

**REPORT ON THE SCOPE AND FORMAT
OF THE UPDATE OF REC(2004)11**

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The opinions expressed in this work are the responsibility of the author and do not necessarily reflect the official policy of the Council of Europe¹

¹ The author gratefully acknowledges the contribution of Adrián Rodríguez-Pérez from the Council of Europe secretariat. All possible errors are the author's alone.

TABLE OF CONTENTS

- REPORT ON THE SCOPE AND FORMAT OF THE UPDATE OF REC(2004)11..... 1**
- 1. LIST OF ACRONYMS..... 4
- 2. EXECUTIVE SUMMARY 5
- 3. BACKGROUND 6
- 4. ANALYSIS OF THE REPLIES TO THE QUESTIONNAIRE 8
 - 4.1 *Question 1 on the definition of e-voting*..... 8
 - 4.2 *Question 2 on the role of EMBs*..... 11
 - 4.3 *Question 3 on the structure of the future Recommendation* 14
 - 4.4 *Question 4 on the categories of requirements* 17
 - 4.5 *Question 5 on the notion of risk* 20
 - 4.6 *Question 6 on additional preliminary questions* 23
 - 4.7 *Question 7 on expectations related to the update*..... 23
 - 4.8 *Question 8 on additional remarks* 25
- 5. CONCLUSIONS..... 26
 - 5.1 *Scope*..... 26
 - 5.2 *Structure*..... 29
 - 5.3 *Further suggestions*..... 31
- 6. PROPOSALS 32
 - 6.1 *Definition of e-voting*..... 32
 - 6.2 *Responsibility of EMBs* 33
 - 6.3 *Notion of risk*..... 33
 - 6.4 *Structure of the Recommendation* 34
 - 6.5 *Categories of requirements*..... 35
 - 6.6 *Other decisions*..... 35
- ANNEX I: OVERVIEW OF RESULTS BY QUESTION 36**
- ANNEX II: OVERVIEW OF RESULTS BY RESPONDENT..... 38**
- ANNEX III: REPLIES TO THE QUESTIONNAIRE 40**

1. LIST OF ACRONYMS

CAHVE	Council of Europe <i>ad hoc</i> Committee of experts on legal, operational and technical standards for e-voting
CDDG	European Committee on Democracy and Governance
CDMSI	Steering Committee on Media and Information Society
DRE	Direct Recording Electronic Voting (Systems)
E2E	End-to-End
EAL	Evaluation Assurance Level
EMB	Electoral Management Body
EPB	Electronic Ballot Printers
ERM	Election Risk Management
e-voting	electronic voting
ICT	Information and Communication Technology
International IDEA	International Institute for Democracy and Electoral Assistance
i-voting	internet voting
NVT	New Voting Technologies
OSCE/ODIHR	Organisation for Security and Co-operation in Europe's Office for Democratic Institutions and Human Rights
PCOS	Precinct counting optical scanners
PP	Protection Profile
Rec(2004)11	Council of Europe's Recommendation Rec(2004)11 of the Committee of Ministers to member States on legal, operational and technical standards for e-voting

2. EXECUTIVE SUMMARY

The need to formally update the Recommendation of the Committee of Ministers to member States on legal, operational and technical standards for e-voting (Rec(2004)11) to reflect past experiences as well as recent technology and legal developments was stated in the 2012 biannual review meeting. It was further confirmed by countries', NGOs' and international organizations' representatives in two consecutive gatherings: a meeting of experts held in Vienna in December 2013 and the October 2014 biannual review meeting held in Bregenz.

Following up on these demands, the Committee of Ministers of the Council of Europe decided the creation of an "Ad hoc Committee of Experts on E-Voting" (CAHVE), whose task is to update the Recommendation. The process should be guided by a needs assessment of stakeholders.

The present report discusses feedback provided by designated experts from 18 member States and 3 participant institutions who replied to a questionnaire on the scope and format of the update circulated by end-June 2015. Respondents have direct experience with studying, implementing or supervising e-voting.

Questions 1 to 5 of the questionnaire deal with broader issues like the definition of e-voting, the role and responsibilities of state authorities in charge of elections, the structure and type of content of the provisions of the Recommendation and the notion of risk. The modifications proposed under these questions received a majority of approvals. Negative and alternative opinions underline aspects which need to be taken into account. Questions 6 to 8 were open-ended and aimed at gathering feedback on additional preliminary questions that can be envisaged, on expected results and on other proposals.

After analysing the replies received, the report presents conclusions on the scope and structure of the update and proposes a number of decisions to be discussed and decided at the 28-29 October 2015 CAHVE meeting in Strasbourg.

3. BACKGROUND

The Council of Europe's "Recommendation Rec(2004)11 of the Committee of Ministers to member States on legal, operational and technical standards for e-voting" and its explanatory memorandum were adopted on 30 September 2004. In 2010 two complementary documents, with less stringent effect, were approved: the Guidelines on transparency and the Guidelines on certification². The three documents have served as legal benchmarks to countries and institutions in the region and even beyond when introducing, operating and evaluating e-voting systems.

Following the conclusions of both 2012 and 2014 biannual review meetings as well as those of an experts' meeting held in Vienna in December 2013³, the Committee of Ministers decided in 2015 to set up an "Ad hoc committee of experts on legal, operational and technical standards for e-voting" (CAHVE)⁴. Its mandate is to prepare a draft Recommendation updating Rec(2004)11 in the light of recent technical and legal developments related to e-enabled elections in the Council of Europe member States, as well as its explanatory memorandum. The committee is composed of national delegates from election management bodies (EMBs) of Council of Europe members States as well as of representatives from Council of Europe and international institutions.

In line with previous discussions and decisions, CAHVE's mandate is to enhance and further develop the existing Recommendation rather than to rewrite it. The updating work should mainly consist in redressing the identified flaws of the Recommendation, in taking advantage of recent experiences with e-voting in the region and in addressing the implications of emerging technical concepts and solutions. The process of updating should be guided by a needs assessment of stakeholders, taking particular account of the views of member States, but also of non-governmental stakeholders.

A two-step approach has been adopted. In the first (current) phase, discussions focus on the clarification of the scope and format of the future Recommendation. After completion of the first phase, work will be undertaken to update the individual provisions of the Recommendation and the explanatory memorandum.

A questionnaire prepared by the Council of Europe's leading expert was circulated among CAHVE delegates by end-June 2015, with the aim of gathering their opinion on issues of content and structure that need to be decided during the first phase of work, before the actual update. The questionnaire is structured around questions related to the scope of the

² The three instruments can be found on the e-voting dedicated page of the Council of Europe's Division of Electoral Assistance and Census: <http://www.coe.int/t/DEMOCRACY/ELECTORAL-ASSISTANCE/themes/evoting/default_en.asp> [Last accessed 07/10/2015]

³ We refer mainly to the following documents:

- The report of the fourth biannual review meeting held in Bregenz/Austria on 11 July 2012;
- The report of an experts' meeting on a possible update of the Council of Europe Recommendation Rec(2004)11 organized in Vienna by the Federal Ministry of the Interior of Austria on 19 December 2013;
- Our report to the Council of Europe on a possible update of the Council of Europe Recommendation Rec(2004)11 presented in the experts' meeting on 19 December 2013 in Vienna;
- The report of the fifth biannual review meeting held in Bregenz/Austria on 28 October 2014.

The reports and additional relevant information can be found on the e-voting dedicated page of the Council of Europe's Division of Electoral Assistance and Census (see footnote 2 above)

⁴ The "Terms of Reference of the Ad hoc committee of experts on legal, operational and technical standards for e-voting" can be found on the e-voting dedicated page of the Council of Europe's Division of Electoral Assistance and Census (see footnote 2 above)

future recommendation (questions 1, 2 and 5 on the definition of e-voting, the role of EMBs and on risk policy) and to the structure and categories of standards (questions 3 and 4). Finally, questions 6 to 8 provide an open space for respondents to express their proposals, expectations, and concerns.

Nineteen (19) national delegates⁵ and representatives from three (3) participant institutions⁶ replied to the questionnaire. The author wishes to thank each of them for their valuable contribution.

The feedback received by respondents is summarised and analysed in chapter 3. Conclusions on the scope and format of the update are presented in chapter 4. Finally, a number of key proposals to be discussed during the CAHVE meeting on 28-29 October are presented in chapter 5.

The full text of the questionnaire and of the replies received is included in Annex III attached to this report⁷. Annexes I and II at the end of this document present an overview of results by question and by respondent. Opinions expressed by a small group of independent e-voting experts consulted during the preparation of the questionnaire have been taken into account and are mentioned as such⁸.

Questions 1 to 5 of the questionnaire did not provide a definition of the terms used (e.g. ballot scanner, EMBs, vendors, layers, risk) because they were aimed at gathering as many opinions as possible. The different meanings to which respondents referred are discussed when analysing the replies (chapter 3). Conclusions and proposals presented in this report (chapters 4 and 5) clarify the specific meaning of the terms employed.

