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**Meeting to review developments in the field of e-voting since the adoption of
Recommendation Rec(2004)11 of the Committee of Ministers to member states
on legal, operational and technical standards for e-voting/**

**Municipal Congress Centre of the City of Madrid
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for the Future of Democracy on the theme of e-democracy (15-17 October 2008)**

**NATIONAL REPORTS ON DEVELOPMENTS
IN THE FIELD OF E-VOTING**

BELGIUM

Developments in Belgium in the field of e-voting since the adoption of Recommendation Rec(2004)11

Developments in e-voting in Belgium: a time of transition

Since the early 1990s Belgium has been using voting machines designed to facilitate the casting of votes at polling stations and vote counting.

Since 1998, 44% of the electorate have voted electronically, ie some 3.3 million out of a total electorate of 7.5 million, 62 electoral districts out of 208 and 201 municipalities out of 589.

The maintenance contracts for the e-voting systems in use since 1994 and 1998 are due to expire at the end of 2008. The future evolution of e-voting in our country has accordingly been the subject of intense discussion in the past two years.

Following the successful co-operation between the federal state and the regions on the occasion of the October 2006 provincial and municipal elections, the first elections to be organised by the regions following the transfer of responsibility in 2002, the regions wished to continue their joint work, particularly on the setting of technical and organisational standards for a possible new e-voting system.

The decision was therefore taken to entrust a consortium of Belgian universities, consisting of Université Catholique de Louvain, Katholieke Universiteit Leuven, Université de Liège, Universiteit Antwerpen, Universiteit Gent, Vrije Universiteit Brussel and Université Libre de Bruxelles, with the task of conducting a general study of existing e-voting systems around the world in order to analyse their advantages and drawbacks and propose the most suitable system in terms of compliance with international rules relating to electoral matters and the legal principles governing elections in Belgium.

This study, submitted on 9 January 2008, is available on the website of the Election Directorate of the Belgian Federal Public Service Interior, at the following address :

<http://www.ibz.rrn.fgov.be/> .

As you will see, the study uses Recommendation Rec(2004)11 of the Committee of Ministers of the Council of Europe, adopted on 30 September 2004, on legal, operational and technical standards for e-voting, to analyse not only our present system but also various electronic voting or vote-counting systems such as Internet voting, optical reading etc.

The e-voting system proposed in this study (computer voting with production of a ballot paper recording the votes cast by the voter in both human readable and machine readable form) was submitted, at the request of the Brussels-Capital Region, to the Council of Europe, which gave an opinion that can be read on our website.

The university study formed the basis of a wide-ranging debate held in the Federal Parliament in June and July this year.

The Chamber of Representatives and the Senate adopted a resolution which calls on the Government to:

- 1) maintain the current voting systems for the European and regional elections of 7 June 2009 in those municipalities which so wish;
- 2) test a new e-voting system on a limited scale;
- 3) on the basis of the test results, allow all municipalities to use the new e-voting system.

On 25 July 2008 the Council of Ministers directed the Minister of the Interior to sign a co-operation agreement with those Regions which so wish with a view to the development of a new e-voting system.

The Flemish Region signed the co-operation agreement. The Walloon Region and the Brussels-Capital Region have not yet given their answer.

On the basis of the co-operation agreement, a call for tenders was published on 1 September 2008 in the Belgian Tenders Bulletin and on 3 September 2008 in the Official Journal of the European Union.

The specifications for the new e-voting system expressly include a section on a feasibility study in which bidders must prove that their e-voting system complies with the provisions of Recommendation Rec(2004)11.

Once the contract has been awarded, a test will be carried out in June 2009 in the elections to the European Parliament and the regional parliaments.

DENMARK

Developments in Denmark in the field of e-voting since the adoption of Recommendation Rec(2004)11

I. Developments of remote/non remote e-voting in Denmark

A. Electronic Electoral Registers

On 21 April 2005, the Folketing (Danish Parliament) passed a bill that amended the Parliamentary Elections Act, the Act on Local and Regional Government Elections, and the Act on Elections of Danish Members to the European Parliament (Act no. 294 of 27 April 2005). The amendments authorise the local councils (which in Denmark are responsible for carrying out national, local and regional elections and national referendums) to employ electronic electoral registers – on an optional basis – in one or more polling districts. Furthermore, the local councils were authorised to employ an electronic logbook to record the reception of advance votes.¹

Later that year, during the local and regional government elections on 15 November 2005 six municipalities participated in a pilot project in which an electronic electoral register and electronic logbooks were employed in one polling district in each of the participating municipalities. The evaluation of the pilot showed that the use of electronic electoral registers and electronic logbooks was a great success. The municipalities were particularly enthusiastic about the electronic electoral lists, which practically eliminated the queues at the polling stations because the voters could register at any table instead of being bound to register at one preselected table.

