

# Electronic Voting and Null Votes: An Ongoing Debate

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**Abstract:** The debate over the implementation of e-voting systems still needs to respond to the question of the presence of null votes. Null votes, whose invalidity is due to a contravention of electoral norms, have become a new way through which the electors show their political discontent. The political dimension of null votes requires that e-voting systems ensure and guarantee the presence of null votes as an electoral option. Finally, it is necessary to broach the oft disputed topic of null votes attributed to technology, that is to say, the loss of valid votes due to technical malfunctions of the e-voting system and how to legally address this issue. Estonia, Australia and Norway provide useful examples when looking at technical null votes.

## 1 Introduction

The presence of null votes in an electronic voting system is disputed because it is necessary to decide whether we should maintain the null vote as an option in an e-voting system and how it can be implemented (§ 2-6), but there can also be some invalid votes directly attributed to technical mistakes whose legal treatment is not clear (§ 7).

In relation to this, it is necessary to first define the term *null vote* from a linguistic point of view and from a comparative legal perspective (§ 2).

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## 2 Some Approaches to the Idea of a *Null Vote*

### 2.1 Some Semantic Precisions about the Concept

A question that needs to be asked to fully understand the concept of *null votes* is to understand that, as a legal term, it has an intensive linguistic and semantic burden, which is even more pronounced if we compare the different or similar concepts that are used for electoral implementations.

First, we need to differentiate the *null vote* from the *blank vote*. Taking the Spanish case as an example, the null vote represents a non-compliance of the formal requirements regulated by electoral law, so we can affirm that this vote is invalid, while the blank vote can be understood as a valid vote in which the elector does not manifest any political preference. The most important difference between both concepts is the valid character of a blank vote in opposition to the invalid character of the null vote<sup>1</sup>. This is important, because it implies that *blank votes* are computed into the tally, while *null votes* - leaving aside statistical purposes – do not enter into the final tabulation.

Secondly, *null votes* coexist with other closed terms (*spoiled vote*, *rejected vote*) which include a wider and more heterogeneous universe of cases than the ones included under the notion of *null vote*, but they could be used as a synonym for *null vote*. Generally speaking, a *spoiled vote* refers to a ballot that has been inadvertently damaged and handed back to the voting station officers in exchange for a new blank ballot in order to repeat the voting operation. For example, in Canada, the term *spoiled vote* implies that the voter unconsciously damages his ballot before its introduction into the ballot box<sup>2</sup> and can thus obtain a new ballot to vote. Furthermore, a *rejected ballot* stands for a ballot introduced into the ballot box but rejected during the counting because it is in a situation of non-compliance with the electoral rules. In the aforementioned case of Canada, for example, the term *rejected ballot* designates a ballot emitted in contravention to some electoral rules<sup>3</sup>.

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<sup>1</sup> We can't forget that some countries don't recognise the *blank vote* as an option, so in these cases, *blank votes* are actually particular cases of *null votes*.

<sup>2</sup> You can see the article 152 of Canada Elections Act, which contains the legal definition of *spoiled vote*: “If an elector has inadvertently handled a ballot in such a manner that it cannot be used, the elector shall return it to the deputy returning officer who shall mark it as a spoiled ballot, place it in the envelope supplied for the purpose and give the elector another ballot”. An electronic version of the Canadian Act is available at <http://laws.justice.gc.ca/eng/acts/E-2.01/page-42.html#docCont>.

<sup>3</sup> In some cases, protest votes are shown by not marking the ballot, which is returned to the deputy returning officer and computed as a rejected ballot. In relation to the concept of *rejected ballot*, whose content is slightly more complicated, see the *Centre Poll Supervisors' Manual* (available on-line: [http://www.elections.ca/res/pub/ecdocs/EC50355\\_e.pdf](http://www.elections.ca/res/pub/ecdocs/EC50355_e.pdf)) and the *Manual on Judicial Recounts* ([www.elections.ca/content.aspx?section=res&dir=loi/jud&document=jud\\_p3&lang=e](http://www.elections.ca/content.aspx?section=res&dir=loi/jud&document=jud_p3&lang=e)).

