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Procurement Aspects of Introducing ICT Solutions in Electoral Processes

The Specific Case of Voter Registration

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Acronyms and Abbreviations

ACE	Administration and Cost of Elections Project
AFIS	automatic fingerprint identification system
CIDA	Canadian International Development Agency
COBIT	Control Objectives for Information and related Technology
CSO	civil society organisation
DEX	direct execution
DIM	direct implementation
DRC	Democratic Republic of the Congo
DRS	disaster recovery site
EC	European Commission
EMB	election management body
EU	European Union
GPECS	UNDP Global Programme for Electoral Cycle Support
GPU	Global Procurement Unit
ICAO	International Civil Aviation Organisation
ICT	information and communications technology
IDEA	International Institute for Democracy and Electoral Assistance
IEEE	International Electrical Electronic Engineers Association
ISO	International Organisation for Standardization
IT	information technology
JTF	EC-UNDP Joint Task Force on Electoral Assistance
LPAC	Local Project Appraisal Committee
LTA	long-term agreement
NEX	national execution
NGO	non-governmental organisation
NIM	national implementation
OCR	optical character recognition
OMR	optical mark reader
PSO	Procurement Support Office
SoW	scopes of work
TCO	total cost of ownership
ToR	terms of reference
UN	United Nations
UNDP	United Nations Development Programme

Notes on text: All figures marked with $ are US dollar amounts unless specified otherwise.
Also, *throughout the operational paper, text boxes are used to identify i) key concepts and ideas; ii) case studies; and iii) further reference. Each of these kinds of text boxes are indicated with the following terminology:*

Key concepts and ideas: Important concepts, ideas and advice relating to the different stages of the electoral cycle

Case study: Additional information and lessons learned on specific case studies

Further reference: Additional reference on specific issues

Rationale

This is the first paper in the Operational Paper Series published by the EC-UNDP Joint Task Force on Electoral Assistance (JTF). It was prepared in collaboration with the International Institute for Democracy and Electoral Assistance (IDEA) and the ACE Electoral Knowledge Network (ACE). It is therefore also published as part of the ACE "Focus On..." series.[1] This paper is the result of operational lessons and best practices learned since 2004 through the partnership between the European Commission (EC) and the United Nations Development Programme (UNDP). The collaboration between the JTF and International IDEA since 2004 has enabled continual support to the ACE Project using materials and tools derived from EC-UNDP projects, UNDP and IDEA guides on electoral assistance/electoral administration, joint EC-UNDP-IDEA trainings and the eLearning Course on Effective Electoral Assistance.

The paper analyses the experiences from electoral assistance projects, especially in sub-Saharan Africa, that included the introduction of information and communication technologies (ICTs) for voter registration processes and the procurement of the related electoral material and services.

The findings relate to a period from late 2004 to the end of 2009. They draw mostly from experiences gathered on joint EC-UNDP formulation missions and the resultant UNDP projects, usually "basket-funded"[2] with substantial contributions from the EC and European Union (EU) Member States.

One of the concrete outputs of the partnership between the EC and UNDP is the formation of a Joint Task Force (JTF) among EC and UNDP services. With the establishment of the JTF, the EC and UNDP agreed to strengthen the joint monitoring and quality support mechanisms at HQ levels for the improvement of the implementation of the operations on the ground.

The JTF has the aim of increasing the overall efficiency and adherence of the projects to the common EC/UNDP strategic approach. The JTF provides support to identification and implementation of UNDP projects of electoral assistance with EC financial contributions and whenever requested by EC delegations and/or UNDP Country Offices in agreement with the beneficiary EMBs. This has paved the way and facilitated further financial support from the EC and other donors, thus far mainly EU Member States, in a coordinated manner, thus playing an important catalytic role. The lessons learned from various missions by the JTF are consolidated and codified so that they can effectively feed into the implementation of new electoral assistance projects, the EC-UNDP-IDEA Joint Trainings on Effective Electoral Assistance and the ACE Electoral Knowledge Network.

The work of the Joint Task Force is coordinated by the UN/UNDP Brussels office and composed by EC and UNDP staff dealing with electoral assistance at HQ levels in Brussels, New York and Copenhagen and external consultants contracted by UN/UNDP Brussels Office. The mobilization of resources, operational support and training, are the working areas where the Joint Task Force is focusing. For further information visit:
http://www.ec-undp-electoralassistance.org

1 The ACE Focus On series is part of the ACE Encyclopaedia and provides information on cross-cutting issues of the electoral cycle. The current ACE "Focus On..." collection consists of the following papers:: "Electoral Laws: A Macroscopic Perspective"; "Effective Electoral Assistance"; "Elections and Security"; "Cost of Registration and Elections"; "Direct Democracy"; "Elections and Disability"; "E-Voting"; and "HIV/AIDS and Elections". Online: http://aceproject.org/ace-en/focus.

2 "Basket fund" arrangements are those in which donors such as the EC contribute funds towards the implementation of a project to be managed by UNDP using UNDP procurement rules, and in which donor's individual funds are not ear-marked for any one particular activity. For example, a $10 million project might be funded by three donors, all contributing $3 million each, with UNDP also contributing $1 million of its own funds. UNDP charges donors an additional 7 percent of the total project budget for managing the project, known as general management services (GMS).

On 1 July 2009, UNDP launched a three-year global initiative, the Global Programme for Electoral Cycle Support (GPECS) to help countries improve their electoral laws, processes and institutions and enhance the participation of women in electoral processes. The programme is 99 percent-funded through a generous contribution from the Government of Spain, as well as the support of CIDA. The GPECS seeks to enhance the credibility, transparency, effectiveness and sustainability of electoral institutions and processes, with a particular emphasis on capacity development, south-south exchanges, inclusive participation and women's empowerment.

The GPECS is a programme of the Bureau for Development Policy, which leads the democratic governance practice in UNDP and has the role of corporate liaison with the Electoral Assistance Division (EAD) of the UN's Department of Political Affairs. A number of other offices are also involved in delivering GPECS, including UNDP Regional Centres equipped with electoral and gender expertise, ACE Regional Electoral Resources Centres, the Joint Task Force, and the Bureau for Development Policy at UNDP headquarters in New York, which leads the democratic governance practice in UNDP and liaises closely with EAD.

The paper aims to provide a resource for stakeholders contributing to or benefiting from electoral assistance. While focusing primarily on UNDP rules, it focuses in particular on major aspects associated with the procurement and the application of ICT solutions in voter registration, including election management bodies (EMB); local civil society organisations (CSO) involved in elections; political parties; media actors; EU delegations and headquarters; UNDP Country Offices and headquarters; the wider community of development partners and donors; as well as service providers and vendors.

The issues outlined in this paper will be elaborated further in a handbook on ICTs, Civil/Voter Registration and Data Transmission and an eLearning Course on ICTs in Electoral Processes and Electoral Procurement currently being finalised by the Joint Task Force and IDEA in the context of the ACE activities.[3] In addition, these issues are regularly addressed in UNDP electoral assistance projects as part of the work of the EC-UNDP Joint Task Force and the support of the UNDP Global Programme for Electoral Cycle Support (GPECS).

This operational paper was reviewed by participants of the first three-day EC-UNDP-IDEA Joint Thematic Workshop on the Use of Information and Communication Technologies in Electoral Processes that took place at EC Headquarters in Brussels from 30 November to 2 December 2009.[4] Participants provided inputs and comments to this paper.

The workshop targeted staff members of appointed persons from the EC, UNDP, IDEA, the Canadian International Development Agency (CIDA), the International Organization for Migration (IOM), EU Member States, other donor agencies, regional/international organisations, and members of election management bodies and civil society.

3 The ACE Electoral Knowledge Network (www.aceproject.org) is the world's largest online repository of electoral knowledge. It is a comprehensive and systematic collection of both country and topic specific information on nearly every aspect relating to the organisation and implementation of elections, and other relevant aspects and cross-cutting issues of electoral processes. The knowledge services online offer a framework for the design, planning and implementation of electoral projects consistent with the maintenance of the core principles of transparency, professionalism and accountability. ACE does not only provide comprehensive and authoritative information on elections, but also promotes networking among election-related professionals and offers capacity development services. ACE is a joint endeavour of eight partner organisations: International IDEA, UNDP, the Electoral Institute for the Sustainability of Democracy in Africa (EISA), Elections Canada, Mexico's Federal Electoral Institute (IFE), the United Nations Department of Economic and Social Affairs (UNDESA), the International Foundation for Electoral Systems (IFES), and the Electoral Assistance Division (EAD) of the UN's Department of Political Affairs. The EC is ex-officio partner and provided funding for 1 million euro in the period 2007-2008. Financial contributions to the regional dimension of the project have also been granted by United Nations Democracy

Fund (UNDEF). The primary aim of the ACE Practitioners Network is to generate, share and disseminate specialised knowledge, resources and expertise to promote professional, effective and sustainable management and administration of elections, and to provide "real-time" electoral advice. Members of the Practitioners" Network share common interests, common goals and common professional responsibilities and are together with the ACE Regional Centres the source for generating and sharing knowledge, global experiences and best practices.

4 For the agenda and a list of participants, see Annex 4 and 5. Additional information is available online at www.ec-undp-electoralassistance.org

Introduction

The past decade has seen an enormous increase in the use of information and communications technologies (ICTs) in election management, a development that has considerably changed election administration in many countries. The use of ICTs can positively impact election management, especially in making some processes quicker and more efficient. But ICT solutions also carry risks, they often suffer from unrealistic expectations, and they may not be appropriate in some contexts. In a 2009 statement to the UN General Assembly, Secretary-General Ban Ki Moon expressed his concern that ì...some of the poorest countries in the world have chosen some of the most expensive electoral processes and technology...î. [5]

The global electoral assistance community is still in the early stages of developing and adopting best practices for ICTs in elections. This paper seeks to facilitate this process by offering the following guiding principles, which are not exhaustive. ICT solutions in electoral process should be:

- cost-effective
- transparent
- sustainable
- inclusive
- accurate
- flexible

The complexities and costs of ICT solutions make it absolutely imperative that their procurement takes place effectively and transparently. This paper identifies key challenges in procuring electoral goods and services, with a specific focus on electoral ICTs.

In relation to **electoral procurement** the paper emphasizes how ICT has a much larger scope and impact than is often acknowledged, being often one of the most expensive lines in an electoral budget. It cuts across a wide array of activities around the electoral cycle and should therefore be adopted as an integral part of electoral management and assistance - both in planning and implementation. Delays and shortfalls in procurement and distribution of materials can critically impact the execution and outcome of an election. Therefore, procurement planning is vital and should always be integrated into the programming phase of election management exercises and assistance. Planning should include the development of a procurement strategy and risk management analysis; analysis of supply chain constraints; cost analysis; and assessment of implementing partners" capacities.

5 Strengthening the role of the United Nations in enhancing the effectiveness of the principle of periodic and genuine elections and the promotion of democratization. Report of the Secretary-General to the General Assembly, 14 August 2009.

The "EC-UNDP Operational Guidelines for the Implementation of Electoral Assistance Projects" [6] note that sensitive, highly specific or costly election materials should preferably be procured with the close collaboration and involvement of the UNDP Procurement Support Office (UNDP/PSO).[7] For significantly expensive, highly technical materials, UNDP procurement procedures would include additional risk mitigation mechanisms, such as pilot and validation tests to be conducted as part of the evaluation and before a vendor is selected.

The paper focuses also on **voter registration**, arguably the area where the use of ICTs is expanding most rapidly. Voter registration is a crucial and considerably expensive undertaking in an electoral process, as an accurate voter register is a cornerstone of a credible election. This paper distinguishes three categories of voter registration methodologies according to the level of technology used: low-tech, medium-tech and high-tech. Current trends show how countries, including impoverished post-war countries, are introducing high-tech systems using biometric features, such as automated fingerprint identification systems (AFIS) or facial recognition scanning, for civil and voter registration.

When such complex technological solutions are considered to be procured and adopted, it is fundamental to acquire a full understanding of needs and requirements, and an accurate procurement plan. Procurement for **voter registration systems**, particularly **biometric** systems, involves diverse complexities: procurement of ICT specialists with experience with biometric systems; decisions regarding local vs. international competitive processes; minimum standard requirements; security issues; cost-effectiveness; disaster recovery issues; total solution models (i.e., build-operate-transfer models) vs. technology transfer models; and change management issues.

This paper addresses these and other issues in the context of UNDP **procurement**. While focusing on UNDP's recent experiences, it outlines potential lessons learnt and best practices in terms of planning and managing procurement of electoral goods and services which are relevant to a wide variety of stakeholders.

6 On 21 April 2006, AIDCO Director General Koos Richelle signed with the UNDP Associate Administrator Ad Melkert the EC/UNDP Operational Guidelines for the Implementation of Electoral Assistance Programs and Projects. The guidelines were reviewed on 1 December 2008. They outline practical measures for the strengthening and the facilitation of the already established cooperation between the EC and the UNDP in the domain of electoral assistance, in full respect of the provisions laid out in the existing Financial and Administrative Framework Agreement (FAFA) between the EC and the UN. The guidelines clarify implementation aspects and tighten up and improve the EC/UNDP collaboration on electoral assistance so as to further promote the effectiveness and efficiency of electoral assistance initiatives through better and more timely planning, formulation and implementation of activities. The Operational Guidelines for the Implementation of Electoral Assistance Programs and Projects draw mainly upon the experience gained since 2004 of cooperation and in the shared work between the delegations, geographical directorates, the Directorate for Operations Quality Support (AIDCO/E/4) and UNDP on electoral assistance projects over the preceding 16 months, during which four joint formulation missions were carried out. They aim at rationalizing the *de facto* partnership that exists at country level and providing for more concrete involvement and influence of the EC in the preparation and implementation phases of electoral assistance projects.

7 UNDP/PSO is also part of the EC-UNDP Joint Task Force. The UNDP Procurement Support Office (PSO) has the mission of supporting UNDP Country Offices and business units in procurement. PSO provides support services such as standard and specialized trainings and workshops, advisory support, policy development, and direct procurement support, conducting procurement for complex or highly sensitive projects as per request and on behalf of UNDP Country Offices.

Procurement at UNDP is in line with policies, regulations and best practices of international public procurement, and therefore the agency's activities in this regard are a useful reference for any public institution or organisation involved in procurement for elections.

To summarize, this paper aims primarily to summarize key issues of relevance regarding the introduction and use of ICTs in electoral process. The goal is to provide a best practice of sorts for practitioners in the future.

Throughout the operational paper, text boxes are used to identify i) key concepts and ideas; ii) case studies; and iii) further reference. Each of these kinds of text boxes are indicated with the following terminology:

Key concepts and ideas:

Important concepts, ideas and advice relating to the different stages of the electoral cycle

Case study:

Additional information and lessons learned on specific case studies

Further reference:

Additional reference on specific issues

Content overview

Part 1 introduces **electoral procurement** in terms of process, cost and risks at a general level, and then it focuses on how these risks and challenges are addressed through procurement strategy, process and methods based on UNDP procurement rules and processes. It notes especially the importance of planning for procurement during project formulation, emphasizing that the electoral cycle approach can assist EMBs in ensuring appropriate and timely procurement. It also looks into the type of support a central procurement office - such as UNDP's Procurement Support Office in Copenhagen - can provide, and the resources and tools that effectively contribute to such support, for example long-term agreements (LTAs).

Part 2 focuses on the **cost of elections and risk management** through a procurement lens. Tracking procurement costs and establishing a well-functioning budget also involves taking into consideration less visible costs related to, for example, acquisition, installation, maintenance, storage and disposal. Part 2 elaborates also on the importance of identifying, quantifying and prioritizing risks, which is directly connected to expenditure and budgeting, as well as to the procurement procedures, methods and challenges discussed in Part 1.

Part 3 examines the increasingly **central role of ICTs** in elections. The rapid development of ICT solutions for elections and their appeal to EMBs and governments receiving electoral assistance are a new reality in electoral assistance. ICTs have already dramatically changed the way elections are organized and conducted in both established and developing democracies. Part 3 provides insight into such changes and outlines guiding principles and major considerations for procuring ICTs in the electoral context, such as a holistic approach to technologies; the importance of testing; and ensuring sustainability, efficiency, flexibility, inclusiveness, transparency and ethical behaviour, among others. The section also considers integrity issues relevant to the procurement and use of ICTs in elections.

Part 4 focuses on **ICTs and voter registration**. Voter registration is a crucial and expensive part of the electoral process and an area in which the use of ICTs is expanding most. Part 4 divides registration methodologies into three broad categories: low-tech, medium-tech and high-tech. It emphasizes the importance of timing in introducing ICTs in voter registration and also explores the advantages and disadvantages of ICT solutions.

Part 5 addresses **specific procurement issues related to the introduction of voter registration biometric features**. The advanced level of technology and software involved in biometric solutions is a challenge in itself. Procurement must consider the importance of hiring adequate ICT specialists to assist in the process because many decisions will be influenced by technical input. A number of important issues must be taken into consideration, including (for example) addressing local or international markets, type of competitive processes, minimum technical requirements, security issues, cost-effectiveness, disaster recovery issues, the costs of total solution models rather than technology transfer models, and change management issues.

Part 6 discusses the recent debate on **synergies between civil and voter registries**. Assuming such registries fulfil key convergence and inter-operability criteria, exchange of reliable information between them may, in some cases, enhance administrative and cost-effectiveness. This section examines the role of EMBs in extracting data for a voter registry from a civil registry. It also looks at the reverse process, in which a civil registry is created from data in an existing electoral list, exemplified by the recent case of the Democratic Republic of the Congo.

PART 1

Procurement in Electoral Processes

Electoral goods and services represent one of the most important and costly parts of an election. Any delay or shortfall in the procurement or distribution of electoral materials or timely receipt of required services can have serious implications for an election, potentially affecting its schedule or even outcome.

Procurement does not, however, relate only to buying materials - ballot boxes, polling kits, etc. It also involves the procurement of services or building infrastructure. In terms of services, contracting a CSO to conduct trainings or voter education, identifying and hiring specialists on short-term contracts, buying radio and TV spots - all such services must be contracted through a procurement process. In addition, many different types of infrastructure may be required, including (to list just a few examples) furniture and refurbishment of buildings, hardware and software equipment, vehicles, communication tools and supplies.

As an example, the following separate electoral activities often require a vast list of items to be procured, particularly if the election is a "first generation" election following the establishment of the EMB after, for instance, a conflict:

- **Voter registration and data centre, and result tabulation**: Hardware and software equipment; personal computers and related software; back office server systems; various communications equipment; means for printing and distribution of registration forms; voter cards and data processing; establishment of data processing centres; establishment of results and media centres; IT training; technical assistance; logistics and distribution of IT equipment; integration of services; renting or rehabilitation of voter registration venues; hiring of IT experts; biometric registration kits; biometric fingerprint scanners; internal EMB communications; archiving; financial disclosure forms; public relations, etc.
- **Civic and voter education, and stakeholder training**: Technical equipment; design and printing of posters, leaflets, banners etc.; production of TV spots, radio jingles, etc.; conferences, CSO and domestic observer trainings; production and printing of manuals, user training (and user manuals); administrative technical training (and manuals) on ICT systems, such as the voter register system.
- **Polling day activities**: Ballot boxes and seals; voting screens; polling kits; indelible or invisible ink; tamper-proof materials; material for alternative polling station structures; printing and distribution of ballot papers; polling forms; tally sheets; result sheets; procedural manuals; electoral lists; candidate lists; training of polling staff; logistics; distribution; storage and security items or services, etc.
- **Auditors:** Most importantly, an IT auditor needs to be procured. This is a different type of IT specialist with special skills to detect tampering of the database itself as well as code tweaking during the different phases of voting and results tabulation. This person might also be needed for the short term during development of the IT system to ensure the integrity of the auditing and accountability. This should be stated clearly in the contract of any vendor providing electoral IT services so that the IT specialist is not accused of intellectual property violation, for example, or delaying the development of the database or system

Procurement is generally defined as "the overall process of acquiring goods, civil works and services which includes all functions from the identification of needs, selection and solicitation of sources, preparation and award of contract, and all phases of contract administration through the end of a services' contract or the useful life of an asset."[8]

This indicates that procurement is not an isolated action in time, but rather a continuous process of variable complexity which typically involves several stages, different stakeholders and parties, legal and contractual obligations and consequences. As electoral procurement often utilizes public or donor funds, public procurement principles apply and rules and procedures must be observed and followed to safeguard the use of such funds. Such rules should govern the complete process for procurement of goods and services as well as the resulting contracts.

For further information please see Annex 1: Scope of procurement in the electoral cycle.

PROCUREMENT PROCEDURES AND APPROACHES IN PUBLIC PROCUREMENT

Procurement of goods and services involves different stages and processes covering the establishment of a needs request for the goods with specifications, a tendering process and an objective evaluation and decision-making process based on rules and regulations of the procuring entity prior to selection and contract with suppliers.

In public procurement, organisations and governments must follow rules and procedures for procuring goods and services that aim to streamline the procurement process, mitigate risks, and improve the quality of the process and its results.

Guiding principles are aimed at providing overall guidance on how procurement should be conducted. They also seek to ensure that values that must be maintained during the process - such as transparency, fairness, efficiency, and equality - are entrenched in internal control measures.

Procedures. Public procurement is structured operationally around a categorization of procedures based on the estimated cost of the goods or services, with a concomitant and increasing level of authorization and formality. Public procurement generally involves competitive bidding procedures to ensure that the best quality, conditions and prices in the market are offered under equal and fair conditions. Nonetheless, the higher the value or risk of the operation, the more important It is that formality and control measures be embedded in the procedure of competitive bidding to ensure proper risk management and control.

Procedures reflect the guiding principles applying to the different steps throughout the procurement process. There will therefore be procedures for appropriate definition of specifications, advertising and solicitation, receipt of offers, evaluation, etc. covering the complete procurement process and operationalizing corresponding principles.

8 UNDP Programme and Operations Policies and Procedures, http://content.undp.org/go/userguide/cap/procurement/?lang=en#top

Best practice approaches based on benchmarking, analysis, experience and lessons learned contribute to efficiency and effectiveness. Best practices include the following:

- **Pre-qualification lists:** Based on appropriate qualification criteria defined in advance, a list will be created of responsive suppliers that demonstrate competences and experience as required. Requests to tender will be then issued only to the suppliers on the list.
- **Accredited supplier through long-term agreements (LTAs)**: Establishing LTAs for a period of time with accredited suppliers allows for streamlining procurement and ensuring quality, continued vendor management, reduced bidding periods and enhanced communication and problem solving/ contract management. It is usually preferable to a one-time purchase type of relationship.
- **Pre-bid briefings**: Especially for highly specialized and technically complex procurement, or to open the competition as much as possible, pre-bid conferences can be arranged to provide clarifications and allow bidders to enquire directly from the procuring entity. This promotes inclusiveness of potential suppliers (perhaps in emerging markets) and levels the playing field.
- **Internationally accepted standards**: Use of these standards provide a recognized and measurable reference for compliance, remove uncertainty, and provide a clear benchmark the suppliers should meet.
- **Site validation tests (SVTs):** These tests are typically conducted at the country of destination and as part of the evaluation process. SVTs replicate the environment and functions that the equipment is intended for, to ensure that the proposed solutions comply in reality with the requirements in the bidding documents and will work in the field as per the specific conditions outlined.

1.1 Procurement challenges in electoral assistance

An electoral procurement process aims to deliver all requested goods and services of the required quality, quantity and standards within the established timelines for the agreed price.

