

Updated European Standards for E-voting

The Council of Europe Recommendation Rec(2017)5 on Standards for E-voting

Ardita Driza Maurer^(✉)

Centre for Democracy Studies Aarau (ZDA),
University of Zurich, Zurich, Switzerland
ardita.drizamaurer@uzh.ch

Abstract. The Council of Europe is the only international organization to have issued recommendations on the regulation of the use of e-voting. The 2004 Recommendation to member States, Rec(2004)11 and the two 2010 Guidelines on certification and on transparency were recently repealed and replaced by Rec(2017)5 on Standards for e-voting and the associated Guidelines on its implementation. We discuss the 2017 Recommendation and the main novelties introduced by it. The Recommendation extends the definition of e-voting to include pure e-counting. It enlists 49 standards which set objectives that e-voting should fulfill to comply with the principles and conditions for democratic elections of the European electoral heritage. Detailed guidelines for the implementation of the objectives are collected in a lower level document, the Guidelines on the implementation of the provisions of Rec(2017)5. The guidelines are expected to be completed through further work. The main differences between the old and the new Council of Europe standards on e-voting are outlined. Correlations are illustrated. The expected use, impact and evolution of the Recommendation and Guidelines are briefly explained.

Keywords: Council of Europe · E-voting · Principles · Standards · Requirements · Recommendation Rec(2017)5 · (old) Recommendation Rec(2004)11

1 Introduction

Since the beginning of the Millennium e-voting has been a recurrent theme at the Council of Europe, both at the national and international levels.¹ Discussions and implementations of e-voting have taken place in several countries. Given the interest of

¹ The Council of Europe is an international organization established in 1949 by a number of like-minded European countries, to safeguard and realize the ideals and principles which are their common heritage, as stated in article 1 of the Statute of the Council of Europe (ETS 1). Today it includes 47 member States covering all European Union members as well as Albania, Andorra, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Iceland, Liechtenstein, Republic of Moldova, Monaco, Montenegro, Norway, Russian Federation, San Marino, Serbia, Switzerland, The former Yugoslav Republic of Macedonia, Turkey and Ukraine. Other countries with a “special guest” or “observer” status include Canada, Mexico, U.S., Holy See, Japan, countries in Central Asia etc.

member States, the Council of Europe has elaborated standards offering guidance to countries on how to regulate the use of e-voting. It has also provided a forum for regular discussion between national experts.² Standards have both influenced developments in member States and have been influenced by them [1, 2].

A first Recommendation elaborated by national experts was adopted on 30 September 2004 by the Committee of Ministers of the Council of Europe. *Recommendation Rec(2004)11 on legal, operational and technical standards for e-voting* included 112 standards and requirements. Two guidelines were approved at the 2010 biannual review meeting: *Guidelines on transparency of e-enabled elections* (16 provisions) and *Guidelines for developing processes that confirm compliance with prescribed requirements and standards in the region (Certification of e-voting systems)* (14 provisions). The guidelines were meant to provide a practical tool to facilitate the implementation of the 2004 Recommendation, in particular its paragraphs 20 to 23 (transparency) and 111, 112 (certification).

After discussions and a report on the need to update Rec(2004)11 and the associated guidelines [1],³ the Committee of Ministers set up in April 2015 an “Ad hoc committee of legal experts on legal, operational and technical standards for e-voting” (CAHVE) with the mandate to prepare a new 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 [3].⁴

The results of CAHVE’s work which took place between 2015 and 2016 are a new *Recommendation Rec(2017)5 on standards for e-voting* (49 provisions), its *Explanatory Memorandum*, as well as the *Guidelines on the implementation of the provisions of Recommendation Rec(2017)5 on standards for e-voting* [4–6].⁵ All three documents were approved by CAHVE in November 2016. On 14 June 2017 the Committee of Ministers adopted the new Recommendation Rec(2017)5 and took note of the other documents.⁶ At the same time it repealed the 2004 Recommendation and the 2010 guidelines on transparency and on certification.⁷

This article presents the new Rec(2017)5 and the main novelties that it introduces. We start by an overview of literature on the old standards, highlighting the main

² Biannual meetings to review the implementation of Rec(2004)11 have been organised by the Council of Europe. Meetings documents are available at <https://www.coe.int/en/web/electoral-assistance/e-voting>.

³ An informal meeting of experts on the question of the update was held in Vienna in December 2013, <https://www.coe.int/en/web/electoral-assistance/informal-meeting-of-experts-e-voting>.

⁴ The author of this article was appointed lead legal expert. She prepared a roadmap for the update and led the draft update of the Recommendation. Intermediary and final results were approved by CAHVE at its October 2015 and November 2016 meetings. More on <http://www.coe.int/en/web/electoral-assistance/e-voting>.

⁵ The guidelines also include examples of effective implementation of standards in specific contexts, called “good practice. Examples of good practice are included for information purposes.

