"The survival of any representative democracy is dependent, to a large extent, on the quality of its electoral system. It is dependent on an electoral system that is fair, efficient and has the confidence of the voters" (C. L. Petty)

E-voting
a view from Central and Eastern Europe

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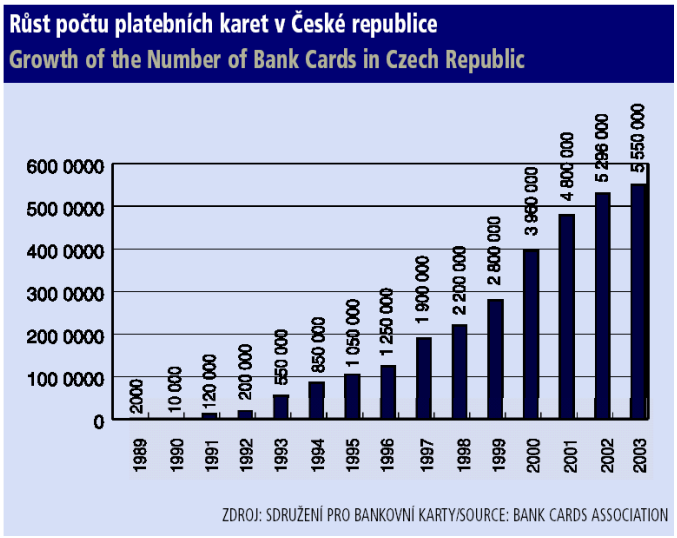
1 The background of e-voting

1.1 Global processes, new technologies

The rapid spread of new information and communication technologies is considered as heralding the arrival of an Information Age.
Expressions like globalization, changes of lifestyle, shrinking of the world, information society became common.
In the CEE countries the number of internet users is growing at an approximate rate of 30% per year, the number of mobile phones at almost 50% per year (2001/2000).

Number of hits when searching on the internet for key words:

e-banking	316 000
e-business	17 600 000
e-democracy	204 000
e-Europe	270 000
e-government	2 650 000
e-health	465 000
e-learning	6 180 000
e-voting	70 000



1.2 Computer aided Administration, e-government

The spread of information and communication technology motivates the transformation of the governments also. Indeed, forward-looking officials everywhere

are using technology to improve their governments. As a first step computer aided administration was used. Today most of the government services are already supported by information technology.

One prominent field of policy and practice to emerge in recent years is known as 'e-government' - the use of the internet and other newly developing technologies to deliver government services. Thus the EU has developed the action plan 'e-Europe' aimed at dramatically expanding e-government services across Europe. Both the public and the private sector has a vital role in contributing to the implementation of the e-Europe Action Plans.

RECALLING:

1. the role of the e-Europe 2002 and 2005 Action Plans in the context of the Lisbon 2010 objective of making the European Union the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion;
2. the importance of the e-economy for growth, productivity and employment;
3. the importance of providing citizens with the access and skills needed to live and work in the new information society.

(The Council of the Euopean Union, on the implementation of the e-Europe 2005 Action Plan)

2 A view from e-voting

Electronic voting is an emerging technology in an early stage.
The history of e-voting is not long. Since 1996 Brazilian citizens are able to actually cast their ballots electronically. Even if it is not an Internet voting system, this is the beginning of this kind of system. The voter uses an electronic voting device that, for each office, displays the choices and prompts him/her for his/her vote.
Even though Europe was not the leader regarding e-voting initiatives, during the last three years there is evidence for strong support towards this direction. In recent years in many European countries there were e-voting pilots. Probably the most complex of them was the UK E-VOTING PROJEKT 2003.

2.1 IT in the election process

Traditionally in the election process computer technology is used mostly for central purposes, e.g. candidate lists, counting, results, etc. The introduction of e-voting means the extension of the IT technology directly to the voters, i.e. to make possible the electronic ballot cast, and later electronic authentication.

