Study on the Benefits and Drawbacks of Remote Voting

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Justice and Consumers

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Executive summary

Context. Participation in elections in Europe has decreased, on average, in the past 25 years. While this is the case for national elections on average across Europe, turnout is particularly low for European Parliament elections in some countries, ranging from 89.6% in Belgium to 13.1% in Slovakia in the 2014 vote. Moreover, these elections saw the lowest voter turnout on record at 42.5%, down from 43.0% in 2009 and well below the 62.0% recorded in 1979.[1] The Commission's 2015 report on the 2014 EP elections concluded that 'looking ahead to the 2019 elections, it is important to […] examine further, and seek to address, the reasons for the persistently low turnout in some Member States'. Electoral processes, technical solutions and attitudes towards voting solutions vary greatly across Member States. Understanding this diversity and how it affects turnout is a first step to take in order to then understand how the provision of alternative means of voting may increase participation.

One of the aspects of voting that presents the greatest diversity across Member States is the extent to which they facilitate 'remote voting solutions'. In July 2018 the Council adopted a decision amending the 1976 Act concerning the election of the members of the European Parliament by direct universal suffrage. The decision indicates that 'Member States may provide for the possibilities of advance voting, postal voting, and electronic and internet voting, in elections to the European Parliament.' It added that, in doing so, 'they shall adopt measures sufficient to ensure in particular the reliability of the result, the secrecy of the vote, and the protection of personal data'. In the preamble of this decision, the Council mentions these possibilities as a way to promote participation.

Remote voting has the potential to foster participation of electors living abroad. In the EU, 3.4% of the EU population aged 15 or older are mobile citizens. These are citizens from an EU country living in another Member State.[2] Moreover, around 35.5 million Europeans have emigrated to another country (either within the EU or outside).[3] Where specific national legislation entitles these individuals to vote in their country of origin, remote voting solutions can help them exercise their voting rights. Furthermore, individuals living in their country of citizenship may also benefit from remote voting if they are unable to reach the polling station on election day for personal or professional reasons.

This study examines the practice of remote voting in EU Member States. We define **remote voting** as:

> Those mechanisms that allow electors to vote by means other than by casting their ballot in person at the standard polling station assigned to their district of residence, either if they are abroad or within the country. It comprises both electronic voting and non-electronic voting mechanisms.

Objectives. The rationale behind remote voting solutions has traditionally been to remove the obstacles that may make voting more difficult for some citizens than for others. While it is widely accepted that remote voting solutions facilitate voting, there is less consensus about their potential to increase participation. Moreover, there are concerns regarding whether remote voting can offer the same level of security for the secrecy and integrity of the ballot as voting in person in a standard polling station.

[1] European Parliament (2018c).
[2] Eurostat (2017).
[3] United Nations, Department of Economic and Social Affairs (2015).

The purpose of this study is to contribute to this discussion by examining the landscape of remote voting practice and outcomes in use in Europe. To this end, the study examines the barriers to voting encountered by different groups of citizens and mapped the different types of remote voting solutions available in EU Member States. It also outlines the benefits and drawbacks of these remote voting solutions.

This study is part of a series of projects delivered for a European Parliament pilot project which collectively "look into the potential benefits of alternative arrangements with a view to tele-voting, focusing on the advantages of an e-voting system, and produce a tele-voting good practice guide on the basis of a detailed study."[4]

Methods. Our analysis is based on the principle of mixed-methods and data triangulation, which consists of using different sources of data and collection methods to reinforce the robustness and solidity of the analysis. Firstly, a literature review was conducted to get a detailed understanding of the current evidence base. Following that, a review of national-level laws and documentation was undertaken in order to adequately assess the current landscape of remote voting across Member States, as well as the main policy debates and any future plans related to remote voting. This information was shared for validation with Member State representatives working on electoral matters. Country representatives filled the missing gaps during an in-depth interview or by submitting written comments.

Interviews were also conducted with a wide range of stakeholders (local public authorities, political parties, academia, industry, and non-profit organisations), in order to collect key insights. These were used to inform 15 thematic case studies. These are not case studies in the traditional academic sense, but instead aim to illustrate different aspects of remote voting implementation. The cases are set out in three main groups: case studies which examine aspects of the remote voting process; case studies which detail the experience of remote voting for specific groups; and case studies which provide examples of EU Member State experience of internet voting implementation.

Lastly, an online survey was conducted with an online panel of 700 internet users in three EU countries: Germany, Italy, and Poland. The survey had the objectives of (1) measuring the intention to use internet voting and other remote voting options; (2) testing to what extent internet voting and postal voting can increase turnout rates and (3) identifying drivers and inhibitors that explain which people are most willing to use internet voting.

Findings: types of remote voting

The study categorised remote voting methods available in Member States into **seven main types of remote voting**: voting by post, voting by proxy, voting in person from abroad (e.g. in a consulate), voting at a special polling station inside the country (e.g. in a hospital or prison), voting at a mobile polling station, voting at any polling station in the country (implying that people can vote outside their district of residence), and internet voting.[5] When voting from abroad, the most common voting options are voting in person and voting by post (both are available in 19 Member States and 11 offer both options). For those voting from within their country of residence, the most common procedures by which voters can cast ballots remotely in

[4] European Commission (2016c).
[5] The literature sometimes uses the term 'e-voting' to describe ballots cast online. We use 'internet voting' here to distinguish this method from voting at electronic voting machines (EVM) at polling stations, which is also referred to as 'e-voting' in some quarters.

EU countries are by voting in a mobile polling station or in another district (these are available in 17 Member States).

Voters in EU elections have different voting experiences across EU countries, as the voting options available to citizens depend on their Member State of residence and origin. In order to ensure equality of access to the vote among EU citizens it could be argued that the voting options for the European Parliament should be the same in all Member States. Nonetheless, harmonising the options across Member States may face some barriers, including that (1) it may conflict with the voting traditions in each particular Member State, and (2) some options may not be acceptable for some Member States, as each remote voting option presents some vulnerabilities or additional administrative costs.

Findings: Impact of remote voting options

Remote voting options offer increased accessibility, as they benefit some specific citizens who, due to their personal circumstances, are otherwise not able to vote or have more difficulties doing so. These include, among others, voters who live in remote areas, those who live abroad, those who may find voting difficult for health reasons, and those who cannot leave the place in which they are residing at the time of the election (e.g. for example, because they are hospitalised or in prison).

However, there are also **several drawbacks relating to each remote voting option**. In this regard there is no 'golden solution' to facilitating access to the ballot as each option has its own advantages and shortcomings. Some of the vulnerabilities of remote voting include: the difficulties of accurate voter identification, of ensuring the secrecy of the vote and that people vote without being subject to coercion; the risks that results could be manipulated; and dependency on the performance of the postal services or technology (e.g. internet connection, devices used for voting). Moreover, countries may face additional costs or administrative difficulties in implementing particular remote voting solutions, depending for example on the size and distribution of their diasporas and the nature of their electoral system.

It is important to stress that the outcomes of a remote voting option (e.g. the impact on turnout, its costs, and the level of acceptance among the population) may also depend on **how the solutions are designed and implemented**. There are several features that need to be determined within each voting option, which provide different degrees of convenience and guarantees relating to ballot secrecy, security and integrity. For instance, in some countries, citizens residing abroad automatically receive the ballots to vote by post, while others need to submit a specific application to use this option. The latter places an extra burden on voters. When voting using a mobile ballot box, some countries apply additional provisions to reduce the risk of coercion, such as having members of the electoral or police authorities visiting the voter's location to supervise proceedings. The option of voting in another district may increase the risk of double voting, although some countries have a system in place to check whether a person has already cast a ballot. Lastly, some internet voting systems allow citizens to cast multiple votes, as a mechanism to counter coercion, while others admit only one vote per person.

Evidence for the effect of postal voting on turnout is mixed. The literature review found some studies which report that postal voting has positive impacts on turnout, but others that report no effect or a negative effect. Our online survey showed that postal voting had little impact on likelihood and intention to vote in Italy and Poland (the impact in Germany was not examined, as postal voting is already available). Therefore, it is not possible to state with any certainty that postal voting would increase turnout. In practice, the impact of postal voting may

also depend on the other remote voting options available. Moreover, other dynamics, such as political engagement and whether voting is mandatory, may also be important factors.

The impact of internet voting on turnout is unclear. Several studies in jurisdictions that have tried internet voting report high levels of satisfaction from voters and/or willingness to use the option again. However, the literature examining the impact on voter turnout presents mixed results. Some studies have observed an increase in turnout, while others found no such effect. Moreover, due to the nature of elections, experimental research comparing the impact of a remote voting option with a control condition is difficult to conduct. Our online experimental task showed that the existence of internet voting sometimes had a positive effect on likelihood to vote, but not in all situations. In Poland this effect was found when the variable of having voted in the previous European election was taken into account. In Germany, when this variable was considered, internet voting did not have a significant impact under 'normal circumstances' (i.e. when the voter does not face any special barrier to go to the polling station to vote). In Italy, internet voting similarly did not have a significant impact on likelihood to vote under 'normal circumstances'. In the other situations (being abroad and having a temporary disability), internet voting showed a significant impact except when the variable of having voted in the previous European election was introduced in the situation in which the voter is abroad. It is also important to note that participants preferred internet voting over voting by post. Nonetheless, it is not possible to state with any certainty that implementing internet voting will increase turnout. In practice, any impact on turnout may depend also on other features of the electoral system, such as the existing remote voting options available to the voter.

The results of the experiment we conducted, as well as data from the 2016 Eurobarometer survey focusing on electoral rights, suggest that **citizens generally view internet voting as convenient, but they also have some concerns** related to it (e.g. regarding usability, fraud, secrecy and other security issues). However, the extent to which these were highlighted as concerns by the majority of the population differed across Member States.

The impact of internet voting on costs is unclear. It is often argued that an internet voting system would be cheaper than other voting options. Indeed, some interviewees from Member States' bodies responsible for electoral matters did consider that it could reduce the costs of elections. However, there is no clear consensus in the literature as to the relative cost-effectiveness of remote voting systems. In fact, few authors have focused in detail on the comparative costs of internet voting relative to other systems. Internet voting implies some costs related to software development, testing and implementation. However, it is important to consider any costs and savings in the context of multiple elections over a longer period. Costs may also depend on the design of the voting system and the overall combination of voting solutions offered.

The results of the online survey of German, Italian and Polish respondents showed that respondents generally preferred to **vote from their PC** compared to voting from a smartphone; **to use their existing browser** compared to using a specific app or programme; and that they preferred to **receive their identification codes once by post** compared to a two-step identification process (by post and by SMS) Although the latter seems to indicate that voters value ease of use, it should be noted that the option of receiving only a set of codes by post, compared to multi-step identification, may entail higher risks (as somebody could steal these codes and access the system on behalf of the eligible voter). Therefore, public institutions should ensure that, apart from being user-friendly, the mechanism chosen for identification also considers security factors.

While lots of early trials or pilot projects with internet voting took place in early 2000s and 2010s, fewer have taken place in recent years. Estonia is the only Member State that has fully

implemented internet voting. In France, it was used for overseas voters in the 2012 legislative elections, but it was not used in 2017. However, there has seemingly been **renewed interest in a few countries in exploring internet voting solutions** in the coming years. At the time of writing, plans to trial internet voting have been announced in Bulgaria, Sweden (at local and regional level) and in Wales (UK), and a consultation on electoral reform is being undertaken by the Scottish government, including on issues of internet voting. Nonetheless, concerns over the potential cybersecurity risks of electronic voting systems – and the potential consequences for the legitimacy of election results and ballot integrity – remain.

Apart from being used for casting a ballot, **digital tools can also be employed in other parts of the voting process** to increase accessibility and reach. For example, several countries allow voters to submit online applications to use a specific voting option, and have implemented IT systems for voter registration, for counting the votes and for transmitting the results. Moreover, some countries (for example, Lithuania and Romania) use an IT system to check on election day whether a person willing to cast the vote is registered in the electoral roll and whether this person has already voted at another polling station elsewhere in the country. The Netherlands delivers voter passes by email to those living abroad, while the UK uses scanning machines to validate signatures in postal voting. In Croatia voters can use an online application form to change their polling station (with the option to select any location within the country or abroad) until a few days before an election.

Conclusions

The **options for remote voting vary greatly from one country to another**. The way these options operate in practice also differs across countries. This may depend for example, on the electoral system, the method by which voters are registered, the design of the solution, demographic factors, and the aspects of the voting process (such as ballot secrecy) most valued by the population.

This implies that in European elections, **citizens vote under different systems**. While proposing a common approach to the availability of remote voting for European Parliament elections would reduce the complexity of the current status quo, it would also affect the prerogatives of Member States. It should also be stressed if such an approach implied a reduction of the remote voting options in any particular country this might not facilitate participation and might be undesirable.

Each remote voting option has its **benefits and drawbacks.** Remote voting can help **facilitate the act of voting** for several groups of voters such as those who live abroad or in remote areas, people in poor health, and those who cannot leave the place in which they are residing at the time of the election. The extent to which remote voting solutions can help citizen of no fixed abode is less clear, since the issue linked to their participation has more to do with whether and how they can register and receive their voting material, rather than how they can cast their vote.

While remote voting options can increase accessibility for voters, they may also present **issues relating to electoral legitimacy and additional administrative burdens** for the state. For example, verifying the identity of the voter and observing the election may be more difficult than in the traditional polling station settings.

There is currently **little evidence about the impact of remote voting solutions**, including the consequences for turnout and costs. Moreover, the outcomes may depend on the context and on how the voting options are designed and implemented. Therefore, expectations for what remote voting solutions can achieve should be managed with caution and backed up with evidence that takes into account the context in which it was generated.

It is also relevant to stress that there is a wide range of factors which may affect turnout. Therefore, Member States seeking to increase turnout may instead need to apply a **package of measures** including, for example, new or improved remote voting options, awareness-raising campaigns, and strategies to increase the trust in EU institutions and political actors in general.

Lastly, it is important to be aware that the outcomes of remote voting options may also depend on the **specific design of the remote voting system** and on whether this design adequately balances convenience for the voter with strong protections for the security of the ballot.

Note de synthèse

Contexte. En moyenne, on constate une diminution de la participation aux élections en Europe au cours des 25 dernières années. Si c'est le cas des élections législatives à l'échelle de l'Europe, la participation est particulièrement faible pour les élections du Parlement européen dans certains pays, avec un taux de participation allant de 89,6 % en Belgique à 13,1 % en Slovaquie en 2014. De plus, le taux de participation à ces élections n'a atteint que 42,5 %, soit le taux le plus faible jamais enregistré, marquant une baisse par rapport aux 43 % de 2009 et un fort déclin au regard des 62 % enregistrés en 1979.[6] Dans son rapport de 2015 sur les élections au Parlement européen de l'année précédente, la Commission concluait : « dans la perspective des élections de 2019, il importe […] d'examiner plus profondément les raisons de la persistance d'un faible taux de participation dans certains États membres et d'y remédier. » Les processus électoraux, les solutions techniques et l'attitude vis-à-vis des solutions de vote varient considérablement entre les États membres. Comprendre cette diversité et ses répercussions sur la participation est un premier pas, le suivant étant de déterminer dans quelle mesure la mise en œuvre de modalités de vote différentes favoriserait une augmentation de la participation.

Une distinction majeure entre les États membres réside dans la mise à disposition de leurs électeurs de « solutions de vote à distance ». En juillet 2018, le Conseil a adopté une décision d'amendement de l'Acte portant élection des membres du Parlement européen au suffrage universel direct de 1976. La décision énonce que « les États membres peuvent prévoir des possibilités de vote par anticipation, de vote par correspondance, de vote électronique et de vote sur l'internet pour les élections au Parlement européen ». Dans ce cas, est-il précisé, « ils adoptent des mesures suffisantes pour garantir en particulier la fiabilité du résultat, la confidentialité du vote et la protection des données à caractère personnel ». Dans le préambule de la décision, le Conseil mentionne ces possibilités comme moyen d'encourager la participation aux élections.

Le vote à distance est susceptible de favoriser la participation des électeurs vivant à l'étranger. Dans l'UE, les citoyens mobiles représentent 3,4 % de la population âgée de 15 ans et plus ; c'est-à-dire des citoyens d'un pays de l'UE qui vivent dans un autre État membre.[7] En outre, environ 35,5 millions d'Européens ont émigré dans un autre pays (soit à l'intérieur de l'UE, soit à l'extérieur).[8] Lorsque des législations nationales spécifiques autorisent ces personnes à voter dans leur pays d'origine, les solutions de vote à distance peuvent leur permettre d'exercer ce droit. Qui plus est, les personnes vivant dans leur pays de citoyenneté peuvent également bénéficier du vote à distance si elles ne sont pas en mesure de se rendre au bureau de vote pour des raisons personnelles ou professionnelles.

C'est sur la pratique du vote à distance que se concentre la présente étude. Le **vote à distance** se définit comme :

> tout mécanisme permettant aux électeurs de voter par un autre moyen que le vote à l'urne, qui s'effectue en personne, au bureau de vote auquel est rattaché leur adresse de résidence, qu'ils se trouvent à l'étranger ou dans le pays. La notion englobe les mécanismes de vote électronique et non électronique.

Objectifs. Traditionnellement, l'élaboration de solutions de vote à distance reflète une volonté d'éliminer les obstacles rendant le vote plus difficile pour certains citoyens que pour d'autres. S'il est largement admis que le vote est facilité par les solutions de vote à distance, le consensus

[6] Parlement européen (2018c).
[7] Eurostat (2017).
[8] Nations Unies, Département des affaires économiques et sociales (2015).

est toutefois moins net concernant le potentiel d'augmentation de la participation associé à celles-ci. Est également préoccupante l'incertitude que le vote à distance permette de garantir le même degré de sécurité, en matière de confidentialité et d'intégrité du vote, que le vote à l'urne classique.

L'objectif de cette étude est de contribuer à cette discussion par l'observation des pratiques de vote à distance actuellement proposées en Europe, et de leurs résultats. À cette fin, l'étude a examiné les obstacles au vote auxquels sont confrontés différents groupes de citoyens, et répertorié les différentes solutions de vote à distance disponibles dans les États membres de l'UE. Elle présente également les avantages et les inconvénients de ces solutions de vote à distance.

Cette étude fait partie d'une série de projets financés par le biais d'un projet pilote du Parlement européen, qui « examinent collectivement les avantages potentiels de solutions alternatives dans l'objectif d'un télévote, axés sur les avantages de l'e-vote, et conduisent à la publication d'un guide de bonnes pratiques sur le télévote, basé sur une étude détaillée ».[9]

Méthodes. Notre analyse s'appuie sur une méthodologie mixte basée sur la triangulation des données, qui consiste à utiliser différentes sources et méthodes de recueil des données pour renforcer la solidité de l'analyse. D'abord, une revue de la littérature nous a permis de dégager une compréhension détaillée des données actuellement disponibles. Ensuite, l'examen de lois et de documents nationaux nous a éclairés sur le contexte actuel du vote à distance dans les États membres, et sur les principaux débats politiques et projets envisagés à ce sujet. Ces informations ont été transmises pour validation à des représentants des États membres travaillant sur des questions électorales. Ces représentants nationaux ont complété nos informations lors d'entretiens approfondis ou par le biais de commentaires écrits.

Nous nous sommes également entretenus avec diverses parties prenantes (pouvoirs publics au niveau local, partis politiques, universitaires, entreprises, organisations à but non lucratif) pour recueillir leurs réflexions. Celles-ci sont devenues le fondement de 15 études de cas thématiques. Il ne s'agit pas d'études de cas dans le sens universitaire traditionnel du terme, mais d'illustrations de différents aspects de la mise en œuvre du vote à distance. Ces études de cas se répartissent en trois groupes : l'examen de certains aspects du processus de vote à distance ; la description détaillée de l'expérience du vote à distance dans des populations spécifiques ; et des exemples de mise en œuvre du vote sur internet dans certains États membres de l'UE.

Pour finir, nous avons réalisé une enquête en ligne regroupant un panel de 700 internautes dans trois pays européens : l'Allemagne, l'Italie et la Pologne. Cette enquête avait trois objectifs : (1) mesurer les velléités d'utiliser le vote sur internet et d'autres options de vote à distance ; (2) examiner dans quelle mesure le vote sur internet et le vote par correspondance sont susceptibles d'augmenter le taux de participation ; et (3) identifier les facteurs favorisant ou décourageant le recours au vote sur internet.

Résultats : solutions de vote à distance

L'étude catégorise **sept méthodes** de vote à distance disponibles dans les États membres : le vote par correspondance, le vote par procuration, le vote en personne à l'étranger (par ex., au consulat), le vote à un bureau de vote spécial au sein du pays (par ex., à l'hôpital ou en prison), le vote à un bureau de vote mobile, le vote à n'importe quel bureau de vote du pays (c.-à-d. que les électeurs peuvent voter en dehors de leur circonscription de résidence), et le vote sur

[9] Commission européenne (2016c).

internet.[10] Pour le vote à l'étranger, les options les plus courantes sont le vote en personne et le vote par correspondance (19 États membres proposent l'une ou l'autre de ces méthodes, dont 11 qui offrent les deux). Pour les électeurs votant au sein de leur pays de résidence, les procédures de vote à distance les plus courantes dans les pays de l'UE consistent à se rendre à un bureau de vote mobile ou dans une autre circonscription (les deux options sont disponibles dans 17 États membres).

On constate une hétérogénéité des options de vote dans les pays de l'UE, les options disponibles dépendant de l'État membre de résidence et d'origine des électeurs. Pour garantir l'égalité d'accès au vote entre les citoyens européens, on pourrait faire valoir que les options de vote pour l'élection au Parlement européen devraient être identiques dans tous les États membres. Néanmoins, l'harmonisation des options entre les États membres pourrait rencontrer des obstacles, y compris (1) une incompatibilité potentielle avec les traditions électorales des États membres, et (2) le refus de certaines options de vote à distance par certains États membres, dans la mesure où chaque option présente des failles ou implique des coûts administratifs supplémentaires.

Résultats : impact des options de vote à distance

Les options de vote à distance offrent une plus grande accessibilité du vote car elles bénéficient à des personnes qui, à cause de leurs circonstances personnelles, n'ont pas la possibilité de voter ou ont des difficultés à le faire. Il s'agit notamment d'électeurs vivant dans des régions reculées ou à l'étranger, de personnes dont l'état de santé rend difficile le déplacement à un bureau de vote, ou qui ne peuvent pas quitter leur résidence lors de l'élection (par ex., parce qu'elles sont à l'hôpital ou en prison).

Cependant, **chaque option de vote à distance comporte des inconvénients**. Il n'y a, à cet égard, pas de « solution miracle » pour faciliter l'accès au vote, car chaque option, malgré ses avantages, présente aussi des imperfections. Parmi les failles du vote à distance, on compte les difficultés de garantir une identification exacte etd'assurer la confidentialité du vote et l'absence de coercition des électeurs, les risques de manipulation des résultats, et la dépendance aux services postaux ou à la technologie (par ex., connexion internet, appareils utilisés pour voter). De plus, la mise en œuvre de certaines solutions de vote à distance est susceptible de s'accompagner de coûts ou de difficultés administratives supplémentaires pour les pays, en fonction, par exemple, de l'ampleur et de la répartition de leur diaspora et de la nature de leur système électoral.

Il est important de souligner que les résultats d'une option de vote à distance (p. ex., l'incidence sur la participation, ses coûts et le niveau d'acceptation de la population) peuvent également dépendre de **la façon dont les solutions sont conçues et mises en œuvre**. Plusieurs caractéristiques doivent être déterminées en rapport avec chaque option de vote, fournissant différents degrés de commodité et de garanties relatives au secret, à la sécurité et à l'intégrité du scrutin. Par exemple, dans certains pays, les citoyens résidant à l'étranger reçoivent automatiquement les bulletins de vote par la poste, tandis que d'autres doivent soumettre une demande spécifique pour bénéficier de cette option. Cette dernière solution est plus contraignante pour les électeurs. Lorsqu'ils utilisent les urnes mobiles, certains pays appliquent des dispositions supplémentaires pour réduire le risque de coercition. Ils envoient, par exemple, des représentants des autorités électorales ou de la police sur le lieu du vote pour en surveiller

[10] Le vote en ligne est parfois appelé « e-vote » dans la littérature. Nous utilisons ici le terme de « vote sur internet » pour distinguer cette méthode du vote électronique sur machine à voter dans un bureau de vote, que certains désignent également comme « e-vote ».

le bon déroulement. La possibilité de voter dans un autre lieu peut augmenter le risque de double vote, même si certains pays ont un système en place pour vérifier si une personne a déjà voté. Enfin, certains systèmes de vote sur internet permettent aux citoyens de voter plusieurs fois, un mécanisme destiné à contrer la coercition, tandis que d'autres n'autorisent qu'une voix par électeur.

Les avis sont partagés concernant l'impact du vote par correspondance sur la participation. À la revue de la littérature, certaines études concluent à un impact positif sur la participation, tandis que d'autres signalent un effet négatif ou nul. Les résultats de notre enquête en ligne montrent que le vote par correspondance a eu peu d'influence sur celles-ci en Italie et en Pologne (ces paramètres n'ont pas été étudiés pour l'Allemagne, étant déjà disponibles). Il n'est donc pas possible d'affirmer avec certitude que le vote par correspondance augmente le taux de participation. En pratique, il est possible que l'impact du vote par correspondance dépende des autres options de vote à distance disponibles pour l'électeur. En outre, d'autres dynamiques, telles que la volonté politique et le caractère obligatoire ou non du vote, peuvent s'avérer être des facteurs importants.

L'incidence du vote sur internet sur la participation est incertaine. Plusieurs études dans des circonscriptions ayant mis à l'essai le vote sur internet rapportent un haut niveau de satisfaction parmi les électeurs et/ou la volonté d'avoir à nouveau recours à cette option. Cependant, la littérature examinant l'impact sur la participation électorale présente des résultats mitigés. Certaines études ont noté une augmentation du taux de participation, tandis que d'autres n'ont rien observé de tel. Par ailleurs, en raison de la nature même des élections, il est difficile de réaliser une étude expérimentale qui compare l'impact d'une option de vote à distance par rapport à un groupe témoin. Notre approche expérimentale a montré que l'existence du vote sur internet avait parfois un effet positif sur la propension à voter. En Pologne, cet effet a été démontré lors de la prise en compte de la variable de participation à l'élection européenne précédente. En Allemagne, lors de la prise en compte de cette variable, le vote sur internet n'avait pas d'impact significatif dans des « conditions normales » (c.-à-d. lorsque l'électeur n'est confronté à aucun obstacle particulier pour se rendre à un bureau de vote). En Italie, le vote sur internet n'avait pas non plus d'impact significatif sur la propension à voter dans des « conditions normales ». Dans les autres situations (résidence à l'étranger ou invalidité temporaire), le vote sur internet démontrait une incidence significative, sauf lors de l'introduction de la variable de participation à l'élection européenne précédente pour les électeurs à l'étranger. Il importe également de noter que les participants à l'enquête ont déclaré préférer le vote sur internet au vote par correspondance. Néanmoins, il n'est pas possible d'affirmer avec certitude que la mise en place du vote sur internet augmentera le taux de participation. En pratique, il est possible que l'impact sur la participation dépende également d'autres caractéristiques du système électoral, comme la gamme d'options de vote à distance disponibles pour les électeurs.

Les résultats de notre expérience, ainsi que les données de l'enquête Eurobaromètre de 2016 sur les droits électoraux, suggèrent que **les citoyens s'accordent habituellement sur la commodité du vote sur internet, tout en exprimant des préoccupations à son sujet** (par ex., sur la facilité d'utilisation, la fraude, la confidentialité ou d'autres questions de sécurité). Cependant, ces éléments étaient sources de préoccupation pour des proportions différentes de la population entre les États membres.

L'incidence du vote sur internet sur les coûts électoraux est incertaine. On fait souvent valoir qu'un système de vote sur internet pourrait être moins cher que d'autres options de vote. Ainsi, certains représentants d'organes nationaux responsables de questions électorales considèrent que le vote sur internet pourrait permettre de réduire le coût des élections. Cependant, il n'y a pas de véritable consensus dans la littérature sur le rapport coût/efficacité

relatif des systèmes de vote à distance. De fait, peu d'auteurs ont comparé en détail les coûts du vote sur internet par rapport à d'autres systèmes. Le vote sur internet implique des coûts liés au développement, aux essais et au déploiement du logiciel. Cependant, il est important de prendre en compte les potentielles dépenses et économies dans le cadre d'élections multiples organisées sur une longue période. Les coûts peuvent également dépendre de la conception du système de vote et de la combinaison des solutions de vote disponibles.

Les résultats de l'enquête en ligne parmi des électeurs allemands, italiens et polonais ont révélé que les personnes interrogées préféraient généralement **voter sur leur PC** plutôt que sur un smartphone, **utiliser leur navigateur web habituel** plutôt qu'une application ou un programme dédié, et **recevoir leurs codes d'identification en une fois par la poste** plutôt que de suivre un processus d'identification en deux étapes (par courrier et par SMS). Si ce dernier élément semble indiquer que la facilité d'utilisation est importante pour les électeurs, l'option de recevoir des codes uniquement par courrier, par opposition à une identification multi-étapes, peut présenter des risques accrus (puisqu'un tiers pourrait, en volant ces codes, accéder au système au nom de l'électeur admissible). C'est pourquoi les institutions publiques doivent garantir que le mécanisme d'identification choisi soit non seulement facile à utiliser, mais tienne également compte des facteurs de sécurité.

Le début des années 2000 et 2010 a vu la réalisation de nombreux essais ou projets pilotes de vote sur internet, mais ce nombre a baissé ces dernières années. L'Estonie est le seul État membre ayant pleinement mis en application le vote sur internet. En France, il a été utilisé pour les électeurs à l'étranger lors des élections législatives de 2012, mais pas en 2017. Néanmoins, il semble qu'un **regain d'intérêt** apparaisse dans **quelques pays prévoyant d'explorer des solutions de vote sur internet** dans les années à venir. À l'heure actuelle, ont été annoncés des essais de vote sur internet en Bulgarie, en Suède (au niveau local et régional) et au Pays de Galles (Royaume-Uni), et une consultation sur une réforme électorale est en cours à l'initiative du gouvernement écossais, notamment sur la question du vote sur internet. Cependant, des préoccupations concernant les risques de cybersécurité des systèmes électroniques de vote (et leurs conséquences potentielles sur la légitimité des résultats électoraux et sur l'intégrité du vote) persistent.

Les **outils numériques peuvent être utilisés** non seulement pour le vote lui-même, mais aussi **pour d'autres aspects du processus électoral**, pour accentuer son accessibilité et sa portée. Par exemple, plusieurs pays permettent aux électeurs de soumettre des propositions en ligne pour utiliser une option de vote spécifique, et ont déployé des systèmes informatiques pour l'inscription des électeurs, le décompte des votes et la transmission des résultats. De plus, certains pays (comme la Lituanie ou la Roumanie) utilisent un système informatique pour vérifier, le jour de l'élection, si une personne souhaitant voter est inscrite sur les listes électorales et si elle a déjà voté dans un autre bureau de vote du pays. Les électeurs néerlandais résidant à l'étranger reçoivent une carte d'électeur par e-mail, tandis qu'au Royaume-Uni, la reconnaissance optique est utilisée pour valider la signature des votes par correspondance. Enfin, en Croatie, les électeurs peuvent utiliser un formulaire en ligne pour changer de bureau de vote (avec l'option de sélectionner n'importe quel bureau situé dans le pays ou à l'étranger) jusqu'à quelques jours avant les élections.

Conclusions

Les options de vote à distance varient beaucoup d'un pays à l'autre. La mise en œuvre pratique de ces options diffère également entre les pays. Elle peut dépendre, par exemple, du système électoral, de la méthode d'inscription des électeurs, de la conception de la solution, de facteurs démographiques, et des aspects du processus de vote (comme la confidentialité) les plus importants pour la population.

Par conséquent, lors des élections européennes, **les citoyens votent selon des systèmes différents**. Si la proposition d'une approche commune du vote à distance pour les élections du Parlement européen était susceptible de réduire la complexité de la situation actuelle, elle pourrait également affecter les prérogatives des États membres. Il convient aussi de remarquer que si une telle approche engendrait une réduction des options de vote à distance dans un pays en particulier, cela n'encouragerait pas la participation, mais pourrait avoir l'effet inverse.

Chaque option de vote à distance a **des avantages et des inconvénients**. Le vote à distance peut **faciliter l'action de voter** pour plusieurs populations d'électeurs, comme ceux qui vivent à l'étranger ou dans des zones reculées, ceux dont l'état de santé limite les mouvements et ceux qui ne peuvent pas quitter leur lieu de résidence au moment de l'élection. L'impact du vote à distance sur les personnes sans domicile fixe est moins clair, car leur participation est plus étroitement liée à la possibilité d'inscription et à ses modalités, et à la réception de la documentation électorale, qu'à la manière d'exprimer son suffrage.

Si les options de vote à distance peuvent augmenter l'accessibilité pour les électeurs, elles peuvent aussi engendrer des **problèmes** relatifs à la légitimité du vote et un fardeau administratif supplémentaire pour les états. Par exemple, la vérification de l'identité des électeurs et le contrôle de l'élection peuvent se révéler plus difficiles que dans les bureaux de vote classiques.

Il existe à l'heure actuelle **peu de données sur l'impact** des solutions de vote à distance, y compris leurs conséquences sur la participation et sur les coûts d'une élection. De plus, il est possible que les résultats dépendent du contexte, ainsi que de la conception et de la mise en œuvre des options de vote. C'est pourquoi les attentes liées aux solutions de vote à distance doivent être considérées avec prudence et preuve à l'appui, prenant en compte le contexte dans lequel ces données ont été recueillies.

Il convient également d'insister sur la coexistence de nombreux facteurs déterminant la participation. C'est pourquoi l'adoption d'un **ensemble de mesures** pourrait être nécessaire pour les États membres cherchant à augmenter la participation : par exemple, l'amélioration ou la création d'options de vote à distance, la mise en œuvre de campagnes de sensibilisation, ou encore l'application de stratégies destinées à accentuer la confiance dans les institutions de l'UE et dans les acteurs politiques en général.

Enfin, il ne faut pas oublier que les résultats des options de vote à distance peuvent également dépendre de **la conception spécifique du système en question** et du fait qu'elle établit ou non un bon équilibre entre la commodité pour l'électeur et de solides garanties de sécurité du vote.

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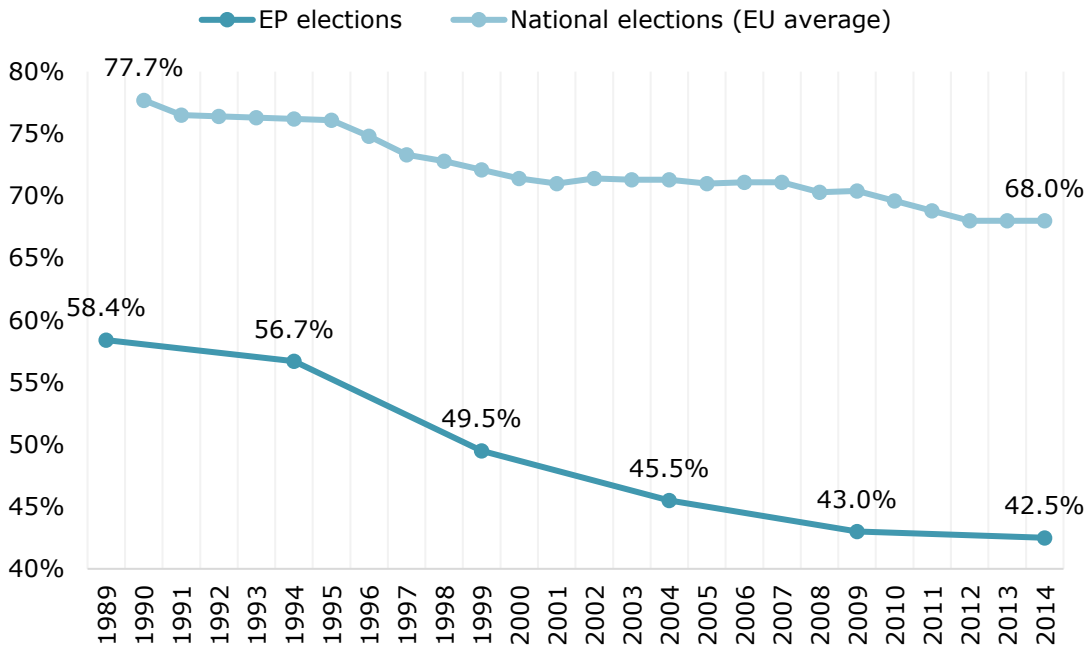
1 Introduction

1.1 Background

Participation in European elections has been steadily decreasing for the past 25 years. The 2014 European Parliament elections saw the lowest voter turnout on record at 42.5%, down from 43.0% in 2009 and well below the 62.0% recorded in 1979.[11] Participation in national elections has also dropped over the same period, although to a slightly lesser extent: in 1990, the EU average turnout for national elections[12] was 77.7%, but by 2014 this figure had fallen to 68.0%.

Figure 1 Voter turnout in national and European elections



Source: International IDEA Voter Turnout Database; Eurostat (tsdgo310).

In a Eurobarometer survey of citizens following the 2014 European elections,[13] the top reasons for abstaining given by respondents who did not participate in these elections were lack of trust or dissatisfaction with politics in general (23%), lack of interest in politics (19%), and a conviction that their vote has no consequences or will not change anything (14%). Reasons for abstaining that could be understood to relate to logistical difficulties or inability to visit a polling station were reported by smaller proportions of respondents. These reasons included being too busy or at work (13%), being on holiday or away from work (10%), health problems at the time of the election (7%), involvement in a family or leisure activity (6%), and registration or voting card problems (4%).

In the aftermath of the 2014 European elections, the Commission stressed how important it was to 'examine further, and seek to address, the reasons for the persistently low turnout'.[14] A 2015 report by the European Parliament on the reform of electoral laws in the EU states that, among

[11] European Parliament (2018b).
[12] EU Open Data Portal (2018).
[13] TNS opinion (2014).
[14] European Commission (2015).

others, remote voting solutions 'can create real added-value and render the European elections more enticing to Europeans and allow them to make an informed choice on political options competing at the European elections', especially for the young and first-time voters.[15] President Juncker's inaugural Political Guidelines include a call to make the EU more democratic as a whole.[16] In the *EU Citizenship Report 2017. Strengthening Citizens' Rights in a Union of Democratic Change*,[17] the European Parliament indicates that the responsibility for promoting voter turnout lies with both the EU and its Member States. More specifically, it encourages EU countries to raise awareness on voting rights and to conduct actions to facilitate voting for people with disabilities and those living far from their assigned polling station. In order to achieve this, the report suggests implementing electronic identification and voting solutions.

This shared responsibility is in line with the European electoral system. Regarding competences in electoral matters, the Treaty on the Functioning of the European Union (TFEU) allocates responsibility to both EU bodies and Member States. European legislation sets some basic rules for the European Parliament elections, such as the proportionality of the system and the right to vote of nationals from EU countries. However, the design of the main provisions is left to individual Member States.[18]

The Council has recently adopted a decision amending the *Act concerning the election of the members of the European Parliament by direct universal suffrage* (1976).[19] The decision includes a new article (4a) stating:

> *Member States may provide for the possibilities of advance voting, postal voting, and electronic and internet voting, in elections to the European Parliament. Where they do so, they shall adopt measures sufficient to ensure in particular the reliability of the result, the secrecy of the vote, and the protection of personal data in accordance with applicable Union law.*

In the preamble of this decision, the Council mentions these remote voting solutions as a means to promote participation. The decision also includes provisions to avoid cases of double voting, establishing that Member states should exchange information regarding nationals from other EU countries who have been included in their electoral roll, and apply penalties where necessary.

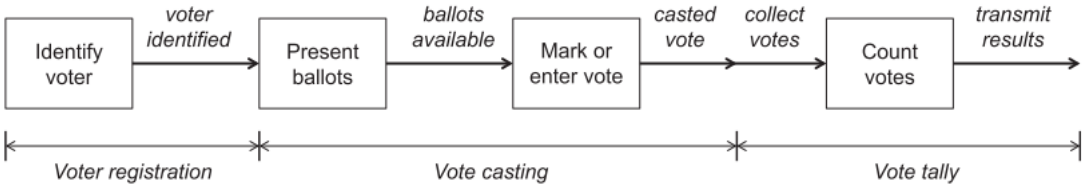
From the point of view of citizens, in a 2016 Eurobarometer survey focusing on electoral rights[20] most respondents agreed that offering remote voting options to EU citizens residing in a different EU country would make it easier for them to participate in national elections. This was true for all three forms of remote voting options covered in the survey – voting from embassies or consulates (viewed favourably by 74% of respondents), electronic or internet voting (71%), and postal voting (68%). However, respondents also expressed reservations about certain aspects of electronic or postal voting. The majority were concerned that the system may be difficult to use for some voters such as people with disabilities and older voters (69%) and about the possibility of a fraud (61%). Just over half of respondents (52%) were also concerned about the secrecy of the vote, while slightly less than half (46%) agreed voters being influenced by others may be an issue.

[15] Nogaj & Poptcheva (2015).
[16] Juncker (2014).
[17] European Parliament (2017b).
[18] Consolidated version of the Treaty on the Functioning of the European Union; Act concerning the election of the representatives of the Assembly by direct universal suffrage (1976).
[19] Council of the European Union (2018).
[20] European Commission (2016b).

1.2 Scope and objectives

All voting solutions are embedded into the **voting process**. This encompasses all the procedures and technologies to address the consultations or elections and can be sketched into three phases: (i) voter registration and identification; (ii) vote casting using ballots; and (iii) vote tally to count and transmit results.

Figure 2 Standard voting process



Source: Jardí-Cedó et al. (2012).

Voting solutions can be classified according to the place where voters have to be in order to cast a ballot. According to this **location-based classification**,[21] voting systems could be broadly classified into the following two categories:

- Poll-site-based solutions. Voters go to a specific building, namely a poll site. This is the most widely used voting scheme.
- Remote voting solutions. Alternatively, voters may remotely cast their vote in remote voting systems.

This study focuses on voter registration and identification and vote casting within the remote voting system category. The following table summarises the different types of remote voting and poll-site-based voting solutions, with bold text indicating the focus areas of this study.

Table 1 Types of remote and poll-site-based voting solutions

	Non-electronic	Electronic
Poll-site-based	• Paper ballots in specified polling station	• Electronic voting machines in specified polling station
Remote	• **Mail voting** • **Proxy voting** • **Paper ballots in distance polling station (e.g. consulate, military base)** • **Mobile ballot box** • **Paper ballots in special polling stations (e.g. in hospital or prison)** • **Paper ballots in a polling station outside the voter's district**	• **Internet voting** • **E-mail voting** • **SMS voting** • **Electronic voting machines in distance polling stations (e.g. consulate, military base)**

Source: Authors' elaboration. Bold text represents the focus of the study.

[21] Jardí-Cedó et al. (2012).

We define **remote voting** as those mechanisms that allow electors to vote by means other than casting their ballot in person at the standard polling station assigned to their district of residence, whether they are abroad or within the country. It comprises both electronic voting (e.g. voting by SMS, internet voting) and non-electronic voting mechanisms (e.g. voting by post, voting by fax, voting by proxy, voting in person from abroad, voting in another district, voting from hospital, prison or home, etc.). Table 2 defines the remote voting options covered in this study, although it should be noted that in practice countries may use different terminology.

The scope of the study includes all type of elections and also other voting events such as referendums or non-binding consultations. However, the main focus has been placed on public elections at European and national level.

Table 2 Definitions of remote voting options covered in this study

Voting method[22]	Definition
Postal voting	The voter receives the ballot by any means but transmits it to the electoral authorities using some form of postal/mail service
Proxy voting	The voter expresses an electoral preference, but the vote itself is transmitted to the electoral authorities by a second party
In-person voting at a polling station abroad	Voters cast their ballot at a regular polling station that happens to be set up in an embassy/consulate or other location abroad
Special polling stations	Voters cast their ballot at a polling station set up in a predetermined location with the purpose of facilitating the vote for particular groups of voters unable to otherwise access a regular polling station
Mobile polling stations[23]/Mobile ballot box	The vote is collected at the voter's location by a state body upon application by the voter (or voter's institution)
Voting in another district	Voters can cast their ballot at a different polling station in the country, other than their designated station, on election day. This may be any polling station, or at a designated polling station in a different district to which the voter is assigned
Internet voting[24]	Voters cast their ballot from a location of their choosing over the internet

Source: Authors' elaboration.

This study **aims** to map the legal provisions and administrative practices in Member States concerning remote voting solutions, analyse the technical solutions actually trialled and/or implemented, and to collect data on Member State policies, experiences and attitudes to such solutions, in order to assess how the EU can best support remote voting where it is provided for in Member States. In order to achieve these aims, we operationalised this study with the following key objectives:

[22] This study does not specifically look at the administration of 'early voting' which takes place in the regular polling station, although some of the voting options under examination (e.g. postal voting; some forms of voting in another district) will involve advance voting in practice.
[23] In some countries, in practice there can be overlap between special and mobile polling stations.
[24] The act of casting a ballot over the internet is sometimes referred to as 'e-voting'. We use the less common term 'internet voting' in this study to distinguish this from other forms of electronic voting, such as electronic voting machines at regular polling stations.

- To achieve a detailed understanding of the current evidence base with regards to remote voting solutions by (i) mapping the current types of remote voting solutions trialled in the EU and globally, and (ii) gathering evidence with regard to the design, costs, challenges and outcomes of various types of remote voting.
- To examine the current status of remote voting solutions trialled and implemented in Member States, including a mapping of the legislative framework, the current policy debates in each case and the experiences and attitudes of key administrative bodies and stakeholder groups with regard to remote voting.
- To identify the main preferences, drivers and barriers of remote voting, exploring particular experiences or attitudes to assess the extent to which these are shared experiences across Member States and stakeholder groups, including citizens.
- To conduct an in-depth examination of the reality of the implementation of remote voting solutions in order to identify challenges, examples of good practice and outcomes at a granular level.

Based on these objectives we formulated seven research questions:

- What types of remote voting solutions are available to Member States?
- Why and how does the operation of these remote voting options vary across Member States?
- What are the implications of this variety of remote voting options?
- What are the benefits of the use of remote voting solutions?
- What are the drawbacks of the use of remote voting solutions?
- What is the impact of the use of remote voting solutions on electoral participation?
- What is the current status of internet voting within the EU?

The outcome of this study will feed into wider-ranging projects on the role of internet tools in stimulating democratic participation and on how digital tools can contribute to the stronger and longer/term engagement of citizens.

1.3 Methodological note

Our analysis is based on mixed-methods and data triangulation principles, using different sources of data and collection methods to reinforce the robustness and solidity of the evidence. The aim is to triangulate the quantitative and qualitative evidence gathered where possible. The following paragraphs describe each of the methods used during the study. Further details are provided in the appendices.

Review of academic and grey literature. The literature review was conducted to get a detailed understanding of the current evidence base in relation to remote voting, to map the current types of solutions trialled in the EU and globally, and to gather evidence with regard to design, costs, challenges and outcomes. Results from the literature review are integrated with each thematic section below. Moreover, the inputs from the review were used to shape the research instruments: guidelines for the in-depth interviews, online questionnaires, and the template to collect country information. Appendix A provides a more detailed description of how the review has been conducted.

Legal and policy research. In order to adequately assess the current landscape of remote voting across Member States, a review of national-level laws and documentation was undertaken to complement the findings from the literature review. The starting point of this review was the previous work conducted by the Council of Europe,[25] the ACE Electoral Knowledge Network[26] and the International Institute for Democracy and Electoral Assistance (International IDEA), which holds data on all countries (including all Member States) regarding the current status and type of remote voting method available, with links to relevant legislation.[27]

This information was complemented with further research on all EU Member States in order to develop a preliminary fiche for each of them. This research included a review of current electoral legislation and relevant documents and other material prepared by governmental bodies and electoral commissions (e.g. reports on elections, guidelines for eligible voters available on official websites, etc.). The research team included native speakers of several EU languages, meaning that sources that were not available in English could also be examined. The information collected provided an overview of the current status of remote voting in each country and a detailed description of each of the options available, any relevant policy debates and future plans related to remote voting, including internet voting.

The template used to compile this material is included in Appendix B. A simplified version of this template, containing the information we had gathered, was shared with Member States for validation.[28] Country representatives filled any gaps during an in-depth interview (see next paragraph) or by submitting written comments. The resulting information was used to develop the county fiche for each Member State, presented in Appendix C, and to prepare Sections 3 and 4. Some information was also used in the case studies presented in Section 1.

In-depth interviews. Two types of interviews were conducted during the study. Firstly, we performed in-depth interviews with Member State representatives to complement our legal and desk research. Country representatives included members of national electoral bodies and members of competent ministries (e.g. Ministry of the Interior, Ministry of Foreign Affairs). We sent the preliminary country fiche by e-mail to these representatives and we subsequently arranged a phone interview with some of them, which lasted around one hour. Others preferred to submit their contributions in writing.

Secondly, we conducted in-depth interviews with a wide range of stakeholders in order to develop the case studies (see Section 1). These stakeholders typically represented local public authorities, political parties, academia, industry and non-profit organisations. Individuals were identified through the literature review and desk research. The interviews were conducted over the phone and lasted around one hour. They allowed us to explore in more depth the issues that had emerged from the earlier data collection and synthesis. The approach to the interviews was adapted their purpose and to the interviewee, as this exercise aimed at including information both on specific initiatives and on general topics relevant for remote voting. For instance, when the purpose was to gather insights on specific initiatives, interviewees were asked about the motivations to implement the initiative, how they selected the technology provider, and what were the main outcomes and challenges. Other interviews focused on general topics, such as how remote voting options ensure secrecy or how they can be observed. Interviewees who

[25] http://www.coe.int/en/web/electoral-assistance/e-voting
[26] http://aceproject.org
[27] http://www.idea.int/data-tools; of particular relevance are the dedicated 'ICTs in Elections' and 'Voting from Abroad' databases.
[28] Three countries – CZ, IE and PL – did not respond to requests for written comments or an interview. These fiches were compiled using publicly available sources.

preferred that their comments not be attributed directly to them are cited using an anonymous identifier (e.g. INT 1, INT 2).

Online survey. A survey was conducted involving an online panel of 700 Internet users in each of three EU countries: Germany, Italy and Poland. Its objectives were to: (1) measure the intention to use internet voting and other remote voting options; (2) test to what extent internet voting and postal voting can increase turnout rates; and (3) identify drivers and inhibitors that explain which people are most willing to use internet voting. The online survey included two experimental tasks. The first aimed at analysing the impact of internet voting and postal voting on turnout rates. The second task was a discrete choice experiment in which participants were asked to choose between two internet voting alternatives in 12 scenarios, in order to identify citizens' remote voting preferences, drivers and barriers. The analysis used a multinomial logistic regression. Appendix D provides a more detailed description of the online experiment conducted.

Case studies. In order to give specific and detailed examples of prior implementation of remote voting solutions, and the costs, benefits and challenges encountered, 15 thematic case studies were conducted. The selection of case studies was made in discussion with DG JUST and on the basis of emerging findings from the literature review and desk research. The case studies have been grouped in three main areas, covering aspects of the remote voting process, the participation of specific groups of voters and internet voting experiences.

The first group examines several issues that arise when implementing remote voting, and which appeared recurrently in the literature review and during interviews with Member State representatives (e.g. the secrecy of the vote, cybersecurity concerns). The second focuses on the voting rights of specific groups, such as voters with disabilities or of no fixed abode, who may have difficulty using some of the voting mechanisms. The third group covers internet voting systems that have been implemented or trialled in the EU. This includes a well-established internet voting system (Estonia), and others that have been abandoned, at least for the moment (France), or that have not been implemented after trial (UK). It also covers initiatives lead by organisations other than national public authorities (e.g. municipal authorities, political parties), in order to have a wider picture of how internet voting is being applied across the EU. Various methods were used to collect data, including in-depth interviews with relevant actors based on a short protocol tailored to each case study, desk research, literature review and comparison of information from the country fiches.

Limitations. This study relied on publicly available information, as well as on interviews with country representatives and other stakeholders. There are some discrepancies between EU Member States regarding what relevant information is available concerning the administration of elections and the extent to which the electoral process is detailed in legislation. Given the discrepancy in existing material, in some cases the focus was on verifying the data, where in others the interviewers were able to discuss broader issues relating to the benefits and drawbacks of remote voting solutions. While all interviewees with regard to country practices held key positions relating to the organisation of elections in their Member State, there may have been subtle differences in their roles and knowledge.

