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Ways, means and methods of electronic voting in current conditions: the Russian approach to e-voting

Ladies and gentlemen,

Relevance of the topic

Electronic voting (e-voting) is by no means a new subject, either within the framework of expert seminars held on the initiative of the OSCE, or in the context of national electoral practice. But this excludes neither its relevance nor the problems that arise. Nor does it rule out the interest of States in using it or the various opinions and viewpoints on its use.

Many countries at present are actively developing national e-voting projects for their voters, including remote electronic voting.

It is probably no exaggeration to say that over 20 of the world's leading powers and developing States have expressed a clear interest in electronic voting, have their own experience in using it in electoral practice, are prepared to share that experience, and have defined their own attitude to that type of voting.

The Russian Federation is among those States that are interested in developing electronic voting. We also have experience in e-voting, as well as our own attitude to its use and, above all, to the need for it.

Russian President Dmitry Medvedev, in his address to the Federal Assembly of the Russian Federation in November 2009, set the goal of accelerating the technical modernization of the country's electoral system – of ensuring political competition through technological means. The Head of State also underscored that "the modernization of the electoral process is part of Russia's national infrastructure".

Scale of the technical retooling of the Russian electoral system

In recent years, elections in the Russian Federation have become a modern and technologically advanced process, using all available technologies, including the newest ones, to enable voters to cast their votes, tabulate the results, and determine the outcome of elections.

Today we are successfully using the latest information technologies to ensure the holding of elections and the provision of information to voters. At the same time, the Russian electoral system is open to information retrieval and exchange.

The computerization of electoral processes in the Russian Federation has its own history of development. We are talking mainly about the State automated system known as "Vybory" (Elections) – Russia's largest information system.

Nowadays, we election organizers and others similarly employed in our country – over one million people belonging to more than 96,000 election commissions at all levels – can no longer imagine our work without the stably functioning "Vybory" system. It is the only example in global practice of a megascale computerized information system implemented in such a manner and in these proportions.

The system was created in 1994; its State-level test run took place in 1999, and in July 2000 it was placed in operation.

The system is used for the computerization of information processes, such as the preparation and holding of elections and referendums and ensuring the activities of the election and referendum commissions; it constitutes a database on over 108 million Russian voters and referendum participants residing in the territory of the Russian Federation.

Today, in the Russian Federation, the Central Election Commission, the election commissions of 83 constituent entities of the Russian Federation, and the territorial election commissions – around 3,000 election commissions in all – are equipped with and automated by technical devices and computerized systems.

Tasks on an ever larger scale are within sight: by the end of 2012, the system is expected to be equipped with computerized workstations, compatible with a ballot processing unit and a unit to enable electronic voting by 15 per cent of polling stations (around 15,000 out of more than 96,000), thus ensuring that 15 per cent of the total number of registered voters will have the opportunity to participate in elections through technical means.

In the Russian Federation:

1.   From 2 December 2007 to 14 March 2010, a total of 22,906 election campaigns were conducted in 284,217 polling stations in all constituent entities of the Russian Federation (see table in the slide presentation):

–   In December 2007, 486 election campaigns were conducted in 96,193 polling stations in 85 constituent entities of the Russian Federation;

–   In March 2008, 849 election campaigns were conducted in 96,614 polling stations in 83 constituent entities of the Russian Federation;

–   In October 2008, 5,216 election campaigns, local referendum campaigns and other polls were conducted in 12,972 polling stations in 74 constituent entities of the Russian Federation;

–   In March 2009, 3,500 election campaigns, local referendum campaigns and other polls were conducted in 26,500 polling stations in 79 constituent entities of the Russian Federation;

–   In October 2009, 6,780 election campaigns, local referendum campaigns and other polls were conducted in 21,926 polling stations in 76 constituent entities of the Russian Federation;

–   In March 2010, 6,075 election campaigns, local referendum campaigns and other polls were conducted in 30,012 polling stations in 76 constituent entities of the Russian Federation.

2.   On 10 October 2010, 7,876 election campaigns are expected to be conducted in 76 constituent entities of the Russian Federation (out of 83, or 91.56 per cent), involving over 30,000 precinct election commissions.

The scale of the election campaigns, the existence of nine time zones, and the need to ensure a rapid, accurate and transparent vote count and to determine the results of the elections made it necessary to develop software and hardware tools suited to the tasks at hand.

Possibilities for modern automated voting and vote counting systems

A few words on the history of the creation of automated voting and vote counting systems. In Russia in 2001, scanners were created for processing election ballots, and in 2003, ballot processing units were introduced.

In 2005, a test series of electronic voting units was produced in which paperless voting technology was used.

Ballot processing units (BPUs) ensure:

–   A computerized count of the votes cast during elections and referendums at all levels;

–   A compilation of ballots, with voting results outputted to the printer;

–   Simultaneous holding of elections at up to seven levels, with outputting of separate voting results for each one; input of original data and delivery of the final record on an external storage medium or over separate telecommunications channels to the higher-level election commission.