Interesting that now only that part of the election process is not computerized, which is most close to the people. On the other hand for example in Hungary practically every processes of the public administration are supported by IT technologies. If someone needs any kind of identification card or passport cannot enter an office where these processes would happen manually.

Basically the main appearances of e-voting are:

- Computer assisted voting – e-ballot cast in a controlled environment such as a polling station

- Partially controlled voting at a kiosk
- Remote e-voting using mobile phone or internet

Only e-enabled voting systems which are efficient, secure and readily accessible to the voters will build the public confidence. Technical robustness and reliability is required in order to make it feasible to hold large-scale e-enabled elections and referenda.

It is important to understand that e-voting is *not* an additional option to an existing election mechanism, that one might choose, just like choosing air conditioning option when buying a new car. Almost all elements of an election system (including legal, operational and technical parts) are deeply interrelated. The introduction of e-voting can rather be considered as an integral part of a long modernization process of the election mechanism.

3 Work of the e-voting committee at the CoE

The Council of Europe established the Multidisciplinary Ad Hoc Group of Specialists on legal, operational and technical standards for e-enabled voting. The task of the Committee is to develop an intergovernmentally agreed set of standards for e-enabled voting, that reflect Council of Europe member states' differing circumstances, and can be expected to be followed by the ICT industry. This set of standards will consist of legal, operational (which principally include organizational and procedural matters) and core technical standards for e-voting to be adopted by the Committee of Ministers of the Council of Europe in 2004. Most of the ACEEEO member countries have representatives in the committee. ACEEEO is also represented on the meetings.

3.1 Legal standards

The legal recommendations are structured according to the very basic principles of democratic elections such as:

- Universality
- Equality
- Freedom
- Secrecy

At the establishment of the legal recommendations the safeguards play an important role. The safeguards will be detailed under the concepts of:

- Transparency
- Verifiability and Accountability
- Reliability and Security

3.2 Operational standards

The structure of the operational recommendations will follow the basic elements of the whole election process:

- Notification of an election

- Voter registration
- Candidate nomination
- Voting
- Results
- Audit

3.3 Technical standards

In case of the technical recommendations the requirements are explained under the following main topics:

- Security
- Interoperability
- Audit
- Accessibility
- System operation

Due to the important role of system security, there will be a risk analysis chapter in the technical annex.

3.4 EML

A basic element of the technical recommendations is the Election Markup Language (EML). The EML has been developed by OASIS, which is an international, not-for-profit, global consortium that drives the development, convergence and adoption of e-business standards. The development's mission statement is, in part, to: "Develop a standard for the structured interchange among hardware, software, and service providers who engage in any aspect of providing election or voter services to public or private organizations..." The basic part of EML is a set of data and message definitions described as XML schemas. The EML documentation contains detailed descriptions of the high-level election process, security considerations, schema outline and schema descriptions.
The most up to date version of XML can be accessed on the home page of OASIS:
http://www.oasis-open.org/committees/election/index.shtml

3.5 Current status

The Multidisciplinary Ad Hoc Group of Specialists on legal, operational and technical standards for e-enabled voting formed two subcommities:

- Group of Specialists on technical standards for e-enabled voting
- Group of Specialists on legal and operational standards for e-enabled voting

These subcommities work separately, then they have joint meetings to summarize their results. Both subcommities are collecting country specific information from each member states. A draft version of the recommendations has already been prepared.

As it comes from the nature of e-voting, the recommendations apply to all elements of the election process not only to the e-ballot cast.

The standards have to be finalized by mid 2004.

3.6 ACEEEO contribution

Each country has slightly different mechanism for elections. A standard for every country can only be acceptable if the requirements of each country are taken into consideration when formulating the recommendations. For this reason ACEEEO asked its member states to supply information on the peculiarities of their system. Two questionnaires on the EML and on the security issues were distributed to ACEEEO countries. The answers were forwarded to the e-voting committee.

In order to further improve the exchange of information some more materials and questionnaires will be distributed to ACEEEO member countries.