⁶ The mandate of CAHVE foresaw an update of Rec(2004)11. However given its innovative character, it was decided that Rec(2017)5 and the associated Guidelines shall repeal and replace the old documents instead of simply modifying them (see § 27, Explanatory Memorandum).

⁷ <https://www.coe.int/en/web/electoral-assistance/-/council-of-europe-adopts-new-recommendation-on-standards-for-e-voting>.

suggestions for improvement made therein (Sect. 2). Next, we discuss the new Recommendation (Sect. 3). We start by clarifying the terms “principle”, “standard” and “requirement” used in the Recommendation and the associated documents. The bulk of this chapter discusses the new standards and highlights the main differences with Rec (2004)11. Most novelties are based on suggestions coming from literature. Finally we comment on the practical use of the standards; their influence on member States’ regulations; their future development (Sect. 4) and present some concluding remarks (Sect. 5). Apart from a quick overview of literature on the old recommendation (Sect. 2), the article mainly addresses documents of the Council of Europe, in particular those in relation to the update work of CAHVE.

2 Suggestions from Literature

Writings that focus on the Council of Europe e-voting standards, namely on the old Rec (2004)11 and associated guidelines, can be grouped in four categories.

The first category includes writings that examine the Rec(2004)11 itself and make proposals for improvement. The second category consists of evaluations of specific uses of e-voting in the region. Authors refer to Rec(2004)11 and to the associated guidelines as legal benchmarks and sometime identify weak points in these documents which they criticize and/or suggest improving. In the third category we include writings that focus on specific aspects of e-voting (often technical ones, but also social, etc.). When examining their topic or building new solutions, authors do refer to detailed requirements derived from legal principles. The ways in which such requirements are derived and their content are interesting from the perspective of updating the recommendation and the guidelines. Finally, a fourth category regroups the documents of experts working with the Council of Europe on the elaboration of standards on e-voting, mainly in the CAHVE group which prepared Rec(2017)5.

We do not aim here to list⁸ and discuss the writings in each category (for details on this see [1, 7]). Our point is to present an overview of suggestions to improve Rec (2004)11⁹ resulting from each category of writings (the four identified categories are as many different perspectives on the standards developed by the Council of Europe). To illustrate our purpose, we will refer to a few writings from each category.

The interest of presenting improvement suggestions from literature is that they were effectively considered by experts during the update and several are reflected in the new Rec(2017)5. Of the 250 provisions (proposed standards) that were considered by CAHVE, 142 came from the old Recommendation and the Guidelines; and around one

⁸ The Centre for Direct Democracy (ZDA) of the University of Zurich (iVoting project) has established and maintains a bibliography more specifically on internet voting covering all official reports in the field and academic production from a legal or social science perspective. It can be consulted at http://www.preferencematcher.com/edc/?page_id=338 (follow the link to the latest version).

⁹ A detailed list of proposals for improvement, including those coming from academic research, was considered by CAHVE experts during the updating work in 2015-2016 (see next paragraph and footnote).

hundred came from literature, namely from technical publications (third category) and OSCE/ODIHR evaluations of e-voting implementations in the region (second category).¹⁰ Not all suggestions from literature are “original” or “unique”. There are much repetitions, redundancies, etc. in between them. Consolidation was necessary before their integration in the Rec(2017)5 could be considered and eventually decided by CAHVE.

Writings that examine the merits of the standards of Rec(2004)11 (first category) are not numerous. Rec(2004)11’s approach of thinking e-voting “by analogy” with paper-based channels is criticized [7, 8]. One of the reasons is that different voting channels face different types of risk and this should also be reflected in the respective regulations. Another conclusion is that it is important to distinguish between issues of public policy and issues of technical implementation. A certain number of issues, for instance whether to opt for absolute or relative secrecy, are to be decided (and regulated) as a matter of public policy not of voting technology (alone).

Some writings examine Rec(2004)11 standards from the perspective of evaluation/certification against standards [9] and highlight its many flaws related to consistency, completeness and scope, over-/under-specification, redundancy, maintainability, extensibility. A restructuring is proposed with operational and technical requirements grouped under each of the five rights (principles) identified in appendix I of Rec(2004)11. Others propose a restructuring in the form of a merger of the high-level recommendations of Rec(2004)11 with the detailed standards of US Voluntary Voting System Guidelines (VVSG)¹¹ to obtain a document useful for system certification purposes [10]. This group’s main input could be summarized as the need for well-structured standards and the need for coherency and consistency within the Recommendation and between it and the associated documents. As for their other proposal, of having a Recommendation against which to evaluate and certify e-voting systems, we will see below (in 3.1 and 4.1) whether the Recommendation can, alone, become such a legal benchmark, or not.