BPUs are certified.

Since 2004, BPUs have been used for the holding of elections at various levels at 7,951 polling stations in 17 constituent entities of the Russian Federation. With their help, over 15 million voters have cast their ballots. On average, each BPU has been used more than eight times.

In the election of deputies to the State Duma of the Federal Assembly of the Russian Federation in 2007, 2,914 BPUs were used in 1,457 polling stations in Moscow, Saratov and Stavropol, among other places.

Records of the election results were received electronically in 1,386 polling stations in which BPUs were used.

Technical rejections were recorded in five polling stations: overall, ten BPUs were found to be defective on election day. This constitutes 0.34 per cent of the total number of BPUs in use. We think that this is a good indication of technical reliability.

In the Russian presidential elections and municipal elections held in March 2008, 2,904 BPUs were used in 1,452 polling stations in Moscow, Vladimir oblast, Ivanovo and Leningrad oblast.

Russian legislation envisages the possibility of electronic voting.

When using e-voting units (EVUs), a voter casts an electronic ballot.

His or her choice is recorded on an individually printed audit tape (readable only by the participating voter), and the voter can thus be assured that his or her vote has been read correctly. After it has been read by the voter, the audit tape entry goes into storage mode, which is not readable for the purposes of ascertaining the intent of an individual voter; in other words, the secrecy of an individual vote is guaranteed.

The audit tape can be used to conduct a manual recount of votes cast.

EVUs ensure:

–   Electronic voting without the use of paper ballots;

–   A computerized vote count;

–   Determination of the voting results;

–   Drawing up of the precinct commission's voting results record.

A touch screen, a microcontroller circuit and special data files are used in the construction of the EVUs. It is hoped that this technical solution will protect the EVU from possible unauthorized operation attempts and virus attacks.

The algorithms and interfaces used in the onscreen forms of touch-screen voting devices exclude the accidental omission by the voter of any electronic ballots during the voting process. Portable electronic voting devices ensure that voting can take place outside of polling station premises.

A test series of EVUs, consisting of 30 devices (monitors), has now been released.

From 2006 to 2010, EVUs were used along with paper ballots in elections at various levels in 21 polling stations in five constituent entities of the Russian Federation – Velikiy Novgorod, Orel, Saratov, Suzdal and Ryazan, as well as in the federal election campaigns carried out in 2007 and 2008. Representatives of the European electronic voting commission were present during the 2006 elections in Velikiy Novgorod, and their assessment was favourable.

In Saratov in 2007, an EVU was used for the first time to conduct elections at two levels, federal and regional. Given the possibility of choosing a voting method, more than 20 per cent, on average, of voters who cast ballots preferred to vote using an EVU.

In 2008, 49 per cent of voters who cast ballots at polling stations in Suzdal, Vladimir oblast, preferred the electronic voting method. Its reliability was confirmed, because no defects in the equipment or technical rejections were recorded.

Experience with the use of automated vote counting systems at polling stations has confirmed that their use shortens the time needed for the issuance of voting results. For example, with a BPU, votes can be allocated almost immediately after the last voter has cast his or her ballot, which shortens the time needed for the issuance of voting results and the entry of data into the "Vybory" system. In ordinary voting conditions using paper ballots, the average time needed for vote counting is around two and a half to three hours.

In addition, the use of technical means has made it possible to minimize the unintentional errors that occur in manual vote counts (i.e., the impact of the "human factor").

Improvement of automated voting and vote counting systems in the Russian Federation is continuing.

The most extensive tests of modern automated voting and vote counting systems were carried out during a single day of voting in constituent entities of the Russian Federation on 14 March 2010.

With the participation of the election commissions of the Ryazan and Tula oblasts and in accordance with the statutory instruments in force, the Central Election Commission of the Russian Federation organized the testing of the following software and hardware tools.

In Tula oblast, for the election of deputies to the Tula municipal Duma, ballot processing units were employed in 220 polling stations (two units per polling station) in the city of Tula.

In Ryazan oblast, for the election of deputies to the Ryazan oblast Duma, the following tools were employed in polling stations in the city of Ryazan:

– An upgraded ballot processing unit (BPU-2010);

– An electronic voting unit;

–   A prototype of a precinct election commission computerized workstation (using an electronic digital signature). A precinct election commission computerized workstation enables a legal electronic record of the voting results to be produced at the polling station (with the aid of an electronic digital signature) and forwarded electronically to the higher-level commission, with the election results subsequently published on the Internet;

–   Trial use of satellite systems for the transmission of data contained in the records of the voting results from the polling station to the higher-level commission;

–   A specialized navigation system using GLONASS (global navigation satellite system) technology to monitor the movement of election documents;

–   Video surveillance and image transmission equipment (webcams).