An electoral procurement process may face number of different challenges, including the following:

- timely disbursement of funds available for procurement purposes;
- staffing the procurement unit with competent personnel. Staff should have a clear understanding of materials and services required. When foreign consultants (perhaps from UNDP) are working on procurement, they should possess country-specific knowledge such as, for example, the need for water-resistant, solar energy/long-lasting batteries/generators for remote areas, language requirements, and so forth;
- coordination among the various actors involved, including all local stakeholders, in particular the EMB, and international organisations (if providing technical assistance to the procurement process);
- ensuring that the procurement process complies with the legal framework of the country;
- clear and early development of requirements and specifications (where politically and legally possible) for electoral goods and services, thereby ensuring confidence among all stakeholders that the procured items are appropriate;

- achieving the support and buy-in of all stakeholders for the procurement process;
- knowledge of published and approved practices developed within the targeted area;
- examination of potential technological and skills transfer to EMBs, rather than only seeking "total" solutions;
- cost-effectiveness through a transparent and competitive process;
- exploration of long-term sustainability and its relation to operational cost-effectiveness and quality assurance, and possibly alignment with other similar national initiatives and expertise;
- well-planned and well-organised management of the supply chain, including transportation and delivery in-country, packing, in-country distribution, interim warehousing at both central and regional level for various types of material, and secure storage between elections;
- consideration of environmental aspects, including disposal of items; and
- avoidance of unrealistic expectations that cannot be met in a timely fashion, or in subsequent elections.

1.2 Electoral procurement processes and procedures at UNDP

UNDP has, over the years, developed an extensive understanding and experience in providing technical assistance and support to the conduct of democratic elections, as part of the Democratic Governance practice area. A key support area is the procurement of electoral items ranging from ballots and ballot boxes to ink, stationery, and lately, biometric voter registration equipment as well as services.

UNDP has recently increased its focus on the crucial pre-polling period of planning and budgeting. This priority not only reflects an increasing concern over how public funds are managed in general, but also recognizes that the procurement of electoral material and services is one of the most expensive parts of an electoral budget.

Procurement in UNDP is guided and must be conducted in accordance to specific principles, processes, procedures and best practices applying at all levels from strategy to operation. For instance, in UNDP electoral assistance projects, a competitive tendering process must be undertaken unless an exception is outlined in the ProDoc assuming the requirement for a separate budget line and supportive proposal as well as subsequent vetting by a UNDP Local Project Appraisal Committee (LPAC).[9] Such a process will be in any case guided by specific procedures and rules.

Similar to other entities conducting public procurement, UNDP uses principles and procedures that help in streamlining the procurement processes, mitigating risks, and ensuring optimal quality of the process and the result.

9 The main stakeholders of the project or programme participate in the LPAC meeting to evaluate and approve the project or programme documents.

1.3 Procurement principles of UNDP

The following are the main principles which guide UNDP procurement in general and therefore apply to any UNDP procurement project in relation to electoral processes:

- **Best value for money**, which is the core governing principle and means selecting the offer which presents the optimum balance of quality and costs meeting the requirements of the organisation.
- **Fairness**, related primarily to the treatment of suppliers. Fair and open competition is the default procurement method in UNDP. Business units are therefore responsible for providing the widest possible access to UNDP contract opportunities for the supply community through open competitive procurement processes, broad advertisement, unbiased specifications, clear and unambiguous evaluation criteria, etc.
- **Integrity**, as demonstrating the core values of the UN in daily activities and behaviours. Key factors include operating without consideration of personal gain; resisting undue political pressure in decision-making and actions taken; refusing to abuse power or authority; standing by decisions that are in the organisation's best interest; and taking prompt action in cases of unprofessional or unethical behaviour.
- **Accountability**, in regards to taking ownership of all responsibilities and commitments; delivering outputs within prescribed time, cost and quality standards; and operating in compliance with financial rules and regulations. Such requirements must be supported by documenting the procurement process (including signatures on key documents) noting clear justifications for decisions made, thus leaving a clear audit trail of the actions and decisions taken.
- **Transparency**, as demonstrating openness to stakeholders in the procurement process and in compliance with rules and regulations. Transparency is especially relevant in the solicitation stage in demonstrating the fairness and integrity of the process to bidders through clear instructions, release of information and the evaluation process (e.g., public bid opening), vendor protest procedures and publication of contract awards.
- **Effective international competition** is the default solicitation method of all UNDP procurement applicable for contracts exceeding $100,000. This involves providing all eligible prospective vendors globally with timely and adequate notification of UNDP's requirements as well as fair and equal opportunity to bid for the required goods, works or services.
- **The best interests of the organisation**. In practice the specific procurement rules and procedures established for the implementation of a programme are contingent upon the individual circumstances of the particular case. Procurement is ultimately a support function, albeit a strategic one, that supports economic and efficient delivery of UNDP's programmatic and organisational outcomes.

Similar procurement principles, guidelines and practice are observed in other major international organisations. For example, the EU procurement directives determine how contracts should be awarded for public works, supplies and services. They set rules for competitive tendering procedures, open up the EU's public market to competition, prevent "buy national" policies and promote the free movement of goods and services. They aim to foster quality, transparency and fairness. Member States have implemented the EU Procurement Directives in national law. The **World Bank** similarly focuses on non-discrimination among bidders, transparency of procurement proceedings, economy of government contracting, effectiveness of procurement processes and accountability throughout both the private and public sectors.

1.4 UNDP procurement processes

In general, public procurement differs from procurement among private entities in the formality and measures applied to guarantee the observance of the governing principles, as noted previously in the case of UNDP. The following chart outlines the major steps applicable to UNDP primarily,[10] but it also reflects the general process and requirements for any public procurement initiative.

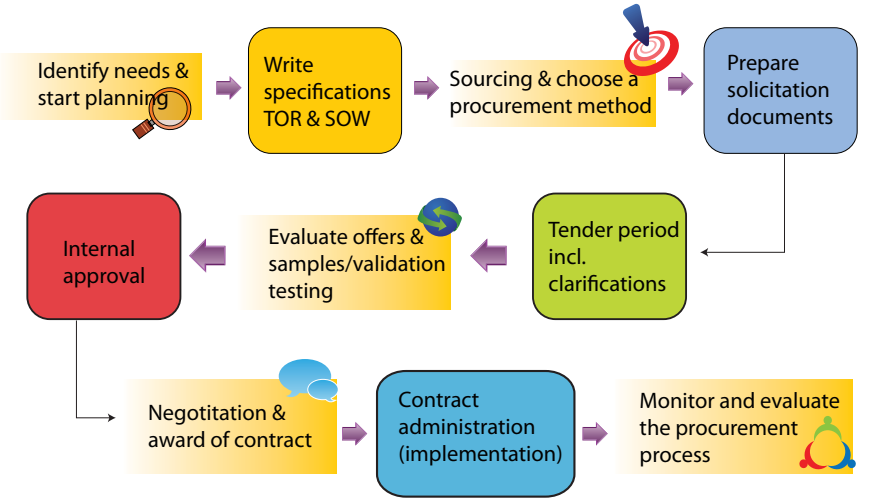


Figure 1. Procurement process

10 For more details on UNDP procurement, including methods and types of competition, see UNDP Programme and Operations Policies and Procedures on UNDP's intranet at http://content.undp.org/go/userguide/cap/?lang=en#top.

Strategic analysis and procurement plan: Identifying needs and developing a strategic approach to the procurement through appropriate and timely planning are key elements to successful procurement, regardless of whether the focus is goods and/or services. Early and detailed planning should ideally address challenges in procurement and facilitate efficient, effective and transparent procurement. Section 1.5 is dedicated to this fundamental step of strategic planning in procurement.

In accordance with the procurement plan and strategy, the procurement action will initiate with a request being defined through **technical specifications (for goods and equipment) or scope of works (SoW) or terms of reference (ToR for services)**. In practical terms, this is typically prepared, finalized and approved with the involvement of procurement personnel, including the allocation of dedicated funding.

Thereafter a method of procurement or a modality through which to solicit offers for the required goods, works and/or services must be selected depending on the nature and value/size of the project and its procurement elements. Methods of solicitation in UNDP, for example, include i) requests for quotations; ii) invitations to bid; iii) requests for proposals; and iv) local shopping. Such methods involve different levels of formality, complexity and process. They can also target different scopes of supply markets, with the process being based on open international competition, limited international competition, or local and/or national competition.

The **tender (bidding) period** initiates with the issuance/publication of the solicitation documents, which will include, among other elements, the corresponding instructions for bidders, terms and conditions, technical specifications or ToR/SoW, price schedule, and evaluation criteria. Other essential information to be provided includes technical, commercial and qualification documents and detailed specification about quantities, terms of delivery and conditions. Altogether, such data minimize risks and ensure quality.

Once the bidding period closes, bids received will be correspondingly opened and handed over to procurement staff for **evaluation**. UNDP defines evaluation of bids as *"The process of assessing offers and submitted proposals in accordance with established evaluation methodology and criteria, with the goal of obtaining the best value for money. The process needs to be conducted in a fair and transparent manner to ensure equal treatment of all bidders".*[11]

BEST VALUE FOR MONEY

It is the overall principle that governs public procurement and UNDP procurement. It establishes the **priority in selecting the offer** which presents the optimum balance of Time, Cost and Quality meeting the requirements of the organisation.

In electoral procurement processes from definition of requirement, through solicitation documents, to evaluation and contract management, every effort should be employed in minimizing risks and ensuring best value for money.

11 UNDP Programme and Operations Policies and Procedures, http://content.undp.org/go/userguide/cap/evalutn-ofers/eval-compare-offers/?lang=en#top

Evaluation results in the selection of supplier/s based on the specified evaluation criteria and procurement principles including best value for money. A contract or purchase order can be awarded to the selected supplier/s only following **internal approval** from the corresponding contract committees.

If necessary, **negotiations** may be conducted with the selected supplier to finalise matters before a contract or purchase order is issued.

Contract administration or management is often an ignored but important stage of the procurement process to ensure that the time, cost and quality criteria are met. This will involve monitoring and liaison as necessary with the supplier and end user to ensure that all parties in a contract fully understand and fulfil their respective obligations.

1.5 Procurement in regards to the electoral cycle strategy and planning

Procurement should be understood and treated as a managerial discipline of relevance to all parts of the project management and not simply an administrative undertaking. Procurement planning should include the development of a procurement strategy, plans and risk analysis from the early project formulation phase and address the identified challenges in electoral procurement.

Electoral procurement strategy

A procurement strategy must be defined for each procurement project. This strategy should ensure that all relevant aspects are covered during the process to be conducted, starting with the selection of a procurement method to asset disposal considerations. A procurement strategy should involve the following issues at the very least:

- procurement objectives, i.e., what needs to be accomplished through procurement;
- procurement methods, i.e., how the procurement will be conducted;
- requirements;
- institutional and legal framework of the elections;
- distribution of roles and responsibilities, involving all parties and stakeholders;
- risk assessment involving i) primary and secondary risks, and ii) identification and management of risks in terms of reducing likelihood or reducing impact (i.e., contingency plans);
- costs, with consideration not just of the purchasing price, but also of the so-called total cost of ownership;
- technical specifications (also including ToR and SoW) and quality of materials (observation of existing

standards), to be thoroughly defined from the start. They are the central part of the solicitation document, the central way to obtain agreement with the end user, and the main channel to describe and explain to bidders and potential suppliers what is requested;

- timelines, including production lead times and realistic delivery and distribution;
- logistics, including and involving the entire supply and logistic chain from origin of the goods to final delivery and deployment at destination, encompassing international freight, storage, packing, local distribution, etc.;
- disposal and retrieval, with special considerations to environmental regulations and special dispositions for toxic or dangerous goods, such as batteries, indelible ink with silver nitrate, plastic materials, etc.; and
- sustainability, i.e., considering how the costs incurred can be turned to an investment for the future, by reusing materials for example. Sustainability also refers to whether and how systems and infrastructures created for a specific electoral project can be effectively maintained and used in the future on a continuous basis, ensuring the continuity of the solution adopted and migrating from temporary solutions to more structural and longer-term approaches

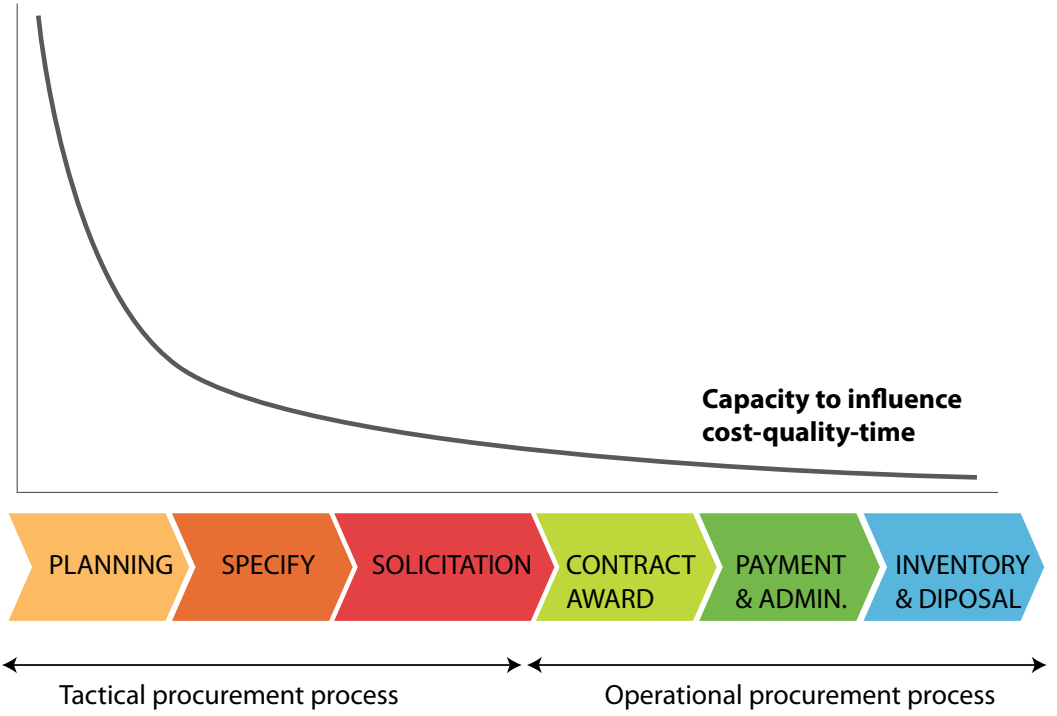
Electoral procurement planning

Full integration of procurement planning into the programme design phase is essential for an electoral assistance project. A joint planning process between programme and operational staff allows for the necessary understanding of procurement requirements, the market and associated risks.

During project formulation, procurement plans should be developed in line with operationalizing the corresponding procurement strategy, including thorough discussion and accomplishment of the following:

- identification of procurement needs and strategies,
- analysis of associated risks and costs,
- determination of constraints in the supply chain, and
- assessment of implementing partners" procurement capacity.

Procurement planning also means that key objectives, timeframes, roles and responsibilities are clearly identified and operationalized in the plan. Procurement plans, like operational plans and budgets, are dynamic documents that need continuous updating through the project in order to reflect changes and address any new challenges that may arise.



As shown in the figure above, planning represents the highest savings potential of the procurement process. This is because the earlier the involvement in the process the more the costs, quality and timelines can be influenced.

Therefore, appropriate planning at the start of the process contributes to timely procurement and a better allocation of resources, avoiding the risks of unjustified higher costs due to late action and respecting established regulations or quality levels. If procurement has not been planned well in advance - and thus all identified risks have not been mitigated - the result is often a rushed processes and undesired procurement outcomes, delays or non-performances.

TASK NAME	DURATION	START	FINISH
DATACENTRE	10.39 MONS	MON 08/07/07	MON 09/04/2
DESIGN	**5.6 MONS**	**MON 08/07/07**	**FRI 08/12/0**
RFP	16 DAYS	MON 08/07/07	MON 08/07/2
CONTRACT	1 DAY	TUE 08/07/29	TUE 08/07/2
DESIGN PLANS	18.6 WKS	WED 08/07/30	FRI 08/12/0
CONTRUCTION	**10.39 MONS**	**MON 08/07/07**	**MON 09/04/2**
RFP	2.25 MONS	MON 08/12/10	WED 09/02/1
BIDDING	2 WKS	WED 08/12/10	WED 08/12/2
EVALUATION	5WKS	WED 08/12/24	WED 09/01/2
ACP	2 WKS	WED 09/01/28	WED 09/02/1
CONTRACT	5 DAYS	WED 09/02/11	WED 09/02/1
CONSTRUCTION	**10.39 MONS**	**MON 08/07/07**	**MON 09/04/2**
CEMENT & DRILLING	2 WKS	WED 09/02/18	WED 09/03/0
NETWORKS	2 WKS	WED 09/03/04	WED 09/03/1
CARPETS	5 DAYS	WED 09/03/18	WED 09/03/2
FORNITURE	3 DAYS	WED 09/03/25	MON 09/03/3
COMPUTERS	**10.19 MONS**	**MON 08/07/07**	**TUE 09/04/1**
RFQ	20 DAYS	MON 08/07/07	FRI 08/08/0
CONTRACT	4 DAYS	MON 08/08/04	THU 08/08/0
SHIPING	1 MON	FRI 08/08/08	THU 08/09/0
ASSEMBLED	5 DAYS	MON 09/03/30	MON 09/04/0
INSPECTION	3 DAYS	MON 09/04/06	THU 09/04/0
SETUP	3 DAYS	THU 09/04/09	TUE 09/04/1
SCANNERS	2 DAYS	TUE 09/04/14	THU 09/04/1
PRINTERS	2 DAYS	THU 09/04/16	MON 09/04/2

Figure 2. Example of an operational plan for the electoral data centre in Afghanistan where a building was selected to be converted into a data centre hosting more than 350 workstations, a database server, a web server and biometric servers

APPROPRIATE ITEM COSTING BREAKDOWN

When requesting offers from suppliers, always specify that the costs be presented item-by-item, line-by-line in such a manner so that it can be determined what the variables will be should any of the following deviate from the originally planned figures: the total number of voters (and maybe even the number of duplicates); the total number of polling centres/stations; the total amount of consumables required; the voter registration period; etc. As far as possible, try to foresee such a possibility ahead of time because when undertaking procurement ëadjustmentsí midstream, it ls possible to be tied into a specific supplier, thereby diminishing a negotiating position. Knowing clearly the price charged for each item and service facilitates cost calculations and the evaluation of offers, and supports transparency, accountability and fairness in the process.

Procurement should ensure that the solicitation of offers is timely, purchases are cost-effective and materials are delivered on time as per required quality. To this end, procurement officers should be encouraged to develop the necessary understanding of supply markets through market research, and should include such factors and their interrelations in the corresponding procurement plans.

Time, cost and quality, the same pillars that define "best value for money", are crucial factors to be carefully considered when planning procurement of electoral materials as well. Each of them interrelates and influences the other two, resulting in a matrix of relations which need to be factored in from the start, at planning stage.

First, timing is an essential factor in electoral procurement because it affects comprehensive project implementation, the pricing and total costs, the credibility of the electoral process, and ultimately the results. In this regard, timing is not only conceptualized as delivery time but also as the time needed for further inland distribution, especially when goods are consolidated from all over the world, as well as time needed for mobilization of staff and preparedness.

Major system enhancements - e.g., new IT systems and/or voter registration systems - should aim to start as early as possible in the post-election period to maximise the time for testing, procedural development, training, cultural acceptance, as well as durable and institutionalized adoption of the solution. All these will have a great impact on the sustainability of the solution.

Secondly, in relation to costs and pricing, it is worth noting that in the case of electoral processes a considerable share of the materials sourced for may be low-tech and relatively easy to produce (and therefore relatively inexpensive). However, the urgency and need for expedited response and extreme consolidation capacity mean that for certain usual items in elections only a limited number of specialised suppliers can respond under such rigid circumstances.

When timelines are tight, the buyer becomes highly dependent on suppliers, while suppliers must deploy more resources and effort to respond, all in all potentially resulting in dramatic increases in their prices. Section 2 provides a complete overview on budgeting and issues related to costs.

Last but not least, quality requirements need to be factored in the procurement plan because they determine major decisions including what is to be sourced, where it can be sourced, the appropriate methods, etc. The overall implementation of the project will highly depend on having procured the right items for the job, i.e., the right quality overall. In terms of quality issues, therefore, procurement plans should consider for example the

implications of the quality level/standards required regarding the range of available products/equipment and responsive suppliers; interrelations with cost and time, i.e., the higher the quality requirement the more that prices and timelines tend to increase; considerations in terms of necessary testing; considerations on alternative solutions; and quality specifications such as materials, sizes, performance, standards, in order to minimize involved risks.

1.6 Technical specifications and their role in the process: solicitation, evaluation and testing

Technical specifications, as the principal means to define the procurement requirement, deserve special attention for their important role in procurement, especially for complex equipment and new technologies.

In short, specification is the "heart" of the procurement transaction because it:

- defines client (beneficiary) needs and requirements;
- clarifies for the procurement agent (if applicable) what to procure for the client;
- delineates the supply requirements for the potential suppliers; and
- establishes the quality standard (benchmarks) against which bid evaluation, inspection, tests and quality checks are made.

Specifications can be categorised as functional, performance or technical. It is common though to use the term "technical specifications" to refer to specifications in general. The three types are typically combined to define the requirement with the necessary level of details to ensure full understanding and coordination among parties.

Specifications in the case of goods should involve most importantly all technical/physical details, complemented as necessary by functional and performance specifications, defining the purpose and capacities of the item. It is important to not limit specifications for goods to only physical details, especially when procuring equipment, new technologies and complex systems. In addition, specifications should be stated in a generic manner, avoiding the use of brand or trade names as far as possible.

In the case of services, requests are mainly defined based on functional and performance criteria, being the principal specifications to use for services. For example, requests for services should provide background and objectives, the terms of reference (ToR) or scopes of work (SoW) required; quality standards; the qualifications and experience of consultants required; time period; deliverables/output; milestones and reporting; provisions for monitoring and evaluation, etc.

TYPES OF SPECIFICATIONS

1. A functional specification describes the purpose, duty, role or function of the product or service
2. A performance specification describes how well the product or service will accomplish its purpose ó that is, in capability or performance terms
3. A technical/physical specification defines the detailed physical characteristics, materials, measurements and manufacturing requirements of a product

The first two types, functional and performance specifications, are the main input for specifying service requirements. Technical/physical specifications, which define the physical characteristics of the product at the most detailed level, are essential to define the product requirements in a clear, concise, and comprehensive manner. In general for goods, the three types should be combined.

Wherever possible, specifications should use internationally accepted standards to provide a recognized and measurable reference for compliance, remove uncertainty and provide a clear benchmark the suppliers should meet. A typical use of standards is in relation to quality. Quality refers to the perception of the degree to which the product or service meets the customer's expectations. It actually has no specific meaning unless related to a specific function and/or object because quality is a conditional and somewhat subjective attribute. Therefore, using established and specific standards helps to clarify the exact level of quality requested.

UNDP electoral procurement activities typically include an international basket fund electoral assistance project managed by UNDP. In such projects, in which UNDP conducts procurement under UNDP procurement procedures in support to an EMB, the technical specifications should be developed at the earliest stage possible within the project and jointly by UNDP and the EMB. It is absolutely necessary in this context that the final technical specifications are agreed and signed off by the EMB before the procurement request is issued to the suppliers.

This approach ensures involvement, agreement and adoption of the solution by the beneficiary - the EMB, which is part of the process.

The signed-off technical specifications represent the cornerstone on which the evaluation criteria are established. Attempting to draw up such evaluation criteria in the absence of a pre-established, signed-off, technical specification can be troublesome. For example, evaluators might disagree on what criteria should be used and what is each one's relative importance. The absence of clear and agreed specifications will limit development of proper offers from suppliers and complicate evaluation, the supplier selection phase and after-delivery stages. The following points illustrate how and why such problems can arise:

- Once the physical product is received, different members of the EMB may be displeased because they had different interpretations of the product's features. An adequate and detailed signed-off specification avoids such a situation.
- The specifications must conform to the requirements and criteria of the electoral law. Without drawing up such specifications it is difficult to assess what these mandatory criteria are or to assess the degree to which each offering conforms to these criteria.