Some writings evaluate specific implementations of e-voting in the region against the Council of Europe standards (Rec(2004)11 and the associated guidelines)(second category of writings). When doing so, authors identify a number of problems with Rec (2004)11 itself. For instance, several standards included in Rec(2004)11 are too detailed to be applied to all kinds of e-voting (as the Recommendation aims to). The need for trade-offs between standards is ignored by Rec(2004)11. Also, the lack of consideration for national provisions and the perceived pretention of the Recommendation to cover a maximum of situations is criticized. One document in particular crystallizes these empirical findings, the 2012 IFES (Barrat, Goldsmith) evaluation of the Norwegian internet voting system’s conformity with international standards [11]. Here, the general conclusion is that when it comes to a specific implementation of

¹⁰ This working document has not been published but can be obtained from the Council of Europe. The small group of experts that compiled the list, consolidated it and finally produced the draft of the new Recommendation and Guidelines included A. Driza Maurer (lead), J. Barrat, R. Krimmer, M. Volkamer and S. Neumann.

¹¹ <https://www.eac.gov/voting-equipment/voluntary-voting-system-guidelines/>.

e-voting, a better interweaving between international standards and national regulations is necessary. The former are by definition higher level and less detailed than the latter.

The third category of writings includes technical writings which present solutions for e-voting or its evaluation, or which evaluate such solutions. Solutions and evaluations should respect legal principles (such as universal, equal, free and secret elections) which stem from international treaties and national constitutions. However, principles are too abstract for this purpose and need to be spelled out or “translated” into detailed requirements. So, these writings usually start by identifying a number of detailed requirements, for instance security ones, based on which they build their systems/evaluation work. Although they do not necessarily refer to the standards of Rec(2004)11, the methods used to derive detailed technical requirements from general and broad legal principles are of interest also from the perspective of restructuring and updating the Recommendation and the associated guidelines. Instead of many, consider the contribution from Neumann and Volkamer (and references) [12] in which they derive technical requirements from constitutional provisions and propose metrics to estimate the fulfillment of these requirements within concrete voting systems.

Suggestions and conclusions of experts working on the update of the standards (fourth category of documents) will be referred to throughout the following chapters.

All above-mentioned writings have one common feature: they directly or indirectly advocate an update of Rec(2004)11 and provide indications of the direction to be taken. These suggestions were considered and eventually reflected in Rec(2017)5 and the associated guidelines, as we will see below.

3 Council of Europe Rec(2017)5 on Standards for E-Voting

3.1 Principles, Standards, Requirements

The terms “principles”, “standards” and “requirements” are all mentioned in Rec(2017)5. What is their meaning and what’s the relationship between them?

Rec(2017)5 recommends the governments of member States to respect all the *principles* of democratic elections and referendums in their legislation and practice of e-voting. It also recommends them to be guided in their legislation, policies and practice by the *standards* included in the Appendix I to Rec(2017)5. And it says that the interconnection between the abovementioned standards and those included in the accompanying Guidelines should be taken into account. Finally standard 36, Appendix I, says that member States shall develop technical, evaluation and certification *requirements* and shall ascertain that they fully reflect the relevant legal and democratic principles.

“Principles” refers to high level electoral principles to be found in universal instruments such as art. 21 of the Universal Declaration of Human Rights and art. 25 section b of the International Covenant on Civil and Political Rights (periodic, universal, equal, secret, free elections) as well as in European (regional) instruments such as art.3 of Protocol I to the European Convention on Human Rights which foresees free, periodic and secret elections (universal and equal suffrage are also included

according to the European Court of Human Rights)¹² (see also §5, Explanatory Memorandum). The preamble of Rec(2017)5 mentions obligations and commitments undertaken by the member states within a number of treaties and conventions¹³, however the list is not exhaustive.¹⁴ At the national level, the same principles defined in the same way, or more largely, as well as additional principles are found in the national constitution, and maybe also in the formal law (i.e. law adopted by the highest legislative authority, usually the Parliament and, in certain countries like Switzerland, also subject to a popular vote). An example of an additional principle which only exists at the national level is “the public nature of elections” in Germany [13]. In some federal countries, where the sub-state entity has some degree of autonomy in electoral matters, the same principles or even additional, local ones, are to be found in the respective documents (e.g. in cantonal constitutions in Switzerland or State laws in the U.S.). For a detailed account of regulatory frameworks of e-voting in 13 countries (Germany, Austria, Brazil, India, Estonia, France, Argentina, Finland, Mexico, Switzerland, United States, Australia and Venezuela) see the respective chapters in [14].

The Council of Europe’s core mission is to safeguard and realize the principles which are common heritage of its member States (art. 1 of its Statute), including principles for democratic elections. Principles which are common heritage are also referred to as the European constitutional heritage. Part of it is the so-called European electoral heritage. Principles of the European electoral heritage (which stem from various instruments) have been identified and collected in a document adopted in 2002: the Code of Good Practice in Electoral Matters [15] of the European Commission for Democracy through Law (Venice Commission). Although non-binding, the Code is the reference document of the Council of Europe when it comes to higher level principles for democratic elections.