Finally, and from our perspective, *null vote* refers to an intentional or unintentional contravention of electoral rules, which implies its legal inexistence and fact its non-consideration with respect to the tabulation. We can observe that the idea of a *null vote* is closely linked to the idea of a *rejected vote* because both imply a contravention of electoral rules, so they could be used as synonyms. The difference could be observed if we examine the type of contravention. For example, in Canada, one potential cause of rejection is to not mark any candidature (article 284[1] of Canada Elections Act), while in Spain this situation implies that the vote is considered blank but not null. Although the definitions of the *null vote* and the *rejected vote* are very similar, the type of contravention or the content covered by both notions could be different, but ultimately, it is a country's legislation that defines a *null vote*.

## 2.2 The Legal Treatment of the Null Vote:

### A Brief Explanation of the Spanish, Italian, and French Cases

In the case of Spain, the null vote is regulated in article 96 of the General Elections Act (1985). Its first paragraph establishes that the vote is null when cast with an unofficial ballot layout or envelope. It is also considered null when cast with no envelope or when the envelope contains more than one ballot. Secondly, the norm establishes that nullity also includes modifying, adding, or deleting candidates' names and altering the order of candidates. Moreover, the introduction of any expression, crossing out, or other voluntaries alterations will also produce the nullity. Finally, the precept establishes for the case of the Senate, where open lists apply, the nullity of votes in which the voter had chosen more candidates than the maximum number legally allowed.

From a jurisprudential perspective, the judicial and constitutional criterion in order to address the question is the principle of the non-alterability of the ballot. It is a jurisprudential<sup>4</sup> criterion so it is not literally picked from the law; however the content of article 96.2 implies an indirect recognition of such a principle. As far as the electoral ballots contain closed lists that cannot be modified by the elector – except in the particular case of the Senate – no modifications or additions to the electoral ballot are allowed. Otherwise, the elections could hinder the free exercise of the right of suffrage, which is an indispensable cornerstone in the democratic system (see Pu07). Moreover, according to the line adopted by the Venice Commission, we can say that the “freedom of voters to express their wishes primarily requires strict observance of the voting procedure”<sup>5</sup>.

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<sup>4</sup> The Constitutional Court, for example, on its judgement 168/2007, on July 18<sup>th</sup>, declared the nullity of a ballot on which the elector drew a cross near the name of one parliamentary candidate. The Court understood that the contravention of the principle of non-alterability of the ballot was clear. Also, the judgment 165/1991, on July 19<sup>th</sup>, understands that written, underlined, marked or crossed ballots should be considered as null votes. The judgement 169/2007, on July 18<sup>th</sup>, declared nullity in the case of two ballots which presented a cross near the name of the first candidate of the list because it wasn't possible to determine if the elector desired to reject the first candidate or not.

<sup>5</sup> See *Code of Good Practice in Electoral Matters*, adopted by the Venice Commission (july-october 2002). The electronic format of the Code is available at <http://www.venice.coe.int/docs/2002/CDL-AD%282002%29023-e.pdf>.

In Italy, the idea of the null vote as an invalid ballot is recognised both in the elections to Senate and to the Congress of Deputies. In the case of the *Camera*, the voter can only choose one of the lists presented for elections which figures on the ballot. If he or she wants to vote correctly, the elector must mark the corresponding box and is not allowed to make any other type of mark or expression (art. 58 DPR 361/1957). Article 4 of DPR 361/1957 establishes the impossibility of express preferences. As can be seen, rage in Italy is also submitted to rigid, formal rules whose contravention entails the vote's nullity<sup>6</sup>. In the case of Senate the situation is practically identical (art. 14 Legislative Decree 533/1993).

Finally, French law provides another useful example. The null vote as a vote that won't be computed is recognised in article L-66 Electoral Code. From the point of view of the French legislator, a null vote (*vote nul*) is understood as a ballot that contains insulting references to candidates, a ballot or an envelope with expressions or signs, a vote expressed by a non-official envelope or ballot, or finally ballots printed on colored paper. Also, an envelope that contains more than one ballot from different political options nullifies the vote (art. L-65 of Electoral Code). As the article L-66 says, these null votes won't be taken into consideration in order when the result is being tallied. Article L-57 of Electoral Code, which contains several provisions in relation to the expression of votes through electronic means, is also particularly relevant. The norm ensures the presence of blank votes, but nothing is said in relation to null ones.

