technologies, on the most appropriate technology, specifications for the technologies recommended, a plan and timeline for proceeding with pilot testing, the budget for piloting and full adoption of the recommended technology, etc.

2.4.1.2 Vendor Relations

A dialogue with vendors is an essential part of any feasibility study. Information is required from the vendors about the technologies in order to understand the products which are currently available on the market. The information initially provided by vendors may leave many questions unanswered. This will require further clarification from the vendors. Through the course of the feasibility study the requirements which these technologies are being measured against may evolve, necessitating follow-on requests to vendors to see if they can still meet these changing requirements.

Many countries have clear regulations defining the way in which public institutions can communicate with companies which are, or may be, likely to submit tender proposals. The Feasibility Study Committee needs to ensure it understands any procurement and vendor relations regulations before it determines its communication strategy with vendors. It is suggested that one point of contact be established for the Committee's contacts with vendors. This point of contact (POC) should, to the extent possible, ensure that the same information is provided to all vendors. The POC may consider having the Committee approve all communications with vendors.

2.4.2 Feasibility Study Committee Working Groups

A comprehensive feasibility study needs to investigate the use of electronic voting technologies from a range of perspectives and deal with complex technical issues requiring the input of specialized personnel (e.g., lawyers, IT experts and communications specialists). Therefore, it may make sense to divide the work of the Feasibility Study Committee into several working groups where specialized personnel can be called.

The list of issues below represents the minimum key issues that should be addressed by the Feasibility Study Committee. Separate working groups need not be created to deal with each of these issues. It may be possible for one working group to cover several issues.

2.4.2.1 Issue 1 – Assessment of the Current System of Voting and Counting

A key component of any feasibility study on the use of electronic voting technologies will be to determine what the objectives are in changing the current system. Only by

fully defining this will it be possible to determine if the available solutions can meet these requirements and whether it is feasible to implement them for the elections in question.

Answers to a number of questions need to be fully understood at the outset, including: What are the strengths and weaknesses of the current system? Can some weaknesses be addressed through reform of the current system, and what would be required to do so? What improvements are not possible to achieve through reform of the current system?

Answers to these questions are fundamental to the entire feasibility study, as they identify the challenges in the current system and the objectives for any change. The other issue topics build upon these findings.

2.4.2.2 Issue 2 – Assessment of the Advantages and Disadvantages Offered by Voting Technologies

Even if a significant agenda for change is identified, using electronic voting technologies may not be the solution. It is also important to recognize that using such technology presents new challenges to the conduct of elections.

Consideration of this issue will consist of two aspects, a general assessment in principle of what technology has to offer in terms of electronic voting technologies and an assessment of the solutions currently offered by a range of vendors. In order to do this, electronic voting technology vendors will need to be contacted and asked to provide information on their current products.

Consideration of this issue will need to address questions such as: What advantages and disadvantages does electronic voting offer compared to the current balloting systems? Are there external infrastructure requirements (such as power, communications, etc.) and resource requirements within the EMB that would be essential in implementing electronic voting, and do these currently exist? If not, what is required to provide the necessary infrastructure and resources? What would be the requirements a new electronic voting system would need to fulfill in order to meet the objectives for change identified? What specific challenges would the EMB face in implementing electronic voting?

Consideration of these questions forms a critical component of any feasibility study. It is essential that sufficient thought is given to these issues as failure to do so could fundamentally affect the success or failure of any technology project. Of particular importance is the development of a set of requirements that electronic voting would be required to meet. If this is not properly defined then the solution recommended by the feasibility study may not be appropriate for the electoral process.

2.4.2.3 Issue 3 – Review of IT Security Aspects

System security is an incredibly important feature of electronic voting technologies. These technologies are inherently less transparent than the use of paper ballots, where

all steps in voting and counting are observable. If an electronic voting or counting system is to be properly trusted by electoral stakeholders it is important that the security challenges presented by the use of the technology are understood. Mechanisms should be in place to mitigate these security challenges and any security breaches should be easily identified.

There are a number of questions that need to be considered by the working group on this issue: Will the source code for the electronic voting or counting technology be open source or not? How will the source code be tested and certified? How will it be verified that the source code used for the conduct of elections is the same as the one tested and certified? What mechanisms are in place to ensure that the new system is protected against tampering? If results are electronically transmitted from electronic voting machines to a regional or central tabulation facility, how will the results be encrypted to ensure there is no unauthorized access or modification to the results?

The working group addressing these technical issues will need to make sure that it is able to clearly articulate the results of the discussions around these issues to the Feasibility Study Committee. This will be very important in order to provide technical requirements to the working group dealing with issue 2 above. It will also help define the technical components of any later procurement process and ensure any legal amendments properly address the technical issues discussed and agreed upon.