The Code identifies the following elements: universal, equal, free, secret, direct suffrage; frequency of elections, respect for fundamental rights, regulatory levels and stability of electoral law, procedural safeguards (organisation of elections by an impartial body, observation of elections, an effective system of appeal, organisation and

¹² See e.g. the ECtHR judgment of 2 March 1987, *Mathieu-Mohin and Clerfayt*, series A 113, § 54.

¹³ The International Covenant on Civil and Political Rights (ICCPR) (1966), the United Nations Convention on the Elimination of All Forms of Racial Discrimination (ICERD) (1966), the United Nations Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) (1979), the United Nations Convention on the Rights of Persons with Disabilities (CRPD) (2006), the United Nations Convention against Corruption (UNCAC) (2003), the Convention for the Protection of Human Rights and Fundamental Freedoms (CEDH) (1950), in particular its Protocol No.1 (CEDH-P1) (1952), the European Charter of Local Self-Government (ETS No. 122), the Convention on Cybercrime (ETS No. 185), the Convention for the Protection of Individuals with Regard to Automatic Processing of Personal Data (ETS No. 108), the Additional Protocol to the Convention for the Protection of Individuals with Regard to Automated Processing of Personal Data regarding supervisory authorities and transborder data flows (ETS No.181) and the Convention on the Standards of Democratic Elections, Electoral Rights and Freedoms in the Member States of the Commonwealth of Independent States (CDL-EL(2006)031rev).

¹⁴ One could add the Convention on the Political Rights of Women (CPRW) (1952), the International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families (ICRMW) (1990), the Convention concerning Indigenous and Tribal Peoples in Independent Countries, ILO C169 (1989), the UN Convention against Corruption (UNCAC) (2003).

operation of polling stations, funding, and security). The Recommendation follows the same structure (see also §§ 13 and 14 Explanatory Memorandum). However, not all principles call for special attention when implementing e-voting. The standards in Rec (2017)⁵ address only those matters (principles and conditions for implementing them) that require specific measures to be taken when e-voting is introduced (§ 15 Explanatory Memorandum).

“Legal standards” refers to provisions contained in the Appendix I to the Rec(2017) 5 (Appendix II, Glossary of terms, under “standard”). The Recommendation contains legal standards on e-voting which set objectives that e-voting shall fulfill to conform to the principles of democratic elections. The aim is to harmonize the implementation of the principles when e-voting is used in member States. Standards are common to the Council of Europe region. Unless specific mention, standards apply to all forms of e-voting. Standards which are specific only to one or to some forms do mention this (§§ 4, 5, 7, 8, 28 Explanatory Memorandum).

Legal standards are to be distinguished from “technical standards” which refer to a technical norm, usually in the form of a formal document that establishes uniform engineering or technical criteria, methods, processes and practice (Appendix II, Glossary of terms). The Recommendation and the associated Guidelines deal with legal standards.

The specificity of the Guidelines is that they offer instructions on the implementation of the standards. They are less “binding”¹⁵ than the Recommendation and are expected to evolve rapidly over time (§26 Explanatory Memorandum) to reflect changes in law and technology. Also, the present (June 2017) version of the Guidelines needs to be completed through further work to address all forms and all aspects of e-voting covered by the new Recommendation.

“Requirement” is defined in the Recommendation (Appendix II) as a singular, documented need of what a particular product or service should be or perform. Standard 36 (Appendix I) says that it’s up to member States to develop technical, evaluation and certification requirements. Member States shall furthermore ascertain that requirements fully reflect relevant legal principles and shall keep the requirements up-to-date.

Requirements for a specific e-voting solution to be used in a given context, must be defined with respect to that specific solution and context. They must be derived from the international, national and, as the case may be, local legal principles applicable. So, by definition, e-voting detailed requirements cannot be decided in an international document like the Recommendation which is supposed to cover many different uses of e-voting in all 47 member States.

The hierarchy between principles (top), standards (middle) and requirements (bottom of the pyramid) reflects the hierarchy of the respective instruments from where they stem: international conventions/treaties, national constitution and formal law (top) –

¹⁵ The Recommendation has no binding force *per se*. However it has an important influence and may even acquire binding effect, in certain cases (see Sect. 4.2 below).

international recommendations/soft law¹⁶, national material law (middle) – lower level regulations (bottom). The hierarchy means conformity with the higher level.

3.2 Main Features and Novelties of Rec(2017)5

New definition and broader scope of e-voting. E-voting was until recently defined in two different ways by the two main international organisations active in the electoral field in the region. Rec(2004)11 of the Council of Europe defined e-voting as the *casting* of the vote through electronic means. OSCE/ODIHR, the international organization on observation of elections in the region, understands e-voting as the use of information and communication technologies (ICT) applied to *the casting and counting* of votes [16].

The new Rec(2017)5 defines e-voting as *the use of electronic means to cast and/or count the vote* (Appendix II, Glossary of terms) (see also §8 Explanatory Memorandum) thus including also the electronic scanning and counting of paper ballots. As a result, both organizations now share a common understanding of e-voting which contributes to a better understanding of the standards applicable to it in the region.