### 3 Types of Null Votes: a Political Differentiation

In connection with all we said, from a political perspective, we can distinguish between two types of null votes. First, we can refer to null votes which are produced by inexperience or voter error (e.g. a voter who marks four Senate candidates when only three can be chosen). Secondly, we can refer to votes whose nullity is not due to unintentional formal errors.

The nullity of such votes is produced by an intentional decision which has an inescapable political content: the voter finds a way through which he can show his political disagreement versus the system through the non-application of norms<sup>7</sup>. In other words, *unintentional null votes* are produced by a voter error that could be avoided if the

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<sup>6</sup> See the official document *Manuale elettorale: le norme per le elezioni politiche*, which is available at the website of the Italian Deputies Congress: [http://www.camera.it/view/doc\\_viewer\\_full?url=http%3A/www.camera.it/application/xmanager/projects/camera/attachments/upload\\_file/upload\\_files/000/000/004/MANUALE\\_11marzo2008.pdf&back\\_to=http%3A/www.camera.it/363%3Fconoscerelacamera%3D33](http://www.camera.it/view/doc_viewer_full?url=http%3A/www.camera.it/application/xmanager/projects/camera/attachments/upload_file/upload_files/000/000/004/MANUALE_11marzo2008.pdf&back_to=http%3A/www.camera.it/363%3Fconoscerelacamera%3D33)

<sup>7</sup> Spain provides an extremely interesting example in the context of 2009 Basque elections, where there were roughly 100000 null votes (8,84% of cast votes), as a protest against the illegalization of a *nationalist* political party. As a matter of fact, some politicians of this party encouraged the citizens to show their disagreement through the nullity, and the advice was actually seconded. The party even printed non-valid ballots with the same layout as the official ones which were brought to the voters who supported the party. See [www.elpais.com/articulo/espana/100000/vascos/respaldan/opcion/voto/nulo/Batasuna/elpepiesp/20090302elpepinac\\_8/Tes](http://www.elpais.com/articulo/espana/100000/vascos/respaldan/opcion/voto/nulo/Batasuna/elpepiesp/20090302elpepinac_8/Tes).

voter knew that the ballot was about to be cast incorrectly. *Intentional null votes* are those whose illegality is already recognized by the voter, but the voter decides to show his discontent through this wrong formal procedure.

In the latest Spanish elections (November 2011), the total amount of null votes was tracked. For example, in the case of the Lower Chamber, the two latest Spanish general elections have shown relevant data. In 2008 the percentage of null votes was 0.64%, with a participation of 73.85%. In 2011, the percentage of null votes increased to 1.29% with a minor decrease in participation, which was at 71.69%<sup>8</sup>. From 2008 to 2011, the percentage of null votes increased 0.65 points, just the double of 2008. This phenomenon, in our opinion, might have a political significance: the null vote is understood by voters as a way to express a rejection of politics or a political protest. The case of the Senate is more accentuated: the number of null votes jumped from 2.29% (2008) to 3.71% (2011), an increase of 1.42 points<sup>9</sup>.

We can assume that society has given an additional political significance to the null vote<sup>10</sup>, which coexists with the traditional vision of the null vote as a product of a mistake or error during the voting process: the voters show their discontent through the vote's nullity. The ideal of democratization is extended and includes the null vote as an authentic form of a voter's political preference, which should be protected and guaranteed. For ROUSSEAU, the ideal of democracy consists of the direct expression of the general will, which should be expressed directly and without representation (see Ra10: 71-79): the null vote could be a form to express some aspects of the general will directly, and it also could be an expression of the *freedom of opinion*, through which the politicians can be made aware of the views of the citizenry (see Ma97: 206-215).

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<sup>8</sup> These electoral data were published by the Spanish Government and they are available on-line: ([http://elecciones.mir.es/resultadosgenerales2011/99CG/DCG99999TO\\_L1.htm](http://elecciones.mir.es/resultadosgenerales2011/99CG/DCG99999TO_L1.htm)).