2.4.2.4 Issue 4 – Determining Technical Feasibility

Once a set of requirements for a possible electronic voting solution has been defined it will need to be determined whether products exist, or could be developed, which meet these requirements. A full consideration of this issue obviously requires information on current products. This information should be provided by vendors of electronic voting technologies. In order to avoid any bias in terms of which vendors are contacted, clear criteria for contacting vendors should be drawn up and all vendors which meet these criteria should be included in the process.

Once information has been received from a suitable number of vendors, each recommended product should be measured to see the degree of compliance with the set of requirements. This analysis of electronic voting technology products against the requirements will determine whether the use of these technologies for the elections in question is technically feasible or not.

If the result of this analysis is that no electronic voting technology products are found which meet the set of requirements, and therefore the needs of the elections in question, then a number of options are available.

Firstly, the requirements might be reconsidered to see if they were too demanding, and if a less demanding set of requirements might still suffice. Secondly, additional suppliers might be contacted to see if they have voting solutions which meet

the requirements. Finally, suppliers could be approached to see if they could develop a new product that meets the requirements.

It may be that all these options fail to provide electronic voting technology products which meet the requirements identified in the feasibility study. In this case, the Feasibility Study Committee would conclude that electronic voting technologies on the market do not meet the needs of the electoral situation.

Finding that using electronic voting technologies for elections is not feasible is not a failure for the study. In fact, if the previous steps in the study are conducted comprehensively then the study will lead to a well-defined set of requirements for an appropriate electronic voting technology solution. This set of requirements will remain valid and can be used to reassess, on a periodic basis, any newly developed products.

2.4.2.5 Issue 5 – Cost Benefit Analysis

Should an electronic voting solution, or solutions, be found which meet the requirements then a further assessment will need to be made as to whether the implementation of these solutions would, on balance, be beneficial and cost effective.

There are two components to this analysis. Before the analysis can be conducted a limited number of electronic voting solutions will need to be selected for cost benefit analysis purposes, as the process is quite complex to conduct. The best electronic voting solution and the cheapest solution, which still meets the requirements, should be selected. Another electronic voting solution which is mid range in terms of cost and in terms of meeting the requirements could also be selected.

The first step is to identify the benefits that each solution provides compared to the current system of balloting. Similarly a list of disadvantages/challenges associated with each solution should be identified. The comparison of these two lists of advantages and disadvantages of the different electronic voting solutions will show the overall benefits of using each solution.

There is no predefined formula involved in this assessment of beneficiality. It could be that there are many disadvantages involved in using an electronic voting solution and only one benefit. However, that benefit could be of such critical importance that it would still support the introduction of electronic voting technologies. In addition, the importance attached to each advantage and disadvantage will be determined by the particular electoral circumstance. Therefore this analysis of advantages versus disadvantages is something that can be done in a committee format, but is probably something that should be consulted on very widely among internal and external electoral stakeholders to ensure there is consensus on the recommendations resulting from this assessment.

The second stage of this cost benefit analysis requires a comprehensive cost analysis of the technology and a comparison of costs associated with using this tech-

nology vis-ā-vis the existing system of balloting and counting — likely paper-based voting.

A key component of this cost analysis is to recognize that the costs associated with using electronic voting technologies should not be considered solely on the basis of the initial investment but over the life cycle of the voting machines and systems. This means that the first election using electronic voting might be extremely expensive, but later ones much less so as the technology is reused.

It is also vitally important that all of the costs associated with the current system and any proposed electronic voting system be understood and factored into the comparative cost calculation. This means not only the cost of purchasing the electronic voting technology, but also its maintenance, storage, transportation, etc. Likewise, all of the costs associated with paper balloting need to be considered, not just the printing of ballots, but their transportation and storage, replacing ballot boxes and voting booths, destruction of ballots at the end of the process, etc.

A proper cost comparison of the current system versus an electronic voting system will need to calculate all of the associated costs of elections over the life cycle of the voting technology (likely somewhere between 10 and 20 years). The cost implications over this period will then need to be considered alongside the assessment of the advantages/disadvantages of each system.

It is likely that the "balance sheet" will be very mixed. There may be a significant additional cost involved in using electronic voting technologies but some important benefits resulting as well as some potential problems. It will be up to the Feasibility Study Committee to decide whether the benefits to be realized by using electronic voting technologies are sufficient to justify any additional expenditure and make its recommendation accordingly.

2.4.2.6 Issue 6 – Institutional Capacity

A critically important issue for the working groups to consider is whether the institutional capacity exists to implement electronic voting technologies. This issue does not only relate to the EMB, but also to other bodies which would support the conduct of elections using these technologies.