Some experts feared that by broadening the scope of e-voting to include pure e-counting of paper ballots, the Recommendation would become less sharp or less relevant. CAHVE was willing to take this risk, given the importance of raising awareness on the regulation of the use of ICT to vote and/or to count votes.

Recommendations. The Committee of Ministers took three decision (points I, II, III at the end of the preamble of Rec(2017)5). It decided (point I) to issue six recommendations (i to vi) to governments of members States that introduce, revise or update as the case may be, domestic legislation and practice in the field of e-voting (I). The Committee recommends (i) to respect all the principles of democratic elections and referendums when introducing e-voting; (ii) to assess and counter risks by appropriate measures; (iii) to be guided in their legislation, policies and practice by the standards included in Appendix I and to consider those included in the Guidelines; (iv) to review their policy and experience of e-voting and to provide the Council of Europe with a basis for holding review meetings at least every two years following its adoption. Governments are further invited (v) to share their experience in this field as well as (vi) to translate and disseminate as widely as possible the new recommendation more

¹⁶ Soft-law documents include political commitments, comments to treaty/convention provisions, recommendations, good practices, etc. Examples are the comments to art.25 ICCPR, the Council of Europe recommendations or the Venice Commission's Codes of good practice. The preamble of Rec(2017)5 refers to a number of soft law instruments (the list is not exhaustive): Recommendation No. R (99) 5 of the Committee of Ministers to member States on the protection of privacy on the Internet; Recommendation Rec(2004)15 of the Committee of Ministers to member States on electronic governance; Recommendation CM/Rec(2009)1 of the Committee of Ministers to member States on electronic democracy; the document of the Copenhagen Meeting of the Conference on the Human Dimension of the OSCE; the Code of Good Practice in Electoral Matters, adopted by the Council for democratic elections of the Council of Europe and the European Commission for Democracy through Law and supported by the Parliamentary Assembly, the Congress of Local and Regional Authorities and the Committee of Ministers of the Council of Europe.

specifically among electoral management bodies, citizens, political parties, observers, NGOs, academia, providers of solutions and e-voting controlling bodies.

The other decisions were to regularly update the provisions of the Guidelines that accompany the Recommendation (point II) and to repeal the old Recommendation (2004)¹¹ and the Guidelines thereto (point III).

Novelties. All the following new elements were discussed and decided by CAHVE during the update [17].

Recommendation i maintains that e-voting should respect all the principles of democratic elections and referendums but drops the previous comparison that it should be “*as reliable and secure as*” other (paper based) methods. The interpretation of this comparison proved problematic in the past [7]. Furthermore the benchmark is respect for all principles of democratic elections and referendums. So standards should be derived directly from the applicable principles.

Recommendation ii stresses the need to assess risks, namely those specific to e-voting and to adopt appropriate measures to counter them.

According to recommendation iii, whereas the Recommendation is intended to provide a stable framework, Guidelines are meant to be updated on a regular basis (a novelty decided by the Committee of Ministers in point II). The relationship between standards included in Appendix I and those in the Guidelines which implement them is underlined – which is also new.

Recommendation iv introduces a review policy for the Recommendation which is based on the previous practice of biannual meetings, which however had no clear basis in the Rec(2004)¹¹ given that the (2004) rec. v foresaw (only) one (first) review meeting *within two years after the adoption* of Rec(2004)¹¹.¹⁷ The present Recommendation clarifies that review meetings are to be held *at least every two years following its adoption*. The update of the Guidelines, among others, will be considered and decided by member States at the periodic review meetings (§12 Explanatory Memorandum).

Recommendation vi encourages translation and dissemination policies. Such provision is recently automatically included in all Council of Europe recommendations.

Standards and Guidelines. The old standards included 142 provisions (112 in Rec (2004)¹¹ and 30 in the associated guidelines). The new standards include 143 provisions (49 in Rec(2017)⁵ and 94 in the associated Guidelines). It is foreseen that the new Guidelines should be completed, i.e. expanded (§12 Explanatory Memorandum). By looking at the figures alone (142 and 143) one could say that, so far, things have not changed very much. This is not so. The structure of the old and new documents, the type and content of standards, the relations between them, all have changed. The new 143 standards are different from the old 142 ones. Several are totally new. The table

¹⁷ Rec. v Rec(2004)¹¹ read as follows: «in order to provide the Council of Europe with a basis for possible further action on e-voting within two years after the adoption of this Recommendation, the Committee of Ministers recommends that». In French “...afin de fournir au Conseil de l’Europe une base à partir de laquelle il pourra élaborer les actions futures en matière de vote électronique dans les deux ans après l’adoption de cette recommandation, le Comité des Ministres recommande que...».

appended at the end of this paper illustrates some of the changes, namely “what happened” to the 112 standards of Rec(2004)11.