- It follows that if the base criteria that must be met by each supplier are not known then it will be difficult to assess if a supplier actually meets these mandatory criteria in a quantifiable fashion. In the absence of such specifications, the selection process may degenerate into decisions driven by softer issues (for example, which product "looks" smarter or well-polished) instead of which product meets (or best serves) the basic mandatory criteria dictated by the electoral law and best practice.
- The criteria embodied within the specifications can also serve to minimize disagreements that may arise within the evaluation team members regarding the evaluation result/decision of an offer.

It is important to factor into the discussions with stakeholders the difficulties that will arise if there are attempts to change the specifications after the document has been published and sent to suppliers. Often, ill-prepared technical specifications only come to light when potential suppliers themselves raise concerns and point out some inconsistencies, which of course is only possible after they have received the document. In this case, potential contractors (e.g., UNDP) are under obligation to answer queries from suppliers and send copies of both the query and its response to all receivers of the tender documentation. This may require allocating additional time for suppliers to return bids, thereby affecting the overall timeline for the project - which may not be allowable under the legal framework.

THE ROLE OF TECHNICAL SPECIFICATIONS IN TESTING STAGES

The role that signed-off technical specifications play in the evaluation of offers is generally well understood by procurement practitioners.

What is not always that obvious is the role that such technical specifications play in facilitating consensus when a final decision must be made regarding, for example, a pilot test's evaluation criteria and its outcome. Before a pilot test is conducted it is important to reach consensus with all evaluators (including observers such as the EMB) on exactly what criteria will be measured and which are absolutely mandatory. In a situation where, for example, evaluators did not include a required criterion before the pilot test was launched and a specific fault was observed with one of the suppliers during the pilot test, some of the evaluators may subsequently want to change the original criteria, a step that would raise substantial procedural and ethical concerns. For example, is the late request based purely on technical grounds or favouritism? This is a quagmire best avoided through proper, comprehensive evaluation criteria based on signed-off technical specifications.

The possibility of all potential suppliers falling just short on one or more mandatory criteria must also be discussed before the test is commenced. Potential steps should be identified in advance should such eventualities occur.

The observation and involvement of donors and the beneficiary (the EMB) should be sought also throughout the pilot test process.

PILOT TESTS - ENSURING FAIRNESS, TRANSPARENCY AND IMPARTIALITY

Pilot tests are primarily aimed at determining i) if the equipment tested corresponds to the equipment offered in the bid documentation, and ii) if such equipment is suitable and performs as requested in the particular conditions of the country of destination.

Pilot tests must follow as possible the schedule and protocols established and transparently shared in advance with bidders invited, EMBs, donors and other relevant stakeholders.

Pilot tests should ensure that each of the short-listed suppliers is provided with identical or equivalent conditions to conduct test operations. In particular in cases where testing equipment may be affected by environmental conditions (such as available light, humidity, dust, heat), it is important to secure equivalent facilities; however, as they might not be identical, a draw in the presence of bidders is recommended for each possible selection, including locations, operators, etc.

In addition, where no efforts have been made towards appropriate definition of specifications, standardisation of practices and early establishment of criteria in the process, procurement has faced risky situations of vendor lock, where the vendor may seek to influence the definition of specifications, thereby limiting competition and eventually developing a monopoly type situation.

There are additional advantages when a technical specifications document is drawn up and it forms an integral part of the procurement process and order placement. For example, ideally it should be possible to fully test a product's performance before sign-off and deployment. In practice, however, this is not always feasible.

For example, the specifications for a biometric voter registration kit may include the criteria of registering at least 10,000 voters as well as detecting, via fingerprints (or a fused algorithm of fingerprints and facial recognition), any attempt to register a person more than once on the same kit. Therefore, an ideal step would be to register 10,000 different people as voters while occasionally testing the duplicate voter registration functionality. In reality, however, a more limited number of mock voters is registered during the test sessions and functionalities are tested based on the smaller number.

A similar example might involve the discovery during implementation that kits do not adhere to the specifications even though sample kits passed relevant tests and specifications were signed off. In such cases, the purchaser has the recourse to request the supplier to meet the established specifications as per solicitation documents. Solicitation documents typically form an integral part of the contract, and therefore they become legally binding once signatures are stamped as contracts agreed to by both parties.

1.7 Stakeholder interactions and communication

Throughout a project, but especially in the initial planning stages, good communication between the programme and operations components of the project is vital.[12] All programme staff - election operations, training, voter education, etc - must be absolutely clear as to what they are required to do.

12 Note that UNDP operations staff are those staff involved in the administration of a project. This includes human resources, finance, procurement and project management staff. This should not be confused with the staff working on election operations - who are part of a UNDP projects programmatic staff.

Coordination between UNDP representatives should inform and agree with the EMBs and the donors on the procurement requirements that must be followed.

Interaction occurs in electoral procurement processes typically as representatives from EMBs are encouraged to participate in evaluation processes conducted by UNDP, as observers. Such participation seeks to ensure that EMBs provide the necessary technical inputs and are familiar with the goods or services offered. Nevertheless, if any EMB requests participation as a full evaluation team member, i.e., with voting rights, the request must be authorised by UNDP if UNDP is the responsible and accountable procuring entity. In such cases, the composition of the evaluation panel should be in accordance to UNDP rules and regulations.

International and local rules and legislation

EMBs in developing countries are not always regulated by the rules that multinational organisations such as UNDP have developed and honed over decades. But many of UNDP's procurement principles can ideally be transferred to the EMB for sustainability. National partners should be involved in, and familiar with, UNDP's procurement process. First, this enhances transparency and shared ownership - national partners will also feel responsible for selected goods and services. Second, it assists the EMB's staff members in familiarizing themselves with UNDP procurement principles, which are usually also relevant to any national public procurement rules the EMB must follow once direct UNDP procurement support has ended.

However, the compatibility of UNDP, EC and international procurement principles with any local procurement regulations that the EMB will have to comply with should also be kept in mind - especially when the EMB takes ownership of the procurement systems. Even if the principles are similar, discrepancies between the procedures required by national legislation and those required by UNDP and the EC can be significant.

International and local markets

A challenge commonly faced in applying international public procurement principles, which also affects the interaction between stakeholders, lies in ensuring the most cost-effective and efficient procurement process while at the same time fostering the development of local markets for electoral supplies/goods. Procurement has to be undertaken on the basis of the principles mentioned previously in this paper, i.e. ensuring transparent competition, achieving value for money and mitigating procurement risks. UNDP procurement rules require international competition (for processes of volume above a certain threshold), and unfortunately these rules do not always support the development of the local market or the capacity of national partners.

Yet in some cases, overall development objectives can influence the procurement strategy. For example, occasionally a project may waive the requirement for international competition for some products so as to support the local economy/markets and build local capacities. Such a decision should be based on a country-specific risk analysis, proper planning and a timely start to the procurement process. And, given that a successful

waiver would be contingent on a number of internal UNDP approvals, efforts to obtain one should undertaken rarely and only in special circumstances.

In many cases, risk and feasibility studies reveal that a certain item is not available from local sources in any case For example, digital mobile registration kits may not be available on the local market, or there may not be facilities to print ballots with sufficient security features. Local procurement of other materials, like stationary items, may not be feasible even if available locally because they are often required in such large quantities or as part of polling kits with other items that cannot be bought locally. In all cases the comparative importance of using the local market must be determined at the outset of the project and ideally included in the overall country program and in the procurement strategy.

It must be added that equipment internationally procured could be costly to maintain (purchase of spare parts, purchase of additional units, servicing, etc.) independently by an EMB. This is a factor that needs to be taken into consideration for technology equipment, for example, when defining the scope of the technical specifications, technical support, guarantee and after sales services.

For instance, in Afghanistan, there were strong imperatives to use the local market to stimulate Afghan business as part of reconstruction and recovery efforts. As a result, the electoral assistance project's procurement plan involved local contractors and service providers to the extent possible within the UNDP rules that require competitive international bidding. In Afghanistan this involved a partnership with an international NGO, which trained Afghan businesses on UNDP procurement rules and how to tender for UNDP contracts.

1.8 Management arrangements and types of engagement

UNDP has different management arrangements, units and tools to help with the procurement process in support to EMBs. The following is a short introduction to these topics.

The choice of implementation modality assigns the policies and procedures to be followed when implementing UNDP-supported programmes and projects. UNDP can arrange for its support to programmes/projects in one of the following four ways, using the following implementing partners (or institutions):

- Government or national entities ⇢ **National execution/implementation (NEX/NIM)**,[13] refers to overall responsibility and assumption of accountability by the host government for the formulation and management of UNDP-supported programmes and projects.[14] NEX/NIM for UNDP should be the norm, taking into account the needs and capacities of recipient countries, although it is not the norm for electoral projects (see DEX/DIM below) [15]

13 The terms "execution" and "implementation" have the same meaning, i.e., management and delivery of project activities to produce specified outputs and efficient use of resources.

14 Governing Council decision 92/22 of 26 May 1992.

- Non-governmental organisations ⇢**NGO execution**, refers to national and international NGOs to carry out activities on behalf of UNDP
- UN agencies ⇢**Agency execution** refers to management by UN agencies, where activities require technical sector expertise
- UNDP itself ⇢**Direct execution/implementation (DEX/DIM)**[16] in special development situations,[17] DEX/DIM refers to full responsibility by UNDP for project implementation where:
    - ✓ there is a situation which calls for speed of delivery and decision-making where UNDP management is necessary for mobilizing resources,
    - ✓ national authorities lack the capacity to carry out the project,
    - ✓ the project cannot be carried out by another United Nations agency, and
    - ✓ the UNDP Country Office has adequate capacity to manage, report and achieve the expected outputs of the project.

UNDP will always continue to pursue national capacity development under DEX/DIM, which is the default modality in electoral assistance. However, UNDP can, if it deems it necessary, engage with other implementation partners under DEX/DIM. The use of "implementing partners" is initially identified during the formulation of the project.[18]

15 See also UN General Assembly Resolution 47/199 of 22 December 1992. Given the political and often sensitive nature of the electoral environment, however, special caution should be exercised in the national execution of electoral assistance projects. NEX/NIM should only be used in electoral assistance in cases where there has been full consultation and there is consensus as regards the impartiality and the strength of the capacity of the electoral management body and/or when the nature of the assistance is longer-term and well integrated into other areas of democratic governance that are also delivered via NEX/NIM.

16 DEX/DIM is the default modality for electoral assistance (Note of Guidance UNDPA - UNDP). With this modality UNDP takes on the full responsibility for project implementation. Note that the "implementation" spoken of here refers to the activities as set out in the ProDoc, not the actual implementation of the elections themselves, which, of course, remains in the hands of the EMB.

17 See UNDP Procurement Guide for Elections in Post Conflict Countries.

18 For further reference on DEX/DIM and NEX/NIM modalities, see the UNDP Programme and Operation Policies and Procedures, Selecting an Implementing Partner, available at the following UNDP intranet page: http://content.undp.org/go/userguide/results/ppm-overview/implementing-partner/.

CHOOSING IMPLEMENTATION PARTNERS FOR UNDP

Unless identified and vetted as implementing partners in the initial formulation phase, implementing partners are essentially contractors, and therefore competitive procurement process will apply to engage them in the course of an electoral assistance project if they are deemed necessary (unless they are government institutions or UN agencies). The UNDP Country Office must review the capacities needed for performing all election-related tasks. In doing so, the Country Office should analyse each task, determine which of the capacities applies to the task, and assess if proper capacities are present. If capacities are not adequate, it should be determined what additional measures need to be taken once implementing partners are employed, and a follow-up action plan should be designed.

Necessary capacities include the following:

- **Technical capacity:** Ability to carry out and monitor the technical aspects of assistance
- **Managerial capacity**: Ability to plan, monitor and co-ordinate activities
- **Administrative capacity**: Ability to prepare, authorize and adjust commitments and expenditures; ability to procure, manage and maintain equipment; and ability to recruit and manage the best-qualified personnel
- **Financial capacity:** Ability to produce project budgets; ensure physical security of advances, cash and records; disburse funds in a timely and effective manner; and ensure financial recording and reporting

As per the appropriate implementation modality, the implementing partner to undertake the programme/project arranges for the procurement of inputs and is fully responsible for further implementation in compliance with international practices.

Regardless of whether management arrangements are fully DEX/DIM or partly NEX/NIM, UNDP can engage NGOs/CSOs for specific sub-components in three possible ways:

- NGO/CSO as implementing partner,
- NGO/CSO as contractors/vendors, or
- NGO/CSO as grantees.

In short, if a UNDP project is identifying an NGO/CSO as an implementing partner, this is a programming decision made on the basis of a vetting process/recommendations of UNDP's LPAC at the project formulation stage. If the NGO/CSO is a contractor of a UNDP project, this is a procurement decision made later on the basis of a competitive bidding exercise. Finally, UNDP can fund, through grants, proposals prepared and submitted by CSOs. This modality is different from contracts because it provides an opportunity to CSOs to design proposals themselves, in the form of micro-capital grants up to $150,000.

1.9 Centralized procurement support within UNDP

Organisations, especially if highly decentralized as UNDP is in terms of programming and operations, may largely benefit from maintaining specific support functions at central level. In the case of UNDP procurement, this is achieved through the Global Procurement Unit of UNDP's Procurement Support Office (PSO GPU), which provides support and conducts procurement on behalf of UNDP COs for strategic or capacity-related reasons. PSO GPU focuses only on UNDP practice areas, of which electoral procurement and assistance is a major one.

The advantages of such a set up are seen in the results: streamlined and quality-assured procurement of complex items and equipment in high risk situations. The following are among the factors that directly contribute to GPU's capacity and achievement in this regard:

- Channelling and consolidation of demand and subsequent increased negotiating power vis-à-vis potential suppliers. UNDP PSO becomes a more permanent representation of UNDP for many actors at international level, some of which otherwise would only work regularly with one or more UNDP Country Offices
- Accumulation of experience and best practices in specific key support areas over time and through various Country Office electoral projects and approaches, including different election systems, technical solutions, and different political, institutional and security landscapes
- Development of procedures and tools, such as LTAs for highly specialized or utilized goods
- Expertise in contracts and vendor management, including key steps such as keeping track of the contractual performance of suppliers on prior contracts in a systematic manner

GPU additionally provides the following support functions to electoral processes:

- Assistance to UNDP Country Offices and EMBs through advice and support on procurement planning, timelines and budgeting, on-site training and, in most cases, targeted exploratory, formulation and assessment missions relating to procurement, capacity and operations for each step of the electoral cycle
- Direct procurement support to UNDP Country Offices. When requested, GPU conducts full procurement processes, management of suppliers and logistics until delivery and completion of contracted services. In such cases, support in planning, development of specifications, on-site evaluation processes, validation tests and liaison with EMBs during the procurement process are also provided by GPU

Support from a central support office becomes more valuable (and value-adding) and useful as experiences and expertise increase. Accumulated experience and knowledge from a wide range of projects including various Country Offices, different election systems, different technical solutions, and different political, institutional and security landscapes, are increasingly key assets to effectively provide quality and expert services to UNDP.

Another output facilitated by the existence of a central support office is the production of statistics and cross-organisational analysis of demand factors and markets" responses, such as product trends and procurement volumes, among others.

In terms of volumes and products, how does electoral procurement currently look from the perspective of the central support office? As per data from PSO GPU procurement, the illustration below shows which the financial value of specific items as a share of overall main expenditures (2004-2010). It can clearly be seen that biometric registration equipment and technology represents by far the single largest product group in terms of cost. This confirms a trend towards an increasing use of biometric/digital registration technology, and of overall budget expenditure around this highly costly technology investment. Should a similar overview be established today, the commodity expenditure volumes would confirm this trend even more starkly, as about 10 African countries are currently introducing biometric civil/voter registration technology, including Benin, Côte d"Ivoire, DRC, Guinea, Kenya, Togo and Zambia.

TOTAL PROCUREMENT - FINANCIAL VALUES

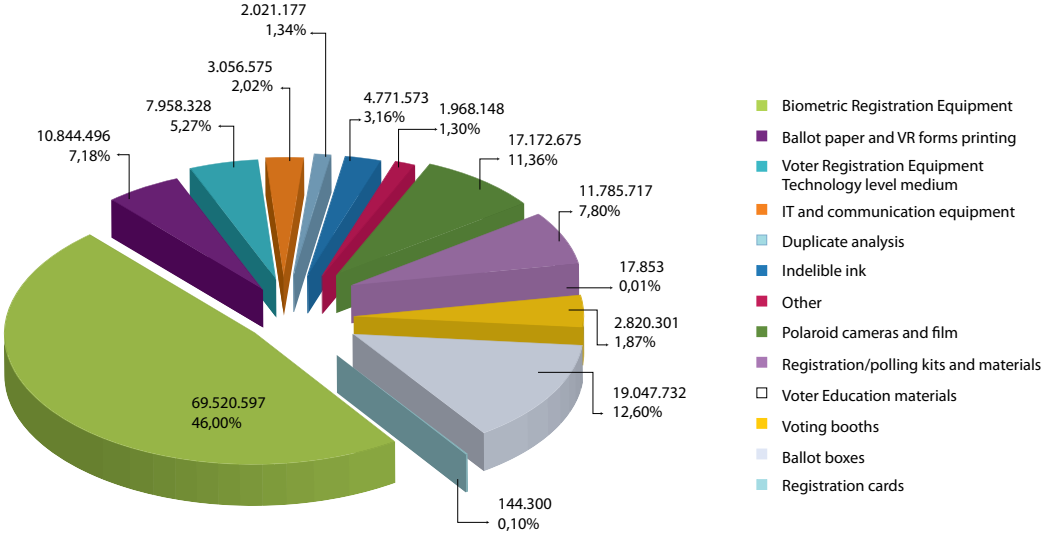


Figure 3. Products procured by the UNDP Procurement Support Office (PSO) 2004-2010 through the Global Procurement Unit (GPU) and its predecessor IAPSO

Finally, support from a central office should prioritize longer-term focus and activities such as continued resources development and coordination at institutional level. In light of these fundamental priorities, UNDP PSO GPU is part of the EC-UNDP Joint Task Force on Electoral Assistance and therefore collaborates and participates regularly in joint EC-UNDP formulation missions with an operational focus, workshops and other initiatives within the field of electoral assistance.

CASE STUDY: THE CROSS-INSTITUTIONAL STRATEGISTS PROCESS IN ZAMBIA

The recent example of Zambia illustrates a case of a cross-institutional joint strategizing process. This included an early analysis of technical specifications, market research, testing and validation of various kinds of biometric registration kits, and an analysis of associated risks to the process. All this took place even before the procurement planning phase.

The process was facilitated by the EC-UNDP Joint Task Force, which undertook a number of missions in Zambia during 2008 and 2009. The missions, aimed at electoral assistance project formulation and identification covering the country's 2009-2012 electoral cycle, included the following activities:

- immediate strategic and technical support to the Electoral Commission of Zambia (ECZ) and the Department of National Registration, Passports and Citizenship (DNRPC) of the Ministry of Home Affairs;
- definition of an operational concept that took into consideration the phasing out of Polaroid systems used by both institutions;
- introduction of digital registration kits to be used both by ECZ and DNRPC;
- digitization of the existing civil register, which had previously been in paper form only;
- establishing synergies with the existing OMR-based election information management systems used within ECZ;
- development of technical specifications and planning for validation testing; and
- establishment of a budgeting and procurement plan and "road map" that covered both goods and services.

The procurement process was conducted by UNDP PSO GPU, in support to the UNDP Zambia office. Specifications development and bidding period took place during the last quarter of 2009, with the final kits arriving in Lusaka in May 2010.

Zambia is one of the most promising case studies both in terms of the potential integration of the civil register and the voter register in a seamless manner, and also for the related programme/operational/procurement planning.

1.10 A tool for efficiency in UNDP procurement: long-term agreements

Long-term agreements (LTAs) are framework agreements maintained with one or more suppliers for a certain commodity, service, or group of them for a period of up to 3 years typically. The following are among the reasons to establish LTAs:

- to ensure effectiveness and efficiency in the procurement process;
- to reduce processing timelines within the boundaries of UNDP procurement rules and regulations;
- to limit repetitive tendering exercises for standardised equipment and services; and
- to ensure the necessary quality standards are met, by including them under the agreements and therefore the LTAs guarantee quality assurance and quality control.

UNDP/GPU maintains LTAs with several expert suppliers for a vast range of strategic and essential electoral materials typically required. The main focus of LTAs in the past has been to cover commonly procured items for manual registration, as per previous trends.

Materials requested are in most cases highly diverse, requiring consolidation and special packing/integration for later distribution. This typically involves complex logistics. Electoral-related materials covered by LTAs include items such as ballot boxes and seals, voting booths, indelible ink, registration/polling kits, IT equipment, power supplies and freight forwarding services. Most of these goods are not normally available locally and are therefore covered through global LTAs.

Recent needs assessments, mapping exercises, analysis of conducted procurement, and feedback from field missions show a trend towards higher technological solutions, e.g., using optical mark reader (OMR) methodology or introducing comprehensive digital biometric voter registration solutions. The strategic focus for the immediate future is thus to increase the scope of procurement tools, such as LTAs/prequalification lists, etc. to include items of higher level of technology, higher production complexity and higher security requirements.

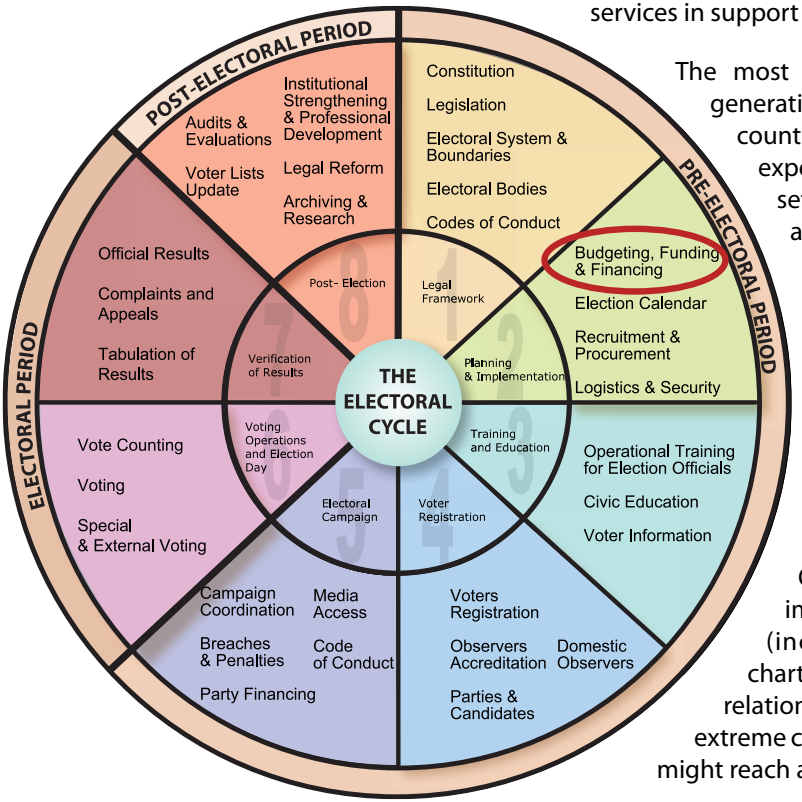
Another potential area of expansion for procurement tools and agreements is consultancy services in the field of elections - for example, provision of support and training for domestic observers; training of political parties on voter registration and polling procedures, etc.; media support and monitoring services; and support to civic and voter education services. Nonetheless, tendering processes will continue to be routinely launched due to the different needs and individual character of each project complexity, volume, and priority of promoting local involvement, etc.

PART 2

Costs, Budgeting and Risk Managements

2.1 Costs and budgeting for electoral procurement

Costs of elections include costs incurred in undertaking activities in support of the functions of the electoral cycle - including, among others, voter registration, boundary delimitation, civic and voter education, professional development and training, voting operations, result tabulation and transmission of results, and audits. Substantial sums are spent on the procurement of goods and services in support of these activities.



The most expensive type of elections are "first generation" elections carried out in post-conflict countries or in newly formed states. The most expensive activities typically relate to the setting up of the election administration and its territorial structure (the so-called securitisation of the elections); the first voter registration exercise of eligible voters; the procurement and distribution of election materials; the recruitment and training of inexperienced staff; the development of initial stakeholders" capacity; and extensive voter information and education campaigns.