<sup>9</sup> See the official report of the Spanish Government at: <http://elecciones.mir.es/resultadosgenerales2011/99pdf/CS11-DOSSIER.pdf>

<sup>10</sup> In some cases, the role of blank ballots as "protest votes", whose objective is to show the elector's discontent with the system and politicians, has been replaced by null votes, probably due to the different legal treatment between null votes and blank votes. Taking the Spanish case as an example, blank votes are valid inputs in order to calculate the legal barrier from which a political formation can obtain parliamentary seats, while null votes wouldn't be considered in this sense. As a matter of fact, the elector knows that null votes generally would not be interpreted with the poisonous meaning— from a legal point of view — with which the blank votes would be. Politics and some political analysts tend to give to blank votes a politic charge; that is to say, they tend to interpret that the blank vote probably could be a punishment to one party or to one ideological position, when the blank vote might actually be a protest against the overall system. Moreover, the elector usually knows that blank votes generally benefit big parties, which are in fact the parties in relation to which the political discontent is normally greater. The null vote with its unlawful character easily rejects interested interpretations and does not benefit big parties.

## 4 E-voting Procedures: the *Fate* of the Null Vote

One of the achievements of e-voting, which is commonly alleged as an advantage by most suppliers, is precisely the re-motion of null votes<sup>11</sup>. If we only consider null votes as a mistake or an error, any system ensuring that this kind of error cannot take place will be welcomed.

However, we stated before that null votes can be considered as an error, but they can also be considered as a deliberate protest. In the first case, the re-motion of null votes can be valued as an authentic benefit, but, in the second case, it is difficult to affirm to what extent the elimination of a political preference is helpful or desirable. Actually it does mean an attenuation of the chances to express a given political opinion. Curiously enough, this issue could entail that a supposed advantage, as is the elimination of null votes, can be considered as a disadvantage at the same time because it implies a reduction in the freedom of expression. In our opinion, the null vote option as a protest ballot should be present on any e-voting platform. It could be a way to strengthen the right to suffrage and a chance to bring to politicians and governments a new way through which they can be made aware of the citizen's perception about the political system. From a pragmatic point of view, we can also say that null votes do not damage the traditional content of the right to suffrage: on the contrary, they reinforce the democratic features of the system<sup>12</sup>.

The issue has not yet received mainstream attention from legal literature. For RENIU VILAMALA, the elimination of null votes by e-voting systems “is acceptable and desirable insofar as it eliminates accidental null votes (...) but is counter productive for another type of null vote: deliberate null vote” (see Re08: 142). Indeed, these null votes contain an “authentic rejection of all the candidates” (Re08: 142) or political options which concur to elections, or even a renunciation in order to take part in the electoral process, because the elector does not find any desirable political option or he or she wants to show dissatisfaction with the system. A similar opinion is defended by MARTÍNEZ DALMAU, who underlines the potential contradictions between e-voting systems and null votes as an expression of a political preference. Naturally, e-voting systems, which are based on automation and which, technically, only validate proper election procedure could not allow null votes (see Mar06: 35-37; Mar10: 74).

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<sup>11</sup> For example, the E-Verification Project (Electronic Verification for presential e-voting systems), which is managed by CRISES – University Rovira i Virgili and ScytI, remarks that “E-voting helps on reducing or almost preventing the existence of null votes”. The quotation is literally picked from <http://crises-deim.urv.cat/everification/index.php>. See [http://jcel.unizar.es/jcel07/ponencias/JCEL\\_Voto\\_Electronico.pdf](http://jcel.unizar.es/jcel07/ponencias/JCEL_Voto_Electronico.pdf) (page 7/33).

<sup>12</sup> Obviously not all countries recognize the presence of intended null votes in their electoral legislations. The introduction of the null electronic vote as we explained, that is to say, as a protest vote due to an intentional voter decision, is a desirable objective for any e-voting system.