Novelties. Since the beginning of the updating process it was decided that the new Recommendation should be homogenous, as opposed to the old one which contained a mixture of higher and lower level standards [17]. The new Rec(2017) includes only higher level, stable standards. Guidelines are grouped under the corresponding standard in the Guidelines. Besides their detailed nature, the reason for putting the guidelines in a separate document is that they are supposed to evolve frequently to take stock of legal and technical developments. As an instrument, the Guidelines are more easily and quickly reviewed than the Recommendation, which is a more rigid and stable document.

Now, there is a clear interweaving between higher principles and conditions for implementing them (identified by the Code of good practice and reflected as headings in Appendix I of Rec(2017)5), standards (derived from the principles and included in the Appendix I) and implementation guidelines of the standards (in the Guidelines).

For instance, to ensure compliance with the principle of universal suffrage as defined in the Code (see also §14 Explanatory Memorandum), the following objectives must be met: an e-voting system shall be easy to understand and use by all voters (1); shall be designed, as far as practicable, to enable voters with special needs and the disabled to vote independently (2); in case of remote e-voting, this channel shall be only a complementary and optional one unless and until it is universally accessible (3); and, in case of remote e-voting again, voters’ attention shall be drawn as to the validity of their e-vote (4). To streamline the implementation of standard 1 (interface easy to understand and use), the following guidelines are proposed: the presentation of the voting options on the devices used by voters should be optimized for the average voter who does not have specialized computer knowledge (a); voters should be involved in the design of the e-voting system (b); consideration should be given to the compatibility of new products with existing ones (c). And so on with the other principles, standards and guidelines.

Several new standards have been included in the Recommendation. They were previously in the guidelines or suggested by research. Their inclusion translates regional consensus on these new objectives that e-voting must fulfil to conform to the principles. Prominent examples are standards 15, 17 and 18 which introduce individual and universal verifiability; standard 20 on data minimisation; standard 29 which stipulates that the responsibilities of the electoral management body with respect to e-voting should be clarified in the relevant regulation and that this one should foresee that the EMB has the control over e-voting systems; standard 36 which says that member States develop technical, evaluation and certification requirements, that they ascertain that requirements fully reflect relevant legal principles and that they keep requirements up to date; or standard 40 which says that the electoral management body shall be responsible for the respect and enforcement of all requirements even in the presence of failures and attacks.

Many other provisions, initially inherited from the old standards were reviewed, corrected, clarified (see also [18]). Examples include standard 9 which now takes into account the multiple voting possibility (see criticism of the previous standard in [11]) or standard 23 which takes into account the verifiability proofs.

4 Use, Impact and Evolution of Rec(2017)5

4.1 Use of Rec(2017)5

International, national and local regulatory instruments of e-voting. The adoption of the old Rec(2004)11 was preceded by a Venice Commission report on the compatibility of remote voting and electronic voting with the standards of the Council of Europe [19].¹⁸ The report notes that electronic voting is neither generally permitted by human rights nor ruled out a priori. Instead, its acceptability depends on the standards implemented in the procedure. The report concludes that e-voting's compatibility depends primarily on adequate provision, through national legislation and legal practice, of the prescribed conditions, taking particular account of technical and social conditions.

This remains true and illustrates the importance of a good regulatory framework for e-voting. International standards are only one part of it. Additionally, national and, as the case may be, local regulations apply to the of e-voting in a specific case. The challenge is to have a coherent corpus of international-national-local regulations. While Rec(2017)5 contributes to clarifying the international standards, work is still necessary at the national level (in most cases). Yet, as shown by several authors in this conference and elsewhere (examples include [14, 20–22]) the national legislator faces several difficulties and dilemmas when regulating e-voting.

By clarifying the application of European principles of democratic elections to e-voting, Rec(2017)5 clarifies the corpus of international regulations that apply to e-voting. The work of CAHVE to update the European standards to take stock of experiences and developments in the technical and legal fields, followed a clear, previously agreed strategy. It can serve as an example to the national legislator too. The challenges and ambitions are similar. Furthermore the national legislator should (according to rec.iii) build upon the Council of Europe documents and does not need to start to regulate e-voting from scratch.

What about national legal specificities? The Recommendation recognizes that countries may have additional principles. They may make a stricter or broader interpretation of the European principles and standards. There may be exceptions and restrictions or the need to apply one principle in a stricter way and another one in a looser way, etc. At the end, such decisions are to be taken by the national authority. However, some basic conditions should be respected. Such decisions should be taken by the competent authority. They are based on law, are in the general interest, respect proportionality, etc. The overall aim of democratic elections should be respected (see also §18 Explanatory Memorandum).

¹⁸ The word “standards” in the title of this Venice Commission report from 2004 corresponds to the concept “principles” as defined in this paper and as referred to in Rec(2017)5. This inconsistency illustrates the fact that e-voting challenges legal regulations among others because it requires a very well structured and coherent body of regulations, including terminology, which of course is far from being the case.