The Recommendation Rec(2004)11 contains three broad recommendations (i. to iii.), a number of definitions and three Appendices (I to III) which contain the detailed provisions. The recommendations are:

- (i) e-voting shall respect all the principles of democratic elections and referendums and be as reliable and secure as democratic elections and referendums which do not involve the use of electronic means;
- (ii) the interconnection between the legal, operational and technical aspects of e-voting, as set out in the Appendices, has to be taken into account when applying the Recommendation and
- (iii) member states should consider reviewing their relevant domestic legislation in the light of this Recommendation and within the limits stated by recommendation (iv).

The recommendations refer to the Appendices, i.e. to the legal (I) and operational (II) standards and technical requirements (III). Admittedly the updating effort should mainly be

⁵ Armenia, Austria, Belgium (both federal and region Brussels), Bulgaria, Croatia, the Czech Republic, Denmark, Estonia, Finland, Georgia, Greece, Hungary, Lithuania, Malta, Russia, Spain, Sweden, Switzerland and Turkey. Belgium federal and regional representatives expressed differing opinions and their replies have been assessed separately.

⁶ The Council of Europe Committee on Democracy and Governance (CDDG), the Council of Europe Steering Committee on Media and Information Society (CDMSI) and international IDEA. CDDG did not present a consolidated reply but three differing replies from three different members, which have been considered separately in this report.

⁷ Some of the replies have been slightly modified to harmonise content presentation. Modifications only concern style and format.

⁸ The consulted experts, mainly from the academia, included Jordi Barrat, Douglas Jones, Robert Krimmer, Kristina Lemon, Melanie Volkamer and Gregor Wenda.

aimed at the provisions found in the appendices. Depending on the modifications introduced in the Appendices, the three recommendations may also require adjustments.

4. ANALYSIS OF THE REPLIES TO THE QUESTIONNAIRE

4.1 Question 1 on the definition of e-voting

4.1.1 Overview

Should e-voting be re-defined to include, in addition to electronic voting machines and internet voting, also ballot scanners?

The 2004 Rec(2004)11 defines e-voting as “an e-election or e-referendum that involves the use of electronic means in *at least the casting* of the vote”⁹ covering *e-votes* cast on e-voting machines or from a computer and through internet to an e-voting server. The accent is put on the electronic format of the ballot.

The 2013 OSCE/ODIHR Handbook for the observation of new voting technologies (NVT)-a synonym for electronic voting- defines e-voting as “the use of information and communication technologies (ICT) applied to *the casting and counting* of votes”¹⁰. In this case e-voting covers also counting machines which are not used to “cast” the vote (there is no interaction at all between the voter and the machine).

The two e-voting definitions being different, it seems necessary to take the opportunity of the update to either align Rec(2004)11's definition with the one proposed by ODIHR, or to try at least to bring them as closer as possible and indicate the remaining differences.

Reasons for this are twofold. First, both documents have the same geographic scope and aligning them would contribute to clarifying the standards applicable in the region. Second, the OSCE/ODIHR Handbook refers to the detailed provisions of the Recommendation and Guidelines on certification and transparency as “the legal benchmark” (together with OSCE's, broader, principles) for evaluating e-voting systems. To be coherent, terms used in both documents need to have the same meaning.

The question proposes an extension of the current definition of e-voting to include ballot scanners. The question however does not give a definition of the ballot scanner.

As shown in figure 1, a majority of respondents agreed with an extension of e-voting to cover ballot scanners. Specifically, 18 respondents answered yes (equivalent to 72%), 6 answered no (24%), and 1 answered “other” (4%).

The analysis of the replies shows that respondents had different definitions of “ballot scanners” in mind when replying to the question. In this regard, the extent of the agreement on the inclusion of ballot scanners used in voting precincts to record paper votes and tally and count them may be even larger than what appears in figure 1 (see 4.1.3 below).

⁹ p. 8, Rec(2004)11

¹⁰ p. 4, OSCE/ODIHR Handbook for the observation of NVT

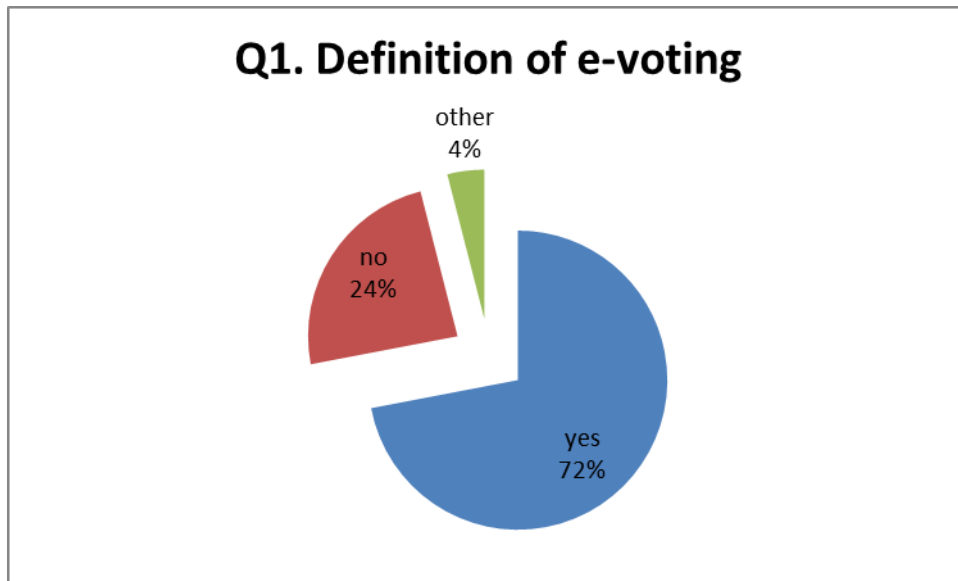


Figure 1

4.1.2 Positive answers

The main reason argued in favour of extending the current definition of e-voting is to make it "complete and detailed". The following proposals for a new definition of e-voting are made:

1. the use of ICT to cast, record, count the votes;
2. the use of electronic means to cast the vote (e-voting machines, internet voting and other) and to count them or to process paper ballots (ballot scanners and other);
3. the use of ICT to cast the vote and to transform paper ballots into electronic ones;
4. the use of ICT either to cast the vote or to scan the ballot;
5. e-voting covers the full scope of NVT: ballot scanning, direct recording electronic voting systems (DRE), Internet voting, hybrid forms of NVT and voting management systems;
6. a definition based on OSCE/ODIHR 2013 Handbook on the observation of NVT;
7. an extension of e-voting to include e-counting;
8. One national representative suggested to extending the notion of e-voting to cover all e-enabled processes of the electoral cycle. However this opinion does not seem to be shared by other respondents.

Respondents introduced the following caveats:

1. The Recommendation should cover ballot scanners only when used to obtain binding election results. Their use to produce indicative, preliminary, non-binding results is not subject to the Recommendation;
2. The Recommendation should distinguish between:
 - a. ballot scanning at the polling station where the voter still 'casts' the ballot paper directly into the scanning device and may optionally receive direct feedback from the machine on who they voted for, for review or verification purposes. In this case the voter marks her choice on mark sense paper ballot

and then cast the vote by feeding the mark sense paper ballot into the scanner or e-ballot box. After mark sense paper ballot is inserted, the e-ballot box records and tallies votes by referring to marks made by voters. In this case, by using special machine-readable paper ballot, the ballot scanner enables to combine the phases of voting and tallying in an electronic manner at the polling station or another location which is under the supervision of electoral management bodies' officials; and

- b. central counting systems where counting is done by scanners without there being any interaction between the scanner and the voter, and raises specific concerns;

This caveat is discussed in the following section on negative and other answers.

3. The Recommendation should only cover e-voting as used during elections and votes. The use of ICT in other participatory processes, such as the e-collecting of signatures for initiatives or referendums for example, is not covered;
4. As mentioned by independent experts, covering different types of e-voting means that a number of standards will be specific to each type.

With respect to caveats 1 and 3, the current definition of e-voting refers to the use of electronic means in e-elections or e-referendums. This implies that the results obtained through e-voting are official ones (with binding effect). It also means that only elections and referendums are covered. E-collecting and other forms of participation fall outside its scope.

As the discussion on the future structure of the Recommendation (under question 3 below) will show, there is consensus on caveat 4.

4.1.3 Negative answers and other arguments

Referring to the OSCE/ODIHR definition of NVT which mentions the "counting", one respondent concluded that the definition in Rec(2004)11 already covers ballot scanners. A reference to pure e-counting is however missing in the current definition of e-voting in Rec(2004)11.

A similar opinion interprets the current definition, namely "*the use of electronic means in at least the casting of the vote*" as covering all types of electronic means which can be used in all stages of the voting process, including ballot scanners. However, what is meant by the definition is that the casting of the vote by electronic means is a "sine qua non" condition.

Despite being "labelled" as negative answers, these two opinions do not oppose to extending the definition of e-voting to ballot scanners but hold that this is already the case.

The four opinions reported below contest the inclusion of ballot scanners under the label of e-voting. Their analysis shows that opposition relates to scanners used for e-counting alone. By contrast, ballot scanning at the polling station where the voter still "casts" the ballot paper directly into the scanning device and may optionally receive direct feedback from the machine on who they voted for, for review or verification purposes, is expressly or tacitly accepted as a form of e-voting. We will refer to them as ballot scanners offering interaction voter-machine. The distinction between scanners used for e-counting alone and scanners offering interaction voter-machine was also mentioned in the previous section (see caveat 2, above).