Other relevant costs that might have a big impact on the budget are transportation (including vehicles, boats, helicopters, charter planes) and security, especially in relation to the specific electoral event. In some extreme cases like Afghanistan and Iraq, these costs might reach almost 50 percent of the budget.

Second- or third-generation elections might still incur high implementation costs related to, for example, higher voter registration costs and systematic improvements to existing technology. In general, however, cost reductions should arise over time due to improvements in planning and training, and the re-use of equipment (polling station kits for example). Ideally, a country should aim to bring its electoral costs down from one electoral cycle to the subsequent one. The reduction might be expressed as a percentage of the total costs of the previous election, such that cumulative reductions will

enable national ownership of the total costs. However, there are many relevant logistical factors - e.g., security concerns, geographical extension of the country and weather conditions - and technical/political ones (e.g., electoral systems and voter registration systems) that might keep costs high. Other key operational decisions to be taken by the EMB can considerably affect the electoral budget, such as a decision to increase security features to be applied to ballot papers (thereby increasing design and printing costs), or to increase the level of technology to be introduced from scratch.

Procurement costs constitute a bulk of electoral budgets. Tracking the costs of procurement and establishing a well-functioning budget, however, are complex tasks. While the price of the goods and services to be bought can be well-known, procurement officers need to take into account less visible costs related to, for example, acquisition, installation, maintenance, storage and disposal. These costs also include training of electoral staff using technology, and consequences that can occur if training has been poor. Other hidden costs relate to supervision (operational and technical).

Consecutive electoral cycles need to be taken into consideration when estimating the following distinct costs in the budget:

- total cost of procurement,
- total cost of operations, and
- total cost of maintenance (between post- and pre-electoral periods, e.g., storage and refurbishment costs).

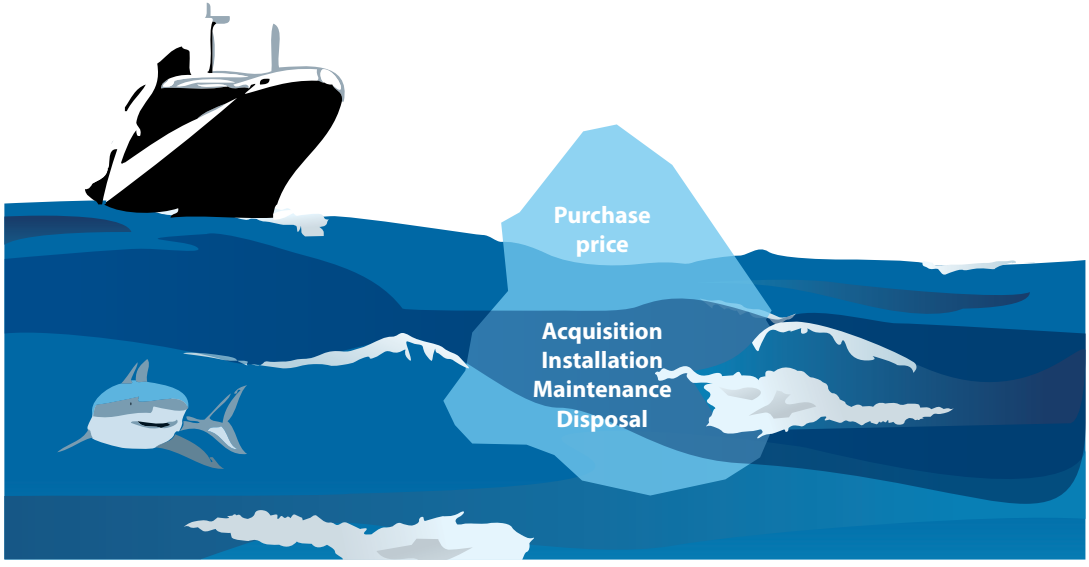


Figure 4. Total cost of ownership (TCO)

These are all costs which impact sustainability and constitute the so-called total cost of ownership (TCO). Erroneously, often only the purchase price is taken into account in assessing value for money. Yet cost-effectiveness, involving direct and indirect costs as mentioned above, also need to be well understood. At the same time, though, TCO may be difficult to quantify, especially when "creative" TCO calculations are also a possible source of tender manipulation and inflation of prices. Applying common sense - especially in cases of big discrepancies - can help.

CONTINGENCY PLANS

"Contingency plans should identify: the nature of the contingency; the operational impacts of the contingency; the feasible responses; the financial implications of the responses; and any effects on other processes."

ACE Encyclopaedia[20]

2.2 Risk management

Risk assessment is carried out to predict possible problems and to identify their likely sources with the primary objective of preventing such problems from arising in the first place. Risks need to be identified, analyzed, quantified and prioritized.[19]

Risks can be grouped in two categories, both of which need to be taken into account in the procurement plan. **Endogenous risks** are risks that are largely within the control of the organisation. Examples include poor procurement planning, poor contract management, and inadequate forecasting procedures. **Exogenous risks**, on the other hand, are risks that are largely outside the control of the organisation, such as risks associated with weather, military activities and political activities. These risks require contingency planning.

Risk assessment requires careful and systematic analysis of endogenous and exogenous factors that may influence the smooth implementation of a well-defined procurement plan. It provides an important basis for risk management at the subsequent stage.

Based on the reasons outlined above, and the fluid nature of election budgets, it is thus immensely important to include contingency line items in the budget to the fullest extent possible.

The most common challenges in electoral procurement preparations that increase process-related risks are associated with decisions on implementation methodologies; development of technical specifications and terms of reference; time constraints; insufficient budgets for procurement needs; and national ownership and capacities. Some examples are listed below:

19 For any electoral assistance project, UNDP Programme Managers need to prepare a risk log, upload this into ATLAS and periodically update the log.

20 ACE Electoral Knowledge Network - Contingency Plans:
http://aceproject.org/ace-en/topics/vo/vog/vog01/vog01d/default/?searchterm=contingency planning.

- Structural risks related to a "one-time" electoral event, while implementation structure/s may be oriented towards a more regular/long-term programme or project. As such, a one-time electoral event may require human resources, technical expertise and procurement structures to be built up from no existing baseline.
- Risks related to market distortion caused by intense political lobbying by suppliers which may lead to a prejudicial outcome of the tender process.
- Risks of unrealistic expectations of the procurement rules and regulations and the marketplace, which may negatively impact the overall project time line.
- Risks caused by inflexible deadlines (voter registration and election dates), which are often used by critical stakeholders as a tool to exert pressure on procurement agents without anticipating that it can cause serious "value-for-money" predicaments.
- Reputation risks for the assistance provider if the media and certain stakeholders misrepresent the procurement actions.
- Risks of uncertain or insufficient budgets and erroneous or incomplete technical specifications and terms of reference for procurement needs, to the extent where these will impact the total quality and quantity of goods and services to be procured.
- Risks of inappropriate introduction of high-tech solutions and innovations without a complete overview/understanding of operational running costs and sustainability.
- Risks related to lack of local technical service, backup support and spares for high-end technological solutions. The more specialised the technology deployed, the less likely it is to find local spares for it. Much time could thus be lost to lengthy transportation delays of both spare parts and finding overseas technicians.
- Risks of not being able to locate, attract and retain staff with appropriate levels of skill. The more high-tech the solution the more likely this risk will be relevant.
- Risks of misuse of the implemented system, e.g., because of poor data protection, or legal or IT security-related concerns.

RISKS RELATED TO APPROPRIATE TECHNOLOGY

If appropriate, the introduction of new technology can make electoral processes more efficient. However, the introduction of new technology shortly before the elections can also raise suspicions and create a lack of confidence, or may be impractical for various reasons. Several issues need to be taken into consideration when contemplating technological upgrades. They include weighing actual vs. perceived benefits of introducing new technology, the legal implications, the perceptions of voters and other stakeholders, the feasibility, the appropriateness, the implementation time-frame, cost-effectiveness, maintenance, sustainability, the balance between security and transparency, and finally the integration with existing skills, electoral practice and procedures. Some of the strategies to use technology without jeopardizing the electoral process include involving stakeholders, surveying the political environment, surveying cultural issues, carrying out feasibility studies, presenting the benefits clearly, and being transparent about procurement procedures, time of deliveries, costs and risks. It may also be useful to carry out pilot and evaluation tests that can be used also as civic education, public outreach and consensus-building measures.

UNDP Electoral Assistance Implementation Guide[21]

Contingency planning refers to having a reserve for when something not under own control goes wrong. Some examples of ICT-related risks requiring contingency planning include:

- **Risk of data loss**: Contingencies may include multiple data backup strategies so that key data are i) on the same server (therefore quick to cover in cases of file corruption); ii) on a different server (thus, if the primary server crashes, switching to a backup server can be done); iii) off-site (so that in case of equipment loss, the data are not lost - although there will still be time delays to procure equipment and set up the system as before); and iv) off-site disaster recovery sites
- **Poor quality of infrastructure**: For example, what if there is a power cut or destructive voltage spike? One contingency is to use sufficient power conditioning such as mechanical automatic voltage regulators (AVR) to smooth irregular voltage levels and uninterruptable power supplies (UPS) for short power cuts. But what if the power cut continues beyond the support time provided by the UPS? The answer would be standby generators (and fuel). But what if the power supply to the computer is cut? The answer to that would be redundant power supplies on servers and computers. Often cost will determine to what extent the project can minimize the possible risks in advance and create contingencies.
- **Dust:** Dust can cause the computer cooling systems to not work properly. One contingency would be to use dust prevention or filters. Afghanistan had a major problem with fine dust. So did northern Nigeria, which is near the Sahara Desert. A plan should be in place to check and clean these filters often.

21 UNDP Electoral Assistance Implementation Guide, Risk Assessment pages 16-20; see http://www.undp.org/governance/docs/UNDP-Electoral-Assistance-Implementation-Guide.pdf.

- **Overheating in hot conditions:** One contingency would be to use redundant air conditioners. All computer equipment releases energy in the form of heat. Air conditioners should be set up to be able to exchange this heat. Additional air conditioning units should be used as contingency in case one breaks down.
- **Power overload**: Power consumption is normally underestimated for data centres. Power distribution boards should be designed to handle huge power loads in data centres to prevent electrical fires. As a contingency, enough "extra" power consumption should be allowed to add more computers to the circuits, but not so much extra that a short circuit will be detected too late. This should be determined by a qualified person.
- **Time runs out**: As the election neared, the Moldovan EMB wished to procure 40 laptops and the UNDP project selected the LTA route because it would fast-track the procurement. The LTA holder was comfortable with the timeframes and agreed to the terms and accepted the purchase order through New York. However, the LTA holder was not aware of a change in relevant law that limited the amount of lithium allowed on board an aircraft. The batteries of the 40 laptops exceeded the law's limit and the 40 laptops were not delivered in time for the elections. The project had to rent laptops at two-thirds of the price of buying them. In this example, too many things went wrong. The EMB made a late decision, the LTA holder was not aware of updated shipping regulations, and the procurement officers did not follow up on the purchase order in a timely fashion. It cannot be stressed enough that most additional high costs are due to the lack of forward planning.

PART 3

Appropriate Technologies and ICTs for Development

Appropriate technology refers to technology applications designed with special attention towards environmental, ethical, cultural, social and economic aspects of the community it is intended for. With these goals in mind, appropriate technology usually requires fewer resources, is easier to maintain, has a lower overall cost, and has a decreased impact on the environment.

The term is also often utilized to describe suitable simpler technologies in developing countries and emerging democracies that can most effectively achieve the intended purpose in a specific location. Thus, taking the level of development into account, the term is usually used in two ways:

- to utilize the most effective technology to address the needs of developing areas, and
- to use socially and environmentally acceptable technologies in industrialized countries.

With these principles in mind, there is an ongoing debate related to the use of ICTs in different development sectors.

Information and communication technologies for development (ICT4D) refer to the application of ICTs within the field of international **socio-economic development.** In this case, ICT4D aims to apply information technologies to alleviate poverty, and ICTs can be applied to directly benefit the disadvantaged population. It is also relevant in an indirect sense, when the ICTs assist governments (supported by NGOs) to improve the socio-economic conditions in a given country.

An example of an appropriate technology in ICTs would be mobile phones, which reach a wide geographical coverage. In a similar vein, e-mail and Web access provide relatively inexpensive services through the utilization of cooperative computer networks that can run wireless ad hoc networks. For remote areas, satellite internet access is more expensive but has the advantage of operating on a higher speed and increases connectivity.

The following are types of initiatives in relation to ICT4D:

- **Infrastructure**: providing suitable computer hardware, operating systems, software, and connectivity to the internet. These would include the affordability of software and hardware, and the ability to legally share software.
- **Capacity-building and training in ICTs**: installing, maintaining, and developing hardware and software.
- **Digital content and services**: e-learning, e-health, e-business/e-commerce, increasing digital literacy,
- **Regulation of the ICT sector and digital rights**: universal access vs. monopolistic structures issues, intellectual property rights issues, privacy, security, and digital identity.

3.1 Introduction of ICTs in electoral processes

Any effort to make electoral assistance more effective must also tackle the issue of the increasing use of technology in electoral processes. The accelerating development of ICT applications available for electoral purposes and the appeal that such applications have for partner countries" EMBs are factors to be considered by all EMBs, development agencies, electoral assistance providers and practitioners. ICTs have already dramatically changed the way elections are conducted in many developing countries.

This process is likely to continue and affect more and more emerging democracies, regardless of their level of preparedness to introduce such applications and despite the fact that the cost implications can be enormous. It seems that post-conflict and emerging democracies, in particular, are making the biggest leaps in technology (usually with donor funds), with sometimes serious deficiencies in sustainability. There is great demand from partner countries, pressure in which suppliers of ICT solutions often play a role, to development agencies to invest in ICT applications for electoral processes that should consider the level of capacity already attained by the respective EMB. Among others, recent examples are Benin, Côte d"Ivoire, DRC, Malawi, Mauritania, Nigeria, the United Republic of Tanzania and Zambia.

COSTS

The main issues regarding voter registration costs have to do with the type of registration system (permanent vs. ad hoc, automatic vs. show-up update); institutional responsibility for voter registration (the EMB or a separate agency); and degree of resilience in cost assessment (easily identifiable vs. diffuse costs).

ACE Encyclopaedia[22]

The biggest challenge is how to ensure a sustainable, appropriate, cost-effective and transparent use of technology, particularly in post-conflict elections and in fragile and emerging democracies. There is no fixed solution that can be applicable everywhere: different situations require different solutions. As a general rule, the level of technological upgrades suitable for a given partner country should always be directly related not only to the capacity, but also to the **trust** and **independence** enjoyed by its EMB. These elements - trust and independence - are decisive to the acceptance of the use of ICTs by the public and, as a consequence, influence the level of trust in the electoral process.

Provided that technologies are legally supported, operationally appropriate, accurate, cost-effective, timely implemented, transparent and sustainable, they can build credibility by improving the speed and efficiency of the electoral process.

22 ACE Electoral Knowledge Network - Voter Registration Costs: http://aceproject.org/ace-en/focus/core/crc.

However, too much attention to technology applications may divert the EMBs from other important matters and may drain the budgets of development agencies or EMBs. Costs associated with purchasing and distribution, system defects, poor design or testing may leave development agencies captive to increasing costs in order to save what they have already invested in. There is a need to "skill up" staff to implement sustainable systems, and this may not be easy given the short timetables that are often involved. Finally, undue influence in favour of one solution or another may be exerted by interested vendors or even by development agencies that wish to introduce a technology similar to the one in use in their own country. Also, it might be so that political groups in power view the use of technology as the ultimate and the most effective method to control the electoral process.

Within this framework of possibly conflicting interests, EMBs, development agencies, practitioners, academics and electoral assistance providers have an important role to play in influencing the technological choices to be adopted in a given electoral process so that they meet the appropriate needs of the country. Additional conflicting interests appear when developing technical specifications, validation testing, allocating budgets and deciding on available timelines for appropriate implementation.

3.2 Guiding principles for procurement of ICTs: applications for electoral processes

Best practices in the use of ICTs in elections are still developing. However, drawing on recent experience of election practitioners, the ACE project identifies several guiding principles for the adoption and use of ICTs in an electoral context.[23] When an EMB considers introducing and procuring technology, these principles provide a useful starting point. They can help to establish and maintain public confidence in the electoral process.

These guiding principles are:

1. take a holistic view of the new technology;
2. consider the impact of introducing new technologies;
3. maintain transparency and ensure ethical behaviour while adopting new technology;
4. consider the security issues related to the new technology;
5. test the accuracy of results produced by the use of technology;
6. ensure privacy;
7. ensure voter confidentiality in electronic and internet voting;
8. ensure there is clarity on what service(s) are to be provided by the technology;

23 ACE Electoral Knowledge Network - Guiding Principles of Elections and Technology; online: http://aceproject.org/ace-en/topics/et/et20.

9. ensure inclusiveness;
10. consider the technology cost-effectiveness;
11. evaluate efficiency;
12. evaluate sustainability;
13. evaluate the flexibility of the technology to adapt to new election regulations;
14. consider the service provided to the users and their trust in the new technology; and
15. ensure the legal ownership of the output of the system as well as the system itself.

It is worth elaborating on some of these issues in turn.

1. Take a holistic view of the new technology

Technology is just a tool and therefore it is not an end in itself. When technology is applied to any activity related to electoral administration and elections, it is important to consider carefully the electoral context in which the technology is used. For example, if technology is being considered for vote counting, the guiding principles that apply to vote counting also apply to the technology.

It is also good to keep in mind that electoral processes involve more than just operations and technology. They include relevant laws, regulations and guidelines, social and political contexts, the organisational culture of the body implementing the technological solution, the procedures developed to complement the technology, and the training of technicians and users.

2. Consider the impact of introducing new technologies

When a new system is being considered to replace another, an evaluation is needed to assess the impact of the change on all stakeholders. Once the system is adopted, the transition phase needs to be carefully managed to ensure that problems do not occur and that all functions can continue to be effectively carried out. The following are some strategies that can be used by electoral administrators to minimize the impact of new systems, new technology and changes on electoral processes:

- allow plenty of time for implementation and avoid adopting the system too close to the election;
- keep in mind that implementation of a new project often takes longer than expected;
- plan for new systems to be finished well before the earliest practicable election date and enforce cut-off dates after which no system changes are allowed;

- have alternatives ready to be implemented in case the new system cannot be used for whatever reason;
- manage information about the technology and changes so that stakeholders do not have unrealistic expectations and do not impose impossible deadlines;
- avoid imposing a new, untried or unsuitable technology;
- schedule enough time to thoroughly test new systems; and
- provide training for staff and users as needed.

A system implementation schedule can be influenced by whether elections systems are "fixed term" or "variable term". With fixed-term elections, implementation schedules can be set around a known election date, while with variable-term elections new systems should ideally be in place and ready to go before the earliest likely date for an election.

3. Maintain transparency and ensure ethical behaviour while adopting new technology

Transparency - meaning openness and accountability - is a key feature for the credibility of democratic elections. An indicator of transparency can be the access afforded to electoral observers, both domestic and international, to all procedures at every stage of the electoral process.

With manual processes, transparency is relatively straightforward because the processes are usually visible and it is not difficult to provide meaningful access to observers. By contrast, with the use of some technologies it may be more difficult or even impossible for observers to testify that the outcome is correct. Electronic voting systems are one example where in some cases it can be difficult to ensure that the vote that is registered is indeed the vote cast by the voter and, therefore, that the resulting vote count is accurate. On the other hand, the use of technology may enhance transparency once the data entry into the respective system is proved to be accurate and large quantities of data can produce meaningful reports with relatively few errors.

It is useful to compare "micro" and "macro" perspectives when analysing the transparency of manual and electronic systems. With manual processes, transparency is relatively straightforward at a micro level. For example, observers or party agents can easily observe operations in a paper-based voting station and compare results in that station to those published centrally. However, a macro-level perspective is more difficult. Results are not immediately available and there are no assurances that voting stations that have not been observed directly are presenting accurate results.

In contrast, electronic systems can facilitate transparency at the macro level. For example, electronic systems can allow for results to be easily generated almost immediately after polling stations close, with results for the entire country tabulated and presented at different regional levels all the way down to individual stations. But

one downside of electronic systems is that an observer may not always be confident that the vote cast by the voter is indeed the resultant vote counted at the end of the process.

If a random sample of the equipment is tested and found to be accurate, however, then an observer can reasonably assume that the rest are similarly accurate. Whether an electronic system is observed or not, it will behave the same way. By contrast some argue that a manual process may be affected by whether or not it is observed. For example, voting station staff may pay more attention to adhering to rules and regulations and accurately counting the votes while they are being observed, and less so if observers are not present. Knowing that a small number of observed voting stations operated correctly does not necessarily extrapolate to the remaining unobserved stations.

With the use of technologies, transparency may be achieved in different ways depending on the technology. This may involve the use of techniques such as the creation of audit trails, creation of log files, code verifications, digital signatures and compilation checks, among others. As a result, the skills needed by observers of electoral processes using various technologies may be completely different than those needed to observe manual processes. To ensure transparency, an EMB may seek the assistance of specialized experts or auditors able to verify the accuracy of its systems and to provide special training to observers.

In addition, auditing the implementation of technology is required. External audits are recommended. In order to ensure transparency and build trust, EMBs are expected to follow appropriate ethics when implementing new technology. For instance, when choosing technology suppliers, EMBs should ensure that the tendering process is fair and open, without favouritism or corruption, and that all government purchasing procedures applicable to the selection of technology are followed.

When buying hardware and software, EMBs should ensure that proper licenses are obtained. Apart from the legal and ethical issues with using unlicensed or unregistered software, users also run the risk of not being notified of known bugs, software fixes or upgrades. Antivirus software should be used for laptops and desktop computers. A complication is that most antivirus software programmes will not update their virus definition files without an internet connection. This poses a serious problem for laptop-based kits deployed to remote regions without internet access.

4. Consider the security issues related to the new technology

Computer systems used for elections must include high levels of security. Unauthorised persons must be prevented from accessing, altering or downloading sensitive electoral data. Demonstrable security levels are another way of ensuring that election IT systems are transparent and trustworthy.

Various mechanisms exist to provide for computer security. These include password protection, encryption, verification programmes and physical isolation.

5. Test the accuracy of results produced by the use of technology

Accuracy is vital to the credibility of an election, particularly for voter lists, vote recording, vote counting and the reporting of election results. To ensure that technological systems are trustworthy, there must be ways to test and verify that data are recorded properly and that the manipulation of this data produces accurate outputs.

System accuracy may be tested by randomly entering known data into the system and verifying that the resulting outputs are correct. In addition, for voting systems, a test should be performed to verify that the same set of data processed through several randomly chosen yet independent systems produces the same results.

On the whole, it should be expected that accuracy increases as new and improved technologies are adopted.

6. Ensure privacy

Electoral computer systems often contain sensitive personal data for large numbers of individuals, which can include names, addresses and other personal details. Many countries have privacy laws and policies that place restrictions on access to personal information, under the general principle that every person has the right to personal privacy. If a person's privacy and confidentiality are violated by improper use of electoral data, both the person and the respect accorded to the electoral process may suffer.

Accordingly, security features in electoral computer systems should take account the need to protect the privacy of personal data. Audit trails can be built into systems containing personal data to track and monitor which individuals have accessed or modified personal data and to prevent any unauthorised invasion of privacy.

7. Ensure confidentiality in electronic and internet voting

Conflicts arise when an electoral IT system needs to ensure that a person that voted is a citizen, has the right to vote, and did not vote more than once. To ensure this security, the system should know the identity of the voter. But the system should not, however, know how the voter voted.

There are solutions for these issues, but EMBs and voters need to be educated on these solutions. EMBs need proof that the electoral IT system ensures a valid voting process, and the voter needs to be ensured of the confidentiality of his voting record.