A number of key areas should be considered in order to reach this assessment:

- The EMB will need to be organizationally strong enough to effectively manage the complex technical, IT and logistic challenges presented by implementing electronic voting.
- The EMB's training division will need to be strong enough to communicate the procedural changes necessitated by using electronic voting machines to all staff who will implement them.
- Staff working in polling or counting centers will have to be sufficiently IT literate to operate voting machines.

- Strong voter education mechanisms will need to exist to educate voters on how to use the electronic voting system.
- The independent certification of electronic voting and counting technologies is a very important aspect of building trust in the new technologies, and there should be independent capacity to conduct this testing and certification.

It may be that in assessing institutional capacities required for successful electronic voting projects, some or all of the assessments may state that the capacity does not exist. This will need to be added into the overall consideration of the decision in principle. However, a negative assessment of the capacity on any of these aspects of institutional capacity need not be an insurmountable obstacle. It may be that the capacity does not currently exist, but could be developed by certain strategies. Where this is the case any insight into possible strategies to develop the required capacity will represent important additional recommendations from the working group.

2.4.2.7 Issue 7 – Legal Reform Issues

The final issue for consideration concerns the possibility for using electronic voting technologies under the existing electoral legal framework. It may well be that the existing electoral legal framework makes reference to physical ballot boxes and ballot box seals, to actual ballot papers and the ways in which ballots are counted and adjudicated. Obviously processes do not occur in the same way with an electronic voting machine. The working group needs to assess whether it would still be in compliance with existing law.

The working group dealing with this issue may wish, and may be advised, to take a more comprehensive look at the legislation governing elections and how it would relate to the implementation of an electronic voting technology. Merely adapting the existing legislation so it does not preclude the use of voting technologies is not sufficient to properly regulate the use of these technologies.

Proper legislation and regulations governing the use of electronic voting will need to cover issues such as certification requirements, system and ballot security, transparency and audit mechanisms, dealing with audit discrepancies, challenges and disputes, and recounts.

The process of legal amendments may be a lengthy one, therefore, if legal changes are required in order to use electronic voting or counting technologies then it is prudent to start the process as early as possible, based on the findings of the working group.

2.4.3 Study Trips

The Feasibility Study Committee may consider the possibility of conducting one or more study trips to see other countries which have used or are using electronic

voting technologies. It would make sense to visit countries which are implementing technologies of interest to the Feasibility Study Committee.

Any study trip should meet with a range of stakeholders, including the EMB, the technology provider, political party representatives, civil society representatives, voting activists and domestic election observation organizations. The study trip should seek to address the following issues:

- Types of technologies that have been or are being used.
- Process followed in taking a decision to adopt the technology.
- Stakeholder opinions on the advantages and disadvantages of these technologies.
- Challenges presented by using the technologies, and the ways in which these challenges had been met.
- Country specific factors which led to the success or failure of using these technologies.

The study trip should result in a formal report outlining the findings on all of the above issues.

2.4.4 Vendor Demonstration

There is only so much that can be revealed about a system by reading technical specifications and marketing materials about electronic voting solutions. A fuller understanding can only be achieved by seeing electronic voting technologies in action, initially through a demonstration. The demonstration environment allows for a detailed discussion between the Feasibility Study Committee and the vendors about the ways in which their products work, or could be adapted to work. Again it is important that a wide range of vendors are invited to present their products at the demonstration so any perception of favoritism in the process is countered.

It is recommended that participation in any vendor demonstration be widened to include representatives from political parties and civil society. These are important stakeholders in the electoral process; providing them access to the vendor demonstration will help their understanding of recommendations made by the Feasibility Study Committee. It also means that consultations held with these stakeholders can take place from a more informed starting point.

The timing of the vendor demonstration in the process of the feasibility study is important. If held too early in the process, the Feasibility Study Committee will not be sufficiently informed about the relevant issues.

2.4.5 Stakeholder Consultation

As identified earlier, it is essential that stakeholders participate in the feasibility study process so they can understand the work of the Feasibility Study Committee. Their participation also ensures they have the opportunity to present their opinions and concerns about the possible use of electronic voting technologies. This inclusion and openness is more likely to lead to acceptance of the resulting recommendation by the Feasibility Study Committee and should ensure that those recommendations take into consideration a wide range of perspectives in the use of electronic voting technologies.

At a minimum, consultation should be conducted with political party and civil society representatives, especially domestic observer organizations. However, this consultation could also be extended to key media representatives, political science institutes, government stakeholders, international election observers and technology industry leaders.

2.4.6 Decision in Principle

The decision in principle will be a result of considering all the issues outlined above — technical feasibility, beneficiality, financial feasibility and stakeholder acceptance. These various findings will have to be balanced against each other in order to reach the decision in principle.