Electronic electoral registers and electronic logbooks have since been further developed by the IT-supplier of the municipalities. Both electronic solutions are planned to be introduced more widely to an increased number of polling districts and/or municipalities during the coming local and regional government elections on 17 November 2009 and possibly even earlier at the European Parliament elections in June next year. As mentioned above, it is *optional* for the municipalities to employ an electronic election register and/or electronic logbooks, and they are not compelled to use the same supplier that developed the solution employed at the 2004 pilot.

B. Non-remote e-voting

On 7 April 2008, the mayors of eight of the largest municipalities in Denmark addressed the Minister for Social Welfare requesting the Minister to take steps to contribute to the creation of the necessary statutory authority that would enable the municipalities to carry out a pilot project on e-voting at polling stations, i.e. *non-remote* e-voting. The pilot

¹ The logbook contains records of the number of advance votes received, the receiving dates, the number of advance votes which are forwarded to other municipalities (i.e. if the sender is resident in another municipality than the recipient municipality) and the forwarding date.

project was to take place during the election to the European Parliament in June 2009 or at the latest during the local and regional government elections in November 2009.

The government, however, decided to turn down the municipalities for the time being, and the Minister for Social Welfare therefore rejected the request from the municipalities in a letter of 25 June 2008.

According to Section 68.-(1) of the Parliamentary Elections Act the polling supervisors and the appointed electors shall count the votes cast at the polling station. The counting is public as is the final counting (recount) of the votes, which shall be undertaken in the nomination districts no later than on the day after the voting (re. Section 72.-(1)). Similar provisions are found in the Act on Local and Regional Government Elections and the Act on Elections of Danish Members to the European Parliament. The Minister for Social Welfare stated in her letter to the eight municipalities that it – in the nature of the case – would demand thorough consideration before the government will introduce a bill on e-voting at polling stations, as it would in its logical consequence imply a replacement of the current public control with the counting and final counting of votes with a more sophisticated control of the electronic counting of votes that only specialists knowledgeable of IT-systems could reasonably undertake.

The Minister furthermore stated that it is crucial to ensure that a pilot on non-remote e-voting will fulfil the required demands on system safety and operational reliability. In continuation hereof the Minister referred to examples from other countries like The Netherlands, Belgium and USA (California and Florida), which had experienced serious security problems with non-remote e-voting, and which ultimately have lead to the decertification of the e-voting machines hitherto employed. These developments make it necessary in the opinion of the Danish government to await further experiences with e-voting in other countries

C. Remote e-voting

Remote e-voting was most recently discussed during the legislation process following the introduction of the above-mentioned bill on electronic electoral registers etc.

The government's remarks on the bill contains *inter alia* a discussion of the pros and cons of remote e-voting, finally rejecting for the time being remote e-voting in statutory elections partly because of the problems securing that it is indeed the voter in question that actually casts the vote and not some other person in his or her place, partly because of the difficulties in safeguarding the secret ballot. Remote e-voting contravenes with one of the principles of Danish election legislation, i.e. that a voter's casting of his or her vote shall be monitored by election authorities in the sense that an election official shall be present to ensure not only the identity of the voter before he or she is allowed to vote, but also that the vote is cast without giving others the opportunity to see how the voter has voted. This applies both to voting on election day at the polling stations as well as to advance voting.

The fact is that secret ballot is not only a *right* for the voter according to Danish election legislation, but also a *duty*. The right and duty to secret ballot is only ever deviated from when the voter is in need of assistance to vote due to disability, poor health or for similar reasons. Hence, the government rejected the prospect of introducing remote e-voting for the time being, and this standpoint was not contradicted by the other parties in the Folketing during the reading of the bill on electronic electoral registers.

II. Concrete application of Recommendation Rec(2004)11 in Denmark

Recommendation Rec(2004)11 has not been applied directly re. statutory elections, as these as mentioned above have not yet been conducted electronically.

The Recommendation was however discussed and studied by the municipal working group responsible for preparing the above mentioned tender for the purchase of an e-voting system. The Ministry participated in the working group to provide electoral expertise and forwarded the Recommendation to the other working group participants, emphasising that the system – in the event that the request by the municipalities was approved by the Minister of Social Welfare – would have to be in accordance with the Recommendation. The specification requirements of the tender thus mention inter alia that the source codes of the system shall be in compliance with internationally accepted standards.