One argument underlines the difference between the casting of an electronic ballot and the e-counting of paper ballots. In the first case, issues related to vote secrecy and voter's trust in the correct handling of the vote by the system are present. The second case is allegedly different and therefore should be regulated differently. This respondent would agree to extend e-voting to cover ballot scanners provided this is done in a separate chapter of the Recommendation, and reference is made to e-counting's specific challenges: the integrity of the tally and the related distribution of seats. Clearly this opinion refers to the use of ballot scanners for counting purposes alone without there being any interaction between the voter and the machine. The case of ballot scanners used to receive mark sense paper ballots directly from the voter as proposed by some definitions is apparently not envisaged.

A second opinion opposes to the extension which is considered as a step backwards because according to the respondent the principle of electronic voting is to do away with all "manual" interventions between the voters and their casting of the vote. The author admits however that some sort of ballot scanning can be considered to be e-voting such as scanners introduced in Belgium, which, the author considers, are "an integrated example".¹¹ In this case an extension of the definition to include ballot scanners where there is interaction voter-machine is accepted.

A third argument says that the Recommendation needs to concentrate on e-issued votes as an alternative way of casting a ballot along with traditional paper-based voting. In this view, the scanning of paper ballots is considered to be outdated and only to be considered as a temporary, transitional mean of counting votes while switching from paper to e-ballots.

The fourth respondent distinguishes between e-voting and e-counting technologies, the former being about cast-as-intended, and the second, about counted-as-cast. The implication is that only e-voting or cast-as-intended issues should be dealt by Rec(2004)11.

The case of ballot scanners used by the voter to cast her vote, where there is interaction voter-machine, was apparently not envisaged in the last two opinions.

4.2 Question 2 on the role of EMBs

4.2.1 Overview

While leaving detailed definitions to the parts specifically dealing with issues such as transparency, auditing, verifiability, etc. would you agree on adding a broad provision reminding that the conduct of elections and referendums is the responsibility of EMBs / state authorities, in the updated Recommendation?

When considering the introduction of e-voting and contracting e-voting vendors and service providers, state authorities in charge of elections and referendums (hereinafter EMBs) face the need, among others, to define their own responsibilities. There is an interest, also from countries outside the region, that the Recommendation clarifies EMBs' responsibilities when e-voting is used.¹²

¹¹ In this case reference is apparently made to scanners used to record paper votes, where the voter "casts" her paper vote in the scanner.

¹² For an example, consider the EU-UNDP representative's opinion expressed at the fifth review meeting of Rec(2004)11, October 2014, Bregenz.

Several standards dispersed throughout Rec(2004)11 already address specific aspects of the relationship between EMBs and entities contracted to provide e-voting services (see with this respects the transparency requirements). However, a general provision on the specific role and responsibilities of EMBs is currently missing.

The question asks whether there is agreement on adding such a general provision reminding that the conduct of e-elections and e-referendums is entirely the responsibility of the EMB in charge.

As illustrated by figure 2, the majority of respondents would agree on including such a new provision. 18 respondents would be in favour (72%), 2 against (8%), while 4 suggested different alternatives (16%). 1 respondent did not answer to this question (4%).

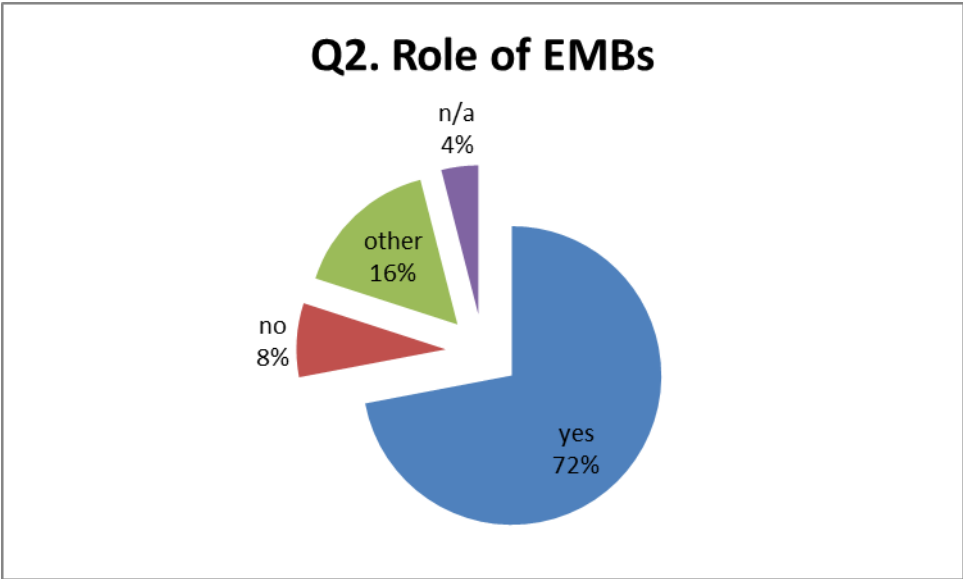


Figure 2

4.2.2 Positive answers

Opinions favouring a new provision specific to the role of EMBs argued the following:

Regulate the relationship EMB-private vendor

1. A code of conduct ... is currently missing. This concerns two essential areas:
 - a. the selection of the vendor
 - b. the relationship between the vendor and election officials during elections;
2. The responsibility for conducting the whole process of elections and referenda and ensuring compliance with international and national principles on e-voting lays with the state authority and cannot be outsourced to private companies. This contributes to ensuring neutrality and openness to public scrutiny (transparency), which privates cannot sufficiently provide. It is absolute and urgent to focus on this;
3. The EMB should be the owner of the source code;

4. One important factor attesting independence is disclosure of source code with a view to promote technical improvements. This however could be restricted to independent trusted and trustworthy experts to avoid potential abuses.

Increase EMBs' e-voting-related capacities

5. State authorities must have internal technical and legal expertise to manage alone, if necessary, the process of e-voting;
6. EMBs should conduct continuous updates and improvements both in the fields of project management, personal recruitment and in the field of security and maintenance of e-voting systems with the aim of keeping the control of the project over time;
7. EMBs should diminish the usage of outsource with respect to major components of electoral processes.
8. Authorities must be able to monitor technical issues and hold their suppliers to account¹³;
9. The State authority should preferably be also responsible for compiling, maintaining and publishing electoral registers.

Reference to national specificities

10. The responsibility of state authorities may be taken as a subject in a very broad sense. A broad standard on state authorities in electronic voting could be added. The issue is primarily regulated by national legislations. Those may differ from one country to another. Such differences need to be taken into account. A reference to national legislation on topics such as electoral legislation, public administration legislation, public procurement legislation, etc., could be included in the new text;
11. A reference to the CoE member states' legislation in force in this matter (electoral legislation, public administration and public procurement legislation etc.) could be part of the new text;
12. Due to their complex nature, e-vote systems may involve third parties, e.g. net providers. A large part of the communication and its integrity lies in this case on such (usually private) providers. Similar concerns relate to postal voting at least when private postal companies are involved. A recommendation, similar to Venice Commission's recommendation "postal voting should be allowed only where the postal service is safe and reliable" may be introduced for services provided by third parties. State authorities exercise their responsibility by evaluating and declaring such service providers as "fit for e-vote".

4.2.3 Negative answers and other arguments

1. One opinion holds that the Recommendation already refers to the obligation of Member States to ensure the conduct of elections and referenda and there is no need to add the proposed clarification on the specific responsibility of the electoral authorities.

¹³ The respondent references p.32 of the OSCE/ODIHR Handbook mentioned above, which states that "[vendors] should not replace any relevant functions of the electoral administration, which should remain in full control of the electoral process".

2. Another similar one refers to standard 28 in Appendix I (legal standards), Part B (Procedural safeguards), Section III on Reliability and Security as already covering the responsibility of EMBs. This standard reads: the member State's authorities shall ensure the reliability and security of the e-voting system;
3. Another suggests that the responsibility of the authority is to be covered by audits or other independent external controls. Such controls need to be maintained and reinforced. Same would apply to transparency and the possibility of verifying results.
4. An "other" respondent would prefer to approach this issue from the point of view of finding guarantees for transparency, audit, accountability, verifiability etc.

4.3 Question 3 on the structure of the future Recommendation

4.3.1 Overview

Question 3.1

Do you agree on putting only high-level concise provisions that are persistent over time in the Recommendation itself? The Recommendation would be stable.

The current Recommendation lacks homogeneity. Some provisions are quite high-level, others are too detailed, and the nesting between high-level and lower-level / detailed provisions is not made clear. As a result, applying the Recommendation as "one block" to a specific e-voting case has proved difficult if not impossible. Question 3.1 asks whether there is agreement that the Recommendation itself should contain only high-level and concise standards that are persistent over time.

Question 3.2

Do you agree on organising the other detailed standards in separate, complementary layers or documents that need to be regularly updated?

If so, question 3.2 follows, the non-core standards could be put in lower-level documents, such as Guidelines, which can be more easily and frequently updated.

It is understood that the different documents (the Recommendation and the lower-level instruments) are interrelated and interdependent. The relationship between higher-level / general provisions and lower-level / detailed ones as well as their nesting shall be made clear in the respective documents.