If electronic voting technologies are found to be technically feasible and supported by stakeholders then the decision in principle may be that there should be no further steps to implement if the benefits to be achieved are not sufficiently greater than the disadvantages or the cost is too excessive or does not justify the expected benefits.

Even if the technologies are technically feasible, provide significant benefits over the existing system and are not excessively expensive, the decision may still be taken to not proceed if there is significant stakeholder concern or resistance to the introduction of these technologies. While it is not impossible to implement such technologies without the support of key stakeholders, to do so would be a risky strategy potentially leading to a wasted investment in electronic voting technology.

The Feasibility Study Committee will need to assess other less tangible costs and benefits, such as public and political perception. The Committee may need to consider both change management and risk management strategies in order to address issues identified during such an assessment.

Ultimately the decision in principle is a very difficult one to determine and a range of factors need to be considered by the Feasibility Study Committee. It should be recognized that to take an affirmative initial decision in principle does not commit the EMB to anything at this stage. The next stages in the feasibility study process are

experimental. Therefore, a decision to proceed to these next stages does not mean that a decision has been made to fully implement the technology.

Whatever decision is reached at this stage of the feasibility study it will be important to ensure that the reasoning behind the decision is clearly elaborated by the Feasibility Study Committee, including any assumptions. This ensures that even if the decision in principle is to not proceed with investigating the use of electronic voting technologies, the work invested in the feasibility study can be used in the future as a starting point for reconsideration if requirements, financial considerations or electronic voting products change.

Should the Feasibility Study Committee decide there is sufficient reason to continue its consideration of using electronic voting technologies, then it will need to recommend that a pilot project be conducted and clearly define the mandate and parameters for this pilot. There are, however, a number of prerequisites that need to be in place before the actual pilot can be initiated.

2.5 Pilot Project Prerequisites

It is important to recognize there are certain issues that need to be addressed before any pilot project can be initiated. Other prerequisites are essential if the pilot is to be as effective as possible. These issues are fundamental to the way in which the pilot project is planned and conducted and should be established before this pilot process starts.

2.5.1 Pilot Project Mandate

Any pilot project conducted needs to be provided a clear mandate. There are a number of issues that will need to be defined to provide this clear mandate — the type of pilot project to be conducted, pilot locations, technological solutions that should be piloted (single solution or multiple solutions) and the issues that need to be explored in detail through the pilot.

2.5.1.1 Type of Pilot

The type of pilot can vary in a number of different ways and situations. Options in this regard are as follows:

- **Mock Pilot** – Electronic voting technology solutions could be piloted in an entirely different electoral situation, a mock electoral situation outside of the normal electoral process.
- **Parallel Pilot** – Electronic voting technologies could be piloted alongside an existing voting process such that all voters cast their ballots as normal using the existing system and then have the chance to cast a mock ballot.

- **Optional Pilot** – Electronic voting technologies could be piloted alongside the existing voting process, with voters having the option to either use the existing system or the electronic voting system.
- **Compulsory Pilot** – This type of pilot exclusively uses electronic voting technologies for selected members of the electorate. These voters would have to cast their ballots using the technology and these votes would provide part of the overall result.

The kinds of people who would participate in the pilot would vary with the different types of pilot, and it is important that whichever option is selected will ensure that a good cross section of voters participate in the pilot.

Clearly the best option for obtaining a definitive assessment of how the general electorate responds to using electronic voting technologies is where a section of the electorate is required to use the technology being piloted and is not able to opt out. This kind of pilot ensures that real electoral conditions occur. However, this is also risky. If the electronic voting solution being piloted is defective in some way or is seen to favor some of the electorate over others, then its compulsory use could be challenged in the courts at a later date. A successful challenge could call into question the validity of the election result in which the pilot was conducted and possibly require a repeat election to remedy the situation — for example, an electronic voting pilot in Finland was challenged and had to be re-run (Council of Europe 2010, 20 [429]).

2.5.1.2 Pilot Locations

The mandate will need to define the scale of the pilot to be conducted, in terms of number of locations that it will be held in, and some parameters as to where these locations might be.

It is advisable that electronic voting technologies be piloted in multiple locations, so that a cross section of the electorate can test the use of the selected technologies. This will require that consideration be given to the different kinds of voters that should be provided the opportunity to test the use of the electronic voting technologies. For example, only testing electronic voting technologies in urban locations would not be advisable as rural voters may have a very different reaction to using these technologies.

It may well also be that there is a range of environmental factors in which electronic voting technologies need to be tested, and therefore pilot locations will need to be selected accordingly. Initial pilots may also be chosen for constituencies/areas which are not contentious politically so as to avoid politically charged scenarios and allow trust to build in the pilot technologies. If the situation permits, a pilot could be conducted first in a single location to primarily test the EMB's ability to cope with the new process, procedures, training, voter education and logistical require-

ments. Subsequent pilots could be conducted at a number of locations representing a broader variety of the electorate.