III. Examples of e-voting in areas other than local, regional, and national elections

A. Electronic voting at the Danish parochial church councils

Borger.dk is the web portal for Danish citizens. It was launched in January 2007 as a central instrument of the government's objective to improve public online services and thus to digitise all relevant communication between the citizen and the public sector by 2012. The site is the main entrance for the citizen to the public authorities on the Internet. *Borger.dk* deals with public authorities, legal matters, and topics with editorially prepared texts and news and with digital self-service in order to advance the digitisation of the citizens. As well as providing a gateway to online services, the portal also offers services in e-democracy, e.g. the new version of the online discussion facility *danmarksdebatten*, which from June 2007 has included a parallel voting facility to be used in guiding ballots.

On the basis of this system it will be possible in the autumn of 2008 to place the vote digitally in binding elections regarding the Danish parochial church councils. To secure the secrecy of the ballot and to ensure unique identification of the voter the voting process is developed around the Danish Digital Signature, which is also known as OCES (Offentlige Certifikater til Elektroniske Services - Public Certificates for Electronic Services). A digital signature is based on PKI (Public Key Infrastructure). This infrastructure enables authentication and confidentiality in electronic communication between two parties.

It will be possible for all potential voters to cast their vote digitally in a period for 10 days before the physical election takes place. To ensure that there will be no connectivity between the voters' personal information and the vote itself it has been decided that once you vote digitally the option to physically place your vote at the voting facility is suspended.

This e-election is a pilot project between The Ministry of Ecclesiastical Affairs and The National IT and Telecom Agency. The pilot project will be evaluated in order to decide whether the electronic voting system should be used in elections regarding the Danish parochial church councils and other binding non-political elections to ensure the possibility of casting the vote digitally.

B. Electronic voting at the Elder Council

In 2004, the *Municipality of Copenhagen* made it possible for its citizens to cast their vote to the Elder Council Elections digitally. The Elder Councils are consulted by the municipality in matters concerning the municipality's population over 60 years.

The population over 60 years could cast their vote by regular mail, by telephone, physically at the polling station or digitally with the use of a unique code sent by mail. It was possible to cast the vote digitally from a personal computer or at the polling station. Amongst the app. 7 % of the active voters who chose to cast their vote digitally almost all did it from a personal computer. It was possible for a period of three weeks to cast a vote digitally. Electoral registration at the polling station was digital as well.

The *Municipality of Frederiksberg* has made similar experiences with electronic voting at the Elder Council in two elections end to end in 2003 and 2007. Here it was possible to cast vote digitally both at the polling station and via the Internet in the same fashion as the instance of the Municipality of Copenhagen. Electoral registration at the polling station was digital as well. Likewise the Municipality of Frederiksberg has experiences in one instance with digitally count of the votes. In instances where a voter has cast his or hers vote both traditionally and digitally it was decided that the traditionally cast vote would count.

The experiences regarding electronic voting at the Elder Councils indicates that the voter turnout could be increased with approximately 10 %, that the expenses regarding the conduct of the election in the long run could decrease with 20 %, and that the election procedures at the polling station were quicker, which induces a smoother handling of the voters.

In relation to electronic voting at the Elder Council it is noted that the 60+-population are acquiring competences in ICT to an increasing extent. Electronic voting at the Elder Council is, however, only allowed if the municipalities in addition to e-voting also provide voters with the opportunity to vote on paper ballots at polling stations or by advance (early) voting.

FINLAND

Developments in Finland in the field of e-voting since the adoption of Recommendation Rec(2004)11

I. Developments in general elections

In October 2006 the Finnish Parliament accepted the provisional eVoting law which will be in force only in the 2008 Municipal Elections and in three named municipalities. In the 2008 municipal elections the Ministry of Justice will for the first time arrange electronic elections in three municipalities; Karkkila, Kauniainen and Vihti. In these municipalities voters will be able to vote electronically at polling stations either on election day 26th October or in advance. (from 15th October to 21th October). Electronic voting, both in advance and on election day, will take place in front of election authorities at the polling stations. Traditional ballot voting will also be allowed. A possible extension of the use of electronic voting to other municipalities in future will be considered on the basis of experience gained in this pilot project. A presentation of electronic voting (a demo) can be found on the election site of the Ministry of Justice www.vaalit.fi. In the spring of 2008 the Department of Mathematics at the University of Turku performed an independent assessment of electronic voting after which necessary amendments were made to the system. Auditing report can also be found on site www.vaalit.fi.