Almost all respondents answered favourably to identifying a set of key high-level standards to be included in the Recommendation (see figure 3.1). 21 respondents answered yes to question 3.1 (84%), 3 answered no (12%), while 1 respondent offered an alternative solution (4%).

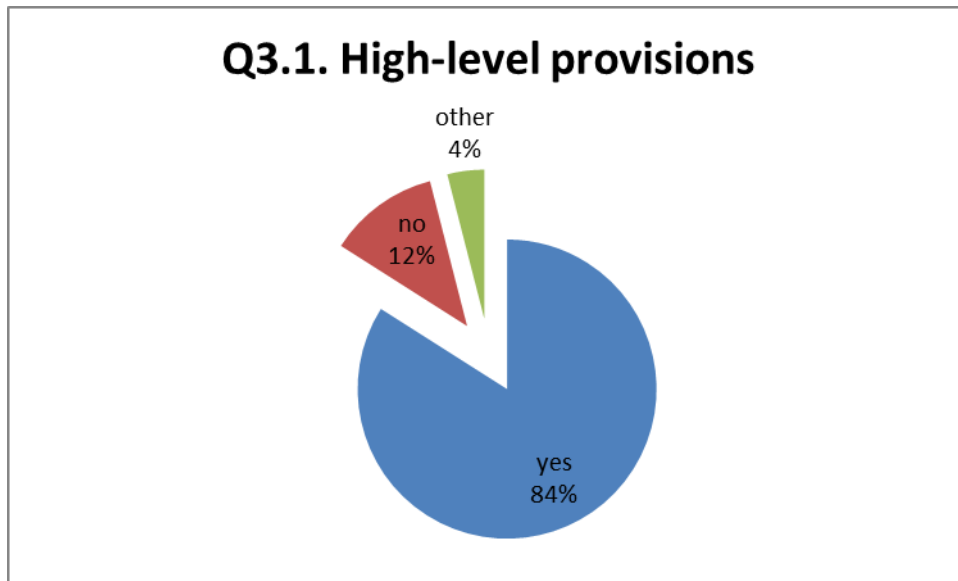


Figure 3.1

Following from the previous answers, the majority of respondents argued in favour of organising specific standards in complementary layers or documents (see figure 3.2). In particular, 20 respondents were in favour of the proposal of question 3.2 (80%), 3 did not show support (12%), and 2 respondents proposed alternative approaches (8%).

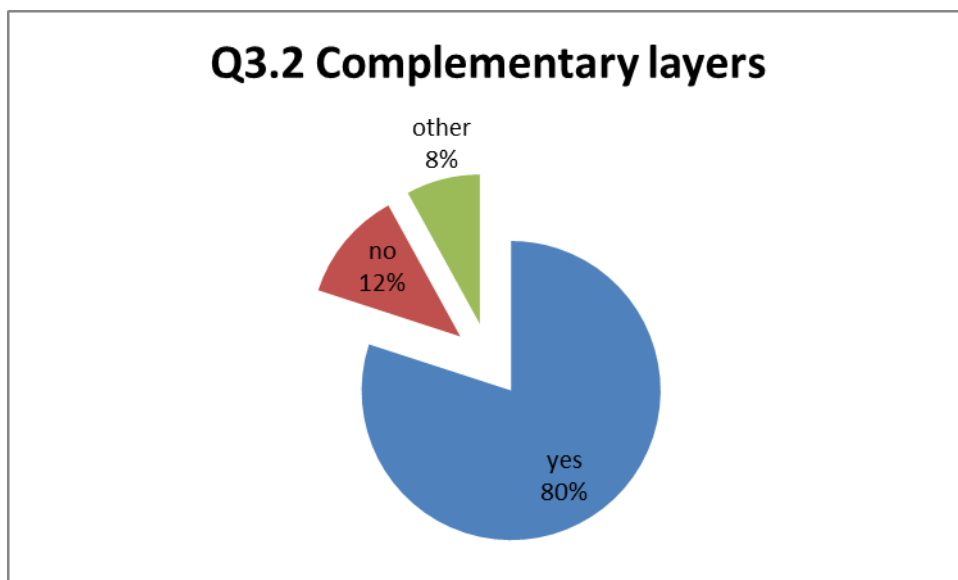


Figure 3.2

4.3.2 Positive answers

Most respondents did not elaborate further on this. A few arguments are however provided:

1. the Recommendation should include only a set of high-level standards that cover
 - a. legal standards;
 - b. architecture;
 - c. security;
 - d. audit and verification provisions.

2. A special body could be set up to supervise each of the layers;
3. Detailed recommendations mainly of operational and technical nature should be organized in separate, complementary layers or documents which can be revisited.

4.3.3 Negative answers and other arguments

1. One opinion agrees that the Recommendation needs to be restructured but disagrees with the envisaged reorganisation, implying that all existing provisions should remain in the Recommendation. However, a distinction should be operated between:
 - a. provisions that remain stable over time;
 - b. provisions that are general and apply to all types of e-voting considered;
 - c. provisions specific to e-voting in controlled environments and
 - d. provisions specific to e-voting in uncontrolled environments.
2. A similar opinion states that the Recommendation must not only be a legal text. It must also cover technical principles and include explanatory chapters. The respondent agrees with the distinction between the different types of requirements but insists that they all need to be kept in the Recommendation and its Appendices, thus preserving the unity of the text.

Underlying both previous and other opinions is the fear that standards which are pulled out of the Recommendation itself and put in lower-level instruments risk not being respected. However, it should be reminded that the Recommendation itself is not mandatory. Together with related Guidelines they are part of the soft law.

3. One alternative proposal states that it is wishful to have both high-level and detailed provisions in the Recommendation, but layered. If we go for a high-level Rec only, it would be difficult for the countries to "translate" them into concrete advice for their specific case.

It is unclear what, according to this opinion, prevents countries from looking at provisions contained in the lower level documents related to the Recommendation.

4. The second alternative proposal states that there is a need to organise the standards in multiple levels. This could be done within the same document or in different documents. High-level requirements should be stable. Low-level ones need frequent updates. It suggests a possible distinction between "mandatory" (higher level) and optional (lower levels) standards.

Despite being labelled as "other", this is a positive opinion. The proposed distinction is certainly not between mandatory and optional (the recommendation itself being only soft law and as thus optional) but between generally applicable provisions contained in the Recommendation and more specific ones contained in the related documents and applicable only to certain aspects or to a certain voting method for instance.

5. However, the same argument follows, it is necessary first to examine which level of detail is actually required for the new Recommendation. Additionally, outdateding can be avoided, even when aiming at a high level of detail, if reference is made to stable standards and techniques rather than to technology.

The proposal is actually to decide on the level of detail of the new Recommendation and the suggestion is to keep only high-level provisions in the Recommendation itself.

6. One opinion opposes to the proposed modification and maintains that the current Recommendation (and accompanying Memorandum) does not lack homogeneity and is very clear. This opinion argues that the current Recommendation is technology neutral and does not need regular updates. The risk with lower-level documents, this respondent says, is that updates would create a degree of uncertainty and unpredictability.

The opinion that the Recommendation is very clear is not shared. Indeed the opposite is considered to be the case, reason why the updating works have been undertaken as explained at the beginning of this document. Furthermore, introducing maintenance and updating policy to allow for the regular update of standards whenever necessary (following developments in the legal or technology fields or in our understanding of e-voting) is one of the objectives of the current work.

7. The same respondent holds that a "certified Common Criteria Protection Profile based on the technical Appendix III..." is what is needed. However, this is not appropriately done by the Council of Europe and should be left to a specialised organisation or group of organisations, such as the German "Bundesamt für Sicherheit in der Informationstechnik" or the French "Agence Nationale de la Sécurité des Systèmes d'Information".

To be able to build a Protection Profile based on the requirements of the Recommendation, these should be well expressed, complete and up-to-date. This is not the case today reason why an updating effort is undertaken.

4.4 Question 4 on the categories of requirements

Do you agree on a reorganisation of the Recommendation and classification in new categories which include functional requirements (what an e-voting system is required to do), performance requirements (how an e-voting system should do what it is required to do) and testing and evaluation criteria?

The current Recommendation distinguishes between legal, operational and technical standards. Past experiences and critique show that the distinction is not practical when building or evaluating e-voting systems.¹⁴

In line with previous criticism, suggestions and practical experiences, question 4 suggests that the standards could be organised under new categories which may include, for instance:

- functional requirements (what an e-voting system is required to do);
- performance requirements (how an e-voting system should do what it is required to do); and
- testing and evaluation criteria.

¹⁴ For an overview see critiques reported in our 2013 Report (see fn. 3 above)

Standards found both in the Recommendation and in the Guidelines would be taken into account during the organization process.