Piloting remote electronic voting solutions, such as internet voting, may require a different approach to selecting pilot participants. The selection of participants for a remote electronic voting pilot may be limited by voter identification mechanisms that the remote voting system would utilize. Or the remote voting solution may be targeted at a specific section of the electorate, such as voters abroad, indicating that this entire group should take part in the pilot project.

2.5.1.3 Solutions Being Piloted

The decision in principle may indicate that one electronic voting solution best meets the needs of the electoral process. This does not mean that it has to be the only solution piloted. Likewise, if a specific type of technology is being piloted, then this does not mean that several other solutions cannot be tested as part of the pilot.

The mandate may indicate which specific technology is to be piloted and if a range of solutions or a single solution is to be piloted. It is recommended that more than one electronic voting solution be piloted. This is important if this is the first time these technologies are being investigated, allowing for greater understanding of the various systems. Where the solutions to be piloted have not been made clear in the mandate, this needs to be determined at an early stage of the pilot project management process.

2.5.2 Legislation

The process of taking the decision in principle should have identified if the existing electoral legal framework permits the use of electronic voting technologies, or whether changes are required to allow their use. If existing legislation does not allow the use of electronic voting technologies then the types of pilot identified above (optional or compulsory) will not be possible until legislation is changed to allow these technologies to be used.

Where legislative changes are required, they can be temporary in nature for a specific election or permit the piloting of new technologies on an ongoing basis. The latter approach provides maximum flexibility for the pilot process and means new legislation does not need to be passed for each election in which a pilot takes place. However, changing electoral legislation so that pilots can be conducted at any time could be seen as an invitation to use electronic voting technologies at the discretion of the EMB, and this may not be desirable.

In addition to legislative changes required to allow the use of electronic technologies, it is almost certain that electoral regulations will need to be changed. In most electoral jurisdictions these regulations are passed by the EMB, so changing

them is less problematic than changing electoral legislation. It is still essential that the regulations be amended to facilitate the use of electronic voting technologies.

2.5.3 Electronic Voting Technology Specification

The steps conducted during the decision in principle process will help the Feasibility Study Committee, and the EMB, to ensure that any electronic voting technology pilot process is driven by the actual needs of the electoral process. The requirements, previously defined, will be central to drafting a comprehensive request for proposal for the electronic voting technology procurement process. The request for proposal will need to identify the technical specifications which a solution must comply with for it to be considered and also request information on other product and support related issues relevant to the bid selection process.

The technical specification will need to provide the following parameters for vendors to comply with:

- Type of electronic voting solution for which quotes are being requested (e.g., electronic voting, electronic counting, remote voting solutions, etc.).
- Scale of the pilot, including number of locations, number of voting machines required, scope of any remote voting pilot and number of registered voters the pilot will need to accommodate.
- Details of any audit and integrity mechanisms required.
- The electoral systems that need to be accommodated by the electronic voting technology.
- Requirements for coping with multiple languages and scripts.
- Details of any environmental conditions the electronic voting hardware would have to be able to deal with, including independent power requirements and extremes of heat, cold, humidity and dust.
- Security requirements for the electronic voting technology.
- Services that will be required from the vendor during the conduct of the pilot project in addition to delivery of the electronic voting solution (e.g., project management services, configuration, training and service support during the voting period in the pilot).
- Anticipated delivery times for all services and goods to be provided.
- Project management arrangements that would be put in place by the vendor to coordinate pilot project implementation issues.

Additional information will also be required for the selection process such as information not directly covered by the requirements for change. This information may relate to basic functionality of the electronic voting system, or functionality that all systems will have but will likely be implemented differently on each machine. This information includes issues such as intellectual property rights, election management systems, safety and security features, audit and integrity mechanisms, results transmission mechanisms, maintenance requirements and life expectancy of hardware.

In addition to the information sought in this request for proposal, vendors who submit proposals should be required to commit to implementing their solutions during the pilot in accordance with good practice for the conduct of elections.

2.5.4 Pilot Project Funding

The conduct of a pilot project will entail a number of costs, the least of which may be the procurement of any electronic voting equipment itself. A budget will need to be developed for the conduct of the pilot project. The budget will depend a lot on the scale of the pilot being recommended, and can draw heavily on the costs identified by the working group looking at the financial aspects of using these technologies.

It may be that the budget for the pilot project will be drafted at the same time that the decision in principle to proceed with a pilot is taken. It should almost go without saying that the process of implementing a pilot project cannot start before the budget required to conduct the pilot has been secured.