A further consideration relates to the fluid nature of the electoral practices landscape. Although the information contained here is correct at the time of publishing to the knowledge of the research team, changes affecting remote voting options may have been proposed or come into effect during the span or directly after publishing this study. Limitations specific to the literature review and online survey are included in the appendices.

The primary research for this study was conducted from October 2017 – July 2018. Information below, where not individually referenced, is drawn from the information collected for the country

fiches (including document review and interviews with Member State representatives; see appendix C in the accompanying Technical Appendices).

1.4 Structure of the report

The balance of this report is structured as follows:

Chapter 2 gives an overview of remote voting options. It presents a brief analysis of relevant provisions at the EU level, together with relevant standards to be followed in accordance with the provisions of the Council of Europe, the Convention of Human Rights and the European Court of Human Rights. The chapter continues by examining remote voting options currently on offer in EU Member States and relevant provisions in place that are targeted at specific groups of voters.

Chapter 3 presents an overview of non-electronic forms of remote voting. It details the characteristics inherent to postal voting, voting by proxy, voting in person abroad, voting at a special polling station within the country, mobile ballot boxes, and voting in a polling station outside the district in which the voter is registered. For each of these options, the benefits and drawbacks are highlighted.

Chapter 4 analyses the current status of internet voting across the EU. It highlights the barriers and drivers to the uptake of internet voting, and the impact of internet voting on turnout and election results, based on available literature and the insights gained from our interviews with stakeholders.

Chapter 5 presents the results of the online survey, which investigated the intention to use internet voting and other remote voting options, the extent to which internet voting and postal voting can increase turnout rates, and the drivers and inhibitors that explain which people are most willing to use internet voting.

Chapter 6 details 15 case studies grouped into three areas: aspects of the remote voting process, the participation of specific groups, and experiences of internet voting.

Chapter 7 discusses the main findings of the report by addressing the research questions identified above and summarises our conclusions.

In addition we have included technical appendices in a separate document: Appendix A – Overview of the literature review methods; Appendix B – Country fiche template; Appendix C – Country fiches; and Appendix D – Overview of the online survey methods.

2 Overview of remote voting provisions

In this chapter we present the regulatory framework relating to remote voting at European level (European Union and Council of Europe) and within EU Member States. We also provide an overview of the provision of remote voting solutions for certain categories of voters, including vulnerable ones.

2.1 Relevant provisions at EU level

While the EU does not interfere in the organisation of elections within countries, there is consensus around the main principles that surround the organisation of elections in a democracy: any measures and practices relating to remote voting have to be in line with the 'core principles of European electoral heritage as embedded in the current legal frameworks of voting in the European Union and in the Member States… [namely] universal, equal, free, secret and direct suffrage'.[29]

The Charter of Fundamental Rights of the European Union includes two sets of provisions with regard to the organisation of elections: participation (stand and vote) of EU citizens in elections of their representatives in the European Parliament and in municipal elections in their country of residence in the EU.

Legislation governing EU citizens' rights on voting in European Parliament elections is relevant to the debate on remote voting. There are provisions to encourage Member States to avoid disenfranchisement,[30] referring to EU citizens who live in a different Member State to their country of origin losing their voting rights in their country of origin.[31] While such provisions are not consistently applied and there are examples of litigation on the point,[32] the EU position supports the idea that something should be done to promote EU citizen's mobility and avoid the negative consequences of this mobility on their citizen's rights. Although arguably the right to vote can continue without remote voting being in place, since EU citizens can travel back to their country of origin to vote (albeit incurring time and financial costs), the EU position offers tacit endorsement to the idea of remote voting solutions.

In the 2017 resolution on e-Democracy in the EU, the European Parliament indicated its support to initiatives that give EU citizens more and better opportunities to participate in elections, while outlining the opportunities and challenges that should be considered when implementing such initiatives.[33]

In terms of case law, while no European Court of Justice (ECJ) decisions were identified specifically addressing the matter of remote voting, it has ruled on areas of relevance to voting by groups unable to attend the polling station. For instance, the ECJ has held that a Member State can maintain an indefinite ban on voting in European Parliament elections for certain groups of citizens (such as prisoners), but that this must be proportionate to the aim pursued.[34]

[29] Trechsel et al. (2016).
[30] Poptcheva (2015).
[31] European Commission (2014a); European Commission (2014b); European Parliament (2013); European Union (2018).
[32] European Union (2018).
[33] European Parliament (2017a).
[34] Court of Justice of the European Union (2015).

2.2 Supranational provisions for remote voting

In addition to EU law, since all Member States are also members of the Council of Europe and the European Court of Human Rights (ECtHR), elections in the EU should adhere to the standards in the European Convention on Human Rights and ECtHR case law. Furthermore, the Council of Europe has developed a series of (non-binding) recommendations and other technical materials to provide guidelines in the area of remote voting in general, and e-voting in particular.[35] These are known as 'international soft law instruments', and are seen as helpful sources for benchmarking, forming part of the 'regulatory framework in a broader sense'.[36]

The Council of Europe began publishing on this area in 2004. A key document is Recommendation Rec(2004)11 on legal, operational and technical standards for e-voting. It provides 'legal benchmarks to countries and institutions in the region when introducing, operating and evaluating evoting [sic] systems'.[37] It is accompanied by two sets of guidelines, on developing e-voting processes and on transparency in e-voting.[38] The recommendation was updated in 2017 in recognition of technological developments, with a new Recommendation CM/Rec(2017)5[1] on standards for e-voting. The Council of Europe provides further guidance on enacting new e-voting legal frameworks in its *E-voting Handbook*.[39]

The Council of Europe's advisory body on constitutional matters, the European Commission for Democracy through Law (more commonly known as the Venice Commission), has published two key references that are of relevance to the area of remote voting: the *Code of Good Practice in Electoral Matters* and the *Interpretative Declaration on the Stability of the Electoral Law*.[40] More specifically, the Venice Commission has found that 'remote voting is compatible with the Council of Europe's standards, provided that certain preventative measures are observed… [and that] for non-supervised e-enabled voting, technical standards must overcome different threats to those which exist for postal voting.'[41] It also outlined some parameters for implementing e-voting, including that 'the elector must be able to obtain confirmation of his or her vote and, if necessary, correct it without the secrecy of the ballot being in any way violated. The system's transparency must be guaranteed.'[42]

Provided these conditions are met, the Venice Commission suggests that e-voting systems are 'compatible with the European standards on electoral matters, and in particular with Article 3 of Protocol 1 to the European Convention on Human Rights.' Article 3 includes the right for all individuals to vote,[43] subject to a stringent proportionality test.[44] The ECtHR has construed this to mean that voting from prison must be permitted in certain circumstances.[45] In addition, the Convention's Article 8 provision for the respect of private life was successfully relied on in a 2006 case by a person with disabilities who was not able to access a polling booth.[46]

[35] http://www.coe.int/en/web/electoral-assistance/e-voting
[36] Maurer & Barrat (2016), 13.
[37] Council of Europe (2017b).
[38] Council of Europe (2017b).
[39] Council of Europe (2010).
[40] Venice Commission (2011a); Venice Commission (2005).
[41] Venice Commission (2003).
[42] Venice Commission (2003).
[43] At Article 3 of the first protocol, European Convention on Human Rights.
[44] European Court of Human Rights (2017a).
[45] For example, in European Court of Human Rights (2012b).
[46] European Court of Human Rights (2006).

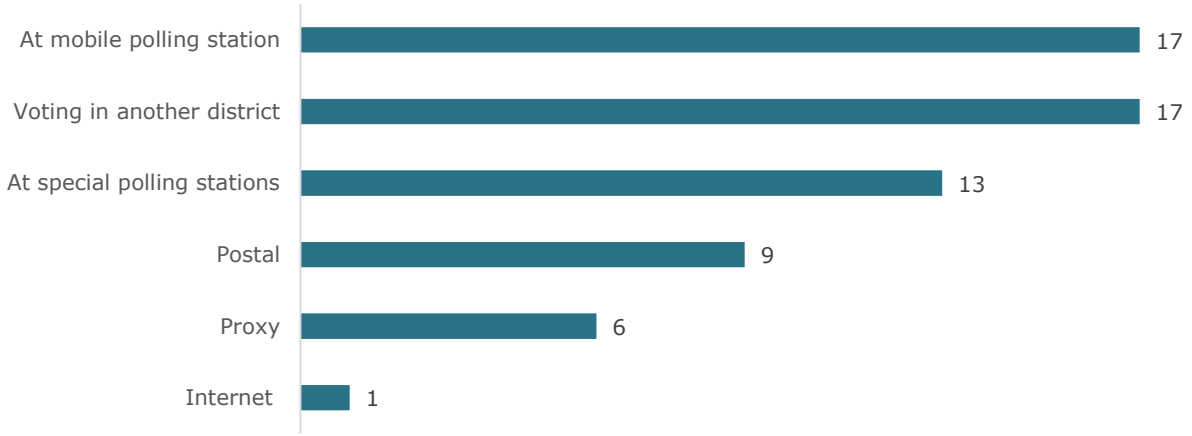
2.3 Remote voting options in EU countries

Several types of remote voting solutions exist and are available for voters both within their country and from abroad. This section introduces Member States' approaches to remote voting, while the different solutions are presented in greater detail in Section 3.

The figures below show how prevalent the various remote voting options are across the EU, both for voting within the country (Figure 3) and from abroad (Figure 4). The graphs display the number of countries that have each specific option in at least one type of election at European or national level (e.g. elections for the European Parliament, presidential elections, national parliamentary elections).

It should be noted that Member States sometimes use the same procedure for more than one of these options and consider them to be part of the same voting mechanism. For example, some employ the same set-up for 'voting in another district' and 'voting in a special polling station'; and there is sometimes a blurred line between special and mobile polling stations. Member States also use different terminologies when referring to remote voting options. Here we have tried to standardise the options across Member States as much as possible in order to provide a clear picture and to allow comparison between countries.

Figure 3 Remote voting options within EU Member States (n=28)



Source: Authors' elaboration, with information from Member States' legislation, official websites and interviews with Member States' representatives. Note: multiple options are possible.

Figure 4 Remote voting options from abroad in EU Member States (n=28)

Source: Authors' elaboration, with information from Member States' legislation, official websites and interviews with Member States' representatives. Note: multiple options are possible.

Within countries the most common options are voting at a mobile polling station (that is, by using a mobile ballot box) and voting in another district in the same country (both are available

in 17 Member States), followed by voting at special polling stations (for example in hospitals or prisons) (13 Member States); 9 Member States offer postal voting, while only six have the option of voting by proxy. Internet voting is only available in Estonia.

The following table shows how voters can cast their vote remotely within their country of residence in each Member State.

Table 3 How electors vote remotely within their country of residence

	Postal	Proxy	At special polling stations	Mobile polling stations	In another district	Internet
Austria	×		×	×	×	
Belgium		×				
Bulgaria			×	×	×	
Croatia			×	×	×	
Cyprus			×			
Czech Republic				×	×	
Denmark				×	×	
Estonia				×	×	×
Finland			×	×	×	
France		×				
Germany	×		×			
Greece			×		×	
Hungary	×			×	×	
Ireland	×			×		
Italy			×	×		
Latvia				×	×	
Lithuania			×	×	×	
Luxembourg	×					
Malta			×			
Netherlands		×	×		×	
Poland	×	×	×		×	
Portugal				×		
Romania				×	×	
Slovakia				×	×	
Slovenia	×			×	×	
Spain	×					
Sweden		×	×	×	×	
United Kingdom	×	×				

Note: In Hungary, postal voting is available only in national parliamentary elections. In Greece, the option of voting at special polling stations is not available in local and regional elections. The option of voting outside the voter's district is not available in local elections in the Czech Republic and Slovenia. It is not available either in local or regional elections in Croatia, Greece, the Netherlands, Poland and Slovakia. In Latvia, it is not available either in local or European elections. In Romania, it is not available either in local or national parliamentary elections. In Lithuania, it is available only for presidential elections. Source: Authors' elaboration, with information from Member States' legislation, official websites and interviews with Member States' representatives.

When voting from abroad (for example, because voters are living in another country or because they find themselves abroad on election day), the most common voting options are voting in person, for example in embassies or consulates, and postal voting (both available in 19 Member States); 11 countries have both options. Only four countries have the option of voting by proxy from abroad. Estonia is the only country that has implemented internet voting for all elections. In France, internet voting is available only in two types of elections and has recently been suspended. Malta does not have any option for voting from abroad.

The following table outlines the various methods of voting from abroad that are available in different Member States.

Table 4 How electors vote remotely from abroad

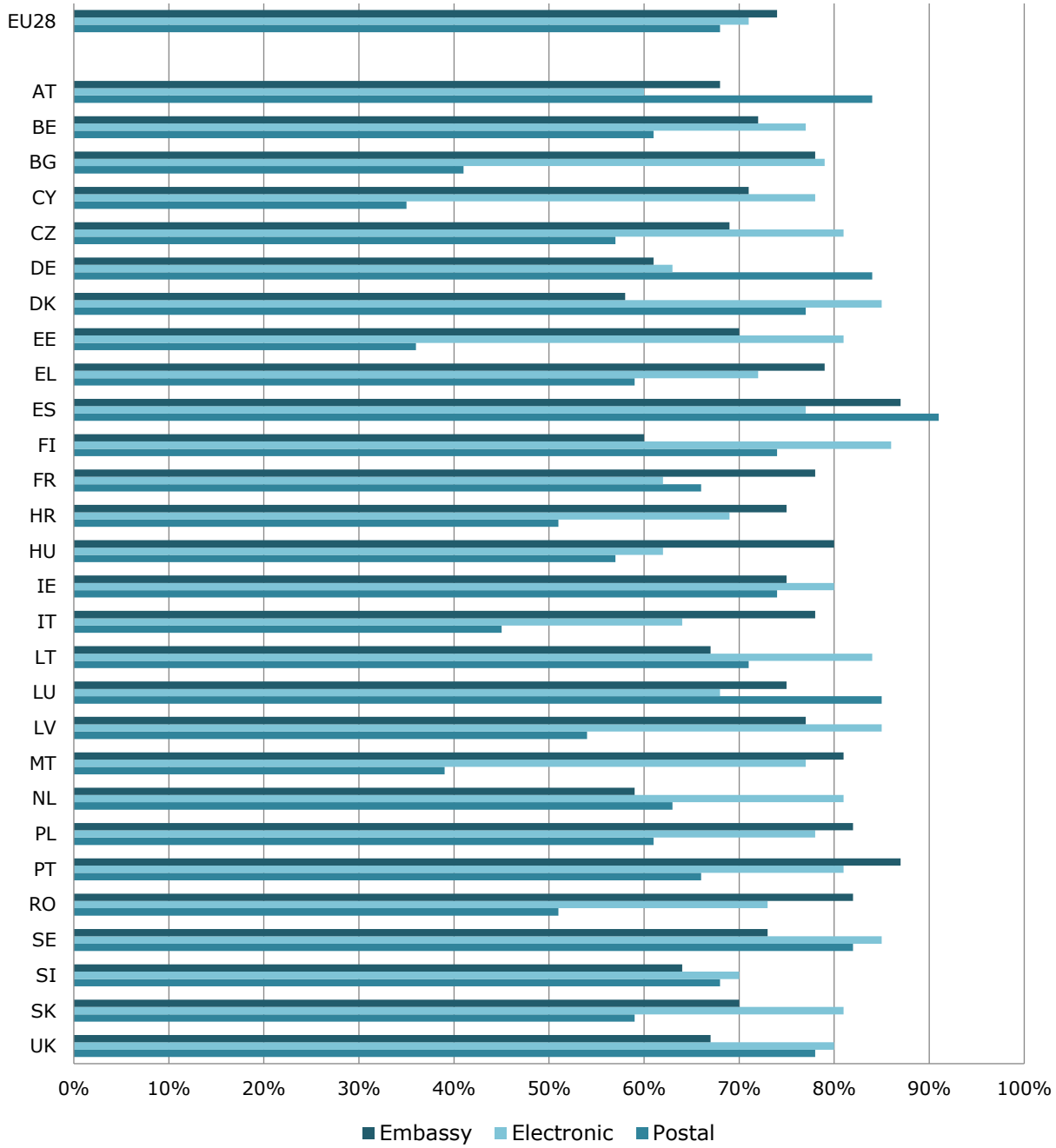
	Postal	Proxy	In person[47]	Internet voting
Austria	×			
Belgium	×	×	×	
Bulgaria			×	
Croatia			×	
Cyprus			×	
Czech Republic			×	
Denmark			×	
Estonia	×		×	×
Finland[48]			×	
France[49]	×	×	×	×
Germany	×			
Greece			×	
Hungary	×		×	
Ireland	×			
Italy	×			
Latvia	×		×	
Lithuania	×		×	
Luxembourg	×			
Malta				
Netherlands	×	×		
Poland			×	
Portugal	×		×	
Romania	×		×	
Slovakia	×			
Slovenia	×		×	
Spain	×		×	
Sweden	×		×	
United Kingdom	×	×		

Note: Voting from abroad is not possible in Malta. It is not available in local elections in Bulgaria, Cyprus, Hungary, Lithuania, Luxembourg, Romania and Slovenia. In the UK voting from abroad in local elections is only available for some specific groups (e.g. service voters). Voting from abroad is not possible either in regional or local elections in Belgium, Croatia, Germany, Italy, the Netherlands and Poland. In the Czech Republic voting from abroad is not possible in European, upper house, regional and local elections. In Greece, voting from abroad is only possible in European elections. In France, Hungary, Portugal, Romania and Slovakia, postal voting from abroad is available only in national parliamentary elections. In Ireland, postal voting from abroad is only available for selected groups and in particular elections (see Irish fiche). In Estonia, voting by post or in person from abroad is not possible in local elections. In Portugal, voting in person from abroad is only available in European and presidential elections. In Spain, voting in person from abroad is not available in local elections. In France, internet voting is possible only for the Consular Assembly (French living abroad).[50] Source: Authors' elaboration, with information from Member States' legislation, official websites and interviews with Member States' representatives.

[47] Voting in person abroad at an embassy, consulate or special location.
[48] Postal voting will be available in Finland to voters abroad for the first time in the parliamentary elections of April 2019.
[49] From 2019, French people who decide to vote from abroad will not vote for local elections anymore but will vote to elect representatives of French citizens living abroad (*elections consulaires*) instead.
[50] France Diplomatie (2018a).

In a 2016 Eurobarometer survey focusing on electoral rights,[51] across the EU as a whole, respondents most commonly cited being able to vote in the embassy of their origin country as the remote voting option which would make it easier to vote if they lived abroad, followed by electronic voting and postal voting. However, the preference for voting method differed at country level, which may reflect in part the options already available to respondents.

Figure 5 Proportion of respondents who agree that different voting methods would make it easier to vote in national elections if living abroad within the EU



Source: Flash Eurobarometer 431: Electoral Rights

[51] European Commission (2016b).

It should be noted that there are other voting options available that are non-remote but that also facilitate voting. Examples include early voting in standard polling stations and accessibility provisions for people who may have difficulty completing the ballot by themselves (see Section 6.2.1). Moreover, the Maltese government subsidises flights with Air Malta for registered voters and their dependents to return to Malta to cast their vote on Maltese territory.[52] The non-subsidised part of the ticket price must be paid by the voters themselves, and this is not refundable. Voters can only fly from Air Malta destinations (21 cities in the 2017 elections). During the last general elections, 1,717 people used this option. This option supports people abroad in returning to Malta to cast a vote in standard polling stations with all the security guarantees of the in-person voting procedure.

2.4 Provisions for specific groups

In this section we present an overview of Member States' provisions targeted at specific groups of voters: persons with disabilities, members of the military, persons of no fixed abode, persons serving on ships, persons resident in hospital or care institutions, expatriates, prisoners, and women. These groups may face difficulties with regards to voting in a normal polling station without specific protection or provisions to facilitate their access. This information is drawn from the country fiches (see appendix C).

2.4.1 Military

For members of the military who are serving abroad or away from their usual home region, exercising their right to vote may be challenging, depending on the means of remote voting available to them.

Some Member States have specific provisions in place to facilitate voting by members of the military. For example, Latvia establishes special polling stations in military units.[53] Spanish military personnel give their completed ballot to the commander of their military unit, who arranges for the votes to be sent to the corresponding electoral authorities.[54] Ireland, which does not permit overseas voting by regular citizens in the majority of elections, enables postal voting for military and diplomatic voters only, including special military courier service to collect votes from countries with a disrupted postal service (useful, for example, for Irish UN peacekeeping troops posted in Syria).[55] Portuguese military voters can cast their vote in advance of the day of the election (early voting) if they are on duty or displaced at the time of the election.[56]

In other countries (e.g. BE, DK, FR, HU, NL, SE, UK) military voters must rely on the same mechanisms as other overseas voters. However, additional support may be available to facilitate registration. For example, the UK has a separate registration service for military voters, which allows registration at a fixed UK address (regardless of subsequent movement due to service)

[52] Interview with the Electoral Office Malta.
[53] Law on Saeima elections; Law on National Referendum, Legislative Initiative and European Citizens' Initiative Elections to the European Parliament Law.
[54] Decree 116/1999, Art. 3. Art. 5.
[55] Thejournal.ie (2014).
[56] Comissão Nacional de Eleições (2018).

either online or by post.[57] Some countries (e.g. EL) also allow military voters to cast their ballot in the constituency where they are serving, rather than their home municipality.[58]

2.4.2 Ships

By nature of their occupation, sailors may be away from their country of residence on polling day. The extent to which special measures are in place specifically for sailors on non-military vessels (such as commercial or research vessels) varies across Member States.

Several Member States (BG, DK, EE, FI, LT, LV, PL) enable elections to be undertaken onboard a ship, whether on election day itself (as is the case for Lithuanian ships[59]) or in advance of election day (as in the case of Finnish, Estonian[60] and Danish ships[61]). Denmark also provides the option for sailors to cast an advance vote onboard a ship one day after an election, which will remain valid until the following election.[62]

Elections onboard are often undertaken under the direction of the master of the ship, who is responsible for aspects of election administration and verification of votes. For example, captains of Finnish ships are responsible for ordering the necessary voting materials (including early voting documents and voting stamps) from the Finnish Ministry for Foreign Affairs or a Finnish embassy in advance of polling day.[63] Captains of Danish ships, upon which voting can take place in advance, are responsible for arranging the advance voting to allow sufficient time for votes to reach the relevant election authorities in Denmark.[64] On Lithuanian ships, in which voting takes place on the national election day, the captain is responsible for counting the votes received and transmitting the total to the Central Election Commission by radiogram.[65] Captains of Bulgarian vessels are responsible for compiling the electoral rolls of eligible voters onboard and notifying the relevant municipal administrations in Bulgaria.[66]

Other Member States make no specific provision for ship personnel, although sailors can vote by the remote voting means available to other voters, by making their own arrangements for voting by post or proxy or at an embassy/consular polling station (e.g. UK[67]). In the case of postal voting, this may mean making arrangements in advance to have the necessary voting materials sent to a port where they are expected to stop.

2.4.3 Voters of no fixed abode

The extent to which people of no fixed abode, i.e. without a fixed geographical location as a residence (including people who are long-term homeless), are able to exercise their right to vote is unclear across the EU. Many voter registration procedures implemented by Member States revolve around the voters' residential or mailing address. An address is often needed to provide eligible voters with the required documents to cast a vote, such as a poll card or postal ballot,

[57] UK government (2018a)
[58] Law 3852/2010, article 11
[59] https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/10831a4018db11e5bfc0854048a4e288?jfwid=tu0odnkka
[60] The Riigikogu Election Act, Art. 56.
[61] Folketing (Parliamentary) Elections Act, Art. 58.
[62] https://elections.oim.dk/advance-voting/advance-voting-for-voters-abroad/
[63] 1998/714 53 §.
[64] https://valg.oim.dk/vaelgere/brevstemmeafgivning/
[65] Law on Elections to the Seimas; interview with Lithuanian Electoral Authorities.
[66] Election Code, Art. 28, 29, 30, 216.
[67] Interview with UK Cabinet Office.

and can be used as proof of identity. This presents a challenge for people of no fixed abode, and in practice may prevent them from registering to vote.

In some cases, special provisions are made for registration by this group. Poland,[68] for example, allows people of no fixed abode to register in a municipality in which they permanently reside even if they do not have a fixed address. Slovenian nationals without a permanent residence may vote in the constituency of their or their parents' last permanent residence,[69] and Spanish voters in person or postal voters can vote in the constituency of their last address. In the UK, people of no fixed abode can register in a particular municipality by using a 'Declaration of Local Connection' to a local address, for example a homeless outreach centre or a designated Traveller's site;[70] the required correspondence (such as poll cards or postal ballots) can also be collected from this location. In Hungary, provision for homeless people to register to vote by post is made for parliamentary elections (through the same registration process that is in place for expats), but no provision is made for local or European elections.[71]

In some Member States, registration is not possible without a permanent address, making it de facto impossible for voters without a residence to join the electoral roll unless they are permitted to use the address of a friend/relative or local service (such as a homeless shelter). They may face additional barriers relating to documents required to register or vote, such as identification documents. For many Member States, information about registration by people without a fixed address could not be found by the research team in publicly available sources or voter information websites. For a more in-depth discussion on this topic, please see section 6.2.2.

2.4.4 Travelling communities

One particular group who may be affected by a lack of facility for voter registration by people of no fixed abode are members of the Gypsy, Roma and Traveller (GRT) communities and others such as travelling show-people, who choose to travel full-time or for a significant portion of the year. The ability to vote in an election may be complicated by a lack of understanding that re-registration is required when moving to a new address, or administrative barriers to settling in the Traveller's municipality of choice, such as a lack of available sites or denial of permission by local authorities. Previous analysis of the barriers to political participation by the Roma community has shown that they may face challenges surrounding practicalities of voting, most obviously in the obtaining of necessary documentation.[72] In addition, it should be noted that there are wider barriers to voting by Roma, such as poverty-related low levels of education and limited numbers of political representatives.[73]

However, once registered, the situation is somewhat similar to that of voters of no fixed abode, as outlined above (and discussed in more detail in section 6.2.2). We did not identify centrally held legislation concerning remote voting by Travelling communities, although there have previously been instances of this (e.g. in France, where legislation providing for specific registration requirements for Travellers was found to be discriminatory by the Council of Europe's

[68] KW, Art. 28.
[69] National Assembly Elections Act, Art. 7.
[70] http://www.rboa.org.uk/wp-content/uploads/2017/04/Part-F-Special-category-electors-March-2010-2-1.pdf
[71] The Fundamental Law of Hungary Article XXIII (1, 2, 3, 6).
[72] Council of Europe. (2016).
[73] OSCE/ODIHR (2006), 6.

European Committee of Social Rights on the grounds that in some cases it prevented Travellers from becoming residents of municipalities and so being able to vote[74]).

2.4.5 Expatriates/external voters

All Member States offer the franchise to at least some citizens residing overseas, although the method and extent to which remote voting is enabled differs markedly across countries; for example, UK expats are eligible to vote in national-level elections for 15 years after emigration,[75] while Ireland offers voting only to diplomatic or civil service professions, or to emigrants for 18 months after emigration.[76]

Some Member States allow expats to vote in national-level elections in the constituency to which they have a personal connection (such as that of last residence, as in EE[77] and UK), while others include all expat votes within a designated constituency (for example, Polish expats vote in the Warsaw constituency[78], and Latvian voters in the constituency of Riga[79]). Some Member States have also established overseas constituencies for expat voters. France, for example, has established dedicated constituencies for expats (defined by geographical areas).[80]

The majority of Member States offer either postal, embassy and proxy voting (or a combination of these) to enable their eligible overseas citizens to vote. The most common remote voting methods offered to citizens resident overseas are postal voting and voting in person at an embassy or consulate. Some Member States (e.g. CY,[81], PL[82], BG[83]) also offer additional non-consulate polling stations in areas with a high eligible voter population. A handful of Member States (NL, UK, FR) permit proxy voting, but it is never the sole option available to vote from abroad. Estonian expats can make use of internet voting, which is also available to citizens within the country.

Malta does not offer remote voting mechanisms for expats, and Greece only does so in European elections for those who are in another EU Member State. A 2002 judgement by the Grand Chamber of the ECtHR in the case of Greece found that although the Greek constitution provided the right to vote for overseas citizens, the country was not legally obligated to provide the means to do so, and so this was not a violation of Article 3 Protocol 1 of the ECHR.[84] Malta, which places a heavy emphasis on the integrity of the individual vote, mandates in-person voting but offers subsidised flights for overseas expats in partnership with Air Malta.[85] Greece, Ireland and Malta have all experienced internal campaigns by expatriate citizens for the right to vote, and the Irish government has set out plans to hold a referendum on extending the franchise to citizens abroad in 2019.[86]

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[74] Council of Europe (2012), 209.
[75] At the time of writing, plans are currently being discussed by the UK Government to offer 'votes for life' for expats (UK Government 2018).
[76] https://votingrights.ie/resources/faq/
[77] Riigikogu Election Act (2002), Art. 50 & 52.
[78] https://mfa.gov.pl/en/news/poles_vote_abroad?channel=www
[79] https://www.cvk.lv/pub/public/32011.html
[80] http://www.senat.fr/lng/en/senators/the_senatorial_elections.html
[81] http://www.moi.gov.cy/moi/moi.nsf/All/E31B929BF83ECA35C2258217002AB42B?OpenDocument
[82] https://mfa.gov.pl/en/news/poles_vote_abroad?channel=www
[83] Election Code, Art. 12, 13, 14.
[84] European Court of Human Rights (2012a).
[85] Interview with the Electoral Office Malta.
[86] Stampoulopoulos (2018); Department of Housing, Planning, Community and Local Government and the Department of Foreign Affairs and Trade (2017).

The responsibility of maintaining the electoral roll, including the register of voters living abroad, rests with different parties. In some states (e.g. BE, FR, IT,[87] LV), embassies and consulates keep track of voters under their remit; some do not differentiate between those living permanently or temporarily abroad (BE, LV).[88] In the Netherlands, it is the municipality of The Hague that maintains the registry of all eligible voters abroad.[89] Spain keeps separate electoral registers for Spaniards who are permanently abroad and those who are temporarily abroad.[90]

2.4.6 People with disabilities

One often claimed benefit of the provision of remote voting options is the ability to increase the voting means available to voters with disabilities that may prevent them from attending a regular polling station unaided. The Charter of Fundamental Rights of the European Union enshrines anti-discrimination principles and a general right to vote (Articles 21 and 39 respectively). Other non-EU but intergovernmental legislation of relevance include the UN Convention on the Rights of Persons with Disabilities (CRPD), the International Covenant on Civil and Political Rights,[91] and the Copenhagen Document.[92] In addition, in its European Disability Strategy 2010–2020, the EU commits to address the issue of access to voting by people with disabilities.[93]

In March 2018, the European Parliament recognised the need to end discrimination against people with disabilities, improving accessibility to voting among other things and bringing the situation further in line with the UN Convention on the Rights of Persons with Disabilities (CRPD).[94] According to the European Union Agency for Fundamental Rights (FRA), Member States have made considerable progress regarding the political participation of people with disabilities, including by ratifying the CRPD and integrating it into national legislation and policies.[95]

However, the FRA noted that compliance varies greatly between Member States. In addition, several legal, administrative and resource barriers continue to hamper political participation of people with disabilities, including a lack of appropriate support or assistance during voting procedures. The Organization for Security and Co-operation in Europe (OSCE) reiterated in their handbook on *Observing and Promoting the Electoral Participation of Persons with Disabilities* the need for enhanced involvement and consultation with people with disabilities, as this is one of the reasons why accessibility arrangements are currently insufficient.[96]

In 2011, the Office of the United Nations High Commissioner for Human Rights (OHCHR) conducted a study on the participation of people with disabilities in political and public life and recommended only using alternative ways of voting in cases where it would otherwise be (nearly) impossible for those with disabilities to vote in the same manner as their compatriots.[97] As an example, the study mentions that some countries allow people with disabilities to vote from their car or at special polling stations.

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[87] Law 459 of 27 December 2001. Art. 2 and 17.
[88] Venice Commission (2011b).
[89] https://www.denhaag.nl/nl/bestuur-en-organisatie/verkiezingen/kiezers-buiten-nederland/permanente-registratie-voor-kiezers-buiten-nederland.htm
[90] LOREG. Art. 75; Royal Decree 1621/2007, Art. 5.
[91] Office of the United Nations High Commissioner for Human Rights (OHCHR) (1966).
[92] Conference on Security and Co-operation in Europe (CSCE). (1990).
[93] European Commission (2010).
[94] European Parliament (2018a).
[95] European Union Agency for Fundamental Rights (FRA) (2014).
[96] OSCE/ODIHR (2017c).
[97] Office of the United Nations High Commissioner for Human Rights (OHCHR) (2011).

In practice, Member States provide different approaches to voting by people with disabilities. These are discussed in the paragraphs below as well as in a dedicated case study (see Section 6.2.1). Provision of reasonable accommodation is 'an important part of enhancing accessibility',[98] and this report recognises this fact and discusses reasonable accommodation measures as part of broader accessibility considerations.

In some Member States, there are dedicated voting alternatives for people with disabilities or health problems. In the remaining Member States, people with disabilities or health problems are not specifically regulated for, and they can either vote using the same alternative methods as other voters or can only vote in polling stations.

The main dedicated remote voting option available in many Member States to people with disabilities is the use of a mobile ballot box, in which the ballot box is brought to the voter's residence to collect their ballot (see section 3.5). This usually requires advance application, and may require some form of medical certificate or attestation of eligibility from a medical professional. Member States that do not offer mobile ballot boxes (including CY, ES, FR, LU, UK) may still allow voters to use other remote options (such as proxy or postal voting) to cast their vote. In the case of France,[99] the use of proxy voting is facilitated for voters with disabilities and there is an exemption to the obligation/right to cast the vote alone, in case assistance is needed.

Some Member States (HU[100], IE[101]) offer voters with disabilities the option to vote at a different polling station if their specified site is inaccessible. In this case, the local election authorities are primarily responsible for identifying and organising suitable alternatives.

Registration of people in need of additional support is most often done through the usual election authorities. Some countries (e.g. UK) request proof of eligibility for proxy voting in the form of an attestation by a medical professional or a medical certificate.[102]

Member States often provide special equipment or allowances in regular polling stations to facilitate the act of voting by people with disabilities (such as Braille or large-print ballots), and where applicable these options are sometimes available for remote voting options.

Further guidance on participation of people with different kinds of disabilities is outlined in a Declaration by the Council of Europe's Venice Commission, in which the Commission affirmed the relevance of the key principles of universal, equal, free and secret suffrage to people with disabilities.103 Finally, we note that, in the context of the upcoming European Parliament elections in 2019, the European Economic and Social Committee is currently preparing a report on this area, anticipated to address issues including the key mismatch between rights and practicalities for voting on the ground.[104]

2.4.7 People in hospital/care homes

People who are resident in institutions such as hospitals or long-term care facilities may have difficulty travelling to a specified polling station on election day.

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[98] European Union Agency for Fundamental Rights (FRA) (2014), 5.
[99] https://www.interieur.gouv.fr/Elections/Comment-voter/Le-vote-des-personnes-handicapees
[100] Electoral Procedure. Art. 150, 282.
[101] http://www.citizensinformation.ie/en/government_in_ireland/elections_and_referenda/voting/facilities_for_voters_with_disabilities.html
[102] https://www.gov.uk/government/collections/proxy-voting-application-forms
[103] Venice Commission (2011a), para II.1.2.
[104] European Economic and Social Committee (2017).

Two main options for in-person voting by people unable to travel in these circumstances are employed by Member States. Firstly, a mobile ballot box (in which the ballot box is brought to the institution by request of the voter to collect their ballotsee section 3.5) can be used. This usually requires advance application and may require some form of medical certificate or attestation of eligibility from a medical professional.

Secondly, some Member States also provide for the establishment of special polling sites within institutions see section 3.4, whether in advance of election day or on the election day itself. The establishment of special polling stations is usually done on the basis of the particular number of voters present (for example, Italy requires a minimum of 200 beds for a health institution to be a valid setting[105]). Malta establishes voting mechanisms in each of its five state hospitals and care facilities with over 50 residents as standard poll sites.[106]

Member States that do not offer special in-hospital provision or mobile ballot boxes (e.g. CY, ES, and UK) may still allow voters to use other remote options (such as proxy or postal voting) to cast their vote. Some states also make provision for short-notice registration in the case of unexpected absences (such as unexpected hospital admission). For example, in France the use of proxy voting is facilitated for voters in hospital or those who cannot physically go to their polling station for health reasons. This implies a public officer going to collect the proxy at the home of the principal or in the hospital/care home. The UK permits registration of an emergency proxy vote up to 5.00 p.m. on polling day.[107]

Registration of people in need of additional support is most often done through the usual election authorities, although in some cases hospital authorities are involved in aspects of administration, such as collating voter lists (e.g. BG, CZ, LT) or providing information to prospective voters (DK).

2.4.8 Prisoners

In contrast to people with disabilities and the military, whose voting rights appear to be absolute, prisoners' rights depend on the severity of their crimes and the approach taken by their Member State.[108] The majority of Member States make some provision for prisoner voting by law.[109] Those that bar some or the majority of the prison population from voting may make provision to enable the casting of ballots by prisoners who are on remand (for example, in pre-trial custody but not yet convicted of a crime); for example, prisoners on remand in the UK can vote by the standard remote voting methods available to the wider population (post or proxy).[110]

Various options are provided in by other Member States. Some set up special polling station sites within prisons in order to allow prisoners the opportunity to cast their vote in person, whether as a designated polling site or through the visit of a mobile ballot box to the prison premises. Some Member States allow prisoners to participate in remote voting methods offered to the wider citizenry, such as postal voting or proxy voting. France and Malta permit prisoners

[105] D.P.R. 30 March 1957, n. 361, Art. 51; D.P.R. 16 May 1960, n. 570, Art. 42.
[106] General Elections Act, Art. 77.
[107] Excluding Northern Ireland; https://www.yourvotematters.co.uk/how-do-i-vote/voting-by-proxy.
[108] The ECJ has held that a Member States can maintain an indefinite ban on voting in European Parliament elections for certain nationals, but that this must be proportionate to the aim pursued. See Court of Justice of the European Union (2015). Similarly, the (albeit not EU) European Court of Human Rights has noted that the 'severe measure of disenfranchisement must not… be resorted to lightly'. See European Court of Human Rights (2017b). Within this context, different Member States take different contextualised positions on the right of prisoners to vote. In 11 Member States prisoners are disqualified from voting in at least one type of election.
[109] In a number of Member States, including Luxembourg and France, the right to vote can be removed as part of the sentence.
[110] https://researchbriefings.parliament.uk/ResearchBriefing/Summary/CBP-7461

to leave their prison under certain conditions in order to cast their ballot in person in regular constituency polling stations.[111]

Any remote voting solution for prisoners has to address a variety of challenges. For example, the short window for registration and fast-changing prison population were challenges pointed to by a spokesperson for the Irish Prison Service.[112] Conditions relating to registration and identity verification vary across the different voting methods. Prison authorities often play a central role in the administration of elections within their institutions, for example by compiling voter lists, facilitating access to registration mechanisms by prisoners, and witnessing votes or verifying the identity of prisoners in the case of postal voting. Prisoners may vote in the constituency of their former residency, whether by using their last address or a declaration of local connection or in the constituency in which the prison is situated; for example, prisoners serving a sentence greater than six months in France can register in the municipality in which the prison is located.[113]

The emphasis on in-person or proxy voting means that in a majority of Member States, voting by prisoners takes place on the actual election day. However, those systems that involve postal voting will, as with regular postal voting, mean that prisoners' votes are cast in advance of election day. In Denmark, prisoners hand in their completed ballots to the vote receivers in advance of the national election day.[114]

2.4.9 Women

Another group for which the availability of remote voting may have an effect is women. One reason may be that on average they have greater caring responsibilities,[115] which makes it more difficult for them to vote in person. Women may therefore benefit from specific legislation/arrangements in relation to voting.

A secondary consideration for remote voting solutions in which the vote is cast from the voter's home or other 'non-official' setting (as, for example, in the case of postal and internet voting) is that there is a risk of increased coercion. The 2006 *Declaration on Women's Participation in Elections*[116] adopted by the Venice Commission states that suffrage should:

[111] https://www.service-public.fr/particuliers/vosdroits/F1227; interview with the Electoral Office Malta.
[112] Penal Reform International (2016).
[113] https://www.service-public.fr/particuliers/vosdroits/F1227
[114] BEK No. 1136 of 18/10/2017, chapters 1 and 2.
[115] Fondazione G. Brodolini (2011).
[116] Venice Commission (2006).

> 'exclude[s] any form of "family voting", whether committed in the form of group voting (where a [male] family member accompanies one or more [women] relatives into a polling booth), in the form of open voting (when family groups vote together in the open), or in the form of proxy voting (where a [male] family member collects ballot papers belonging to one or more [women] relatives and marks those papers as he sees fit).'

However, in practice the monitoring of votes cast remotely in non-polling station settings is difficult to implement. Although declarations on women's participation in elections have been made at the European level (for example, by the Venice Commission), no explicit provisions for women with regard to the casting of ballots were identified in national legislation.

Some countries have implemented specific measures to introduce special protections against coercion. When casting internet ballots in Estonian elections, voters are able to 'cancel' or change their vote up until the end of polling day by voting in person.[117] Coercion of voters to vote in a particular way is often a criminal offence in Member States, with criminal penalties (including prison time) for transgression.

The UK implements special measures for women who are subject to particular domestic abuse protection orders by enabling an 'anonymous' voter registration. Women are able to register as 'anonymous' voters on the basis of an attestation by a professional (including police inspectors, medical practitioners, nurses, midwives and refuge managers), meaning their name and address will not appear on the (public) electoral roll.[118] Voters who register in this manner may then vote in person, by proxy or by post (the three standard voting options in the UK) in the usual manner. Anonymous voter status is granted for 12 months.

In Denmark, advance voting is possible in temporary accommodation for women who have suffered domestic violence.[119]

[117] Riigikogu Election Act. Art. 48[7]; https://www.valimised.ee/en/internet-voting/internet-voting-estonia
[118] Electoral Commission (2018a).
[119] Folketing (Parliamentary) Elections Act, Art. 53.

3 Options for non-electronic remote voting

In this chapter we present an overview of the status of non-electronic remote voting options employed by Member States, including key implementation considerations, and benefits and challenges associated with each method.

3.1 Postal vote

Table 5 Examples of approaches to postal voting

- In the **United Kingdom**, the voter must register online or by post and receives the voting materials by post to their address. When casting their ballot, the voter completes a postal voting statement, which includes personal identifiers (date of birth) and a witness signature. The voter is responsible for returning the postal ballot to their local election office by freepost or in person in sufficient time to be included in the vote count. A scanner is used to match the signature on the received postal ballot statement to that on the postal voting application, and disparities are reviewed by election personnel to determine whether the mismatch is sufficient to render the ballot invalid.
- In **Austria**, voters apply to municipal authorities for a voting card online (up to four days in advance of election day) or in person (until two days in advance). Voters abroad must apply in sufficient time to receive their ballots. Voters must provide an identity document number and specify a reason, although the latter is not necessarily verified by authorities. Once issued to them by post, they must use the voting card to cast a ballot. The voting card can be used to vote at any polling station in the country by handing it in person to the local election authorities, or as a postal ballot from within the country or abroad. The voting pack includes an affidavit to declare that the vote was cast unobserved and free from influence. Voters post the ballots back to the respective polling station using a freepost envelope or by submitting it in person at an Austrian embassy/consulate to be returned by diplomatic mail.
- Prisoners in **Ireland** can submit a postal ballot. This right was established by The Electoral (Amendment) Act 2006, before which prisoners were permitted to vote but no provisions were made to facilitate this. Prisoners vote in the constituency they were resident in prior to incarceration. Prisoners can join the Register of Electors by filling out a form available at their prison.[120] They can then complete a postal ballot and declaration of identity (witnessed and signed by a relevant prison official) in the same way as non-incarcerated postal voters. The vote is handed to prison officials, who arrange to have it sent to the relevant constituency returning officers.

3.1.1 Overview

Voting by post, either within a voter's home country or from abroad, is available in 20 EU countries. Postal voting is currently used in 10 Member States from within the country and in 19 from abroad. Implementation is also planned in Finland (for voters casting a ballot from abroad). Most countries that organise postal voting from within the country also organise it from abroad, except for Poland.

Eligibility to use postal voting varies; some countries restrict its use to certain categories of voters (e.g. people in hospital or unable to vote for health reasons) or for certain elections only

[120] https://www.donegalcoco.ie/media/donegalcountyc/registerofelectors/pdfs/RFG1%20-%20Postal%20Supplement%20-%20Prisoners%20English.pdf

(e.g. those permanently abroad and for legislative elections only in Portugal); in other countries eligibility is extended to all voters without the need to specify a reason.

The following table summarises the availability of postal voting in EU Member States (in at least one type of election), specifying whether it is used to vote within the county or from abroad, and who is eligible to use it.

Table 6 Voting by post in EU countries

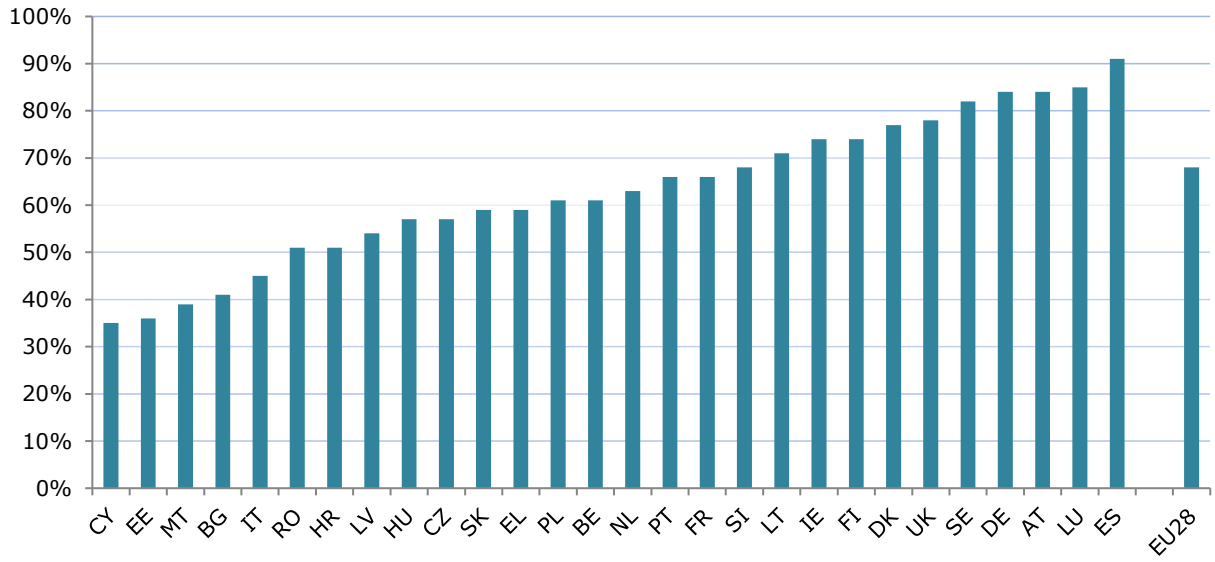
Country	Within country	From abroad	Who is eligible?
Austria	✓	✓	Eligible voters within Austria or permanently or temporarily abroad
Belgium		✓	Eligible voters residing outside Belgium (permanently or temporarily)
Bulgaria			n/a
Croatia			n/a
Cyprus			n/a
Czech Republic			n/a
Denmark			n/a
Estonia		✓	Eligible voters residing outside Estonia (permanently or temporarily)[121]
Finland (*planned)*		✓	Eligible voters who do not have a place of residence in Finland or who are abroad during the voting period[122]
France		✓	Eligible voters registered at the consulate of their place of residence abroad
Germany	✓	✓	Eligible voters within Germany or permanently or temporarily abroad
Greece			n/a
Hungary	✓	✓	Eligible voters with no Hungarian address[123]
Ireland	✓	✓	From abroad: military and civil servants serving overseas, and their spouses/partners. From within Ireland: Prisoners, people with a physical disability, students who wish to vote in their home constituency, occupational reasons. Elections for university seats for the upper house are conducted by post but are restricted to graduates of selected academic institutions
Italy		✓	Eligible voters resident abroad[124] or temporarily abroad for work, study or medical care, for a period of at least three months; including military and police[125]
Latvia		✓	Eligible voters resident abroad
Lithuania		✓	Eligible voters permanently or temporarily abroad
Luxembourg	✓	✓	Eligible voters aged above 75, with a valid health reason or with a justified professional or personal reason;[126] eligible voters resident abroad. *From the next elections, all voters will be able to opt to vote by post without providing a reason*
Malta			n/a
Netherlands		✓	Eligible voters residing outside of the Netherlands and those temporarily abroad who have registered to vote from abroad
Poland	✓		Eligible voters with a disability[127]

[121] Riigikogu Election Act. Art. 49.
[122] 2.10.1998/714- 66 a § (14.12.2017/939).
[123] Homeless people not having registered a settlement as residence and Hungarian citizens living abroad (Electoral Procedure. Art. 266)
[124] They can also vote in person in Italy, if they inform the corresponding diplomatic or consular mission within year preceding the year of the natural end of Parliament (Law 459 of 27 December 2001. Art. 3 and 4).
[125] Law 459 of 27 December 2001, Art. 4-bis (1, 5).
[126] L'essentiel (2018).
[127] KW, Art. 53a.

Country	Within country	From abroad	Who is eligible?
Portugal		✓	Citizens residing abroad at the time of the election and registered on electoral lists abroad
Romania		✓	Eligible voters residing outside the country
Slovakia		✓	Eligible voters permanently or temporarily abroad
Slovenia	✓	✓	Eligible voters temporarily or permanently abroad or in special situations (military, workers in care in retirement homes, hospitalised,[128] prisoners, and people with disabilities[129])
Spain	✓	✓	All eligible voters temporarily[130] or permanently abroad.[131] From within the country: all eligible voters
Sweden		✓	Eligible voters permanently or temporarily abroad
UK	✓	✓	All eligible voters with no reason required (Great Britain). Eligible voters with a specified reason (Northern Ireland)

In a 2016 Eurobarometer survey focusing on electoral rights,[132] respondents differed in their agreement as to whether postal voting would make it easier to vote in their national elections if living abroad, ranging from 35% of respondents in Cyprus (which does not currently have postal voting) to 91% in Spain (which does). A majority of all age groups agreed, from 71% of respondents aged 65+ compared to 66% of those aged between 15 and 34. There was no correlation between gender or rural/urban residence and agreement with this statement.

Figure 6 Proportion of respondents who agree that *postal voting* would make it easier to vote in national elections if living abroad within the EU



Source: Flash Eurobarometer 431: Electoral Rights.

[128] National Assembly Elections Act, Art. 81.
[129] http://www.dvk-rs.si/index.php/en/where-and-how-to-vote/postal-votes-within-slovenia
[130] Royal Decree 1621/2007, Art. 5.
[131] LOREG. Art. 75.
[132] European Commission (2016b).

3.1.2 Registration and identification

Since postal voting takes place in the voter's home or other remote location without the presence of election authorities, the process may be vulnerable to fraud or to 'family voting'. A key element of the administration of this remote voting option is therefore the procedure by which voters apply to use the method, and how the identity of person casting the vote is confirmed to be the same as the original applicant.

The way voters register for and are identified[133] in the context of postal voting varies across Member States. In some Member States (e.g. IT, PT, SI), postal voting is automatically activated for voters registered at the relevant embassy/consulate as permanently resident abroad. However, in most cases a direct application on behalf of the voter is required to use this method (e.g. UK). In France, a two-step registration is required (e.g. an application to register as resident abroad and a second application to vote by post). Often these applications can be done by electronic means, but sometimes an in-person application is required. The time span to request the vote can also influence the ease of use of this mechanism.

Another important element of postal voting is how the identity of the voter is verified. Member States employ different methods of verifying the identity of the postal voter (with some using multiple methods):

- Verification at the point at which the **voter registers for the voting mechanism** (for example, by submitting ID along with the application form).
- Verification at the time of **receipt of the voting materials** by the voter (e.g. presentation of ID in order to receive the ballot in Spain).
- Verification at the point at which the **vote is cast**, for example by mandating the completion of a self-declaration of identity, a copy of the voters' identification documents to be submitted together with the vote, or requiring the signatures of witnesses.

