

Electronic vote counting (e-counting)

**Summary of the report by the Parliamentary Control of the
Administration for the attention of the National Council Control
Committee**

of 9 February 2017

Summary

Over ten per cent of the ballots cast in Switzerland are no longer counted by hand; they are scanned and read electronically. Counting votes electronically is allegedly quicker and more efficient, and at the same time guarantees security and accuracy. However, in the popular vote of 18 May 2014, a random audit of the electronic vote counting (e-counting) in the City of Bern suggested that ballots had not been counted accurately. The City of Bern pointed out that the Federal Chancellery (FCh) had approved the process in accordance with Article 84 of the Federal Act on Political Rights (PRA).

Errors of this kind can cast doubt over the democratic legitimacy and credibility of the voting system. In the light of this incident, in January 2015 the control committees of the two parliamentary chambers (CCs) commissioned the Parliamentary Control of the Administration (PCA) to evaluate the system of electronic vote counting. At its meeting on 7 October 2015, the FDJP/FCh sub-committee of the National Council CC decided that the evaluation should focus in particular on the government's approval of electronic vote counting and on the accuracy thereof.

This report on electronic vote counting is based on a legal opinion and a technical analysis and on analyses conducted by the PCA. The legal opinion was provided by Prof. Andreas Glaser and Corina Fuhrer of the Centre for Democracy in Aarau; the technical analysis was drawn up between March and July 2016 by Prof. Robert Krimmer and Dirk-Hinnerk Fischer of Tallinn Technical University. In order to evaluate whether responsibilities had been appropriately assigned and requirements met, the PCA analysed the cantonal applications to introduce electronic vote counting that had previously been assessed by the FCh, and in spring 2016 held talks with employees concerned with electronic vote counting at the FCh and with selected cantonal representatives. In order to assess the accuracy of electronic vote counting, the PCA manually recounted votes cast in selected cantons and communes which use different counting systems (manual or electronic), and compared the results.

Overview of results

The overall findings of the evaluation are that federal requirements for e-counting are insufficient and largely inadequate. However, the Confederation is restricted in the ways it can verify security and accuracy. Although the cantons' applications are systematically assessed by the Political Rights Section at the FCh, the FCh does not fully exploit the scope available to demand high security standards. Furthermore, before 2016 the FCh was approving applications without having any legal basis to do so. An examination showed that electronic and manual counting systems are equally accurate, but that ballot papers should still be checked systematically before being counted electronically.

Federal requirements too lax

Compared with traditional counting by hand, electronic vote counting poses greater challenges, in the same way as e-voting (Vote électronique) does. Since the PRA states that the Federal Council must give its permission for e-counting, it bears greater responsibility for this method than for manual vote counting. In e-counting the process of determining the result is less transparent than in manual counting, as only a very small number of people are involved in the actual counting process. If voting freedom is to be guaranteed, higher requirements therefore need to be met. The requirements imposed by the Confederation on cantons applying to introduce e-counting are, however, inadequate, and do not match up to international good practices in electronic vote counting. For example, key elements are missing in the operating concept, such as consistent dual verification procedures and the requirement for auditing the result of the count by means of a statistically relevant random sample, allowing possible errors in the whole process to be identified. Furthermore, FCh-authorized systems are valid for an unlimited period, although technology continues to advance. Once permission to use a particular system has been granted, it is difficult for the FCh to carry out audits.

Limited audit possibilities and deficits in authorised procedures

If a canton or commune wishes to introduce an e-counting procedure that has previously been authorised by the Federal Council, no new authorisation is required (circular published in 2016); the canton only has to report that it is using the procedure. This fact makes it even harder for the FCh to conduct an audit. The Federal Council approved two procedures in 2001 and 2008. No further audit is conducted on the assumption that these two procedures adhere to the current state of technology and to international good practices. The Federal Council's guidelines are clearly at odds with those pertaining to Vote électronique, which require a multi-stage introduction procedure. Although the technical IT security requirements are higher for the Vote électronique procedure than they are for e-counting, this does not justify such a marked disparity between the authorisation processes.

In the past, applications based on either one of the two systems already approved by the Federal Council were authorised by the FCh. However, until the circular published in 2016, there was no legal basis for this. Should an appeal on a matter relating to voting rights be made, this lack of a legal basis could mean that the ballot count is declared unlawful.

Federal Chancellery unobtrusive

Since the law does not clearly specify the requirements for electronic vote counting, the FCh has considerable leeway when assessing applications to introduce e-counting. Usually it plays an unobtrusive role, as it does in the case of elections and popular votes, with the exception of Vote électronique. The FCh wishes to support the cantons in the authorisation process and establish minimum standards.

The FCh's Political Rights Section feels it makes more sense for cantons and communes to draw up their own, tailor-made solutions, and to establish and implement them. In some cases the Political Rights Section has been unsuccessful in urging the cantons wishing to introduce e-counting to apply higher standards.

Electronic vote counting is not more accurate

In its audit of electronic and manual vote counting, the PCA identified only very slight deviations from the officially counted results. An examination of the discrepancies when votes were counted electronically highlighted differences in the number of blank votes counted, however. This might be due to the fact that the system made errors in recognising voter intention on incorrectly completed ballot papers, whereas in a manual count the will of the voter can usually be clearly determined. This underlines the necessity of checking ballot papers before they are scanned and electronically counted.

The full report is available in German and French; the Italian version should be ready around December 2017 (www.parliament.ch).