8. Ensure there is clarity on what services(s) are to be provided by the technology

Elections are largely about providing a service for the core clients, the voters. When choosing a new technology, EMBs must ensure that issues related to client service - including the ease of use and voters" satisfaction, as well as how the technology is perceived by its users - are priority considerations so that the credibility of the electoral process is not jeopardized.

There are a number of strategies that can be adopted to reduce users" unrealistic expectations or suspicion, and in order to ensure trust. For example, there should be:

- an assessment of stakeholder receptivity to review specific technologies;
- a clear definition of the technology's objectives;
- open and regular consultation with all relevant stakeholders;
- verification of the legal implications of adopting a specific technology;
- use of rigorous technology evaluation processes, which also includes analysis of the implementation risks;
- provision of appropriate levels of security for the different electoral process tasks;
- verification of funds availability to cover all implementation, maintenance and training costs;
- setting up of transparent tendering and purchasing processes that are accepted by all stakeholders;
- organisation of effective training strategies for both electoral administrators and users; and
- an assessment of references, use of external audits and verification checks to assert the trustworthiness of external vendors, technical staff, software programmers and consultants involved in supplying and/or maintaining the technology.

In addition to being a rigorous and well-structured implementation process, the successful adoption of a new technology requires the acceptance, trust and satisfaction of its users.

9. Ensure inclusiveness

When a technology with impact on internal and/or external users is being adopted, it is advisable to organize a consultation process with those users or their representatives to ensure that their needs are met and that they are satisfied that the new system is acceptable and reliable. It is important to provide sufficient information to users to enable them to feel included in the process and therefore increase the likelihood that the new technology will be successfully implemented.

Since election technology has the potential to directly affect the political process, it is important to engender a sense of ownership in its users, much more so than might be considered for other government systems.

In addition, access and equity considerations should be taken into account when adopting new technology to ensure that people with special needs are included.

10. Consider the technology cost-effectiveness

Depending on the application, the use of technology may imply a substantial upfront investment, even if the benefits are considerable and the possible long-term savings can outweigh the initial cost. In addition, relatively low-cost technology can also replace high cost, low-tech processes, leading to savings in the long-term. Costs for ongoing maintenance also need to be considered, however, and may be much higher than expected.

Therefore, before making a commitment to implement new technology, it is important to determine whether it is financially viable by obtaining a complete account of all likely costs and savings, namely:

- the basic up-front costs of the technology itself;
- the costs of the add-on equipment such as peripherals and communications;
- the installation and implementation costs;
- the estimated ongoing troubleshooting and maintenance costs - such as those associated with the addition of new features and performance and capacity optimization - over the system lifespan;
- the expected costs of warehousing-related equipment;
- the expected costs related to documentation, design of new procedures, staff training and user training;
- the expected financial benefits from increased efficiency engendered as a result of the introduction of the new technology; and
- the comparable costs of other available technologies that offer the same functionality.

In addition, it may prove useful to undertake the following studies and evaluations:

- a cost-benefit analysis of the proposed technology solution;
- an assessment of the expected improvements in efficiency or service vs. the extra costs of introducing the technology;
- the likelihood of funding for the maintenance costs throughout the project lifespan;

- an evaluation of the likelihood of sharing the new system and the related maintenance costs with other agencies or organisations;
- an assessment of the opportunity for joint ventures that could reduce costs without compromising the integrity of the system; and
- an evaluation of similar solutions, if they exist, implemented either by other EMBs or other organisations in similar contexts.

These considerations and the results of these studies can help to identify additional functions, benefits and user satisfaction to be provided by the technology under consideration. These considerations can also help to provide a realistic estimate of the expected costs or savings needed for a thorough evaluation of the proposed technology's cost/efficiency ratio. This, in turn, can help determine whether the technology is worthwhile, viable and affordable.

Relatively minor improvements may not justify the extra cost. Similarly, if a low-cost, low-tech solution is available and it is acceptable for the specific task, there may not be a need to implement a proposed high-cost, high-tech solution.

Whenever possible, the expected lifespan of the technology should also be determined. In principle, a technology that can be re-used for more than one purpose or for more than one election is more cost-effective than one that can only be used once before it needs to be replaced.

11. Evaluate efficiency

Although it is often expected that a new technology is more efficient than the one it is intended to replace, that might not be the case in practice. It is possible to replace an efficient manual process with an inefficient automated one if the new process is not carefully thought through. When deciding to implement a new technology, it is important to ensure that the new system is more efficient than the one it replaces.

One of the anticipated benefits of technology is the ability to perform accurately large complex tasks in a relatively short time compared to the time needed to undertake the tasks manually. While this may enable EMBs to reduce costs by deploying fewer staff, it may also lead to additional pressure on staff as productivity rises and more is expected of them.

12. Evaluate sustainability

Evaluating sustainability is one of the most important criteria in the adoption of new technologies. In his 2009 report on elections, the Secretary-General expressed his concern that some of the world's poorest countries are adopting some of the most expensive technology for elections. Technology is generally expensive to acquire,

but if it is sustainable and able to be used for more than one purpose or more than one election, it can be more cost-effective in the long term.

New technology may also require the use or availability of other technologies or specific infrastructures, such as communications and electrical energy networks. For example, if a country has an intermittent power supply, implementing a network of personal computers may not be the best choice. High humidity or high levels of dust or sand may also restrict the choice of appropriate technology.

In general, local infrastructure must be capable of supporting a chosen technology. If it is not, it could mean that the technology being considered is not appropriate or that there is a need to upgrade the infrastructure, in which case additional costs and benefits should be carefully assessed.

There is also a need to evaluate the technical and financial capacity of the EMB to maintain a new system during an agreed upon or required time period. Usually, it is desirable for an adopted technology to be used for several years; therefore, funds will need to be secured not only for the initial implementation, but also for the foreseeable lifespan of the technology. These funds need to be budgeted for and guaranteed before committing to a new technology.

Another aspect related to the sustainability of a new system is the availability of appropriately skilled staff to run and maintain it, either within the EMB or from outside service providers. The costs associated with keeping staff skills up to date and the capacity of both an EMB and service providers to retain trained staff also should be considered.

Another potential pitfall is attempting to do too much too quickly. Instead of implementing a radically new technology (compared to the existing local technology) in one step, it may be more appropriate to gradually implement change over a series of electoral events.

13. Evaluate the flexibility of the technology to adapt to new election regulations

A technology that is flexible is also more likely to be cost-effective and sustainable. It may be desirable to adopt a technology that has the potential for more than one use if this does not compromise the primary need for the technology.

In cases of transitional environments, where the future of election management methods is uncertain, it is desirable to avoid purchasing technology that is highly specialised and inflexible. Instead, it usually makes better sense to purchase more generic products that can facilitate the use of a wide range of applications.

Another of the perceived advantages of using technology for elections is its ability to provide users with greater flexibility and more options. Therefore, procedures should be implemented to ensure that the new technology does not reduce flexibility by limiting the number of options available.

14. Ensure the legal ownership of the output of the system as well as the system itself

EMBs, government agencies, donors and UNDP need to ensure that the product of implementation of high-tech IT systems - the databases that contain the registration details of potentially millions of citizens - remain under the control of the EMB and/or government bodies at all times, and are accessible indefinitely regardless of the interfaces, software platforms, encryption methods or other hosting systems put in place by the vendors/suppliers of the system. EMBs and their partners should never remain permanently tied to one supplier. Scope and opportunity should always exist for EMBs/government agencies to change suppliers in the future. For example, if a day-to-day management component is built into the supply contract, it is easier for national authorities to consider switching managers of the system should implementation difficulties occur. In any case, regardless of how "cutting edge" high-tech solutions are today, they will eventually require upgrading and possible re-tendering at some point in the future.

Legal advice should be employed at the outset, including at all stages of the procurement process (and particularly upon contract signing) to ensure that the national authorities have the right to eventually consider "taking" the file databases to a new system manager in the future. Such moves should be made without having to request citizens to return to register all over again, under the system of a new supplier.

3.3 ICTs and electoral integrity

Procurement of electoral services and goods constitutes a major part of the organisation of elections in terms of planning, costs and implementation (purchasing and distribution). Integrity and transparency is thus essential; lack of integrity in the purchasing system may put the legitimacy of the whole electoral exercise at risk.

Integrity-related risk factors include the following:

- lucrative electoral procurement contracts may attract dishonest firms offering kickbacks or other financial incentives to senior EMB officials and/or procurement officers, thus damaging the reputation of the procuring entity;
- the purchase of unsatisfactory and inappropriate equipment and services may come as a result of poorly defined specifications and/or dishonest procurement officers; and
- late delivery of goods and services or difficulties in distribution may benefit some interests, but of course such developments make it difficult for the EMB to maintain the original electoral calendar and therefore could potentially engender political instability in the country.

There are several measures available to lessen the possibility that integrity problems will occur. They include the following:

- First and most importantly, the smooth and efficient purchase and distribution of electoral goods and services depend on i) a well-defined procurement plan; ii) an adequate implementation plan (it is important not only to have a plan but also a way to implement it); and iii) a regular review of the procurement plan and implementation plan. As such, a procurement plan is a dynamic document.
- The procurement and implementation plans should be developed well in advance for high-tech solutions. EMBs should be reminded that more money or manpower does not necessarily solve timing issues. One example is the 2007 Nigerian elections where the electronic registration contracts were awarded just 11 weeks before registration was scheduled to start, and to three competing companies. A large amount of time subsequently was spent integrating the different ICT standards and the many high-tech items (such as handhelds) originating from the same chip manufacturer.
- Procurement needs to be carried out through competitive and transparent procedures. To secure competitiveness, most procurement systems involve calls for tenders which may, depending on the circumstances, be open to all or impose some kind of restrictions on bidders. In the latter case, it is important that the rules and procedures for becoming part of the short-list of bidders are set out in a clear and transparent manner. By making the procurement processes public, especially if they involve large sums of money, such procedures can decrease the opportunities for dishonesty among firms and officers. This subsequently promotes transparency.
- Finally, the monitoring of the procurement process through the supervisory mechanisms of the EMB and other oversight agencies is essential to the integrity of the process.

PART 4

Voter Registration and Information and Communications Technology

4.1 Voter registration

Voter registration is an important, and often very expensive, part of an election. Also, it is one of the areas of the electoral cycle where the influence and the application of ICTs are growing the most.[24]

Voter registration establishes the eligibility of individuals to cast a ballot. As one of the more costly, time-consuming and complex aspects of the electoral process, it often accounts for a considerable portion of the budget, staff time and resources of an election authority. If conducted well, voter registration can confer legitimacy on the process. A flawed voter registry, on the other hand, complicates electoral planning and removes an important safeguard against fraud.

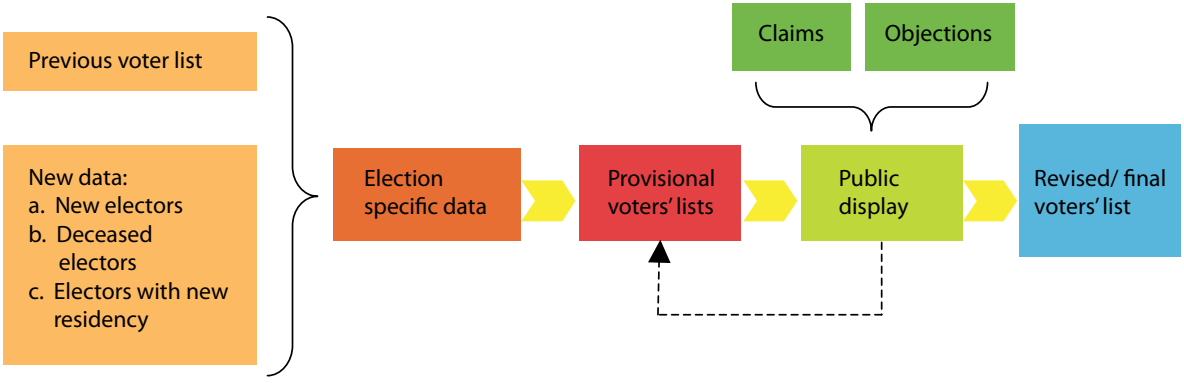


Figure 5. Simplified view of voter registration data flow

A voter list makes it possible to separate two of the most important functions of the election authority: verifying voter eligibility and controlling the legitimacy of the balloting process. The list may also be used in voter education, and may be provided to political parties and candidates to aid them in their campaigns. While elections may proceed without it, a voter list offers advantages that readily justify its use.

By confirming that voters have met all eligibility requirements, the voter list helps confer legitimacy on the electoral process. Conversely, the legitimacy of the process will immediately be called into question if there are problems with voter registration, and particularly with the integrity of the voter list. Voter registration therefore is one of the most important tasks of election administration and there are three options to implement it:

24 ACE Electoral Knowledge Network - Technology for Voter Registration: http://aceproject.org/ace-en/topics/et/ete

- a periodic list;
- a continuous register or list; and
- a voter list drawn from the civil registry.

The election authority must choose one of these, or a combination, as the basis on which to design a voter registration system.

Periodic list

A periodic register of voters, or a "periodic list," is established for a specific electoral event, and electoral administrators do not necessarily intend to maintain or update the list for future use - although it may be used for by-elections in the period after its compilation and before a subsequent periodic list is compiled. Normally the list is drawn up immediately before the election, although this need not be the case. This system is relatively expensive and time-consuming since it requires direct contact with all eligible voters before the election. It may be particularly useful where the infrastructure is lacking to maintain a continuous list, where population mobility is high or where there is opposition to the maintenance of lists of citizens by the government. The periodic list may also be preferred by quasi-governmental agencies, such as EMBs or commissions, because a periodic list is often "owned" by the EMB (which is usually the agency that compiles it).

Continuous list

A continuous list is one maintained and regularly updated by the electoral administration. This system depends on an appropriate infrastructure to maintain the list. Maintenance typically involves adding the names and other relevant information of new people that satisfy the eligibility requirements (e.g., those reaching the voting age, naturalised citizens, etc.); deleting the names of those who no longer meet the requirements (e.g., through death); and altering the details of those voters whose recorded data in the voter list requires updating (e.g., through name change from marriage or change of residence). Since the continuous list is updated on a regular basis, there is no need for a full or final registration drive immediately before an election (although a period is often designated for revising the list during the election campaign). A continuous list may be maintained either locally or nationally.

To facilitate list updates, many election authorities form data-sharing partnerships with other government bodies. For example, when citizens change their place of residence, they may inform the tax bureau, the post office, the housing authority or the health system. In many countries with a continuous register, partnerships allow the election authority to receive regular updates of changes to these bodies" files. This makes it possible to update the electoral register without any direct contact between the voter and the election authority. In some cases, on learning about a change of address, the election authority may send the voter a new voter registration card with a request to update and confirm the information that appears on it.

Voter list drawn from the civil registry

A third option for registering voters is to generate the voter list from the civil registry. Civil registries are maintained, to various degrees, in many countries. Civil registries may contain a variety of information on all citizens, such as name, address, citizenship, age, marital status and identification number. In certain countries, particularly in Europe and Latin America, the voter list is produced from information contained in the national civil registry. In countries with a civil registry, a central question, as it pertains to elections, is whether the body responsible for maintaining the civil registry (often the interior ministry) should be responsible for the voter list. Some countries give the same institution responsibility for both registries; others choose two agencies, each with responsibility for one of the lists.

If a civil registry is in place, producing a voter list from it is relatively efficient and cost-effective. This is because the major costs are borne in the first place by the civil registry authorities. And while it is relatively expensive to maintain a civil registry, the information recorded may be used for multiple purposes, thereby reducing the government's overall data management costs.

The major strength of the system is also its major drawback, however. Data sharing among government institutions may be controversial. Concerns may be expressed about the loss, or potential loss, of privacy - particularly if the government decides to add additional data fields or merge the registry with, for example, the tax authority's database. If the concerns are widespread, a civil registry may be simply unacceptable despite its usefulness.

4.2 Voter registration methodologies

The type and sequence of registration activities vary considerably according to the specific system and methods chosen for gathering voters" data. These methods can be divided into three broad categories based on the levels of technology currently applied to the process:

- **Low-tech:** Electronic register compiled by manual data entry of voters" data from paper forms compiled at the voter registration centres. This was often chosen in "first generation" or post-conflict elections when technology was not available or was far too expensive.
- **Medium-tech**: Electronic compilation of voters" data from shaded paper forms that are later scanned at centralised locations using either optical mark reader (OMR), optical character recognition (OCR) or intelligent character recognition (ICR) technologies.
- **High-tech**: Immediate data entry performed at the voter registration centres through the use of notebook computers, sometimes with the information transmitted in real time to a centralised processing facility, or else stored electronically for periodic delivery through external memory drives or compact discs. Due to advances in technology, such systems often now involve the recording of biometric recognition features such as digital photos and digital fingerprints.

Biometric systems are used to measure physical characteristics and behaviours (fingerprints, speech, face, iris and the like) with the objective of recognizing patterns to distinguish those that match closely enough to be considered identical from those that are different enough to be considered non-identical. Biometric systems have proven particularly useful in two specific segments of the electoral cycle, namely voter registration and voting operations. If automatic fingerprint identification system (AFIS) technology is used during voter registration, duplicate registrations can be detected. AFIS technology refers to software applications capable of establishing the identity of an individual through fingerprints by the use of biometric functions. It has been included in many voter registration processes in the last years, and in some cases it has been included in the legal provisions governing voter registration.

Biometric systems are in fact increasingly considered to be the definitive solution to voter impersonation and multiple voting practices. They are especially popular in post-conflict countries and emerging democracies with either limited or non-existent forms of civil registry identification, such as Angola, DRC, Guinea, Mozambique, Nigeria, Pakistan and Togo, and are under consideration in a large number of developing countries.

The importance of the centralised matching function should not be underestimated. It is imperative, for a biometric registration system to be successful, that the data for all voters are matched against all other voters to allow the system to identify all potential double registrants. For an additional cost, many biometric registration kits can be fitted with an inbuilt "micro AFIS" that allows a suspected double registrant to be immediately detected by the software on the laptop computer where he or she registers more than once, i.e., in the same registration centre. Because most voters that attempt to double register will do so in different registration centres, however, it is necessary for the data on all kits to be matched against the data of all other kits in a centralised location. If there is a live (e.g., by satellite) link-up between all kits at all times during the registration process, it may be possible to "catch" a double registrant who is attempting to double register in two different registration centres when he or she registers at the second centre. This would be an extremely expensive method of detecting double registrants, however.

Another set of solutions may need to be implemented if the data from all the kits are only recorded on compact disc or external memory cards and periodically delivered to the centralised data centre at various times during the voter registration process (e.g., once every week). In such cases, all data from all the biometric registrations kits will need to be merged to allow the technology to identify all the suspected double registrations when the data for each voter are matched against every other voter. Therefore, potential double registrants may only definitely be caught at the end of the process.[25]

EMBs should not underestimate the amount of time and resources that should be allocated to the matching task. This is particularly true depending on how they address the following issue.

25 Note that matching the data from the AFIS on a regional level may be cheaper than conducting a final matching on a national level, but it must be understood that persons can potentially register in other regions, and thus escape duplicate registration detection. This may negate the point of introducing AFIS as a means of detecting double registrations.

Prior to commencing the data matching, an EMB that decides to employ AFIS or other biometric technology will be faced with several decisions. One is whether or not it will allow the technology to definitely determine what constitutes a double registrant. Another is whether such a decision - which may, in some cases, result in sanctions such as the forfeiture of the right to vote (as in Kenya) - should be taken by an EMB official on presentation of a suspected double registration by the technology. Conducting a "naked eye" inspection of a suspected double registration from two digital fingerprints, however, is not an accurate way to pass judgment on a suspected double registrant. To improve the accuracy of the decision, therefore, the biometric software can sometimes employ fused algorithms to match both the digital fingerprints with the facial features from the digital photos to arrive at more definitive possible duplicates.

EMB staff will then be able to deciding if a person is double registrant from the photos. Implementation of such a system, however, needs to be well planned. If, for example, 2 million voters are registered using biometric technology, then the central matching exercise will need to conduct up to 2 trillion matches. An enormous amount of computing power is necessary for that number of matches to identify potentially, say, 0.001 percent double registrants. EMBs need to plan the manpower, the computing power and the time necessary to conduct the central matching exercise, particularly in cases where the EMB officials make the final decision on each suspected double registrant case identified by the system.

Different countries and EMBs deal with confirmed double registrants in different ways. In some countries, the EMB will simply decide which of the voter's registrations (usually the first) is considered the legitimate one, and the second and subsequent registrations will be removed from the voter lists database. In other countries such as Kenya, however, double registration is a criminal offence. The double registrant not only will lose his or her right to vote, but the details of the double registrants may be handed over to the police authorities for prosecution.

The issuance of voter cards at the time of registration may complicate matters further. If the registrant has been issued with his or her voter card at the time of registration (a common practice), then the EMB will be faced with the challenge of either trying to recover voter cards from the double registrants, or, which is the more usual practice, of notifying each polling centre on polling day of the voters who registered in both that centre and other centres. This list may be required if the double registrant attempts to vote with the voter card issued by that centre. If the voter is not on the real voter list for that centre,[26] and has a legitimate voter card for that centre issued during the voter registration period, then the polling staff should be instructed to check the list of double registrants to see whether the voter is a confirmed double registrant.

A period of transparent, pre-election access to a provisional voter register can be an excellent opportunity for an EMB to address the double registrants issue prior to polling day. This entails displaying the register some time before the elections and giving voters the opportunity to confirm that their details are entered correctly and, also, to lodge objections against voters who they claim are not entitled to vote at that centre (or at all).

26 On-site issuance should be implemented only where an online AFIS is in place in order not to issue voter cards to potential duplicated registration. If AFIS cannot be implemented online, then the cards should be issued centrally. Cards should be issued after AFIS is completed.

CASE STUDY: AFIS IN PRACTICE

Nigeria is one country in which AFIS has been used for election purposes. The EMB identified and removed millions of duplicates from the voter register based on decentralized datasets (using a number of local government areas rather than the whole country as one dataset) using AFIS. AFIS has also been used in the voter registration process in DRC and Venezuela, and electoral rolls have in previous elections been produced by Pakistan's National Database and Registration Authority (which has database systems including fingerprint biometrics) on behalf of the Elections Commission of Pakistan. It was also considered for the 2003 elections in Yemen to address problems with the voter register. In Yemen, the issue was not to develop a new AFIS system, but rather to explore the possibility of merging the voter register with the existing AFIS-based civil registry system.

ACE Electoral Advice[27]

Four potential intervention points for a stakeholder to support registration are:

SUSTAINABILITY

"In the context of elections, sustainability refers to electoral policies and practices which are cost-effective, realistic, and meet the needs of all stakeholders in the electoral processes, both now and in the future. Sustainability aims to minimize reliance on external inputs and resources."

ACE Encyclopaedia[28]

1. support the EMB to design a new permanent registration system - and to ideally do so immediately after the end of an electoral cycle and no later than 18 months before the next elections;

2. support the EMB to conduct a specific voter registration process that requires the use of new technology and a new system (no later than one year before elections), including simulation exercises to adapt the methodology according to the results obtained from the simulation;

3. ensure the procurement of voter registration materials - ideally, no later than six months before the election; and

4. provide support to both the EMB and the relevant government ministry/agency that manages the civil registry to examine ways to merge both the civil and voter registries, or allow for the voter register to be generated automatically from the civil registry.

27 Read more at http://aceproject.org/electoral-advice/archive/questions/replies/653713389/?searchterm=afis

28 ACE Electoral Knowledge Network – What is Sustainability? http://aceproject.org/ace-en/topics/em/emj/emj01/default/?searchterm=sustainability

4.3 Voter registration technologies and materials

While technology can be an important tool to reduce costs and improve sustainability, the danger for EMBs, electoral assistance providers and donors is that they become hostages to vendors because vendors have been known to opt for technological solutions that might not be standard, compliant, suitable, cost-effective and/or sustainable for the partner country in the long run.