The table below summarises the registration and identification provisions in the Member States that have implemented the postal vote.

[133] In this section, 'registration' refers to the act of requesting access to a remote voting solution (e.g. postal voting), while 'identification' of the voter (i.e. checking the identity of the person who votes) can take place at the time of registration and/or at the time the vote is cast.

Table 7 Postal voting: registration and identification

Country	Registration	Identification
Austria	From abroad: need to register to be included (or remain) in the electoral register. All: apply for a voting card (online, telephone, e-mail, in person, post)	When applying for a voting card, voters need to either present or submit an identification document. Outer envelope signed by the voter
Belgium	Registration at the embassy or consulate. Register for the elections	Identification details when sending the envelope
Estonia	Application must be sent to the Estonian foreign mission in their country of residence or to the closest one[134]	Copy of the identity document included in the application.[135] Name and personal identification code in the outer envelope[136]
France	Registration at the consulate. Application to use this option. By regular mail or e-mail	Copy of the ID or passport sent with the ballot
Germany	From abroad: registration in their last place of residence in Germany. Both: application to the municipal authority, in person, by fax or by e-mail	Signature on the application for postal ballot and the polling card
Hungary	Application to register in central electoral register	Voter identification declaration form
Ireland	Application to the local election authorities.[137] Form signed by voters' employer/educational institution, or the Peace Commissioner/Commissioner for Oaths	Declaration of identity completed at a police station
Italy	Permanently abroad: no application needed. Temporarily abroad: application. By post, telefax, e-mail or proxy[138]	Copy of voter's ID included in the request. Counterfoil in the envelope with the elector details
Latvia	Registration to vote by post at the embassy/consulate	Need to submit a valid passport at the moment of registration to vote. Election registration form sent together with the vote
Lithuania	Voter registration application. It can be submitted online	A polling card with the voter's name is included in the external envelope
Luxembourg	Application	Voters from abroad send a copy of their passport or ID together with the application
Netherlands	Registration as an abroad voter. It can be submitted online	Ballot accompanied by a copy of an identity document
Poland	Application. It can be submitted electronically[139]	Identification document when receiving the electoral package and acknowledgment of receipt
Portugal	Voters living abroad need to enrol on the consular electoral list at the consulate	ID number and copy of voting card[140]
Romania	Application to the consulate (in person, online, or by post)	Signed form confirming one's identity
Slovakia	Application for a postal ballot	Identification during registration for postal voting

[134] Riigikogu Election Act (2002), Art. 50 & 52.
[135] Riigikogu Election Act (2002), Art. 50 & 52.
[136] Riigikogu Election Act (2002), Art. 52.
[137] Some members of the Seanad (Upper House) are elected by graduates of the National University of Ireland in an all-postal ballot. Eligible voters (graduates) are given forms to register for the postal ballot by their university upon graduation or upon request at a later time.
[138] Prefettura di Venezia (2016).
[139] KW, Art. 53.
[140] Comissão Nacional de Eleições (2018).

Country	Registration	Identification
Slovenia	Within Slovenia: application. Temporarily abroad: application by post, by fax, or by e-mail (signed and scanned). Permanently abroad: no application needed	A handwritten signature on the voting card
Spain	From Spain: application in person at the Post Office. Temporarily abroad: application in person at the Consular office. Permanently abroad: application by post, fax or via the internet	From Spain: identification document to receive the electoral material; sign a proof or receipt. From abroad: copy of the ID/passport and certification of being registered in CERA sent together with the vote
Sweden	Need to register every 10 years. Order voting materials. By e-mail, telephone or via web form	Two witnesses supervise the signing. Votes received ticked off against the electoral register
UK	Online or postal application to vote by post	Witness statement at point of vote-casting. Completion of postal voting statement with identifiers (birth date and signature) and signature. Identifiers may be checked against those submitted with the postal voting application records by human staff or an automated system to flag discrepancies

3.1.3 Vote casting

For postal voting to be a success, it should be guaranteed that: (1) voters receive the voting material with sufficient time to return the completed ballot before electoral deadlines; (2) the secrecy of the vote is preserved; and (3) votes are received and processed by the competent authority. These points are covered below.

Receipt of the voting material by the voter

In the majority of countries, voters receive the voting materials by post (e.g. BE, EE, FR, IE, IT, LV, LT, SE, UK). An important aspect of the administration of the postal voting mechanism is the dispatch of voting material to voters with sufficient time for them to return it to the national election authorities.

For postal voting from abroad, this may be highly dependent on the performance of local postal services or conditions during transit. For example, the 2010 general election in the UK was affected by the eruption of the Eyjafjallajökull volcano in Iceland, which interrupted air traffic across Europe for several weeks. There were reports that postal ballots did not reach overseas voters in time as a result.[141] Slovenian expats have reported late delivery of postal ballots in previous elections due to a strike by the Argentinian postal service, and as a result of hurricanes in the United States causing disruption to postal services.[142] This may be a particular issue in countries such as the Netherlands in which the period of time between final nomination of the candidates to be listed on ballot papers and the election day is short, meaning time to print and deliver the ballots to overseas voters is limited.[143] In most countries voting material is sent out about a month in advance.

[141] Hyslop (2010).
[142] Interview with the Member State representative.
[143] Election Process Advisory Commission (2007).

Several countries have put in place systems to mitigate issues linked to voters not receiving voting material on time. Some countries use registered mail to ensure that documents are not lost (e.g. LT, RO,[144] ES[145]). In the Netherlands, since the European elections of 2014 voting documents may be sent to voters abroad by e-mail to enable them to return completed votes in the short time period available.[146]

Some countries have also instituted emergency measures to issue replacement documents to voters who have not received their voting materials or who do not wish to rely on postal services. In the UK, replacements for lost or spoilt ballots can be issued to voters in person until up to 5.00 p.m. on polling day. In Italy, voters who have not received an electoral pack by 14 days before election day may apply to the consular office for one.[147] This office may issue another voting certificate and a second ballot paper. In Germany, Hungary[148] and Poland,[149] voting material is posted but can also be collected in person.

Vote casting

In order to preserve the secrecy of the vote, most countries employ a two- or three-envelope system to enable identifying details to be checked without revealing the content of the ballot. At the moment of counting, the electoral authorities opens the outer envelope to identify the voter and it then places the inner envelope in the ballot box without opening it, thus ensuring that no link can be made between voters' identity and their vote.

In the two-envelope system (AT, BE, EE, LV, LT, LU, NL, PL, RO, ES, UK), the inner envelope contains the vote and the outer the voter's identification. In France and Sweden there are three envelopes: in France, a second inner envelope is used to enclose the identification details, and in Sweden the ballot is enclosed within two envelopes before being placed in a third for shipping.

Additional measures may be employed to ensure secrecy during the transit process. For example, in Lithuania a special seal on the envelope is used to identify whether it has been opened.

Transmission of the vote

In most cases voters abroad send their envelope either directly to their country or to the consulate, which sends it to their assigned polling station or to a central body. Several countries have provisions in place to facilitate the process for voters and ensure that the vote arrives on time. In Spain, people can send the ballot at no cost through certified and urgent mail in person at the post office.[150] A similar system is in place in France. In Germany, the Federal Government has a contract with one postal service provider who is in charge of the special postal ballot service. In Austria, voters have the option to drop their envelope off at an embassy to have it delivered through diplomatic mail.

In some countries (e.g. PL, UK), the envelope can be delivered in person to the authority in charge of the election. In France, voters who have requested a postal ballot can still decide to

[144] Election Law on Voting by Post. Art 10 (6).
[145] LOREG, Art. 73 and 75.
[146] Kingdom of the Netherlands (2017).
[147] Law 459 of 27 December 2001, Art. 12.
[148] Electoral Procedure. Art. 277.
[149] KW, Art. 53e.
[150] LOREG, Art. 73.

vote at the polling station on the day of the elections. In one constituency, this occurred for up to 50% of those who requested a postal vote for the 2012 French legislative elections.[151]

3.1.4 Counting

The system for counting postal ballots differs across Member States. In some countries (e.g. SE, LU), they are counted **at local polling stations, together with other votes**.[152] In Spain, postal votes sent within Spain or by voters temporarily abroad are counted at local polling stations along with other votes; however, votes from those permanently abroad are counted by the provincial Electoral Board on the day of the final count.[153]

In several countries the capital city's constituency is in charge of counting votes from abroad. French consulates transmit postal ballots to Paris and votes are counted the day of the election in a special polling station in the city. Likewise, in the Netherlands The Hague municipality appoints a post-only polling station that counts votes cast by post from abroad.[154] In Estonia, ballot papers of voters permanently abroad are counted by the Tallinn City Vote Counting Committee; those from voters temporarily abroad are counted by their corresponding voting district committee, together with the votes from the normal voting process.[155] In Romania, votes are counted by the special Electoral Board for postal voting at the same time as normal votes.[156]

In some countries the counting happens later than for votes cast at polling stations. In Slovenia, postal votes from within the country are counted one day after the votes from the normal procedure, and those from abroad later on, as they can be accepted until the eighth day after the election day.[157] In the Netherlands, counting of postal votes is allowed to go on later than for votes cast at regular polling stations, meaning postal votes may not be included in unofficial first results.

3.1.5 Benefits, drawbacks, outcomes and future plans

Take up of postal voting and effect on turnout

Postal voting is often used as a means to increase participation by citizens abroad. For example, in Finland the introduction of postal voting from abroad was presented as an opportunity to increase voting possibilities for many Finnish expatriates.[158] However, evidence of the effect of postal voting on turnout is mixed. Take-up may strongly depend on the context in which postal voting is organised: the postal voting option was only chosen by 2% of voters from abroad for the 2012 legislative elections in France, in which voting at the consulate, proxy voting and internet voting were also available.

This situation is well illustrated by evidence generated by studies focusing on postal voting in the United States. A substantial body of data comes from Western states in the United States, which have implemented 'vote by mail' (VBM) schemes and in some instances moved to VBM-

[151] Court of Auditors (2016).
[152] Electoral Law. Art. 178.
[153] Interview with the Member State representative.
[154] Dutch Elections Act (Kieswet).
[155] Riigikogu Election Act (2002), Art. 55 and 59.
[156] Election Law on Voting by Post. Art. 14 and 15.
[157] Information provided by the Slovenian State Election Commission
[158] http://oikeusministerio.fi/artikkeli/-/asset_publisher/kirjeaanestys-ulkomailla-tulee-mahdolliseksi

only elections. Several studies from Oregon and Washington have found positive impacts on turnout.[159] These results were not, however, replicated by a subsequent study[160] that extended the original analysis, suggesting the existence of a novelty effect. Furthermore, other researchers found a negative effect.[161] Some studies of VBM[162] have argued that postal voting encourages turnout by minority and other low-turnout groups (e.g. young voters, people with little prior vote history). Other studies have found the opposite effect, for instance with respect to ethnic minorities.[163] Some authors[164] have observed that well-off individuals tend to benefit most from the introduction of VBM.

In terms of whether the vote is a clear and valid preference, Alvarez, Beckett & Stewart III (2013) observed in the United States that increases in mail voting are associated with increases in residual votes, i.e. spoilt/invalid or uncounted ballots. A study of Oregon's VBM system[165] concluded that VBM leads to decreases in the volume of roll-off voting, i.e. situations where individuals vote only in races that appear towards the top of the ballot and do not make a choice in elections that are listed further down the ballot.

A series of UK pilots from 2000–2004 trialled a system of all-postal ballots for a local election. Voters on the electoral roll were sent a postal ballot by default without the need to make a specific request and could return the ballots by post or attend a special station in person to hand it directly to officials if preferred. Evaluations of the pilots found that turnout generally increased in the all-postal areas. However, stakeholders' views were more nuanced in qualitative responses to a consultation by a UK parliamentary committee.[166]

Statements that the use of postal voting increases participation should therefore be considered with caution. However, there is a consensus around the fact that postal voting is a way to make participation more convenient for 'disadvantaged' voters, as illustrated in the next sub-section.

[159] Southwell (2009a); Gerber, Huber & Hill (2013).
[160] Gronke & Miller (2012).
[161] Kousser & Mullin (2007); Bergman & Yates (2011).
[162] e.g. Gerber, Huber & Hill (2013); Southwell (2010b).
[163] e.g. Berinsky (2005); Bergman & Yates (2011).
[164] e.g. Berinsky, Burns & Traugott. (2001); Karp & Banducci (2001); Bochsler (2009).
[165] Southwell (2009a).
[166] House of Commons (2004).

Benefits and drawbacks

Table 8 Postal voting: benefits and drawbacks

Benefits	Drawbacks
• It can be used by people who live in **remote areas.** • It can be used by people who **live abroad**, including those with no consulate nearby. • It may be easier to use for people who are sick or have a **disability**. • It may be used by people in **hospital**, long term care facilities or similar institutions. • It may be used by **prisoners** (provided they are not disenfranchised). • It could facilitate voting of people with **no fixed abode** (except if the only way to obtain the voting material is through delivery to a home address). • It may entail **less travelling** for voters (depending on whether they live need to travel to submit the application and/or their postal ballot).	• Voting takes place in an **uncontrolled environment**. It is difficult to ensure that the person votes freely and without coercion. • There is the risk that another person votes on behalf of the voter (It is difficult to **identify** the voter). • The vote may be **intercepted** and **manipulated.** • It is difficult to **observe** the whole voting process. • **Postal services** may not work well in certain countries, or their service may be disrupted. • Voters may not receive the voting **material on time.** • Ballots may get **lost or damaged**, or they may arrive **late** at the place of counting. • It may be difficult to **verify** that the vote has arrived. • The procedures for requesting the vote and for sending the ballot are sometimes criticised for being too **bureaucratic.** • Sometimes voters need to **pay for the postage.** • It implies some **costs** for the public administration, as well as organisational efforts. • Votes usually need to be cast **in advance**. From this moment until Election Day the voter may change their electoral decision if new information becomes available.

As opposed to a personal vote, **voting by post is available from anywhere**, as long as there is access to a postal service. As a result, postal voting has in some cases been used to make voting possible for a certain category of voters who would not otherwise be able to vote (e.g. voters who live far from their polling station). The introduction of postal voting in Luxembourg was intended to facilitate voting for such voters, for whom voting was either unavailable or available at a higher cost (e.g. because of travel expenses).[167] Enabling voting by citizens living abroad also motivated the introduction of postal voting in France in the 1970s.[168] The leading party in Cyprus at the time of writing, DISY, proposed postal voting in order to facilitate voting by people who live in districts other than the one of their official residence;[169] however, the proposal was dropped due to the complexity of this electoral procedure.

As mentioned in Section 3.1.3, one of the main risks is that voting documents reach voters **late** and also that the ballots arrive late at the place of counting. The French government openly recommends not using postal voting in countries where postal services are slow.[170] In Spain the

[167] Explanatory statement of the law of 14 March 1984.
[168] Court of Auditors (2016).
[169] CyprusMail (2016).
[170] France Diplomatie (2017a).

press has relayed complaints from voters who did not receive their documentation in time to vote;[171] while there is an option to extend the voting period if needed,[172] there are calls to reform the vote from abroad system, including by extending shipment deadlines and improving delivery guarantees.[173]

Some stakeholders consider that the use of postal voting does not guarantee **accurate identification, secrecy of the vote** and **free voting**, at least not in the same way as personal voting in polling stations. For instance, there is the risk that the vote may be intercepted or changed due to coercion, or that a single member of a family votes for everyone.[174] Unlike with in-person voting, it is not possible to observe the whole voting process, potentially leaving the voting method vulnerable to fraud or coercion (e.g. 'family voting', in which a family member directs their spouse and dependents on how to vote or actively intercepts their ballots). In the UK there have been convictions for **electoral fraud** through the manipulation of postal ballots.[175] While fraud was not necessarily openly mentioned, there have been discussions in France about the extent to which postal voting was in line with the principles of secrecy and freedom of the vote.[176]

Sending the materials to allow voting by post entails some **costs** (the cost of collecting the votes, the post costs, contracting out a postal services provider, issue of the postal ballot documents, etc.). The French Court of Auditors (Court des Comptes) has estimated that the cost of sending materials by post to all voters from abroad for two elections (presidential and legislative) was about EUR 1.9 million, compared to EUR 6,000 for sending material electronically for one election (consular) in 2014.[177] In Spain, for voters who used postal voting from abroad, the press has reported that those trying to get their related costs reimbursed have had issues.[178]

Future plans

Postal voting is an established mechanism of voting within Europe, and some Member States with no current provision have indicated that they may consider implementing it in the future. The Irish government published an Options Paper in 2016 that sets out potential future franchise and voting arrangements and concluded that postal voting may be the best model in the short term if overseas voting were to be introduced.[179] The scope of postal voting and its extension has also been the subject of debate in Slovakia[180] and in February 2018 the Slovak parliament considered (but rejected) a proposal to allow postal voting for the European Parliament elections.[181] On the other hand, the French Court of Auditors recently recommended removing postal voting from the options available for French voters living abroad, on the grounds that postal voting is expensive, that take-up is low, and that there is no evidence that it increases participation.[182]

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[171] La Vanguardia (2017); Catalansalmon.com (2018)
[172] http://www.exteriores.gob.es/Consulados/ANDORRA/es/Consulado/Paginas/Articulos/ELECCIONES-21D.aspx
[173] https://exterior.podemos.info/paso-mas-acabar-voto-rogado/; Marea Granate (2017).
[174] See, for example, Roßmann (2017).
[175] See, for example, BBC News (2005); additional postal ballot security measures have since been introduced.
[176] Court of Auditors (2016).
[177] Court of Auditors (2016).
[178] Eldiario.es (2016).
[179] Department of Housing, Planning, Community and Local Government and the Department of Foreign Affairs and Trade (2017).
[180] For example, Slovenské Národné Noviny (2016).
[181] Teraz.sk (2018).
[182] Court of Auditors (2016).

3.2 Voting by proxy

Table 9 Examples of approaches to proxy voting

- In **Sweden**, ballots are sent to voters by post. Voters fill in the ballot themselves at their chosen location and place it in the first envelope. The first envelope is then placed within the outer envelope, together with a second signature by the proxy voter and a second witness. The completed ballot is taken to the polling station by the proxy.
- In the **Netherlands**, any eligible user can use voting by proxy without having to apply for it. When regular polling cards are sent to the corresponding address of each voter, voters have the option to assign a proxy by indicating this on the polling card itself. The proxy voter presents the polling card and a copy of the voter's identity documents at the polling station.
- In **Belgium**, a signed proxy vote application has to be submitted to the municipality where the principal is registered. The mandated proxy voter's own invitation letter to participate in the elections sent by the City Council is supplemented with a notice of authorisation to vote on the behalf of the principal. The proxy presents this at the polling station to cast the proxy vote. Each proxy may only vote for one other voter.

3.2.1 Overview

Proxy voting describes when a voter (the proxy) votes for another person (the principal). Voting by proxy is only available in six EU countries. It is often used by people in special circumstances (disability or other health problems, imprisonment, students, professionals, etc.). In France and the Netherlands, proxy voting can be used by all eligible voters. In France, it is open for both voters within the country and from abroad, and it is actually the only remote voting solution for voters within the country. In Belgium, it is only available for voters who are on holiday abroad, and not for those who are on holiday within the country.

The proxy votes at the polling station of the principal, unless they apply to use remote methods (such as in Belgium, where proxies can vote at overseas polling stations, or in the UK, where they can vote by post). In France, the proxy and the principal must be registered in the same constituency.

Table 10 Voting by proxy in EU countries

Country	Where can proxies vote?	Who is eligible?
Austria	Not available	
Belgium	The proxy votes for the principal at their Belgian municipality or at a Belgian embassy or consulate	Eligible voters with a specific reason. For example, those unable to go or be taken to the polling station due to illness or infirmity, professional or service reasons, circumstances related to studies, imprisonment, military service and religious beliefs
Bulgaria	Not available	
Croatia	Not available	
Cyprus	Not available	
Czech Republic	Not available	
Denmark	Not available	
Estonia	Not available	
Finland	Not available	
France	The proxy votes for the principal at their French polling station or at an overseas polling station	All eligible voters. The proxy must be registered in the same municipality or on the same consular electoral list as the principal
Germany	Not available	
Greece	Not available	
Hungary	Not available	
Ireland	Not available	
Italy	Not available	
Latvia	Not available	
Lithuania	Not available	
Luxembourg	Not available	
Malta	Not available	
Netherlands	The proxy votes for the principal at a polling station in the Netherlands	All eligible voters
Poland	The proxy votes for the principal at a polling station in Poland	People who are elderly or who have disabilities[183]
Portugal	Not available	
Romania	Not available	
Slovakia	Not available	
Slovenia	Not available	
Spain	Not available	
Sweden	The principal fills in the ballot at their location, and the proxy transports it to the polling station	Voters who are unable to visit a polling station due to age, illness or disability, or people in custody or jail
UK	The proxy votes for the principal at the principal's designated polling station	Voters who are absent on polling day (e.g. due to holiday, education or employment), or have a medical issue or disability that prevents in-person voting

3.2.2 Registration and identification

Registration requirements vary across countries. In the Netherlands, there is no need to submit an application in advance. When regular polling cards are sent to the corresponding address of each voter, voters have the option to assign a proxy voter by indicating this on the polling card

[183] KW, Art. 54.

itself. The principal signs the voter pass, declaring the proxy is allowed to vote on their behalf[184] and then the proxy casts the vote at the polling station.

In other countries, a proxy vote must be requested in advance. In France, the proxy can be established until the day before the election, depending on the opening days and times of the place in which the proxy is established (police station, tribunal, city hall, online form signed and sent by post). In the UK, voters usually apply in advance, but an 'emergency' proxy can be requested up to 5.00 p.m. the day before the poll, in case of emergency circumstances (such as arrest or hospitalisation) prevent the voter from attending the polling station. In Poland, a proxy cannot be established later than nine days before the election day.[185] The situation even differs within countries – between those living within the country and those who live abroad. Belgians living abroad need to establish their proxy no later than 20 days before the day of the elections; however, Belgians living in Belgium can simply hand over their proxy vote on the day of the elections.[186]

France facilitates the establishment of proxies for voters with disabilities. If the principal cannot request the proxy themselves, the proxy can be initiated from the home of the principal or a hospital (for health reasons, with medical certificate).

The table below provides an overview of the registration and identification procedure for proxy voting in Member States where this remote voting solution is available.

Table 11 Proxy voting: registration and identification

Country	Registration	Identification
Belgium	From abroad: submission of a signed proxy vote to the municipality or consulate in advance. From Belgium: no registration required.	Identity card and polling card of the proxy (with an excerpt of the proxy)
France	Establishment of the proxy. Police station, tribunal, city hall, by post, from home	When establishing the proxy: ID document (passport or ID card) of the principal. When voting: ID document (passport or ID card) of the proxy and signature
Netherlands	Voter signs the poll card to authorise the proxy	Copy of the voter's identification document
Poland	Power of attorney to vote drawn up in the presence of a commune clerk	Proxy's identification document Power of attorney.
Sweden	Request materials from the Election Authority	Proxy and a witness verify the identity of the voter
UK	Registration in the electoral register (online) and application to vote by proxy	Polling card checked against list of proxy voters

With regard to identification, different methods are used depending on the administration of the system. In Belgium, the proxy voter hands the proxy vote to the chair of the polling station, showing his identity card and his own polling card on which the chair will state the voter has cast a proxy vote.[187] In the UK, the proxy voter presents the principal's polling card at the polling station and their name is checked against a list of designated proxy voters. In France, the identification of the principal takes place at the time of registration and the identification of the

[184] https://www.kiesraad.nl/verkiezingen/tweede-kamer/stemmen/volmacht
[185] KW, Art. 56.
[186] Belgian Elections Act. Art. 180 quater. § 3.
[187] Belgian Elections Act. Art. 180 quater. § 5.

proxy when the vote is cast. In the Netherlands, the proxies present the signed poll card and a copy of the authorising voter's identification document.[188] In Poland, the proxy presents both a power of attorney and their own identification document at the time of voting.[189]

3.2.3 Vote casting

Once registration and identification are completed, proxy voting for the proxy voters follows the same process as in-person voting. The proxy can vote inside a polling booth in order to guarantee the secrecy of the vote. Nevertheless, secrecy of the vote between the voter and the proxy cannot be maintained.

The exception is Sweden, in which proxy voting follows steps similar to postal voting: the voting materials are delivered by post to the voter, who fills the ballot as in the normal election and places it within the first envelope. The voter is supposed to do this in private. The first envelope is sealed and placed within the outer envelope, together with witness sign-off. The main difference is that instead of sending their vote by post, the principal gives the envelope to a proxy who will themselves deliver it at the polling station, where the votes are ticked off against the electoral register.

There are often limitations on the number of proxy votes per person. In Belgium, each proxy may only vote for one other voter.[190] In the Netherlands, one person is allowed to cast a maximum of two proxy votes alongside their own vote.[191] In the UK, individuals can only vote on behalf of two others, with the exception of family members. In France, there is only one proxy vote possible if within the country, but a second[192] and third[193] proxy vote is possible on behalf of voters abroad. Such limitations can reduce the risk of large-scale vote-buying.

3.2.4 Counting

Because ballots are cast at a regular polling station by the proxy voter, counting for proxy voting follows the same process as if the votes were cast in person by the principal instead of the proxy.

[188] Dutch Elections Act Art. L 17.
[189] KW, Art. 56.
[190] Dutch Elections Act. Art. 180 quater. § 2.
[191] Dutch Elections Act (Kieswet) L 4.
[192] http://www.gouvernement.fr/voter
[193] France Diplomatie (2017b).

3.2.5 Benefits, drawbacks, outcomes and future plans

Table 12 Proxy voting: benefits and drawbacks

Benefits	Drawbacks
• It can be used by people who live in **remote areas.** • It can be used by people who **live abroad**, including those with no consulate nearby. • It may be easier to use for people who are sick or have a **disability.** • It may be used by people in **hospital**, long term care facilities or similar institutions. • It may be used by **prisoners** (provided they are not disenfranchised). • It may entail **less travelling** for voters (this also depends on whether they need to travel to a specific location to establish the proxy). • The proxy votes in a **controlled environment**. Thus, the proxy votes freely and without coercion. • There is no dependency on the postal services. • There is no risk that votes get lost, damaged, or arrive late at the place of counting. • It implies **low costs** for both the voter and the public administration, as the proxy votes in the standard polling stations. • Voters decide who they want to trust	• It may entail some additional **travelling for the proxy** if they do not vote in the same location than the principal. • There is **no secrecy** of the vote between the voter and the proxy. • It is difficult to ensure that the proxy does not **coerce** the voter to obtain the authorisation. • The proxy can decide to vote according to the own preferences, **changing the voter's will.** • Some people may not find an appropriate person to trust with their vote. • Due to the limitations on the number of proxy votes per person, there might not be enough proxies. • The proxy may **falsify the documents** authorising him/her to vote on behalf of the principal) •

Voting by proxy broadens the options to vote for those who cannot travel to a polling station and it makes voting more convenient for some voters, including vulnerable ones. Proxy voting is popular in the Netherlands[194] and in France, in which it is the only remote voting option for voters within the country.

The main drawback is that there is no way to ensure the proxy follows the principal's voting instructions. Therefore, the voter does not have the guarantee of a free and secret vote. There is always a chance that voting under pressure might occur, or that a vote could be changed by the proxy. The system thus relies strongly on trust between the principal and the proxy. Measures to mitigate the risk of distorting votes include limiting the number of proxies per proxy voter. This makes massive vote-buying more complicated. However, this restricts the use of proxy voting in practice, since principals are at risk of not finding a 'free' proxy available to vote in their place. Another option is the Swedish model of 'ambulant vote collectors', in which the principal voter marks the ballot themselves and they give it to the proxy in a sealed envelope.

In terms of the future of proxy voting, a civic organisation in Spain has proposed the implementation of proxy voting as one remote voting option for electors living abroad.[195]

[194] OSCE/ODIHR (2017b).
[195] Marea Granate (2017).

3.3 Voting in person abroad

Table 13 Examples of approaches to voting in person abroad

- In **Bulgaria**, voters abroad may submit an application to vote abroad up to 25 days before election day. Based on these applications, the Central Election Commission determines the number of voting sections abroad. Once a polling station abroad is established, any voter who has not submitted an application may also cast a vote there. Votes are counted in the polling station abroad and are then scanned and transmitted to the Central Election Commission.
- In **Latvia**, in-person voting from abroad is organised by embassies and consulates, including potentially establishing additional non-embassy polling stations where large communities of Latvian expats are based. Voting takes place on the regular election day. All overseas Latvian voters vote in the Riga constituency, so the ballot paper is standardised. The passport is stamped by embassy staff upon voting and matters proceed as normal. Ballots are counted on site and the results are logged by embassy staff in the Central Election Committee's information system.
- In **Sweden**, overseas polling stations are established in advance of polling day at diplomatic missions. Dates when voting can take place are set by local embassies in order to allow sufficient time to send the ballots back to Sweden by diplomatic mail, military courier or other form of postal service. Votes are sent to the Swedish Election Authority, who sort the ballots into separate constituencies and forward them to the relevant election committee. Votes are mixed and counted with regular ballots on election day.

3.3.1 Overview

Voting in person from special polling stations established abroad (in consulates, embassies or other locations) is available in 19 Member States. In these countries, this remote voting option is usually open to those living abroad 'permanently', which means in practice that their main place of residence is abroad. Many countries that organise voting in person from abroad for their citizens who permanently live abroad also open this option to those 'temporarily' abroad.

In most cases the voting takes place at the relevant consulate or embassy, but some countries organise polling stations in other locations so as to ensure proximity to the voters and/or to accommodate a high number of voters. Alternative places include churches, schools (e.g. CY), special post offices (LT), and, where the expatriate community is large, convention and exhibition centres (e.g. FR). Special polling stations can also be set up on ships (e.g. HR, DK) and at military facilities (e.g. HR, LV, LT).

In other countries the number of polling stations and their locations are decided by the authorities organising the elections, in some cases based on the number of voters concerned. In Cyprus, there must be at least 30 people to establish a polling station.[196] In Poland, a minimum of 15 electors is required to set up a polling station abroad or on a ship.[197]

The table below presents an overview of in-person voting at special polling stations across the EU.

[196] Law n. 72/1979. Art. 27 (2).
[197] KW, Art. 14, 15, 34.

Table 14 Voting in person abroad in EU countries

Country	Where can electors vote?	Who is eligible?
Austria	Not available	
Belgium	In Belgian diplomatic or consular professional posts abroad	Eligible voters residing abroad
Bulgaria	Embassies, consulates, diplomatic missions and special voting sections[198]	Eligible voters outside the country[199]
Croatia	Foreign polling station (in most cases held at the consular office or embassy), military facilities[200]	Eligible voters who have residence in Croatia but are outside the country on election day; those with Croatian nationality but without residence in Croatia (permanently living abroad); military personnel[201]
Cyprus	In Electoral Centres placed inside the Cypriot Embassy or in other locations (e.g. schools, churches)[202]	Eligible voters with permanent residence for more than six months per year in Cyprus,[203] or in another EU country in the case of the European elections[204]
Czech Republic	Embassies, consulates	Eligible voters temporarily or permanently abroad
Denmark	Danish diplomatic or consular missions; with a vote receiver appointed by the Danish Ministry for Economic Affairs and the Interior[205]	Eligible voters temporarily abroad; voters living abroad for maximum 2 years; voters living abroad for maximum 10 years under special circumstances (students, health reasons, etc.); diplomats (no time limit)[206]
Estonia	Embassies and consulates[207]	Eligible voters residing outside the country (permanently or temporarily)[208]
Finland	Embassies, consulates and other locations	Eligible voters residing abroad or abroad at the time of the election
France	Embassies, consulates and other locations organised by the consulate (e.g. exhibition and convention centres)	Anyone registered on the consular electoral list
Germany	Not available	
Greece	Embassy or consulate, buildings of other Greek authorities, communities or other associations, or buildings belonging to the receiving EU Member State[209]	Eligible voters who are permanently or temporarily in another EU Member State[210]
Hungary	Embassies and consulates	Eligible voters with a Hungarian address who are abroad on election day (including military personnel)
Ireland	Not available	
Italy	Not available	

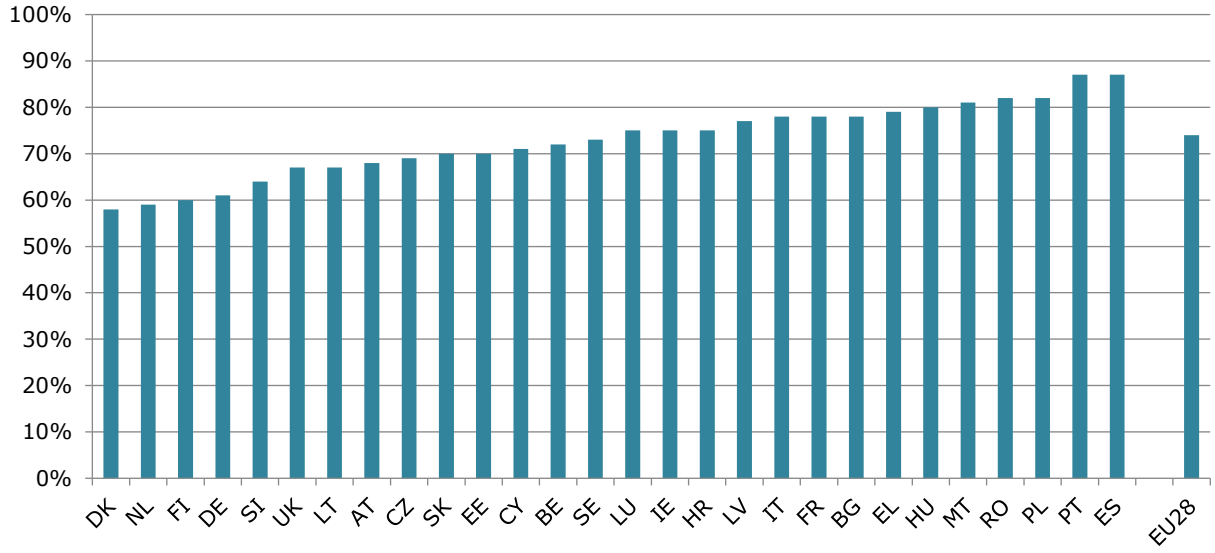
[198] Special voting sections can be established if at least 60 voters have requested. Election Code, Art. 12, 13, 14.
[199] Election Code, Art. 11 (1).
[200] Zakon o izborima zastupnika u Hrvatski sabor. Art. 7 and 80.
[201] Zakon o izborima zastupnika u Hrvatski sabor. Art. 7.
[202] Law n. 72/1979. Art. 27 (2); http://www.moi.gov.cy/moi/moi.nsf/All/97A8ADEDDAAFEFF1C225821A0039DFB9?OpenDocument
[203] Law n. 141(I)/2002, Art. 92.
[204] Law n. 10(I)/2004, Art. 4.
[205] Folketing (Parliamentary) Elections Act (2014), Art. 57-58; https://elections.oim.dk/advance-voting/advance-voting-for-voters-abroad/
[206] Input provided by the Danish Ministry for economic affairs and the interior (OIM)
[207] Riigikogu Election Act. Art. 54.
[208] Riigikogu Election Act. Art. 49.
[209] http://www.ypes.gr/en/Elections/ElectionsEuropeanParliament/ElectionsforEuropeanParliament/InterstGreeksAbroad/
[210] http://www.ypes.gr/en/Elections/ElectionsEuropeanParliament/ElectionsforEuropeanParliament/InterstGreeksAbroad/

Country	Where can electors vote?	Who is eligible?
Latvia	Latvian embassies and consular representations, military missions, other polling stations	Eligible voters residing abroad; Latvian personnel deployed to military missions
Lithuania	At the embassy/consulate; at special post offices created for elections for diplomatic/military personnel only (e.g. military bases)	Eligible voters residing or staying temporarily abroad
Luxembourg	Not available	
Malta	Not available	
Netherlands	Not available	
Poland	Embassies and consulates	Eligible voters residing outside the country, including temporarily abroad
Portugal	Embassies and consulates	Eligible voters residing abroad at the time of the election and registered on electoral lists abroad
Romania	Polling stations organised by the Ministry of Foreign Affairs	Eligible voters residing outside the country[211]
Slovakia	Not available	
Slovenia	Embassies and consulates	Eligible voters temporarily or permanently abroad[212]
Spain	Consulates (deposit of the envelope)[213]	Eligible voters residing outside the country[214]
Sweden	Embassies and consulates	Eligible voters permanently or temporarily abroad
UK	Not available	

In a 2016 survey focusing on electoral rights,[215] only 58% of respondents in Denmark agreed that the ability to vote at an embassy would make it easier to vote in home country elections, compared to 87% of respondents in Portugal. This proportion did not vary greatly according to any subcategories other than age: 81% of respondents between ages 15 and 24 agreed with the statement, compared to only 69% of those aged over 75.

[211] Law on the Election of the Senate and the Chamber of Deputies Art. 23, Art. 51 (3).
[212] National Assembly Elections Act, Art. 82.
[213] Voters deposit their envelopes at the consulate after presenting their identification document.
[214] LOREG. Art. 75.
[215] European Commission (2016b).

Figure 7 Proportion of respondents who agree that *being able to vote in their country's embassy* would make it easier to vote in national elections if living abroad within the EU



Source: Flash Eurobarometer 431: Electoral Rights

3.3.2 Registration and identification

A key element of the voting in person abroad option is whether a request needs to be made in advance to do so, or if voters can go directly to the polling station on polling day. In the majority of countries, voters from abroad do need to apply to vote at special polling stations. In Belgium, voters abroad are required to apply in two steps: firstly, by registering with a Belgian embassy or consulate, which will send them an application form to register for the elections; and secondly by formally applying for the voting method.[216] In some countries people are automatically registered as voters abroad once they register at the consulate (e.g. HR, FR). In these cases, voting from the polling station does not require a specific application, but it still requires voters to register at the consulate as a resident expatriate. In Estonia, no application is needed to vote at a diplomatic mission or consular office.[217]

In Bulgaria and Romania, the application is optional, although application data is collected by the authorities as a way to estimate how many people will need to vote from abroad and where, and to plan special polling stations accordingly. Once a polling station abroad is established, any voter who has not submitted an application for voting abroad may also cast a vote there.[218]

In most cases the registration and/or application process is done in person, but in some countries it can be done online (e.g. BG,[219] FR, PL, SI, ES).

The identity of the voter tends to be verified at the polling station in the same way as it would be in one's home country. In countries in which an application is not required or is optional, it is not possible to anticipate who will vote at special polling stations. In Bulgaria, only the identification document is checked. In Romania, both the identification document and the

[216] Belgian Elections Act.
[217] Venice Commission (2011b).
[218] Input provided by the Central Election Commission (CIK).
[219] Election Code, Art. 16 (1).

residence are checked. In Estonia, the identification documents are checked and the voter signs the list of voters. In Latvia, the voter's passport is stamped to prevent double voting.

The table below summarises the registration and identification process for voting in person abroad for all Member States where this method is allowed.

Table 15 Voting in person abroad: registration and identification

Country	Registration	Identification
Belgium	Registration as an abroad voter at the embassy or consulate	Identity card, registration card
Bulgaria	Application (optional) in person, by post or online	Identification document
Croatia	Registration at the Electoral Census Registration at the diplomatic and/or consular office (the application can be made online until 10 days before election day)	Identification document
Cyprus	Application	ID card or passport
Czech Republic	Application to the embassy	Proof of identity and citizenship
Denmark	Request to be included in the electoral register of the corresponding municipality	Identification document must be shown to the vote receiver
Estonia	No application is needed	Identity document,[220] sign the list of voters
Finland	Voters must report to the election officials administering the polling process	ID issued by the Finnish police, either an ID card, passport, driving license or another equivalent document containing a picture of the voter[221]
France	Need to be registered on the consular electoral list	ID document (passport or ID card) of the voter and signature
Greece	Application to the embassy or consulate[222]	Identity document (ID card, or passport, driving licence or health booklet)[223]
Hungary	Application to entry in the foreign representation electoral register	Identification document
Latvia	Required to register at the nearest embassy/consulate	Voters' ID
Lithuania	Officials create a list of voters residing abroad. Those not in the list can submit an application to register. It can be submitted online	ID card or passport Poll card
Poland	Application, which can be done electronically	National ID or passport
Portugal	Need to register on the consular electoral lists	
Romania	Foreign Electoral Register (optional)	Identification documents and proof of residence
Slovenia	Application (temporarily abroad).[224] By post, by fax, or by e-mail (signed and scanned)[225]	Identification document

[220] www.valimised.ee/en/estonian-elections-nutshell/voting-abroad
[221] https://vaalit.fi/fi/aanestaminen-ennakkoon
[222] http://www.ypes.gr/en/Elections/ElectionsEuropeanParliament/ElectionsforEuropeanParliament/InterstGreeksAbroad/
[223] http://www.ypes.gr/en/Elections/ElectionsEuropeanParliament/ElectionsforEuropeanParliament/InterstGreeksAbroad/
[224] National Assembly Elections Act, Art. 82.
[225] http://www.dvk-rs.si/index.php/en/where-and-how-to-vote/voting-from-abroad

Country	Registration	Identification
Spain	Application by post, fax or via internet	Copy of national ID or passport sent with the application; national ID or passport shown at the consulate; certification of being registered in CERA[226]
Sweden	Registration (every 10 years)	Passport, national ID or national equivalent

3.3.3 Vote casting

In most cases the provision of the voting material and the voting process itself are similar to voting at polling stations within the country. However, the voting period varies: it takes place either in advance or at the same time as polling within the country (with changes depending on the time zone). In some countries voting material and pamphlets are sent to voters in advance of the elections (e.g. FI, FR, ES, SE). Sometimes voting material is also available at the polling station on the day of the elections.

Similarly to polling stations within the country, special polling stations are often organised in a way that ensures some of the usual voting guarantees. For example, secrecy of the vote is ensured in the sense that voters place the ballot in the box themselves. Polling booths can be provided in order to ensure free voting (e.g. BE, HR, FR, HU). As discussed in the case study *Observing remote voting* (see Section 6.1.2), observation is not often conducted at overseas polling stations. However, some countries do provide for this option: for example, observers designated by candidates (HU)[227] or NGOs (HR)[228] are able to observe at overseas polling stations.

3.3.4 Counting

Counting takes place either at the special polling station or at a central polling station within the country. In Hungary, for example, the Foreign Representation Election Office sends the ballot envelopes to the Hungarian National Election office.

Whether the counting takes place within the country or abroad affects its timing. If abroad, the counting may happen at the same time as it does in the country. If the ballots need to be sent to the country organising the elections, the counting may take later. This may delay the announcement of final results.

[226] LOREG, Art. 75.
[227] Electoral Procedure. Art 5 (1).
[228] Zakon o izborima zastupnika u Hrvatski sabor, Art. 94

3.3.5 Benefits, drawbacks, outcomes and future plans

Table 16 Voting in person abroad: benefits and drawbacks

Benefits	Drawbacks
• It can be used by people who live **abroad** • Voting takes place in a **controlled**. **environment**, following the standard process. Secrecy is ensured because voters themselves place the vote in the ballot box. • There are often **polling booths** or specific spaces to vote in private. • The identity of the voter can be verified in person. • It may be **observed** (although this could be more complicated and resource-intensive than in standard voting). • There is no dependency on the **postal service**. • It implies low costs for voters if they live close to the consulate.	• Not all Member States have **consulates** in all countries. • It may entail a lot of **travelling** for those who live abroad but **without a nearby consulate**. • It may be difficult to use for people with a **disability.** • If votes are counted at the polling station abroad and there are very few voters, secrecy can be at risk. • There may be problems of **dual inscription**, with voters being registered in the electoral lists abroad and within the country. • If votes are sent to the country for counting, there is some risk that they get **lost or damaged** during transportation. • An **advance application** is often needed to use this option. • It implies some **costs** for the public administration, as well as organisational efforts. • If there are very few polling stations, there may be long **queues** for voters. • Voters may not be able to use **constituency-specific ballots** (or require additional organisation to deliver such ballots to the voters' location abroad).

This is the remote voting solution most similar to voting at polling stations within the country. In-person voting is considered to be the optimal way to guarantee a free and secret vote, as voting takes place in a controlled environment.

However, in-person voting does not prevent potential issues with regard to registration. In France, there have been problems with dual inscription on national and consular lists, resulting in people being denied the right to vote unless urgent measures were taken to guarantee this right. This situation is supposed to be solved by the creation of a unique registration list (*Repertoire Electoral Unique*) in 2019,[229] established by the Loi 2016-1047.[230] From 2019 those registered on the consular list will be removed from any other list in France. Therefore, people will have to choose between being registered on the consular list and in their municipality, which may create problems if they want to switch the voting place between elections.

The performance of the system also depends on the maximum distance between the polling station and the residence of the voter, and on the capacity of the special polling station to accommodate the number of voters assigned to them in good conditions, e.g. in terms of waiting time. Moreover, setting up polling stations abroad entails some costs. In Estonia, maintaining the current number of polling stations abroad is the highest cost of running an election.[231]

[229] France Diplomatie (2018b).
[230] LOI organique n° 2016-1047.
[231] Interview with the Member State representative.

3.4 Voting at special polling stations within the country

Table 17 Examples of special polling stations within the country

- In **Malta**'s hospitals, there are ballot boxes for every district and these are stored in a secure room until counting begins. When the vote closes, the ballot boxes are sealed and transported to the central counting centre in designated vehicles, where all votes (including those from the normal procedure) are counted.
- In the **Netherlands**, municipalities decide if and where there will be mobile and special polling stations (for example, in train stations, care homes and hospitals). They communicate this information to the electorate. Some special polling stations may be mobile and move to predetermined locations during the day.
- In **Poland**, special polling stations can be established in prisons, hospitals, care centres or similar if a minimum of 15 electors are staying in such facilities. The institutions send the list of electors who will be there on election day to the municipality, at least five days in advance. Voting follows the regular process.

3.4.1 Overview

Voting in special polling stations within the country is possible in 13 Member States. In most cases, these polling stations are in healthcare facilities (such as hospitals or nursing homes) and prisons. Some countries also have polling stations in other kinds of institution where citizens are ordinarily resident, such as military facilities (LT) or monasteries (DE). It should be noted that some institutions are visited by a mobile ballot box (see Section 3.5).

The criteria for establishing special polling stations vary across countries. In some cases there are minimum requirements to establish such polling stations. For instance, in Italy, special polling stations (*seggio volante*) must be established in hospital or care institutions with at least 200 beds.[232] The establishment of special polling stations also implies the formation of a bureau: in Italy, this includes the president of the electoral section, a scrutineer and a secretary.[233]

The Netherlands is unique in that 'regular' polling stations are organised in all sorts of locations that are convenient for voters to attend. On top of hospitals and retirement homes, these special polling stations can include 'drive-in stations' and other populated areas, such as train stations. Municipalities decide where there will be special polling stations. The voting period can be either during normal voting hours or in advance.

The table below presents an overview of in-person voting at special polling stations within the country across the EU.

[232] Ufficio Territoriale del Governo di Isernia (2013).
[233] Ufficio Territoriale del Governo di Isernia (2013).

Table 18 Voting at special polling stations in EU countries

Country	Where can electors vote?	Who is eligible?
Austria	At the hospital, social care institutions, arrest houses, remand prisons and penitentiary institutions	Eligible voters unable to visit the polling station for health or mobility reasons or housed in institutions (e.g. hospitals, prisons)
Belgium	Not available	
Bulgaria	Medical-treatment facilities, nursing homes, specialised institutions providing social services, detention facilities[234]	Eligible voters who are in these institutions, detainees without enforceable sentences[235]
Croatia	In retirement homes, in a special polling station in prison or in a place where the Minister of Internal Affairs decides	Eligible voters residing in these institutions
Cyprus	At the Central Prison	Prisoners except those deprived of the right to vote by judicial decision[236]
Czech Republic	Not available	
Denmark	Not available	
Estonia	Not available	
Finland	Hospitals, care institutions and prison	Any eligible voter resident in the institution
France	Not available	
Germany	Hospitals, senior citizens' homes, nursing homes for the elderly, nursing homes, convalescent homes and similar establishments, smaller hospitals and smaller senior citizens' or nursing homes, monasteries and convents, socio-therapeutic and penal institutions	Eligible voters who reside in the institutions at the time of the election
Greece	Inside detention facilities[237]	Prisoners who have not lost the right to vote[238]
Hungary	Not available	
Ireland	Not available	
Italy[239]	At hospital, in prison	Patients in hospitals and citizens in care institutions, staff at care institutions, prisoners
Latvia	Not available	
Lithuania	Hospitals, social care institutions, military units, prisons	Eligible voters who reside in the mentioned institutions
Luxembourg	Not available	
Malta	At hospitals and retirement homes (the five state hospitals and residents' homes with 50 residents or more)	Patients at the hospitals; residents in elderly homes
Netherlands	Hospitals, retirement homes, mills, train stations, etc.	All eligible voters
Poland	In the hospital, care centre or similar and in prison[240]	If at least 15 people are included in the electoral register in this unit[241]

[234] Election Code, Art. 9 (6-9). A minimum of 10 voters is required.
[235] Election Code, Art. 9 (6-9).
[236] Law n. 141(I)/2002, Art. 93(1).
[237] Presidential Decree 96/2007, Art. 69; Law 3731/2008, Art. 29 (4).
[238] Koulouris & Aloskofis (2013).
[239] D.P.R. 30 March 1957, n. 361, Art. 5; Art. 42 of D.P.R. 16 May 1960, n. 570. The hospital polling station operates like the ordinary one and is provided in facilities with at least 200 beds. It is possible to set up an electoral section for every 500 beds.
[240] It is also possible to establish special polling stations in students' accommodation and similar.
[241] KW, Art.12. If there are fewer than 15 people, a special polling station may be established after consulting the manager of the institution.

Country	Where can electors vote?	Who is eligible?
Portugal	Not available	
Romania	Not available	
Slovakia	Not available	
Slovenia	Not available	
Spain	Not available	
Sweden	Hospitals, care institutions, prisons, other locations set up by a municipality	Eligible voters unable to visit a normal polling station due to health or other reasons or eligible voters who wish to vote in advance
United Kingdom	Not available	

3.4.2 Registration and identification

In some cases, the institution in which the special polling station is established (prison, health care unit) is in charge of preparing the list of voters in special polling station. Registration is therefore done by institutions for voters (this is the case for instance in BG, CY,[242] EL,[243] LT, MT,[244] and PL).

The list is established in advance of the elections. The institution in question is also in charge of communicating the list of voters to the competent authority in charge of organising the elections in regular polling stations (municipal administration, electoral committee). In Poland, the list of voters is shared no later than five days before the election and is prepared based on a prediction of which voters will be in the institution on the election day.[245] There are systems in place to ensure that voters are not registered on two lists at a time (i.e. their regular polling station and the special polling station). This is the case, for instance, in Bulgaria, where notification of the list of voters to the competent authority implies that voters registered in special electoral rolls are removed from the electoral rolls relating to their permanent address.[246]

In Germany, the list is established by the municipality rather than the institution in which the polling station will be established. This has implications for timing, since voters have to be registered on the 42nd day before the election (*ex officio*). No registration at special polling stations is required in the Netherlands, since this option has been integrated into the normal voting process. Any voter may go to another polling station within their municipality of residence without having to apply for this option.

Identification usually happens at the time of the vote, following the same process as for voting in regular polling stations within the country (e.g. BG, MT,[247] NL, PL[248]). Identification is confirmed with an identity document in most countries and/or a poll card (SE, LT). In the Netherlands, voters receive a single poll card that can be used in any polling station in their municipality.

The table below summarises the registration and identification process in special polling stations within the country across the EU.

[242] OSCE/ODIHR (2017d).
[243] Presidential Decree 96/2007, Art. 27 and 69.
[244] Maltese Elections Act. Art. 82.
[245] KW, Art. 29.
[246] Election Code, Art. 28, 29, 30.
[247] General Elections Act. Art. 70.
[248] KW, Art. 52 (1).