We might mention that the experimental use of satellite systems for the transmission of data contained in the records of the voting results from the polling station to the higher-level commission took place not only in central Russia but also in remote, difficult-to-reach polling stations in Siberia. These systems proved their reliability, efficiency, comprehensiveness and accuracy in the transmission of voting results data.

The testing of the technology used in individual software and hardware tools was accompanied by events to provide information and clarification, including information for voters on the specific features of computer-aided voting, as well as training for other participants in the electoral process (observers, representatives of the media, candidates) as regards the use of this equipment on election day.

At polling stations where automated vote counting systems were used, the voting results were received five to ten minutes after the last voter had inserted his or her ballot paper into the BPU or EVU. In the case of further optimization of the structure (positions) the precinct election commission's record of the voting results was available almost immediately after the last voter had cast (inserted) his or her ballot paper into the voting machine (BPU or EVU).

The results from using voting and vote counting software and hardware tools show that they have great potential and will be useful in the accelerated technical retooling of the Russian electoral system.

Various regions of Russia, including those located in remote and difficult-to-reach Siberian and northern territories, have taken part in the trials of modern information technologies.

Satellite navigation using the GLONASS system was employed in Rostov oblast during the preparations for and holding of elections to the local bodies of self-government.

The GLONASS system was also used in Irkutsk oblast for the transmission of the data contained in the record of voting results to the higher-level election commission.

Webcams, which provide any citizen who has access to the Internet with an opportunity to observe the voting procedure and the vote count in real time, were successfully used in polling stations in 12 constituent entities of the Russian Federation.

It should be mentioned that at the forthcoming regional and municipal elections on 10 October 2010, more than 2,700 BPUs are scheduled to be used during a single autumn day of voting at almost 1,300 polling stations in 20 constituent entities of the Russian Federation, including remote and difficult-to-reach territories in the Urals and northern Siberia.

Electronic voting units will also be used in Volgograd oblast.

More than 300 polling stations in 16 constituent entities of the Russian Federation will be equipped with webcams.

All in all, more than 2.5 million voters in 21 constituent entities of the Russian Federation will take part in electronic voting with the aid of BPUs and EVUs.

Remote electronic voting

The draft programme for the accelerated technical retooling of the Russian electoral system also makes provision for the possibility of remote electronic voting so as to ensure additional opportunities for electoral participation without voters having to visit a polling station on election day.

Given the geographical conditions in the Russian Federation, there is an urgent need for remote electronic voting because the number of polling stations set up for Russian citizens living abroad or in difficult-to-reach or remote locations (in Siberia and the northern territories adjacent to the Arctic Ocean) account for at least one per cent of polling stations; roughly as many polling stations are set up for federal elections on vessels at sea.

The first experience of using Internet technologies in Russian elections was an experiment using discs for electronic voting during municipal elections in Novomoskovsk (Tula oblast) in October 2008.

During the elections in March 2009, a similar experiment was conducted in five different regions of Russia for regional or municipal elections, in urban or rural locations and in one or several polling stations.

The technology (polling) using discs for electronic voting was employed in the Volgograd and Tomsk oblasts and in the city of Vologoda; a social e-card was used in Nizhnevartovsk (Khanty-Mansi autonomous okrug) – the northern capital of the Russian oil and gas industry.

Technology for remote electronic polling using the GSM 900/1800 mobile phone network standard was used in Vladimir oblast.

An experiment involving electronic polling of voters via the mobile phone network was also conducted in October 2009 during elections in Kingisepp (Leningrad oblast).

Judging by Russian and foreign experience, one can say that remote electronic voting has a number of clear advantages, including:

–   Giving voters the opportunity to vote not only in polling stations, but also outside of them, thus objectively broadening the opportunities for citizens to express their will;

–   Creating additional means of electoral participation for certain categories of voters who are deprived of the opportunities generally available;

–   Increasing the speed at which information is received and enhancing the reliability of the transmission of voting results and election outcomes, and their veracity.

Furthermore, new voting systems have some influence on the electoral involvement of young voters.

Preliminary results

1.   In terms of technical developments, the Russian electoral system is currently at the stage where the goal of computerization and the introduction of information technologies is realistically achievable at all election commission levels.

The transition from paper ballots to their electronic form and the production by precinct election commissions of a legal electronic record of the voting results will be one of the main areas in the modernization of the Russian electoral system and a new stage in the technological organization of democratic elections.

2.   It should be mentioned that the increase in technical tools and the introduction of various innovative technologies into the electoral process must not become an end in itself and predominate in the organization of the electoral process. We regard them as tools to support democracy and ensure openness and the development of political competition, as an additional factor in an honest and fair vote count and as means of increasing confidence in the electoral system and the bodies elected.

Thank you for your attention.