II. Developments in other elections

During years 2007 and 2008 three trade unions in Finland have arranged delegate elections for their members by remote e-voting systems. The main obstacle to increase these e-voting elections seems to be the legislation of the registered associations which at the moment don't cover at all e-voting and the trade unions will follow the legislation in their own association regulations.

THE NETHERLANDS

Developments in the Netherlands in the field of e-voting since the adoption of Recommendation Rec(2004)11

Electronic voting in the Netherlands: recent developments

1. Introduction

This paper gives an overview of the recent developments with regard to electronic voting and electoral policy in the Netherlands since the Fall of 2006.

2. Background

Electronic voting by voting machines was the main voting method in the Netherlands until the election of March 2007. Their use became widespread in the late 1980's and early 1990's. By 2006 voting machines were in use in a majority of the municipalities (nearly 98 %). Other voting methods in use in the Netherlands are voting by paper ballot, proxy voting and postal voting (allowed for voters staying abroad). These voting methods are regulated by the Elections Act of 1989. Voting by voting machines was regulated at the level of secondary legislation. The responsibility for which voting method was to be used, laid exclusively with the municipal council. The role of the Minister of the Interior and Kingdom Relations (MoIKR) was limited to approving prototypes of (new) electronic voting systems. Internet and telephone voting have hitherto taken place in the Netherlands only as an experiment. Dutch citizens abroad and eligible to vote by post were also permitted, as an experiment, to vote by Internet or telephone in the European Parliamentary election in June 2004. The experiment was repeated, as regards Internet voting, in the general election in November 2006 (telephone voting was not permitted). The statutory basis for these experiments was the Remote Electronic Voting (Experiments) Act of 11 December 2003.

Before the general election in November 2006 the question arose of whether there were adequate safeguards, when using voting machines, that the votes cast by voters using these devices were recorded and counted absolutely correctly and that the ballot was secret. The debate on the use of voting machines resulted from a campaign started by a citizens' group called "We do not trust voting computers". Concerns were raised concerning the security of the voting machines in use. Special attention was put on the secrecy of the ballot. Due to the actions of the citizens' group the problem of 'compromising radiation'² came to light. The debate led the then Minister of Governmental Reform and Kingdom Relations to issue a review. Based on the results measures were taken to improve the physical security of the voting machines and the suspension of approval for one type of voting machine. As a result at the election of

² Every electronic circuit, device and wire emits electromagnetic radiation. When an electronic device is on, the electronic radiation it emits can be deliberately intercepted remotely and processed. Information may be able to be obtained or computed from the residual radiation picked up in this way. Radiation that contains information and is emitted unintentionally is referred to as 'compromising radiation'. Electronic voting equipment also emits electromagnetic radiation, and the secrecy of the ballot can be violated by intercepting compromising radiation thus emitted.

November 2006, a number of municipalities had to return to paper ballots. These measures had the general support of the House of Representatives.

3. Two external commissions

In December 2006 the Minister of Governmental Reform and Kingdom Relations set up two external commissions. The first of these commissions was tasked with examining how decisions on the approval of voting machines had been made in the past (up to and including the 7 March 2007 elections) and what lessons MoKIR could learn from them. This Commission, the Voting Machines Decision-Making Commission, was set up on 19 December 2006 and published its report on 16 April 2007. In its report the Commission set out in detail why the voting machines used in the Netherlands were not sufficiently transparent and verifiable. According to the Commission the Government neglected to adequately lay down the technical requirements for voting machines. As a result the legal demands with regard to the secrecy of the ballot could not be sufficiently met. The Commission also concluded that the MoKIR could not fulfil his responsibility with regard to the election process and the proper conduct of elections. Therefore it recommended that the Minister be given the powers needed to take charge. The conclusions were shared by the Government and the House of Representatives.

The second external commission, the Election Process Advisory Commission, was asked to examine the election process in general and make proposals to improve or change it in line with the principles of secret, free, reliable, practical and transparent elections that are equally accessible to everyone. The Advisory Commission published its report, entitled 'Voting with confidence', on 27 September 2007.

In its report the Advisory Commission recommended that the election process should safeguard the following principles: transparency, verifiability, fairness, eligibility to vote, free, secret and equal suffrage, and accessibility. According to the Commission these principles are the criteria by which existing and future methods of voting should be judged. In practice the election process cannot provide 100% safeguards, so it is necessary to strike a balance between them. Having weighed up the methods of voting used in the Netherlands, the Commission recommended that voting at polling stations should be the main method of voting in the Netherlands. Other methods, such as Internet, telephone and postal voting, do not provide the same degree of safeguards. An exception however should be made for Dutch citizens abroad and people unable to vote at a polling station because of a physical impairment. This is necessary because they will otherwise be excluded from one of their most basic civil rights or completely be reliant on proxy voting. In the case of these groups the Commission considered that access to elections outweighs the principles of transparency and free suffrage and therefore other methods of voting should be provided (Internet, telephone and postal voting).