After all, the question is still whether null votes should have a place as a political option (which can be chosen by the voter) in a hypothetical implementation of e-voting systems<sup>13</sup>. BARRAT ESTEVE understands that the minimum content of the right to *suffrage* covers the existence of blank votes as well as null votes (see Ba07: 38). For FERNÁNDEZ RODRÍGUEZ the existence of null votes is something desirable from a political perspective because their meaning is clear (see Fe07a: 31); the nonexistence of the null vote lessens the voter's capacity to express political options (see Fe07b: 312). The democratic legitimization of electoral systems "includes the free expression of the preferences of the voter, even through casting a non-valid or a white paper ballot" (Mi03: 51), so in e-voting systems, "in order to preserve the freedom of voter decision, the possibility for casting a consciously invalid vote must be provided and guaranteed" (Mi03: 51). However, other authors, like PRESNO LINERA, understand that the null vote is not covered by the right to suffrage because *stricto sensu* the null vote is not a way to make political decisions nor to draft legal norms (see Pr07: 357-358).

## 5 E-voting Procedures: How Can We Cast a Null Ballot?

As stated, a number of authors think that it is necessary to preserve the null vote as a political option in a hypothetical e-voting system. We will now analyse the way in which null votes may exist in an e-voting system. From our point of view, as initial sketches, two ways could be considered<sup>14</sup>.

The first way (i) is merely choosing the option of null vote. Just as other candidatures from different political formations exist, the null vote would also be recognised as an electoral option.

With the purpose of making it real, it is necessary that the electronic interface displays, among the list of candidatures or political options, the null vote as an option on the voting interface, otherwise, the right to suffrage and democratic legitimacy could be undermined.

Following this path, the design of the system should satisfy two requirements:

- a. It is necessary to visually distinguish between the options of voting for a certain political ideology from the two possibilities through which the elector does not choose any option (the blank vote and the null vote). This differentiation should be clearly, directly, and fairly visualized, that is to say, with no hidden collateral options.

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<sup>13</sup> In general, see the work of Guido Schryen at [http://www.e-voting.cc/static/evoting/files/schryen\\_p121-131.pdf](http://www.e-voting.cc/static/evoting/files/schryen_p121-131.pdf) and the work of Patricia Heindl at [http://www.e-voting.cc/static/evoting/files/heindl\\_p165-170.pdf](http://www.e-voting.cc/static/evoting/files/heindl_p165-170.pdf).

<sup>14</sup> *Napasandi*, India is an interesting case because the right to reject is recognized by e-voting machines. With such a right to reject, a voter can say he does not want to vote for any of the candidates. See the piece of news at: <http://www.firstpost.com/politics/annas-unique-lingo-what-is-napasandi-254869.html>.

- b. Moreover, the electronic interface should inform the elector about the sense of blank votes and null votes, in order to ensure that the voter has sufficient knowledge to vote correctly. Even though the traditional regulation of paper-based votes does not do so, it would be an opportunity to strengthen the elector's knowledge.

The second way (ii) in which the null vote can be expressed is the possibility to write something down on the *electronic ballot*. If null votes, within a traditional electoral system (leaving aside the case of non-deliberate null votes), express a protest, the nullity as a political option in an e-voting system would only be guaranteed if the elector also has the opportunity to write down whatever he or she desires. In some cases, the protest is ordinarily displayed as a message written down on the ballot, so a similar possibility of expression should be guaranteed by an e-voting system. In the end, this option adds the possibility to show the reasons for the disagreement to the first one.

However, it is clear that this option would normally be limited due to important operational barriers. In order to rationalize the possibility, we can point out some considerations:

- a. The timeframe during which the elector decides his/her vote must be limited. It is a rational requirement; otherwise, the election could become paralysed and even technical security concerns may arise. The voter should have enough time to express his or her opinion, but the timeframe should obviously be reasonable enough in order to preserve the order of election and its correct development<sup>15</sup>. Once that timeframe has elapsed, the marked ballot will automatically be sent out, and the voter may not change the ballot's content. The idea of a temporal limitation is particularly relevant in the context of physically e-voting at a polling station because that timeframe can easily become a crippling factor. The voting machine will be used by a lot of people and a single voter, misusing his or her right, can damage the rights of the rest. The case of Internet voting is totally different since the voter does not need to go to a polling station; therefore it is more difficult for the voter to damage the rights of other people, but technical security concerns are still valid if not greater.
- b. The message should also be limited in relation to its length because the idea is to express his or her rejection.