Table 19 Special polling stations: registration and identification

Country	Registration	Identification
Austria	The institution (e.g. hospital) organises the special polling station and assists with the registration of voters	Identity document
Bulgaria	Electoral rolls compiled by the manager of the institution	Identity card
Croatia	Registration at the special polling stations	Identity document
Cyprus	The institution provides the information that allows compilation of the special electoral list	Identity document
Finland	No application needed	Voter's ID[249]
Germany	The municipality registers the voters	Voter's notice (not mandatory), personal ID
Greece	Electoral lists drawn up by each institution	Identity card or passport
Italy	The director of the medical institution sends a declaration with the name of citizens who wish to vote; prisoners must send an application[250]	Voter's ID
Lithuania	The head of institution creates a list of voters	ID card or passport, a poll card
Malta	The responsible person at the institution sends the list of patients/residents	Identity documents
Netherlands	No application needed	Identity document
Poland	List of voters prepared by the person in charge of the unit	Identity document
Sweden	No application needed	Voting card and identity document

3.4.3 Vote casting

Receipt of voting material by the voter is a responsibility shared between the institution in which the polling station is organised and the competent authority organising the elections. In some cases the main responsibility is with the institution. For example, in Lithuania the institution receives poll cards from a municipal electoral committee or prints them on the basis of the data received electronically, and ensures the delivery of poll cards to voters. It also provides premises suitable for voting (including a ballot box and a polling booth) and facilitates the access of voters to the special polling station. In other cases the competent authority has a predominant role. For instance, in Germany the local authority is in charge of printing the ballot papers for the constituency and sets up polling stations.

The polling station must be set up in a way that guarantees the main voting principles (e.g. freedom and secrecy), as in regular polling stations. This is explicit in the regulation of special polling stations in Bulgaria,[251] Malta[252] and the Netherlands.[253]

In Malta, the Electoral Commission appoints a sub-committee in charge of voting in retirement homes and hospitals. This sub-committee must ensure that nobody tries to influence voters' choices and that nobody enters the institutions on election day apart from those authorised to

[249] Posti (2018).
[250] D.P.R. 30 March 1957, n. 361 Art. 51; D.P.R. 16 May 1960, n. 570, Art. 42.
[251] Election Code, Art. 218 (1).
[252] General Elections Act. Part XII.
[253] Dutch Elections Act (Kieswet).

accompany the voters (who should wear an identification tag). Members of the staff cannot support any specific party or candidate and they can be expelled if they attempt to violate the individual's right to vote freely. German law mentions that it should be observed that the vote is cast freely and without any interruption or help. The ballot is put in the ballot box and mixed with others before counting to preserve secrecy.

In some cases, the vote casting process is similar postal voting. In Lithuania, for example, a two-envelope system operates. Election observers can also be present if they request it.

3.4.4 Counting

In most cases, votes from special polling stations are counted the same way as those from regular polling stations. In Malta, every ballot box is accounted for when it arrives at the counting centre.[254] After polls close, the ballot boxes are sealed and transported to the central counting centre in designated vehicles. Votes are counted there together with those from regular polling stations.[255] In Germany, after the voting is complete at the institution, the locked ballot box and polling cards are immediately taken to the district's regular polling station. The ballot box is kept there, locked, under the supervision of the electoral authorities until the completion of general voting. Votes are mixed with the votes in the general ballot box and counted together. In Italy, ballots are transported to the electoral section, where they are placed in the ballot box and subsequently counted together with normal votes.[256]

The process differs in the Netherlands: the place in which counting happens depends on the type of polling station. It usually happens at the special polling station. However, certain special polling stations, such as those at train stations, are not considered appropriate venues for counting, which is therefore done at a different location.[257] Even if a special polling station closes before the regular time, counting only starts when it commences nationwide.[258]

[254] Interview with Electoral Commission Malta.
[255] General Elections Act. Part XIII.
[256] Prefettura di Palermo (2011).
[257] Interview with the Ministry of the Interior and Kingdom Relations.
[258] https://www.kiesraad.nl/verkiezingen/tweede-kamer/stembureaus/bijzondere-en-mobiele-stembureaus

3.4.5 Benefits, drawbacks, outcomes and future plans

Table 20 Special polling stations: benefits and drawbacks

Benefits	Drawbacks
• It may be used by people in **hospital**, long term care facilities or similar institutions. • It may be used by **prisoners** (provided they are not disenfranchised). • It can reduce the need to travel to the polling station for voters who are sick or have a **disability.** • It lowers voters' **travelling** time, as they can often vote in their location. • Voting takes place in a **controlled environment**. Secrecy is ensured because voters themselves place the vote in the ballot box. • There are often **polling booths** or specific spaces to vote in private. • The voter can be **identified** through their official identification document. • It may be **observed** (although it could be more complicate than in standard voting). • There is no dependency on the postal services. • It implies **low costs** for voters. • Often the voter does not need to submit a request to use this option, as the responsibility lies with the institution.	• There is some risk that the **employees** of the institutions may attempt to influence or interfere with voters' decisions. • Polling stations may only be used by a small number of voters. • If votes are counted at the special polling station and there are very few voters, secrecy can be at risk. • It implies some **costs** and organisational efforts for the public administration and, in some cases, the institution. • The special electoral lists may contain **sensitive information** on individual's health status and criminal behaviour. There is the risk that this is used in a unauthorised way. • If votes are cast in advance, the voter may change their electoral preference if new information becomes available between the vote-casting and election day.

Setting up special polling stations in prisons and hospitals may make participation easier or more convenient for some voters and those who take care of them. For some voters in hospital, physically attending a regular polling station would be difficult or even dangerous. It might also put extra pressure on ambulance workers, nurses and carers. On top of reducing risks to the security of other citizens, establishing special polling stations in prisons is also an opportunity to reduce the burden for police personnel, who would otherwise have to accompany prisoners to their regular polling station (as is the case, for example, in Cyprus and Malta).[259] In this regard, setting up a dedicated station may provide the secrecy and security benefits of an in-person polling station, unlike postal or proxy voting.

Issues related to voting in special polling stations include the risk that personnel from institutions in which the polling station is located may attempt to influence voting. This risk is particularly acute for vulnerable voters, such as the elderly in retirement homes, or those with strict hierarchies, such as the military.

In the Netherlands, special polling stations were introduced with the objective of increasing turnout. By placing polling stations in areas with large numbers of people passing by, the authorities intend to minimise the effort voters need to make in order to attend a polling station and vote.

[259] Interview with the Member State representative.

3.5 Voting at mobile polling stations

Table 21 Examples of mobile polling stations

- In the **Czech Republic**, voters who cannot attend a polling station for health reasons can apply for a mobile ballot box to be brought to their location. The application can be filed any time before or on election day. In addition, a mobile ballot box is provided to individuals who are on the 'special voter list' due to their residence in institutions (including prisons and hospitals). Members of the electoral committee visit voters with the 'mobile ballot box' and enable them to cast a vote. Proof of identity and citizenship must be shown, as in normal polling stations. The mobile ballot box is brought back to the regular district polling station before counting begins.
- In **Hungary**, citizens with movement restrictions due to a health condition, disability or detention may submit a request to vote by using a mobile ballot box. This request can also be submitted by proxy. Each polling station must provide at least one mobile ballot. Two members of the Electoral Board bring the ballot box to the voters' location (e.g. home, hospital, prison). Later, they bring the envelope back to the polling station where ballots are mixed before counting.
- In **Ireland**, voters must apply to the local election authorities annually to be included on the 'special voters list'. First-time applications usually require a medical certificate.[260] A special presiding officer will visit the premises at a set date and time accompanied by a police officer.[261] The ballot is transported in an envelope by the special presiding officer to the vote counting centre.

3.5.1 Overview

Mobile polling stations are ballot boxes brought to the voter's location (home, hospital, prison, or any other location) by an official of the administration in charge of organising the election.

Voting in mobile polling stations is available in more than half of Member States. As for special polling stations (see Section 3.4), this option is usually available in healthcare institutions (hospitals, nursing homes) and prisons (DK, EE, HU, LV, RO, SK). The main difference with special polling stations is that mobile ballot boxes can also be brought 'on demand' to the place where voters are located, including their home.[262] This is the case in the 17 countries in which mobile ballot boxes are available. In Hungary, at least one mobile ballot box must be available at each polling station.[263] The voting period can be either during normal voting hours or in advance.

The table below presents an overview of voting in mobile polling stations in EU countries.

[260] http://www.citizensinformation.ie/en/government_in_ireland/elections_and_referenda/voting/registering_to_vote.html
[261] Electoral Act, 1992, PART XIV.
[262] The Netherlands' 'mobile polling stations' are for the purposes of this study defined as 'special polling stations' and discussed above.
[263] Electoral Procedure. Art. 184 and 167.

Table 22 Voting in mobile polling stations in EU countries

Country	Where can electors vote?	Who is eligible?
Austria	From the voter's place of residence	Eligible voters unable to visit a polling station for health or mobility reasons
Belgium	Not available	
Bulgaria	Voter's home[264]	Eligible voters with permanent disabilities who are not able to vote at a polling station[265]
Croatia	At home	Eligible voters who cannot, due to their old age and/or medical conditions, vote in the designated places[266]
Cyprus	Not available	
Czech Republic	At any location	Any eligible voter, either on the grounds of residing in an institution (e.g. prison, hospital) or on the grounds of 'serious, particularly health, reasons'
Denmark	Hospitals, prison facilities, nursing homes, social care dwellings, etc., and from the voter's home[267]	In hospitals: eligible voters, who are admitted as full-time or part-time patients or as companions. Prisons: eligible voters who are convicted, detained or arrested. From home, nursing homes and similar: eligible voters who due to illness/disability cannot go to an assigned polling station
Estonia	Voter's home, hospitals and 24-hour welfare institutions, prisons	Eligible voters who are unable to vote at a polling place due to their state of health or for another good reason.[268] Eligible voters staying in institutions. Those in custodial institutions can vote only if they are not serving a prison sentence[269]
Finland	At the voter's residence	Eligible voters with a disability or medical condition that prevents them from attending a polling station
France	Not available	
Germany	Not available	
Greece	Not available	
Hungary	At home, at hospital or similar, in prison	Eligible voters with movement restrictions due to their health condition, disability or detention
Ireland	At the voter's location	Eligible voters who are unable to physically access a polling station
Italy	At home	Eligible voters whose lives depend on electro-medical equipment and those who due to serious illness cannot go to a polling station[270]
Latvia	At home/current location of the voter (e.g. hospital)	Eligible voters who cannot attend a polling station for health reasons, and caregivers
Lithuania	At home	Eligible voters with disabilities, with temporary working incapacity due to illness, aged 70 or older if they are unable because of their health to come to a polling station on polling day

[264] Election Code, Art 238.
[265] Election Code, Art. 37.
[266] Zakon o izborima zastupnika u Hrvatski sabor – Article 83.
[267] Folketing (Parliamentary) Elections Act, Art. 54; BEK No. 1136 of 18/10/2017); BEK No. 1139 of 18/10/2017; https://elections.oim.dk/advance-voting/advance-voting-for-voters-living-in-denmark/
[268] Riigikogu Election Act. Art. 46. Some justifications are: state of health, advanced age, difficult road conditions, lack of transport; https://www.valimised.ee/en/estonian-elections-nutshell/voting-home
[269] https://www.valimised.ee/en/estonian-elections-nutshell/advance-voting-outside-polling-place-your-location
[270] Law 7 May 2009, n. 46.

Country	Where can electors vote?	Who is eligible?
Luxembourg	Not available	
Malta	Not available	
Netherlands	Not available	
Poland	Not available	
Portugal	At hospitals, care units and prisons	Eligible voters unable to leave the institution on election day
Romania	At home, at hospital/care institution, in prison	Eligible voters who are unable to move due to sickness. Eligible voters who are in prison, but not disenfranchised
Slovakia	Home, hospital, prison	In case of grave, particularly health reasons
Slovenia	At home	Eligible voters, who, for reason of illness, cannot go in person to a polling station
Spain	Not available	
Sweden	Voter's location of residence	Eligible voters who are unable to visit a voting location due to age, illness or disability or people in custody or jail
UK	Not available	

3.5.2 Registration and identification

Registration

Voters usually need to submit an application to indicate that they would like to use this option. Offering different ways to do this facilitates the exercise of the right to vote. For example, in Austria the application can be submitted online, via telephone, e-mail, in person at the municipal authority or via post. In Bulgaria, voters with permanent disabilities who want to vote via a mobile ballot box should communicate this to the municipal administration at least 14 days before election day. The application can be signed manually and submitted by an authorised person or by post or fax, or it can be submitted via an electronic application.[271] In Croatia, those voting at home must notify their competent electoral commission no later than three days prior to the election; alternatively, they can notify their electoral committee on election day.[272]

In Romania, eligible voters must submit an application to the polling station president the day before the elections.[273] In Slovenia, voters also need to submit an application and notify the district electoral commission no later than three days before the elections. This can be done by post, fax, e-mail (signed and scanned) or telephone.[274] In Denmark, those wishing to vote from home must send an application to their municipality.[275]

In Ireland, voters need to submit an annual application to the local election authorities to be included on the special voters list. Forms are available online and from local public offices. Application forms are often sent to voters on the existing list each year.[276] First-time applications usually require a medical certificate. In Italy, voters must submit an application to the municipality together with a health certificate issued by a medical officer.[277] In Hungary, voters need to submit a request in the polling district where they want to use a mobile ballot box,

[271] Election Code, Art. 37 (1).
[272] Zakon o izborima zastupnika u Hrvatski sabor. Art. 83.
[273] Presidential Election Law, Art 45.
[274] http://www.dvk-rs.si/index.php/en/where-and-how-to-vote/voting-at-home
[275] http://valg.oim.dk/media/18717/ansoegningsskema-brevstemme-i-eget-hjem-med-dato.pdf
[276] http://www.citizensinformation.ie/en/government_in_ireland/elections_and_referenda/voting/facilities_for_voters_with_disabilities.html
[277] Law 7 May 2009, n. 46.

specifying their residence and the reason for the request (which can also be submitted by proxy).[278] In Estonia, the application to vote from home must be justified, if not it may be rejected. It can be submitted until 2.00 p.m. on election day.[279] In the case of those staying in a custodial institution, hospital or 24-hour social welfare institution, the administrations of these institutions submit an application to the voting district committee.[280]

In Lithuania, a list of possible voters at home is created with the help of the State Social Insurance Fund Board. Voters who are eligible to vote at home are informed of this possibility when they are given their poll card, and can then make a request.

Identification

In most countries where mobile polling stations are used, identification (usually by ID card or passport) is checked at the time of voting. In addition, voters may sign a declaration of identity. When voting from institutions in Denmark or Hungary, the institution in which the voter resides also produces a certificate or stamp, which is used/checked at the time of the vote. In Lithuania, voters also use a poll card.

There are provisions to prevent repeat voting in several countries. In Hungary, the Electoral Board verifies if voters are on the register of mobile voting. Moreover, the Electoral Board removes voters requesting mobile voting from the printed polling district electoral register.[281] In Lithuania, the name of a person who has voted remotely is checked against records of those who have voted using the normal process. If the person voted during the election day, the home vote is discarded. In Estonia, if a voter having applied to vote at home goes to the polling station to vote, this person is not allowed to vote before the members of the Electoral Board who are collecting the home votes have returned.[282]

The table below summarises the registration and identification process used in mobile polling stations across the EU.

[278] Electoral Procedure. Art. 103, 104 & 110.
[279] Riigikogu Election Act (2002), Art. 46.
[280] Riigikogu Election Act, Art. 43.
[281] Electoral Procedure. Art. 104, 106, 107. 176, 177, & 185.
[282] https://www.valimised.ee/en/estonian-elections-nutshell/voting-home

Table 23 Mobile polling stations: registration and identification

Country	Registration	Identification
Austria	Application. Online, telephone, e-mail, in person, post	Present a government-issued ID or any other identity document to the members of the electoral committee
Bulgaria	Application. Submitted by an authorised person, by post, by fax or through an electronic application	Identity document checked by the electoral authorities. The voter signs the electoral roll[283]
Croatia	Notification	Identification document checked by the electoral authorities
Czech Republic	Application to the local authority (or the local electoral committee if the application is filed on election day)	Proof of identity
Denmark	Voting at home: application to the municipality. Voting in institutions: no registration needed	Identity document checked by the vote receiver. Signature of the vote receiver. Stamp or name of the institution
Estonia	Voting at home: application (justified), written or by phone.[284] Voting in institutions: the administration submits an application (justified)	Identification document checked by the electoral authorities. Sign the list of voters[285]
Finland	Voters declare their wish to use this option to the Central Election Commission of their municipality	
Hungary	Application	ID card and the certification of permanent residence checked by the electoral authorities and compared with the register of voters requesting mobile voting
Ireland	Annual application. First-time applications usually require a medical certificate	Sign a declaration of identity
Italy	Application and a health certificate	Identification document checked by the electoral authorities
Latvia	Submission of a request form to the polling station	Voter's ID
Lithuania	Preliminary list prepared by State Social Insurance Fund Board. Application from the voter	ID card or passport. A poll card
Portugal	Application to the local municipality authorities, accompanied by proof of registration and a document from the hospital/prison/care unit authorities	
Romania	Application	Identification document checked by the electoral authorities
Slovakia	Application including proof of their eligibility in the process	Proof of identity
Slovenia	Application by post, by fax, by e-mail (signed and scanned) or by telephone	The electoral authorities check voters' ID
Sweden	Individual citizens can request this service	Identity checked by the vote collectors

[283] Election Code, Art. 238.
[284] Riigikogu Election Act (2002), Art. 46.
[285] Riigikogu Election Act, Art. 39, 42, 45 and 46.

3.5.3 Vote casting

In most cases, receipt of voting material and vote casting happen at the same time, at the point at which the mobile ballot box is brought to the voters.

The ballot box is brought to voters by the electoral authorities– usually two people (e.g. HU,[286] IE, RO[287]). The voter places their ballot in the mobile ballot box, which is later returned to the polling station. Similar procedures are applied in Slovenia and Croatia.[288] When the ballot box reaches the polling station, votes are mixed with those from the regular voting procedure before counting begins (e.g. HU,[289] IT,[290] SI). In Bulgaria, to avoid issues during transportation of the votes, the members of the Electoral Board responsible for the mobile ballot box are provided with transport and security.[291]

Mobile ballot boxes may offer fewer guarantees regarding secrecy of the vote than voting at regular polling stations. In Lithuania, a two-envelope system is used to help guarantee a secret vote. In addition, election observers can be present if they request it. This is also the case in Latvia.[292]

It is also more difficult to ensure that votes are cast freely and without coercion. In Bulgaria,[293] for example, the law specifies that the voter should be alone in the room at the time their vote is cast, unless they require assistance. The same happens in some other countries (e.g. HU), but without legal provision.

3.5.4 Counting

Typically, the mobile ballot box returns to the normal polling station and the ballots it contains are mixed with those from the standard voting process and they are then counted together (e.g. HR, IT, LV, SI, SE). In Denmark, votes are brought to the elector's municipality[294] and are then distributed to the voter's assigned polling station before the election starts.

[286] Electoral Procedure. Art. 184 and 167.
[287] Law on the Election of the Senate and the Chamber of Deputies, Art 85.
[288] Zakon o izborima zastupnika u Hrvatski sabor. Art. 83.
[289] Electoral Procedure. Art. 192.
[290] Decreto-legge 3 gennaio 2006, n. 1 Art. 5, 7 and 9.
[291] Election Code, Art. 239 (1).
[292] Saeima Election Law.
[293] Election Code, Art. 238 (2).
[294] BEK No. 1138 of 18/10/2017, chapter 6.

3.5.5 Benefits, drawbacks, outcomes and future plans

Table 24 Mobile polling stations: benefits and drawbacks

Benefits	Drawbacks
• It can be used by people who live in **remote areas.** • It avoids the risk of travelling to the polling station for voters who are sick or have a **disability.** • It may be used by people in **hospital**, long term care facilities or similar institutions. • It may be used by **prisoners** (provided they are not disenfranchised). • The mobile polling station can travel to several places during the day to reach a higher number of voters. • It lowers voters' **travelling** time, as they can often vote in their location. • The **identity** of the voter can be verified in person. • There is no dependency on the postal services. • It implies **low costs** for the voter. • It implies low costs for the public administration as there is no need to set up additional polling stations.	• Some locations may be difficult to reach for the members of the election authorities. • The voter may feel observed while voting, or may be victim of **coercion.** • There is the risk that the election authorities check the vote (violating its **secrecy**) or that they **change** or remove it. • It may be more difficult to **observe.** • There is a risk that votes get **lost or damaged** during transportation. • The special electoral lists may contain **sensitive information** about an individual's health status. There is the risk that this is used in a unauthorised way. • An **advance application is often needed** to use this option. Sometimes, a medical certificate is also required.

Similarly to special polling stations, mobile polling stations facilitate access to voting for those who otherwise could not vote for health reasons, for instance. While special polling stations are usually organised in locations that are convenient for several people rather than a single individual, this option goes even further in the sense that it makes it possible for these people to vote from home. However, the system has its limitations. For example, in Hungary there have been cases in which remote locations could not be reached by mobile polling stations.

Some interviewees from Member States' bodies responsible for electoral matters explained that the costs of organising mobile voting are low, since the system only requires that the ballot box is transported by the electoral authorities (generally two people).

However, the integrity of the voting process for mobile voting may be questioned – in particular in terms of the secrecy and freedom of the vote. The mobile ballot box system at home is highly dependent on the representatives of the electoral authorities who accompany the ballot box, and there is a risk of electoral fraud or coercion. There is also a risk that votes could get lost or damaged (e.g. opened) during transportation.

3.6 Voting in another district

Table 25 Examples of approaches to voting in another district

- In **Denmark**, voters can vote in a different municipality in advance. Each municipality offers voting from a citizen service centre. The municipalities send the ballots cast in their facilities to the voters' domestic municipalities. Votes are counted together with the normal votes at the assigned polling station by the local election authorities.[295] There is only one advance vote per person, and if the voter casts a second vote on election day, only the last vote is counted.
- In **Estonia**, no application is needed to use this option. There should be at least one polling station in each county town for voters who wish to vote outside their district of residence. A separate polling booth and ballot box are provided for them. They vote for the list of candidates from their electoral district of residence. A two-envelope system is used and the envelopes are forwarded to the voters' district of residence, where they are counted.
- In **Lithuania**, all eligible voters can vote at any polling station that they prefer without any prior application for single-constituency elections (presidential elections and referendums).[296] If the voter arrives at a different polling station the officials must check in the internet-based system whether the voter has already voted elsewhere. If not, the voter is deleted from the electoral list of the assigned polling district and enrolled in the voters' list in the polling district where he/she arrived to vote.[297]

3.6.1 Overview

Voting in another district within the country is possible in 17 Member States. This method of remote voting covers arrangements in which citizens can vote outside the electoral district where they are registered, and they can choose any district in the country (although they may need to apply to vote at a specific station). Voting takes place as normal in standard polling stations and during standard voting hours. In some countries it is possible to change the assigned polling station, but within the same constituency; this is not considered here.

Table 26 Voting in another district in EU countries

Country	Where can electors vote?	Who is eligible?
Austria	At a municipality of their choice within the country	All eligible voters
Belgium	Not available	
Bulgaria	Polling station	Eligible voters whose permanent and present addresses are in not in the same location[298]
Croatia	Any polling station	All eligible voters
Cyprus	Not available	
Czech Republic	Any polling station	All eligible voters
Denmark	Any of the citizen service centres of the 98 municipalities[299]	All eligible voters[300]

[295] https://elections.oim.dk/advance-voting/advance-voting-for-voters-living-in-denmark/
[296] Interview with the country representative.
[297] Lrytas.lt (2014).
[298] Election Code, Art. 36 (1). In addition, candidates for the respective type of election, the members of the Central Election Commission, the members of the District Election Commission and the observers can vote in a location of their choice with a certificate for voting in another location (Input provided by the Central Election Commission, CIK).
[299] Input provided by the Ministry for Economic Affairs and the Interior.
[300] Folketing Elections Act (2014), Art. 53.

Country	Where can electors vote?	Who is eligible?
Estonia	A voting district designated by the State Electoral Office or rural municipality or city government[301]	Eligible voters away from their residence on the election week.[302] Estonians permanently residing abroad who are in Estonia during the period of advance voting[303]
Finland	At designated polling stations across the country	All eligible voters
France	Not available	
Germany	Not available	
Greece	At the normal polling stations of their place of residence or in special polling stations.[304] In a normal polling station in the Greek municipality where they serve[305] or where their ship is located	Eligible voters residing in another municipality than that on which they are registered.[306] Personnel of the Police, Fire Brigade, Armed Forces or the Coast Guard serving there. Personnel on ships docked in the municipality
Hungary	One polling station per settlement is available for this option	All eligible voters
Ireland	Not available	
Italy	Not available	
Latvia	Any polling station	All eligible voters
Lithuania	Any polling station	All eligible voters
Luxembourg	Not available	
Malta	Not available	
Netherlands	Any polling station	All eligible voters
Poland	In polling stations	Eligible voters temporarily staying in the municipality on election day[307]
Portugal	Not available	
Romania	Polling station	All eligible voters
Slovakia	Any polling station	All eligible voters
Slovenia	At special polling stations	Eligible voters who on election day are away from their district of permanent residence for any reason (e.g. students, holidays, etc.) Emigrated Slovenians who are in Slovenia on polling day[308]
Spain	Not available	
Sweden	At special locations (e.g. libraries) from 18 days before election day[309]	All eligible voters
UK	Not available	

3.6.2 Registration and identification

Broadly, two forms of approach to this voting method can be identified: countries that offer voters the opportunity to vote in any polling station as a standard voting option for single-constituency elections (i.e. when candidates do not differ between districts); and countries that offer voting in another district in elections for which candidates do differ across constituencies (implying some additional administrative costs and processes).

[301] Riigikogu Election Act. Art. 41.
[302] https://www.valimised.ee/en/estonian-elections-nutshell/voting-outside-voting-district-residence
[303] Riigikogu Election Act. Art. 47.
[304] PD 96/2007, Art. 96; Law 3731/2008, Art. 29 par. 9.
[305] Presidential Decree 96/2007, Art. 27.
[306] Presidential Decree 96/2007; Art. 96, par. 1.
[307] KW, Art. 28.
[308] http://www.dvk-rs.si/index.php/en/where-and-how-to-vote/voting-outside-the-district-of-permanent-residence-omnia
[309] https://www.val.se/servicelankar/other-languages/english-engelska/voting-in-advance.html

In Romania and Lithuania, the process is the same as for normal voting, as this option is only available for elections in which there is a single constituency (European Parliament, presidential). Voters in these countries do not need to submit any application, only to be registered in the regular voter registers. Likewise, Estonia does not require an application to use this option; in this case, votes are forwarded to the voter's district of residency.[310]

In other countries voters may need to submit an application in order to use this option. In Hungary, for example, voters submit a request to change district, indicating the name of the settlement where they would like to vote. Then the local election office enters the voter in the register of that settlement.[311] In Slovenia, voters must notify the local electoral commission that they want to use this option at least three days before the elections, by post, fax or e-mail.[312] Slovenian diplomatic or consular representations are immediately notified if a person in their electoral register has applied to vote in a different polling station in Slovenia.[313] In Croatia, the voter can change their voting place online up to 10 days before election day (for example, if he/she plans to be in another municipality in Croatia or abroad).[314] In Poland, a voter temporarily staying in the area of a different municipality for the duration of election day needs to submit a request to that municipal authority no later than five days prior to the election.[315] In the Czech Republic and Greece, an application by the voter is similarly required.

In some countries, a special 'pass' is awarded upon application to voters to allow them to use a different polling station. In Austria, voters need to apply for a voting card before the election, but once it has arrived they can use it at any polling station. Likewise, in the Netherlands voters who want to cast their vote in another municipality have to submit a written request for a voter's pass at least five days in advance of the elections or an oral request until the day of the vote before 12.00 p.m. at the municipality where this person is registered.[316]

The following table provides an overview of the registration and identification process for voting in another district across EU Member States.

[310] Information provided by the State Electoral Office.
[311] Electoral Procedure. Art. 150.
[312] http://www.dvk-rs.si/index.php/en/where-and-how-to-vote/voting-outside-the-district-of-permanent-residence-omnia
[313] http://www.dvk-rs.si/index.php/en/where-and-how-to-vote/voting-from-abroad
[314] Input from the Member State representative.
[315] KW, Art. 28.
[316] https://www.kiesraad.nl/verkiezingen/tweede-kamer/stemmen/kiezerspas

Table 27 Voting in another district: registration and identification

Country	Registration	Identification
Austria	Application for a voting card before the election	Identity document. Voting card
Bulgaria	Application	Identity card
Croatia	Online application	Identification document
Czech Republic	Application	Identification document. Voter permit
Denmark	No application needed	Identification document
Estonia	No application needed	Identification document Sign the list of voters voting outside the voting district of their residence[317]
Finland	No application needed	Voter's ID[318]
Greece	Application. To be submitted in person by the voter, or by another person with authorisation	Identity card or passport
Hungary	Application	Identity and address or personal identification number
Latvia	No application needed	A valid passport is stamped
Lithuania	No application needed	Identification document + IT system
Netherlands	Written or oral request for a voter's pass	Identification document. Voter's pass
Poland	Application	Identity document
Romania	No application needed.	Identification document + IT system
Slovakia	Application	Identification document. Voter permit
Slovenia	Application by post, fax or e-mail (signed and scanned)[319]	Identification document
Sweden	No application needed	Voting card

As voting takes place in a normal in-person polling station, accurate identification is usually ensured in the same way as usual (i.e. the electoral authorities identify the voters by checking their identification documents) (e.g. SI, CZ, PL).

However, in countries without specific prior registration, additional measures may be used to ensure that the voter has not voted elsewhere. In Romania, an IT system is in place so that a polling station can check if a voter is registered and if this person has already voted in another location. In addition, voters need to sign a declaration stating that they will not vote in the polling station where they are registered.[320] Lithuania also uses an internet-based system to check whether a voter has already voted elsewhere when they present themselves at the polling station. In Latvia, the voter's passport is checked and stamped upon presentation at the polling station, so that the voter cannot vote a second time.

In Denmark, where voting in another district takes place in advance, no application is needed.[321] Since all advance votes (including those from abroad, home, hospital, prison and other districts) are sent to the voter's assigned polling station before the election starts, duplicates are identified, and only one vote per voter is counted (the last one).

In Slovenia, people voting outside their district vote in special polling stations created for them (called OMNIA). One OMNIA polling station is organised in each district. In Estonia, each county

[317] Riigikogu Election Act. Art. 41.
[318] Posti (2018).
[319] http://www.dvk-rs.si/index.php/en/where-and-how-to-vote/voting-outside-the-district-of-permanent-residence-omnia
[320] Presidential Election Law, Art. 44.
[321] Input provided by the Danish Ministry for Economic Affairs and the Interior (OIM).

town should have at least one voting location for people voting outside their district of residence. Moreover, there should be a separate polling booth and ballot box for them.[322]

3.6.3 Vote casting

As voting by this method takes place in regular polling stations, the same measures relating to secrecy of the ballot apply as in normal voting.

3.6.4 Counting

In Romania and Bulgaria votes are counted at the polling station where they are cast. In some countries, votes cast by electors from other constituencies are placed in a separate ballot box and are transported after voting to the voters' district of origin.

In Estonia, envelopes should be sent to the voting district of the voters' residence by the day before the elections. The Electoral Board checks that voters are entered in the list of voters of the voting district and that they have not voted more than once.[323] In Hungary the approach depends on the type of the election. Votes at European Parliament elections and in national referendums are counted at the polling station where they were cast. However, votes for parliamentary elections are sent to the designated Electoral Board in the parliamentary single-member constituency where the voter lives, which also counts the votes from other polling stations and the votes cast in person abroad.[324]

In Slovenia, ballots are counted at the polling station, but the results are sent to the district where the voter is registered as a resident. In Greece, after the polls close, the Election Commission numbers and initials voting envelopes without opening them. The envelopes are placed in separate packages for each basic election region. The counting of ballot papers is undertaken by the Court of Appeal and specialised committees and results are communicated to the voter's electoral region of residence. Afterwards, ratified copies of the results and electoral bags with the ballot papers in them are sent.[325]

[322] Riigikogu Election Act (2002), Art. 34 and 41.
[323] Riigikogu Election Act (2002), Art. 48.
[324] Input provided by the National Election Office.
[325] PD 96/2007, Art.97; Law 3731/2008, Art. 29 par. 10.

3.6.5 Benefits, drawbacks, outcomes and future plans

Table 28 Voting in another district: benefits and drawbacks

Benefits	Drawbacks
• It lowers voters' **travelling** time, as they can vote close to their Election Day location. • It could facilitate voting of **people with no fixed abode**. • Voting takes place in a **controlled environment**, following the standard process. Secrecy is ensured because voters themselves place the vote in the ballot box and they can vote freely using **polling booths**. • The identity of the voter can be verified in person. • It can be **observed** through standard procedures. • There is no dependency on the **postal services.** • If votes are counted in the polling station where they are cast, there is less risk that they get lost, damaged, or arrive late at the place of counting. • It implies **low costs** for the voter. • It may imply low costs for the public administration compared to other types of remote voting, especially if there is a single constituency and if votes do not need to be transported to the voter's district of residence.	• There is the risk that a single person **votes in more than one location.** • If votes are transported to the voter's constituency, there is some risk that they get lost or damaged during transportation. • It may imply some **costs** and **organisational** efforts if there are multiple constituencies and votes need to be transported to the voter's district of residence.

The opportunity to vote in an alternative electoral district offers more convenience to voters, particularly those who may be travelling on election day (for example, for work or vacation). In Slovenia, voting in another district was introduced in 2006, mainly to make it easier for students to vote, as there are many people who study in Ljubljana but have permanent residence in another municipality.[326] In Hungary, our interviewee considered that the costs of enabling voting for citizens who wish to change their electoral district are minimal.[327] This option is becoming more popular and the number of voters using it has increased to 108,479[328] in 2014, almost double the 57,566 voters in 2010 and 57,999 in 2006. For multi-constituency elections (i.e. those in which the candidates differ between districts) there may also be challenges relating to the preparation of the polling station and availability of district-specific ballots for voters. In many systems in which alternative-district voting is available for multi-constituency elections, voting is held in advance (e.g. DK, SE) to enable the ballots to be dispatched to the voter's home district for counting. This may be enabled by the design of the ballot paper and electoral system; in Sweden, for example, voters casting an advance ballot at a special polling station are able to write the name of their preferred candidate (if known) on the ballot paper or choose simply to vote for a political party without specifying a particular local candidate.

[326] Interview with the Slovenian State Election Commission.
[327] Interview with the Member State representative.
[328] http://www.valasztas.hu/dyn/pv14/szavossz/en/orszjkv_e.html

In systems in which a polling station has been designated for voters, there may be additional administrative issues relating to the operation of the polling booth and assessing demand. In Hungary, for example, there is only one polling station per settlement assigned to those who have requested to vote in an alternative electoral district. In consequence, there have been complaints related to long waiting times.[329] In Slovenia, since voters can notify the State Election Commission that they will use this option up to three days before election day, the printing of ballot papers and other preparatory tasks must be performed assuming that many people will use this option.[330]

[329] Interview with the Member State representative.
[330] Interview with the Member State representative.

4 Internet voting

4.1 Overview and current status

The International Institute for Democracy and Electoral Assistance (IDEA) defines internet voting systems as a type of electronic voting (or e-voting)[331] in which 'votes are transferred via the internet to a central counting server'.[332] Either computers or mobile devices can be used, provided they have internet connection, and the vote can be cast at home, in another location with internet access (e.g. library, friend's home, hospital, etc.), or at a regular polling station using an internet-based electronic voting machine. (However, as this final possibility is not a remote voting option, it does not fall under the scope of this study.)

The use of internet voting has been proposed as a mechanism to increase engagement with elections and improve voter turnout, especially amongst younger generations; modernise voting systems; facilitate flexibility for voters who may be away from their traditional polling station on election day; and reduce the costs of organising elections. The Venice Commission's review of the compatibility of remote voting and electronic voting with the standards of the Council of Europe (and with Article 3 of Protocol 1 of the ECHR) concluded that electronic voting (including internet voting) is compatible in principle; however, appropriate measures need to be taken to ensure confidentiality and anonymity, maintain the integrity and authenticity of votes, prevent manipulation, and provide a measure of confirmation to the voter that the vote has been cast correctly.[333] The Council of Europe also has a set of standards for electronic voting.[334]

In contrast to other remote voting systems, internet voting has not been widely adopted across the EU. The following table shows the status of internet voting in Member States, with Estonia being the only country that has fully implemented this voting method.

Table 29 Status of internet voting in EU countries

Status	Country	Description
Implemented	Estonia	Implemented since 2005
Partially implemented	France	It has been used for French living abroad (AFE) and was used for overseas voters in the 2012 legislative elections, but it was not used in 2017
Abandoned	Netherlands	Three systems have been implemented but they have been abandoned
Trials conducted	UK	Pilot trials were held in 2003 and 2007, but it was recommended not to implement internet voting at that time. The Scottish and Welsh governments are studying the issue
	Portugal	Past trials (1997–2005). No current plan to implement internet voting
	Spain	Past trials. No current plan to implement internet voting

[331] IDEA's report on electronic voting indicates that there are various definitions of electronic voting, but the report covers those 'systems where the recording, casting or counting of votes involves information and communication technologies'. IDEA (2011).
[332] IDEA (2011).
[333] Venice Commission (2004).
[334] Council of Europe (2017a).

Status	Country	Description
Trials planned	Bulgaria	Trials planned for 2018. If successful, internet voting could be implemented in 2019
	Sweden	Proposed trials for electronic elections
Proposals	Romania	Some parties have presented law initiatives
	Denmark	The implementation of internet voting was discussed but rejected. There are no current plans to implement it
	Finland	In 2016 it was decided that internet voting should be implemented, but the idea was abandoned in 2017. In 2018 a feasibility study is exploring further the option
	Lithuania	Proposals have been presented in parliament, but they have been rejected. A draft project has recently been prepared
	Latvia	A proposal has been presented in parliament, but it has been rejected. A petition was submitted by citizens
	Malta	Unsuccessful petition for a remote voting option
	Czech Republic	A plan for internet voting was introduced in a coalition agreement, but it was later abandoned
	Belgium	Internet voting was included in a coalition agreement, but it was never put up for a vote
	Croatia	Citizens' Initiative proposing the introduction of remote voting (postal and electronic voting)
Debates	Austria	There are regularly debates on internet voting solutions
	Poland	A party has suggested the introduction of internet voting. The Parliament Analysis Office has been asked to study internet voting techniques
	Cyprus	Some parties have mentioned the possibility of introducing internet voting
	Slovenia	There was a round-table to discuss internet voting, which was not especially successful
	Hungary	Internet voting has only been briefly discussed
	Ireland	Internet voting has only been briefly mentioned
	Slovakia	Internet voting has been suggested by an expatriate association
	Greece	Internet voting has been mentioned by two parties
No recent plans/debates	Germany	There is a consensus not to use electronic voting as it cannot currently meet constitutional requirements for transparency in elections
	Italy	No debate
	Luxembourg	Implementation of internet voting is not foreseen

4.1.1 Fully or partially implemented systems

Internet voting was implemented in **Estonia**[335] in 2005. Since then the system used has been updated, including a completely new system was used for 2017 local elections. The use of internet voting in the country is contested by some political parties who oppose the idea, due in

[335] See case study in Section 6.3.1.

large part to the risks of manipulation of results by malicious actors. However, these parties do not have a majority in parliament at the time of writing. The system is available for all those eligible to vote in Estonia, including Estonians who reside abroad.

Estonia

Registration. Voters do not need to submit an application to use this option. The list of voters is entered in the electronic voting system by the State Electoral Office.[336]

Identification. The voter chooses the authentication tool: either ID card with PIN codes, Digital ID or mobile-ID. In the first case, voters insert the ID card into a card reader and identify themselves by entering a PIN1 code in the voter application. The process is similar for Digital ID. In case of identification via a mobile-ID, voters receive a PIN1 code via SMS.[337] The service checks whether the voter has already voted, but citizens are allowed to vote again to replace their previous vote.[338] At the moment of counting, the State Electoral Office removes repeated votes (in case of multiple votes cast by the same voter, only the last is preserved) as well as votes cast by the same person at a polling station.

Vote casting. Voters choose among the candidates displayed and then votes are encrypted by the system and digitally signed by the voter.[339] Voters can verify that the vote has been successfully received and recorded in the i-ballot box through the Verification Application downloaded to their smart device equipped with a camera. Furthermore, an auditor checks the integrity of the i-ballot box, the correctness of the annulment of repeated votes and the anonymisation of votes, by repeating the process. It also monitors the process of counting. Observers can also carry out similar checking procedures on a voluntary basis.[340]

Counting. Counting takes place after 7.00 p.m. on election day in an offline environment (computers are not connected to the internet). The State Electoral Office verifies the digital signatures of each individual vote and then anonymises them by removing the personal digital signatures. A vote-opening key (divided between the members of the National Electoral Committee) is used to decrypt the votes.[341]

France[342] has also implemented internet voting, but only partially. The system was used in the AFE (*Assemblée des Francais à l'Étranger* – Assembly of French Citizens Abroad) election in 2003, 2006 and 2009, and for consular elections in 2014. Internet voting was also available for

[336] Riigikogu Election Act. Art. 48^3(2).
[337] https://www.valimised.ee/en/internet-voting/internet-voting-estonia
[338] https://www.valimised.ee/et/e-h%C3%A4%C3%A4letamine/korduma-kippuvad-k%C3%BCsimused-kkk
[339] By entering the PIN2 code associated with the ID card, or entering in the mobile phone the mobile-ID PIN2 code. Encrypted votes move through the internet to the central server (see https://www.valimised.ee/en/internet-voting/internet-voting-estonia).
[340] State Electoral Office of Estonia (2017).
[341] Riigikogu Election Act (2002), Art. 60^1. State Electoral Office of Estonia (2017); https://www.valimised.ee/en/internet-voting/internet-voting-estonia
[342] See case study in Section 6.3.2.

voters from abroad in the 2012 legislative elections, but it was not during 2017 legislative elections.[343]

France

Registration. Registration takes place automatically when registering to the Consulate Directory for those who have provided an e-mail address.

Identification. Voters are identified at first login by e-mail (valid for all rounds of each election) and then receive a password by e-mail (valid for one round only).

Vote casting. Ballots are provided via e-mail. Voters select the candidate and confirm their vote. Voters then receive a vote confirmation receipt.

Counting. In France counting is automatic. The President of the local internet vote committee transmits the results to a special polling station in Paris (*bureau de vote centralisateur*).

4.1.2 Trials

Several Member States have piloted different remote internet voting solutions. Pilot trials for internet voting were held in the **UK** in 2003 and 2007. The resulting report published by the Electoral Commission recommended that no further internet voting pilots should be implemented until certain risks in the process could be mitigated.[344]

Internet voting trials have been implemented four times between 1997 and 2005 in **Portugal**. A review of the trials concluded that internet voting did not meet the reliability guarantees required for the public/citizens to trust and control the voting system.[345] In **Spain**, there have been non-binding e-voting pilots run by the Ministry of the Interior (the first in 2003) and, also, by several Autonomous Communities (since 1995). However, none of the main political parties has proposed an amendment to the Electoral Law to introduce e-voting within the special subcommittee for electoral reform established in 2017. The Catalan Government introduced a bill in the Catalan Parliament to allow internet voting in the 2017 parliamentary elections for Catalans living abroad, but it was not approved.[346]

In **Finland**, an electronic voting pilot took place in 2008. Online voting was further considered in a 2013–2015 Working Group, which recommended trials of internet voting in municipal elections.[347] In October 2016, the government decided that Finland would implement internet voting in all elections and referendums. However, the Online Working Group issued a report in December 2017, proposing that internet voting should not be implemented, on the basis of a number of concerns.[348] These include the fact that the technology is not yet at a sufficiently advanced state, difficulties in ensuring secrecy of the vote, distrust of the system linked to security issues, and difficulties around receiving a vote confirmation. Since the risks of internet voting were deemed to outweigh its benefits, the system has not been adopted in the country and the Ministry of Justice has announced that it will not be taking the matter forward during

[343] France Diplomatie (2017c).
[344] Electoral Commission (2007a).
[345] Falcao e Cunha et al. (2006).
[346] Ara (2017).
[347] Yle uutiset (2017a).
[348] Yle uutiset (2017b).

the term of the current government.[349] However, a feasibility study in 2018 will explore how to reform the election system or parts of it. It will specifically analyse 'the requirements resulting from the changing operational environment and the digitalisation of elections in the long term'.[350]

4.1.3 Planned trials and proposals

Bulgaria and Sweden have plans to conduct internet voting trials. In **Bulgaria**, the pilot will be conducted in three consecutive elections, including partial elections. In the event that these trials prove successful – with guaranteed vote confidentiality, system security and ensured civic control over the electoral process, and no material violations found – internet voting could be used in the 2019 elections for the European Parliament.[351] In **Sweden**, a committee was established from 2011–2013 to explore internet voting, and trial electronic elections were proposed for 2018.[352] The government at the time of writing had concluded that, despite the committee's findings, internet voting will not be piloted in national elections at this time.[353] However, trials may take place in a limited number of local elections in the future.

In the **UK**, the **Welsh** government has announced plans to test internet voting.[354] In addition, a consultation on electoral reform is being undertaken by the **Scottish** government at the time of writing, including on issues of internet voting.[355] No similar plans are in place for UK-wide elections.[356]

In **Denmark**, internet voting was discussed in 2013 during the legislation process following the introduction of the bill on digital voting and digital counting of votes. However, the implementation of internet voting was not supported due to difficulties linked to guaranteeing identification and vote secrecy.[357] The Danish Ministry for Economic Affairs and the Interior has indicated that it has no plans to implement remote voting solutions.[358] Danish citizens, however, seem more positive towards the possibility of e-voting. In a survey of 1,010 Danes conducted by KMD Analyse at the beginning of 2017, 70% answered that they would feel secure about e-voting if it was implemented via NemID, a log-in solution currently used by Danish internet banks, government websites and private companies.[359]

Since 2006, the **Lithuanian** Parliament has made several attempts to implement internet voting (2008, 2009, 2010 and 2014),[360] but these have all been rejected by the Parliament in order to further develop information systems, online data security, auditing, guaranteed secret voting, etc.[361] In 2018, the Ministry of Justice initiated a draft project to launch the establishment of an electronic voting system. If the laws are passed, the system should be ready by July 2019 and

[349] https://api.hankeikkuna.fi/asiakirjat/281c16de-87a0-4d48-a654-527ea93aec70/40e845f9-de05-4127-8ff5-7f052c90dc1c/RAPORTTI_20171219234502.pdf
[350] Ministry of Justice (2017).
[351] On 25 October 2015 a national referendum was conducted in Bulgaria with the question 'Do you support remote electronic voting upon conducting elections and referendums?' The turnout was 39.67% and 69.50% voted 'Yes'; https://results.cik.bg/minr2015/tur1/referendum/index.html
[352] http://www.regeringen.se/rattsdokument/statens-offentliga-utredningar/2013/04/sou-201324/
[353] https://sverigesradio.se/sida/artikel.aspx?programid=2054&artikel=6387118
[354] Twitter official channel of Alun Davies, Cabinet Secretary for Local Govt and Public Services. See https://twitter.com/wgcs_localgov/status/958353668272730113
[355] Scottish Government (2018).
[356] UK Parliament (2018).
[357] http://www.ft.dk/samling/20121/lovforslag/L132/baggrund.htm; Folketinget (2011).
[358] Input provided by the Ministry for Economic Affairs and the Interior.
[359] KMD Analyse (2017).
[360] Republic of Lithuania (2017).
[361] Various feasibility studies were conducted on this topic. See Parliament of Lithuania (2015).

citizens will be able to vote online in the National Parliament elections in 2020.[362] In **Latvia**, a concept paper on the development of an internet voting system stipulated the introduction of internet voting during the local government elections of 2013. Moreover, a petition to introduce internet voting signed by 10,845 citizens was submitted to the parliament (Saeima) in 2014. However, this option was rejected based on expert conclusions related to the need to guarantee security and the principle of a 'secret ballot'.[363] Since then, the initial enthusiasm around internet voting has faded, most likely affected by weariness of potential hacker exploitations of the election system and lack of confidence that currently available technologies can adequately ensure secure and untampered voting.[364]

The idea of internet voting was included in the coalition agreement of the 2011 **Belgian** government, but it was never put up for a vote.[365] Similarly, in the **Czech Republic** its introduction was included in the coalition agreement of the Necas government in the early 2010s. However, the plan was subsequently abandoned.[366] Calls for the introduction of internet voting reappeared late 2014, mostly floated by the Christian Democrats, but no tangible progress has been achieved on the matter so far.[367]

Petitions have also been presented in other countries. In **Malta**, a petition with 1,328 signatures was presented with a plea to implement a remote voting option from abroad, including electronic voting systems, postal voting or voting at Maltese embassies.[368] However, the petition was not successful. In **Croatia**, the Citizens Initiative 'In the Name of Family' (*U Ime Obiteji*)[369] proposed the introduction of postal and electronic voting in order to guarantee the electoral rights of all Croatian citizens. Additionally, the Prime Minister, Andrej Plenković, indicated the need to consider technological solutions to facilitate the vote of expatriate Croatians, given the low percentage of votes cast at embassies abroad.[370] Lastly, in **Romania**, there have been some initiatives from NGOs, MPs and other entities to introduce internet voting as a way to optimise the voting process. Three parties (PDL, PMP, M10) have made proposals in this direction, but PSD, the largest party in parliament, has not taken concrete steps towards the implementation of internet voting yet.[371]

4.1.4 Countries with ongoing debates

Debates about internet voting have been taking place in a number of Member States, usually triggered by political parties and/or civil society. In **Cyprus**, for example, the Citizen's Alliance Party (Συμμαχία Πολιτών) proposed the implementation of e-voting[372] in their internal democratic procedures, but without success. Most Cypriot politicians are focusing on other electoral issues. The Head of Elections considered that internet voting would require too many checks, balances and safeguards to be considered as a feasible option to address the problems of high costs and low youth turnout.[373] Some proposals from other parties are currently being

[362] LRT.LT (2018).
[363] Saeima (2014); Article 6 of the Constitution: 'The Saeima shall be elected in general, equal and direct elections, and by secret ballot based on proportional representation.'
[364] Delfi (2017).
[365] Interview with Belgium's Federal Public Service Interior.
[366] Aktualne.cz (2012); Týden.cz (2014).
[367] Plus (2014); Ceska televize (2015).
[368] Zammit (2012).
[369] https://uimeobitelji.net/referendumska-nacela/
[370] CroExpres (2012).
[371] Adevarul (2016).
[372] https://www.symmaxiapoliton.org/government-reforms; Cyprus News (2014).
[373] Sigmalive (2018).

discussed in parliament, but the implementation of internet voting in Cyprus seems unlikely, at least in the near future.

In **Hungary**, two political parties initiated a one-day parliamentary debate about internet voting in 2016. In **Poland**, the Kukiz'15 party proposed the implementation of internet voting and initiated political consultations and further analysis in this area. The Sejm Analysis Office was entrusted to develop an expert opinion on internet voting techniques used in other countries.[374] The analysis revealed that concerns remain regarding how to guarantee voters' identities while maintaining the secrecy of voting.[375] As a result, there are currently no specified plans to implement internet voting in the country.

In **Greece**, internet voting has not been the subject of major discussions, unlike the general right to vote of Greeks living abroad. The political party PASOK mentions electronic voting in a document espousing its positions.[376] Another political party, To Potami, proposed remote electronic voting for the centre-left primary elections.[377]

In 2017, the then **Irish** Taoiseach (Prime Minister) Enda Kenny noted that the government could consider internet voting as an option for a future overseas diaspora vote.[378] In **Slovenia**, there was a round-table to discuss the issue of internet voting with the civil society, with the latter expressing its reservations against internet voting. The low level of trust towards internet voting has been coupled with the position of IT experts in the country, which is that it is not possible to guarantee a 100% secure system.[379] In **Slovakia**, the introduction of internet voting has been called for by an expatriate association, but this has not resulted in any formal proposals or plans.[380] In **Austria**, there are regularly debates on internet voting solutions, with opposition on grounds such as data security and privacy concerns.