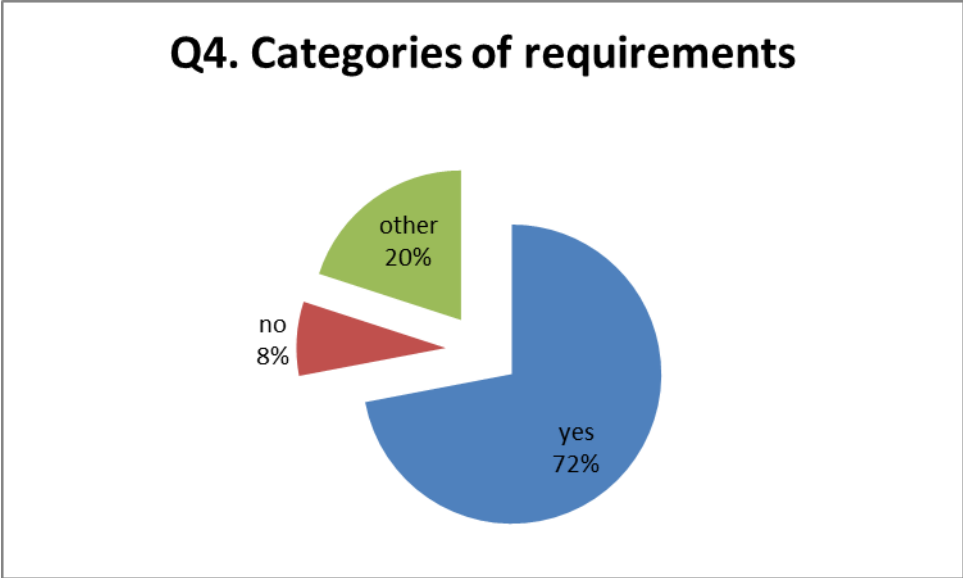


Figure 4

The great majority of respondents agree with such a proposal (see figure 4). 18 interviewees answered positively to it (72%), two answered negatively (8%) and five offered alternatives (20%).

4.4.1 Positive answers

The following arguments were presented:

1. Referring to their reply to question 3.1, a responded suggested that the mentioned types of standards could be read as follows:
 - a. provisions that are general and apply to all types of e-voting considered: this is what the system is required to do;
 - b. provisions specific to e-voting in controlled environments + provisions specific to e-voting in uncontrolled environments: this is how the system should do what it is required to do
 - c. add the considerations on security, especially for e-voting in uncontrolled environments.

It is unclear, for example, why it would not be possible to have generally applicable provisions on how an e-voting system should do what it is required to do. Or, in other words, why performance (how a system should do what it is required to do) should be only specific to different types of e-voting (as point b says).

Those who answered positively also introduced some caveats:

2. The need to keep the legal standards;

It should be stressed that what is considered here is not to introduce totally new requirements instead of the existing ones, but to organise and nest differently the existing

requirements. Legal standards should be kept - no doubt about it, but may be organised differently. One possibility is that they are integrated into the group of requirements that clarify what e-voting is required to do.

3. The need to keep in mind that functional and performance requirements can be quite different between various e-voting solutions. It might be useful to have a common part applicable to all e-votings and, separately, functional and performance requirements specific to each e-vote solution;

This will certainly be taken into account when doing the update.

4. That the reorganisation should bring clarity and contribute to uniformity among member States.

4.4.2 Negative answers and other arguments

Two respondents opposed to the proposed reorganisation.

1. The first agreed on modifications in case of lacunae, omissions and redundancies but held that any alternative classification, as the one proposed by the question, will be arbitrary and open to criticism.
2. The second opposition held that functional requirements cannot be included in the Recommendation because no one size fits all. Functional requirements furthermore reflect societal realities which are not included in the Recommendation either.

Four countries presented additional or alternative opinions.

3. One suggested, in addition to the proposed requirements, to emphasise the legal aspects of e-voting and to provide for clear priority rules applicable if a vote can be casted on more than one channel as well as to address the legal consequences of technical failure of a voting system;
4. Another opinion suggested keeping the current classification and extending it as follows:
 - a. legal: keep
 - b. operational: extended to include functional requirements and evaluation criteria
 - c. technical: extended to cover testing and performance requirements

The exact place of each requirement will be considered when doing the update. It is important to have a good nesting of higher-level and lower-level requirements so that they are easily understood and implemented.

5. One respondent says that the aim should be to have as few individual documents as possible for e-voting because of difficulties to update them.

The main objective of separating provisions in different layers (see question 3) is to facilitate the update of those provisions that need more frequent updates (to be found in lower / easier-to-update layers).

6. Another respondent agrees with restructuring, but proposes a different one including objectives (top level), principles and recommendations. In doing so the ambition is to facilitate mapping.

This can be interpreted as a positive reply. More explanation on the proposed structure is needed.

4.5 Question 5 on the notion of risk

Do you agree on the inclusion of the notions of risk and risk assessment in the updated (hard-core) Recommendation?

The current provisions of the Recommendation are formulated in absolute terms (e.g. the organisation of e-voting *shall* secure..., voters *shall* be able to...). A number of detailed requirements of Rec(2004)11 formulated in absolute terms are impossible to respect.¹⁵

Such impossibility is not specific to e-voting but also exists in other traditional voting methods. As an independent expert explains, requirements such as "it shall be impossible for an unauthorized person to cast a ballot" are not well-formulated, *impossible being a very strong word. Identical twins can be extremely difficult to distinguish, particularly if they have inherited adermatoglyphia (a lack of fingerprints).*

The question explores the possibility of considering the provisions to be included in the Recommendation from the perspective that 100% guarantees or 0% risks do not exist in the real world and even less so in an e-voting context.

This is already envisaged in the current Recommendation which does not say that e-voting should be totally reliable and secure but says that "e-voting shall be as reliable and secure as democratic elections and referendums which do not involve the use of electronic means" (recommendation i).

Paragraph 138 of the Explanatory Memorandum hints at the following interpretation: as reliable and secure as other voting methods means that, as for other voting channels, systematic attacks should be prevented. This is based on the assumption that systematic attacks have the potential to affect results.

Despite such intentions of the current Recommendation - which reflects reality and experience with other voting methods - several standards are formulated in absolute terms suggesting that an e-voting system may be able to offer absolute guarantees of 100% successful performance, security, etc. So recognising this and introducing the notion of risk and risk assessment would not be new elements but a clarification of existing provisions.

The question does not say how the notions of risk and risk assessment will be introduced.

A majority of respondents expressed support for the inclusion of the concept of risk and risk assessment (Figure 5). In particular, 18 respondents answered yes (72%), 5 respondents answered no (20%), while two respondents offered alternative approaches (8%).

¹⁵ For example, please refer to our report to the Council of Europe on a possible update of the Council of Europe Recommendation Rec(2004)11, November 2013 and references (see fn. 3 above)

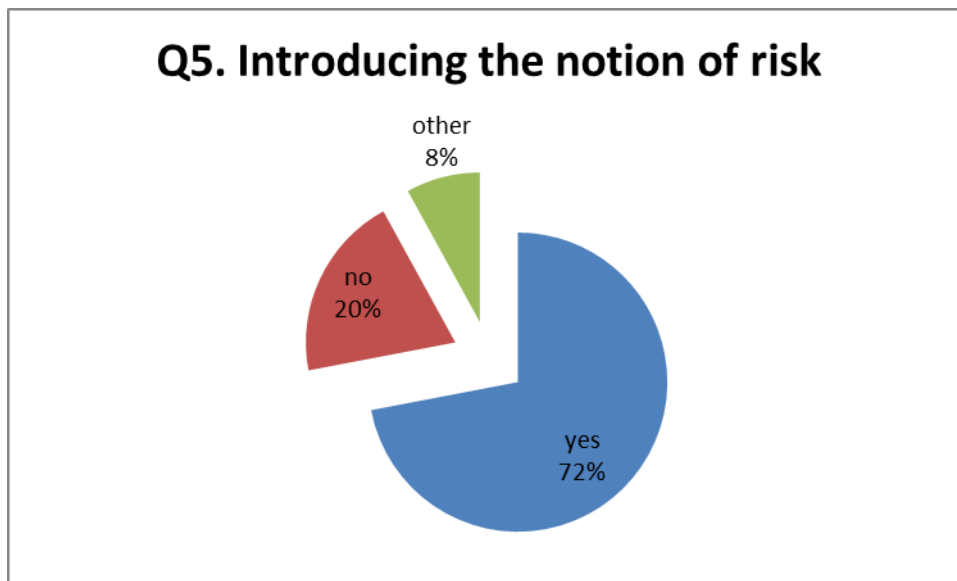


Figure 5

4.5.1 Positive answers and other arguments

Most respondents agreed on introducing the concepts of risks and risk assessment in the updated Recommendation (including the two who offered alternative approaches). However, respondents have different understandings of "risk", "risk assessment" and how to introduce them. Their arguments can be grouped as follows:

With reference to risks

1. the existence of so many potential risks means that it might prove difficult to agree on what to include;
2. a very generic wording making sure a proper risk assessment is being made and that it is made public can be envisaged;
3. if it is decided to shift towards a hierarchical/nested structure of the Recommendation, it is reasonable that a Risk Policy Layer is added;
4. different levels of risk management policies shall be developed and various types of risks addressed;
5. the updated Recommendation should include a list of potential risks identified by Council of Europe states that already use e-voting. Such a list needs to be updated often;
6. Criteria on procedures, methods and regularity of risk assessment should be part of "lower-level" recommendations that need more frequent updates and greater flexibility to take into account local specificities.

With reference to the level of risk

7. e-voting should as a minimum not pose higher risks to electoral integrity than paper voting;
8. distinguish between technically (in)acceptable risks and politically (in)acceptable risks.