4 Advantages of e-voting

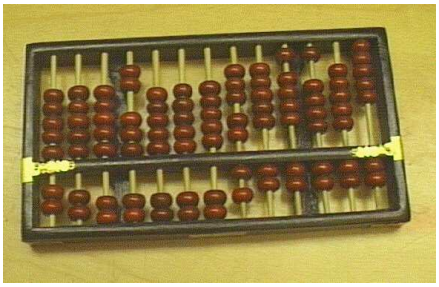
- Partially increased voter turnout
  - Creates an alternative for demographic groups that exhibit a low voter turnout
  - Remote e-voting provides possibility of voting for disabled people
  - Makes voting more convenient by the possibility to vote from other places than a designated polling station
- Accurate counts of election results
- Results will be available earlier
- Reduce cost of elections in the long-run
- The technology of election services will line up to other public services having computer assisted administration or e-administration
- The electronic authentication technologies, other safety solutions and standards can be used at other public and non-public services

5 Obstacles

There are counter-arguments to e-voting also.

- The strongest counter-argument is usually, that voters will not trust the system. Although this might be true, the technology is already available to address all aspects of security issues, and build the system as safe as necessary. The only way to convince people is to educate them, gain their trust. One way for this is to have pilot systems used parallel to conventional manual systems, show its advantages, disadvantages. People must be convinced, that pictures like this have no real basis.

- The “digital divide” of the society is certainly a problem. It is the task of the researchers of the society, to analyze it. Time will solve this problem, probably similarly to the problem of illiteracy. The difference is that illiteracy was diminished in appr.100 years, but the essential disappearance of the digital divide is likely to happen in 10 years.



- Today the cost of e-voting technologies is higher than that of the traditional paper based technologies. However the cost per voter certainly will decrease in time. To start with small projects and pilots might help to overcome this problem.

6 Planning

6.1 Constraints for timing

There are time requirements of legal changes, procedural changes, technical changes and time is required for the society to be ready to accept the new system and technology. At the same time there will be an increasing demand on using new technologies.

- *Technical changes* – the basis of the technology is already available, so this is not a real time constraint. The continuous modernization of technology should be respected.
- *Legal changes* – The characteristic time of the legislative work is more or less one year. The gradual introduction of new technologies will require legal changes at several times.
- *Readiness of the society* – The maturity of the society to use e-voting techniques can be measured as to what extent the e-technology is generally spread. National infrastructure, economic health, education, information policies, private sector development and other issues are also factors of society’s readiness. More and more part of the society will be ready as the “digital divide” shifts.
- *Confidence in the security of e-voting* – The only way to convince people is to educate them, gain their trust. This is a time consuming and sensitive process to do. One cannot afford to make mistakes. This can be considered as the critical path of the whole process, it might take 5 to 10 years.

6.2 Possible steps

Since e-voting is a big change in voting traditions, a step-by-step development is advisable. It is recommended to do more and more each time, to develop the e-voting election system incrementally to meet the new requirements. The required time is for full development about 5-10 years.

It is essential to define and communicate the vision of e-voting. Make the vision citizen-centered, define priority areas and timing.

The advised sequence of introducing new technologies is to start at the most controlled environment (polling stations) and move to remote voting afterwards.

First a pilot system can be built and used parallel to conventional manual systems, to show its advantages, and disadvantages. The existing examples of other nations can be used effectively.

This approach is in accordance with the timing and financial considerations, and addresses the issues listed as obstacles.

7 Summary

- Extensive use of modern technologies and standardization in the election mechanism is a necessity
- It is not a question whether one should have e-voting or not. The questions are how to prepare for the new technology, what will be the time schedule, which particular technology to apply first, etc.
- The introduction of e-voting affects the whole election process, it is not just one paragraph, it is rather an integral part of the modernization process
- The introduction of e-voting takes a long time, public confidence is to be developed carefully
- It is feasible to make plans and start the modernization including a step-by-step introduction of e-voting technologies.
- E-voting is part of the world-wide spread of new technologies - consequently it is unavoidable.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