2.6 Pilot Project

Piloting electronic voting technologies is a way of testing many of the assumptions and conclusions reached during the process of reaching a decision in principle. This includes a practical assessment of actual benefits and disadvantages in using the piloted electronic technologies, the actual costs involved in implementing these technologies and the suitability of the list of requirements developed for electronic technologies. The pilot will also allow the Feasibility Study Committee to assess issues which could only be guessed at during the decision in principle stage of the process, including the ability of voters to properly use the new technology.

A good pilot will need to take into consideration the following issues.

2.6.1 Managing the Pilot Project

Implementation of an electronic voting technology pilot project is an incredibly complex task. It requires a good project management structure to ensure that it is planned effectively and that timelines and objectives are continuously monitored and

amended as required. The implementation of the pilot will require a lot of components of the EMB to work effectively together, calling for significant commitment from the EMB to deliver on the various aspects of the project.

Successful management of the pilot will require a Pilot Project Committee, with representatives of all the major EMB functions and possibly also representatives from outside of the EMB. It will also require a dedicated project manager to work full time on the day-to-day management of the project. As well as an operational plan and implementation timeline, the Pilot Project Committee will need to establish a comprehensive risk management plan, especially if the voting technology is to be piloted in a live election.

2.6.2 Procuring Electronic Voting Technologies

The process of procuring electronic voting technologies can take some time and needs to be conducted in an open and transparent manner. The EMB needs to ensure it is in control of this procurement process in terms of defining the requirements for the technologies to be piloted. The process must not be vendor driven, with vendors telling the EMB what it is that they require.

Sufficient time will need to be provided during the procurement process for vendors to properly respond to the many facets of the request for proposals. A reasonable timeframe for such a request for proposals would be in the region of four to six weeks. Vendors should be allowed to seek clarifications on aspects of the request for proposals at a predefined date part way through the procurement process.

The procurement process itself should be open and impartial. Request for proposals should be widely published through the media and on the sponsoring institution's website; decisions should be taken according to pre-established evaluation criteria.

It is clear that the specification and resulting proposals will be complex and detailed documents. A Proposal Review Committee, possibly the entire Pilot Project Committee (depending on the size of this Committee), should review the proposals received and agree on the ranking against different evaluation criteria. On the basis of this, a recommendation will be made on which electronic voting solution, or solutions, will be procured for the pilot project.

2.6.3 Testing and Certification

Once delivered, it is essential that an EMB ensure that an electronic voting system not only meet the specifications developed for the system, but also meet the requirements of the electoral environment. There are many different types of testing and certification. The Council of Europe identifies the following in its E-Voting Handbook: acceptance testing; performance testing; stress testing; security testing; usability testing, and; review of the source code [429]. Conducting all these tests takes time and it is important that time for full testing is made available in the project timeline.

In addition to comprehensive testing of electronic voting technologies prior to use, it is increasingly seen as good practice to have these systems certified prior to use [428]. The purpose of certification is similar to testing, in that it determines whether the electronic voting technology operates correctly, but it is conducted by an independent body. There are no standards yet to cover how the testing and certification process should be conducted and each country conducting these processes has utilized its own solution to this challenge.

2.6.4 Polling and Counting Procedures

Many aspects of electronic technologies will likely be different from the existing system of balloting, especially if the existing system is a paper balloting system. The procedures for storage of the electronic voting machines, pre-polling preparations, transportation, security, placement in the polling station, demonstrating an empty ballot box, initiating polling, activation of the electronic voting machines for the voter and reporting of results will be different.

These changes in procedure will need to be carefully considered by a competent and experienced group of election management officials, in consultation with other stakeholders.

2.6.5 Voter Education

Educating voters on the use of new electronic voting technologies is essential [428], and must start before they are confronted with the new system on election day. A change in balloting system, especially if moving from paper balloting to an electronic voting solution, will be confusing for voters. This confusion, and problems in using electronic voting technologies, can be mitigated to a large extent by effective voter education in advance of the pilot project.

This voter education will need to communicate the existence of the pilot project and the type of pilot being conducted. Voter messages will need to be conducted in a targeted manner as the pilot will only be in a limited geographic area.

2.6.6 Training

Just as the education of voters in the use of piloted electronic voting technologies is essential to the success of the pilot, so is proper training of staff who will use the technologies. As already discussed, the procedures for many, if not most, aspects of polling and counting may be changed by the introduction of these technologies. Not only must new procedures be developed, but training on these new procedures needs to be effectively delivered.

This training will be required not only by polling staff, but also the staff required to prepare the electronic voting hardware at centralized facilities and staff who re-

ceive the results provided by the electronic voting technology. Procedures need to be drafted and tested and training materials for these procedures developed. These procedures need to cover the configuration of the hardware, setup of any machines in the polling station, conduct of polling, close of polls, production of results, transfer of results for tabulation and receipt of results for tabulation.