With reference to risk assessment

9. Complete E2E testing and preliminary analysis of software code to be introduced as a risk-assessment procedure;
10. Refer to International IDEA's Election Risk Management (ERM) tool¹⁶;
11. Include risk assessment and management in every stage of project management. A risk assessment management which defines possible threats with respect to security, logistical and legal aspects. Develop risk management templates that assess different risk sources that affect e-voting and include them in the updated Recommendation;
12. the relationship between the system owner and the entity performing the risk assessment would be an issue;
13. Notions of risk should be based on experiences and not only on academic research.

4.5.2 Negative answers

Those who replied negatively to the question argued the following:

With reference to the formulation of provisions

1. Keep the absolute terms "shall secure... shall be able to..." as a mean to ensure security and transparency;
2. One argument explains that "shall" as used in laws expresses what is mandatory. At the same time it contests that in the Recommendation the use of "shall" means that the system should be able to fulfil this goal. The goal to be achieved is absolute alone. As an alternative, this opinion suggests the introduction of a Common Criteria Protection profile instead of the proposed solution;
3. Another respondent prefers to keep the Recommendation in absolute terms and point to compliance when evaluating.

With reference to the notion of the acceptable level of risk

4. Introducing permissible "acceptable" risk or error thresholds appears unacceptable and politically impossible to achieve. What is acceptable: 1%, 5%, 10%...?;

Alternative solutions

5. One respondent says that the Recommendation should instead focus on the responsibilities of EMBs and on ways to make sure that these responsibilities are respected as a risk minimisation technique;
6. Another opinion recognizes the importance of risk management, however does not deem it necessary to be included in the Recommendation.

No respondent truly opposes the notions of risk and risk assessment. Opinions diverge with respect to changing the language of the provisions (some would like to keep the absolute terms even if this means that total compliance will be impossible to achieve) or introducing thresholds of acceptable risk. There is a proposal to approach the problem not from the

¹⁶ IDEA ERM Tool, available at: <<http://www.idea.int/elections/ermtool/>> [Last accessed 07/10/2015]

perspective of risk but from the one of making sure that EMBs respect their responsibilities. Both alternative proposals agree with the notions of risk and risk assessment.

4.6 Question 6 on additional preliminary questions

Are there other questions which you think need to be decided beforehand?

Question 6 aims at identifying other potential issues that would need to be decided beforehand. Seven (7) respondents suggested considering the following issues:

Referring to security

1. in addition to the security of e-voting software, also examine the security of procedures and the security of supports
2. introduce internal controls of the system

Referring to certification

3. develop a Common Criteria Protection Profile based on the existing Recommendation and a formal certification procedure
4. include a description of procedures to obtain certification of electronic voting systems;
5. establish a certification body within the Council of Europe

Other proposals

6. inform on estimated costs regarding the use of e-voting (to be included in the explanatory note);
7. inform on the frequency of updates of complementary layers. According to the respondent, this may have an impact on the level of detail and specificity that they can contain and the scope they leave for local or temporal adoption.

These are discussed in the conclusions (chapter 5 below). One representative suggested that proposals for the update of the Recommendation be presented in a form that helps visualising options. This has been considered when drafting the proposals (see chapter 6).

4.7 Question 7 on expectations related to the update

What are your expectations in relation to the future update of Rec(2004)11 ?

Twenty (20) respondents expressed expectations related to the update of the Recommendation. Their answers have been considered here with a view to come up with a set of guiding principles for the update works of the Recommendation. They are summarized below:

Focus on key hard-core provisions

1. broad enough to include the different methods of e-voting, clear enough to provide a solid working basis;

2. bring to a higher level the e-voting standards set in the Recommendation by aligning them with the latest technical and legal developments in the field of e-voting;
3. contribute to uniform standards in national e-voting legislation of member states;
4. more concise, clear, inclusive, technology neutral and future proof recommendations;

A clear and well-structured Recommendation

5. more simple and clear the definitions;
6. improvement of structure allowing for a better interpretation of the individual recommendations;
7. no mix of high-level (objectives, principles) and low-level recommendations;
8. standards that do not seem important should be avoided to keep the document concise;

Practice oriented...

9. make the Recommendation more applicable;
10. a revised, legible text. Maintain the current attractive character and ease of use;
11. clear guidelines and clear responsibilities of all stakeholders;
12. guidance for EMBs to develop or evaluate their own processes of implementing new methods of casting a vote;
13. easy to apply for election officials, observers and e-voting equipment manufacturers;
14. no recommendations that are impossible to fulfil;

Enhancement, not rewriting of the current Recommendation

15. just an update of the existing Recommendation;
16. preserve and build on the existing e-voting standards;

Flexible standards

17. close attention to the details, especially in terms of flexibility and adaptability of certain parts of the Recommendation (digital authentication of persons, cryptography, increasing risks of cyber – attacks);
18. find a reasonable balance between the need for both high-level recommendations and detailed provisions or concrete examples. Without the latter the Recommendation will not be very useful. The challenge is to select viable enough details or concrete examples that do not need frequent updates;
19. future updates are easier to implement;

Sensitive to the political and social environment

20. introduction and use of new terms, such as trust (or confidence) and trustworthiness;
21. include risk management aspects;
22. stronger focus on information and communication policies;

Ambitious: broad geographical scope

23. offer guidance beyond the Council of Europe borders.

4.8 Question 8 on additional remarks

Do you have any other remark or suggestion?

Eight (8) respondents submitted additional remarks with one (Switzerland) making a quite detailed proposal for the organisation of the new recommendation. Respondents focused on:

Proposed novelties

1. include the advantages/disadvantages of using an e-voting system based on past experience;
2. address points that may expose voters exercising their right to vote from abroad via e-voting to considerable risk (namely in relation to the use of cryptography) ;
3. provide guidance on the issue of conflict of interest when introducing, operating and verifying e-solutions;
4. address the issue of identification and authentication of the voters (Online Voting) ;
5. recommend a phased approach when introducing e-voting;
6. recommend discussion with the major stakeholders ;
7. recommend information campaign, publicity, etc. ;
8. a neutral Recommendation when it comes to the introduction of e-voting;
9. a detailed proposal for a new structure (see Switzerland's reply to the last question) ;

Existing provisions

10. request not to destroy the existing Recommendation;
11. add a requirement in the Recommendation itself (*currently in the Guideline on transparency*) that the source code of election software (and hardware documentation as far as possible) should be made accessible in appropriate time before the elections at least to the participating parties/candidates (or even better to all to see) so that they may analyse this themselves in due time well ahead of the voting day.

These proposals should be revisited when updating the individual provisions.

5. CONCLUSIONS

5.1 Scope

Regarding the scope of the updated Recommendation, the replies on 1) definition of e-voting; 2) role of EMBs; and 5) risk policy can be assessed as follows.

5.1.1 Definition of e-voting

There is consensus on the following points:

1. A system that provides for "at least the casting of the vote" by electronic means, also does the e-counting of the e-votes collected. Such e-counting is already covered by the definition of e-voting of Rec(2004)11;
2. E-voting's definition can be extended to include, in addition to systems that provide for "at least the casting of the vote" by electronic means (i.e. e-voting machines and internet voting) also ballot scanners where the voter "casts" a paper ballot directly into the scanning device and may optionally receive direct feedback from the machine on who they voted for, for review or verification purposes. This is accepted by the great majority of "yes" and "no" respondents;
3. The scope of the Recommendation should not be extended to cover other e-enabled steps of the organisation of elections (e.g. electronic election administration systems, voter registration or identification systems). The link between the "use of electronics" and the "casting of the vote" is maintained;
4. The non-binding use of e-voting systems or their use outside political referendums and elections should continue to fall outside the scope of the Recommendation (e.g. e-collecting will be excluded).

This is in line with the objective of the current update which is for Rec(2004)11 to become more specific rather than more general.

A majority of respondents seems to exclude ballot scanners that operate outside the "voting", such as scanners used in precinct or central counting centres for counting purposes alone (i.e. there is no interaction voter-scanner), from the scope of e-voting as defined in the Recommendation.

Alternatively, according at least to one "no" respondent, such e-counting could be included but should be treated separately and the accent put on its specific challenges, namely the integrity of the tally and the related distribution of seats.

In all cases, the Recommendation should distinguish between provisions that are general to all e-voting methods considered and those that are specific to e-voting machines, ballot scanners, internet voting from an uncontrolled environment or internet voting from a controlled environment.

5.1.2 Role of EMBs

There seems to be consensus among respondents and independent experts that the role of e-voting vendors is a very serious problem which must be carefully thought out. One issue relates to the balance between the right of a vendor to have trade secrets and the public's right to a transparent election process.

The possible role of other public, semi-private or private entities like political parties, NGOs, individual observers etc. also needs special attention according to independent experts.

However it is also clear that the Recommendation should be shortened and become more concise rather than longer and more detailed.

The same problem can be approached from another angle: the role and responsibilities of the state authorities in charge of elections and referendums (or EMBs) when using e-voting.

Whether they are satisfied with the existing provisions of the Recommendation or whether they would like to stress the responsibility of EMBs - as proposed by a majority of 18 respondents - all opinions agree that the organisation of elections and referendums is the exclusive responsibility of the designated state authority and that this last one should have absolute control over all voting methods, including e-voting.