Rec(2017)5 and certification of e-voting solutions. Compliance with the European standards alone does not guarantee the democratic quality of a specific e-election. National (and, as the case may be, local) principles apply to the use of e-voting in a specific context. Detailed requirements should be derived from all applicable principles, including national and local ones. This task, as well as ensuring that such requirements comply with higher principles and are up-to-date, fall on member States (standard 36). It follows that detailed requirements for a specific use of e-voting cannot logically be put in a document like the Recommendation which ambitions to cover all kinds of e-voting in all 47 member States (see also Sect. 3.1 above).

Detailed requirements are necessary in order to evaluate and certify a specific e-voting system to be used in a given election. It follows that such certification cannot be done against the standards included in the Recommendation alone. Whether it is possible and whether it makes sense to have a “partial certification” against the European standards alone is another question which is not discussed in the Recommendation.

4.2 Impact of the Recommendation

As a soft-law instrument (not binding by definition), the Recommendation has however an important influence on member States and may even become binding, in certain circumstances. This is briefly explained below (for more details see [23]).

Influence. As a legal instrument, a recommendation indicates unanimous agreement regarding the measures contained in it. According to articles 15 (§a and b) and 20 of the Council of Europe Statutes, a recommendation requires the unanimous vote of the representatives casting a vote and the presence of a majority of the representatives entitled to sit on the Committee. So Rec(2017)5 contains unanimously accepted interpretations of the principles on democratic elections as applied to e-voting and this in the whole region and for all kinds of e- elections.

According to [19] where the contracting States share a common or homogenous standard on a question related to the ECHR’s guarantees, this tends to favour acceptance of this standard at European level as well. Where it is impossible to identify a common point of view among the various member States, national authorities have greater scope for discretion. This gives the standards in the Recommendation a clear advantage. This also explains why they are used as legal benchmark for evaluating e-voting by observers [16].

Furthermore, as foreseen in the Council of Europe Statue, Rec(2017)5 recommends that governments keep under review their policy on e-voting and experience of it (rec. iv). They are encouraged to share their experience in this field (rec. v) and to translate and disseminate it (rec. vi). All this helps increase acceptance of the Recommendation.

Possible binding character. Soft law instruments reflect common agreement on the interpretation of conventional principles. In the Council of Europe region, the European Court of Human Rights (ECtHR), which rules on alleged violations of the rights set out in the ECHR, including of the right to free elections by secret ballot (P1-3), adopts a dynamic interpretation of the rights and freedoms granted by the Convention. With the aim to ensure the effectiveness of rights, the Court considers the Convention as being a

living instrument which must be interpreted in the light of present-day conditions.¹⁹ In practice, this means that the Court makes a dynamic interpretation of the Convention: in interpreting the principles in the light of present conditions, the Court seeks guidance (some say legitimacy) in the common trends of legal and social developments in the region. In the electoral field, Venice Commission's Code of Good practice in electoral matters is regularly referred to by the Court. This may be the case, in the future, with Rec(2017)5. When included in a Court judgment (binding on member states) the referenced soft law provision becomes binding.

4.3 Future Work on E-voting at the Council of Europe

The new Recommendation foresees periodical review meetings at least every two years and introduces a review mechanism for the Guidelines. These new elements were strongly supported by national experts at CAHVE.

The Recommendation provides precious guidance to member States. However it only includes a set of minimum standards applicable throughout the region. Countries can and actually do more, going beyond the minimum European standard, namely to reflect their specific traditions and needs. At some point, there may be a broader, regional consensus, on new standards. Such novelty will probably be reflected in (a new version of) the recommendation.

For instance, the old Guidelines on transparency suggested that countries experiment verifiability techniques which allow for more transparency. However the old Recommendation had no provisions on verifiability. A few years later, almost all countries that were using e-voting (both remote internet voting and e-voting on voting machines at polling stations) introduced mandatory regulations requiring certain verifiability tools (individual and/or universal verifiability tools) as a precondition for allowing e-voting.²⁰ The new Rec(2017)5 now has integrated such consensus and recommends the introduction of verifiability tools to create a chain of trust (provisions §15 - §18) in the text of the recommendation itself.

It is the task of the review meetings to monitor such developments and decide as the case may be to update the Guidelines. A possible decision, at some later point, to update the Recommendation will require the preliminary approval of the Committee of Ministers.

5 Conclusion

This paper explains the new European standards on e-voting, the novelties introduced by Rec(2017)5 compared to the previous Rec(2004)11 and the underlying motivations, inputs and work to update/produce the new standards. It further explains the relations and mutual influences between international and national standards and comments on the future development of the European standards.

¹⁹ Constant case law of the ECtHR.

²⁰ This happened for instance in Norway, Estonia, Switzerland, Belgium.