4.1.5 Abandoned systems, no recent plans or debate

Several internet voting systems have been implemented in the **Netherlands** in the past, but the projects have been discontinued. In 2004 two different systems were introduced: the Rijnland Internet Election System (RIES) for the water board elections in 2 out of 33 water board districts,[381] and the Kiezen op Afstand ('remote voting') project (based on the Temporary Electronic Remote Voting Experiments Order)[382] for voters living abroad in the course of the European elections. A modified RIES was offered to voters abroad in the 2006 general elections.[383] These included either Dutch citizens whose official place of residence was located outside the Netherlands or those who would be abroad at the time of the voting process due to their own occupational commitments of those of their of their spouse, registered partner, life companion or parent.[384] However, internet voting was abandoned in 2006 due to serious integrity

[374] Polska Agencja Prasowa (2017); Kancelaria Senatu (2015).
[375] Kutyłowski (2009).
[376] PASOK (2018).
[377] To Potami (2017).
[378] Thejournal.ie (2017).
[379] Interview with the Member State representative.
[380] https://www.topky.sk/cl/10/1704823/Slovaci-v-zahranici-si-zelaju-zmenu-volebneho-zakona--Chcu-volit-vo-vsetkych-volbach
[381] Rijnland and De Dommel.
[382] Staatscourant (2004), nr. 94, p.9.
[383] Hubbers et al. (2008); Hubbers, Jacobs & Pieters (2005).
[384] Ministerie van Binnenlandse Zaken en Koninkrijksrelaties (2007).

and security concerns. In 2015 a new trial of internet voting was announced,[385] which has been delayed several times and consequently has not been implemented so far.[386]

The Netherlands

Registration. In the Kiezen op Afstand project, voters had to register first, similar to the process of voting by mail. After registering, voters received an authentication code and access code.[387] For the water board elections (RIES) in 2006, voters had to register no later than four weeks in advance.

Identification. In the Kiezen op Afstand project, voters were identified through the right combination of vote code and password. In RIES, voters used a secret voter key, an encoded version of the Dutch Social Security Number (BSN) or another identifier provided by the citizen administration (GBA).[388] To prevent repeat voting, each voter key could be used to cast only one vote.[389] If the system found that there was already a vote registered under a voter key, it did not allow a second vote to be cast.

Vote casting. In RIES, registered voters were sent an instruction booklet and a secret voter key, which could be used to vote up to four days ahead of the elections.[390] After entering the voter code, three more codes needed to be entered, including the last two digits of the voter's year of birth. If the combination was validated, the voter was guided to a webpage displaying all the participating political parties (as well as a blank vote option). Under each party a list of candidates was shown. A final screen depicted only the chosen candidate and a vote button. Votes were cast through the system, using an encrypted connection to arrive at the server. In the Kiezen op Afstand project, voters chose their own voter key and received a customised information packet by mail, which included further authentication details and general information about the voting process.[391]

In both RIES and the Kiezen op Afstand project, it was possible for individual voters to verify their vote and confirm that it had been registered correctly. In RIES, anyone with the right technical expertise could do a full recount, using the full list of votes published after the elections. They could re-execute several steps in the calculation of the end results and, therefore, identify any type of anomaly.[392]

Counting. In the three Dutch systems (RIES 2004, RIES 2006 and Kiezen op Afstand), counting took place instantly using the voting software.[393]

In **Germany**, electoral law legislators at the federal and regional level have not introduced any form of electronic voting because they cannot currently guarantee the transparency of any step of the election for any citizen, which is a constitutional principle under German Basic Law as established by the Federal Constitutional Court.[394]. After several rounds of public discussion related to the risks of manipulating voting machines, wide consensus has been achieved not to use electronic voting machines. In **Italy**, there is currently no significant debate surrounding a potential introduction of internet voting solutions in the country. It is unclear whether internet

[385] Hillenius (2016).
[386] Verdonck, Klooster & Associates (VKA) (2016).
[387] Kiniry et al. (2007).
[388] Hubbers et al. (2008).
[389] Hubbers et al. (2008).
[390] OSCE/ODIHR. (2007).
[391] Kiniry et al. (2007).
[392] Hubbers et al. (2008).
[393] Jacobs & Pieters (2009).
[394] https://www.bundeswahlleiter.de/en/service/glossar/o/online-wahlen.html ; http://www.loc.gov/law/foreign-news/article/germany-constitutional-court-decision-on-electronic-voting/

voting could guarantee the basic principles of the Italian constitution, as there may be issues relating to anonymity of the vote, coercion during voting, vote-buying, etc. Moreover, the need for internet voting may be lower in Italy due to the fact that there are many polling stations easily reachable by citizens, and the voter turnout is high compared to other European countries.[395]

4.2 Drivers and barriers

Table 30 Internet voting: benefits and drawbacks

Benefits	Drawbacks
• It can include features to allow persons with a **disability** to vote without assistance. • It may be used by people in **hospital**, long term care facilities or similar institutions. • It can be used by people who live in **remote areas.** • It can be used by people who live **abroad**, including those with no consulate nearby. • It lowers voters' **travelling** time as people can vote from anywhere with an Internet connection. • Votes can be **encrypted** to guarantee the secrecy of the vote. • The computer system can check whether a person has voted more than once. • There is no dependency on the postal services. • There is a lower risk that votes arrive late at the place of counting. • It may reduce the incidence of **counting** errors. • Results can be counted automatically. • It implies **low costs** for the voter.	• It takes place in an **uncontrolled environment**. It is difficult to ensure that people vote freely. • There is a risk of **cyber-attacks** from internal or external actors, which may manipulate the votes. • **Denial of service attacks** may prevent citizens from casting their vote. • Software errors or **malware** on voters' devices may affect the vote casting. Voters may be required to **update** their software or browsers. • It may be difficult to guarantee at the same time an accurate voter **identification** and **secrecy**. • **Identification codes** may be stolen or sold. • It is difficult to **observe** the process without relying on specialist expertise. • It may be difficult to **verify** that the vote has arrived. • It may be difficult to **recount** the votes, making it more complicated to audit the results. • There are some **costs** related to software development and maintenance and security safeguards. • There is a dependency on voters having a reliable **internet connection.** Internet penetration and availability and use of e-government services in some countries is limited.

4.2.1 Technical and human capacity

Ensuring that internet voting solutions are aligned with existing systems – both technical and human – is important to ensure a smooth voting process.[396] For example, voters encountered difficulties during the 2011 Norwegian and 2012 French internet voting pilots, which related to outdated or insufficient versions of Java (a programming language often used for web

[395] Interview with the Member State representative.
[396] Barrat, Goldsmith & Turner. (2012).

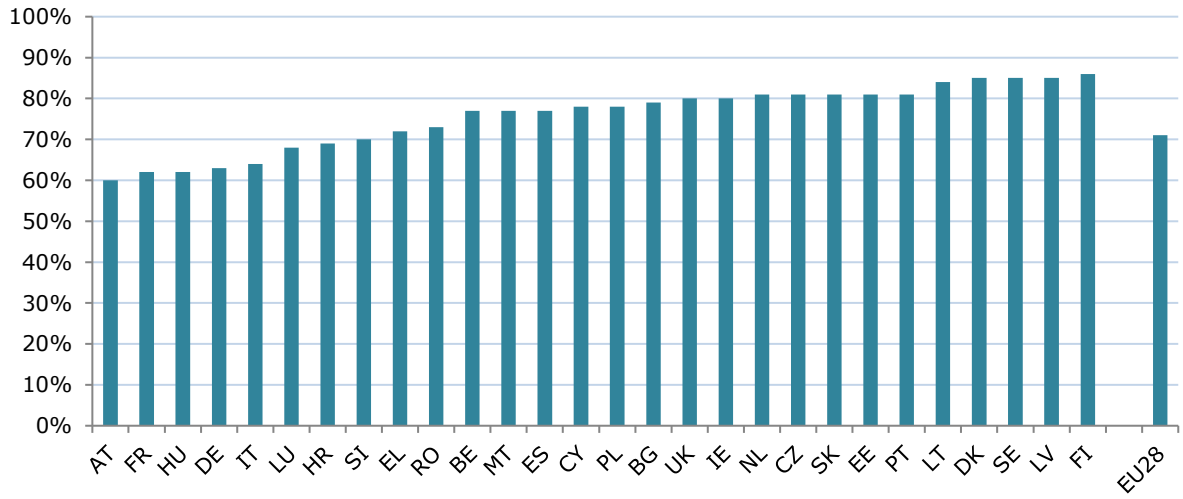
applications). The request to download additional updates risked frustrating users and leaving them at risk of malware.[397] During the online elections held to elect the Board of Directors of the Internet Corporation for Assigned Names and Numbers (ICANN), difficulties were encountered when the interest in voting was underestimated, with the result that the servers were overloaded and a number of votes could not be cast.[398]

Internet voting solutions must also work effectively with human governance and staffing arrangements. The evaluation of the 2003 and 2007 UK internet voting pilots implemented at local government level indicated a lack of sufficient knowledge regarding the effective implementation of internet voting, resulting in key security and procedural gaps during operations.[399] It was recommended that, in place of agreements with different providers and operators at each local level, any future implementation should be carried out using one comprehensively tested system.

4.2.2 Citizens' trust in the voting system

The extent to which citizens accept and engage with an internet voting system may also depend on their trust in the system and the extent to which it meets their expectations of secrecy and integrity. As depicted in Figure 8, overall 71% of respondents to a 2016 Eurobarometer survey agreed that the ability to vote online in elections would make it easier for them to vote in national elections, ranging from 60% of respondents in Austria to 86% of respondents in Finland.

Figure 8 Proportion of respondents who agree that electronic or internet voting would make it easier to vote in national elections if living abroad within the EU



Source: Flash Eurobarometer 431: Electoral Rights

However, respondents also indicated some concern about the potential vulnerability of an internet or postal voting system to fraud, a breach of secrecy or undue influence by others.

Overall, as depicted in Figure 9, 61% of respondents had concerns about **potential fraud** as a result of using an internet or postal voting system. However, there was a considerable amount of variation between Member States. In Sweden, only 29% of respondents were 'quite concerned' or 'very concerned' with potential fraud, compared to 72% of respondents in Portugal.

[397] Collard (2013); Bull et al. (2016).
[398] Beckert et al. (2011).
[399] The Electoral Commission (2007b)

Respondents at each end of the age distribution were the most concerned about potential fraud: 58% of respondents between 25 and 34 years old reported concern, compared to 67% of those aged over 75 and 63% of those aged between 15 and 24. Urban/rural location and gender, however, were not strong factors.

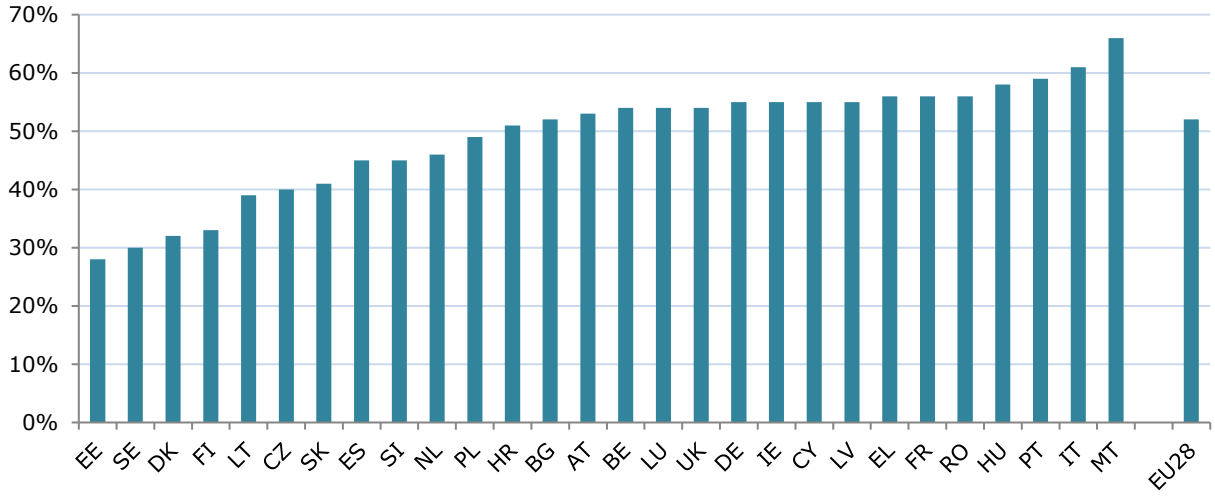
Figure 9 Proportion of respondents who have concerns about potential fraud when considering electronic, online or postal voting

Source: Flash Eurobarometer 431: Electoral Rights

Overall, as depicted in Figure 10, at the EU level respondents were less concerned with **secrecy** than fraud, although a small majority (52%) did report concern. As with the question regarding fraud, there was a considerable amount of variation between Member States. In Estonia only 28% of respondents were concerned by secrecy issues relating to online or postal voting, compared to over 60% in Malta and Bulgaria.

Older respondents were more concerned than younger ones: in all age categories from 45–54 upwards, a majority of respondents reported concern with secrecy, while in all from 35–44 downwards, 50% did not report concern. Women were more concerned than men by a margin of six percentage points. There was little difference according to urban/rural location.

Figure 10 Proportion of respondents who have concerns about secrecy when considering electronic, online or postal voting

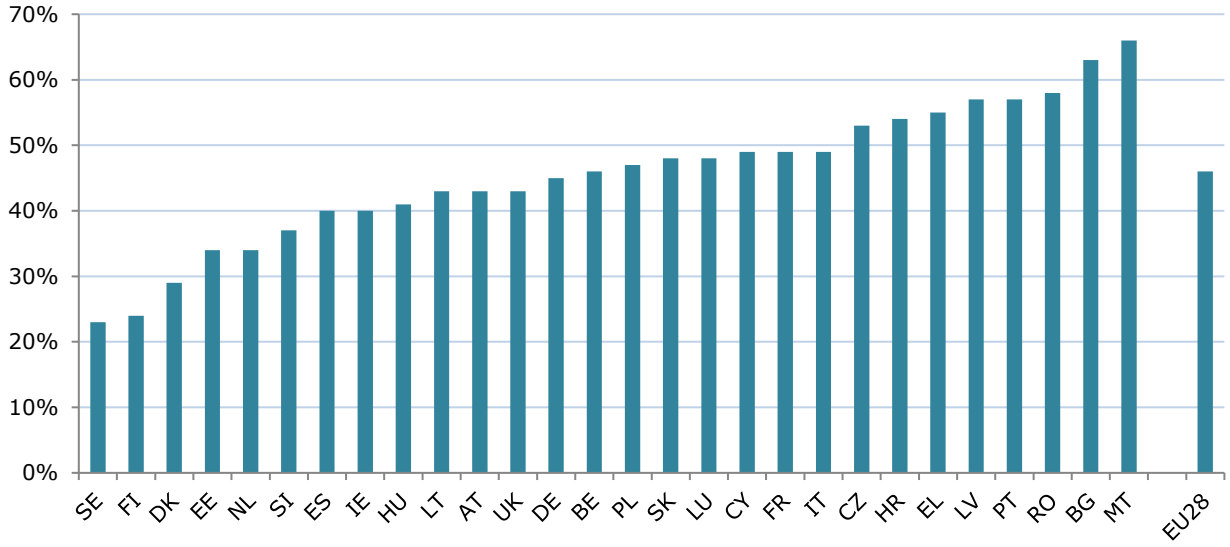


Source: Flash Eurobarometer 431: Electoral Rights

Overall, as depicted in Figure 11, respondents were less concerned by undue influence than by breach of secrecy or fraud, with a majority reporting that they were not concerned. However, this varied according to country: only 23% of respondents in Sweden were concerned about the vote being influenced by others, compared to 66% in Malta.

There were also differences according to urban/rural location: those living in villages were six percentage points more likely to be concerned than those in large towns. Only 38% of respondents aged between 35 and 44 reported concern about undue influence, compared to 54% of those aged over 75 and 48% of those aged 15–24. There were no major differences by gender.

Figure 11 Proportion of respondents who have concerns about voters being influenced by others when considering electronic, online or postal voting



Source: Flash Eurobarometer 431: Electoral Rights

Several studies have surveyed voters' experience of using internet voting systems. For instance, surveys conducted in the aftermath of local elections in Ontario in 2014 indicated that over 90% of e-voters would use internet voting again and recommended that it be expanded to provincial and national elections.[400] Similarly high levels of satisfaction were reported in a 2015 survey of voters in New South Wales,[401] even when asked about individual components of the process (registration, receipt of an i-Vote PIN, time and ease of voting itself). Overall, the proportion of respondents who were satisfied with the process lay at about 96% and never dipped below 90% when asked about the individual components listed above. High levels of confidence among users were also reported in surveys of all voters conducted after the Norwegian i-voting pilots in 2011 and 2013.[402] In 2013, similarly to the results obtained in 2011, nearly all respondents (94%) agreed with having the possibility of voting via the internet and a large majority (83%) felt that internet voting can be trusted. At the same time, the majority of respondents (63%) indicated that casting a vote at a polling station has a value in itself as well.

4.2.3 Usability and accessibility of the system

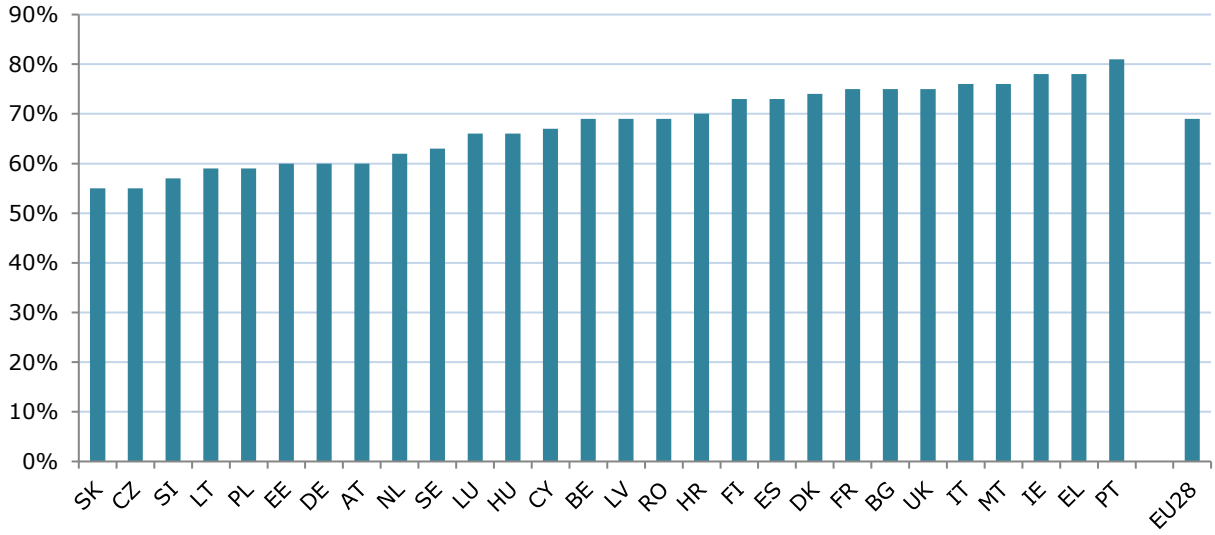
The extent to which a digital platform functions as an effective voting method (including whether it is adopted by voters) may also depend on the experience and preference of the voters: in other words the usability of the platform and the extent to which it is trusted by voters.

In this regard, the design and usability of the internet voting platforms may be an important factor in the extent to which an internet voting solution is adopted. For example, an evaluation of the Estonian system noted that the initial provision of the online voting platform in the Estonian language only had systematically prevented the Russian-language minority, a third of the country's population, from accessing internet voting. This situation was amended following a Council of Europe recommendation.[403] A qualitative study of 30 participants with disabilities in the Norwegian internet voting trial found that the pilot system was inaccessible for users with certain types of need, although participants also raised independence and freedom from time pressure as positive aspects of the internet voting system.[404]

As depicted in Figure 12, a majority of responses to the Eurobarometer survey on electoral rights reported that they were 'quite' or 'very' concerned that an electronic, online or postal voting system might be difficult to use for some people (such as people with disabilities or older people), ranging from 55% in the Czech Republic to 81% in Portugal. (In all countries except the Czech Republic, this figure was higher than the number of respondents who reported being concerned about the risk of fraud, breach of secrecy or undue influence.)

[400] Goodman & Pyman (2016).
[401] Goodman & Smith (2016).
[402] Saglie & Segaard (2016).
[403] Trechsel et al. (2014), cited in Trechsel et al. (2016).
[404] Ministry of Local Government and Regional Development (2012).

Figure 12 Proportion of respondents who have concerns about usability issues when considering electronic, online or postal voting



Source: Flash Eurobarometer 431: Electoral Rights

73% of women reported concern over difficulty of use, compared to only 65% of men. Age was also associated with responses, with those aged between 25 and 44 were less concerned about usability than other groups.

Notably, concerns have been raised about the prospect of internet voting exacerbating a 'digital divide' between those comfortable with accessing the online platform and those without internet access or less familiar with using the internet, in particular older voters. Multiple studies have consistently observed a positive association between trust in the internet, trust in internet voting, internet use and internet proficiency on the one hand and the likelihood of using the internet to vote on the other. Where studies have made a comparison with other potential predictors, these types of factors were consistently found to be more strongly associated with the uptake of or intention to use internet voting.[405] However, longitudinal research from Estonia suggests that the effect of this may diminish over time, as the voting solution becomes more entrenched (Vassil et al, 2016); in this regard, confidence in internet voting may be the most important factor. As Vinkel & Krimmer (2016) summarise:

> 'One of the most important findings of the studies researching I-voting predictors until the 2009 elections has been that it is not so much the cleavage between the Internet access haves and have-nots, but clearly computing skills and frequency of Internet use. However, since the 2009 local elections, where more than 100,000 voters used Internet Voting, those factors have become non-detectable. Confidence (trust) in the I-voting system and procedure has been the most significant factor throughout the years that directs the voters' choice in using a remote electronic voting method.'

4.2.4 Auditability/verification

Concerns raised in the literature also relate to the ability of citizens to audit the voting process in internet-facilitated elections, which is considered a key principle of ensuring a transparent and

[405] See, for example, Carter & Campbell (2011); Vassil et al. (2016); Powell et al. (2012).

fair poll. Whilst standard election counting procedures often allow some measure of citizen oversight or participation, the technical nature of internet voting platforms means that understanding and validating the process by which votes are cast and counted, and by which secrecy is maintained, is beyond the practical ability of most citizens.

In light of this, International IDEA has instead proposed a *procedural audit*, in which citizens can monitor certain processes relating to the integrity of the system to ensure that they have been fulfilled. In addition, a *technical audit by proxy*, in which a plurality of independent expert opinion about the integrity of the system is secured and communicated for citizens is proposed.[406] This may include ensuring access and transparency with regard to proprietary software and agreements with commercial providers, for example by limiting the use of non-disclosure agreements and utilising open-source software.

Some systems include features that produce a digital 'paper trail' for voters to verify individually that their vote has been transmitted and counted as intended. The 2011 Norwegian internet voting pilots provided a mechanism by which voters received an SMS message containing a code that could be verified against the polling card received by mail, to ensure that the vote had been received correctly. A public web page containing a hash of all ballots was also visible, so voters could check whether their ballot was listed as expected.[407] A voting system piloted in New South Wales, Australia, in 2015 included a feature that allowed voters to have their vote read back to them by automated text-to-speech software by submitting their unique receipt number generated at the point of submitting a ballot.[408] In the Dutch internet voting pilots, unique codes were displayed after voters had submitted their vote online, and these could be checked individually after the election against a published list of codes to verify that their vote had been cast.[409]

It should be remembered that, as a report by the International Foundation for Electoral Systems (IFES) notes, the ability for citizens to fully audit the election process also relies on indirect verification in some existing voting mechanisms, for example through the need to trust the postal service (as in the case of postal voting) or counting process.[410]

4.2.5 System security

A key consideration raised in the literature and in previous pilots is the security of internet voting designs. While fraud is possible with postal and proxy voting, the difference with internet voting is that a flawed system design could allow fraud or cyberattacks on a major scale. Malicious actors could prevent voters from casting a ballot, change their vote or change ballot totals.[411] Such attacks could occur through direct hacking of the central repository of votes, or by targeting the ballot in transit, for example through malware on the voter's computer. An independent evaluation of Estonia's internet voting system conducted by cybersecurity researchers at the University of Michigan identified two key potential vulnerabilities that could allow the manipulation of vote totals by a state-backed actor.[412]

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[406] Barrat (2012b).
[407] Bull et al. (2016).
[408] Brightwell et al. (2015).
[409] Ministerie van Binnenlandse Zaken en Koninkrijksrelaties (2007).
[410] Barrat, Goldsmith & Turner (2012).
[411] Beckert et al. (2011).
[412] Springall et al. (2014). This was subject to a critical response by the National Election Committee of Estonia (seemingly no longer available from public sources). For further discussion and a counter-response from the research team, see https://estoniaevoting.org/press-release/response-national-election-committees-statement/

Certain systems have been designed to strengthen protection against vote-changing or cyberattacks. Some pilot internet voting systems, for example, have been designed to produce a 'paper trail' to verify that a vote has been cast (such as in the Norway internet voting pilots). Others allow voters to 're-vote' online or in person up to the day of the election (as is the case in Estonia), or allow voters to access and verify their choice at a later date (such as in New South Wales pilots). Nonetheless, the integrity of the internet voting software, and in particular balancing the need for a paper trail with anonymity, remains a key concern for internet voting implementation. Furthermore, various difficulties relating to conducting 'real-world' pilots have been pointed out: the limited ability to conduct 'white hat' attacks ahead of implementation (tests in which friendly actors intentionally attack a system prior to implementation in order to find weaknesses); the need to test systems at scale; and the low probability that malicious actors would attack a pilot.[413]

In addition to software vulnerabilities, human factors may also pose security threats. The independent evaluation of the Estonian internet voting system found significant man-made gaps in security, election officials downloading key software over unsecured connections, typing passwords in view of video cameras, and using unsecure personal computers and USB sticks.[414] Despite a generally positive impression of the security procedures in place, a separate evaluation of the procedural aspects of Estonia's system came to the conclusion that some situations were addressed very informally and the experience and knowledge of key officials was relied upon.[415] If staff members of a commercial organisation are involved in the election, for example by maintaining equipment or tabulating results, this may increase the need for additional human security clearance mechanisms.

An internet voting infrastructure may also be vulnerable to wider infrastructure outages or attacks, but also natural disasters, with could hamper large numbers of voters from casting their ballot. During the 2011 Norwegian internet voting pilots, a terrorist attack on the executive government quarter in central Oslo and the ensuing stoppage of public transport caused severe difficulties for engineers trying to access the internet voting servers and perform critical maintenance.[416]

The Council of Europe standards recommend that an 'independent and competent body' should evaluate an e-voting system, whether as a formal certification procedure or other 'appropriate' control. However, in practice a formal certification can be difficult to obtain, given the disparity in the software and hardware used by different solutions; rather than mandating standardised systems, countries using internet voting instead employ a comprehensive set of tests and audits that provide evidence of integrity and correct operation.[417] This has been implemented in different ways in different internet voting solutions: for example, an 'auditor module' built into the system which keeps a record of any transactions; the conducting of mock elections; and statistical testing of the results to identify irregularities.[418] The evaluation report of the 2004–2007 UK electoral pilots recommended that for any future implementation of internet voting, a central process should be implemented by authorities to test and pre-approve internet voting solutions that could be used by local election authorities.[419]

[413] Beckert et al. (2011).
[414] Springall et al. (2014).
[415] Nurse et al. (2016).
[416] Trechsel et al. (2016).
[417] Barrat, Goldsmith & Turner (2012).
[418] Barrat, Goldsmith & Turner (2012).
[419] Electoral Commission (2007).

4.2.6 Costs

It is often argued that an internet voting system is expected to be cheaper than a postal or in-person voting system, because of reduced postage (in systems where the login details for the system are not delivered by post) and staffing costs[420] and reduced time required to count the ballots received.

However, there is no clear consensus in the literature as to the relative cost-effectiveness of remote voting systems[421] and few authors focus in detail on the comparative costs of internet voting relative to other systems. The costs of implementing an internet voting scheme include the initial phase of designing, security testing and rolling out a new voting infrastructure, as well as the costs of implementing the scheme on a regular basis. Following the set-up phase, further operational costs will be incurred due to the maintenance and running of the system, ensuring security standards are met and meeting the costs of audit procedures. It is important to note that the actual costs faced when implementing an internet voting solution will depend on the design chosen (for example, whether internet voting passwords are posted to individuals, and whether economies of scale are introduced via the pooling of resources by different authorities) and the overall combination of voting solutions offered (for example, whether internet voting is offered in addition to, or instead of, in-person or other voting options). For example, Archer et al. (2014) indicate that internet voting tends to increase costs, because it is implemented as a complementary voting channel.

In the 2003 and 2007 UK internet voting pilots, the cost of implementation of the pilot schemes by local authorities ranged from between GBP 600,000 and GBP 1,100,000 (approximately EUR 680,000 – EUR 1,250,000), a cost per head of GBP 1.80 to GBP 27 and a cost per ballot cast of between GBP 100 and GBP 600.[422] The UK Electoral Commission has noted that the earlier 2002 pilots carried high costs with regard to the promotion of the new voting system amongst the electorate. Costs in the Netherlands pilots ran up to EUR 90 per registered voter, although the evaluation noted that this figure would reduce if turnout could be further increased.[423]

Some interviewees from Member States' electoral bodies suggested that the use of internet voting may reduce the costs associated with electoral administration. For instance, one interviewee considered the ability to count the results automatically as a main advantage, while at the same time the organisation of the voting process could become less time-consuming and costly. Also, in the case of Estonia, the interviewee from the State Electoral Office considered that internet voting implies savings compared to other voting mechanisms, as it requires fewer personnel during both voting and counting. Moreover, it could reduce the costs (in time and money) from the voter's point of view.[424] This perception was shared by former Cypriot minister Giorgos Lillikas, who opined in a news article that internet voting could contribute to decreasing the costs of the elections.[425] In a report published by the Finnish Ministry of Justice, it was suggested that internet voting might reduce the risks of mistakes or unclearly marked votes.[426]

[420] Beckert et al. (2011).
[421] Gibson et al. (2016); Beckert et al. (2011).
[422] Electoral Commission (2007).
[423] Ministerie van Binnenlandse Zaken en Koninkrijksrelaties (2007).
[424] https://www.valimised.ee/et/e-h%C3%A4%C3%A4letamine/korduma-kippuvad-k%C3%BCsimused-kkk; Vassil (2015).
[425] Cyprus News (2014); Sigmalive (2018).
[426] Ministry of Justice (2017).

4.3 Internet voting impact

4.3.1 Turnout

Voter turnout is by far the most frequently examined outcome of internet voting in the literature, but results are mixed. Some studies have observed an increase in turnout, for example in US primary elections,[427] Estonian local elections,[428] as well as a Brazilian budget referendum.[429] Other studies have found no such effect, such as in Norwegian local elections[430] and Estonian national elections.[431]

While it is not possible to conduct a randomised trial of remote voting solutions, a small number of studies built on experimental designs and thus represent the most robust source of evidence available. A recent study[432] presented a longitudinal analysis of the effect of internet voting on turnout in federal referendums in two Swiss cantons, Geneva and Zurich, since its introduction in 2001. The study came methodologically as close as possible to a natural experiment due to a feature in Swiss federal law that limits the share of a canton's voters taking part in internet voting trials. This meant that only some municipalities participated in the trial, enabling within-canton comparisons and offering the possibility of holding most potential confounding factors constant. The study found that the introduction of internet voting did not have any significant effect in either area. As a possible explanation, the authors hypothesized that the fact that postal voting was already an option for voters may have constrained the potential for any turnout effects from internet voting. As Vinkel & Krimmer (2016) stressed in the context of internet voting, it is difficult to assess the actual impact on turnout because a direct comparison of an election with and without a remote voting solution is not possible. In addition, an important factor in any considerations of effects on turnout is whether a remote voting solution is introduced as a complementary option to in-person voting or whether it is intended as a substitution for voting in polling stations.[433] Consequently, numerous authors[434] caution that the introduction of e-voting should not be seen as a silver bullet that can address deeper structural issues that may lead to the electoral disengagement of part of the electorate.

An alternative way of assessing whether remote voting solutions have had any effect on turnout is to ask voters who made use of a remote voting solution whether they would have still voted in its absence.[435] In contrast with the studies discussed above, this approach would require reliance on self-reported measures, but it may nevertheless represent a direct examination of voter behaviour. This question has been asked repeatedly in surveys conducted after a series of elections in Estonia, where internet voting is available. After the 2005 Estonian local elections, 18.5% of e-voters indicated that they 'probably' or 'certainly' would not have voted if internet voting had not been an option.[436] The same question was asked in other elections conducted until 2011. The percentage of people who would not have voted decreased slightly, but it

[427] Solop (2001).
[428] Trechsel & Vassil (2010).
[429] Spada et al. (2015).
[430] Segaard et al. (2014).
[431] Bochsler (2010).
[432] Germann & Serdult (2017).
[433] Norris (2004); Trechsel et al. (2016).
[434] For example, Norris (2004); Trechsel et al. (2016); Kersting & Baldersheim (2004).
[435] In very specific situations, remote voting represents the only option for voters, in which case an examination of their motivations is redundant. This is the case, for instance, with Estonian voters residing abroad who wish to vote in the country's local elections (Vinkel & Krimmer 2016).
[436] Breuer & Trechsel (2005).

remained between 10% and 16% of e-voters.[437] The interviewee from Estonia stated that they felt that internet voting has had some impact on turnout in Estonia, but that the exact impact is difficult to measure. At the least, it seems that internet voting has reduced alienation and stopped the decrease of turnout. It has kept people voting thanks to its convenience, especially for people voting from abroad and those with a disability.[438] Moreover, the interviewee considers that internet voting has been well accepted. In the 2015 parliamentary elections, around 30.5% of voters chose to vote online instead of using a conventional method.[439]

Similar data were also reported in a paper focused on internet voting in local elections in Ontario.[440] In a survey conducted in 2014, 14% of voters in Ontario municipal elections indicated that they 'probably' or 'definitely' would not have voted in the absence of internet voting. Furthermore, the majority (58%) of people who voted in 2014 but did not participate in the previous election in 2010 noted the convenience of internet voting as the decisive factor. This is in line with another paper based on Ontario data,[441] which concluded that internet voting has a 'modest potential' to engage people who tend not to participate in elections.

With regard to young voters, there appears to be a relatively consistent body of evidence showing that young voters are more open to internet voting solutions. This observation draws on studies that examine actually implemented i-voting schemes[442] as well as research that asked young voters about the hypothetical introduction of internet voting solutions.[443] However, it is not clear whether this positive attitude translates to greater use of remote voting solutions by young people. For instance, in an analysis based on quantitative and qualitative data from Estonian elections, Alvarez, Hall & Trechsel (2009) noted that the distribution of i-voters in Estonia did not show any strong skew towards younger cohorts. At the same time, based on survey data, the authors suggested that i-voting may enhance participation among certain groups, including young voters.

Several studies have concluded[444] that demographic and socio-economic factors, such as age/gender/income/education were relevant only 'to a certain degree'. A far more important predictor was individual affinity to the internet. A similar observation was made by Solvak & Vassil (2016)[445] in their analysis of 10 years of Estonian internet voting. They concluded that education and income were not significant as predictors of the choice of internet over other voting methods, while computing skills and frequency of internet use were significant predictors.

4.3.2 Election results

Several studies have examined whether the introduction of remote voting solutions may impact election results, and in particular whether it might result in a political advantage for certain political groups.[446]

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[437] In the following elections in 2007 (parliamentary elections), the proportion decreased to 10.9% (Trechsel et al. 2007). In 2009 (European and local elections) the proportion of voters expressing this sentiment rose to 13.0 and 16.3%, respectively (Trechsel et al. 2010), and in the 2011 (national elections) the observed proportion of voters was 14.6% (Trechsel & Vassil 2011).
[438] Interview with the Member State representative.
[439] DG for Internal Policies (2016).
[440] Goodman & Pyman (2016).
[441] Goodman & Pyman (2016).
[442] For example, Becker et al. (2011); Alvarez, Hall & Trechsel (2009).
[443] Carter & Campbell (2011); Nemeslaki et al. (2016).
[444] Trechsel & Vassil (2010); Serdult et al. (2015).

[446] e.g. Collard (2013); Brand (2014).

The reviewed literature generally concludes that there is no evidence to support the hypothesis that election results are affected by the introduction of remote voting solutions. For instance, a study on the implementation of internet voting as an option in a budgetary referendum in the Brazilian state of Rio Grande do Sul[447] found that online and offline voters broadly made similar choices. In addition, Vassil et al. (2016) and Vinkel & Krimmer (2016) highlight a multitude of studies from Estonia that reveal no significant relationship between self-reported political orientation and internet voting participation. Alvarez, Hall & Trechsel (2009) in turn note that there is no significant difference between general population voting results and e-votes cast via the internet. In other words, these findings suggest that the introduction of internet voting does not offer advantage to any particular political party.

A paper by Bochsler (2009) reached a different conclusion. Based on survey data of Estonian voters asked about their behaviour in the country's 2007 parliamentary election, the author argues that the effects of internet voting were not politically neutral since internet voters appeared to prefer parties that traditionally drew support from the ethnic majority and affluent areas. However, the author also notes that internet voting is mostly a substitution for votes cast at polling stations. This substantially limits any impact the introduction of internet voting may have on the results of an election.

Ultimately, as with other voting methods, the political impact of internet voting may depend heavily on the existing voting solutions available to voters: whether the introduction of new remote voting methods extends access to the ballot to voters who would not otherwise have voted, and the extent to which these voters are of a particular political leaning.

[447] Mellon et al. (2017).

5 Internet voting experimental tasks

As explained in Section 1.3, the online experiments conducted as part of this study aim to (1) measure the intention to use internet voting and other remote voting options; (2) test to what extent internet voting and postal voting can increase turnout rates; and (3) identify drivers and inhibitors that explain which people are most willing to use internet voting. The online survey design is documented in Appendix D.

5.1 Turnout

In order to assess the potential impact on turnout, participants were randomly allocated to one of three scenarios. The first, the 'current scenario', reflected the voting options available in each country. The second, 'internet voting', offered the option of voting online. The third, 'postal vote', offered the option of voting by post. Participants in each scenario were presented with three voting situations relating to the European Parliament elections. In the first situation, labelled 'normal circumstances', the participant was not presented with any special difficulty to get to the polling station to vote. In the second, the participant is living temporarily abroad. In the third, the voter has difficulties going to the polling station due to a temporary physical impairment. Respondents were asked about their likelihood of voting[448] and their intention to vote[449] in a hypothetical European election.

5.1.1 Germany

Main findings

In Germany, the likelihood of voting in European elections appeared to be higher for those who have internet voting in all three situations (normal circumstances, temporarily abroad and temporary physical impairment), compared to the current scenario (in which in-person and postal voting are available). The only exception is when having voted in the last elections is introduced in the model for the 'normal circumstances' situation.

The impact of including an option for internet voting on the intention to vote was not significant.

The factors that were significantly and positively related to both the likelihood of voting and the intention to vote, in all three situations (and at least in one of the models), were education, trust in the government and having voted in 2014.

Firstly, we present below the results for the impact on the likelihood of voting in a hypothetical European election, taking place in the upcoming weeks and under **normal circumstances**. Table 31 shows the relation of several factors[450] with the likelihood of voting. We are, in particular, interested in the first factor, internet voting, which shows the results of the inclusion of the possibility to vote online.

[448] Participants were asked "Please indicate on a scale of 1 to 10 how likely it is that you would vote in the European Parliament elections on May 27th 2018."
[449] Participants were asked 'Would you vote?' in reference to the European Parliament elections on 27 May 2018. The possible answers were: 'Yes', 'No', or 'I don't know yet'. Those choosing the third option were not included in the regression.
[450] β-coefficients derived from a linear regression.

Table 31 Germany: impact on the likelihood of voting under 'normal circumstances'

Likelihood to vote	Model 1[451]	Model 2	Model 3	Model 4
Internet voting	0.08**	0.09**	0.09**	0.04
Gender		-0.01	-0.02	0.01
Age		0.02	0.01	-0.09***
Education		0.19***	0.15***	0.05
Performance[452]			-0.13	-0.02
Effort[453]			0.17***	0.06
Trust in the internet[454]			-0.08	-0.07
Trust in the government[455]			0.30***	0.16***
ICT skills[456]			0.07	0.05
Voted in the 2014 elections				0.61***
Adjusted-R^2	0.01	0.04	0.14	0.48
Number of observations	718	718	718	619

It seems that being younger, being better educated, perceiving internet voting as easy to use, and having higher trust in the government all increase the likelihood of voting in European elections. The final model (Model 4) shows that almost 50% of the intention to vote is predicted by the included factors. It is important to note that in Germany the option of voting by post is not included in the regressions as it is currently available in all three situations.

Secondly, we analysed the situation in which the voter is **staying temporarily abroad**. In this case internet voting is significant in all four different models, and also when controlling for other significant predictors (see Table 32). The coefficients are slightly higher than when there is no major impediment to the voter getting to the polling station (see Table 31). People being better educated, having a lower perception of the usefulness of internet voting, with a higher trust in the government, with greater ICT skills, and having voted in 2014 all seem more likely to vote in European elections.

[451] ** indicates significance at the 0.05 level (P<0.05) and *** at 0.01 level (P<0.01).
[452] This is the sum of the replies to four statements (in a 7-point scale): 'I would find online voting useful', 'Using an online voting system would make voting less costly/demanding', 'Online voting would make me easier to vote', 'If there was an online voting system, I would be more likely to vote'.
[453] This is the sum of the replies to four statements (in a 7-point scale): 'I think it is comprehensible how to use an online voting system', 'I could quickly learn how to use an online voting system', 'I could easily learn how to use an online voting system', 'It would be easy for me to use an online voting system'.
[454] This is the sum of the replies to six statements (in a 7-point scale): 'I trust the internet provides enough safeguards for secure voting', 'I trust that legal and technical systems protect me at voting', 'I trust that they count the votes accurately', 'I think the internet is safe enough for secure online voting', 'I think I could trust an online voting system', 'I trust that nobody would tamper the online votes'.
[455] This is the sum of the replies to four statements (in a 7-point scale): 'I can trust the local public administration in general', 'I trust the institutions responsible for organizing elections', 'I think the Governmental administration system is trustworthy', 'I trust the Governmental institutions responsible for elections'.
[456] This is the sum of the replies to three statements (in a 7-point scale): 'Internet is part of my everyday life', 'I regularly use e-business and media services online', 'I am aware and use e-government services where I live'

Table 32 Germany: impact on the likelihood of voting when temporarily abroad

Likelihood to vote	Model 1	Model 2	Model 3	Model 4
Internet voting	0.11***	0.11***	0.11***	0.07**
Gender		-0.06	-0.07	-0.04
Age		0.06	0.04	-0.04
Education		0.16***	0.13***	0.04
Performance			-0.14**	-0.02
Effort			0.10	-0.01
Trust in the internet			0.00	-0.03
Trust in the government			0.27***	0.18***
ICT skills			0.10**	0.09**
Voted in the 2014 elections				0.52***
Adjusted-R^2	0.10	0.04	0.13	0.38
Number of observations	718	718	718	619

Thirdly, we analysed the situation in which the voter cannot go to the polling station due to a **temporary physical impairment** (see Table 33).

Including the option for internet voting is significant in all four different models, and the coefficients are slightly higher than when there is no major impediment to the voter getting to the polling station.

Being better educated, having a lower perception of the usefulness of internet voting, perceiving the internet as easier to use, have more trust in the government, better ICT skills, stronger intention to use internet voting, and having voted in 2014 all seem to increase the likelihood of voting in European elections.

Table 33 Germany: impact on the likelihood of voting when temporarily physically impaired

Likelihood to vote	Model 1	Model 2	Model 3	Model 4
Internet voting	0.11***	0.11***	0.11***	0.07**
Gender		-0.04	-0.04	0.00
Age		0.04	0.03	-0.05
Education		0.16***	0.13***	0.03
Performance			-0.14**	-0.03
Effort			0.13**	0.02
Trust in the internet			-0.02	-0.02
Trust in the government			0.25***	0.14***
ICT skills			0.11**	0.09**
Voted in the 2014 elections				0.57***
Adjusted-R^2	0.01	0.03	0.13	0.42
Number of observations	718	718	718	619

We have also conducted the same exercise but using the intention to vote (YES/NO) question. The following tables show the relation between the same factors:[457] including the internet voting option is not a significant predictor in all three situations. In Table 34 we can see that being older, being better educated, having more trust in the internet, having more trust in the

[457] Exp(B) coefficients from a logit regression.

government, and having voted in 2014 are all factors that seem to explain intention to vote under **normal circumstances**.

Table 34 Germany: impact on intention to vote under normal circumstances

Intention to vote	Model 1	Model 2	Model 3	Model 4
Internet voting	1.46	1.48	1.64	1.03
Gender		1.09	0.92	0.91
Age		0.80	0.83	0.36***
Education		1.48***	1.39**	1.20
Performance			1.04	1.01
Effort			1.05	1.02
Trust in the internet			0.95**	0.98
Trust in the government			1.17***	1.10**
ICT skills			1.02	1.06
Voted in the 2014 elections				380.36***
R^2 (Nagelkerke)	0.01	0.05	0.28	0.68
Number of observations	593	593	593	528

In the **voter is abroad** situation, being better educated, having more trust in the government, and having voted in 2014 are significantly related to intention to vote (see Table 35).

Table 35 Germany: impact on intention to vote when temporarily abroad

Intention to vote	Model 1	Model 2	Model 3	Model 4
Internet voting	1.44	1.44	1.47	1.20
Gender		0.82	0.72	0.90
Age		1.14	1.17	0.67
Education		1.38***	1.33***	1.34**
Performance			0.98	1.00
Effort			1.03	0.98
Trust in the internet			0.99	0.98
Trust in the government			1.12***	1.10**
ICT skills			1.04	1.08
Voted in the 2014 elections				38.11***
R^2 (Nagelkerke)	0.01	0.04	0.19	0.58
Number of observations	571	571	571	510

In the situation where the voter has a **temporary physical impairment**, the significant factors related to intention to vote are also being better educated, higher trust in the government, and having voted in 2014 (see Table 36).

Table 36 Germany: impact on intention to vote when temporarily physically impaired

Intention to vote	Model 1	Model 2	Model 3	Model 4
Internet voting	1.52	1.55	1.63	1.12
Gender		0.97	0.86	1.42
Age		0.98	0.98	0.69
Education		1.34***	1.27**	0.98
Performance			1.01	1.01
Effort			1.04	1.01
Trust in the internet			0.97	0.99
Trust in the government			1.11***	1.05
ICT skills			1.05	1.10
Voted in the 2014 elections				54.26**
R^2 (Nagelkerke)	0.01	0.04	0.20	0.58
Number of observations	573	573	573	511

5.1.2 Italy

Main findings

In Italy, internet voting had a significant and positive impact, in all but one model,[458] when the voter is abroad or has a temporary physical impairment (both regarding likelihood of voting and intention to vote), compared to the normal circumstances scenario. However, under the latter scenario internet voting did not have a significant impact, either on the likelihood of voting or intention to vote.

Postal voting did not have a significant impact on either likelihood of voting or intention to vote in Italy.

The factors that were significantly and positively related to both the likelihood of voting and the intention to vote, in all three situations (and at least in one of the models), were education, trust in the government and having voted in 2014.

In Italy, internet voting does not have a significant impact on likelihood of voting under **normal circumstances** (see Table 37). Likewise, postal voting does not significantly relate to the likelihood of voting. However, being older, being better educated, having a higher perception of the usefulness of internet voting, having a lower trust in the internet, having more trust in the government, having stronger ICT skills, and having voted in 2014 are all positively related to the likelihood to vote.

[458] When we introduce the variable of having voted in the last elections in the model considering the impact of internet voting on the likelihood of voting when temporarily abroad.

Table 37 Italy: impact on the likelihood of voting under normal circumstances

Likelihood to vote	Model 1	Model 2	Model 3	Model 4
Internet voting	0.04	0.04	0.03	0.04
Postal voting	-0.06	-0.07	-0.05	0.00
Gender		-0.02	-0.01	0.00
Age		0.12***	0.11***	-0.04
Education		0.10**	0.07**	0.01
Performance			0.10	0.13**
Effort			0.02	-0.01
Trust in the internet			-0.15**	-0.20***
Trust in the government			0.16***	0.17***
ICT skills			0.13**	0.10**
Voted in the 2014 elections				0.44***
Adjusted-R^2	0.01	0.04	0.07	0.21
Number of observations	727	725	724	652

When the voter is **temporarily abroad**, internet voting does have a significant and positive relation to likelihood of voting (see Table 38). However, this relation is not found when the voter is abroad and controlling for having voted in the last election. Being older, being better educated, have a lower trust in the internet, having more trust in the government, having stronger ICT skills, and having voted in 2014 all affect the likelihood of voting. In this case voting by post is not included because it is already available for Italians abroad.

Table 38 Italy: impact on the likelihood of voting when temporarily abroad

Likelihood to vote	Model 1	Model 2	Model 3	Model 4
Internet voting	0.11***	0.11***	0.09**	0.06
Gender		0.00	0.02	0.05
Age		0.09**	0.09**	-0.06
Education		0.17***	0.14***	0.10**
Performance			0.06	0.08
Effort			-0.01	-0.03
Trust in the internet			-0.12	-0.14**
Trust in the government			0.22***	0.20***
ICT skills			0.15***	0.13**
Voted in the 2014 elections				0.35***
Adjusted-R^2	0.01	0.04	0.10	0.19
Number of observations	727	725	724	652

When the voter has a **temporary physical impairment**, including the internet voting option has a significant effect in all four models (see Table 39). Furthermore, people who are older, are better educated, consider internet voting as useful, have lower trust in the internet, higher trust in the government, and have voted in 2014 are all more likely to vote. Voting by post does not have an impact on likelihood of voting.

Table 39 Italy: Impact on the likelihood of voting when temporarily physically impaired

Likelihood to vote	Model 1	Model 2	Model 3	Model 4
Internet voting	0.10**	0.09**	0.08**	0.08**
Postal voting	-0.03	-0.05	-0.02	0.03
Gender		-0.01	0.01	0.02
Age		0.08**	0.08**	-0.06
Education		0.12***	0.10***	0.05
Performance			0.15**	0.16**
Effort			-0.04	-0.06
Trust in the internet			-0.18**	-0.20***
Trust in the government			0.24***	0.25***
ICT skills			0.09	0.08
Voted in the 2014 elections				0.31***
Adjusted-R^2	0.01	0.03	0.09	0.16
Number of observations	727	725	724	652

When using the intention to vote as the dependent variable, the impact of internet voting under the **normal circumstances** scenario is not significant (see Table 40). However, voting by post is significant and positively correlated with intention to vote in Model 1. People who are older, are better educated, have a higher perception of the usefulness of internet voting, have more trust in the internet, have more trust in the government, and voted in 2014 all have a greater intention to vote.

Table 40 Italy: impact on intention to vote under normal circumstances

Intention to vote	Model 1	Model 2	Model 3	Model 4
Internet voting	1.36	1.35	1.33	1.99
Postal voting	1.41**	1.34	1.45	1.54
Gender		1.36	1.43	1.70
Age		1.34	1.29	0.40**
Education		1.67**	1.78**	1.37
Performance			1.24***	1.31***
Effort			0.98	0.92
Trust in the internet			0.89***	0.87***
Trust in the government			1.10**	1.13**
ICT skills			1.00	1.04
Voted in the 2014 elections				42.72***
R^2 (Nagelkerke)	0.00	0.05	0.17	0.43
Number of observations	603	601	600	557

When the **voter is abroad**, internet voting has a positive and significant relation to intention to vote (see Table 41). In this case, it seems that having internet voting included as a possibility doubles the probability of voting. Furthermore, people who are older, better educated, have more trust in the government, have stronger ICT skills, and voted in 2014 all have a greater intention to vote.

Table 41 Italy: impact on intention to vote when temporarily abroad

Intention to vote	Model 1	Model 2	Model 3	Model 4
Internet voting	2.05**	2.08**	2.05**	2.02**
Gender		1.01	1.08	1.47
Age		1.08	1.10	0.50**
Education		1.53***	1.49***	1.42**
Performance			1.03	1.04
Effort			0.95	0.94
Trust in the internet			0.98	0.98
Trust in the government			1.06**	1.06**
ICT skills			1.10**	1.12**
Voted in the 2014 elections				8.88***
R^2 (Nagelkerke)	0.02	0.07	0.13	0.26
Number of observations	551	549	548	511

When the voter has a **temporary physical impairment**, internet voting has also a positive and significant relation to intention to vote (see Table 42). Furthermore, people who have a better education, a higher perception of the usefulness of internet voting, more trust in the internet, more trust in the government, and voted in 2014 all have a greater intention to vote. Postal voting is not significantly related to intention to vote.