The majority of respondents who accepted to introduce a provision on the role of EMBs also suggested provisions on:

Identifying, selecting, controlling, vendors and clearly defining responsibilities

1. identify all aspects of an e-vote that are (will go) under the *effective control* (even partial) of private vendors/service providers;
2. introduce procedures for *selecting* vendors/service providers;
3. introduce procedures that the state authority should follow to *evaluate and approve the e-voting services* proposed by vendors/service providers;
4. clarify respective *roles and responsibilities during the implementation* phase;

Conducting external controls

5. stress the *importance of audits and other external controls* as proof of the effective exercise of their responsibility by EMBs;

Creating and/or strengthening internal capacities

6. clarify authorities' *ability to monitor technical issues* and hold their suppliers to account and
7. state the need for the authorities to continuously "*upgrade*" their capacities to keep real control on the e-vote;
8. state the aim of having authorities *gradually reduce outsourcing* by increasing internal capacities;

Introducing transparency

9. clarify *ownership of the source code* by the authorities;
10. clarify *disclosure of the source code* to ensure public control;

11. *independent evaluation* of e-voting systems

12. publish information on *evaluators* and *results* of evaluation.

It is clear that, given the national specific regulations on the organisation of elections, the Recommendation can only regulate the responsibility of authorities broadly. References to national legislation may need to be added.

5.1.3 Introducing the notion of risk

The proposed clarification of the notions of risk and risk assessment has the following objective: make sure that the provisions are implementable or feasible which is not always the case with the current Recommendation.

One respondent suggested that political parties in his country consider the introduction of e-voting as high risk and therefore prefer to move with caution.

It is important to clarify here that the discussion on the notion of risk as well as any other discussion in this report should not be interpreted as an encouragement to use e-voting. The Recommendation is neutral with respect to the introduction of this voting method and there are no indications that this may change. The aim here is to clarify, as much as this can be done at the regional level, the criteria for using e-voting so that the authorities can make informed decisions when required to do so.

Stating in the Recommendation that e-voting (as any other voting method) carries risks and underlying the need to introduce risk assessments when envisaging introducing e-voting would presumably contribute towards the adoption of better informed decisions.

It is clear that the Recommendation does not (and cannot) aim at introducing risk or error thresholds for the whole region.

Introducing the notions of risk and risk assessment means first of all to update the formulation of the provisions. The aim is to have provisions that can be implemented.

In a second step, it may imply - as suggested by the majority of respondents - introducing a list of "basic" threats that need to be addressed for each e-voting method and on which it may be possible to have consensus (an independent expert suggested for example that such threat could include the secure platform problem or not trusting one single server in the case of internet voting for instance). Such lists may be included in the lower-level related documents.

The Common Criteria Protection Profile need to be carefully thought out and should be discussed when updating the individual provisions.

However, it should be clarified here that the introduction of such a norm does not contradict the inclusion of notions of risk and risk assessment in the Recommendation.

The Common Criteria Protection Profile *typically specifies the Evaluation Assurance Level (EAL), a number 1 through 7, indicating the depth and rigor of the security evaluation, usually in the form of supporting documentation and testing, that a product meets the security requirements specified in the Protection Profile PP.*¹⁷ Obtaining the highest level of certification (EAL 7) for instance means, at best, that 100% of checks and controls foreseen for EAL7 were conducted successfully. This is certainly important and demonstrates that the

¹⁷ Protection Profile: <https://en.wikipedia.org/wiki/Protection_Profile> [Last accessed 07/10/2015]

system respects "state of the art" requirements. Unfortunately this does not mean that the system will be 100% secure when used in real life. In other words, successful certification is no guarantee of 100% security.

The same can be said with respect to end-to-end verifiability. It is also judged to be indispensable even if it does not guarantee the security of the system. It may guarantee that possible security-related problems will be detected. Such "problem-detection" guarantee does not exist in paper-based traditional voting methods.

The concepts of verifiability, certification, etc. as used in the Recommendation need to be updated in the light of the new understanding that we have of them.

Admitting that certification, verifiability, audits, etc. do contribute to having a "state-of-the-art" e-voting system but do not guarantee that such a system is 100% secure when used, means that risk remains present and should be dealt by updating the formulation of the provisions, maybe by introducing a risk assessment layer, by communicating, etc.

To build trust it is important to publish the identity of those who conduct the risk assessment as well as the results.

Keeping the actual "absolute" and "strong" formulation of some provisions as suggested by one respondent does not seem defensible as it means that the provision will continue to be impossible to fulfil. The underlying motivation of aiming towards a maximum of security, transparency, etc., is understandable and right. Clarifying the meaning of provisions and making sure that they can be implemented will presumably contribute to greater security.

5.2 Structure

5.2.1 Structure of the Recommendation

The structure of the future Recommendation is examined in questions 3.1 and 3.2. Question 3.1 proposes that the Recommendation contains only high-level provisions which are stable over time. Lower-level / detailed provisions should be included in related but lower-level and thus easier to update instruments, like the Guidelines according to question 3.2.

Those who agree with the proposals as well as those who present alternative opinions agree that it is necessary to restructure the Recommendation to distinguish between:

1. higher- vs. lower-level provisions
2. more "mandatory" vs. less "mandatory" provisions (although as mentioned the Recommendation itself is not mandatory but part of soft-law)
3. stable vs. need more frequent updates
4. general vs. specific (more detailed) provisions, and further
 - a. specific to controlled environments and
 - b. specific to uncontrolled environments.

Furthermore the mentioned categories overlap. Thus :

- higher level provisions are more "mandatory", general and stable

- lower level provisions are less "mandatory", as well as specific and need more frequent updates.

Whether such distinction is made within the same document or by putting some standards in separate documents needs to be thought out in the light mainly of the updating possibilities.

Fear of lesser respect for lower level, less mandatory provisions is understandable however one should remind that in general the Recommendation and the related documents are there to offer guidance and are not mandatory as such.

One argument in favour of splitting the requirements in different documents is to facilitate updates. More "mandatory", standards which are also rather general and more stable can go into the Recommendation itself which is a higher level document. Practice shows that the Recommendation cannot be changed often.

Less "mandatory" standards which happen to be more specific and to need more regular updates can go in lower level documents such as the existing Guidelines. Such lower-level documents complete the Recommendation. They are expected to be updated more easily and frequently than the Recommendation.

The relation between provisions found in higher and lower level documents is to be made clear so that those seeking guidance in the Recommendation for instance will also find reference to the complementary provisions contained in the related instruments.

Thought may be given to the proposal to leave the Recommendation unchanged and create a Common Criteria Protection Profile based on existing standards in Appendix III. This work is however, the respondent argues, better done outside the Council of Europe. We are not convinced that the Recommendation, as it stands, offers all information necessary to create such a profile. Indeed the update will help achieve this. Furthermore, it is not clear what impact such a profile will have in other countries, or how to generalize such impact.

5.2.2 Categories of requirements

A majority of independent experts and a majority of respondents agree with the proposal to regroup requirements as follows:

- (I) what a system is required to do (functional)
- (II) how it should meet the requirement (performance) and
- (III) how to test and evaluate that requirements are met (testing and evaluation criteria).

One reaction to the argument that any new classification is arbitrary is to say that the proposed structure stems from evaluation of past experiences and research. It appears to better respond to the needs of those who build e-voting systems and those who evaluate or control them.

The argument saying that functional requirements cannot be included as no size fits all is certainly based on a different understanding of the said functional requirements. It is understood that only functional requirements applicable throughout the region are to be included in the new Recommendation. Such requirements stem directly from legal principles applicable to e-voting. Other, country-specific functional requirements will not be included.

Thought could be given to alternative classifications and their respective advantages. The aim is to come up with a Recommendation which is easy to use by the authorities responsible for elections and referendums, by those who build or evaluate e-voting systems.

With reference to the stated objective of updating the Recommendation rather than re-writing it, the suggestion of keeping the current classification and extending it by putting functional requirements in Appendix I, performance requirements in Appendix II and testing and performance requirements in Appendix III is not very different from our proposal if it is admitted that a number of standards should be displaced from one appendix to another, in addition to other clarifications.

5.3 Further suggestions

The respondents proposed a number of additional preliminary questions to be examined on security, certification and other (see question 6 in chapter 4).

Such proposals are not really preliminary questions that need to be decided before the updating works but rather suggestions that will be taken into account when updating the individual provisions.

With respect to estimated costs of e-voting, there is no agreement on a method of calculation of e-voting costs. A common method for the calculation of costs needs to be agreed before any cost estimation can be suggested.

With respect to the frequency of updates of complementary layers, this cannot be estimated a priori. However, what is most important is not a fixed agenda of updates but rather the possibility of undertaking updates whenever deemed necessary. Whether there is need or not to update certain documents, this could be discussed at the biennial meetings.

The list of expectations related to the update and the list of other remarks (questions 7 and 8) are long ones which however do not require any decision for the time being. Expectations and suggestions by the countries should be revisited when updating the individual provisions.

6. PROPOSALS

Based on the analysis of the replies received, for each issue a number of options (solutions) are proposed below. They are submitted to the ad-hoc Committee for consideration and decision. Options that seem to better suit the majority of countries have been underlined (bordered blue).