An important consideration is also whether the system proposed by the vendor(s) is a proprietary one. This could mean that the security encryption algorithms or other methods used by the vendor to maintain a commercially competitive advantage are protected by the suppliers' contract and thus limit the ability of the EMB or any other relevant government body to change suppliers once the system has been established. In such cases, complex matters of intellectual property rights can arise, resulting in conflicts regarding to who "owns" and controls the databases that are created by the use of the technology.

It is important to remember also that the depreciation costs are high in terms of the equipment procured and are aggravated by a failure to properly store and look after the equipment. In this context, it is convenient to study, at the identification/formulation stage, the institutional context of a given country, its capacities and the potential and synergies ICTs can offer.

Another risk is the failure of the whole system due to the low quality of the collected voter data, failure of equipment before data has been retrieved, or mistakes in data processing during the registration updating. Such problems can jeopardise the significant investments made in the technology. To minimize such risks, a careful feasibility and sustainability analysis covering the whole electoral cycle should be made before embarking on large-scale support to medium- or high-tech solutions.

Currently UNDP is experiencing strong interest from African countries including Benin, Côte d"Ivoire, Malawi, Mauritania, Nigeria, Togo, the United Republic of Tanzania and Zambia in the procurement of high-tech biometric voter registration kits. The systems need to gather data via so-called mobile biometric or ID registration kits. In general terms these kits have all the hardware and software needed to identify eligible voters and issue them with either the voter cards or proof of registration on the spot. All the components of the kits are contained in an ergonomic robust case and include:

- a notebook with an operating system pre-installed;
- specific software to collect personal information and biometric data;
- a webcam or digital camera;
- a digital fingerprint scanner;

- an ink jet printer allowing the production of a secure voter card or proof of registration with all the main information about one voter collected during the voter registration process;
- a battery-based power supply system for extended hours of autonomous operation (if necessary); and
- an external power generator (if necessary).

UNDP and the EC have, in last the five years, acquired substantial experience in support of biometric voter registration processes via the different projects implemented or in the process of being implemented in, among other places, Portuguese-speaking African and Asian countries, Bangladesh, Benin, Cambodia, Côte d"Ivoire, DRC, Guinea, Nigeria, Togo and Zambia.

From a technical point of view, experience demonstrates that it may be sound to separate the supply of the biometric registration kits from the supply of the AFIS system. The main reason is that such separation better enables the fingerprint images and the templates to meet standards that are industry-wide compliant, thereby not making one country hostage to a specific vendor and at the same time ensuring long-term sustainability. If a single vendor has provided both the biometric kits and the AFIS system, nobody can check the quality of the biometric data captured.

Tasks	Working days	Accumulated days
Legal framework approved Technical specifications approved Finalization of terms of reference for kits	5	5
Call for tenders (expression of interest / pre-qualification)	14	19
Tender period	21	40
Analysis and evaluation of technical bids	14	54
Analysis and evaluation of financial bids	7	61
Pilot testing / validation testing	10	71
CAP submission (undp rules and regs)	7	78
ACP submission (undp rules and regs)	10	88
Award of contract / negotiations	5	93
Preparation and production (supplier)	30	123
Shipment (by air)	10	33
Reception and preparation of kits (hq)	5	138
Configuration of kits	10	148
Integrating census data	5	153
Training of trainers	10	163
Deployment to operational areas	10	173

BEGINNING OF REGISTRATION

Figure 6. Indicative procurement and deployment timeline for biometric kits

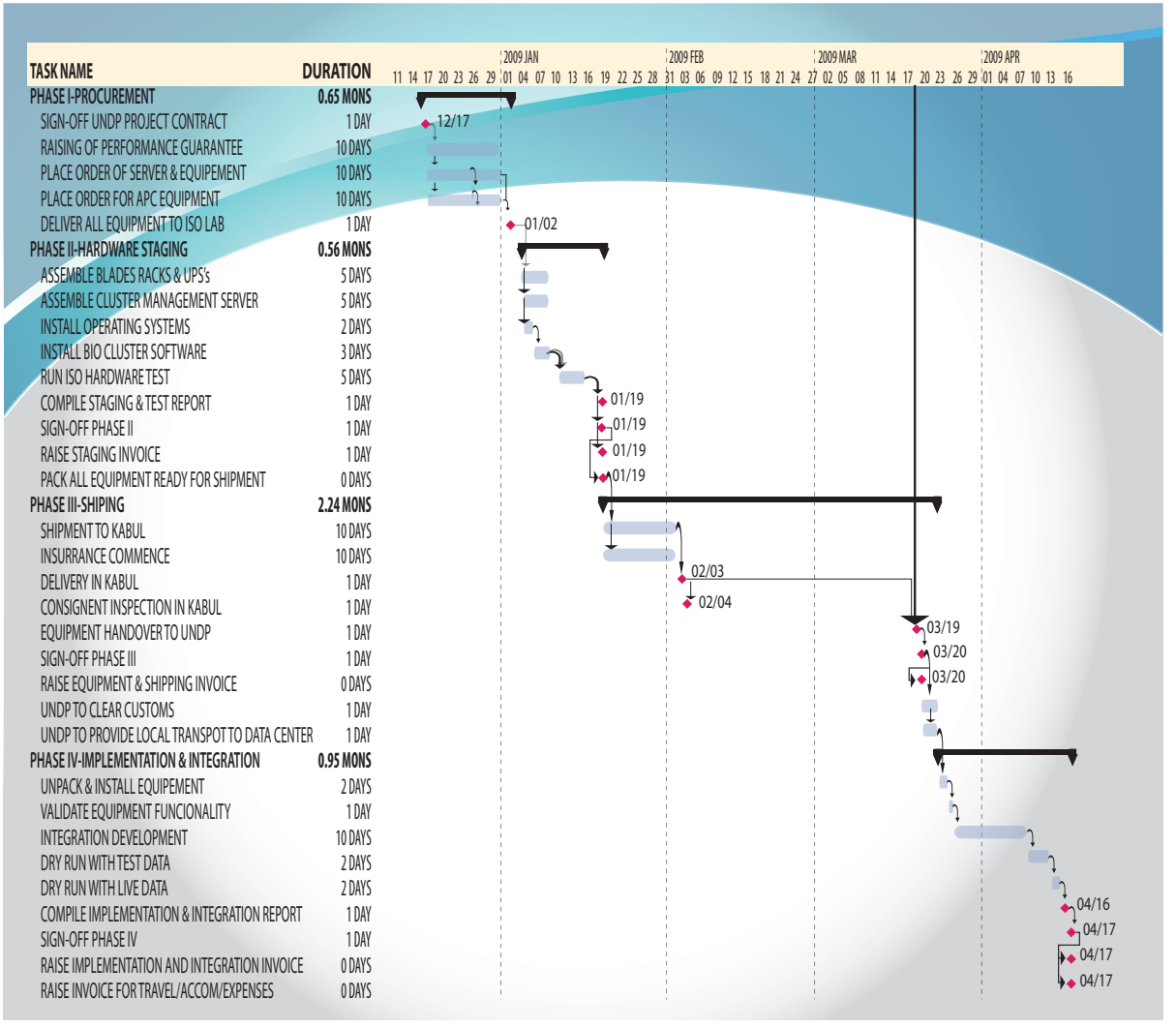


Figure 7. Example from Afghanistan: time line to establish a fingerprint biometric solution that could accommodate 15 million entries after the contract with UNDP was signed [29]

29 Note that the table assumes that there are seven working days in a week. When setting up timelines, it is recommended to take into account weekends and holidays as non-working days.

4.4 Voter registration - project lifecycle

Based on literature review and experiences in the field, the EC Study on the Use of Information and Communication Technologies in Electoral Processes (forthcoming) identifies five steps in the voter registration project lifecycle:

Phase I: Project initiation and requirement gathering. During this phase, the formal request indicating the type of the project is formulated, e.g., whether it entails the creation of a new voter register or the updating of the previous one. Afterwards, the main stakeholders are identified, and they subsequently meet and discuss the project objectives, the expected challenges, and the main expectations in terms of deliverables and targets. A working group is established within the EMB (which may include also external actors). The working group first ensures the compliance of the project with the legal framework and the mandate of the EMB. Second, it defines and validates the operational concepts, which are presented to the stakeholders who then decide on the fate of the project.

Phase II: Detailed planning. At this stage the operational plan and the preliminary budget are developed, thus providing an overview of resources, timing, deliverables and milestones of the voter registration project. Among the elements that might be included in the operational plan and the budget are training, logistics and procurement, implementation and post-implementation activities, communications, sensitization and cross-cutting issues (e.g., gender balance). The results are then integrated into a single plan and budget which should be approved by the stakeholders.

Phase III: Implementation. This phase involves the execution of the plans developed in Phase II. Sometimes simulations are used to better understand the expectations of the targeted actors. When technologies are involved in the project, it is at this stage that hardware and software are acquired on the basis of well-defined technical specifications.

Phase IV: Rollout and evaluation During the rollout, the voter register is finalized. At this stage, it is critical that not only the project performance and quality indicators are fulfilled, but also that stakeholders (e.g., political parties and candidates.) accept the outcome. In order to evaluate the level of acceptance, metrics based on the main guiding principles are developed. Figure 8 provides an overview of the principles, how they can be measured and the degree to which they are possible to measure.

Principle	Qualitative	Quantitative	Measurable	How
Integrity	X		Partially	- Percentage of ineligible voters present in the registry
Inclusiveness	X		Partially	- Percentage of eligible persons not registered - Coverage of minorities and the disabled (assumes that the data on these categories of voters is known)
Comprehensiveness		X	Completely	- Percentage of eligible persons registered (this requires an accurate estimate of the number of eligible voters)
Accuracy		X	Partially	- Public display and inspection of voter lists in time - Number of corrections to data, number of objections to inclusion - Opportunity to correct data
Accessibility		X	Partially	- Sensitisation of voters - Distance from voter residence to registration centre - Ability of the illiterate to register
Transparency	X		Partially	- Public inspection of voters registers and voters lists - Independent and political observation of the voter registration process - Public scrutiny of the registration systems
Security		X	Partially	- Prevention of unauthorised access - Protection against tampering or illegal disclosure
Credibility	X		Completely	- Number of disputes related to voter lists

Figure 8. Metrics based on main guiding principles

Phase V: Post-implementation. At this stage the project reaches the end. Contracts and outsourced activities are terminated and the voter register is maintained between elections.

4.5 Auditing of the voter list

Auditing of voter registration is of prime interest to stakeholders of the electoral process. It provides an opportunity to understand the processes for establishing/updating voter registers as well as assessing the resulting voter register. Given the role played by voter registers in elections, several attempts have been made to standardize their auditing procedure. However, up to now there has been no systematic approach to their verification. This is in part due to the complex process leading to establishing or updating voter registers. The approach suggested to auditing voter registration is based on first assessing the process itself and later using statistical testing as a tool to collect auditing metrics (i.e., evidence) to enable interpretation of facts discovered when evaluating the registration process.

The electoral cycle approach provides three entry points for the audit of voter registration processes:

- **Pre-electoral period**: The quality of the existing voter register needs to be checked in the pre-electoral period as part of the planning and implementation of the electoral operations. This makes it easy for the electoral administration to update voter records, if necessary. To ensure credibility in the electoral process, it is required that stakeholders are involved in the audit.
- **Electoral period**: A second assessment should be done to address the objections raised by voters. This assessment should take place in each electoral district and registration centre and all objections need to be supported by evidence to eliminate subjective issues.
- **Post-electoral period**: When the vote is over, the electoral cycle provides for audit and evaluation activities. In this case, the audit identifies possible improvements to the existing voter registration process.

The Control Objectives for Information and related Technology (COBIT) represents a set of rules that facilitate the audit of the internal processes of an organisation, such as an EMB in charge of the voter registration process. The stages of an independent COBIT-based audit process are as follows:

1. audit charter (approved by the EMB);
2. independence clauses;
3. professional ethics and standards to follow;
4. competence of the auditor (the scope of his or her work);
5. auditing plan;
6. the audit *per se;*
7. the report; and
8. follow-up activities of the audited organisation.

An audit of voter registration processes entails the audit of two elements, namely the registry itself and also the procedures for its creation and/or update. Three techniques are used to this end:

- audit through a COBIT-adapted framework to evaluate and assess the registration process and thus the flow of information from data collection forms to the creation of access points for voters and all the way to the registration of voters (and, if applicable, the issuance of voter cards);
- statistical testing to assess the quality of the voter register and the voter list through the "list to voters" and/or the "people to list" methods; and
- IT audit-standard practice to examine the technological components and infrastructure of the voter registration process and registry.

CASE STUDY: VOTER REGISTRATION AUDIT IN YEMEN

The National Democratic Institute for International Affairs (NDI), in collaboration with the Yemen Electoral Monitoring Network (YEMN), carried out an audit of the voter registration process in Yemen in 2008. The audit was undertaken partly as a result of distrust among the local political parties regarding the impartiality of the electoral commission and partly because of the widespread protests that occurred during the registration process.

NDI and YEMN selected 13 governorates to monitor. Two issues influenced the selection process: the governates either had disproportionately low levels of female representation in the registry and/or the number of registered voters exceeded the actual population. A 5 percent random sampling method was used to further select the registration centres to be monitored. In total, YEMN monitored 330 of 5,620 centres (5.8 percent of the total) in the 13 selected governorates.

The following are among the findings of the monitors:

- There was a lack of proper procedure in the registration centres, including for example the failure to ask for identification documents, failure to check faces against identification documents, incorrect recording of voter information, registration of voters at unscheduled hours, and collection of voter information by community members and security personnel.
- Registration centres did not receive adequate supplies (film, voter identification cards, cameras, etc.) or the equipment was unusable. Moreover, in some instances the commissioners did not know how to use the Polaroid cameras that had been distributed by the electoral commission.
- Community leaders and security personnel interfered with the work of the registration staff by, for example, pushing commissioners to register ineligible voters.
- The voter registration environment was marked by protests and in some instances violence or threats of violence in unstable areas.

Report on Voter Registration in the Republic of Yemen 11-25 November 2008[30]

30 Report on Voter Registration in the Republic of Yemen - 11-25 November 2008, NDI Report funded by USAID. Available online at http://www.ndi.org/files/Yemen_2008VoterRegistrationReport-English.pdf.

PART 5

Specific Procurement Issues for the Introduction of VR Biometric Features

5.1 Procurement of ICT specialists

ICT is a highly technical and specialised field with normally high costs involved. IT advisors, specialists and/or consultants should have at least a degree in an ICT-related field with adequate experience. This person(s) should have the knowledge and confidence to make decisions or advise on large ICT investments. Experienced ICT experts are in high demand and therefore cost more; therefore, sufficient budget and procurement and recruitment time should be allocated for ICT personnel. In most cases, the EMB needs to approve the UNDP personnel to be recruited, although in a few other cases it is the responsibility of UNDP Country Office. In both cases special attention should be given to the UNDP IT advisors/specialists/consultants.

Evaluation of ICT personnel is a demanding task and non-ICT staff do not always recognise the qualities needed for the ToR at hand. Moreover, in almost all cases the CVs of ICT personnel are littered with ICT-specific jargon. Therefore it is recommended to make use of rosters such as the United Nations Electoral Assistance Division (EAD) and the EC-UNDP Joint Task Force rosters for ICT personnel.

5.2 Local vs. international competition

In IT, as in many other areas, local vendors may be competitively disadvantaged in comparison with international companies that might have more experience in composing tender documents. Local vendors may be competitive, but companies that have dealt successfully with UNDP before often know how to refine their tender documents and better handle the bidding process. Language may also be an entry barrier for local companies if the tender documents are, for example, in English and not in the local language - as for example was the case of Cambodia (the main local language is Khmer), Afghanistan (Pashto) and Moldova (Romanian and Russian). Most of these local markets are small and affording a translator is a considerable investment for one process.

To avoid this issue, the tenders in some contexts are specified "local only." Yet in many cases the small size of the local market means that few vendors meet the minimum requirements of the tender. In such situations, as part of an effort to not compromise competitive requirements while still aiming to include local vendors when possible, a potential strategy is to encourage international companies to partner with local companies.

Another solution would be to host a pre-bid conference/training explaining the different required documents to the prospective vendors. The conference could for example issue clarifications on issues related to the following questions:

- How should the technical section be answered?
- What does a "minimum requirement" mean?
- How should a standard procurement matrix sheet be used?

- What are some terminologies that might not be understood because of language barriers? Can you explain them?
- What does a "professional profile" look like?

5.3 Minimum standard requirements and the procurement process

A large number of ICT standards[31] defining the minimum requirements of (for example) biometric systems currently exist. However, attention should be drawn to the fact that - in the context of electoral processes - EMBs and other national institutions, UNDP and other international development partners believe that these standards are not mandatory and therefore do not require compliance with standards.

This creates an environment which is not conducive to convergence of the procured solutions with other needs within the country, e.g., public administration. Furthermore, many EMBs, UNDP offices and other actors do not perform acceptance testing of solutions implemented beforehand. These issues, which impact upon sustainability, should ideally be carefully revised in the specifications phase.

As an example of how using standards can simplify long-term planning, standards specified in 1984 by the International Civil Aviation Organisation (ICAO) Document 9303 can be used to specify the layout of civic ID or voter cards. The same standard can be used to specify photo sizes to be used on these cards. This ICAO 9303 document also specifies how the photo should look like with regards to lighting, distance, coverage, etc.

Such a standard will ensure that future electoral cycles will have the same look and feel and the same standard layout regardless of which vendor is used. This will reduce costs - the graphics design and printing facilities will remain the same, for example - and reduce confusion with election officials on election day.

ICAO 9303 also specifies the electronic information standards to be used on e-voter or e-citizen IDs. ICAO recommends that the fingerprints image should be stored in a compression format called Wavelet Scalar Quantization (WSQ) that was developed by the US Federal Bureau of Investigation. This ensures that the captured fingerprints could be re-used when a new biometric vendor is selected in following electoral cycles. The WSQ standard is also the most effective compression format for fingerprints. The same goes for the photos, which are recommended to be stored in the JPEG 2000 (J2K) format. This will reduce storage size (and therefore costs), and ensure sustainability.

31 ICAO Doc. 9303, Part 1: Machine Readable Passports - Sixth edition, 2006.
ISO 1073-2:1976 Alphanumeric character sets for optical recognition - Part 2: Character set OCR-B - Shapes and dimensions of the printed image.
ISO 1831:1980 Printing specifications for optical character recognition.
ISO 3166-1:1997 Codes for the representation of names of countries and their subdivisions - Part 1: Country codes.
ISO/IEC 7810:1995 Identification cards - Physical characteristics.
ISO 8601:2000 Data elements and interchange formats - Information interchange - Representation of dates and times.
ISO 15946-1: Information technology - Security techniques - Cryptographic techniques based on elliptic curves - Part 1: General, 2002.

The technical specifications sections of the ICAO 9303 document, Parts 1, 2 and 3, have received the endorsement of the International Organisation for Standardization as ISO Standards 7501-1, 7501-2 and 7501-3, respectively. Such endorsement is made possible by means of a liaison mechanism through which manufacturers of travel documents, readers and other technologies provide technical and engineering advice to the Technical Advisory Group/Machine Readable Travel Document (TAG/MRTD) under the auspices of ISO. Through this working relationship, the ICAO specifications have achieved the status of worldwide standards by means of a simplified procedure within ISO. The liaison mechanism with ISO has been successfully applied not only to the endorsement of new specifications for travel documents as ISO standards but also to the approval of amendments to the specifications. Subsequent revisions to Document 9303, Parts 1, 2 and 3, will therefore be processed for ISO endorsement in the same manner as previously.

Risks involved increase even further if, in addition to not requesting compliance with practises and/or standards, EMBs choose not to perform acceptance testing of provided solutions. Because of the importance of the software component of the biometric solution, EMBs (and/or national authorities in charge of civil registration) should adapt common standards in regards to the procurement of software products and services as described in IEEE 12207.[32]

This standard presents the commonly accepted practices for ensuring a well-defined and consistent assurance process for acquired software. The 12207 framework describes a complete set of practices for software that range from conceptualization to completion.

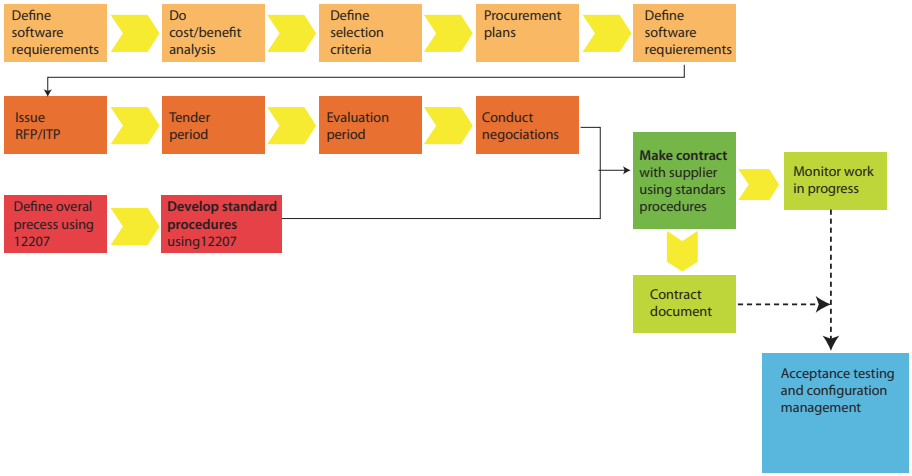


Figure 9. Standard software procurement process

32 For more information, see IEEE 12207.0 Standard, entitled Industry Implementation of International Standard ISO/IEC 12207:1995, standard for Information Technology, Software Life Cycle Processes.

This translates into the following activities:

- prepare a concept or a need to procure, develop, or enhance a product or service;
- prepare a set of requirements including relevant design, testing and compliance standards;
- prepare a set of acceptance criteria and criteria for evaluation;
- prepare a procurement activity plan, including milestones;
- establish plans for supplier sourcing;
- launch an expression of interest and prepare tender documents;
- establish a solicitation period and tender evaluation period;
- conduct validation/acceptance testing;
- manage contract, supervision;
- allow sufficient time for a comprehensive procurement process; and
- perform acceptance reviews and validation testing.

Formal acceptance of the solution includes preparation and performance of test cases, test data, test procedures and a test environment. Inspections and audits are rigorous but they require resources and have corresponding costs. This means that when drafting a request for proposal (RFP) for procuring a biometric voter solution, the RFP has to be both feasible and cost justifiable. In this way, EMBs and procurement officers will have the adequate decision-making tools when it comes to ICTs, especially for biometric voter registration projects.

5.4 Security Issues related to new technologies

Computer systems used for elections need to include high levels of security. Unauthorised persons must be prevented from accessing, altering or downloading sensitive electoral data. Demonstrable security levels are another way of ensuring that electoral processes are transparent and trustworthy. Various mechanisms exist to provide for computer security. These include password protection, encryption, verification programs and physical isolation.

5.5 Disaster recovery

Given that a voter registration process is not only expensive but also potentially very political, it may be subject to malicious attacks in some circumstances. Such a risk is certainly viable in the context of this paper since it mainly targets post-conflict and emerging democracies in which attacks on EMBs are relatively likely. This section deals with the process, policies and procedures related to preparing for the continued, normal operation of ICT solutions after a natural or human-induced disaster. A disaster recovery site (DRS) contains

copies of the main IT items available on the primary site and can be used in case of fire, sabotage or disaster. A DRS could be in another building or even another city altogether. If problems occur with the main system, the operation will be able to continue using the DRS (secondary site).

A thorough and well-equipped DRS could almost duplicate both the size and the cost of hardware of the primary site. It would also almost double the set-up time. Careful planning should be conducted in advance to determine what the purpose of the DRS would be. For example, is it to protect the process, the data or both? If the objective is to protect the process and the data, then enough space should be allocated to the processing workstations as well. This should be budgeted from the beginning of the project.