Table 42 Italy: impact on intention to vote when temporarily physically impaired

Intention to vote	Model 1	Model 2	Model 3	Model 4
Internet voting	2.26**	2.20**	2.45***	2.44***
Postal voting	1.30	1.19	1.57	1.76
Gender		1.03	1.08	1.22
Age		1.18	1.17	0.64
Education		1.44***	1.45***	1.30**
Performance			1.10**	1.08
Effort			0.95	0.96
Trust in the internet			0.95**	0.95**
Trust in the government			1.12***	1.13***
ICT skills			1.01	1.02
Voted in the 2014 elections				6.64***
R^2 (Nagelkerke)	0.02	0.06	0.15	0.25
Number of observations	570	568	567	529

5.1.3 Poland

Main findings

In Poland, including the option for internet voting had a significant effect on the likelihood of voting and intention to vote for all situations, when controlling for previous voting behaviour (Model 4).

The factors that were significantly and positively related to both the likelihood of voting and the intention to vote, in all three situations (and at least in one of the models), were education and having voted in 2014.

Postal voting was significant only when using the intention to vote as the dependent variable, the voter is abroad, and the variable of having voted in 2014 is included in the model.

In Poland, under the **normal circumstances** scenario, internet voting has a significant impact on the likelihood of voting only when voting in past elections is included in the model (see Table 43). Other characteristics that seem to be positively related to likelihood to vote are: being male, being older, being better educated, perceiving internet voting as easier to use, having more trust in the government, having stronger ICT skills, and having voted in 2014. Postal voting is not significant.

Table 43 Poland: impact on the likelihood of voting under normal circumstances

Likelihood to vote	Model 1	Model 2	Model 3	Model 4
Internet voting	-0.01	-0.01	0.00	0.08**
Postal voting	-0.01	-0.01	0.00	0.05
Gender		-0.10**	-0.08**	-0.04
Age		0.15***	0.15***	-0.02
Education		0.16***	0.13***	0.02
Performance			-0.05	0.00
Effort			0.19**	0.15**
Trust in the internet			-0.05	-0.06
Trust in the government			0.09**	0.08
ICT skills			0.13**	0.07
Voted in the 2014 elections				0.55***
Adjusted-R^2	0.00	0.06	0.12	0.37
Number of observations	713	713	713	602

When the **voter is abroad**, internet voting has also a significant relation to the likelihood of voting, but only when voting in past elections is included in the model (see also Table 44).

Other characteristics that seem to be positively related to likelihood of voting are: being male, being older, being better educated, perceiving internet voting as easier to use, having higher trust in the government, and having voted in 2014. Postal voting is not significant.

Table 44 Poland: impact on the likelihood of voting when temporarily abroad

Likelihood to vote	Model 1	Model 2	Model 3	Model 4
Internet voting	0.02	0.02	0.03	0.09**
Postal voting	-0.03	-0.03	-0.02	0.03
Gender		-0.10**	-0.08**	-0.05
Age		0.18***	0.17***	0.04
Education		0.13***	0.11***	0.03
Performance			-0.08	-0.01
Effort			0.16**	0.15**
Trust in the internet			-0.02	-0.04
Trust in the government			0.13**	0.13***
ICT skills			0.08	0.02
Voted in the 2014 elections				0.46***
Adjusted-R^2	0.00	0.06	0.11	0.30
Number of observations	713	713	713	602

As in the two previous situations, when the voter has a **temporary physical impairment**, internet voting has a significant relation to the likelihood of voting only when voting in past elections is included in the model (see Table 45). Other characteristics that seem to be positively related to likelihood of voting are being male, being older, being better educated, having stronger ICT skills, and having voted in 2014. Postal voting is not included because this option is already available in Poland for people with a disability.

Table 45 Poland: impact on the likelihood of voting when temporarily physically impaired

Likelihood to vote	Model 1	Model 2	Model 3	Model 4
Internet voting	0.04	0.03	0.04	0.07**
Gender		-0.10**	-0.08**	-0.04
Age		0.19***	0.19***	0.07
Education		0.11***	0.07**	-0.03
Performance			-0.06	-0.02
Effort			0.14	0.12
Trust in the internet			-0.02	-0.04
Trust in the government			0.07	0.06
ICT skills			0.18***	0.14**
Voted in the 2014 elections				0.46***
Adjusted-R^2	0.00	0.06	0.12	0.31
Number of observations	713	713	713	602

When looking at the effects on intention to vote, under **normal circumstances** internet voting has a significant impact only when voting in past elections is included in the model (see Table 46). In this case it seems that having internet voting triples the probability of voting. Other characteristics that that seem to be positively related to likelihood to vote are being male, being better educated, having higher trust in the government, and having voted in 2014. Postal voting does not have a significant impact.

Table 46 Poland: impact on intention to vote under normal circumstances

Intention to vote	Model 1	Model 2	Model 3	Model 4
Internet voting	1.18	1.21	1.31	3.20**
Postal voting	1.02	0.98	1.11	2.16
Gender		0.52**	0.56**	0.48**
Age		1.47	1.54	0.52
Education		1.39***	1.33**	0.99
Performance			1.00	0.97
Effort			1.07	1.13
Trust in the internet			0.97	0.95
Trust in the government			1.07***	1.09**
ICT skills			1.03	1.02
Voted in the 2014 elections				84.37***
R^2 (Nagelkerke)	0.00	0.07	0.15	0.56
Number of observations	550	550	550	490

When the **voter is abroad**, internet voting has a significant impact only when voting in past elections is included in the model (see also Table 47). In this case, postal voting also has an impact. Other characteristics that that seem to be positively related to likelihood of voting are being older, being better educated, having higher trust in the government, and having voted in 2014.

Table 47 Poland: intention to vote when temporarily abroad

Intention to vote	Model 1	Model 2	Model 3	Model 4
Internet voting	1.39	1.41	1.49	2.35**
Postal voting	1.10	1.10	1.20	1.26**
Gender		0.74	0.82	0.83
Age		1.44**	1.47**	0.73
Education		1.30***	1.26**	1.11
Performance			0.96	1.03
Effort			1.06	1.03
Trust in the internet			1.00	0.97
Trust in the government			1.06***	1.08***
ICT skills			1.05	1.03
Voted in the 2014 elections				14.11***
R^2 (Nagelkerke)	0.01	0.06	0.14	0.40
Number of observations	509	509	509	448

When the voter has a **temporary physical impairment**, internet voting has a significant effect only when voting in past elections is included in the model (see Table 48). Other factors that that seem to be positively related to likelihood of voting are being male, being older, being better educated, having stronger ICT skills, and having voted in 2014. Postal voting is not included because this option is available for people with a disability in Poland.

Table 48 Poland: impact on intention to vote when temporarily physically impaired

Intention to vote	Model 1	Model 2	Model 3	Model 4
Internet voting	1.26	1.25	1.35	1.80**
Gender		0.56***	0.59**	0.46***
Age		1.66***	1.72***	1.05
Education		1.26***	1.20**	0.94
Performance			0.96	0.97
Effort			1.07	1.09
Trust in the internet			0.99	0.98
Trust in the government			1.03	1.03
ICT skills			1.11***	1.13**
Voted in the 2014 elections				12.45***
R^2 (Nagelkerke)	0.00	0.08	0.17	0.41
Number of observations	529	529	529	467

5.2 Self-reported preferred voting options

Respondents were asked for their preferred voting option under the same three situations presented in the previous section: (1) normal circumstances in which there is no major impediment to the voter getting to the polling station; (2) the voter is abroad; and (3) the voter has a disability.

In the first situation, participants from all three countries prefer internet voting over postal voting, voting in person at a polling station and voting by proxy (see Table 49). For Italian and Polish respondents, the second preferred option is voting at the assigned polling station. German respondents prefer voting by post over voting at a polling station.

Voting by post seems to imply a higher burden for voters, but the fact that voting in advance is possible may make this option more attractive than voting in person on election day. Voting by proxy is clearly the least preferred option.

Table 49 Preferred voting option under normal circumstances. Average ranking (1–4)

Voting option	Germany (n=719)	Italy (n=728)	Poland (n=714)
Internet voting	1.90	1.63	1.61
Postal voting	2.30	2.84	2.73
Voting in person at a polling station	2.39	2.07	2.26
Voting by proxy	3.41	3.47	3.40

In the situation of being abroad, participants from all three countries also prefer voting online (see Table 50). The least preferred option is voting at the assigned polling station as this would imply a high cost of travelling to their country of origin. Compared to the normal condition, German respondents also have voting by post as their second most preferred option. Italian respondents indicate a preference for voting in person at a consulate over voting by post. Polish respondents also prefer voting at a consulate to voting by post, but the differences are minimal.

Table 50 Preferred voting option when the voter is abroad. Average ranking (1–5)

Voting option	Germany (n=719)	Italy (n=728)	Poland (n=714)
Internet voting	1.86	1.79	1.54
Postal voting	2.13	3.23	2.90
Voting in person at a polling station in the country of origin	4.46	3.92	4.30
Voting by proxy	3.44	3.68	3.42
Voting at a consulate	3.12	2.37	2.84

In the situation of having a disability, participants from all three countries also prefer voting online (see Table 51). The least preferred option is voting by proxy. As in the normal condition, German respondents have voting by post as their second most preferred option. However, Italian and Polish respondents prefer to vote using a mobile ballot box than by post.

Table 51 Preferred voting option when the voter has a disability. Average ranking (1-4)

Voting option	Germany (n=719)	Italy (n=728)	Poland (n=714)
Internet voting	1.78	1.52	1.40
Postal voting	2.34	2.89	2.84
Voting from home using a mobile ballot box	2.68	2.27	2.58
Voting by proxy	3.20	3.32	3.18

5.3 Remote voting features

As explained in Section 1.3, the second experimental task was a discrete choice experiment,[459] which consisted of 12 different alternatives that were presented to participants in pairs. In total, respondents were asked to make 12 binary decisions. An opt-out option ('I would not vote') was included in all choice sets. The analysis used a multinomial logistic regression, which was performed with '*R*' software.

[459] Ben-Akiva & Lerman (1985).

Main findings

Voting on one's desktop computer is preferred over voting on one's own smartphone, provided that there is no variation in the other attributes (type of identification and whether voting requires downloading a specific app or program).

With regard to the identification mechanism, in all three countries respondents dislike the option of a two-step identification process (by post and SMS) compared to the 'identification codes sent by post' option. The 'identification in person' option has no significant impact, except for respondents from Italy, who have preference towards this option.

In terms of ease of use, in all three countries being able to use an existing web browser is preferred over being required to download and install an app or program before voting.

5.3.1 Germany

The table below shows the preferences of participants from Germany. When the odds are lower than 1 it means that the feature is less preferred than the reference category. A negative sign in the estimates and probabilities also implies that the feature is less preferred. The reference categories are: voting from a desktop computer (D1); identification codes sent by post (I1); need to download and install a specific app or program to vote (U1).

Respondents in Germany prefer to use a desktop computer to vote online than a smartphone, with the other attributes not varying. Participants also prefer the option of only receiving identification codes once (by post) over the option in which they receive two identification codes (post and SMS). However, there are no significant differences between the option in which people have to identify themselves by being physically present and the one in which they receive identification codes by post.

Table 52 Germany: main results of the discrete choice experiment (n=719)

Attribute and level	Estimate	Probability	SE	Pr(>|z|)	Odds[460]
Voting from a smartphone (D2) *Reference category: Voting from a desktop computer (D1)*	-0.99	-62.95	0.03	0.00	0.37
Identification codes sent by post and SMS (I3) *Reference category: Identification codes sent by post (I1)*	-0.72	-51.39	0.04	0.00	0.49
Identification in person (I2) *Reference category: Identification codes sent by post (I1)*	-0.04	-4.38	0.04	0.24	0.96
Voting through the browser (U2) *Reference category: Need to download and install a specific app or program to vote (U1)*	0.45	57.32	0.03	0.00	1.57
Pseudo-R^2	0.04				

Respondents clearly also prefer the option of voting online through their existing web browser over having to download and install an app or a specific program, with the other attributes not varying. In sum, in Germany using a smartphone to vote and receiving identification codes via SMS (in addition to the first codes sent by post) had a negative impact on participants' preferences, while using their existing browser shows a positive effect.

5.3.2 Italy

The results for Italy (see Table 53) are similar to the German ones described above. Provided that the other attributes do not vary, voting from a desktop computer is preferred over voting from a smartphone, and receiving identification codes only by post is preferred over both post and SMS. In contrast with Germany, however, identification in person is statistically significant and it appears to be the preferred option. Participants favoured this option over postal delivery of authentication codes, with the other attributes not varying. Lastly, using an existing browser is preferred over using a specific app or program, holding the other attributes constant.

[460] The odds ratio is calculated by the exponential of the logit. This value is compared to 1, which is the reference category probability.

Table 53 Italy: main results of the discrete choice experiment (n=728)

Attribute and level	Estimate	Probability	SE	Pr(>|z|)	Odds[461]
Voting from a smartphone (D2) *Reference category: Voting from a desktop computer (D1)*	-0.41	-33.92	0.02	0.00	0.66
Identification codes sent by post and SMS (I3) *Reference category: Identification codes sent by post (I1)*	-0.38	-31.56	0.03	0.00	0.68
Identification in person (I2) *Reference category: Identification codes sent by post (I1)*	0.18	19.16	0.03	0.00	1.19
Voting through the browser (U2) *Reference category: Need to download and install a specific app or program to vote (U1)*	0.21	23.56	0.02	0.00	1.24
Pseudo-R^2	0.02				

5.3.3 Poland

The Polish results (see Table 54) were also very similar to those from Germany. Polish respondents show a lower preference when a smartphone is the proposed voting device, compared to voting from their desktop. As in Germany and Italy, they clearly prefer to vote through a browser than with a special app or program. Moreover, receiving identification codes only by post has a positive impact on participants' preferences, compared to a two-step system, in which they receive a second set of codes by SMS. As in Germany, Polish respondents appear to be indifferent between receiving the codes only by post and collecting them in person.

[461] The odds ratio is calculated by the exponential of the logit. This value is compared to 1, which is the reference category probability.

Table 54 Poland: main results of the discrete choice experiment (n=714)

Attribute and level	Estimate	Probability	SE	Pr(>|z|)	Odds[462]
Voting from a smartphone (D2) *Reference category: Voting from a desktop computer (D1)*	-0.60	-44.88	0.03	0.00	0.55
Identification codes sent by post and SMS (I3) *Reference category: Identification codes sent by post (I1)*	-0.44	-35.86	0.04	0.00	0.64
Identification in person (I2) *Reference category: Identification codes sent by post (I1)*	0.03	2.83	0.03	0.42	1.03
Voting through the browser (U2) *Reference category: Need to download and install a specific app or program to vote (U1)*	0.38	46.81	0.03	0.00	1.47
Pseudo-R^2	0.03				

5.3.4 Framing effect

We tested the impact of two framing effects on the probability of choosing the opt-out option: (1) the fact that internet voting systems have already been implemented in other countries (social norm); and (2) the fact that the European Commission has certified the system (trust). In order to do this, participants were randomly split into three groups: A (sentence indicating that other countries have implemented internet voting), B (sentence indicating that the European Parliament is considering this option), and C (no sentence). However, results showed that there was no significant impact of this framing on whether respondents selected the opt-out option.

5.3.5 Limitations

It is important to acknowledge some limitations that the discrete choice experiment may have. Firstly, the experiment is not a complete choice, as it did not include the option of voting by means other than on the internet. The other means were not included because this experimental task did not aim to compare internet voting to the other voting options (this is done in the first task, see Section 5.1) but to assess participants' internet voting preferences. Secondly, the repeated measurement was not treated in the choice model analysis. It may be the case that the standard errors of the coefficients are underestimated, which may change the statistical significance shown here.

[462] The odds ratio is calculated by the exponential of the logit. This value is compared to 1, which is the reference category probability.

6 Case studies

This section contains 15 thematic case studies on different aspects of the remote voting process. As outlined in Table 55, these are grouped into three sections: the administration of the remote voting process; the participation of specific groups; and the administration of internet voting.

Table 55 Case studies

Type	Case study
Administration of the remote voting process	Identification mechanisms
	Observing in remote voting
	Mechanisms to guarantee secrecy of the vote
	Coercion in remote voting
	Enforcement of electoral law
	Data protection
	Cybersecurity
Participation by specific groups	People with disabilities
	Voting by people of no fixed abode
Internet voting experiences	Internet voting in Estonia
	Internet voting in France
	UK internet voting pilots
	Internet voting by municipalities
	Internet voting by political parties
	Implementation of internet voting

6.1 Administration of the remote voting process

6.1.1 Identification mechanisms in remote voting

Background

This case study focuses on the identification mechanisms used by different remote voting options as well as on problems related to identification that may arise while conducting elections. It is based on the review of the electoral legislation in EU countries, on the information provided by national public authorities and electoral offices during the in-depth interviews, on other materials related to the elections, on reports by public authorities or experts on electoral issues, on academic papers and on information obtained from providers of internet voting solutions.

An accurate identification ensures that an individual casting a ballot possesses voting rights and that this person only votes once. It also rules out the possibility of one person voting on behalf of another (impersonation);[463] this is usually illegal. For example, in Poland, a person who uses someone else's voting card can be imprisoned for up to three years.[464] Voting without having the right to do so is also often against the law in Member States, as well as voting more than

[463] In some countries and situations it is possible to vote on behalf of another person with an authorisation (i.e. voting by proxy).
[464] Criminal Code, article 248.

once without being allowed to do so.[465] For example, the postal voting statement in the UK advises electors at the point of casting a postal ballot that 'it is illegal to vote more than once (unless you are appointed as a proxy for another elector) at the same election.'[466] It also indicates that it is forbidden to use someone else's ballots to vote, or to influence another person's vote.

Identification of voters in non-electronic remote voting solutions

In non-remote voting, citizens must usually offer some kind of identification to the electoral authorities, which compares it to the administrative records. The documents that can be used depend on the country, ranging from a formal document to be stamped (e.g. LV) to simply verbal confirmation of the voter's address (e.g. UK). Table 56 details some of the identification mechanisms applied in remote voting. Identification is relatively simple to establish at **special polling stations** abroad or within the country (e.g. hospitals, prisons, etc.), and when an individual votes in another district. In these cases, voters just show the pertinent identification document to the electoral authorities, as they would do at a standard polling station. For example, the Croatian legislation establishes that a passport, National Identity Card or driving licence (or any photo identification) must be cross-checked with the electoral lists registered for the specific consular office or embassy.

What must be ensured, however, is that these voters are removed from their original electoral list, so they cannot cast more than one ballot. Slovenian diplomatic missions, for example, are notified if a person in their electoral list has applied to vote at a different polling station in Slovenia.[467] In France, there have previously been issues with dual inscription on national and consular lists. However, in 2019 a unique registration list (*Repertoire Electoral Unique*) will be established and those registered on the consular list will be removed from any other list in France.[468] In Romania, there were concerns that people could vote more than once, but an IT system is now used to show to the polling station authorities whether a voter is registered and whether they have already voted at another polling station.[469]

[465] Voting multiple times is not always against the law. In some countries, such as Estonia and Denmark, voters can cast more than one ballot. However, there are provisions to ensure that only one of them is considered during counting.
[466] https://www.electoralcommission.org.uk/__data/assets/pdf_file/0007/150379/Making-Your-Mark-Example-Postal-Voting-Statement-GB-English-A4.pdf
[467] http://www.dvk-rs.si/index.php/en/where-and-how-to-vote/voting-from-abroad
[468] France Diplomatie (2018b).
[469] Interview with the Member State representative.

Table 56 Examples of identification mechanisms in non-electronic remote voting solutions[470]

Voting in person at another location within the country	Voting in person from abroad	Voting at special polling stations
Voters present an identity document at the polling station	Voters present an identity document at the polling station abroad	Voters present an identity document at the special polling station
Voting by post	**Mobile ballot box**	**Voting by proxy**
Voters send a copy of an identity document together with the ballot (e.g. NL, LU) Voters sign the outer envelope, an identification form, etc. (e.g. AT, HU) An identity document must be presented to receive the electoral material (e.g. PL, ES) The voter must go to a police station to get a declaration of identity signed. This declaration must be sent together with the vote (e.g. IE) Need to present the passport at the embassy/consulate to register to vote by post (e.g. LV)	Voters present an identity document to the electoral authorities Voters' signature (e.g. BG, LV, IE)	ID document of the principal (when establishing the proxy) plus ID document and signature of the proxy (when voting) (e.g. FR) ID document of the proxy and power of attorney (e.g. PL) Voter pass signed by the principal and copy of the principal's identification document (e.g. NL)

When voting using a **mobile ballot box**, the electoral authorities who visit the voter's location usually check their identification document before collecting the ballot. In some cases, a signature from the voter is required. For example, in Bulgaria, voters sign the electoral roll,[471] in Latvia they sign acknowledging the reception of the ballot papers,[472] and in Ireland a declaration of identity needs to be signed at a police station.[473] To avoid double voting, in Hungary voters who have applied to vote from home are removed from the polling district electoral register.[474] In Lithuania, an elector could vote both from home and in the polling station. However, the names of individuals voting from home and in person are checked and if somebody has voted twice the home vote is not considered.

In **proxy voting** the identification of the proxy usually takes place following the standard procedure, with the authorised person showing an identification document to the electoral authorities at the polling station. This is not required in the UK, although a government review[475] noted that asking the proxy to present an identity document would help to ensure that the proxy is indeed the person who has received the authorisation. Nevertheless, what is important here is to confirm that the proxy has the right to vote on behalf of the voter, as impersonation can

[470] This table aims to present some of the provisions that are being applied in the EU, but it does not cover all the options currently implemented. The Member States in brackets are examples of countries that apply these provisions, but this does not mean that they are the only ones applying them. When no Member State is mentioned, this refers to provisions that are generally applied or that apply to the corresponding option by definition.
[471] Election Code, Art. 238.
[472] Saeima Election Law.
[473] http://www.checktheregister.ie/appforms/SVS1%20Special%20Voters%20Supplement%20[Bilingual].pdf
[474] Electoral Procedure. Art. 104, 106, 107, 176, 177 & 185.
[475] Pickles (2016).

occur if fake proxies are created (e.g. by falsifying the signatures). In fact, some cases of fake proxies have been identified in France[476] and the UK.[477]

In France, the identification process entails two steps. First voters need to identify themselves when establishing the proxy. Afterwards, the proxy must show their own identification document when voting at the polling station. In the Netherlands, the proxy presents the poll card signed by the authorising voter and a copy of the voter's identification document.[478] In Poland, the proxy must bring, apart from their own document of identity, the power of attorney to cast a vote.[479]

Identification in **postal voting** presents difficulties, as the electoral authorities cannot see who is actually casting the ballot. For instance, housemates or neighbours of the eligible voter could collect the voting material and submit it on their behalf. Furthermore, applications to vote by post could be falsified: for example, if a fraudster identifies an individual that never votes on old electoral lists, they could submit an application on their behalf with only a small risk of the individual ever finding out about it.[480] A 2016 report on electoral fraud in the UK from the Prime Minister's Anti-Corruption Champion Sir Eric Pickles documents several convictions for impersonation and false applications related to postal voting in the UK between 2005 and 2012.[481] The report recommends obliging individuals to renew their request to vote by post every three years, to avoid voting material being sent to an elector's past address. The review[482] also mentions that fraud could be reduced if the postal voter's identity is checked by an authorised person.

There is a debate regarding whether voters should be required to present an application in advance in order to be able to use postal voting. Having to submit a request imposes an extra burden to electors. On the other hand, it may help to ensure a correct identification and reduce the chances of impersonation. In this regard, during a series of pilots held in the UK (2000–2004) in which voters were sent a postal ballot without the need to make a request, some stakeholders raised concerns that the passive delivery of ballots could result in large numbers of ballot papers being at risk of theft (for example if they are delivered to shared mailboxes at apartment blocks or care homes or to addresses at which voters no longer reside). However, to reduce this risk, in some pilot areas ballots were hand-delivered to homes.[483]

Table 56 includes some examples of provisions that exist in EU countries, which offer higher or lower degrees of confidence in a correct identification (information on all countries can be found in Section 3.1.2). The more complex identification mechanisms offer a greater degree of security, but also imply a greater burden for voters. Thus, countries need to make a trade-off between convenience (for voters to cast their votes) and safeguards (for the accurate identification of voters). This decision may depend on countries' specific features, such as the level of trust in the electoral system.

Voters typically need to send some type of identification together with their postal vote. For example, in the Netherlands, the ballot needs to be accompanied by a copy of an identity

[476] Ladepeche.fr (2008); Le Parisien (2000); Panfili (2013).
[477] Pickles (2016).
[478] Dutch Elections Act Art. L 17.
[479] KW, Art. 56.
[480] Owen (2007).
[481] Pickles (2016).
[482] Pickles (2016).
[483] House of Commons (2004). Postal Voting

document.[484] In some countries like Austria or Hungary, voters must sign the outer envelope, an identification declaration form, or a similar document.[485]

Some countries have additional identity checks. Those voting by post within Spain first need a certificate of registration in the census. They must apply for this in person at any post office. Later, they must show an identification document to receive the electoral material. Lastly, they must send their ballot envelopes via certified and urgent mail at the post office.[486] Similarly, in Poland, the electoral package is handed over upon presentation of a document confirming identity.[487] In Ireland, the voter must travel in person to a police station and sign a declaration of identity there.[488] This may involve presenting a police officer with proof of identity. In Latvia, voters by post from abroad first need to register at the nearest embassy or consulate, where the officials check and stamp their passport.[489]

Once the ballot envelopes reach the counting place, the returning officer checks the identification details of the sender to ensure that there is only one ballot per person and that the individual is on the list of electors. However, the officers are not able to verify if the envelope has been sent by the voter themselves or by another person. In the UK, a machine scans and compares the signature in the postal voting statement (sent with the completed ballot) with the one submitted during the application for a postal vote. If there is a discrepancy, this is flagged by an algorithm for human review. If it is confirmed that the signatures do not match, the vote can be rejected.[490]

Identification of voters in internet voting

It is essential that any electronic voting system has a way of ensuring that ballots will be received and returned by the registered voter, and that a single vote is cast by each voter.[491] Moreover, it is important to ensure that the information used to authenticate voters is protected and only accessible to authorised officials, to rule out the possibility of impersonating voters if the database for authentication suffers an attack.[492]

In internet voting, there is a risk that an individual's identification codes could be used by someone else. For example, Simons & Jones (2012) are concerned that internet voting could allow voters to sell their voting credentials. Likewise, a report from the British Electoral Commission considered that the use of online codes for internet voting may enhance the risk of vote-trading or vote-selling, as the ability for users to pass on identification details means that it is simpler for a second party to submit the ballot on their behalf (unlike, for example, in postal voting, where handwritten signatures are often required).[493] Moreover, it may be more complicated for voters to find the official online polling place to identify themselves and vote. There is the risk that fake websites could be created to resemble those used for voting online. Voters who find themselves using such a website may unwittingly hand over their sensitive personal information, their authentication codes and even their vote to a fraudster.[494]

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[484] Dutch Elections Act (Kieswet).
[485] Electoral Procedure. Section 275.
[486] LOREG, Art. 72, 73.
[487] KW, Art. 53e.
[488] https://www.checktheregister.ie/appforms/PVS2%20-%20Postal%20Supplement%20-%20Occupation%20or%20Student%20[English].pdf
[489] https://www.cvk.lv/pub/public/31102.html
[490] Conversation with UK Cabinet Office.
[491] Gritzalis (2002); Galois (2015).
[492] Galois (2015).
[493] Electoral Commission (2007a).
[494] Simons & Jones (2012).

In Finland and Latvia, concerns regarding how to correctly identify voters have been raised.[495] Similarly, in Poland, the main challenge related to i-voting is how to clearly and unambiguously confirm a voter's identity while maintaining secrecy of voting.[496] In the RIES system implemented in the Netherlands, there was also a tension between ensuring accurate identification and guaranteeing secret voting.[497]

Nevertheless, internet voting systems can employ several different mechanisms in an attempt to guarantee an accurate identification. Krimmer, Triessnig & Volkamer (2007) describe three technologies for verification of voter identification in internet voting:

- The use of a combination of a **password** and other information known only to the voter.
- The possession of another form of **state-verified identifier**, such as an **ID card**, or **in-person pre-registration** ahead of the voting period (as was used in the 2003 UK internet voting pilots).
- The use of **biometric** identification techniques, such as fingerprints, iris scans or voice recognition.

The first mechanism is used in the Geneva canton in Switzerland. Voters are provided with identification passwords through the post, which are entered into the system alongside the voter's birth date.[498] (However, a voter's date of birth may be well known to relatives and friends,[499] or it may be available on social media, in registers and other databases.) In this option, administrations must decide about the safest channel used to send the credentials. In Geneva they are mailed, which requires having high trust in the postal service.[500] Estonian citizens can choose to identify themselves with a mobile-ID, with codes received via **SMS**[501] (for more details see Section 6.3.1).

The second mechanism (state-verified identifier) is also used in some countries. For example, another identification tool in Estonia is the electronic ID-card, which is compulsory for all residents and is already used for other e-government services. In Norway, the identity of internet voters is established using the government authentication portal (IDPorten), which is already used widely for other services; they could choose between different identification mechanisms: electronic ID, eBank card or SMS two-factor authentication (MobileID).[502] Using a document that is necessary for other purposes may reduce the chances that voters sell their credentials. A drawback is that using the same authentication mechanism for several elections facilitates the task of those wanting to find vulnerabilities in it.[503]

Finally, some providers of internet voting solutions have indicated that stronger authentication techniques such as **biometrics** could be used. However, this also depends on public administrations and parliaments, as use of biometrics may require the modification of registration laws.[504] Moreover, this form of identification is considered to be very expensive to

[495] Bāliņa (2012); Oikeusministeriö (2017).
[496] Kutyłowski (2009).
[497] Hubber et al. (2008).
[498] Krimmer, Triessnig & Volkamer (2007).
[499] Archer et al. (2014).
[500] Archer et al. (2014).
[501] https://www.valimised.ee/en/internet-voting/internet-voting-estonia; State Electoral Office of Estonia (2017).
[502] Interview with Jordi Puiggalí, Scytl CSO; Interview with Henrik Nore, CEO at NVTC AS and responsible for the E-vote2011 and E-vote2013 projects in Norway.
[503] Archer et al. (2014).
[504] Interview with Jeffrey Stern, Votem Corp. Becker et al. (2018). Interview with Jordi Puiggalí, Scytl CSO

implement at scale, and thus is not in wide use in any current state voting system.[505] Lastly, parts of the population may be opposed to the collection of biometric data, either for privacy reasons or because they are worried it may be stolen.

Several systems use a **two-step** identification process. In Estonia, voters have two PIN codes – either the codes associated with their ID card or two codes sent by SMS (if the mobile-ID option is used).[506] For the elections of the French Consular Assembly two different means are used to provide credentials to voters: a one-time link sent by e-mail and a password sent via SMS.[507] The system used in Halifax (Nova Scotia, Canada) uses three credentials: a PIN sent by mail, the date of birth and a password; in addition, voters had to complete a CAPTCHA challenge.[508] The identification process used by another Canadian municipality, Markham (Ontario), involved two PIN codes sent by mail at two separate times (registration phase, voting phase), the date of birth and a password created by the voter.[509]

To prevent **double voting**, the State Electoral Office in Estonia verifies the digital signatures and removes any repeated before counting (only the last one is preserved).[510] The fact that internet voting usually takes place before normal voting helps prevent people from voting both online and through other means. In Estonia, the State Electoral Office sends the list of those who voted online to the voting district committees.[511] In France, the list of usernames that participated in the online election, which took part two days in advance, was imported to the computer containing the identification details of the electors (which could only be accessed by the government) to generate the list of people allowed to vote in person at the consulates.[512] Apart from voting online in advance, longer internet voting (and also postal voting) periods would help resolve voter ID issues in good time, to avoid voters being disenfranchised by last-minute problems on election day.[513]

Examples of identification mechanisms used by providers of internet voting solutions include:

- The nVotes system[514] allows the use of all kinds of authentication methods, with differences in their cost, usability and security, and the client can select the one that they prefer. Some of the methods that have been used are Spanish electronic ID cards, external client-provided authentication mechanisms, and a one-time token sent via e-mail or SMS.[515] It is also possible to combine methods.
- In the VOTEM system, [516] voters are identified by a pseudonym, only valid for the specific voting process. The voter sends this pseudonym and identifying information in order to be authenticated. The type of identification required depends on how the voters are identified in the relevant electoral roll and is in line with what is required by the territory in question for voting in person or by post. It is usually necessary to provide a name, date of birth, social security number, driving licence or similar. Voters need to introduce

[505] Krimmer, Triessnig & Volkamer (2007).
[506] https://www.valimised.ee/en/internet-voting/internet-voting-estonia; State Electoral Office of Estonia (2017).
[507] France Diplomatie (2017c); Interview with Jordi Puiggalí, Scytl CSO.
[508] Archer et al. (2014).
[509] Goodman (2014).
[510] State Electoral Office of Estonia (2017).
[511] Riigikogu Election Act. Art. 48^7; https://www.valimised.ee/en/internet-voting/internet-voting-estonia
[512] Interview with Jordi Puiggalí, Scytl CSO.
[513] Southwell (2010b).
[514] https://nvotes.com/
[515] Input provided by Eduardo Robles, nVotes.
[516] https://votem.com/

this data in the application/web browser. Additionally, voters can be sent a PIN code by mail, provided by the election authority.[517]

- The eBallot system[518] sends e-mails to all eligible voters with a link (a unique URL). Voters then log in and create a username and password.[519]

[517] Interview with Jeffrey Stern, Votem Corp.; Becker et al. (2018).
[518] https://www.eballot.com/
[519] Interview with eBallot; https://www.eballot.com/privacy

6.1.2 Observing remote voting

Background

The formal observation of elections is used to increase trust in the process and identify practices that may be fraudulent or run counter to the goal of free and fair elections (such as voter intimidation). Election observers observe the process of voting and the counting of the votes, but also key aspects of the wider election process such as media coverage, voter registration and campaign finance, in order to assess the level of transparency and fairness in the process.

There are three main types of observation procedures that are implemented during election processes:

- **Independent non-partisan international observation**, usually coordinated by an international organisation such as the Carter Centre, OSCE/ODIHR or EU Observers Mission, and involving a team of international observers.
- **Independent non-partisan domestic observation**, in which formal procedures are in place to facilitate observation by a team of domestic observers.
- **National-level election laws and procedures**, which enable citizens or political agents to observe or audit critical parts of the election process, such as voting and counting.

Formal independent observation often uses two types of observers: long-term observers (LTOs), who may be embedded in the country for a period of time preceding the election in order to observe the campaign period, and short-term observers (STOs), who visit the country for a short period in order to observe only the voting period itself.

Data collection methods

Methods of data collection often involve reviews of procedures and legal frameworks, interviews with stakeholders (such as media representatives) and direct observation of election activity,[520] although the precise methodology – including the assessments of LTOs and checklists used to observe voting processes – differs between missions and organisations, with deployment plans tailored accordingly. In some cases (for example, if allegations of fraud have previously been made relating to voter registration), election observers may conduct direct checks of voter lists themselves.[521]

A 2017 study of legal frameworks in EU Member States found that four states (FI, HR, NL, RO) had legal provision and accreditation for both international and domestic observation (as recommended by the OSCE 1990 Copenhagen Document[522]), although several more had accreditation procedures for domestic and/or international observers.[523] Some 12 countries (CY, DE, DK, EL, FR, IE, IT, LV, MT, PT, ES, SE) have no legal frameworks or formal accreditation processes for independent non-partisan observers, although all Member States have granted

[520] IDEA/OFE (2007).
[521] Interview with Konrad Olszewski, Election Observation and Democracy Support (EODS)
[522] Conference on Security and Co-operation in Europe (CSCE) (1990).
[523] Lidauer, Rabitsch & O'Rourke (2017). As the authors note, the relative lack of formal election observation procedures may be a sign of widespread confidence in the system, rather than evidence of election failings.

access to OSCE/ODIHR election missions in the past decade.[524] Most also operate separate transparency mechanisms: for example, members of the public in Germany and Sweden have the right to observe voting and counting process, while in Latvia, political parties and coalitions can nominate two delegates who are granted full access to all stages of the election process.[525]

Remote voting options

The use of remote voting mechanisms introduces some difficulties for the formal observation of elections. While election monitors can choose to include special polling stations (such as those on military bases or in hospitals) in deployment plans, sampling and ensuring the proper conduct of elections outside the country (such as embassy voting) or in uncontrolled environments (such as postal voting) in a methodological way can be challenging.

However, there are some procedural aspects that can be observed, such as the process of registration and validation of voters using special voting mechanisms; the content of ballot papers and methods for verification of received ballots; the conduct of procurement processes; the adequacy of measures in place to protect ballot secrecy and prevent voter intimidation; and adherence to other security or transparency measures in place.[526] In this regard, formal observation of remote voting mechanisms may include:

- A review of the **level of political consensus relating to remote voting options**, to assess the extent to which parties may perceive the provision (or lack) of remote voting to unfairly grant political advantage to one party.[527]
- Reviews of **voter registration procedures and voter lists**, including the way in which voters are added to special voting status lists, and removed when this status is no longer relevant, and provisions to ensure that voters cannot cast two ballots. This also include active measures to verify lists, such as audits of voting registers (for example, to ensure voters' names appear only once) and field tests (for example, contacting certain members of the public to verify registration details or special voting status).[528]
- Reviews of **legal and operational frameworks** to assess the current legal status of special voting measures, including an assessment of whether sufficient protection against fraud and intimidation and guarantees of ballot secrecy are in place.
- The **tabulation of results by voting type** to assess whether the number of voters opting to vote remotely was unusual, or whether remote voting delivered unusual results.[529]

[524] Types of election mission include: full needs assessment missions, to assess the extent to which a formal observation mission is required; missions by election experts only; election assessment missions, which involve assessment of the overall election conduct without a systematic observation of election day processes; and full or limited observation missions.
[525] OSCE/ODIHR (2014b).
[526] International IDEA.
[527] IDEA/OFE (2007).
[528] See chapter 'Voter registration audits' in OSCE/ODIHR (2012b).
[529] OSCE/ODIHR (2003).

- A review of **political campaigning** to assess the impact on remote voting options, such as the provision of adequate campaign materials to voters in hospitals or prisons[530] and the extent of information provided to overseas voters.[531]

In practice, the decision as to which elements of the election process (including aspects of remote voting procedures) to include in an observation deployment plan is developed by election analysts and long-term observers based on the particular circumstances of the country in question.[532] This may include consideration of factors such as the previous usage rates of remote voting options (for example, whether they are unusually high); the level of political debate or consensus relating to particular remote voting options; previous allegations of fraud or election malpractice; and the views of stakeholders gathered during the analysis phase.

Observation missions may analyse the provision of remote voting options in order to assess whether sufficient measures are in place to facilitate voting by segments of the population unable to access a traditional polling station,[533] and that this is enabled in law (for example, by providing adequate registration mechanisms for prisoners and hospitalised voters).[534] Election observation missions may also include assessment of the proportionality of legal restrictions faced by certain groups, such as prisoners or military voters.[535]

Below, we summarise current observation practice and considerations with regard to the main methods of remote voting.

Postal voting. Current observation practice acknowledges that maintenance of secrecy cannot be observed, given the private setting in which the vote is cast. Reviews of the legal framework governing postal voting may involve consideration of adequate penalties for breaking secrecy and reasonable deadlines for the return of ballots.

OSCE guidance notes that observers should aim to understand the process of securing postal ballots prior to election day; be in attendance at the opening and counting of postal ballots; and form of a general impression as to the functioning of the system.[536] International IDEA specifically notes that the ballot material used for postal votes should also be checked.[537]

Many countries that offer postal voting have measures in place for citizens or political agents to observe key aspects of the process. For example, domestic observers and political agents in the UK can be present when postal ballot boxes are unsealed, when accompanying statements are scanned for verification, and when ballot papers are re-sealed in ballot boxes to be later counted with regular votes.

Proxy voting. Given the contradiction between proxy voting and the secrecy of the ballot, election missions have sometimes identified proxy voting as an electoral flaw; for example, OSCE/ODIHR guidelines note that the use of proxy voting is 'difficult to justify' where other methods such as postal or mobile voting are available, and that reviewers of the legal framework as part of the election mission should raise concerns relating to secrecy, and may recommend the use of alternative voting methods.[538] For example, in recent election missions to the

[530] OSCE/ODIHR (2003).
[531] IDEA/OFE (2007).
[532] Interview with Konrad Olszewski, Election Observation and Democracy Support (EODS)
[533] See, for example, 'Facilitation of Voting' in Carter Center (2014), 149.
[534] OSCE/ODIHR (2003).
[535] See, for example, 'Voter registration: The right to vote' in Election Observation and Democratic Support (2016).
[536] OSCE/ODIHR (2010).
[537] IDEA/OFE (2007).
[538] OSCE/ODIHR (2001).

Netherlands and France the OCSE has specifically commented on the use of proxy voting as a matter of concern and recommended consideration of alternative voting mechanisms.[539]

Mobile ballot box. Mobile ballot boxes may face limitations with regard to ballot privacy and security, in addition to increased vulnerability to theft or fraud as ballots are transported between stations with a limited number of accompanying officials.

The OSCE recommends that STOs should follow a mobile ballot box for a period of time in order to assess whether the polling is being correctly administered at each station and that ballot secrecy is being preserved. The OSCE also recommends that observers check whether the number of voters who have registered to vote by mobile ballot box is unusual.[540]

In-person voting. Some countries may operate standard ballot stations, but in non-standard locations. This can include early voting, overseas voting (usually in embassies or consulates) and voting in special locations (such as hospitals, prisons or military barracks).

The observation of these polling stations will be similar to that of standard polling stations. The OSCE recommends in particular that special polling stations for prisoners, hospital voters and military voters are included in observation deployment plans, as these voters may be particularly vulnerable to intimidation or group voting (for example, military voters being instructed to vote a certain way by a senior officer).[541] The need to include various special polling stations in a deployment plan may be considered by election observation missions as part of the initial needs assessment mission. Observers may also need to consider wider processes relating to the registration of these voters and confirmation of eligibility and identity on election day.[542]

Early voting may be more difficult to observe, as it may begin before STOs have entered the country, and oversight relies therefore on engagement by domestic observers or LTOs. The OSCE/ODIHR recommends that early voting should only begin after election observers have been accredited.[543] It also recommends that observers review the legal framework governing early voting to ensure certain transparency measures are in place, such as the use of an official protocol to keep track of the number of ballots for each day of early voting (as completed in standard polling stations); adequate measures for the security of ballot boxes before election day; and the counting of ballots in the presence of accredited observers.[544]

Observing the conduct of elections in overseas locations may be possible under the same conditions as in-country polling stations, although may be resource-intensive and limited by the inability to move between polling stations.[545] No specific guidance on the formal observation of polling stations situated abroad was identified, although wider measures discussed above relating to voter registration and, where possible, the transport and counting of ballots, can be assumed to be relevant.

Internet voting

Internet voting presents a particular challenge with regards to the observation and auditing of the vote count, as observers are unlikely to have the technical skills required to implement an effective technical audit and ensure that votes are being counted as cast. Instead, formal

[539] OSCE/ODIHR (2017b); OSCE/ODIHR (2012a).
[540] OSCE/ODIHR (2010).
[541] OSCE/ODIHR (2010).
[542] OSCE/ODIHR (2010).
[543] OSCE/ODIHR (2001).
[544] OSCE/ODIHR (2001, 2003).
[545] IDEA/OFE (2007).

observation and public auditing of the voting system is likely to be reliant on technical experts to deliver judgements on the legitimacy of the system. As International IDEA notes, this represents a move away from the standard audit of voting procedures to a 'procedural audit', in which observers instead focus on ensuring that international standards relating to the procurement, testing, tabulation and verification of internet voting mechanisms, such as those proposed by the Council of Europe,[546] are met before and during the polling period.[547] Given this reliance on technical expertise, a procedural audit of this kind must meet standards of comprehensiveness, independence, transparency (for example, ensuring that commercial restrictions do not prevent the publication of results) and plurality (for example, by involving multiple experts to corroborate opinions).[548] As the OSCE/ODIHR notes, the newness of the technology may also make the importance of assessment of issues relating to public confidence in the voting system more acute.[549]

Given the long lead-up period that may precede the use of electronic voting (including the procurement of software), key aspects of the observation of e-enabled elections will begin well ahead of election day.[550] Election observation missions will also need to involve technical experts well-versed in computer security.[551]

Nonetheless, as a result detailed guidance is available for the observation of e-enabled elections (including poll-site-based voting machines).[552] This should include consideration of the following:[553]

- Political background, including steps preceding the implementation of electronic voting
- Analysis of the legal and regulatory framework
- Procurement of the system and commercial/IP relationships
- Certification and testing of the system
- Secrecy and integrity of the ballot and related data protection issues
- Security and resilience of the system (software and hardware)
- Interface and ballot design and usability, voter accessibility and voter education
- Election administration and training of officials
- Overall transparency and public confidence in the electronic voting system
- Election day procedures and counting of results
- Auditability of the system and results of audits
- Protocols for – and results of – challenges to election results

The following table provides examples of key questions for observers of e-enabled elections (including electronic voting machines and internet voting), adapted from baseline and observation questionnaires employed by the Carter Center.[554]

[546] Council of Europe (2017a).
[547] Barrat (2012b).
[548] Barrat (2012b).
[549] OSCE/ODIHR (2008).
[550] Carter Center (2007).
[551] Carter Center (2007); OSCE/ODIHR (2013a).
[552] See, for instance, Barrat (2012b); Carter Center (2012).
[553] OSCE/ODIHR (2008); Carter Center (2012); Carter Center (2007); OSCE/ODIHR (2013a); National Democratic Institute (2013); Organization of American States (2010).
[554] Carter Center (2012).

Table 57 Issues to consider for the observation of internet voting

Areas	Example questions for observers to consider
Legal framework	How does the legal framework for e-voting protect key democratic rights? Is the legal framework clear and consistent?
	Who are the key stakeholders, and how are their roles codified in law?
	Does the law provide for independent inspection and observation of systems?
	Does the law require a verified audit trail?
	What tests and certifications are required by law? Does the electoral calendar provide sufficient time for pre-election testing and verification of the system?
	What are the election day procedures (including the role of technicians)?
	What security and contingency plans does the law require?
	What dispute resolution mechanisms are in place?
Technology overview and public opinion	What is the history of the use of this technology? How long has it been in use? What political environment preceded its introduction?
	Does the operation of the system sufficiently protect fundamental electoral rights, including the secrecy and integrity of the ballot?
	How does the technology function? What checks are performed to ensure correct functioning?
	Does the system produce a paper audit trail? How does this align with procedures to ensure ballot secrecy?
Voter accessibility and public confidence	How was the system introduced to the public, and what public debate surrounded its introduction? Have there been legal challenges?
	What voter education campaigns took place?
	Is information about the technology readily available to the public? Where can this information be accessed?
	How are civil society organisations and the media reporting on issues relating to electronic voting?
	Have opinion polls been conducted amongst the public?
	Have political agents, domestic observers and other civil stakeholders received training on the system?
Election management	What steps have election authorities taken to ensure the process is democratic? Can they access sufficient technical expertise? Have appropriate tests, checks and balance been introduced?
	Was the procurement process fair and transparent? Were issues relating to democratic rights (e.g. ballot secrecy) specified in the procurement process?
	What are the roles of various stakeholders in the implementation of internet voting? Do any stakeholders have political links?
	What are the terms of lease or purchase of the software? Which body owns the rights to the source code? What penalties are in place for technical problems?
Security and contingency planning	Who has access to the technology before or during operation? Are clear records kept of access and updates? How is the central tabulating computer secured?
	What measures are in place to keep materials and data secure? How is equipment stored and transported? Are any software components stored in escrow?
	How is data transmitted between components of the system? How is access to data ports secured? What measures are in place to prevent alteration of transmissions? If digital signatures are used, which stakeholders are involved?
	What inspection and audit procedures are employed? Which stakeholders are involved? Is the executable code checked against the source code? Is the software made available for public or independent verification?

Areas	Example questions for observers to consider
	What contingency plans are in place with regard to technical failure or tampering or wider infrastructure failure? Have officials been trained accordingly?
	Are measures in place for independent verification of the results?
Certification and pre-election testing	What is the certification process? What is the involvement of the electoral authorities? Is the software recertified after upgrades? How independent and transparent is the certification process?
	What pre-election tests (e.g. mock elections) are required? By whom are these designed and implemented? Were any issues uncovered by pre-election testing?
	Is the certification process transparent for the public and independent observers? Are pre-election tests open to independent observation?
Election day procedures	How is the technology implemented on the day? How are technical specialists deployed? What tests are conducted on election day?
	Does the implementation of the voting procedure protect democratic rights? Is the system accessible to all users in practice?
Vote counting and dispute resolution	How are votes counted and tabulated? Which organisation implements and oversees this process? If a paper audit trail is available, how are they cross-checked with vote results?
	Does the voting process protect the secrecy and integrity of the ballot in practice? Are counting processes (if applicable) open to observation?
	How are results tabulated and transmitted?
	What post-election audits are implemented? If conducted on a sample of votes, how are these sampled? How is the audit process observed? What are the procedures in case of a discrepancy?
	What procedures are in place for requesting and funding a recount?

Source: Adapted from Carter Center (2012).

As discussed above, no remote voting option implemented in uncontrolled environments is able to provide the level of security and transparency expected of standard polling sites. Ultimately, the role of election observers will be to assess whether an appropriate balance has been struck by countries between fulfilling their obligations to provide a means of voting to all citizens, while also ensuring that remote voting mechanisms, where used, meet baseline secrecy and integrity criteria.[555] Given the difficulty of observing remote voting processes, International IDEA also note that it is important to understand the limitations and caveat findings appropriately, rather than drawing conclusions based on insufficient evidence.[556]

[555] OSCE/ODIHR (2001).
[556] Barrat (2012b).

6.1.3 Mechanisms to guarantee the secrecy of the vote in remote voting

Background

This case study focuses on how the secrecy of the vote is guaranteed in remote voting and on issues that may arise in relation to this. It is based on a review of the electoral legislation in EU countries, on information provided by national public authorities and electoral offices during in-depth interviews, on other materials related to the elections, on reports issued by public authorities, on information provided by experts on electoral issues (through in-depth interviews, reports, academic papers, etc.), and on information obtained from providers of internet voting solutions.

Having a secret ballot serves different objectives: protecting individual privacy, reducing vote-buying practices, avoiding coercion and other threats on voters, and ensuring that people express their true will without fear of feeling socially excluded.[557] Ballot secrecy is considered a key element of free elections by the European Convention of Human Rights (Article 3 of Protocol No. 1). Similarly, the importance of guaranteeing the secrecy of the vote is clear in the EU, where most countries have legislation that punishes those attempting to break it. Some states have provisions indicating not only the right but the obligation of the voter to preserve secrecy. For example, electoral legislation in Bulgaria states that 'The voter shall fold the ballot in a manner which makes invisible the marked choice.'[558] In Denmark, vote secrecy is a duty and, in fact, one of the concerns related to internet voting is that it may enter into conflict with the principle enshrined in Danish legislation that election officials must guarantee that nobody sees how people vote.[559]

In fact, whether secrecy is a right or a duty is one of the debates in this domain. While some argue that secrecy of the ballot must be mandatory, others consider that public authorities must guarantee citizens' right to a secret ballot but that citizens do not have a duty to maintain this secrecy.[560] In relation to internet voting, Simons & Jones (2012) consider that vote secrecy is an issue that affects the whole system and that its guarantee is essential to ensure that elections are free and fair.