2.6.7 Stakeholder Outreach

Getting the support of key stakeholders will be important to the perceived and actual success of any pilot for electronic voting technologies. Providing access to the technology prior to elections will be one way of reaching out to key stakeholders. However, additional efforts to inform stakeholders should also be pursued.

Local candidates, party representatives, domestic observers, media and community representatives should be briefed by the EMB on the pilot project at the beginning of the planning process. They will need to be informed about the technology being piloted, the reasons why it is being piloted and the benefits that it is expected to bring to the process.

If stakeholders can be won over to the pilot process, they can be strong supporters of the process, acting as a channel for key voter education information and providing vital mechanisms for feedback on the success, or otherwise, of the pilot project.

2.6.8 Election Day Support

The piloting of an electronic voting system will likely involve many significant changes in the process of administering elections. Regardless of how good the training and documentation that is provided to electoral officials, there will inevitably be some problems in applying the procedures and training when electoral officials come to use electronic voting systems on election day.

A dedicated, centralized help desk is a good way of dealing with the many questions likely to be raised when implementing the kinds of changes to voting procedures that occur with the introduction of an electronic voting system. The help desk should be available from at least a few days before the conduct of elections to deal with questions that polling officials may have as they are issued electronic voting equipment.

The help desk operators must be thoroughly trained in all aspects of the electronic voting system, they must have a detailed help desk manual available and a shared log of issues raised and solved. They must have a set methods for dealing with issues not covered in manuals and training, which could include a direct hotline to one or more senior election officials authorized to make decisions as required.

2.6.9 Observation of the Pilot Project

The same rights to observe the electoral process should be applicable to an electronic voting technology pilot project [428]. The EMB may have to take additional measures to facilitate and encourage this observation for a number of reasons.

The conduct of elections using an electronic voting technology will be very different and will require special training for observers, media and political party and candidate agents that wish to observe the pilot. This training will be needed to ensure that these groups understand how the new system works, but also that they understand how they can and should observe the conduct of electronic voting technologies.

Furthermore, as observers, media and political representatives are key stakeholders in the process. Their trust in the system being piloted will be essential and, therefore, they should be actively encouraged to observe. This will build their understanding of the system being piloted and allow them to provide feedback to the Pilot Project Committee during the pilot project evaluation stage.

2.6.10 Mandatory Audit

As discussed earlier, the ability to verify the operation and audit the results of an electronic voting system is an emerging standard with respect to electronic voting technologies [428]. The way in which this auditability is provided for will vary depending on the type of electronic voting solution in question (e.g., it will be different for electronic voting systems, electronic counting systems and especially for remote electronic voting systems).

The audit of electronic voting pilots is necessary to ensure that the accuracy of pilot project results, both for the EMB but also in order to build the confidence of stakeholders. Therefore, for an electronic voting pilot the audits of the results should be mandatory. The (generally paper) audit trail should be manually counted and the results compared to the electronic results generated. Ideally this audit will take place in every location where the technology was piloted. This may not be possible for a larger pilot project. If only a sample of pilot locations is being audited it will be important to randomly select this sample and only make the selection known after the close of polling and counting. The audit should be fully observable by election observers, the media and political party and candidate agents.

2.6.11 Pilot Project Evaluation

A comprehensive post-pilot assessment of the pilot project is essential. It would not be enough to conclude that polling seemed to go smoothly, if it did. The post-pilot assessment needs to be conducted from the perspective of every key stakeholder in the process. Perceptions of these stakeholders about the use of the electronic voting technologies will be critical to any future adoption of the technology.

This pilot project evaluation needs to collect opinions, at a minimum, from the following stakeholders:

- Voters who used the electronic voting technology
- Voters who did not use the electronic voting technology
- EMB staff involved in preparing the electronic voting technology for use
- Polling staff using the electronic voting technology
- Election management staff involved in the receipt and tabulation of results
- Observers (domestic and international)
- Candidates, and candidate and party agents
- Representatives of other key stakeholders with a specific interest (e.g., people with disabilities if special voting mechanisms are being implemented for such voters)

The results of the pilot project will need to be assessed using many different methods, from statistical data collected about the use of the electronic voting technology to qualitative analysis of the process from the perspectives of key stakeholders.

In terms of statistical measures used to analyze the effects of using electronic voting technologies, the following will need to be considered: turnout; speed of voting; speed of results; complaints received; number of blank votes; help desk statistics; results of the audit; and election-related violence incidents. These statistics will need to be contextualized; for example a rise in turnout might be a result of a tight local electoral race and not the use of electronic voting.