According to the Advisory Commission voting using paper ballots at polling stations is the preferred option on the grounds of transparency and verifiability. This method, however, gives rise to a problem with the count, as manual counting is error-prone and takes a long time. It is also not suitable for voting at polling stations outside the voter's

municipality. The Commission therefore proposed to introduce a method of voting where voters indicate their choice using an electronic device (a ballot printer). This prints the voter's choice on paper, and the voter places the printout (the ballot) in the ballot box himself. The votes in the ballot box can be counted electronically (by a vote counter) and by hand.

The Advisory Commission recommended, following on from Recommendation Rec(2004)11 of 30 September 2004 of the Council of Europe, the government should work towards European technical standards for equipment used in elections so as to achieve a European certification system with regular re-examination of the certification criteria.

The Advisory Commission also looked at the way in which duties and responsibilities for the election process were allocated in the Netherlands. According to the Commission deciding what principles the election process should safeguard, organizing and administering elections is a responsibility of the government. As is laying down the requirements for and approving the equipment used in elections. The Commission concluded that the Minister of the Interior and Kingdom Relations should be given the powers necessary to exercise control over elections.

Finally the Advisory Commission recommended that the transparency and verifiability of the election process be improved. According to the Commission the election process did not provide adequate checks on compliance with the law and regulations. If the election process is to be transparent and verifiable, the organization and conduct of elections must be audited. The Advisory Commission also made recommendations with regard to voting by proxy, voting for voters with impairments and voting from abroad.

4. Changes in electoral policy

A government response to the Election Process Advisory Commissions report appeared in November 2007. Earlier, by the end of September 2007, the State Secretary for the Interior and Kingdom Relations announced the immediate withdrawal of the regulation and other legal provisions with regard to voting with voting machines. As a result, voting by paper ballot is the only voting method in the Netherlands today. The decision not to allow the use of voting machines in future elections was supported by the House of Representatives.

In its official response to the report the Government fully endorsed the principles laid down by the Advisory Commission. These principles will be enshrined in law. The Government agrees with the Commission that voting in the Netherlands should take place at a polling station, where a polling station committee supervises the conduct of the ballot, and the ballot and the count are public. For it is only with voting at polling stations that the freedom and secrecy of the ballot can be guaranteed.

In its response the Government announced several changes with regard to the election process:

- New legislation will be introduced to regulate the organization of the election process. The new legislation will provide a system that lays down the essential principles and rights at statutory level, with the power to lay down more detailed rules at a lower level. The aim is to have legislation that is technically independent of the technology used and provides the possibility of responding to new or changing ideas and preferences among the public, while explicitly laying down the framework within which these changes are to take place.
- The duties and responsibilities for the election process will be formalised so as to make it clear to everyone who is responsible for what. The legislation will include the stipulation that certain duties in the election process must be exercised independently, for instance the registration of the appellation of a political grouping³ and the calculation of results;
- Measures will be taken to improve transparency and verifiability. One of these is public scrutiny over certain parts of the election process. Several measures are envisaged. For instance the requirements for aids (including software) and devices used in the organization of elections, ballots, counts and the determination of results should be public. Also, after each election MoIKR will commission an external independent inquiry⁴ into the conduct of the election, from which lessons may be learned for the future;
- A compulsory identification will be introduced. At present voters are not required to identify themselves when casting their votes at polling stations. As a result it is not certain that the person voting is actually the elector in question.

In addition the government issued a research into the technical feasibility of the voting method proposed by the Advisory Commission (ballot printer and vote counter). In May 2008 the results of this research were available. Based on these results the government decided not to introduce the proposed ballot printer. Like the voting machines, ballot printers are vulnerable with respect to ‘compromising radiation’. Great efforts are needed in order to develop and test a ballot printer⁵ whereas there is no guarantee that each device during an election will satisfy the norm. As such the secrecy of the ballot cannot be fully guaranteed thus undermining public trust in the election process. As a result voting by paper ballot will remain the only voting method in the Netherlands. However, developments with regard to electronic voting and ‘compromising radiation’ will be watched closely by MoKIR.