5.6 Total solution vs. technology transfer

With respect to services with a high content of ICTs, there is a tendency to adopt methodological approaches that set the roles and responsibilities in two distinct ways: "total solutions" vs. "technology transfer to the EMB." In short, **total solutions** mean the provider controls the process end to end. **Technology transfer** to EMB means that at the end of the process, the EMB is capable of repeating the process itself without external assistance. While technology transfer is indeed often desirable, it is not necessarily the best option. Deliberately choosing to outsource certain systems may sometimes be more efficient than having everything run directly by an EMB. It is however important that any such outsourcing is a conscious decision based on an efficiency analysis and not the by-product of a failed technology transfer. Of course avoiding "vendor lock" must be part of such an analysis too. The EMB should also always have an in-depth understanding of and insight into and ultimate control over the outsourced services provided to them.

The issue of appropriate transfer requires further study since it impacts on the project's management, costing and sustainability. The level of the possible transfer should be factored into the specifications writing before the solicitation documents are prepared. It is important to ensure that any technology transfer in place is directed at key employees of the EMB who are part of its permanent staffing structure. Staff temporarily employed and released on a cyclical nature (in line with electoral cycle demands) should ideally be excluded from consideration in this regard because they may not be available for employment during a future electoral cycle. An adequate budget must be provided to not only attract the required talent for these key posts but also to retain them. From a procurement perspective, these key role players (i.e., posts) should be identified and included in the knowledge transfer responsibilities in the supplier's contract.

There is also a need to be aware of approaches that suggest the use of a public-private partnership known as **build-operate-transfer** (BOT). This is a form of project financing in which a private company receives a concession from the government to finance, design, construct and operate, for instance, the production and issuance of ID cards (with a fee to be paid by end users) in the context of a civil registration. This enables the project implementer to recover its investment, operating and maintenance expenses in the project.

Due to the long-term nature of the arrangement, the fees are usually raised during the concession period, thereby allowing the implementing entity to reach a satisfactory internal rate of return for its investment. Traditionally, such projects provide for the infrastructure (in this case biometric voter registration kits and servers) to be transferred to the government at the end of the concession period.[33] BOT can be controversial and is not necessarily recommended when it comes to the electoral process because of the dangers of vendor lock. There may also be issues that the technology that was built and operated by the vendor becomes obsolete and requires substantial upgrading shortly after the transfer.

5.7 Impact of introducing new technologies

When a new system is being considered to replace another, an evaluation is needed to assess the impact of the change on all stakeholders. Once the system is adopted, the transition phase needs to be carefully managed to ensure that problems do not occur and that all functions can continue to be effectively carried out.

These are some strategies that can be used by electoral administrators to minimize the negative impact of new systems, new technology and changes in electoral processes. The following are among those strategies:

- allow plenty of time for implementation and avoid starting implementation too close to election day;
- keep in mind that implementation of a new project often takes longer than expected;
- plan for new systems to be finished well before the earliest possible election date and enforce cut-off dates after which no system changes are allowed;
- have alternatives ready to be implemented in case the new system cannot be used for whatever reason;
- manage information about the technology and changes so that stakeholders do not have unrealistic expectations and do not impose impossible deadlines;
- avoid imposing a new, untried or unsuitable technology;
- schedule enough time to thoroughly test new systems; and
- provide training for staff and users as needed, aiming at building local capacity and sustainability.

33 Build, operate and transfer (BOT) is not recommended when it comes to the electoral process because of political implications.

A system implementation schedule can be influenced by whether there is fixed-term or variable-term election system. With fixed-term elections, implementation schedules can be set around a known election date, but with variable-term elections new systems should ideally be in place and ready to go before the earliest likely date for the election. However, election calendars are not always set in stone and due to unforeseen activities elections could suddenly be called for in the middle of an ongoing voter registration process. In such cases, EMBs may have to prepare for the use of both new and old voter cards simultaneously for casting the ballots.

5.8 Change management

ICT projects in many countries fail not because the solution is inappropriate but because the extent of change is often underestimated. Implementation of new systems and procedures means that staff must change their roles and ways of conducting business. If the issue of change is not dealt with in a sensitive and professional manner, then failure in implementing new systems is more likely to occur. It is therefore important that advisors to EMBs also have the skills that are required to be agents of change.

Managing change refers to making changes in a planned and managed or systematic fashion. The aim is to more effectively implement new methods and systems in an ongoing organisation. The changes to be managed lie within and are controlled by the organisation. The purpose is to avoid knee-jerk or reactive responses and to demonstrate anticipative or proactive responses.

The content or subject matter of change management is drawn from psychology, sociology, business administration, economics, industrial engineering, systems engineering, and the study of human and organisational behaviour.

PART 6

Linkages Between Civic and Voter Registration[34]

6.1 Creating a voter registry on the basis of the civil registry

In the context of voter registration processes, convergence between civil and voter registers is an approach that seeks to achieve cost-effectiveness, completeness and accuracy in voter registers. It involves replacing the costly electors enumeration process by abstracting from a population register a sub-file to be used as a matrix for generating voter lists. When the properties of the population registers enable such an abstraction, both the population and voter registers are said to be "convergent". Convergence in this instance is defined as the interlinking of population registers and voter registers.

Completeness and integrity must be assessed for the population register to be enabled to exchange information with the voter lists format. For obvious reasons, using a population register to identify individuals eligible to vote is only as reliable as the civil register itself. If the register is outdated or full of errors, many eligible voters will not be identified, and names that should be removed from the voter list will remain.

In addition, computer errors are possible when names are moved from the population register to the voter list. This problem is likely to be more pronounced when multiple databases (health, driver licenses, taxation, passports, etc.) maintained by different government agencies are merged to create the voter list.

Lack of reliable data in the population register will compromise the reliability of the voter registry. If the voter register after abstraction cannot be trusted, not only will there be a lack of public confidence in the register, but the register may also cause more political worries than if no data were available at all.

6.2 Overall responsibility of an EMB

Even if the approach of abstracting the voter registry from the civil registry is prioritized, it is important that the election administration should remain responsible for generating the voter lists.

There are several arrangements throughout the world where the public administration (e.g., interior ministries) produces voter lists which are then used by the election administration. Such arrangements are problematic, however. The difficulty lies in the following question: who is responsible for the quality of voter lists and their impact on the outcome of an election event? To avoid such complications, it is advisable to have a single entity in charge of both producing and using voter lists; that entity would therefore be responsible for all outcomes related to their use.

34 Part 6 is based on the findings of the EC Study on the Use of Information and Communication Technologies in Electoral Processes, 2009.

Creating a civil registry on the basis of the voter registry

Although the process remains in an experimental phase, it is still possible to build a civil register on the basis of a voter register. Figure 10 shows a structured way of transforming the electoral register into a civil register over consecutive electoral cycles.

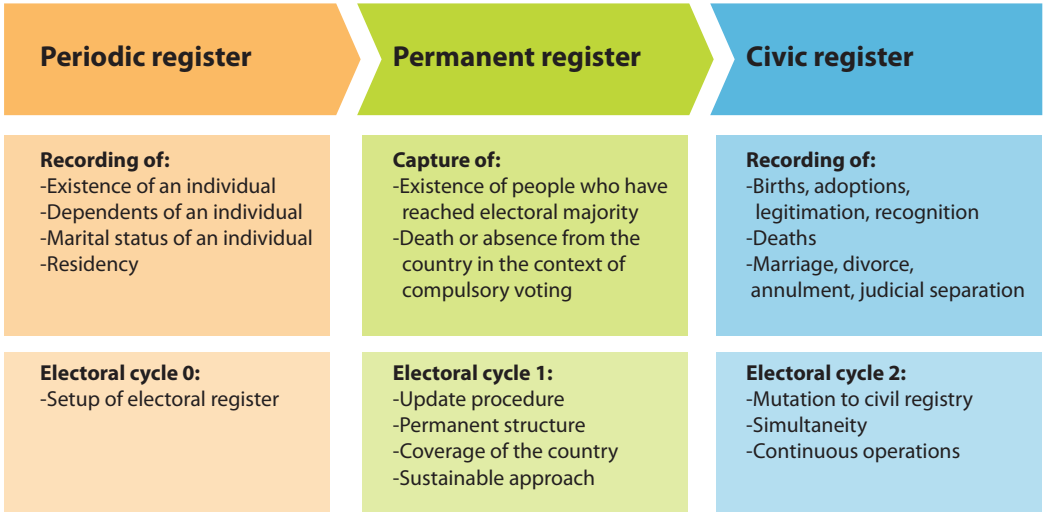


Figure 10. Transforming the electoral register into a civil register over consecutive electoral cycles

A periodic voter register cannot serve as the basis for building a civil registration system since it lacks the structure to enable the continuous registration. However, the opportunities are far more extensive when a period register has been transformed into a fully fledged permanent voter register. Moreover, voter registration ought to be compulsory because voluntary registration is not conducive to complete, current and accurate vital statistics. Compulsory registration can be coupled with incentives - such as linking the possession of a voter card to the ability to obtain basic public services such health care and free school attendance for dependent children, or perhaps to be eligible to open a bank account - as part of an effort further enhance the reliability of the civil registry being constructed. Once continuous voter registration activities are optimally performed, it is possible to extend the data collection component with recorded vital statistics.

Challenges to the implementation of this process are many and the process needs to be carried out in a systematic manner to anticipate and respond to possible setbacks. First, a well-functioning public administration that supports continuous voter registration activities needs to be in place. Moreover, legislation could further support

the integrity of the data by encouraging compulsory registration. Finally, the absence of effective coordination among the different agencies involved (e.g., the EMB and the interior ministry) may result in different values for vital statistics, thereby highlighting inconsistency among crucial actors. Coordination needs to take place at two levels: the data-collection level and the data-processing level.

CASE STUDY: FROM VOTER REGISTER TO CIVIL REGISTER IN DRC

Voter registration in DRC (as mandated by law) was successfully conducted in 2005-2006. It has resulted in a single comprehensive file containing demographic and biometric data (portrait and two-index fingers) of about 25 million inhabitants from a population estimated to total about 65 million people. Given the country's relatively young population, it is assumed that 38.46 percent of the population captured by the electoral register represents more than 80 percent of the adult population. Therefore, the electoral register is currently used as the national identification file. In order to obtain a passport, the single document a citizen must present is an electoral card, which means the electoral card is not only a *de facto* national identification document but also that the electoral register is essentially a civil registration system. This approach has its limits and disadvantages, including the following:

- electoral cards are not replaced on demand, but only during at specific periods;
- electoral cards are not issued when the individual reaches 18 years, but only in preparation for elections. Therefore, during a long period, many citizens are not allowed an opportunity to obtain national identification documents; and
- municipal and territorial administrations still maintain parallel registers of population, including a civil registration system recording vital statistics. Although these registers are incomplete, they still contribute to confusion as to the validity of civil documents. In addition, several models of civil documents exist concurrently: some have security features, such as those issued in Kinshasa, while others remain typed out or even hand-written.

CONCLUSION

The overall objective of this paper is to shed light on the main issues related to procurement of goods and services for electoral processes, with particular attention regarding the procurement of goods and services related to the introduction or upgrading of ICTs in these processes (especially in relation to voter registration).

One initial emphasis was on the importance of procurement planning as well as the integration of procurement plans and strategies in the programme formulation stage. These are vital elements of the wider electoral cycle approach, yet the procurement planning phase arguably has not received enough attention to date in general. The relative lack of awareness of how and why to conduct procurement planning stands in sharp contrast to reality, which clearly shows the importance of this task as well as related procurement issues such as pilot and validation testing.

As mentioned throughout the paper, any delay or shortfall in the procurement or distribution of materials could have serious implications for the rest of the voter registration or electoral schedule. Such developments could potentially affect the outcome of voter registration or the election, and could even be a reason that the voter registration process or the election is not implemented at all. With a well-defined procurement plan in hand, the electoral assistance project/programme is more likely to achieve appropriate identification of needs and strategies, analysis of associated risks and supply chain management constraints, and assessment of implementing partners" capacity to facilitate proper management arrangements and effective types of engagement.

The footprints of the ICT revolution are particularly strong in the electoral field: ICTs have dramatically changed the way elections are conducted not only in democratic states, but also in post-conflict states and emerging democracies. Consequently, when it comes to decide how to tackle the increasing use of ICTs in electoral processes, all stakeholders in a given electoral process, including development partners in the context of electoral assistance projects, have an important role to play in influencing the technological choices.

Requests for electoral assistance for voter registration processes are particularly important because they are among the most crucial and expensive undertakings and fall within the area in which the influence of ICTs applications is growing the most. More and more countries are requesting assistance to introduce and use biometric features in voter registration processes, especially using automated fingerprint identification systems (AFIS) in the hope of enhancing the sustainability and credibility of their voter registers.

To successfully support technological upgrade of voter registration processes, electoral assistance providers need to acquire a better understanding of procurement planning and strategies for the purchase of goods and services for the implementation of, in particular, biometric voter registration systems. This relates essentially to procurement requirements and selection of the adequate level of technology, development of comprehensive technical specifications, appreciation of associated risks, timely procurement and an appropriate allocation of resources.

The following are among the key priorities that should be recognized in regards to procurement for biometric voter registration:

- First of all, IT specialist(s) who have substantial adequate experience and knowledge in this area must be hired.
- Second, consideration should be given to factors associated with local vs. international competition for contracts. Local sources should be given priority whenever possible in regards to all relevant contracts in order to support local development, but stakeholders (including UNDP) should thoroughly analyze the capacity, technology and resource limitations of the local environment. They should also take into account the security and stability in the region, among other factors.
- Third, to increase sustainability when purchasing ICT solutions, it is important to apply already existing international ICT standards and practises that support inter-operability. This reduces potential risks since it facilitates specification and understanding of requirements, secures minimum required performance or quality, simplifies integration, allows for substitution and upgrade of technologies, and reduces "vendor lock-in" effects. Strict compliance with these standards and practices can eventually lead to a broader range and availability of products and movement towards more widespread commoditisation of the technology. It also ensures that greater focus is placed on technology transfer and ownership of EMBs than on totally outsourced solutions.
- The fourth and fifth procurement considerations relate to the rather self-explanatory issues of security and cost-effectiveness. Regarding the latter, all costs related not only to the actual purchase of the item or service but also to expenditures - such as, for example, add-on equipment, installation, maintenance and troubleshooting, warehousing, security, documentation, procedures and staff training - should be taken into accent. Sixth, the establishment of a disaster recovery site (DRS) encompassing a duplicate IT setup in case of fire, sabotage or other disaster situations should be considered.

Finally, there is a need to look into the difference between the total solution (e.g., build-operate-transfer methodologies) and technology transfer to the EMB. "Total solution" means the provider controls the process from beginning to end. "Technology transfer," on the other hand, means that at the end of the process, the EMB is capable itself of repeating the process without (too much) external assistance. Yet although technology transfer is often desirable, it is not always so because outsourcing of certain functions and services may be under some circumstances more efficient. When transfer prevails, factors related to project management, costing and sustainability need to be carefully analyzed.

More generally, as the election process and the electoral assistance project proceeds, the procurement plan needs to be adjusted according to current developments, thus emphasizing the procurement plan as a living and flexible document available for updates and modifications. As with procurement processes for elections in general, a delay in or shortfall of procurement of goods and materials related to voter registration processes may affect the outcome of the voter registration process itself and also impede on the overall electoral schedule and process.

Through its daily project/programmatic work, UNDP is heavily involved in electoral procurement. Key issues and priorities discussed throughout this paper rely primarily on experiences and lessons learned from UNDP-managed basket funds with important contributions of the EC and/or EU Member States. Through the Global Procurement Unit (GPU) as part of UNDP PSO, advisory services and direct procurement support are made available to UNDP Country Offices and EMBs. GPU is part of the EC-UNDP Joint Task Force providing continuous assistance to UNDP Country Offices and EMBs in procurement planning and budgeting, on-site training and, in many cases, targeted exploratory, formulation and assessment missions relating to procurement and operations for each step of the electoral cycle.

Moreover, UNDP long-term agreements (LTAs) have been established to ensure efficiency in the procurement process, including in regards to the achievement of turn-around times that comply with UNDP rules and regulations and ensure the quality of procured goods and services. Given the current role of ICTs in electoral processes in both emerging democracies and post-conflict states, the strategic focus of GPU for the immediate future is to increase the scope of LTAs and other procurement tools to effectively address systems that include items of higher level of technology, higher production complexity and higher security requirements.

Over the last decade, electoral assistance practitioners and the donor community have seized numerous great opportunities, but have also coped with substantial challenges in formulating and implementing projects and programmes seeking to introduce or upgrade the use of ICTs in electoral processes. Some best practices identified to date include the following:

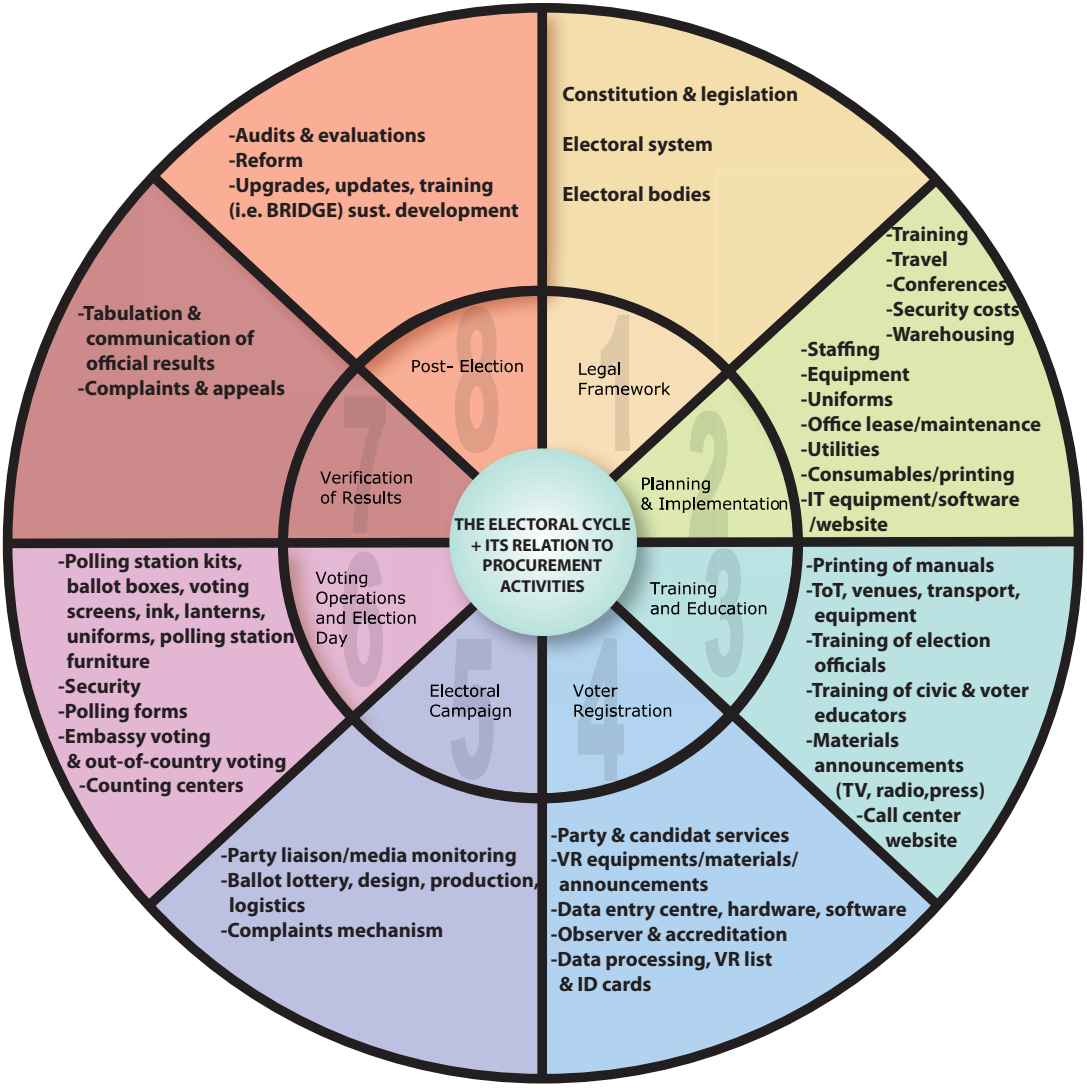
- There is a need to carry out feasibility studies to uncover and analyze information that will subsequently support the detailed planning and formulation of projects and programmes encompassing ICT components.
- Study tours aimed at spreading knowledge of existing practices can lead to substantial and useful exchange of comparative experiences among practitioners and EMBs.
- High-quality technical specifications are those that take into account existing standards, comparative experiences and practices and which adapt to the needs and requirements of the specific contexts.
- ICT equipment, including hardware and software, needs to be legally supported and/or adapted to the specific legal context of the country.
- Timely implementation of ICT materials and services for electoral purposes is crucial. Gradual introduction should begin between 6-12 months prior to election day at a minimum, thus allowing for procurement, testing, management, training of staff, etc.
- Considerations with regards to cost-efficiency and sustainability need to be mainstreamed throughout the project/programme phases, a requirement that also underscores the importance of the immediate and long-term goals of the work carried out by assistance providers and EMBs in this specific field.

- Pilot testing, validation testing and mock voter registration exercises should be included in the procurement plans and organized to add transparency in the procurement process and to test the effectiveness of data collection.
- Civic and voter education efforts need to recognize, prioritize and integrate new developments with regards to ICTs in electoral processes to ensure public trust in the use of those materials.
- Synergy effects between voter and civil registries should be sought in order to take full advantage of existing resources.
- An extension of the length of operations must often be considered when high-tech solutions for voter registration are implemented.

ANNEXES

Annex 1

Scope of procurement in the electoral cycle



Annex 2

Electoral material process timelines (based on PSO LTAs)

Indicative process timeline for LTA-based procurement (starting from finalized specifications, legal framework approved, budget approved, etc.)