Due to usability problems, the voter might face problems in correctly casting a null ballot by using the written option (e.g. the application might end before the elector can write all that he or she desired). In the precedent case, the problem could be attributed to the inexperience of the voter, not to the system; we cannot forget that this kind of vote will be also counted as a null vote, despite the fact that the elector would not have been able to add a personal expression to his vote.

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<sup>15</sup> For example, 2 or 3 minutes, enough time in order to write down a protest message.



## 6 Null Votes Attributed to Technology: a Legal Rigmarole

Null votes can also be generated by technical malfunctions, that is to say, not linked to the voter's behaviour. In this hypothesis, the elector believes that the ballot has been properly cast— and actually it was—, but the system somehow loses track of the ballot so it does not make into the final tally. Despite the technical explanations that can be provided, it is worth wondering which legal treatment should be applied should this occur. Given that they may have different features, the next paragraphs will provide a quick overview of three different cases [Estonia (i), Australia (ii) and Norway (ii)] when the system has unexpectedly generated null votes.

The first case was generated during the Estonian parliamentary elections in 2011<sup>16</sup> (i). The ODIHR Report recalls that “during the counting, one vote was determined invalid by the vote counting application, since it was cast for a candidate who was not on the list in the corresponding constituency. The project manager could not explain how this occurred”<sup>17</sup>. As any other similar failures, one can find two initial explanations depending on the origin of such a mistake: a successful external attack that managed to alter the content of the electronic ballots or perhaps an internal error that led to an improper layout of the candidates. The first option might have two reasonable origins as well since the hacker could be the voter him/herself or an outsider; the legal consequences of either option would be significantly different. If the voter wants to hack the system and if he or she manages to vote for the wrong candidates, as happened in Estonia, there is an easy and non-problematic legal solution since such a ballot would be sorted as invalid. Voters also used to alter the content of paper ballots and such hacking would only be a new and updated version of these traditional null votes. The invalidity of this vote would reflect the actual will of the voter. Obviously, if the system does not detect this hacking, we would be faced with a great problem, not linked to null votes.

The other two pending hypotheses (i.e. successful hacking conducted by outsiders or an internal mistake due to backend problems) are much more challenging because the voter would not know that his or her ballot was declared invalid. Electoral authorities are responsible for the correct layout of the ballot and the electoral procedure may not delegate such a task to each voter. If the ballot includes a wrong candidate or if it allows other invalid actions, such as making multiple selections for the same candidate when preferential voting is applied, there is a legal assumption that the correct ballot and the voter will obviously have no responsibility.

Despite the different approaches that each hypothesis needs, it is worth stressing that Estonian authorities failed to provide a detailed explanation, that is to say, they were assuming that, beyond the theoretical explanations that could justify what happened, there were not enough data to determine the actual origin of the failure. Given that we have three different scenarios, and only one of them complies with democratic principles, one can legitimately assume that such illegal explanations might have been

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<sup>16</sup> For a general overview of the constitutionality of the Estonian e-voting system, see MV11: 5-7.

<sup>17</sup> See the Report of the *Office for Democratic Institutions and Human Rights (ODIHR)*, which is available on-line: <http://www.osce.org/odihr/77557>.

the correct one or at least that it has to be taken into account as a potential danger. As a consequence, if no valid argument is provided, such null votes uncover external hackings as well as insider mistakes, which cannot be excluded when e-voting systems are deployed. Obviously, such a conclusion may seriously undermine the overall legitimacy of these new voting channels.

A similar case took place in Australia (ii), during the 2011 New South Wales elections. It was observed that an output file of the votes did not appear to agree with the number of votes actually printed. The official explanation is that the *java script* allowed the introduction of non-numeric characters to be entered as ballot preferences, an atypical failure which affected 43 ballots. Although this misconfiguration could be easily corrected, the remote causes of the failure are still unknown to electoral authorities.