The Advisory Commission proposed that Internet voting be made available voters eligible to vote from abroad on a regular basis. The Government is in favour of this proposal in principle, albeit the voting service for Internet voting will have to safeguard

³ A political grouping may submit a request in writing to the central electoral committee for an election to the House of Representatives to enter the appellation by which it wishes to be known on the list of candidates for that election in a register kept by the central electoral committee.

⁴ This inquiry should not be confused with the survey of voters being conducted for the MoIKR by a group of universities, which is designed to poll voters’ opinions on various matters.

⁵ The conclusion is based on a report by the Gesellschaft für Beratung und Schulung mbH – Company for economic consultancy and training (GBS mbH). The report “TEMPEST specifications and test methods for e-voting machines” was issued by the Ministry of the Interior and Kingdom Relations.

the principles of transparency, verifiability, fairness, equal suffrage and eligibility to vote. There are also some reservations about the cost of Internet voting. At present no experiments with Internet voting are foreseen.

NORWAY

Developments in Norway in the field of e-voting since the adoption of Recommendation Rec(2004)11

Status and development on e-voting in Norway

As presented at the last meeting in 2006, the Ministry of Local Government and Regional development made a report: "E-voting-challenges and opportunities". This report included a recommended solution for e-voting in Norway. There has been little public debate regarding e-voting in Norway. There has been only one minor e-voting pilot in 2003, in non-remote surroundings.

Based on the above-mentioned report the Ministry, with the approval of the Parliament, decided to implement a limited trial for e-voting in the 2011 local election. In order to prepare for this 2011 election, tests in nonbinding local referendums must be conducted first.

To implement e-voting, the Ministry started a project in mid-August 2008. Currently this project is being established and will be in full operation from January 2009. Norway will follow a slow implementation by building public trust for e-voting. The goal is to implement an e-voting solution based on the following principles: (they are not yet adopted)

- full compliance with the Recommendation Rec(2004)11;
- all procedures for e-voting are open to public inspection;
- to develop a government controlled and operated e-voting system;
- use software based on open source if possible;
- authentication by use of national PKI-based ID-card;
- to use independent auditors/experts to evaluate the process and system in order to build trust.

These principles are preliminary and not a complete list, and they are not adopted by the project steering committee yet.

The e-vote project in Norway will use this opportunity to invite other governments and e-voting experts to participate in our project.

SWITZERLAND

Developments in Switzerland in the field of e-voting since the adoption of Recommendation Rec(2004)11

Evolution of e-voting projects in Switzerland between 2006 – 2008 and outlook

1. Résumé

This interim report follows on from the interim rapport submitted to the Council of Europe during the meeting on e-voting held on Strasbourg on 23 and 24 November 2006.

The 2006 interim report presented the pilot schemes conducted over five federal referendums in 2004 and 2005, as well as their evaluation.

This report briefly sets out the developments that have taken place and in particular, the conclusion of the pilot phase with the adoption by the Federal Assembly on 23 March 2007⁶ of the Federal Council report of 31 May 2006 on e-voting pilot schemes⁷ and the adoption of the necessary legal amendments to allow the progressive introduction of e-voting in the cantons and establish control procedures the coordination of which rests with the Confederation. A résumé of the 8 e-voting trials that took place in 2006, 2007 and 2008 during federal votes is presented under figure 3.2.

It can be noted that the conclusions reached in the 2006 report are even more relevant in 2008: *“E-voting is a complex system, involving numerous actors at different levels. Step-by-step realisation will enable experiences to be gathered and implemented with a view to pursuing the development of e-voting. A prudent approach is also necessary in order to reduce risks as much as possible. E-voting can only be introduced (across the board) when all actors – voters, politicians and the authorities – have accepted the new procedure and have confidence in it.”*

2. Introduction

In Switzerland, e-voting is understood to mean distance voting, that is to say voting via internet, SMS (texting) or other means of electronic data communication. Other possibilities of voting electronically, for example, by using voting machines installed in polling stations, are not covered by the notion of e-voting as used in this document. At present, the three e-voting systems developed by the cantons of Geneva, Neuchâtel and Zurich exclusively allow voting via internet.

E-voting covers participation in popular votes (referendums) and elections as well as the electronic signing of referendum requests, popular initiatives and candidate lists for

⁶ On 19 December 2006 and 19 March 2007 the National Council and the Council of States respectively acknowledged the Federal Council report of 31 May 2006 on the e-voting pilot projects and amendments to federal legislation on political rights (the records of the two sessions can be found at: http://www.parlament.ch/ab/frameset/d/n/4715/236210/d_n_4715_236210_236330.htm (National Council) and http://www.parlament.ch/ab/frameset/d/s/4716/241444/d_s_4716_241444_241572.htm (Council of States).