Request for quotation document preparation and issuing	1 day
Bidding and clarification period	15 days
Evaluation, sample testing and award	8 days
Request and provision of freight estimates	2 days
Preparation of purchase order	1 day
Vendor set up	1 day
Approvals in ATLAS	1 day
Issuance of PO to the supplier	1 day
TOTAL to placement of purchase order	**30 WORKING DAYS**

Indicative delivery timeline (highly depending on quantities and specific items):

Timeline to FCA delivery 1 lot - e.g. materials for training purposes	15-20 days (5 from PO placement)
Transit time airfreight 1 training kits of electoral materials	4 days
Timeline to FCA delivery 2 - e.g. rest of quantities	25-30 days (from PO placement)
Transit time airfreight 2	4 days
Transit time by seafreight instead	4-6 weeks (depending on origin/destination)

NOTE: TIME BUFFERS MUST BE ADDED TO THE ABOVE TIMELINES, AS REGULAR PRACTICE, ESPECIALLY FOR PLANNING PURPOSES (TYPICALLY BETW. 1-2 WEEKS)

Annex 3 (part 1)

The main types of CSO participation in a UNDP project from a programming perspective

	CSO as implementing partner	Contract with CSO	Grant to CSO
Purpose	To give overall management of an entire project to a CSO that is responsible for achieving the project results	To get specific inputs required for implementing project activities on a competitive basis	Grants are funds to finance a development proposal from civil society
Justification	To benefit CSO comparative advantages, i.e. management by an CSO is appropriate in the case of a project that a.- involves close interaction with target groups such as the poor and vulnerable b.-would benefit from established contacts with grass-roots associations or c.-calls for expertise in the use of participatory methods To serve the objective of partnership and capacity development	To take full comparative advantages of various service providers available in the market (e.g. distribution channels of local CSOs on the one side, and competitive market access of private sector supplier on the other) When priority is given to clear liabilities and accountabilities of the parties involved	CSO are responsible for achieving the grant objective on non-profit basis As stated in Rule 19.01 of the financial rules and Regulations, a grant mechanism can be incorporated into technical cooperation programmes and can be implemented through NGOs or grassroots organizations To serve the partnership and capacity development in line with the project framework While UNDP sets the general parameters and selection criteria, the NGOs themselves design the grant projects based on their ideas, needs and capacity

Annex 3 (part 2)

The main types of CSO participation in a UNDP project from a programming perspective

	CSO as implementing partner	Contract with CSO	Grant to CSO
Selection process	UNDP programming decision, based on LPAC recommendation a.- Review of most appropriate project management arrangement for the project (national institution, country office, UN agency, or CSO) b.- If CSO modality is selected, capacity assessment of identified CSOs to choose the best, using framework of selection criteria to assess CSO capacity c.- Review and recommendation by LPAC d.- Approval by UNDP	Procurement rules of the implementing partner apply, provided that they are in line with UNDP standards If UNDP issues contract, UNDP rules apply	Project board or selection committee to assess proposal and capacity of CSOs to choose the best-suited one (framework of selection criteria to assess CSO capacity) UNDP's final approval based on the recommendation by the Project Board or Selection Committee
Financial limits	No limit as such (whole project)	No limit as such, but approval subject to procurement rules (i.e. CAP, ACP/CPO)	Each individual grant should not exceed $150,000; and multiple grants cannot exceed $300,000 on cumulative basis
Additional funding	CSO can bring additional, non-UNDP funds, to the project	As per contract	CSO can receive other funds and/or contribute with own funds

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Annex 3 (part 3)

The main types of CSO participation in a UNDP project from a programming perspective

	CSO as implementing partner	Contract with CSO	Grant to CSO
Intellectual property	All property rights rest with UNDP	All property rights rest with UNDP unless explicitly stated in contract	The property rights rest with UNDP unless explicitly stated in the grant agreement
Engagement of other partners	The CSO as implementing partner can: a.-contract other partners (consultants, suppliers, CSOs) b.-give out grants to other CSOs c.-request support services from other UN agencies, including UNDP CO	Usually no further contracting	Usually no further contracting; however, the CSO might request specific services from UNDP (e.g. procurement)
Financial reporting	As per project financial management procedures	As per contract requirements	As per grant agreement requirements
Overall project reporting	Responsibility of CSO	Responsibility of implementing partner	Responsibility of implementing partner
Overhead of CSO	As part of project cost	As part of contract cost	As part of grant

Annex 3 (part 4)

The main types of CSO participation in a UNDP project from a programming perspective

	CSO as implementing partner	Contract with CSO	Grant to CSO
Applicable agreement template	Project cooperation agreement to which the project document signed by government and UNDP is attached	a.-Implementing partner's procurement contract – typically contract for professional services apply b.-In case of UNDP model contract for professional services apply (http://content.undp.org/go/userguide/cap/?lang=en#top)	a.-Grant agreement for credit related activities b.-Grant agreement for non-credit related activities
Typical examples	Community development planning and implementation projects	Grassroots workshop organization, other community-based services	Community- based activities, GEF Small grants programme, LIFE

Annex 4 (day 1)

Agenda EC-UNDP-IDEA Joint Thematic Workshop on the Use of ICTs in Electoral Processes. Brussels, Belgium, 30 November - 2nd December 2009

DAY 1 Use of ICTs in Electoral Processes and the Electoral Cycle Approach: The UN/UNDP and EU/EC Frameworks

Moderator: *Fabio Bargiacchi and Eugene Owusu*

09:00	Opening Speeches: • *Dominique Dellicour* , Head of Unit, Governance, Security, Human Rights and Gender, Directorate for Quality Support, EuropeAid • *Antonio Vigilante*, Director of the UN/UNDP Brussels Office • *Apollinaire Malu Malu*, President of the Independent Electoral Commission of DRC and President of the SADC Electoral Commission Forum • *Gilson Dipp*, Vice-President of the Brazilian National Council of Justice • *Domenico Tuccinardi*, NEEDS Project Director, International IDEA Representative in Brussels
09:45	Self Presentations of Participants
10:30	**Introduction: Training Methodology and Key Concepts of the Debate on Appropriate Technologies** *Fabio Bargiacchi*, Coordinator, Joint EC-UNDP Task Force on Electoral Assistance
11.15	**An Electoral Cycle Approach toward the Use/Introduction of ICTs in Electoral Processes** *Peter Wolf,* ICTs Election Expert, International IDEA
12:00	**UN Policy towards the Introduction/Use of ICTs in Electoral Processes** *Angela Bargellini*, Electoral Political Officer, UN Electoral Assistance Division, Department of Political Affairs
12.30	Questions and Answers and Discussions
14:30	**EU/EC Policy and Strategic Framework towards the Introduction/Use of ICTs in Electoral Processes** *Francesco Torcoli*, Election Specialist, Human Rights and Gender Unit, EuropeAid, EC
15:00	**UN/UNDP Resources and Services: Who does What?** **Global Programme in Support of Electoral Cycles and Synergies with the EC-UNDP Joint Task Force** *Eric Opoku*, Electoral Advisor, UNDP Bureau Development Policy *Fabio Bargiacchi*, Coordinator, EC-UNDP Joint Task Force on Electoral Assistance
16:45	**EU Election Observation, Background, Methodology and Implementation** *Malgorzata Wasilewska*, Head of Unit, RELEX B2, Democratization and Elections; Treaties Office *Patrice Le Normand*, Head of Election Observation Sector, EuropeAid F2
17.30	**Challenges of Observing Electoral Processes Introducing ICTs in Voter Registration and E-Voting** *Domenico Tuccinardi*, Senior Project Director, NEEDS Project *Nicolas Kaczorowsky*, Head of Department, OSCE/ODHIR

Annex 4 (day 2)

Agenda EC-UNDP-IDEA Joint Thematic Workshop on the Use of ICTs in Electoral Processes. Brussels, Belgium, 30 November - 2nd December 2009

DAY 2 Case Studies in Voter Registration and Data Transmission

Moderator: *Angela Bargellini* and *Derrick Fritz*

09:00	**Introducing ICTs in Brazilian Electoral Processes: The Legal Framework, Voter Registration, Data Transmission and Electronic Voting** Judge *Paulo de Tarso Tamburini*, Brazilian National Council of Justice
10:00	**Main First Findings of the EC-funded Study on the Use of Information and Communication Technologies in Electoral Processes: Focus on ... Civil and Voter Registration and Data Transmission** *Dunia Ramazani*, ICT Election Specialist, Joint EC-UNDP Task Force on Electoral Assistance
10:30	**Synergies between Voter and Civil Registration - Case Study: Zambia and Benin** *Dunia Ramazani*, ICT Election Specialist, Joint EC-UNDP Task Force on Electoral Assistance
11:15	**In Preparation for the Moldova Electronic Voter Register: Motivation for e-Register, Linking with Civil Register of Population, Legal Implications, Voter Education, Future Possibilities** *Frik Olivier*, ICTs Election Expert, UNDP Moldova
11:45	**Synergies between Civil and Voter Registration - The Case of Cabo Verde** *Rachid Antunes*, Director, Núcleo Operacional da Sociedade de Informação (NOSI)
12:15	**Biometric Voter Registration: The Case of Angola** *Augusto Baltazar*, Director General, Ministry of Territorial Administration, Angola
14.30	**Synergies between Voter and Civil Register - the Case of the OSCE Region** *Robert Adams*, Director of Democratization Division, ODIHR, *Zoran Djokovic*, Migration and Civil Registration Officer, ODIHR,
15:00	Working Groups: **ICTs and Synergies between Voter and Civil Registration** **Key Challenges and the Way Forward**
16:45	Working Group - **Plenary Session: Presentation of the Discussions**

Annex 4 (day 3)

Agenda EC-UNDP-IDEA Joint Thematic Workshop on the Use of ICTs in Electoral Processes. Brussels, Belgium, 30 November - 2nd December 2009

DAY 3 Further Case Studies, Validation Exercises and Procurement for ICTs in Electoral Processes

Moderator: *Mario Rui Queiro* and *Eric Opoku*

09:45 **Internet Applications to Increase Political Financial Disclosure Transparency**
Marcin P. Walecki, Executive Director, European Partnership for Democracy

10:45 **Operational Planning and Budgeting of Biometric Voter Registration**
Anne-Sofie Holm Gerhard, Electoral Operations & Procurement Advisor, UNDP Procurement Support Office
Dunia Ramazani, ICT Election Specialist, Joint EC-UNDP Task Force on Electoral Assistance

11:30 **Procurement issues of Biometric Voter Registration. The Cases of DRC, Guinea, Zambia**
Victor Margall von Hegyeshalmy, Procurement Analyst, UNDP Procurement Support Office
Dunia Ramazani, ICT Election Specialist, Joint EC-UNDP Task Force on Electoral Assistance

14:30 **Working Groups: Feedback on the JTF Operational Paper/ACE Focus On "Procurement Aspects of Introducing ICT Solutions in Electoral Processes: The Specific Case of Voter Registration"**
Participants will be divided into four groups to discuss the content of the JTF operational paper/ ACE Focus on.

15:45 Working Group - Plenary Session: Presentation of the Discussions

16.30 **Recommendations and Comments on the Workshop**
Fabio Bargiacchi, Coordinator, Joint EC-UNDP Task Force on Electoral Assistance
Mario Rui Queiro, Quality Manager Officer, Human Rights and Gender Unit, EuropeAid, EC

17:00 Closing

- *Dominique Dellicour* , Head of Unit, Governance, Security, Human Rights and Gender, Directorate for Quality Support, EuropeAid
- *Pierre Harze, Deputy* Director, UNDP Brussels
- *Apollinaire Malu Malu,* President of the Independent Electoral Commission of DRC and President of the SADC Electoral Commission Forum

Annex 5 (part 1)

List of participants EC-UNDP-IDEA Joint Thematic Workshop on the Use of ICTs in Electoral Processes. Brussels, Belgium, 30 November – 2nd December 2009

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UNDP Togo

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Department of Political Affairs UN Secretariat, NY

Mr.Antunes Guanje
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Electoral Reform International Services

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Annex 5 (part 2)

List of participants EC-UNDP-IDEA Joint Thematic Workshop on the Use of ICTs in Electoral Processes. Brussels, Belgium, 30 November – 2nd December 2009

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Mr. Manuel Wally
Practitioner
Peace Training Center
Mr.Marcin Walecki
Executive Director
European Partnership for Democracy
Mr. Marco Massoni
Senior Advisor at the General Directorate for Sub-Saharan Africa
Delegation for the Italian Presidency of the G8, MFA
Ms. Margarita Lopez-Manzanares
IT expert
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Mr. Michael Yard
Lead Analyst - Civic and Voter Registration
International Foundation for Electoral Systems (IFES)
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Contributors - biographies

The following individuals contributed to this publication. They are listed in alphabetical order.

Richard Atwood is currently director of research and operations at the International Crisis Group in Brussels. Prior to joining that organization he worked for about a decade in elections. He was UNDP's senior electoral advisor in Afghanistan (2008-9), IFES chief of party in the Palestinian territories (2006-2007), chief of operations for the UN in Afghanistan (2005) and regional elections coordinator in Pakistan for the Afghan out-of-country operation (2004). He has also worked as a core team member on a number of election observation missions (2002-2004) and as an election officer in Kosovo (2000-2001) and Timor-Leste (1999). He holds an M.A. in public policy from Princeton University and a first class honours degree in modern history from the University of London.

Fabio Bargiacchi since January 2007 has served as a senior electoral assistance advisor at the UN/UNDP Brussels Office with the main task of coordinating the activities of the EC-UNDP Joint Task Force on Electoral Assistance. His work focuses on increasing the overall efficiency and adherence of the projects within the common EC-UNDP strategic approach. His priority activities included the identification, formulation and support to the implementation of all EC-UNDP electoral assistance projects. From October 2004 until December 2006 he worked as the election specialist at the Directorate for Operations Quality Support of the European Commission. Bargiacchi has been the project coordinator and co-author of the EC Methodological Guide on Electoral Assistance, the co-drafter of the "EC-UNDP Operational Guidelines for the Implementation of Electoral Assistance Projects" and of the ACE Focus on Effective Electoral Assistance, and he contributed to the UNDP Implementation Guide on Electoral Assistance. Bargiacchi has also extensive previous experience in election observation and electoral assistance with the EU, the UN and the OSCE. Since 1997 he has served in positions such as senior election operations expert in the Palestinian territories, training/reporting advisor in the United Republic of Tanzania, coordinator of election observers in Indonesia, Suriname and Zimbabwe, and electoral logistician in Haiti. He also has obtained broad experience in managing projects in the democratic governance fields by, for example, working for the EC delegation in Mozambique for two years. Overall, Bargiacchi has worked on electoral and democratization processes in more than 30 different countries in Europe, sub-Saharan Africa, South-East Asia, Latin America and the Middle East. He has degrees in political science from the University of Florence and the Universite Libre de Bruxelles and holds an M.A. in society, science and technology from the University of Oslo.

Mette Bakken is working as an electoral assistance officer at the EC-UNDP Joint Task Force on Electoral Assistance (JTF). Bakken contributes to the JTF in the areas related to operational guidance to Country Offices on assistance projects to electoral processes and parliamentary strengthening; liaison and interaction with partner organisations; and training and knowledge dissemination. With regards to the latter, Bakken works extensively with the preparation and organisation of face-to-face EC-UNDP Joint Trainings on Effective Electoral Assistance as well as the eLearning Course on Effective Electoral Assistance that was released in October 2009. Within the framework of the Global Programme for Electoral Cycle Support, she supports the capacity-development component with particular attention towards the development of thematic face-to-face and eLearning modules. Bakken, a Norwegian national, has carried out substantial research in the field of electoral system design and reform both in western established democracies and in the developing world.

Anne-Sofie Holm Gerhard is working with UNDP as an electoral operations and procurement advisor for the Global Programme on Electoral Cycle Support. In her previous position with the Procurement Support Office (PSO) at UNDP Copenhagen, Holm Gerhard worked on the activities of the EC-UNDP Joint Task Force on Electoral Assistance, and more specifically focused on increasing the overall efficiency and adherence of the projects within the common EC-UNDP strategic approach and the introduction of procurement as an integral part of project planning. Her priority activities included the identification, formulation and support to the implementation of all EC-UNDP electoral assistance projects and supporting UNDP Country Offices particularly in the pre-election period of planning, budgeting and identification of electoral procurement needs and timelines. Prior to joining UNDP, Holm Gerhard worked since 2000 in the UN system in the field of post-conflict governance and election administration, including electoral assistance and election observation. In recent years she has provided electoral technical assistance to several rounds of elections in Iraq, Afghanistan, the Palestinian territories, and Nepal and has furthermore undertaken several electoral advisory missions in Africa, the Middle East, South-East and Central Asia and the Balkans. Holm Gerhard holds an M.A. in governance and development with a specialization in institutional design and conflict management.

Chris Kyriakides since July 2007 has served as the electoral IT expert at UNDP Guinea, where he is tasked with guiding the activities of the Electoral IT Technical Team. He is the principal electoral IT technical advisor to both the Guinean government and the Commission Electorale Nationale Indépendante (CENI). From January 2006 to June 2007 he served in Kinshasa, DRC with UNDP working within that country's Commission Electorale Independante (CEI). Kyriakides played a pivotal role within CEI's IT team predominantly in the candidate registration process (25,000 electoral candidates representing over 200 political parties) and the production of electoral materials (over 400 ballot papers). He also served as the principal technical support officer on numerous overseas missions as part of the official CEI delegation; the technical focal point between CEI's Legal Department and the IT team; as well as the technical focal point in liaising with the official ballot printing companies. Previously he was subcontracted to the Independent Electoral Commission (South Africa). From 1994 to 2003 he was with the Council of

Scientific and Industrial Research (CSIR) serving in numerous roles including chief information officer (for the Division of Mining Technology). Kyriakides has an MSc in computer science and 19 years of professional experience. He has a broad array of expertise (including electrical engineering) that has served him well in advising on projects requiring multi-disciplinary skills (e.g., the recent project in the United Republic of Tanzania to replace outdated Polaroid-film based technology with solar-powered, fully digital, photographic equipment).

Linda Maguire is the electoral advisor in UNDP's Democratic Governance Group, Bureau for Development Policy, at headquarters but is currently based in Mexico City. She provides policy and project advice on elections to UNDP Country Offices and their national partners, undertakes a research agenda, and maintains partnerships among UNDP and organisations within and beyond the UN. Maguire is the current project coordinator for the ACE Electoral Knowledge Network - a joint venture on the cost and administration of elections involving UNDP, International IDEA, IFES, Democracy at Large, Elections Canada, the Instituto Federal Electoral (Mexico), EISA (Southern Africa), the UN Department for Economic and Social Affairs, the UN Electoral Assistance Division and the European Commission. She has coordinated the production and has been the co-drafter of several UNDP publications in electoral assistance, the most recent of which were the UNDP Electoral Assistance Implementation Guide and the ACE Focus on Effective Electoral Assistance. Before joining UNDP, she served as a senior program officer for West Africa with the National Democratic Institute for International Affairs (NDI), where she managed the electoral assistance programs in Côte d"Ivoire and Mali, as well as provided support to legislatures, political parties and civil-society initiatives in the region.

Victor Margall von Hegyeshalmy is leader of the Electoral Team within the Global Procurement Unit in UNDP's Procurement Support Office (PSO) office in Copenhagen, Denmark. He is responsible for coordination, monitoring and management of electoral procurement projects in support to UNDP Country Offices, involving corresponding missions and liaison with EMBs, suppliers and other relevant stakeholders. Other key responsibilities for PSO and for Margall von Hegyeshalmy are to provide advice on procurement strategy to UNDP COs, including in regard to the development of tools such as LTAs, internal knowledge base and guidelines. In addition, he supports UNDP-EC Joint Task Force missions and workshops as part of the PSO office. Margall von Hegyeshalmy joined UNDP in 2006 to work with LTAs development and strategy, and content management of UNWEBBUY (electronic procurement platform). He also managed the GFATM Procurement Team in GPU, while being focal point for GPU's LTAs, prior to his full-time involvement in elections procurement. Margall von Hegyeshalmy joined the UN system in 2003 at UNICEF Supply Division as a consultant for contracts management and review of SD's Global Procurement Strategy in Immunization. Prior to joining the UN, he worked in the private sector, including three years as a sales/markets analyst at Iberia Airlines. Margall von Hegyeshalmy holds an MBA from ESADE (International Business School, Barcelona), and a Cand. Merc. Masters Degree in international management and marketing from Copenhagen Business School.

Niall McCann has worked in electoral assistance projects for the United Nations Mission in Liberia (2005), and for UNDP in both Sierra Leone (2007-2008) and Kenya (2010). In all three missions he was operations advisor to the national EMBs. He also was chief technical advisor for the directly implemented EC electoral assistance project in Lebanon in 2008-2010. He was previously a senior international elections officer/ head of field office with the OSCE Mission to Bosnia and Herzegovina from 1997-1999, and he served on six election observation mission core teams with the OSCE Office for Democratic Institutions and Human Rights in Croatia, Bosnia and Herzegovina, Hungary and Romania from 2000-2007. An evaluator in the Irish Department of Finance from 2002-2005, he is currently completing an evaluation of the EC-UNDP Partnership in Electoral Assistance and the Joint EC-UNDP Task Force in Electoral Assistance. He holds an M.A. in International Relations from the University of Limerick (Ireland).

Frik Olivier has worked as a systems architect on registration systems (paper, electronic and hybrid scanning systems); biometric systems (finger, facial and combined); civil registers; voter registers; and combined civil-voter registers. He designed and implemented many e-governance projects and components of e-governance integrating various legacy systems used in governments. Projects involved civil, voter, pension, health insurance, passports, e-passports, e-driver's license and biometrics. His systems have registered more than 200 million people since 2003. His expertise has been utilized by UNDP and the private sector in Afghanistan, Botswana, Cambodia, DRC, Malawi, Mauritius, Moldova, Namibia, Nigeria, Reunion, Saudi Arabia, Uganda, the United Republic of Tanzania and the United States for extended periods. Olivier adapts to rapidly changing business environments and sees challenges as opportunities rather than threats. He has the ability to recognize the need for change and is very comfortable in managing change.

Dunia Ramazani is a senior ICT electoral assistance advisor specialized in voter registration and data transmission. Ramazani worked in the context of the joint EC-UNDP Joint Task Force recruited by the EC mainly to carry out a study on the synergies between civil and voter registration. Ramazani holds a Ph.D. in computer science from the University of Montreal, Canada. He has more than 14 years of experience in the private sector developing complex hardware and software systems. He specializes in the management of projects with high technology content in both private and public sectors. After leaving Siemens Innovation Telecommunications where he also headed the department of research and development in Canada, he joined the public administration in DRC as well as the Polytechnic Faculty of Kinshasa as associate professor. He has provided consultancy services to various DRC government ministries (including the Ministries of External Commerce, Industry and Small Businesses, Interior, Finance, Transportation, and National Defence) and state agencies including the State Security Committee. In 2005, he joined the Independent Electoral Commission of DRC as manager of the National Data Processing Centre. This position enabled Ramazani to acquire substantial experience in various aspects of electoral processes, and in 2007 he served as voter registration expert for UNDP Togo. Between 2007 and 2010 he participated in several formulation missions carried out by the EC-UNDP Joint Task Force on behalf of the European Commission.

Francesco Torcoli has worked since February 2010 in the Governance Section of the EU delegation to Ghana where he is responsible for electoral support programs to the Ghana Electoral Commission. From 2007 until January 2010 he worked as an electoral assistance specialist/quality management officer at the EC's Europe Aid Cooperation Office, within the Governance, Security, Human Rights and Gender Unit. Torcoli has more than 15 years of experience in the fields of electoral assistance, election observation and human rights gained in more than 30 countries in Africa, Latin America, Eastern Europe, the Middle East, the Pacific Islands and the Caribbean. Torcoli has worked with different international organisations over the years, including the EC, UNDP and OSCE/ODIHR, in different capacities such as chief technical advisor for UNDP in Mali in 2006 for the preparation of the presidential and legislative elections, deputy project director in the Palestinian territories in 2003 for an EC-funded project to support the Palestinian Election Commission, and senior human rights officer within the Kosovo Verification Mission in 1999. He holds a Ph.D in international relations and a master's degree in political science from the University of Pisa (Italy), where he has also been teaching the history of international relations for more than four years. Torcoli has authored and co-authored a wide range of articles and books on international relations.

Domenico Tuccinardi, project director for the NEEDS Project, is responsible for the delivery of all NEEDS Project results, the integrated functioning of each of the project's units, and the overall coordination with the relevant EC services and the consortium's partners. Tuccinardi has extensive experience in managing electoral observation and electoral assistance programs in several regions of the world. Among his main appointments, Tuccinardi directed the OSCE external registration and voting programmes in Bosnia and Herzegovina between 1999 and 2000. As OSCE deputy director of elections in Bosnia (2001-2002), he designed the transfer of the electoral administration functions to the newly created Election Commission of Bosnia and represented the OSCE as delegated commissioner. Tuccinardi was also the election administration specialist of the planning team for the Iraq Transitional Elections of 2005, and later on led the EU project in support of the same elections. More recently he was special advisor for the EU to the "Ad Hoc Referendum Commission on the Independence of Montenegro" and managed the ACE Practitioners" Network. Among his main appointments in electoral observation, Tuccinardi was deputy chief observer for the EU Election Observation Missions in Venezuela (2005) and Nicaragua (2006). Tuccinardi is also one of the co-authors of the EU Methodological Guide on Electoral Assistance and the EC-UNDP-IDEA Training Course on Effective Electoral Assistance. He has also collaborated on other specialised publications in the field of electoral management, voter registration and technology.

Additional Contributions

Additional contributions to this report were received from the following individuals (listed in alphabetical order):

- **Ricardo Godinho Gomes,**
  electoral assistance expert, EC-UNDP Joint Task Force on Electoral Assistance
- **Lee Kironget,**
  senior technology specialist
- **Tomas Matraia,**
  electoral assistance and parliamentary development officer, EC-UNDP Joint Task Force on Electoral Assistance
- **Ola Patterson,**
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- **Teresa Polara,**
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- **Sara Staino**,
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- **Peter Wolf,**
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