As a matter of fact, the situation is similar to the Estonian case because the causes of such failure could indicate a hacker attack or an internal system error. When speaking about an internal failure, or an external attack not initiated by the voter, the legitimacy of the e-voting system could be undermined and obviously citizen confidence could decline significantly<sup>18</sup>.

We find in Norway another two hypotheses (iii) of technical null votes. While the first one is very similar to what has already been analysed for Estonia<sup>19</sup> and Australia, there is also a curious new sort of null ballot. As explained during the final counting ceremony<sup>20</sup>, a voter managed to cast his or her ballot during the very last second of the voting session, which lasted 30 minutes for security reasons, but the ballot arrived to the ballot box a few moments after the timeframe expired. Consequently, when the ballot box was cleansed, that meant deleting all ballots that would not be used in the tally (e.g. ballots belonging to people who died before the final election day), the concerned vote was also deleted even though it was correctly cast within the legal timeframe.

It must also be noted that the voter received a so-called return code, that is to say, an SMS text message sent to each voter to confirm how she or he had voted. Return codes intend to guarantee individual verifiability so that each voter is able to prove that his or her ballot has been received as cast and cast as intended.

From a legal point of view, there are some doubts as to how to categorize such a ballot. First of all, it is worth stressing that this ballot did not reach the tally stage. As it is known, the so-called counting ceremony included three different, separate steps: cleansing, mixing, where the ballots break the sequence that they had, and tallying.

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<sup>18</sup> A brief explanation of the Australian incident is available at:

[http://www.elections.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0007/93481/iVote\\_Audit\\_report\\_PIR\\_Final.pdf](http://www.elections.nsw.gov.au/__data/assets/pdf_file/0007/93481/iVote_Audit_report_PIR_Final.pdf)

<sup>19</sup> See the OSCE/ODIHR report at <http://www.osce.org/odihr/88577>.

<sup>20</sup> See video of the counting ceremony held in Oslo in September 12<sup>th</sup> 2011 (minutes 53:21, 57:48 and 1:00:05). See the video at the following link:  
[http://media01.smartcom.no/Microsite/dss\\_01.aspx?eventid=6316](http://media01.smartcom.no/Microsite/dss_01.aspx?eventid=6316)

The ballot was rejected during the first step because it was considered as a ballot that had not reached the ballot box in time and theoretically it should receive the same legal treatment as other ballots that had also been rejected, for other reasons, by the cleansing server. However, such a solution does not seem reasonable because the other rejected ballots always had a correct basis. The rejected ballot might have been cancelled by the same voter with another vote or it might belong to a person who was no longer entitled to vote. Therefore the system may take into account these rejected ballots, but only for statistical purposes, as it actually did during the counting ceremony. There is no democratic argument that requires these ballots to be included in the final, official results because they are not expressing any citizen's will.

However, such an approach is not valid for our problematic ballot. It does express the legitimate will of a given citizen, and it cannot be merged with other ballots whose rejection is only due to management reasons. Although already deleted during the cleansing, this problematic ballot would need to be included as a technical null vote in the final record of the official results. Moreover, when computing the turnout, this voter should also be included as he or she had correctly cast the ballot, only technical reasons prevented its inclusion in the final count.

## **7 Conclusions**

The implementation of e-voting systems should protect and guarantee the presence of null votes as one supplementary electoral option because the nullity, which consists in a contravention of the electoral rules, may be deliberately used as a way in which the elector shows his or her political discontent. From our point of view, two ways could exist to realize the null vote option in the context of an e-voting system: first, the null vote could be included with other options in the electronic interface and secondly the precedent option might also include a personal written statement, as it has always been the case in traditional paper-ballot systems.

Finally, it is absolutely necessary to debate the legal treatment of null votes attributed to technological failures, which still is an open question. Estonian, Australian and Norwegian e-voting systems made presented real problems and each one has interesting different features that have subsequent legal consequences. Given that such technical incidents can seriously damage the citizens' trust in e-voting systems, legal frameworks would have to properly process these scenarios determining, if possible, their different origins. While a successful external hacking would not be a legal problem, provided it was discovered, an internal misconfiguration may create more doubts, namely when it is misleading for the voter, who may believe that his or her ballot has been correctly cast and processed.

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