If there is one general conclusion to be drawn, it is about the importance of maintaining a regular dialogue between international standard setting bodies, national authorities and experts, academia and other e-voting interested stakeholders on the interpretation of standards, their implementation and their possible evolution. This has taken place in the past at the Council of Europe and is foreseen to continue in the future. Thanks to this dialogue the new Rec(2017)5 and the associated Guidelines have integrated lessons learned from past developments and have adopted the necessary structure and mechanisms that allow them to remain up-to-date in the future.

Appendix

See Table 1.

Table 1. Correlation between (old) Rec(2004)11 standards and the Rec(2017)5 and accompanying Guidelines. Decisions with respect to the old standards (under Explanation)

Standards Rec(2004) 11 (App. I, II and III)	Standards Rec (2017)5 (App. I) and Guidelines ^a	Explanation	Standards Rec(2004) 11 (App. I, II and III)	Standards Rec (2017)5 (App. I) and Guidelines	Explanation
1	1	Changed	57	30a	Unchanged
2	Discarded	Out of scope	58	49	Changed
3	2	Unchanged	59	39	Changed
4	3	Unchanged	60	39c	Changed
5	9	Changed	61	1, 2a	Changed
6	9	Changed	62	1b	Unchanged
7	9	Changed	63	2a	Unchanged
8	6	Changed	64	1c	Changed
9	10	Changed	65	1a	Changed
10	12	Unchanged	66	35	Changed
11	12a	Changed	67	discarded Mentioned in Explanatory Memorandum	Over-specified
12	10b	Unchanged	68	discarded	Over-specified
13	13	Changed	69	31a, 43, 40j	Changed
14	16	Changed	70	40i, 40 k, 40 l-i	Changed
15	10c	Changed	71	40i, 40 k	Changed
16	19	Changed	72	40j	Changed
17	26, 19	Changed	73	42a	Changed
18	26, 19	Changed	74	40 l-ii	Unchanged

(continued)

Table 1. (continued)

Standards Rec(2004) 11 (App. I, II and III)	Standards Rec (2017)5 (App. I) and Guidelines ^a	Explanation	Standards Rec(2004) 11 (App. I, II and III)	Standards Rec (2017)5 (App. I) and Guidelines	Explanation
19	18, 19	Changed	75	40 h, 40i, 40 m	Changed
20	32	Changed	76	47, 47a	Changed
21	32	Changed	77	40e	Unchanged
22	32c	Changed	78	21	Changed
23	34	Unchanged	79	40 g	Unchanged
24	33	Unchanged	80	41a	Changed
25	37	Changed	81	21, 21a	Changed
26	15-18	Changed	82	7	Changed
27	Discarded	Unclear	83	33a	Unchanged
28	40	Changed	84	39b	Unchanged
29	40-49	Changed	85	40, 37, 39	Changed
30	40	Changed	86	48	Unchanged
31	42	Unchanged	87	discarded	out of scope
32	41	Changed	88	discarded	out of scope
33	41b, 41c	Unchanged	89	48	Changed
34	40, 44, 45, 46	Changed	90	11, 10a	Changed
35	21, 45	Changed	91	49a	Unchanged
36	32	Changed	92	15	Changed
37	32	Changed	93	23b, 23c	Changed
38	32	Changed	94	7, 8, 9	Changed
39	Discarded	Registering is not considered	95	15	Changed
40	Discarded	Out of scope	96	28 k	Split
41	Discarded	Bad practice	97	48	Changed
42	Discarded	Out of scope	98	30b	Changed
43	Discarded	Out of scope	99	30d	Unchanged
44	9	Changed	100	39	Changed
45	32	Changed	101	39, 39a-c	Changed
46	32	Changed	102	39	Unchanged
47	5	Changed	103	39a	Unchanged
48	5, 10, 11	Changed	104	39	Changed
49	5	Language	105	41e	Changed
50	4, 32	Changed	106	26	Changed
51	23	Changed	107	39	Changed
52	23	Changed	108	15-18	Changed

(continued)

Table 1. (continued)

Standards Rec(2004) 11 (App. I, II and III)	Standards Rec (2017)5 (App. I) and Guidelines ^a	Explanation	Standards Rec(2004) 11 (App. I, II and III)	Standards Rec (2017)5 (App. I) and Guidelines	Explanation
53	23, 24	Unchanged	109	40, 41	Changed
54	Discarded	Unclear	110	40, 41	Unchanged
55	26b		111	36, 37	Changed
56	30, 34	Changed	112	Discarded	

^a Standards in Rec(2017)5 are numbered 1, 2, 3, etc. Provisions in the Guidelines should be numbered by letters a, b, c, etc. which follow the number of the respective standard. E.g. guidelines to standard 1 are numbered 1a, 1b, 1c, etc. Due to a formatting error, the numbering in the document Guidelines published on the website of the Council of Europe is different. E.g. guidelines to standard 1 are now numbered 7a, 7b, 7c and so on. However, this should be corrected soon and the numbering adopted here should correspond to the one on the published document, https://search.coe.int/cm/Pages/result_details.aspx?ObjectID=0900001680726c0b - last consulted 4.08.2017.

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