Another key issue is whether secrecy of the ballot can be relaxed when it enters into conflict with other positive features of the voting process, such as increased accessibility or verifiability. For instance, many EU countries have provisions that allow people with disabilities to receive assistance while casting their vote. In addition, some remote voting options offer fewer guarantees in relation to vote secrecy, but they could be considered desirable despite this. For instance, the California Court of Appeals ruled that voting by fax was needed to guarantee the constitutional right of casting a vote for people from abroad, even though it does not fulfil the constitutional guarantee of vote secrecy. Conversely, a federal court in Pennsylvania rejected fax and e-mail voting for not guaranteeing the secret ballot.[561] An additional aspect is that the electorate may not consider it essential to preserve the secrecy of their vote; in a US survey, for example, around 73% of participants indicated that they usually reveal who they voted for to friends or relatives.[562]

[557] Fitzgerald, Smith & Goodman (2016); Kitcat (2007); Simons & Jones (2012); Barrat (2012a); Archer et al. (2014).
[558] Election Code, Art. 265.
[559] Ministry for Economic Affairs and the Interior (2012); Folketinget (2011).
[560] Archer et al. (2014); Saglie & Segaard (2016).
[561] Fitzgerald, Smith & Goodman (2016).
[562] Gerber et al. (2012).

Secrecy of the vote in non-electronic remote voting solutions

In traditional voting procedure (i.e. voting at a polling station in the country using paper ballots), secrecy is ensured because voters themselves place the ballot in the ballot box; there is no link in most cases between the ballot and the voter's identity. Non-electronic remote voting options employ various different strategies to preserve the secrecy of the vote. The following paragraphs explain some of these strategies, which are also detailed in Table 58 below.

Some remote voting options involve the setting up of special polling stations, with the same format as standard ones. Secrecy is thus maintained because voters place their ballot in the box themselves. However, there are some issues to be taken into account. Firstly, in order for voting to take place in a controlled environment, special polling stations must have the same characteristics as standard ones: having polling booths, electoral authorities which supervises that nobody checks how other people vote, etc.

Secondly, if the special polling station has a small pool of electors, secrecy may be at risk because it could be relatively easy to identify who voted in a specific way during counting. Many countries require a minimum number of electors to open a special polling station. In Cyprus there must be at least 50 people from the same constituency to establish a polling station abroad for the presidential elections.[563] In Poland, a minimum of 15 electors is required to set up a polling station abroad, on a ship, in prison and in hospitals.[564] In Italy, polling stations are established in hospitals with at least 200 beds.[565] In Greece, at least 40 people from the same constituency need to have submitted a request to another municipality so that they can vote in the latter (voting outside the district).[566] Another provision that helps preserve secrecy is to transport the ballot box to another location for counting, so that ballots are merged with others. However, as with postal voting, there is small risk that ballots could be opened during transit.

Voting using a mobile ballot box offers fewer guarantees regarding the vote secrecy than voting at a polling station. Typically, the voter places the ballot in the special ballot box that the members of the electoral authorities return to the polling station, where the ballots are mixed with those from standard voting. However, there is a risk that the members of the electoral authorities could check the voters' choice during transport. Moreover, it may be difficult to ensure that individuals cast their vote in privacy. Despite these risks, the use of mobile ballot boxes may still be considered desirable if it makes voting accessible to people who cannot use other voting options. Moreover, some Member States have provisions to increase the chances that secrecy is preserved. In Croatia, the vote must be cast in a closed envelope and the electoral authorities must introduce it in the ballot box without opening it.[567] Similarly, in Lithuania, the two-envelope system typically used in postal voting (see below) is used to guarantee a secret vote. Latvian and Italian legislation states that the electoral authorities must ensure individuals vote in secret.[568]

In proxy voting, the proxy can vote inside a polling booth in order to guarantee the secrecy of the vote. Nonetheless, secrecy of the vote between the voter and the proxy cannot be maintained. (One exception is Sweden, in which the electors receive voting materials by post and cast their vote in private. They then seal the inner envelope, place it in an outer envelope, and give it to the proxy, who must bring it to the polling station. The voter should trust that the

[563] Law n. 72/1979. Art. 27 (2).
[564] KW, Art. 12, 14, 15, 34.
[565] D.P.R. 30 March 1957, n. 361, Art. 5; Art. 42 of D.P.R. 16 May 1960, n. 570.
[566] Presidential Decree 96/2007, Article 96(1).
[567] Zakon o izborima zastupnika u Hrvatski sabor- Art. 83, Obvezatne upute Državnog izbornog povjerenstva – Art. 2.
[568] Saeima Election Law; D. Lgs 3 January 2006, n. 1 Art. 8.

proxy will not check the content of the envelope.) Benham et al. (2010) propose proxy voting as an additional option for uniformed and overseas citizens (UOCAVA) in the United States, stressing that they may prefer to reveal their preferences to a close friend or relative acting as proxy rather than incurring the risk that an official or an employer see the content of their mailed ballot.

Voting by post poses more challenges to vote secrecy as it takes places in an uncontrolled environment in which it is not possible to know whether individuals are voting privately. The Venice Commission review of the compatibility of remote and electronic voting with the standards of the Council of Europe concluded that remote voting solutions (including postal voting) were compatible as long as appropriate measures were taken to preserve the secrecy of the ballot. In the case of postal voting, this would mean direction to complete the ballot individually and permitting postal voting only if the postal service is considered safe and reliable.[569] The two-envelope system, used by most countries, aims to preserve secrecy. Voters must put their completed ballot in an inner envelope, which is inserted into an outer envelope that contains the voter's identification details. The people in charge of counting open the outer envelope to identify the voter and place the inner envelope in the ballot box without opening it, thus ensuring that no link can be made between voters' identity and their vote. At the moment of counting, observers can make sure that this procedure is correctly applied. However, they cannot oversee the transportation process, during which there is small risk that somebody could open the envelopes.

Table 58 Examples of provisions to guarantee vote secrecy in non-electronic remote voting solutions[570]

Voting in person at another location within the country	Voting in person from abroad	Voting at special polling stations
Controlled environment Voters place their vote in the ballot box Minimum of electors to set a polling station	Controlled environment Voters place their vote in the ballot box Minimum of electors to set a polling station	Controlled environment Voters place their vote in the ballot box Minimum of electors to set a polling station
Voting by post	**Mobile ballot box**	**Voting by proxy**
Two-envelope or three-envelope system	The electoral authorities must guarantee secrecy (e.g. IT, LV) Votes are cast in a sealed envelope (e.g. HR, LT)	Secrecy is guaranteed for the proxy (Controlled environment) Secrecy cannot be guaranteed between the proxy and the elector The voter gives a sealed envelope with the ballot to the proxy (e.g. SE)

[569] Venice Commission (2004).
[570] This table aims to present some of the provisions that are being applied in the EU, but it does not cover all the options currently implemented. The Member States in brackets are examples of countries that apply these provisions, but this does not mean that they are the only ones applying them. When no Member State is mentioned, this refers to provisions that are generally applied or that apply to the corresponding option by definition.

Secrecy of the vote in internet voting

Internet voting shares some vulnerabilities with postal voting with regards to the guarantee of secrecy, as both methods take place in an uncontrolled environment. Barrat (2012a) draws a parallel between internet voting and postal voting and indicates that while postal voting depends on trust in the postal service in charge of transporting the ballots, internet voting must also rely on trust in third parties (in this case, experts in computer science responsible for guaranteeing that the vote remains secret).

On the one hand, internet voting may offer more guarantees than voting by post, as it is much easier to open an envelope than to decrypt an encrypted ballot. On the other, with internet voting if there is a breach of secrecy it may occur on a much larger scale. For example, Archer et al. (2014) underline that while voting by post is used by a small part of the population, risks related to secrecy may have a wider reach if there is a high adoption of internet voting. Likewise, Chair of the Board of Directors of the U.S. NGO Verified Voting Barbara Simons considers that postal voting is a lot safer and explains that risks are smaller because they occur at an individual level, while internet voting risks occur at a larger scale.[571] A report from Verified Voting[572] indicates that voting by post is preferable over internet voting as it guarantees better privacy and the secrecy of the vote. However, provisions must be made to ensure that voters receive voting material far enough in advance (for example by sending them the ballots earlier or allowing the download of blank ballots).

The Venice Commission has stated that electronic voting (including internet voting) should be accompanied by appropriate measures to ensure confidentiality and anonymity.[573] However, concerns have been raised in the literature as to the effectiveness of internet voting systems in effectively separating voters' personal details from their electoral preferences, particularly given the need to simultaneously verify the voter's identity. One of the challenges is how to guarantee secrecy, especially if the same server manages the identification credentials and the content of the ballot.[574]

Internet voting systems often apply cryptographic tools to remove the link between identification details and the content of the vote, and thus preserving secrecy. In Estonia, votes are encrypted and anonymised before counting[575] (for more details see the case study on Estonia). Generally, in internet voting systems votes are randomly shuffled and re-encrypted again (mixing) before counting.[576] This is a technique that avoids any correlation between the decrypted votes and the voting order in which they were cast. When votes are decrypted their content is revealed, but if the order in which they were cast has been shuffled, they remain anonymous, meaning that it is not possible to know the vote of each specific individual (this resembles the practice generally followed for votes in physical ballot boxes, which are shuffled before counting). The systems from nVotes,[577] VOTEM[578] and Scytl[579] all use re-encryption.[580] However, it may not always be possible or feasible to use cryptographic tools to ensure secrecy. In e-mail voting, vote secrecy cannot necessarily be preserved, as ballot contents may not be separated from the email

[571] Interview with Barbara Simons, Verified Voting.
[572] Fitzgerald, Smith & Goodman (2016).
[573] Venice Commission (2004).
[574] Barrat (2012a); IDEA (2011).
[575] https://www.valimised.ee/en/internet-voting/internet-voting-estonia; State Electoral Office of Estonia (2017).
[576] Interview with Jordi Puiggalí, Scytl CSO.
[577] https://nvotes.com/
[578] https://votem.com/
[579] https://www.scytl.com/en/
[580] Input provided by Eduardo Robles, nVotes; interview with Jeffrey Stern, Votem Corp; Becker et al. (2018); interview with Jordi Puiggalí, Scytl CSO.

address.[581] This also applies to voting by fax. In fact, most US states require voters to sign a waiver of their right to ballot anonymity before using internet voting.[582]

A common practice of internet voting systems using an encryption mechanism is to divide the decryption key among several key holders, so that all or most of them are needed during counting. This aims to reduce the chances that the content of the ballots could be revealed. In Estonia, the vote-opening key to decrypt the votes is divided between the members of the National Electoral Committee.[583] The presence of all these members is required for decryption. NVotes systems use multiple (two or more) election authorities, each of which generate independently a share of the private key.[584] Likewise, in VOTEM the decryption key is split and shared among different trustees.[585] In the system provided by Scytl, a private company developing electronic voting solutions, the election private key is broken into pieces among the electoral authorities and each member stores their piece in a PIN-protected smartcard; the private key can only be used when a predefined threshold of the members uses their smartcards.[586] During the Norwegian internet voting trials, the key to decrypt the ballots was divided between 10 separate key holders drawn from the main Norwegian political parties. Six parts of the key were required to decrypt the ballots, meaning six parties would have to collude together with the Ministry in order to access and decrypt the vote, but also that the votes could still be decrypted in the event that some keys were lost.[587] A higher number of key holders would increase the chances that secrecy is guaranteed. Moreover, it is important that the keys are divided among different organisations that represent different interests, in order to reduce the incentive for them to collude.[588]

In France, the National Commission on Informatics and Liberty (CNIL)[589], the French data the protection authority, issued some recommendations concerning internet voting and indicated that data identifying the electors should be separated from their vote. In the internet voting system implemented in France, the list with the link between the username and the voter's identity was kept on an offline machine, and only the government could access it. Thus, the technology provider did not manage real voter identities but random identifiers.[590]

Another challenge is how to preserve secrecy in the long term. An interviewee from Universitat Rovira i Virgili, Professor of Constitutional Law Jordi Barrat, who conducts research on electronic voting, explained in interview that while today's votes are protected using cryptographic techniques, technological developments might mean they can be revealed in the future. In this case, there may be a case of *deferred coercion,* in that voters feel that it is unsafe to select a particular electoral preference left it be revealed at a future date.[591] Other authors also indicate that current encryption mechanisms may be decrypted in the future, revealing voters' past choices.[592] Moreover, there is a reliance on the software behaving as designed. During the pilots in Norway, an error in the encryption protocol resulted in some ballots being visible to central

[581] https://www.verifiedvoting.org/resources/internet-voting/email-fax/
[582] Fitzgerald, Smith & Goodman (2016).
[583] https://www.valimised.ee/en/internet-voting/internet-voting-estonia; State Electoral Office of Estonia (2017).
[584] Input provided by Eduardo Robles, nVotes.
[585] Becker et al. (2018).
[586] Interview with Jordi Puiggalí, Scytl CSO.
[587] Barrat, Goldsmith & Turner (2012).
[588] Becker et al. (2018).
[589] https://www.cnil.fr/en/home; Commission Nationale de l'Informatique et des Libertés (CNIL) (2010).
[590] Interview with Jordi Puiggalí, Scytl CSO.
[591] Interview with Jordi Barrat, professor of constitutional law (Universitat Rovira i Virgili) and expert on electronic voting and electoral processes.
[592] Archer et al. (2014); Benham et al. (2010).

authorities. It was not possible for these votes to be re-encrypted without compromising the ability to audit the vote count in the future.[593]

Lastly, it is important to note that internet voting can be a useful tool for people who cannot vote secretly using other options. For example, people with visual impairments may sometimes need the assistance of another person to mark their ballots in traditional voting (especially, if braille ballot papers are not offered). Internet voting and software solutions may, on the other hand, enable them to cast their vote in secret. The former director of the Federal Internet voting project in Switzerland indicates that internet voting offers Swiss voters abroad and the sight-impaired the possibility of, respectively, effectively participating and voting in a secret way.[594] Similarly, an interviewee from the Norwegian E-vote2011 and E-vote2013 projects considered that it facilitated voting by people with visual impairments without requiring assistance.[595]

[593] Trechsel et al. (2016).
[594] Input provided by Ardita Driza Maurer, former director of the Federal Internet voting project at the Swiss Federal Chancellery.
[595] Interview with Henrik Nore, CEO at NVTC AS and responsible for the E-vote2011 and E-vote2013 projects in Norway.

6.1.4 Coercion and remote voting

Background

This case study focuses on problems related to coercion that may arise while conducting elections as well as mechanisms that may help deal with these issues in remote voting. It is based on a review of the electoral legislation in EU countries, on the information provided by national public authorities and electoral offices during in-depth interviews, on other materials related to the elections, on reports issued by public authorities, on information provided by experts on electoral issues (through in-depth interviews, reports, academic papers, etc.), and on information obtained from providers of internet voting solutions.

This case study is closely related to the one on vote secrecy (section 6.1.3). However, the problem here is not only that another person becomes aware of an individual's choice, but that this other person influences the choice. This would imply a violation of the principle of 'one person, one vote', as in cases of impersonation. However, while in the latter case a person votes on behalf of another without them realising, here the elector is directly coerced to vote in a specific way. Another type of influence is to offer money (or another incentive such as a job placement) in exchange for the individual's vote. Here we focus mainly on influence while the vote is cast. However, provisions to ensure that the vote remains secret afterwards also help to prevent coercion, as they prevent coercers from checking if the voter has followed their instructions.

In the past, situations of coercion and vote-buying were frequent in western democracies. For example, political parties were allowed to produce their own ballot papers that they could easily identify; and secrecy was not respected while voters were making their choices. In the late 19th century, the 'Australian ballot' system was introduced in different territories such as Australia, England, Massachusetts and New York. In this system, all candidates/parties had to be listed in official ballots and electors marked them in private (e.g. using polling booths). These provisions aimed to prevent coercion and vote-buying.[596]

Nowadays, most EU countries have legal provisions to act against people who exert coercion over voters. For instance, Slovenian electoral legislation prohibits all forms of electioneering in polling stations and indicates that these kind of actions are subject to a fine.[597] In Spain, the law establishes that those who exert coercion over others in relation to the voting act could face imprisonment from 6 months to 3 years or a fine.[598] In Poland, the punishment for influencing another person's choice by force, threat or abuse of a dependency relationship ranges from 3 months to 5 years in prison.[599] Unfortunately, in some remote voting options it may be difficult to detect whether coercion or undue influence has occurred.

[596] Fitzgerald, Smith & Goodman (2016).
[597] National Assembly Elections Act, Art. 65 and 110.
[598] LOREG, Art. 142.
[599] KK, Art. 250.

Coercion in non-electronic remote voting solutions

In standard polling stations, polling booths are established so that people can vote freely inside them. Moreover, it is usually forbidden to accompany a voter inside a polling booth (except if the person has an authorisation to receive assistance), and polling station authorities have a duty to supervise proceedings to ensure that nobody is being coerced in the voting facilities. Some recommend additional measures such as the prohibition of taking pictures, using cameras, or video-taping in the polling stations, as these could act as proof to a coercer or vote-buyer.[600]

EU countries apply different mechanisms to reduce the risk of coercion in remote voting. This section describes these options, which are also detailed in Table 59. Polling booths are usually available at polling stations abroad or special polling stations within the country. Provisions to avoid undue influence are especially important at special polling stations in hospitals, care homes and similar circumstances in which voters may be more exposed to coercion. In Malta, the sub-committee in charge of voting in old age homes and hospitals must guarantee no one, including the staff, exerts undue influence on voters.[601] Moreover, on election day, no one is allowed to enter the polling area except those specifically authorised to accompany the eligible voters. Similarly, Danish regulations on the vote in hospitals and prisons indicate that vote receivers cannot bear emblems or similar items indicating attachment to a party, candidate or political position.[602] When voting using a mobile ballot box, there is a risk that voters may be coerced by a member of the electoral authorities or by somebody staying in their location (home, hospital, etc.). A common provision to mitigate this problem is that at least two members of the electoral authorities should be responsible for collecting the vote. Bulgaria requires a minimum of four members; in addition, the law states that no one may be present in the room with the voter unless assistance is required.[603] In Ireland, the special presiding officer visits the voter's location accompanied by a police officer, who supervises the proceedings.[604]

In proxy voting it is difficult to guarantee that voters have freely chosen their proxy, and that the authorisation has not been obtained by using coercion or buying this right. The UK's Anti-Corruption Champion in 2016 recommended imposing limits on the number of proxies (there is currently no restriction on the number of close family voters on whose behalf a voter can act as a proxy), so that one single person could only act as proxy for two electors. He mentioned the risk that people may pretend to have family links in order to vote on behalf of multiple people.[605] Even if these links are authentic, an unlimited number of proxies could facilitate situations of family voting, in which an individual forces a family to vote in certain way. Benham et al. (2010) proposed the introduction of proxy voting for UOCAVA voters in the United States but also with limitations on the number of proxies. In addition, they suggested restricting who can act as a proxy (e.g. exclusion of co-workers, employers, and people with no pre-existing relationship with the voter) and allowing proxy voting only under certain circumstances. In fact, in Belgium, it is necessary to present a specific reason and supporting documents to justify it; some accepted reasons are illness and professional motives. In Poland, only disabled and elderly people can vote by proxy.[606] Furthermore, several countries apply limitations on the number of proxy votes

[600] Pickles (2016); Geamănu (2015).
[601] General Elections Act. Part XII.
[602] Executive Order on postal voting in Hospitals, (BEK No. 1139 of 18/10/2017), chapter 7 and Executive Order on postal voting in Certain Homes and Homes pursuant to the Act on Social Services and Housing Law, (BEK No. 1137 of 18/10/2017), chapter 7 and Executive Order on postal voting from the Office of the Prosecutor, detention centres and prisons (BEK No. 1136 of 18/10/2017), chapter 8.
[603] Election Code, Art. 237, 238.
[604] http://www.checktheregister.ie/appforms/SVS1%20Special%20Voters%20Supplement%20[Bilingual].pdf
[605] Pickles (2016).
[606] KW, Art. 54.

per person. The limits are set to one in Belgium,[607] two in the Netherlands, two for French voters within the country,[608] and three for French voters abroad.[609] Moreover, in Belgium and the Netherlands voters must sign the poll card declaring the proxy is allowed to vote on their behalf.[610] However, it is not possible to ensure that the voter is signing under their free will. In Poland, the power of attorney to vote is drawn up in the presence of a commune clerk.[611]

The nature of postal voting raises the risk of 'family voting', as voting happens in an uncontrolled environment. Some groups of individuals, such as women or young people, are at particular risk of being coerced or influenced by other members of the family.[612] In addition, the use of postal ballots could leave voters vulnerable to pressure from political groups. This could include, for example, political groups visiting residences to pressure voters to fill out the ballot in front of them or collecting completed ballots from voters with the promise of submitting them *en masse* to the election authorities, thus leaving the ballots at risk of fraud or non-submission.[613] Moreover, some victims of coercion may not be willing to report it. Others may not be aware that vote-buying is illegal.[614] To mitigate this, for example, a campaign was launched in the UK in multiple languages to raise awareness of electoral fraud, including intimidation, impersonation and bribery.[615]

Some countries are reluctant to introduce voting in uncontrolled environment as there is no guarantee that voters would be able to make their choice freely. For instance, Croatia and Malta do not offer voting methods in which voting takes place in uncontrolled environments (neither post nor internet voting). However, voting by post is accepted in many countries, despite these vulnerabilities, as it provides more accessibility. It may be complicated for some people to reach a polling station, for example, and likewise it may be unfeasible for countries to set up polling stations across the world to serve all their citizens overseas, leaving voting mechanisms which rely on uncontrolled environments as the only practical option.

Most Member States lack specific provisions to prevent coercion in postal voting. Naturally, the legal provisions against general coercion are applicable, but, as mentioned above, in practice identifying whether a postal voter has been coerced is difficult. The Finnish system will require two witnesses to sign that the vote has taken place maintaining electoral confidentiality and freedom.[616] In Sweden, voters must also put their ballot in its envelopes under the supervision of two witnesses. In these cases, it is important to ensure that the witnesses are impartial and that they do not act as coercers.

[607] Dutch Elections Act. Art. 180 quater. § 2.
[608] http://www.gouvernement.fr/voter
[609] France Diplomatie (2017b).
[610] https://www.kiesraad.nl/verkiezingen/tweede-kamer/stemmen/volmacht
[611] KW, Art. 56.
[612] Pickles (2016).
[613] House of Commons (2004); Pickles (2016).
[614] Pickles (2016).
[615] https://www.yourvotematters.co.uk/get-involved/your-vote-is-yours-and-yours-alone
[616] http://oikeusministerio.fi/artikkeli/-/asset_publisher/kirjeaanestys-ulkomailla-tulee-mahdolliseksi

Table 59 Examples of provisions to prevent coercion in non-electronic remote voting solutions[617]

Voting in person at another location within the country	Voting in person from abroad	Voting at special polling stations
Controlled environment. Polling booths. Electoral authorities supervising the process	Controlled environment. Polling booths. Electoral authorities supervising the process	Controlled environment. Polling booths. Electoral authorities supervising the process Officials must ensure that nobody tries to influence people's choice (e.g. MT) Staff cannot support any party/candidate (e.g. MT)
Voting by post	**Mobile ballot box**	**Voting by proxy**
Two witnesses (e.g. FI, SE) Most countries: no specific provisions	At least two members of the Electoral authorities collect the votes (e.g. LV, RO, BG) The voter must cast the vote alone (e.g. BG) A police officer supervises the proceedings (e.g. IE)	Supporting documents to explain why the voter cannot vote in person (e.g. BE) Voters sign declaring the proxy is allowed to vote on their behalf (e.g. NL, BE) Limit on the number of proxies (e.g. BE, NL, FR) Proxy established in the municipality facilities (e.g. PL)

Coercion in internet voting

Internet voting also occurs in an uncontrolled environment and thus presents similar risks to postal voting. In this uncontrolled setting, there are more chances of coercion, as the voter can be more exposed to pressure from family members or other individuals; and vote-buying schemes may be more feasible as the buyer can easily verify that the seller is fulfilling the deal.[618] In fact, in some Member States there are concerns regarding the possibility of buying and selling votes,[619] and the fact that in a family setting it would not be possible to know if a vote has been cast freely.[620]

Regarding this issue, Unt, Solvak & Vassil (2017) undertook an analysis of internet votes and associated IP addresses in Estonia to estimate how many votes may represent family group votes. The authors defined group voting as pairs of votes coming from the same operating system that take place in close temporal proximity to each other (i.e. not more than 10 minutes apart). They found that approximately 8% of all votes came in such pairs. When looking at demographic characteristics, most of these cases were marked by either a very small or a very large age difference between the two voters. The most frequent pair was two people of opposite

[617] This table aims to present some of the provisions that are being applied in the EU, but it does not cover all the options currently implemented. The Member States in brackets are examples of countries that apply these provisions, but this does not mean that they are the only ones applying them. When no Member State is mentioned, this refers to provisions that are generally applied or that apply to the corresponding option by definition.
[618] Barrat (2012a); Saglie & Segaard (2016).
[619] Bāliņa (2012).
[620] Yle uutiset (2017b).

sex of approximately the same age, suggesting partners are voting together. The second noteworthy pattern was pairs of voters of either same or opposite sex with a large age differential, suggesting an adult voting together with their child that has attained voting age. In such pairs, the speed of the second vote was typically much higher than the first vote, which could suggest that the first person was assisting/influencing the other one.

In order to prevent coercion in internet voting, some systems (e.g. EE, NO) allow voters to cast multiple votes. The logic behind this is that a person who has cast a vote under coercion can vote again later, expressing their true will. In Estonia and Norway, internet voting takes place in advance of normal voting. In both systems, voters can vote multiple times online and they can also vote in person at a polling station (thus, in a controlled environment). If the person only votes online, the last online vote is the one that is counted. If someone has voted online and in person, the latter vote is considered the valid one.[621] It must be noted that this feature is not exclusive to internet voting. In Denmark, voters are allowed to vote multiple times using the advance vote provisions. As with internet voting, the last vote is the one counted[622] (all advance voters are counted at the voter's assigned polling station, meaning it is possible to detect duplicates).

The system in France, as well as that used in New South Wales (Australia), did not include the option of voting multiple times. However, voters could ask for a cancellation of their previous voting credential (thus invalidating the vote) and receive a new one.[623] Likewise, multiple voting is not included in the Swiss system. However, the former Director of the Federal Internet Voting Project at the Swiss Federal Chancellery explained that coercion and breach of secrecy when voting from home are not considered to be problems in the country.[624] Switzerland has generalised postal voting and most people actually vote from home. Despite this, as in other countries, abuses are subject to penal law provisions.

It is also important to acknowledge that this feature of repeated votes does not provide complete protection against coercion. For instance, Saglie & Segaard (2016) indicate that coerced voters may not have an opportunity to vote again or may not be motivated enough to do so. In fact, an individual who has willingly sold their vote may lack motivation to vote again. It may also be the case that somebody tries to influence a voter's choice just before the closing of the polls, so there is time to replace the coerced vote[625] (although if internet voting takes place before normal voting, this is less of a problem). It is also important that the specific time at which an individual voter casts their ballot is not widely known, as a coercer or a vote-buyer would be then able to check if the vote cast under influence had been included in the counting process.[626] Lastly, if an internet voting system generates receipts this could be used to exert coercion or engage in vote-selling practices.[627]

As with other voting options, sometimes the responsibility is placed on the voter. For example, family pressure, vote-buying and similar issues were concerns during the debates prior to the implementation of internet voting in Norway. The regulations finally established that voters themselves had to ensure that they were voting in private.[628] Likewise, in the RIES system

[621] Interview with Henrik Nore, CEO at NVTC AS and responsible for the E-vote2011 and E-vote2013 projects in Norway; Saglie & Segaard (2016); State Electoral Office of Estonia (2017).
[622] Input provided by the Danish Ministry for Economic Affairs and the Interior (OIM).
[623] Interview with Jordi Puiggalí, Scytl CSO.
[624] Input provided by Ardita Driza Maurer, former director of the Federal Internet voting project at the Swiss Federal Chancellery
[625] Becker et al. (2018).
[626] State Electoral Office of Estonia (2017).
[627] Galois (2015).
[628] Saglie & Segaard (2016).

applied in the Netherlands it was up to the voters to vote autonomously and responsibly.[629] Lastly, it must be stressed that internet voting (as well as the postal vote) is not intended to replace traditional voting options. Therefore, if a voter feels that voting in polling stations offers more security and freedom, they can decide to vote there.

Another issue regarding voting in uncontrolled environments (both by post and online), is that an individuals' choice may be influenced by others, but within the law. For example, Reedy[630] conducted two telephone surveys with absentee voters, in the context of postal voting in the state of Washington in the 2006 general and 2007 municipal elections,[631] and found that slightly more than one third (35.6%) of respondents reported discussing their choice with other people while completing their postal ballot. Moreover, slightly less than one third of voters (30.6%) who reported engaging in discussions indicated that these conversations had impacted their vote choice. This influence on vote choice was slightly more frequently reported by voters who felt their interlocutor was more knowledgeable than they were, although this difference was not statistically significant.

Saglie & Segaard (2016) used a 2013 telephone survey of Norwegian voters in the aftermath of the i-voting pilot in the 2013 national elections to ask about voters' perceptions of what potential compromises to the principle of ballot secrecy may be acceptable. To that end, the authors fielded a battery of questions presenting to respondents various scenarios of electoral behaviour, with respondents invited to indicate the extent to which they found the behaviour in question acceptable. Most respondents expressed their acceptance for a series of behaviours that were formally disallowed by applicable regulations. For example, a large majority (85%) of people felt it was fine for a husband to help his poor-sighted wife with voting, thereby seeing her electoral choices. The majority of respondents also found it acceptable for two friends to sit down and cast their votes together, and for a mother to see her son's vote in the process of helping to cast it. However, more than half considered it unacceptable for a woman to vote online on behalf of her husband with his permission. Almost everybody considered it completely unacceptable to receive money in return for voting for a specific option.

[629] Hubbers et al. (2008).
[630] Reedy, Gastil & Moy (2016).
[631] A few state-wide initiatives were also on the ballot.

6.1.5 Enforcement of the electoral law for remote solutions: offences and misconduct

Background

This case study considers different types of election-related offences and misconduct. At the outset, it is helpful to specify what we mean by 'offences and misconduct'. A broad overview of different types of offences is suggested by the International IDEA database, which offers three overall categories:[632]

- Offences related to political party and candidate nomination/registration
- Offences related to campaign finance
- Criminal offences, such as bribery and threats

We begin with a consideration of regulation at the EU level, before exploring how three Member States' legal systems address offences and misconduct – Estonia, Ireland and the UK. A full review of all Member States turned out to be unfeasible in the given timeframe, and therefore these three Member States were selected in order to explore different approaches to tackling offences and misconduct associated with different modes of remote voting (Estonia's e-voting, Ireland's mobile polling stations, and postal/proxy voting in the UK). We show how different countries' legal systems address offences and misconduct in different ways. All three countries have legislation dedicated to electoral law. However, only some have specific provisions relating to the nature of the remote voting process. Estonia's relevant legal provisions have sections dedicated to e-voting, and the UK has provisions for postal voting. By contrast, Ireland's electoral law does not specifically make provisions for remote voting, and as such remote voting offences are handled under general electoral law. It should be noted that there are other approaches to legislating for at least some of the modes of voting discussed, and so the different Member States' approaches should be seen as examples only.

Our approach to the EU and national examples was to:

- Consider the definition of election-related offences to clarify scope
- Consider the law of relevance and its application
- Identify challenges to the effective application of the law

In order to identify the information required, we reviewed a number of sources. These included the International IDEA website,[633] a key book identified on e-voting case law, the OSCE electoral reporting site,[634] and websites of relevant organisations at the EU and Member State levels (e.g. Your Europe[635] for Europe, Electoral Commission for the UK[636]). We also reviewed the Second Interim Report and country fiches for Estonia, Ireland and the UK for relevant data. Finally, we conducted an online search using Google, looking at the first two pages of results for the following search terms (including snowballing from results):

Infringe*vote eu

Enforce* vote eu

[632] https://www.idea.int/data-tools/data/electoral-justice
[633] https://www.idea.int/
[634] https://www.osce.org/odihr/elections
[635] europa.eu/youreurope/index.htm
[636] https://www.electoralcommission.org.uk/

Crimin* vote eu

Offen* vote eu

Remote voting crim*

Remote voting offen*

Electoral law provisions at the EU level

As outlined in Section 2, despite the lack of binding legal acts in the area of remote voting at the EU level, any measures and practices relating to it have to be in line with the 'core principles of European electoral heritage as embedded in the current legal frameworks of voting in the European Union and in the Member States… [namely] universal, equal, free, secret and direct suffrage'.[637]

A breach of these could therefore potentially result in a claim against a Member State in the European Court of Justice (ECJ), if it can be shown that key EU rights had been infringed. While no ECJ decisions were identified specifically addressing the matter of remote voting processes, it has ruled on areas of relevance. For instance, the ECJ has held that a Member State can maintain an indefinite ban on voting for certain groups unable to attend the polling station (such as prisoners), as long as the ban is proportionate.[638]

In the case of European Parliament elections, 'the Commission can launch infringement proceedings against Member States when there are violations of the principle of free and secret elections.'[639] In addition, the issue of 'double voting' presents an area of misconduct to be addressed for European Parliament elections.[640]

While not binding, the Council of Europe has outlined a set of 'E-voting standards' for countries to adhere to (of relevance because all Member States are also members of the Council of Europe), including:[641]

- *Standard number 29*: 'It is recommended that the relevant legislation provides for the supervisory role of the electoral management body over e-voting.'
- *Standard number 47*: 'It is important that incidents that threaten the integrity of the system are reported immediately to the competent entity in charge of communication which makes sure that the necessary measures are taken and all interested stakeholders, namely political parties and voters, are properly informed.'
- *Standard number 49*: 'Irregularities shall be identified so that the necessary measures are taken and stakeholders (voter, electoral management body, etc.) can be informed and are able to react accordingly.'

Finally, the Council of Europe's *E-voting Handbook* has a section emphasising the importance of having a complaints and appeals process. It emphasises citizens' rights to filing these and suggests that 'e-voting should not have any effect on the existing complaints and appeals system, although electronic means could provide an additional way of registering a complaint which could be filed via the Internet. Furthermore, a list of all complaints could be published on

[637] Trechsel et al. (2016).
[638] Court of Justice of the European Union (2015).
[639] European Commission. Promoting your EU electoral rights.
[640] ACE Project (2014); Euobserver (2014).
[641] Council of Europe (2017b).

the Internet.'[642] The Council of Europe has also published on the importance of 'out-of-country' voting, which may include proxy and postal votes.[643]

Electoral law provisions at the Member State level

Given the limited scope of electoral law at the EU level, most remote voting offences and misconduct are dealt with at Member State level. Below, we describe three legal systems relating to e-voting, mobile ballot box voting, and proxy/postal voting.

Estonia. Estonia was chosen for this case study given its unique position as the only country to have implemented a full e-voting system for its general elections. It has specific legal provisions to address its e-voting system and related offences. The principal legislation of relevance is the Riigikogu Election Act (2002), with relevant sections being:

- Section 73: Incorporates a specification that buying e-votes is considered a crime that can lead to a fine or imprisonment.[644] The same section also outlines that the National Electoral Committee or the Supreme Court may declare the voting results in a voting district, rural municipality, city, electoral district or the state invalid. The National Electoral Committee shall then determine a new date for an election and a repeat vote shall be held.[645]
- Section 48: Electronic voting may be suspended. This could be accompanied by the annulment of any votes cast using electronic means.[646]

While the Riigikogu Election Act does not specifically cover cybercrimes such as hacking, these are covered by other legislation and are currently under review.[647]

Within the Estonian legal framework, types of cases brought in Estonia may fall into two categories:

- Civil cases – where a case involves 'issues concerning the technical or operational functioning and preparation of I-voting', this is brought as a case against the electoral administration.[648]
- Criminal offences – relating to 'selling or buying Internet votes, violence against or influence of an I-voter, cyber-attacks against the I-voting system, misuse of another person's e-ID in electoral matters'.[649]

Civil cases are dealt with in the first instance as complaints to the relevant county electoral committee (formed by the National Electoral Committee), and then the National Electoral Committee for review. A resolution or an act of the National Electoral Committee is contested directly in the Supreme Court. Cases brought through this avenue have included demanding annulment of all internet votes and tend to be based on security issues or technical glitches.

To be entitled to complain, a person must believe they have had their rights violated during the voting process. They must then file their complaint with the electoral committee within three

[642] Council of Europe (2010).
[643] Venice Commission (2011b).
[644] https://www.valimised.ee/et/e-h%C3%A4%C3%A4letamine/korduma-kippuvad-k%C3%BCsimused-kkk
[645] Riigikogu Election Act. Section 73.
[646] Riigikogu Election Act. Section 48.
[647] Lexology (2017).
[648] https://www.valimised.ee/en/estonian-elections-nutshell/complaints
[649] Madise & Vinkel (2017), 14.

days of the resolution or Act becoming law. The electoral committee then has five working days to consider whether to revoke the resolution or Act that has been raised as a complaint.[650]

By contrast, criminal cases fall under the jurisdiction of the police, and are taken to standard criminal court. As at 2014, 'no criminal cases tied specifically to I-voting have been discussed in court.'[651]

In terms of process, 'all electoral complaints must be solved before confirmation of the official election result. The only exemption is European Parliament elections as the confirmation of the results is partially regulated by EU law.'[652]

One key barrier identified in relation to effective application of the electoral law surrounds availability of evidence: it could be a significant challenge to obtain sufficient evidence on e-voting that would stand up in court,[653] in part due to the anonymity of the vote.[654]

Ireland. Ireland was chosen for this case study given its use of the mobile ballot box. The key pieces of legislation governing electoral offences are the Irish Constitution (1937), and the Electoral Acts of 1992 and 1997.[655] These identify 'specific electoral offenses that can be challenged with the High Court, including during the process of voter registration, campaigning, voting, and counting. A petition may also be made against an issue affecting the election results.'[656] As outlined in the main report, after the election results are announced, an election petition can be presented to the High Court within 28 days.

However, the abovementioned legal acts do not include specific offences related to the mobile ballot box mode of voting. As such, the law relevant to those voting from hospitals and nursing homes is the same as for normal voting, covering Electoral Act (1992) offences such as impersonation, bribery and undue influence.[657] Complaints and petitions are brought to the High Court in the first instance, before possible appeals at the Supreme Court.[658]

The literature identifies procedural fees as being a key barrier to effective application of the law. This is because, when 'submitting a petition, a significant monetary deposit is required, which the OSCE/ODIHR has previously recommended to review as it could potentially discourage someone from seeking legal redress'.[659]

While the Venice Commission's Code of Good Practice in Electoral Matters notes that the use of mobile ballot boxes is 'undesirable' given the potential for fraud,[660] no specific cases were identified in the online search conducted as part of the wider research associated with this study.

United Kingdom. The UK offers two types of remote voting options: postal and proxy voting.[661] The law governing electoral offences in the UK is outlined in four legal acts, as well as subordinate legislation.[662] Key offences – principally those set out in the Electoral Administration Act 2006 –

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[650] Madise & Vinkel (2017), 14.
[651] Madise & Vinkel (2017).
[652] Madise & Vinkel (2017).
[653] Maurer (2016), 17.
[654] Madise & Vinkel (2017).
[655] OSCE/ODIHR (2016a), 3.
[656] OSCE/ODIHR (2016a), 9.
[657] Electoral Act (1992).
[658] OSCE/ODIHR (2016a), 9
[659] OSCE/ODIHR (2016a), 9
[660] Venice Commission (2002).
[661] The UK was selected over other countries that have the same modes of voting because of the ease of access to English-language sources.
[662] The Representation of the People Act 1983; the Representation of the People Act 1985; the Political Parties, Elections and Referendums Act 2000; the Electoral Administration Act 2006. Subordinate legislation is contained in the

include supplying false information when registering to vote, and election fraud offence,[663] including fraudulent application for a postal or proxy vote.[664] The law and mechanisms to deal with postal voting offences are the same as for normal voting.

In addition, the specific provisions relating to postal or proxy vote have generated numerous complaints and gathered significant media coverage surrounding the phenomenon of 'double voting'.[665] On at least one occasion this offence has been successfully prosecuted: an individual registered to vote twice at the same address, using a slightly different spelling of their name, and then voted both at a polling station and with a postal vote.[666] Another case saw election campaigners engaging in postal voting fraud, involving 'applying for ballot papers in names taken from the electoral role and filling them in. Ballots were intercepted and altered'.[667]

While the Electoral Commission is an independent body that oversees elections and regulates political finance in the UK, other bodies handle complaints and allegations in relation to electoral offences. Specifically, allegations of electoral fraud are made to the police.[668] No clear challenges were identified in the literature for effective application of the law, although the fact only one conviction has been made for 'double voting' (see above) suggests there may be evidential challenges associated with successfully bringing a case.

Any voter can challenge the result of a national election by submitting a petition to the Elections Petition Office.[669] Petitions are heard by Election Courts, which are similar in nature to the High Court. The Election Court's decision can be challenged through the process of judicial review.[670] Voters can only challenge local government elections in a group of four or more. A commissioner will be appointed to manage the complaint, review evidence and adjudicate. However, a challenge to issuing petitions may be the fees involved, currently GBP 528 to issue a petition and GBP 100 to apply for 'security for costs' for the cost of going to court, although eventual 'security for costs' fees could rise to a maximum of GBP 5,000 for a UK or European Parliamentary election.[671]

Conclusions

There are different types of legal frameworks of relevance to remote voting, and likewise different ways in which offences can be dealt with. At the EU level, there are no legal provisions specifically addressing the matter of remote voting, but given the wider principles of EU law, cases can be and have been brought to the ECJ on matters relating to remote voting. Member States are also under a non-binding duty to adhere to the Council of Europe's standards on e-voting.

At the Member State level, legal frameworks on electoral law range from those that specifically address remote voting issues (e.g. outlining e-voting offences in Estonia and postal 'double voting' in the UK) to those that cover more general electoral law offences that are nevertheless

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Representation of the People Regulations 1983 and 1986. European Elections are covered by relevant sections of the Act by virtue of Regulation 5(1) and Schedule 1 of the European Parliamentary Regulations 1986.
[663] Electoral Commission (2012).
[664] The European Parliamentary Regulations.
[665] Electoral Commission (2018d); see also BBC News (2018).
[666] Independent (2017).
[667] *Telegraph* (2005).
[668] https://www.electoralcommission.org.uk/find-information-by-subject/electoral-fraud/preventing-and-reporting-electoral-fraud
[669] See Part III of the Representation of the People Act 1983. Process further described in House of Commons (2015).
[670] House of Commons (2015).
[671] UK Government (2018b)

of relevance to remote voting (e.g. those that apply to mobile polling station voting in Ireland). In terms of the type of authorities handling the system, while courts in all three Member States hear criminal cases, the matter is more varied for civil cases. In Estonia, specific committees hear civil complaints in the first instance, whereas in Ireland the High Court hears electoral law matters, and in the UK dedicated Electoral Courts hear relevant petitions. No specific authorities were identified as being solely in charge of dealing with remote voting offences.

6.1.6 Data protection in remote voting

Background

During electoral processes several types of data about citizens are collected. This is necessary to compile the electoral rolls that will identify clearly which individuals have the right to vote. Moreover, special lists are usually drawn up to allow voters use a remote voting option. These are essential to avoid double voting. This case study focuses mainly on whether this data generated in connection with electoral processes could be used in a way that may harm the individual, and on whether there are provisions to avoid this. It is based on a review of key legislation at EU (i.e. GDPR) and Member State level, on documentation prepared by electoral authorities (e.g. British Electoral Commission), and on information provided by national public authorities, electoral offices and experts on electoral issues (through in-depth interviews or in writing).

This topic is particularly relevant in the current context in which a new regulation to protect the processing of data has been recently implemented across the EU. The 2016/679 General Data Protection Regulation (GDPR), enforceable since 25 May 2018 in all EU countries, strengthens the data protection of EU residents.[672] Under the GDPR, the processing of special categories of personal data (racial or ethnic origin, political opinions, religious or philosophical beliefs, trade union membership, data concerning health or sex life and sexual orientation, genetic data, biometric data) is generally prohibited unless one of the enumerated exemptions stated in the regulation apply (among others explicit consent, legal obligation and reasons of public interest).[673]

Electoral process

In order to be allowed to vote, it is necessary for eligible voters to be registered on the electoral roll. This usually includes the voter's name, address, ID number, nationality and age. Most European electoral regulations state that electoral rolls have to be updated and available for inspection by the different electoral authorities and authorised people.[674] However, the information on the electoral roll can be used for purposes not related to the electoral process. In the UK, for instance, councils maintain two versions of the electoral roll. The full version is used for voting records, identity checks and criminal investigations, but its distribution is very limited. The edited register, which contains the same information as the full version and includes all registered citizens unless they ask to opt-out, is available for sale to any person, organisation or company, including marketing firms that may use the data for commercial purposes.[675] Certain electors in the UK (e.g. domestic violence victims), who may have compelling reasons (e.g. safety reasons) for avoiding having their personal details appear in the electoral roll, are allowed to register as anonymous voters through a separate form.[676]

The GDPR includes the 'right to object'[677] to the processing of personal data regarding oneself at any time, according to the subjects' particular situation. It also includes the 'right to be

[672] https://www.eugdpr.org
[673] Article 9 GDPR (General Data Protection Regulation).
[674] For example, in Belgium, Cyprus, Estonia, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Malta, the Netherlands, Slovakia, Spain and the United Kingdom.
[675] https://ico.org.uk/your-data-matters/electoral-register/
[676] Electoral Commission (2018a).
[677] Article 21 GDPR.

forgotten',[678] which allows an individual to have personal data removed (if it is not needed for the purposes it was collected). However, these rights are not absolute, which means that they could be limited when the processing of data has a legitimate purpose that justifies the restriction, such as the need to maintain the electoral rolls.[679]

On the other hand, when dealing with electoral data, the principle of 'data minimisation' should be observed, which indicates that 'personal data shall be adequate, relevant and limited to what is necessary in relation to the purposes'.[680] Therefore, after an election, the organisers should evaluate if it is necessary to retain the data used during the process. Under the GDPR,[681] personal data can be stored for longer periods if that is in the public interest. This might include, for example, data related to old registers or to election results.[682]

The GDPR also addresses 'profiling', which refers to processing personal data to evaluate certain aspects about an individual and make predictions related to this person based on the characteristics of others who are statistically similar.[683] The GDPR allows this practice if transparency is respected, which means that controllers must explain to individuals, in a comprehensible way, how profiling and automated decisions work.[684] Profiling may allow political parties and other relevant players to gather key information about voters' preferences that could be used to guide their political strategy or to send personalised messages to voters. The GDPR recommends pseudonymisation of personal data to reduce the risk of personal identification of subjects and enhance privacy.[685]

Personal data and remote voting

Special electoral rolls compiled to prepare voting in hospitals and prisons[686] contain sensible data, as they give information on individuals' health status and criminal behaviour respectively. However, this information could also potentially put voters at risk if it was distributed. For example, it could hinder their future job opportunities. Therefore, it is essential to be extremely cautious with such data. Relevant provisions at the national level often pre-date the GDPR. For example, Danish electoral regulations allow a hospital to keep lists of voters when they are needed to ensure that all patients will be able to vote.[687] However, it provides that these electoral lists cannot be shared with unauthorised parties. In addition, they must be destroyed when the deadline for appeals has been reached and all complaints related to the election process have been solved.

In the past there have been incidents when electoral lists have fallen into unauthorised hands. For example, there was a case in Malta concerning data from the electoral lists for people in retirement homes and hospitals. The Information and Data Protection Commissioner reported complaints that voters were receiving unsolicited electoral messages from parties and candidates. As a response, the Office of the Information and Data Protection Commissioner warned the involved parties and candidates, stating that they would receive administrative fines

[678] Article 17 GDPR.
[679] Electoral Commission (2018b).
[680] Article 5.1 c GDPR.
[681] Article 5.1 e GDPR.
[682] Electoral Commission (2018b).
[683] Article 4.4 GDPR; Article 29 Data Protection Working Party (2017).
[684] Paragraphs 60 & 63 of the GDPR preamble.
[685] Article 6 & 32 GDPR; Paragraphs 26 and 156 of the GDPR preamble.
[686] Either by setting up special polling stations or using a mobile ballot box.
[687] Executive Order on postal voting in Hospitals, (BEK No. 1139 of 18/10/2017), chapter 7, Art. 19.

in the future if they persisted with this kind of behaviour. They stressed that personal consent forms are required to use the voting lists for these actions.[688]

Under UK electoral regulations, anyone related to the electoral process, such as elected representatives and political parties, can have copies of electoral lists and the records related to absent voting (which includes voting by post and by proxy). However, those organising the elections must keep track of who is provided with this data, to ensure that it is processed according to the law.[689] The Electoral Commission also states that it is important to have strong control mechanisms to detect potential mistakes and avoid data breaches.[690] It is important to note that, in compliance with the provisions of the GDPR, individuals can see personal data that is held about them. For example, postal voters in the UK may request to access their postal voting statement.[691] This could be useful first to be aware of the type of information that the public administration holds, and second to check that nobody has produced a fake postal voting application.

In Hungary, electoral legislation sets out a time limit for keeping the data of postal voters,[692] which would have a connection with the GDPR's principle of minimisation. Specifically, the provision states: 'the data in the register of postal voters shall be deleted on the working day after the ninetieth day after the day of voting'.[693] Moreover, when the National Election Office sends to a foreign representation the register of voters allowed to vote abroad, it must do so in a secure manner to ensure that only the election office at the foreign representation accesses this data.

Personal data and internet voting

Similarly to other voting options, internet voting makes use of electoral lists containing citizens' personal data. A peculiarity of internet voting is that these data may be stored in the same sever as the votes and, therefore, if security measures are not applied secrecy could be at risk. Estonia, the pioneer of internet voting in the EU, applies the principle of data minimisation. In accordance with Estonian legislation, the State Electoral Office has a duty to store electronic votes for one month after the election day (if a voter voted multiple times, only the last vote is kept[694]). Once this one-month period has passed and the final resolutions regarding any kind of complaints have been filed, the State Electoral Office has to destroy the electronic votes and all the personal data stored in the electronic voting system, along with the key for opening the electronic votes, in order to preserve the secrecy of the vote and protect the personal data and privacy of the voters.[695]

According to French legislation, an internet voting system must ensure the confidentiality of the data transmitted. In particular, the legislation refers to data related to files used to establish electoral lists, the generation of authentication credentials, the recording of voting and counting.[696] In Switzerland, voters' registers only include information necessary to identify voters' rights and can be consulted by each elector. Additional information specific to e-voting

[688] OSCE/ODIHR (2013b).
[689] Electoral Commission (2018c).
[690] Electoral Commission (2018b).
[691] Electoral Commission (2018b).
[692] According to the Act 36 of 2013 on the Electoral Procedure, Art. 109. The same provision applies for the data in the register of voters who requested mobile voting.
[693] Act 36 of 2013 on the Electoral Procedure. Art. 268.
[694] Information provided by the State Electoral Office.
[695] Article 77 of the Riigikogu Election Act.
[696] Election Europea (2017).

(codes) is only handled by authorised personnel following clearly regulated procedures.[697] During the UK internet voting pilots, commercial suppliers were required to delete the data from all servers used following the vote, although this was not witnessed by election officials and it was unclear how effectively this was performed.[698]

A common practice to reduce the chances of data misuse when a company is in charge of voting operations is to provide to the ICT provider a list of voters using ID numbers only. For instance, Scytl indicates that in order to guarantee privacy they do not manage personal data, but only random voter identifiers. Personal data are usually stored on a server in the country organising the elections and are only managed by the controller (i.e. the French government). In fact, the company indicates that, at least in those countries where they have operated, legal frameworks prohibit the hosting of the voting system in a datacentre outside their own territory.[699] Similarly, in some internet voting elections implemented by nVotes (e.g. with Podemos or the city of Madrid), the census and authentication was externally managed by the client and the company did not have access to any sensitive personal information.[700]

An interviewee from Universitat Rovira i Virgili who conducts research on electronic voting and electoral processes considered that no major issues have arisen to date concerning the protection of personal data during internet voting processes. According to him, stakeholders are aware that personal data should be protected and they are applying appropriate procedures.[701] For instance, if the private provider has access to the electoral census, it is required to sign the normal provisions related to data protection (now, in Europe, they will need to comply with the GDPR). For example, eBallot, a US-based provider of internet voting, claims that it complies with the GDPR and that participants can request their personal data is deleted. According to the company's privacy statement, data about eligible voters (e.g. name, address, phone number, e-mail, passwords, etc.) cannot be used for promotional or other purposes different than the voting service. Moreover, they indicate that data are retained only for the period needed and that employees are obliged to sign a non-disclosure agreement.[702]

Political parties are also increasingly using online voting for consultations and internal elections. An interviewee from the Northeastern University who conducts research on the use of decision-making platforms and applications in European political parties explained that this practice could increase the risk of profiling in the long-term, since patterns of voting in different voting events can be analysed (e.g. voting on confidence in the leadership of a party, primaries, voting to indicate on their opinions on different issues, etc.).[703] For example, tt may be risky if a party elite knows how their members vote, as this information could be used against them. If the data are anonymised, the risk to individuals is limited and the data could still prove useful for the party. However, the interviewee stressed that if data are used only by the party elite, they could use that data to strengthen their position in the party. He therefore considers that the data (not linked to specific party members/voter) should be 'socialised': it should be available to all

[697] Information provided by Ardita Driza Maurer, former director of the federal Internet voting project at the Swiss Federal Chancellery.
[698] Electoral Commission (2007a).
[699] Interview with Jordi Puiggalí, Scytl CSO.
[700] Input provided by Eduardo Robles, nVotes.
[701] Interview with Jordi Barrat, professor of constitutional law (Universitat Rovira i Virgili) and expert on electronic voting and electoral processes.
[702] https://www.eballot.com/terms-of-use; https://www.eballot.com/privacy; https://www.eballot.com/security
[703] Interview with Marco Deseriis, researcher on the use of decision-making platforms and applications in European political parties.

members and different factions of the party, so that they can analyse it and make their own interpretations.[704]

[704] Interview with Marco Deseriis, researcher on the use of decision-making platforms and applications in European political parties.