6.1 Definition of e-voting

In terms of the definition of e-voting, it will have to be decided whether the definition remains unchanged or whether it is modified and how.

Proposals can be grouped in four categories:

(A) keep the current definition;

(B) extend it to include scanners used by voters to "cast" their paper vote. They record the vote and also do the counting;

(C) further extend it to include scanners used only for counting purposes in the voting precinct. In this case there is no interaction between the scanner and the voter;

(D) further extend it to include scanners used for counting purposes outside the voting precinct (e.g. in central counting centres).

B appears to be the most consensual solution. In this case the current definition is expanded to include scanners that record and count in electronic format paper ballots. Such scanners are used in voting precincts. To the extent that the voter enters (casts) her paper ballot in the machine, receives feedback from the machine and there is a paper trail available for possible recounts, these are not purely e-counting machines.

The other two solutions C and D include furthermore pure counting machines used in voting precincts (C) or in central counting centres (D). Such devices never enter in contact with the voter. Several respondents suggest that they are/may be regulated differently.

	Casting of electronic ballots	Electronically recording of paper ballots	Precinct counting (counting alone)	Centralized counting (counting alone)
A	✓			
B	✓	✓		
C	✓	✓	✓	
D	✓	✓	✓	✓

Figure 6

6.2 Responsibility of EMBs

A decision needs to be taken to add or not a broad provision reminding that the conduct of elections and referenda and thus responsibility over voting methods, including e-voting, stays with the EMB/state authority in charge of elections and referendums.

Following proposals are available:

- A. Current situation
- B. Introduce a broad provision reminding that the conduct of elections and referenda and thus responsibility over voting methods, including e-voting, stays with the EMB/state authority in charge of elections and referendums.
- C. In addition to introducing (B.) also add detailed provisions (possibly on a separate "layer") on identifying, selecting, controlling vendors, organizing external controls, issues of transparency, internal capacities, etc. (requires further discussion in the framework of the CAHVE)
- D. In addition to introducing (B.) also include a reference to national regulations (requires further discussion in the framework of the CAHVE)

	Current situation	Broad provision	Detailed regulation	Reference to national regulations
A	✓			
B		✓		
C		✓	✓	
D		✓		✓

Figure 7

Judging from the answers to the questionnaire, options B and probably D are the more consensual.

6.3 Notion of risk

With respect to risk, following choices are available:

- A. current situation;
- B. update the language of provisions;
- C. add a list of commonly accepted threats for each voting method.
- D. In addition, introduce transparency and communication measures.

	Current situation	Update the language of provisions	Introduce a list of main threats	Introduce transparency and communication measures
A	✓			
B		✓		
C		✓	✓	
D		✓	✓	✓

Figure 8

Options B and C seem to be the preferred ones.

6.4 Structure of the Recommendation

There is wide acceptance on the decision to distinguish, in the future Recommendation, requirements that are general to all e-voting forms from ones that are specific to e-voting in controlled vs. uncontrolled environments, and within these to categories, to different forms of e-voting (direct record electronic voting machines [with or without VVPAT], ballot scanners that record paper votes, internet voting from an uncontrolled computer, internet voting from a controlled computer) (controlled or uncontrolled by the state authority in charge of elections and referendums).

	Current situation	One document but layered	Multiple documents
A	✓		
B		✓	
C			✓

Figure 9

With respect to the structure of the future recommendation following choices are available:

- A. current situation
- B. one document (the Recommendation) but introduce layers

- C. put the main provisions in the Recommendations and the other ones in other, complementary documents, expected to be more easily updated.

The last option seems to receive a majority backing.

6.5 Categories of requirements

There is some choice between:

- A. the current situation
- B. regroup the existing standards in new categories:
 - a. What a system is required to do? (functional)
 - b. How the requirement is to be met? (performance)
 - c. How to test and evaluate conformity with requirements? (evaluation, testing)
- C. keep current appendices/classification and integrate new categories in the existing legal, operational and technical appendices (a mixture of solutions A and B).

	Current categories	New categories (a,b,c)	Mixture of A and B (keep current appendices and integrate new categories (B a,b,c) there
A	✓		
B		✓	
C			✓

Figure 10

B seems most consensual followed by C.

6.6 Other decisions

- A. Standards to be found both in the Recommendation itself and in the related Guidelines on Certification and Transparency are to be considered during the updating works; the future document/s (Recommendation and, possibly, additional related documents) will replace the current Recommendation and the current Guidelines on Certification and Transparency? Yes / No / Other
- B. Introduce a clause foreseeing the future update of the standards; standards both in the Recommendation and in the related documents need to be updated whenever necessary; decisions on the necessity and modalities of updates can be considered at the biannual review meetings? Yes / No / Other

ANNEX I: OVERVIEW OF RESULTS BY QUESTION¹⁸

Question 1: Definition of e-voting

Should e-voting be re-defined to include, in addition to electronic voting machines and internet voting, also ballot scanners?

Yes	No	Other
18	6	1

*n/a means no answer was provided

Question 2: Role of Electoral Management Bodies (EMB)

While leaving detailed definitions to the parts specifically dealing with issues such as transparency, auditing, verifiability, etc. would you agree to add a broad recommendation, reminding that the conduct of elections and referenda is the responsibility of EMBs/state authorities, in the revised Recommendation?

Yes	No	Other	n/a
18	2	4	1

Question 3/1: Structure of the future Recommendation

Do you agree with putting only high-level concise recommendations that are persistent over time in the Recommendation itself? The Recommendation would be stable.

Yes	No	Other
21	3	1

Question 3/2: Structure of the future Recommendation

Do you agree with organizing the other detailed recommendations in separate, complementary layers/documents (specific for e.g. to certification, auditing, verifiability...) that need to be regularly updated? It is understood that the relationship between high-level and detailed recommendations and their nesting will be made clear. It is understood that the different documents (Recommendation and complementary layers/documents) are interrelated and interdependent.

Yes	No	Other
20*	3	2

* the "yes and no" reply of CDDG C. has been considered a yes.

¹⁸ For Belgium 2 votes have been counted for each question given that both federal and region Brussels authorities replied to the questionnaire and most of their replies differ. For CDDG 3 votes have been counted for each question because they presented three different replies: A, B, C.

Question 4: Categories of requirements (recommendations)

Do you agree with a reorganization of the recommendations and classification in new categories which include functional requirements (what an e-voting system is required to do), performance requirements (how an e-voting system should do what it is required to do) and testing and evaluation criteria?

Yes	No	Other
18	2	5

Question 5: Risk policy

Do you agree with the inclusion of the notions of risk and risk assessment in the updated (hard core) Recommendation?

Yes	No	Other
18	5	2

Question 6: Are there other questions which you think need to be decided beforehand?

7 proposals

Question 7: What are your expectations in relation to the future update of Rec(2004)11?

20 expectations

Question 8: Do you have any other remark or suggestion?

8 suggestions

ANNEX II: OVERVIEW OF RESULTS BY RESPONDENT

Country	Q1	Q2	Q3/1	Q3/2	Q4	Q5	Q6	Q7	Q8
Armenia	yes	no	yes	yes	yes	yes	no	yes	no
Austria	yes	yes	yes	yes	yes	yes	n/a	n/a	n/a
Belgium (Federal State)	yes	yes	yes	yes	yes	yes	no	yes	no
Belgium (Brussels Reg)	no	no	no	no	yes	no	yes	yes	yes
Bulgaria	yes	other	yes	yes	yes	yes	no	yes	no
Croatia	yes	yes	yes	yes	yes	yes	yes	yes	yes
Czech Republic	yes	yes	yes	yes	yes	yes	n/a	n/a	n/a
Denmark	no	yes	yes	yes	no	no	no	yes	no
Estonia	yes	yes	yes	yes	yes	no	n/a	n/a	n/a
Finland	yes	yes	yes	yes	yes	yes	n/a	n/a	n/a
Georgia	yes	yes	yes	yes	yes	yes	no	yes	no
Greece	no	yes	yes	yes	yes	yes	n/a	n/a	n/a
Hungary	yes	yes	yes	yes	yes	yes	no	yes	yes
Lithuania	other	yes	yes	yes	other	other	n/a	yes	yes

Country	Q1	Q2	Q3/1	Q3/2	Q4	Q5	Q6	Q7	Q8
Malta	yes	yes	yes	yes	yes	yes	n/a	yes	yes
Russia	yes	Yes*	yes	yes	other	no	yes	yes	no
Spain	yes	other	yes	yes	yes	yes	no	yes	no
Sweden	yes	other	yes	other	other	other	yes	yes	n/a
Switzerland	yes	yes	other	other	other	yes	no	yes	yes
Turkey	yes	yes	yes	yes	yes	yes	n/a	yes	n/a

CDDG A.	no	yes	yes	yes	yes	yes	yes	yes	yes
CDDG B.	no	yes	no	no	no	no	yes	yes	yes
CDDG C.	no	n/a	no	yes*	yes	yes	no	yes	no
CDMSI	yes	yes	yes	yes	yes	yes	n/a	yes	n/a
International IDEA	yes	yes	yes	yes	yes	yes	yes	yes	n/a

*interpreted