⁷ Federal Gazette 2006 5205; www.admin.ch/ch/f/ff/2006/5205.pdf.

National Council elections. The Federal Council and parliament (the federal executive and legislature) have decided to grant all cantons the possibility of progressively introducing e-voting. We are currently in the first stage of this process, which involves controlled trials during popular votes at federal level. E-voting has not yet been trialled during federal elections. With regard to the other procedures, their introduction requires that the use of qualified digital signatures is first sufficiently widespread. However, this is not yet the case in Switzerland.

The Confederation, which has contributed financially to the realisation of the three current systems developed by Geneva, Neuchâtel and Zurich, will no longer participate in the financing of further e-voting trials. In accordance with the agreements concluded between the Confederation and the three pioneering cantons, these will make available at no cost, the know-how gathered with the financial support of the Confederation to any interested cantons.

In order to put the Federal Council's vision regarding the introduction e-voting into practice during the 2007-2011 legislature period, the necessary amendments to federal law were adopted by parliament on 23 March 2007. These concerned amendments to the Federal Act on Political Rights (⁸SR 161.1) and the Federal Act of 19 December 1975 on the Political Rights of Swiss Abroad (⁹SR 161.5). The necessary legal basis introduced concerned in particular the controlled extension of trials and the harmonisation of electoral registers of Swiss abroad (so as to allow them to vote electronically). The revision of the two laws mentioned and the modification of the rules of application contained in the Ordinance on Political Rights (¹⁰ SR 161.11) came into force on 1 January 2008.

The cantons have the competence to decide on the introduction of e-voting and on its modalities with regard to popular votes /elections exclusively at cantonal/communal level. In actual fact, cantonal and communal votes are very often organised on the same dates as federal votes (generally four times a year). When e-voting is used for a particular (cantonal/communal) vote, it should be possible to use it for all items put to the vote on the same day.

3. E-voting trials

3.1 Conditions necessary in order to conduct e-voting trials in Switzerland

3.1.1 Legal basis at federal level

The revision of the Federal Acts on Political Rights and on the Political Rights of Swiss Abroad saw the introduction of the following two articles: article 8*a*, al.1er bis Political Rights Act¹¹ and article 5*b* Act on the Political Rights of Swiss Abroad¹².

⁸ http://www.admin.ch/ch/f/rs/c161_1.html

⁹ http://www.admin.ch/ch/f/rs/c161_5.html

¹⁰ http://www.admin.ch/ch/f/rs/c161_11.html

¹¹ http://www.admin.ch/ch/f/rs/161_1/a8a.html

¹² http://www.admin.ch/ch/f/rs/161_5/a5b.html

Interested cantons will be able to begin controlled e-voting trials during federal votes. Given that the results of electronic votes will have legal implications affecting the authorities, these trials are subject to prior authorisation from the Federal Council (art. 27c, introductory sentence, Political Rights Ordinance), the authority which validates the results of federal votes (art. 15, para 1, Political Rights Act). The new article 8a of the Political Rights Act allows the Federal Council to authorise the cantons conducting trials for a certain period of time to continue conducting them for a further fixed period. It is the Federal Council that determines the duration of such a period and the conditions on a case by case basis. It may limit or withdraw its authorisation at any time.

With a view to extending e-voting to Swiss citizens abroad, the electoral registers of Swiss abroad will either be centralised or harmonised at cantonal level (new article 5b Act on Political Rights of Swiss Abroad). The cantons have until the end of June 2009 to adapt their implementing provisions.

The relevant implementing provisions of the Political Rights Ordinance have also been modified and entered into force on 1 January 2008. The introduction of a new article 27e *bis* requires e-voting systems to take into account the needs of people with disabilities, particularly the sight impaired, insofar as it does not affect the security or secrecy of the vote.

3.1.2 Council of Europe recommendations

In addition to Switzerland's own legal basis, the recommendations of the Council of Europe were also important in the development of e-voting systems¹³. According to the main declaration of the Council of Europe recommendation, e-voting must respect all the principles of democratic elections and must also be as reliable and secure as elections which do not involve the use of electronic means. The recommendation attaches particular importance to an elevated level of security, the characteristic of e-voting as an additional voting channel and to a technology neutral approach. Switzerland entirely shares these fundamental ideas.