These quantitative measures can only provide so much information about the pilot, they need to be supplemented by qualitative assessments of the following kinds of issues and questions: voters' experience with using the voting technology; whether the use of electronic voting resulted in voters not participating; polling station setup and operation; the process of polling; the process of closing the polls and generating results; audit procedures; the logistics of configuration, delivery, security, retrieval and storage of the voting machines; voting machine and system security; observation of the process; and comparison with the existing system of balloting. This qualitative data can be collected through a number of mechanisms, including interviews with different stakeholders, focus groups and surveys.

The evaluation of the pilot should be written up into a Pilot Project Report covering the process of conducting the pilot project, the conclusions and recommended next steps with respect to implementing electronic voting technologies.

2.7 The Decision on Adoption

The Pilot Project Report will need to be carefully reviewed by the Feasibility Study Committee, if it is different from the Pilot Project Committee. The Feasibility Study Committee may decide to accept, reject or amend the conclusions and recommendations of the Pilot Project Report.

A number of general conclusions and next steps may be reached as a result of the pilot project:

- **Not Proceed with Electronic Voting Technologies** – It may be decided that electronic voting technologies either do not meet the needs of the elections in question, or they do meet the needs but the benefits to be gained do not justify the resources and effort required to implement them or the disruption caused by implementing them. In either case it will be important to clearly identify the reasons why the recommendation is made to not proceed. This will be important in the future. If cost, functionality or ease of implementing the technologies changes, then this recommendation can be easily revisited.

- **Additional Piloting** – For a number of reasons it may be decided that a recommendation cannot be made to proceed with the implementation of electronic voting technologies, but also that investigation into their use should not be ended.

  It may be that the original specification developed for the electronic voting technologies was defective or insufficient, that solutions with different functionality or features would be better suited to the electoral environment. It may be that in the final analysis the electronic voting solutions provided did not properly meet the specification. The pilot project report may conclude that voter education was insufficient or the procedures used during the pilot were not adequate. Any of these conclusions would indicate that the piloting of electronic voting technologies should continue, as long as the anticipated benefits were still justified by the previous pilot findings.

  The initial pilot may also have been on a very small scale. Even if the results were very positive it may be decided that before a recommendation is made to move towards full implementation the pilot needs to be repeated, with an expanded scale and scope in order to better test the electronic voting solution. In fact, it makes sense to pilot electronic voting technologies on multiple occasions before moving ahead with a full-scale implementation.

- **Adoption of Electronic Voting Technologies** – If the pilot project was successful, demonstrating that electronic voting technologies worked effectively and delivered significant benefits to the electoral process, then the recommendation may be to proceed with the full-scale implementation of the technology. As indicated above, such a recommendation should not be based on a single, small-scale pilot, but on the successful conduct of a series of pilots or a single large-scale pilot.

Should the adoption of electronic voting technologies be recommended, it is still important to recognize that there may be important lessons to learn from the pilot project. Time must be provided so that lessons from the pilot can be properly adapted before the full adoption of electronic voting technologies. This may require technical specifications, polling and counting procedures, training plans and voter education schemes to be reconsidered and redrafted. The procurement process will most likely have to start anew; given the potential changes and the larger size of the contract for electronic voting products. Failure to learn from the pilot, however, could have serious implications for the success of the larger-scale adoption of electronic voting technologies.

Even where the recommendation is to move towards the full adoption of electronic voting technologies, the recommendation may be to move towards this adoption in a staggered manner, as other countries have done (such as India, which took 18 years to move from the first pilot to full national implementation). Such staggered adoption of electronic voting technologies may make a great deal of sense as it allows for the financial burden to be spread over several budget cycles. However, such staggered implementation may also be problematic as it entails fundamental differences in the way in which voting rights are applied for different voters.

At this stage of the process these recommendations should only be considered as preliminary. In the interests of openness and transparency it is important that these preliminary recommendations be subject to consultation with key stakeholders. The consultation process should be used to explain the details of the pilot project to stakeholders, the conclusions reached and the recommendations being made with respect to the adoption of electronic voting technologies.

It is to be hoped that this consultation process will complement feedback previously received by stakeholders throughout the process, but this may not be the case. Should the opinions of stakeholders be consistently opposed to the recommendations of the Feasibility Study Committee, then the causes and consequences of such disagreement will need to be carefully considered. It would be a brave, possibly foolhardy, EMB that proceeded with adopting an electronic voting solution against the opposition of all or most of the key stakeholders in the process.

Once the Feasibility Study Report has been finalized, after this consultative process, the full report should be made public and the main recommendations issued through a press release by the Feasibility Study Committee.

Acknowledgment

This chapter is largely based on a book written for the International Foundation for Electoral Systems [259], with many sections summarized and updated from that publication.