3.1.3 Federal Council authorisation procedure for e-voting trials

The Federal Council can authorise pilot schemes by limiting them to a certain region, to certain dates and to votes on certain subjects in order to minimise the risks. It therefore has to determine the communes in which the e-voting results will be legally binding on the authorities (art. 27c, let. c, Political Rights Ordinance) and for which votes e-voting is to be authorised (art. 27c, let. a, Political Rights Ordinance). Unless the ordinance stipulates otherwise, the conditions set in the Political Rights Ordinance must be fulfilled in a

¹³ Recommendation Rec(2004)11 on legal, operational and technical standards for e-voting (adopted by the Committee of Ministers of the Council of Europe on 30 September 2004, at its 898th meeting).

cumulative manner. The requests for authorisation drawn up by the cantons must contain detailed technical documentation.

From a calculated risk management perspective, the Federal Council took the decision to proceed with a gradual introduction of e-voting, enabling new experience to be gleaned, which should continue from the three pioneering cantons as well as from other interested cantons. During the pilot phase, the Federal Council limited the possibility of voting electronically to 2% of the Swiss electorate. During the 2007-2011 legislature, the Federal Council will be ensuring that during the increase in authorisations, this level will not exceed 10% of voters at federal level. In the case of mandatory referendums, where the majority of cantons also plays a decisive role, the Federal Council will ensure that these trials will not involve more than 20% of voters in each canton.

3.1.4 Voting via internet by Swiss abroad

In several cantons there is a growing interest to offer the possibility of e-voting to expatriates. Swiss citizens living abroad have the right to participate in votes at federal level. Certain cantons and communes also allow Swiss abroad to vote participate in votes at cantonal and/or communal level.

The Confederation and the cantons have come together to coordinate the preparatory legislative work with a view to the application at cantonal level of the new article 5b of the Act on the Political Rights of Swiss Abroad which envisages the centralisation or cantonal harmonisation of electoral registers of Swiss abroad. The centralisation or cantonal harmonisation of electoral registers, which are mostly kept by the communes, is a prerequisite in order to be able to offer e-voting to Swiss abroad.

Swiss abroad entitled to exercise their political rights in the canton of Neuchâtel were able to vote for the first time via internet in a federal vote held on 1 June 2008.

For the 23 cantons which do not have their own e-voting system, the question arises of which system they should use to enable their expatriates to vote. From an economic point of view, the use of 26 different systems cannot be justified. On the other hand, the cantons have opted for a joint approach: the solutions developed in the pilot cantons could be employed by other cantons. This approach is more general though and is not restricted to e-voting for the Swiss abroad. As such, a new collaboration has been put in place between the canton of Geneva, which has its own e-voting system, and the canton of Basel-Stadt, which would like to allow its Swiss abroad to be able to vote electronically. The canton of Geneva will therefore 'host' the register of Basel-Stadt's expatriates on its system. The two cantons are working towards a first trial during a federal vote in the second half of 2009.

3.2 Trials during federal popular votes in 2006, 2007 and 2008

The following table outlines the eight official trials held during federal votes between 2006 and 2008.

Table: e-voting trials conducted during federal popular votes

Date	Canton/Communes	Trial size (voters authorised to use e-voting system)	Number of e-votes cast
26.11.2006	Neuchâtel: GU*	3,554 voters	1,311
26.11.2006	Zurich: Bertschikon, Bülach, Schlieren	17,344 voters	1,309
11.03.2007	Neuchâtel: GU*	3,757 voters	1,538
17.06.2007	Neuchâtel: GU*	4,151 voters	1'494
17.06.2007	Zurich: Bertschikon, Bülach, Schlieren	17,292 voters	932
24.02.2008	Neuchâtel: GU*	4,355 voters	1,516
01.06.2008	Neuchâtel: GU*	4,705 voters	1,593
01.06.2008	Zurich: Bertschikon, Bülach, Schlieren	17,777 voters	1,209

* Users of an electronic authority portal ('Guichet Unique').

An e-voting trial at cantonal/communal level is envisaged in canton Zurich on 28 September 2008.

Since the start of the pilot scheme in 2004, there have been a total of 13 e-voting trials during federal votes. They have all been conclusive.

4. Outlook 2009-2011

Over the next three years, the pioneering cantons should continue their e-voting trials. Swiss abroad and people with disabilities should gradually be able to benefit. In addition to the collaboration between Basel-Stadt and Geneva, other 'hosting projects' could see the light of day.

The Confederation supports the cantons in efforts to implement multilingualism. The first results are expected by the end of this year. In the long run, each e-voting system will have to be available in four languages. Voters will therefore be able to vote in the national language of their choice: German, French, Italian, Romansh.