6.1.7 Cybersecurity

Background

Technology can be used throughout an election process, from administration of the electoral process to the actual submission of votes by voters. Technology-assisted voting is also sometimes referred to as electronic voting, and typically refers to one of three things: machine counting of votes, voting using a computer, or voting via the internet.[705] However, the use of technology in the voting process may also introduce vulnerability to cyberattack: an attack on the voting infrastructure, solutions, services or voter devices in order to disrupt, manipulate or otherwise illicitly affect the outcome.

Even without the active penetration of a network, remote voting options and electronic voting technologies may be particularly vulnerable to allegations of fraud due to the difficulty of observing the voting procedures and, in the case of electronic technologies, auditing the results. In this regard, in addition to adequate measures to guard against cyberattack, there is a need to balance the effective testing of a system to identify vulnerabilities with the need to avoid malicious actors taking advantage of public distrust in a system to undermine election results through perception manipulation.[706] This may be a careful balance to strike: in a roundtable of ICT experts organised by International IDEA, a point of disconnect emerged between EMBs and IT security experts, in which the former felt that the highlighting of security flaws undermined the necessary trust in the system, while IT experts felt that their concerns often went unaddressed without publicity.[707]

Below, we provide an overview of key cybersecurity concerns with regard to internet voting and the wider use of technology at different parts of the remote voting process.

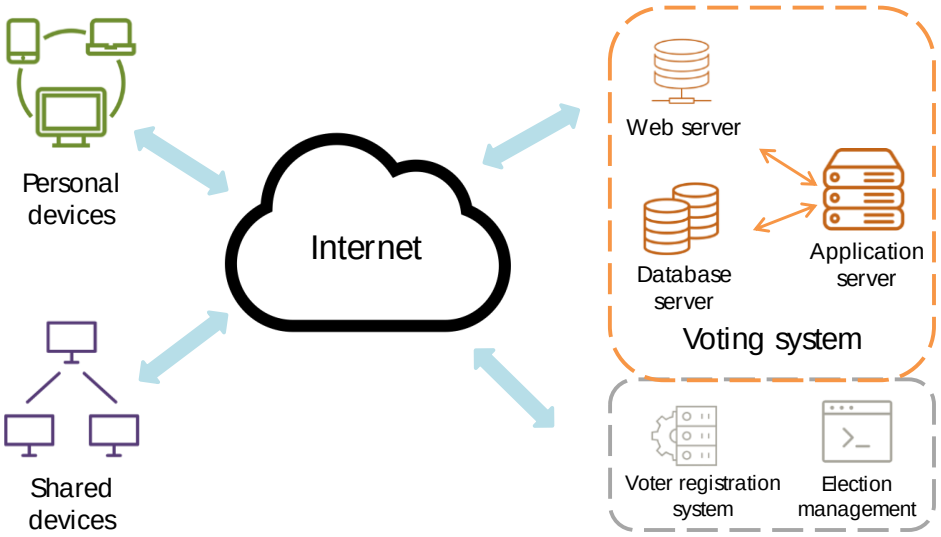
Internet voting

Internet voting can be performed in a number of ways, including kiosk internet voting, polling place internet voting, precinct internet voting and remote internet voting.[708] Each type is subject to cybersecurity concerns and risks, sometimes overlapping but sometimes unique. This case study is primarily focused on cybersecurity in relation to remote internet voting, where voting is performed from the voter's home or another location with internet access.[709]

While different remote internet voting systems are structured and run in different ways, most follow the same overarching high-level architecture, as illustrated in the following figure.

[705] Elections Canada (2014).
[706] Belfer Center (2018).
[707] Wolf (2017).
[708] Alvarez & Hall (2003).
[709] But not through an official polling station or voting kiosk.

Figure 13 Illustrative high-level architecture of a remote internet voting system



Source: Authors' elaboration based on Hastings et. al. (2011).

As illustrated in the figure above, most internet voting architectures comprise the following components:

- **Voter devices,** including home computers, public computers or mobile devices such as tablets or phones, which voters use to request, receive and cast their ballots. An important aspect to note in relation to remote internet voting is that the voter's platform is not under the control of the election authority and the latter is therefore unable to independently verify or test what security measures may be in place.
- **Web server,** which provides the user interface where voters interact with the remote electronic voting system.
- **Application server,** which comprises the services that the internet voting system offers (such as voter registration, ballot requests, ballot counting and statistics, generation of election reports, etc.). The application server has an indirect connection to the internet through the web server and often communicates with the election database and voter registration system.
- **Database server,** which stores and processes data generated by the application server and the internet voting system. The database server is typically not directly connected to the internet and access to the database typically goes through the application server.

An internet voting system will most likely also interact with a number of other hardware and software solutions to ensure system reliability and availability, which will be dependent on the wider IT infrastructure in which the voting system sits. However, all the components of any infrastructure, whether connected to the Internet or not, are subject to cybersecurity concerns and risks.

Risks in relation to remote internet voting can be structured against cybersecurity themes:

- **Confidentiality,** the act of keeping data private and restricted to only those who are authorised to use it (e.g. related to ballot secrecy and unauthorised disclosure of election data).

- **Integrity,** referring to maintaining the accuracy and trustworthiness of data (e.g. preventing election data or software being improperly modified).
- **Availability,** the ability to ensure that election systems and services are available to voters and election officials without disruption.
- **Identification and authentication,** referring to the processes of verifying and authorising users (e.g. voters, election officials, administrators, etc.) when accessing and using the internet voting system.

The table below presents an overview of cybersecurity risks to remote internet voting systems in relation to confidentiality, integrity, availability, identification and authentication. The table also contains illustrative threat examples of how these could these factors could be compromised.

Table 60 Overview of cybersecurity challenges for remote internet voting systems

Topic area	Challenges
Confidentiality	• Data breaches could result in loss of vote secrecy or disclosures of private voter data • Lack of vote secrecy can also cause vote coercion, which could scale and impact more voters compared to traditional vote coercion tactics • Poor confidentiality could also result in vote swapping or the emergence of markets for voting credentials, allowing fraudulent votes to be cast • Malware could also be used to compromise the confidentiality of information in both voter devices and the overarching internet voting system
Integrity	• Software bugs or other errors can threaten the integrity and accuracy of election data • Malware could also be placed on voter devices or the internet voting system to allow malicious actors to modify any data across the entire election life cycle
Availability	• Denial-of-service attacks or distributed denial-of-service attacks could render the system unreachable to voters or administrators • This could affect the overall election process but it could also be used to target particular geographic or voter segments • Malware placed on voter devices could also result in restricted availability to the internet voting system
Identification and authentication	• Erroneous issuing of credentials. Identification and authentication vulnerabilities could lead to unauthorised users gaining access to services they should not be able to use (e.g. casting votes for other users, malicious actor gaining administrative access, etc.) • Phishing or social engineering attacks. Internet voting also presents risks of credentials being stolen and misused through phishing or social engineering attacks, which could be widely deployed or used to target sensitive users (e.g. administrators) • Sale of credentials. Stolen credentials could result in markets for voting credentials that could motivate cybercrime actors to attack voting systems • Malware can also be used to either modify or evade identification and authentication processes in order to affect the confidentiality, integrity or availability of the internet voting system • Insider threats present a particular challenge in relation to privileged users that could use their access to either modify or pass on voter credentials to third parties

Source: Authors' elaboration based on Hastings et al. (2011), Elections Canada (2014).

Security measures

As noted in the previous section, online remote voting systems have to ensure that the system is secure and can meet expectations in terms of confidentiality, integrity, availability, and identification and authentication. The development and operations of an online remote voting system are very much an exercise in risk management and each system should be subject to a comprehensive risk assessment where relevant issues and appropriate remediation measures are identified. It is also important to note that risks need to be monitored and remediated across the system life cycle, as different stages of operation may present different types of risks.

An overview of the different types of security measures that could be considered in the deployment of an online remote voting system is presented in the following table, alongside illustrative examples of how this was done in practice in the New South Wales (Australia) iVote project.

Table 61 Overview of security measures implemented by the NSW iVote project

Measure	Example actions from the NSW iVote project
Software testing	The iVote project software testing included penetration testing (web application and interactive voice response system), source code review, cryptographic audit, and infrastructure security design (including processes, people and technology)[710]
Whole system testing	The security testing also included a review of the final software and hardware configuration, including functional and regression testing. A full end-to-end dress rehearsal, including the security key ceremony and all participants with a role in iVote, was also performed[711]
Documentation	Detailed documentation for each process of the election operations process was created, including for redundancy processes, close of poll and encryption ceremony procedures. A go-live checklist was also developed to monitor and action remaining tasks before live voting commenced[712]
Risk management	A consolidated risk log, including infrastructure risks, clearly outlining risks, their likelihood and likely impact and how each risk was being mitigated or accepted was developed.[713] The risk log was refreshed throughout the implementation process to ensure that risk management was up-to-date[714]
Incident management	An incident management policy and procedure were developed to ensure that appropriate action was to be taken in the case of a security incident. The policy detailed situations that may initiate an incident, a template format for incident reports, escalation and approvals processes. This policy was also shared with all third parties who provided iVote services[715]
Contingency plans	A detailed contingency plan was developed to cover a substantial incident or failure of the iVote system. The plan included: an identically configured test environment for testing purposes, a procedure for authorised breaking of the seals on the locked down system in order to reconfigure or apply fixes, details of processes to go-live with acceptance of issues that were not expected to affect the election, as well as processes for postponement of go-live to allow time to solve outstanding issues[716]
Lockdown process	A system lockdown process was developed that detailed steps to be taken to lock down access to the system during the election in order to prevent unauthorised access[717]

[710] PricewaterhouseCoopers (2011).
[711] PricewaterhouseCoopers (2015).
[712] PricewaterhouseCoopers (2015).
[713] PricewaterhouseCoopers (2011).
[714] PricewaterhouseCoopers (2015).
[715] PricewaterhouseCoopers (2015).
[716] PricewaterhouseCoopers (2015).
[717] PricewaterhouseCoopers (2015).

Measure	Example actions from the NSW iVote project
Monitoring and security controls	A number of security and monitor controls were put in place to safeguard the iVote system and operations, including: • A Secure Computing Platform, which included Web Application Firewalls and Distributed Denial-of-Service (DDoS) monitoring through a specialist third-party provider • A 24/7 Security Operations Centre (SOC) at the premises of a specialist third-party security provider, which provided daily updates to the NSW Election Commission • A Network Operations Centre (NOC) maintained by another third-party provider that monitored the iVote Core Voting System hosting environment[718]
System closing processes	Documentation for the system closing process was also developed. This comprised detailed instructions for each step of the closing process, including closing voting systems, closing ballot boxes, downloading of ballot boxes, transfer of ballot boxes to encrypted USB drives, vote cleansing, decryption, reporting, re-encryption and storage of votes

Source: authors' analysis

Technology in the remote voting process

In addition to internet voting, other forms of technology may be used in the remote voting process which could be vulnerable to attack or manipulation. These include:[719]

- **Voter database registration systems,** which hold data relating to the correct registration status of voters.
- **On-site voter verification systems,** such as the electronic system used in Lithuania to check that voters have not already voted at a different polling station.
- **Electronic voting machines** used in polling stations.
- **Vote tallying systems** used to count votes cast electronically or to scan paper inputs, such as the electronic scanning device used in the UK to match postal voting statement signatures to applications and flag anomalies.
- **Election reporting systems,** including e-mail or other forms of communication, which transmit vote totals to authorities for consolidation.
- **Internal communications systems,** such as intranets with information and instructions for polling station officials, and official e-mail and social media accounts used to issue instructions and information.
- **Public communications systems,** such as EMB websites and media sources, that disseminate election-related information (such as polling station opening hours, registration details and election results) to voters.

In all cases, relevant systems may be those of a third-party vendor, who may be directly providing the software (for example, a vote tallying system) or the associated infrastructure (for example, the hardware or cloud services). The following table provides an overview of some key issues relating to the various voting technologies.

[718] PricewaterhouseCoopers (2015).
[719] Based on Belfer Center (2018).

Table 62 Examples of potential vulnerabilities relating to technology used for remote and regular voting processes

Type of system	Example use in remote voting processes	Example threats	Example mitigation measures
Voter registration database	• General voter registration database • Dedicated register of remote voters	• Unauthorised access allows a malicious actor to manipulate voter registration; voters are able to vote multiple times or voters are unfairly restricted • Disclosure of personal data of voters	• Ensure all computers linking to the database are patched and updated • Ensure database server is not accessible over the public internet • Restrict the ability for external systems to write to the database • Monitor data changes against a baseline to identify anomalous edits • Limit employee privileges to necessary access only • Require two-factor identification for logging into databases • Make frequent backups of the data • Maintain appropriate system logs and ensure their long-term storage
Online voter registration systems	• General online voter registration database • Dedicated registration portal for remote voters	• Unauthorised access allows a malicious actor to manipulate voter registration; voters are able to vote multiple times or voters are unfairly restricted • Denial-of-service attacks prevent voter registration • 'Spoof' websites persuade voters to input sensitive personal data or prevent authentic registration	• Make sure websites utilise secure protocols (SSL) • Ensure that web server software is up to date • Restrict access to web hosting services and employ two-factor authentication for administrative accounts • Utilise DNSSEC to improve name server security • Prevent web servers from connecting directly to the associated voter registration database • Work with service providers to ensure adequate DDOS mitigation is in place • Ensure protocols are in place in case of DDOS attacks • Provide user awareness on how to spot illegitimate websites

Type of system	Example use in remote voting processes	Example threats	Example mitigation measures
On-site voter verification system	• Poll-site system to check voter has not previously voted at a separate polling station/by remote means	• Physical tampering allows manipulation of results • Unauthorised access allows illicit editing of voter records; voters are able to vote multiple times or voters are unfairly restricted • Network access enables unauthorised access to other election systems • 'Man in the middle attacks', in which vote results are intercepted when transmitted between devices	• Restrict functionality to only what is required and disable unnecessary features (particularly communication features such as wi-fi, bluetooth) • Restrict device to necessary software only • Physically disable or seal exposed USB ports or access points for removable media • Utilise tamper proof seals to indicate if machines have been opened or accessed • Utilise full disk encryption to prevent unauthorised access to data at rest and storage
Vote-casting device	• Electronic voting machines in use at advance or special polling stations	• Physical tampering allows manipulation of results • Illicit tampering via remote connections allows manipulation of results • Vote loss due to compromise of machine	• Consider use of voter-verified paper trail • Implement audits of election results • Isolate systems from wider network and restrict device functionality to necessary software only • Develop security policies and processes for transferring data from machines • Utilise encryption on the voting machines and for data transport
Vote-tallying device	• Optical ballot scanners • Device to scan and match voter identifiers to postal ballot (e.g. as used for UK postal ballots)	• Physical tampering allows manipulation of results • Illicit tampering or unauthorised access (e.g. through wi-fi/bluetooth) allows manipulation of results • 'Man in the middle attacks', in which vote results are intercepted when transmitted between devices	• Isolate systems from wider network and restrict device functionality to necessary software only • Time-limit and monitor connections to wider networks • Encrypt any transmissions from the device itself • Use two methods of transmitting vote totals (e.g. phone and electronic transmission)

Type of system	Example use in remote voting processes	Example threats	Example mitigation measures
Election night reporting system / wider media and public information websites	• Websites providing details of remote voting registration methods • Websites providing instructions for voting methods/polling station opening hours • Websites reporting results of elections • General news media websites providing election coverage	• Unauthorised access allows illicit editing or misinformation regarding voting processes or results • 'Man in the middle attacks', in which vote results are intercepted or edited when transmitted between devices • Denial-of-service attacks disrupt election processes	• Limit access and editing permissions to necessary staff only • Require two-factor identification for logging into social media, website content management systems or e-mail accounts • Keep websites and associated management software, plugins and analytics tools up-to-date • Work with service providers to ensure adequate DDOS mitigation is in place • Ensure protocols are in place in case of DDOS attacks or misinformation • Perform regular web security assessments of all websites and associated web applications • Monitor website for unusual traffic or access anomalies • Prepare contingency communication plans in case of misinformation • Audit results shown on public-facing election night reporting system with confirmed results • Conduct dedicated searches for false websites and social media accounts • Set up reporting mechanisms so that voters can report false information or websites
Internal websites	• Internal websites providing instructions to • E-mail accounts and other communication methods	• Illicit access allows attackers to issue incorrect instructions and guidance to election officials (e.g. to change voting hours, follow incorrect procedures) • Compromise of social media or e-mail accounts of key election officials enables attackers to spread misinformation or incorrect instructions to election staff	• Ensure that internal website software is up to date • Perform regular security assessments of websites and associated applications • Require two-factor identification for logging into social media, website content management systems or e-mail accounts • Require all internal communications to come from official accounts • Provide security awareness training to all staff to help prevent security incidents

Source: Authors' elaboration; based on Belfer Center (2018)

In addition to technology-specific risks, wider good practice that could be considered in relation to election technology cybersecurity as identified by the Harvard Belfer Center includes:

- Creating a proactive security culture within the organisation and in wider society to increase public confidence in system rigour and to proactively identify and report threats.
- Treating elections as an interconnected system, and in doing so recognising which associated systems (e.g. those of vendors or registration partners) may present points of access, where interdependencies exist, and who bears the responsibility for those risks and their mitigation.
- The use of comprehensive security and process audits to increase transparency and trust.
- Careful control and management of access, such as restricting election officials' access privileges to only those systems necessary for their work, including the use of multiple authentication methods (e.g. two or three-factor authentication).
- Prioritising and isolating sensitive systems, for example by restricting the use of other software, USB drives and other removable devices on sensitive voting devices and isolating it from wider wi-fi/bluetooth networks.
- Implementing 'one way, one use' policies for removable media devices to avoid spreading infections, mandate use of official removable media only and promote the use of encrypted removable media.
- Monitoring, logging and backing up of system, user and election data to identify anomalies and increase system resilience as well as facilitate forensic investigations in the case of an incident.
- Requiring strict security procedures for any vendors involved in the election process, for example as part of procurement procedures, which should include a life cycle focus (e.g. ensuring security across development, testing, deployment, operations and maintenance of products and services).
- Building public trust and organising response protocols for information campaigns.

The prospect of blockchain-based voting systems

In recent years, blockchain technology has received interest as a potential future enabling technology for an internet voting system.[720] The disruptive potential of blockchain, or the more all-encompassing term Distributed Ledger Technology (DLT),[721] is not limited to the financial sector, but shows promise in a wide range of industries and services, including public services. In light of this potential, the European Commission recently launched the EU Blockchain Observatory and Forum, aiming to stay at the forefront of this field.[722]

DLT/blockchain is used in storing and processing information onto a ledger that is not controlled by a central party,[723] but rather on a network of machines. This database is shared and

[720] See, for example, Boucher (2017); Boucher (2016); Desouza & Somvanshi (2018).
[721] Deshpande et al. (2017).
[722] European Commission (2018).
[723] The first and most prominent use of DLT/blockchain is the cryptocurrency Bitcoin. Due to the decentralised nature of the technology, cryptocurrencies remove the need for a bank in digital financial transactions.

synchronised across all parties, or nodes, in a decentralised network. Any transaction is given a cryptographic signature and can only take place through authentication by consensus of the other nodes in the network. In a 'blockchain', the transaction is stored in a 'block' and, after validation of the signature, added to the 'chain' of records. Illegitimate changes to the database will be recognised and rejected, protecting against any discrepancies between different versions of the ledger or against compromise of the entire system. As the blockchain is a single, shared and synchronised ledger, it provides a 'single source of truth'.[724]

In practice, a blockchain-based voting system might function by using, for example, a smart contract[725] linked to each individual voter on the registry.[726] All voters are allowed to make a single pre-set transaction during a certain time period, i.e. the casting of the vote in the time period set for the election using their unique key. Once the process is complete, the vote becomes a record on the blockchain with its own unique signature, rendering the process effectively irreversible. Tampering with the information inside the block would change the signature, which would be rejected by the other nodes in the network. In doing so, the system could in theory provide a clear and auditable record of all votes cast; prevent double-voting by verifying at the point of use that each vote 'identifier' has not been previously used; and, as any attacker would need to control >50% of the nodes in order to edit the data on the blockchain, increase the resilience of the system against manipulation or vote loss by preventing a single, central point of vulnerability.

Voting systems based on DLT/blockchain have thus far not been adopted in any general elections worldwide. However, there are some examples of pilot implementations in other voting environments, such as the Nasdaq's Tallinn exchange,[727] in Abu Dhabi's Securities Exchange[728] and in the primaries of the Republican Party in Utah.[729] Another DLT/blockchain-based voting system was used by a non-profit organisation during the 2016 Colombian Peace plebiscite among Colombian expats residing abroad who were not allowed to vote remotely from abroad.[730] Therefore, the vote only bore symbolic value, but the system underpinning the vote was considered a success technologically.[731]

However, amongst other issues relating to the scalability and operation of blockchain technology,[732] the immutability of the data stored on a blockchain also raises an issue relating to the appropriate storage of the electoral preference data, particularly with regard to preserving the secrecy of the electronic 'ballot' in light of advanced de-encryption techniques. The design of any future blockchain-based e-voting system would need to carefully consider the design of the system in order to balance the transparency and auditability benefits with obligations relating to ballot secrecy (for example by storing only the records of votes cast by unique identifiers to prevent double-voting, while storing the data relating to electoral preferences 'off-chain').

[724] See Deshpande et al. (2017).
[725] Digital contracts that are capable of monitoring, executing and enforcing an agreement. It is a piece of code by which nodes in the network decide whether the vote is legitimate, but also store it on the chain.
[726] For example, Shah, Kanchwala & Mi (n.d.).
[727] CCN (2017).
[728] Zawya (2016).
[729] Chepkasov (2017).
[730] http://plebiscitodigital.co/
[731] Van Ooijen (2017).
[732] See Deshpande et al. (2017) for a more extended discussion.

6.2 Specific groups

6.2.1 Remote voting solutions for people with disabilities

Background

The right of political participation for disabled people is enshrined in the UN Convention on the Rights of Persons with Disabilities (CRPD). It is also recognised in the European Disability Strategy 2010–2020, which addresses accessibility issues across Europe.[733] However, a large number of people in Europe continue to face obstacles to political participation on the grounds of their disability. According to the Academic Network of European Disability Experts (ANED), in 2015 more than 100 million people (25% of those aged 16 and older) in EU Member States living in private households had an activity limitation.[734] Around 31% of these (32.8 million) had a severe disability while the rest (69%) were moderately disabled.

Political participation

Based on existing literature as well as interview consultations, three broad types of challenges faced by voters with disabilities can be distinguished.[735] The first are legal barriers, which revolve around eligibility to vote. People with various types of disabilities frequently face restrictions on their right to vote, and they may also have to provide medical certificates or other administrative documents during their voter registration. Furthermore, the rules on eligibility vary across individual countries, meaning EU citizens with disabilities enjoy different degrees of protection, depending on where they live.[736] The second group of challenges relate to access to electoral information. This covers the accessibility of not only official documentation, such as information on the electoral system, where and how elections are held or the design of voting ballots, but also that of other important sources of information that can inform voters' choice, such as televised debates or party political programmes. And thirdly, voters with disabilities face barriers when exercising their right to vote, for instance by lacking appropriate support and assistance during the voting procedure or when trying to access polling stations.

Furthermore, the issue of accessibility faced by people with disabilities is more complex because of the different impairments that need to be taken into account (visual and hearing impairment, people with intellectual, cognitive or mobility problems, etc.).[737] For instance, according to Waldschmidt et al. (2013), people with intellectual or psycho-social problems face more accessibility problems than those with mobility and visual disability.[738] One EU NGO representative[739] noted that most accessibility solutions focus on people with mobility impairments, with comparatively less attention paid to preventing the exclusion of people with intellectual disabilities, blind people and others.

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[733] Office of the United Nations High Commissioner for Human Rights (OHCHR) (1966); European Commission (2010).
[734] As described in the EU SILC 2014 survey, this covers 'limitation in activities people usually do because of health problems for at least the past six months.'; Grammenos (2018), 15–16.
[735] See, for example, European Union Agency for Fundamental Rights (FRA) (2014).
[736] INT 1.
[737] Priestley et al. (2016).

[739] INT 2

The salience of barriers to political participation faced by people with disabilities is recognized by Member States and EU institutions and agencies alike. According to the European Union Agency for Fundamental Rights (FRA), Member States have made considerable progress regarding the political participation of people with disabilities by ratifying the CRPD and integrating it into national legislation and policies.[740] The European Parliament and other EU institutions continue their effort to end discrimination against people with disabilities, including by improving accessibility to voting.[741] The UN Committee recommended 'to enable all persons with all types of disabilities, including those under guardianship, to enjoy their right to vote and stand for election, by providing accessible communication and facilities' in the progress report on the implementation of the European Disability Strategy (2010–2020),[742] which focuses on eight policy areas, including accessibility, equality, employment, and participation among others.[743]

Declarations prepared by the Council of Europe's Venice Commission show further efforts to increase political participation of people with different kinds of disabilities and emphasises the relevance of the key principles of universal, equal, free and secret suffrage to people with disabilities.[744] At present, the European Economic and Social Committee is preparing a report on this area, anticipated to address issues including the key mismatch between rights and practicalities for voting on the ground.[745]

The FRA and ANED have developed indicators on the right to political participation of people with disabilities together with policy recommendations and progress reports relating to the implementation of Article 29 (Participation in political and public life)[746] of CRPD in all EU Member States. The indicators focus on four thematic areas and address the challenges already mentioned, such as: reducing legal and administrative obstacles, raising awareness, increasing accessibility and providing more opportunities for political participation.[747]

The remainder of this case study discusses how remote voting options may support the political participation of voters with disabilities. This discussion covers only situations in which people with disabilities would like to exercise their right to vote. As such, it leaves out of its scope issues surrounding the deprivation of the right to vote from people with disabilities, which is a major concern in its own right.[748]

Potential benefits offered by remote voting solutions

Remote voting options have been recognised as possible ways for people with disabilities to exercise their right to vote and mitigate the accessibility problem. To illustrate, a 2014 OHCHR report on the participation in political and public life by people with disabilities,[749] as well as the abovementioned FRA/ANED indicators that incorporated a measure of alternative ways of voting,

[740] European Union Agency for Fundamental Rights (FRA) (2014).
[741] European Parliament (2018a).
[742] http://ec.europa.eu/social/main.jsp?catId=1137
[743] European Commission (2010).
[744] Venice Commission (2011a), para II.1.2.
[745] European Economic and Social Committee (2017).
[746] European Commission Disability High Level Group (2016)
[747] http://fra.europa.eu/en/publication/2014/indicators-right-political-participation-people-disabilities#voting
[748] For more information about legal obstacles for persons with disabilities see ANED country reports on citizenship and political participation: https://www.disability-europe.net/theme/political-participation; FRA publications on the right to political participation: http://fra.europa.eu/en/project/2013/political-participation-persons-disabilities/publications; Priestley et al. (2016); Löve, Traustadóttir & Rice (2018).
[749] Office of the United Nations High Commissioner for Human Rights (OHCHR) (2011).

acknowledge the desirability of increasing the opportunities to vote by way of offering alternative voting options.[750] Similarly, advocacy organisations such as Inclusion Europe and its recommendations and good practices for accessible elections[751] emphasise the necessity of providing for alternative ways of voting to people with disability and elderly.

Utilising the categorisation of challenges discussed above, according to existing literature as well as interviewees consulted for this case study, remote voting solutions may be effective in addressing the third group, i.e. barriers faced when exercising the right to vote. The principle benefit that remote voting solutions offer lies in obviating the need to travel to polling stations. As such, remote voting solutions such as postal voting, advance voting or utilising a mobile ballot box can add value for those who face difficulties accessing their polling station in the process of casting their vote. These groups include, but are not limited to, individuals with mobility constraints, the elderly, as well as people living in institutions or remote areas.[752]

By contrast, remote voting solutions can offer comparatively little benefit in the remaining two areas where people with disabilities face challenges, i.e. legal constraints and access to information.

Furthermore, remote voting solutions should not be understood as a panacea and should not impact on people's abilities to enjoy traditional voting options. According to the Office of the United Nations High Commissioner for Human Rights (OHCHR)[753] as well as all interviewees, alternative ways of voting should not be used as a replacement for voting in person and should only be taken advantage of when normal voting options are exhausted.[754] Similarly, the availability of remote voting options should not come at the expense of efforts to ensure that standard voting processes are accessible and are not degraded. This includes both general concerns about accessibility arrangements when planning and running voting stations as well as the ability to make reasonable accommodations on an ad hoc basis for voters with disabilities exercising their rights. In other words, as one interviewee noted, it is important to ensure the options of traditional and remote voting represent equally good choices from the perspective of accessibility for people with disabilities.

Current remote voting provisions for people with disabilities in the EU

Alternative ways of voting for people with disabilities include various remote voting solutions that enable the casting of a vote in a location other than in the polling station. These can take the form of postal voting, internet voting, voting by proxy or utilising a mobile ballot box. All of these may be able to offer the flexibility that is needed to address the individual needs of disabled people.[755] The following table summarises the legal provisions for alternative ways of voting in EU Member States.

[750] http://fra.europa.eu/en/publication/2014/indicators-right-political-participation-people-disabilities#voting
[751] Inclusion Europe (2011a); Inclusion Europe (2011b).
[752] Inclusion Europe (2011b).
[753] Office of the United Nations High Commissioner for Human Rights (OHCHR) (2011).
[754] For instance, their study mentions that some jurisdictions allow persons with disabilities to vote from their car or at special polling stations if regular polling stations are not accessible. See also http://www.lwv-ms.org/Disabled_voters.html; http://elections.wi.gov/voters/accessibility/curbside-voting
[755] Inclusion Europe (2011a).

Table 63 Regulation for people with disabilities

Dedicated remote voting solutions for people with disabilities or health problems	No dedicated remote voting solutions for people with disabilities or health problems	
	Can vote using the same alternative methods as other voters	***Can only vote in polling stations***
BE, BG, CZ, DK, EE, FR, HU, HR, IE, IT, LV, MT, PL, PT, RO, SI, SK	AT, ES, DE, FI, LT, LU, NL, SE, UK	CY, EL

Source: Fundamental Rights Agency webpage dated 2014;[756] information for France found separately;[757] country fiches (see appendices).

Dedicated alternative ways of voting for people with disabilities exist in 16 Member States. A further 10 countries (AT, DE, DK, ES, FI, LT, LU, NL, SE, UK) offer remote voting solutions to all voters, which includes disabled people. Two countries (CY, EL) allow voting only in polling stations.

The main dedicated remote voting option available in many Member States to voters with disabilities is the use of a mobile ballot box or mobile polling stations. In this scenario, a ballot box is brought by members of the electoral committee to an institution or the person's residence to collect voter's ballots. Voting in mobile polling stations is available in 16 EU countries. Usually eligible voters are those with disabilities, the elderly or people with health issues. The main advantages of this remote voting solution are the increased access to voting for people with physical disabilities and the elderly,[758] and the flexibility of the mobile ballot box to reach various locations. Three interviewees particularly highlighted the benefits of this option,[759] stressing that people who live in institutions for years are very likely to face exclusion from social life. By extension, they seldom engage in civic activities and may not even be aware of ongoing elections or ways to participate. Therefore, the use of mobile ballot boxes could help people who reside in institutions to reduce their social isolation and take part in elections by casting their votes.

Member States that do not offer mobile ballot boxes (including BE, DE, ES, FR, LU, UK) may still allow voters to use other remote options (such as proxy or postal voting) to cast their vote. People with disabilities can vote by proxy only in six Member States (BE, FR, NL, PL, SE, UK). In Poland, voters with disabilities are the only group that is eligible to vote by proxy.

Since 2005 internet voting has been implemented in Estonia and has been piloted in other countries. As with other remote voting options, internet voting has been recognised as one way to support the participation of people with disabilities. For instance, the Greek party To Potami has proposed remote electronic voting for the centre-left primaries in order to facilitate the vote for people with disability.[760] One interviewee also noted the potential contribution of internet voting and highlighted its possible additional benefit. Assuming internet voting has been implemented in an accessible way (see discussion of possible challenges below), it limits the degree to which voters need to rely on third parties to help facilitate their vote (as is the case with proxy voting or may be the case with the management of residential institutions in the event of hosting a mobile ballot box). This subsequently limits the room for coercion or risks of irregularities to which voters with disabilities may be exposed.[761]

[756] http://fra.europa.eu/en/publication/2014/indicators-right-political-participation-people-disabilities/alternative-vote
[757] http://www.elections-legislatives.fr/en/voting.asp
[758] https://www.kiesraad.nl/verkiezingen/tweede-kamer/stemmen/kiezerspas
[759] INT 2; INT 3; INT 1.
[760] http://topotami.gr/i-protasi-mas-gia-diexagogi-ex-apostaseos-psifoforias/
[761] INT 4.

Voting by post, either within the country or from abroad, is available in 20 EU countries. Some countries (e.g. AT, IE, LU, PL, SI[762] and Northern Ireland) explicitly allow only disadvantaged groups such as people with disabilities to use postal voting. Postal voting provides a broader chance to vote and it is the only option to vote for some people. It is especially necessary in Belgium, due to the fact that voting is compulsory.[763] In Germany, postal voting has been implemented as a useful alternative for the sick and infirm and has become popular among all citizens.[764] Similarly, postal voting in the UK is perceived to be one of the most successful alternative ways for people with disabilities to vote.[765] Since 2000, returning officers at the local level are obliged to have large print ballot papers and guiding documents in various accessible formats available, as well as to use simpler terminology while explaining the voting procedures to visually impaired voters or those with learning difficulties.[766]

Member States often provide special equipment or allowances in regular polling stations to facilitate the act of voting by people with disabilities (such as Braille or large-print ballots). These options are sometimes available where applicable for remote in-person voting options, although not always for postal voting. To address this situation, some Member States (IE and SI[767]) offer voters with disabilities the option to vote at a different polling station if their specified site is inaccessible. One interviewee[768] expressed strong support for allowing voters with disabilities to vote at a polling station of their choosing, pointing out that despite best efforts to provide accessible conditions at every polling station, there will inevitably be differences among polling stations. Furthermore, the interviewee stressed that voters with disabilities may not find their assigned polling station the easiest to get to and would prefer traveling to a different, perhaps more distant but still more accessible location. In this context, the interviewee also noted that many voters with disabilities find coming in person to a polling station an important execution of their civic duty and potential source of pride, further making the case for allowing them greater flexibility with respect to which polling station they should use.

Challenges and considerations

Even though remote voting solutions can increase the political participation of people with disabilities, their implementation can give rise to a range of issues and challenges. First and foremost, as stressed by all interviewees, implemented remote solutions themselves need to be made accessible. Otherwise, any potential benefits of remote voting solutions offered to voters with disabilities would be negated. This reflects the fact that, as documented by existing evidence, people with disabilities continue to experience unique barriers when availing themselves of remote voting solutions. These may take the form of technical issues that may not be problematic for people without disabilities. To illustrate, a Scope survey in 2010 revealed that half of the people with disabilities who use postal voting in the UK have experienced some access and assistance problems (e.g. complicated ballot instructions) that replicated already existent voting barriers during the regular voting.[769] Similarly, during the internet voting pilot in

[762] However, voting by post from abroad is available to all eligible voters if they are permanently or temporarily abroad.
[763] INT 7.
[764] Roßmann (2017); Der Tagespiegel (2017).
[765] Scope (2010).
[766] Scope (2010).
[767] http://www.dvk-rs.si/index.php/en/where-and-how-to-vote/voting-at-polling-stations-with-disabled-access
[768] INT 4.
[769] INT 4.

Norway a qualitative study discovered that the voting procedures were not accessible for people with disabilities who use 'assistive technology and have other deficiencies'.[770]

Practical steps that could be taken to address this challenge include ensuring that postal ballots (and accompanying instructions) are available in Braille and large print, in plain language, or that the web interface used for i-voting complies with existing accessibility standards. For instance, according to the FRA report, people who have visual impairments can make use of internet voting by using 'JAWS screen reading software' which provides audio content and output in Braille.[771] Along similar lines, the usability of a mobile ballot box (e.g., in an institution) or a voting permit to allow voting at a more conveniently located polling station is substantially hampered if disability-related needs are not accommodated. As one interviewee put it: 'remote voting could be helpful only if it is accessible to all people with disabilities.'[772] Another interviewee[773] added that remote voting solutions could lack special assistance for people with intellectual disabilities which usually could be provided at a polling stations. In this regard, considerations surrounding accessibility and remote voting solutions extend beyond the casting of the vote. One interviewee[774] also stressed the importance of training social professionals, such as staff working in residential institutions, to provide the necessary assistance to people with intellectual disabilities during the voting process. The introduction of remote voting solutions also requires that information about what options are available and how to vote remotely is widely communicated in an accessible format.

Furthermore, some challenges may not uniquely affect voters with disabilities but may either be more pronounced or manifest themselves in a specific way. To illustrate, voter registration requirements associated with remote voting solutions (e.g. where justification is required to avail oneself of a remote voting solution) represent a potential obstacle to anybody interested in voting remotely but may be particularly impactful for people with disabilities. In this regard, the FRA and an interviewee[775] noted that the extra effort needed from people with disabilities due to registration requirements can be perceived as a form of indirect discrimination if adequate support is not provided.[776] Similarly, a study by Miller & Powell (2016) showed that the use of postal voting by people with disabilities depends on the extra efforts they need to make before acquiring the right to vote by post. The authors noted that extra requirements such as re-registration for each election and justification of the right to vote by post could lower the participation rate of disabled people who choose this option. A related issue might occur in UK and Belgium, where voters have to provide an attestation by a medical professional or a medical certificate[777] to vote by proxy; this may limit the scope of the practice.

Similarly, concerns over privacy and vote secrecy in connection with remote voting options have been well documented.[778] However, as stressed by interviewees, safeguarding the secrecy of votes cast by voters with disabilities may prove to be particularly challenging, for instance if they need to rely on assistance from a third person in filling out a postal ballot or casting their vote electronically. On a related note, several interviewees also mentioned the potential risk of voters with disabilities being intimidated or subjected to undue pressure when utilising remote

[770] Ministry of Local Government and Regional Development (2012).
[771] European Union Agency for Fundamental Rights (FRA) (2014).
[772] INT 6.
[773] INT 5.
[774] INT 3.
[775] INT 5.
[776] European Union Agency for Fundamental Rights (FRA) (2014).
[777] https://www.gov.uk/government/collections/proxy-voting-application-forms
[778] See, for example, Roßmann (2017); Unt et al. (2017).

voting solutions. For instance, three interviewees[779] noted that individuals living in institutions and care homes voting at a mobile polling station may be susceptible to pressure from service providers to vote a particular way. One interviewee also noted that voters using a proxy need to trust that the selected person will vote according to their preferences. Recognizing the associated risks, some countries have introduced limitations on the number of votes per proxy.

Underlying all the implementation considerations discussed above is the issue of awareness and information provision. As stressed by an interviewee,[780] public authorities need to raise awareness of the political participation of people with disabilities and individuals' rights. This includes information sharing among the general public, media, people with disabilities, as well as people living in institutions. Other interviewees[781] expressed a similar sentiment and noted that when facilitating remote voting solutions more information should be provided about how people with disabilities can make use of the voting procedures. This was underscored by another interviewee,[782] who noted that one of the biggest barriers for people with intellectual disabilities is a lack of information about the variety of remote voting solutions available to them. According to the interviewee, information needs to be disseminated in a holistic way and include detailed explanations of every step of the remote voting process. In this regard, in line with the considerations discussed at the beginning of this section, all awareness and guidance initiatives need to ensure that information is provided in an accessible format.

[779] INT 3.
[780] INT 2.
[781] INT 5; INT 4; INT 1.
[782] INT 3.

6.2.2 Voting for people of no fixed abode

Background

The International Covenant on Civil and Political Rights, signed by all Member States and most other countries in the world, secures the right of every citizen to vote in genuine, periodic elections, and by universal and equal suffrage.[783] People who do not have a residence at a fixed address registered with public authorities, i.e. of no fixed abode, enjoy this right as much as any other citizen. However, this group of people can face substantial obstacles in their efforts to participate in elections. They often lack the necessary formal documentation to prove their electoral eligibility, but even with their civic registration in order, participation in elections may be impeded by the lack of a registered address or due to limited mobility. As a consequence, in practice people of no fixed abode often end up excluded from electoral processes.

Two prominent groups that can be considered to be of no fixed abode are the homeless and certain parts of the Roma, Sinti, Gypsy and Traveller communities (henceforward Roma)[784] that still live a nomadic life or lack civil registration. There are numerous and considerable differences between these groups, but they face some similar challenges with respect to participation in elections. Correspondingly, the potential benefits of remote voting solutions can therefore also be considered rather similar as well.

There are no accurate estimates of the number of homeless people residing in the EU, although homelessness is thought to be on the rise in all but one EU Member State (FI).[785] Similarly, the number of Roma residing in the EU is hard to establish.[786] The European Commission uses an estimate of about 6 million, noting that most of them are citizens of one of the Member States.[787] Since a large majority of Roma has abandoned nomadic life, the share of Roma that has no fixed abode is considered to be small.[788]

Challenges faced by people of no fixed abode

Based on existing literature as well as interviews conducted for this case study, three broad categories of challenges faced by people of no fixed abode pertaining to their electoral participation can be distinguished. Each type is discussed in greater detail in turn below.

Access to citizenship and electoral rights. The ability to acquire and possess citizenship is fundamental to electoral participation. Roma as well as homeless people who have arrived in a Member States as refugees often lack citizenship or another form of legal status, blocking their access to electoral rights and other forms of public services. Moreover, lack of citizenship also impedes feelings of being part of the society as a whole. In general elections, naturalisation

[783] https://www.equalityhumanrights.com/en/our-human-rights-work/monitoring-and-promoting-un-treaties/international-covenant-civil-and
[784] This approach mirrors that of the European Commission: 'The term Roma encompasses diverse groups, including Roma, Gypsies, Travellers, Manouches, Ashkali, Sinti and Boyash. Roma is the term commonly used in EU policy documents and discussions'; https://ec.europa.eu/info/policies/justice-and-fundamental-rights/combatting-discrimination/roma-and-eu/roma-integration-eu-countries_en
[785] Abbé Pierre Foundation – Feantsa (2018). For instance, in 2016, there were 860,000 homeless persons in Germany alone. However, this total includes a large number of refugees.
[786] European Union Agency for Fundamental Rights (FRA) (2009).
[787] https://ec.europa.eu/info/policies/justice-and-fundamental-rights/combatting-discrimination/roma-and-eu/roma-integration-eu-countries_en
[788] INT 1.

remains the only route to full participation. However, it is very common that people of no fixed abode do not make it through the entire bureaucratic process.[789] This has a domino effect on their access to many civil, political, economic and social rights, including electoral rights.[790]

Access to citizenship is not only key to integration; it is a 'necessary precondition' to acquire the right to vote.[791] An interviewee offered an example from Italy of how this challenge may manifest itself.[792] As recalled by the interviewee, in Italy there is a Sinti community who are allowed to vote and a Roma community that is not. The key difference is that the Sinti are originally from Italy and the Roma community sought refuge and asylum in Italy after the Yugoslav Wars. Because many of them did not have or bring Yugoslav passports, they were considered stateless. Despite having arrived two decades ago, these people have never been granted a legal status that would allow them to participate in general elections. Similar situations exist in other Member States.

Logistical challenges. People of no fixed abode who are eligible to vote are faced with a barrier to participation in elections that defines them as a group: their lack of a fixed address. Electoral systems are built on voter registries in which voters are linked to fixed places. The absence of a fixed address may therefore hamper the ability to register for elections. Furthermore, voting documents and guiding information are sent to personal addresses, with only some exceptions.[793] In those Member States where voting is possible without a permanent address, there might still be a lack of awareness about these arrangements amongst eligible voters. This is either because no information is provided, or because it does not reach them.

Another issue is the generally very limited mobility of people of no fixed abode. Polling stations are set up in such a way as to serve the voters where they are registered. This is problematic for homeless people who may be expected to vote in the municipality where they had their last address, which could in practice be a distant polling station. Similarly, Roma often live in very peripheral areas, potentially making the journey to a polling station long, expensive and burdensome. In addition, producing the required identification documents or remembering any (e)ID number can also be problematic.[794]

Sociocultural barriers. Beyond acquiring citizenship and issues related to the lack of a fixed address, people of no fixed abode often lack information about elections, political developments and voter registration procedures and experience the latter as too complex.[795] In addition, many people of no fixed abode harbour a degree of distrust towards public authorities and tend to avoid encounters with elections officials.[796] Participation in elections is also low due to a general disinterest in the political process, itself partly due to a perception of being left out.[797] This in turn feeds into low attention from politicians and candidates. Because of the generally poor socio-economic status of this group, they are also particularly vulnerable to crime, violence and discrimination. The situation is further exacerbated for those who are illiterate, unemployed and uneducated. Social isolation and, in the case of the Roma, spatial segregation further complicate civic participation. For all these reasons, as one interviewee highlighted, political participation

[789] INT 1.
[790] European Union Agency for Fundamental Rights (FRA) (2009)
[791] Bekaj & Antara (2018), 26.
[792] INT 5.
[793] Examples include the UK's 'Declaration of Local Connection', where people of no fixed abode can register in a particular municipality by using a local address, for example a homeless outreach centre or a designated Traveller's site; or Hungary allowing persons of no fixed abode to vote by post in Parliamentary elections.
[794] INT 2.
[795] European Union Agency for Fundamental Rights (FRA) (2009).
[796] INT 2.
[797] INT 3.

may not be high on the list of priorities of people of no fixed abode.[798] In instances where they do engage with public services and participate in civic activities, access to other services such as schooling or healthcare may be more pressing. On the subject of the social barriers faced by people of no fixed abode, one interviewee noted there were differences between Member States regarding the severity of the problem.[799] According to the interviewee, Member States with more accessible systems to people coming from a disadvantaged or illiterate community (e.g. DE) tend to do better in terms of inclusion and electoral participation of marginalised groups, such as people of no fixed abode.

Potential value of remote voting solutions for people of no fixed abode

Remote voting solutions may represent an opportunity to address some of the challenges discussed in the section above, although by no means all of them. Interviewees noted that remote voting solutions cannot help with issues related to establishing one's right to vote and may offer only limited value with respect to voter registration. By contrast, issues considered most likely to benefit from the introduction of remote voting solutions revolve around the limited mobility of people of no fixed abode as well as the process of casting a vote.

Mobile ballot box. When considering the relative utility of various remote voting solutions, four interviewees highlighted the desirability of enabling voting in or near the community where people of no fixed abode live.[800] One way to achieve this would be the introduction of a mobile ballot box/mobile polling station, which would visit areas with high populations of people of no fixed abode or specialised institutions such as homeless shelters. The use of mobile ballot boxes in homeless shelters would be akin to the use of a mobile ballot box in some EU Member States, which facilitates voting by residents of institutions such as hospitals or long-term care homes. One interviewee offered an example of an initiative from Denmark where local authorities organise an election bus in consultation with relevant community organisations. The bus travels to preselected neighbourhoods and locations with the objective of enabling people of no fixed abode to vote aboard the bus. Another modality (also used in Denmark) is to use the bus to offer people of no fixed abode a ride to a polling station. This shuttle service is not strictly speaking a form of remote voting, as it still requires people to cast their votes at a polling station, but may nevertheless address mobility limitations. Another interviewee also considered that the use of a mobile ballot box may be of particular interest to people residing in peripheral rural areas, such as some members of the Roma community.[801]

Opening any polling station to people of no fixed abode. Another option recommended by an interviewee is to remove restrictions on which polling stations people are required to vote in, enabling individuals to vote at any official polling station of their choosing.[802] This would have the same effect as voting permits implemented in some EU Member States, through which people are allowed to vote in locations other than their assigned polling station. However, voters typically need to apply in advance to be allowed to use this option. According to the option recommended by the interviewee, the ability to vote in any polling station should not be contingent on any prior application or place-specific registration. This would address two challenges faced by people of no fixed abode: firstly, it would help the situation in which people

[798] INT 3.
[799] INT 5.
[800] INT 1; INT 2; INT 5; INT 6.
[801] INT 1.
[802] INT 2.

of no fixed abode are registered to vote in a district they are unable to travel to (e.g. due to previous periods of residence); secondly, disposing of the requirement to apply to use an alternative polling station would remove a notable administrative barrier.

Internet voting. A third remote voting option highlighted by interviewees was internet voting. The benefit of this option lies in obviating the need to travel to a polling station. Instead, voters could cast their vote from any electronic device. In this regard, one interviewee suggested computers in a public library as a possible mechanism, noting, however, potential difficulties in securing access.[803] Another interviewee noted that at least some people of no fixed abode possess and use smart mobile phones, which could be used as voting devices.[804] At the same time, interviewees also identified several drawbacks to the utility of e-voting in this context. Firstly, numerous people of no fixed abode, including those within Roma communities, continue to lack access to electricity and electronic devices and may not have sufficient literacy skills to use i-voting. Furthermore, i-voting schemes may not be helpful if they require specific verification mechanisms such as an electronic ID, which people of no fixed abode may not have or could have difficulties obtaining. One interviewee noted that internet voting may be of greater value to travelling people as opposed to the homeless, for whom non-electronic options (such as the two discussed above) may be more helpful.[805]

Interviewees were comparatively more sceptical about two further potential forms of remote voting and their utility for people of no fixed abode. Perhaps unsurprisingly, postal voting was not considered of great use due to the need to be able to receive voting materials, for which a postal address is presumably required. As with e-voting, literacy may also be an obstacle to greater uptake of postal voting. Interviewees also expressed reservations about voting by proxy, primarily due to potential difficulties with ensuring the vote is free (as discussed in the next section), as well as due to possible logistical difficulties around receiving necessary voting documentation.

Challenges posed by remote voting solutions for people of no fixed abode

When assessing the potential added value associated with remote voting solutions for people of no fixed abode, interviewees also highlighted several implementation considerations and challenges. These can be broadly divided into two groups: (1) considerations surrounding awareness raising and provision of information; (2) potential challenges to free, fair and secret elections.

Awareness raising. With respect to awareness raising, all interviewees agreed that equipping voters with necessary information remains one of the largest challenges in supporting the political participation of individuals of no fixed abode. Interviewees suggested two potential ways the role of remote voting solutions could manifest itself in the area of information provision. Firstly, two interviewees stressed that ensuring individuals' understanding of the electoral process and associated tools is crucial for any successful rollout of remote voting solutions.[806] For that reason, the introduction of remote voting solutions would require that potential users of no fixed abode receive all necessary information in a way that is accessible and understandable. As such, remote voting solutions place additional demands on voting authorities

[803] INT 2.
[804] INT 3.
[805] INT 4.
[806] INT 1; INT 4.

and their information duties. At the same time, the introduction of remote voting solutions and associated engagement and awareness initiatives may result in positive spillovers into other areas of people's civic participation (e.g. individuals' greater engagement with social services).[807] Ultimately, one interviewee suggested that in an ideal scenario, awareness-raising would work in a two-stage approach. As one prong, efforts would be made to empower people of no fixed abode and foster their sense of participation in the political process. In a parallel prong, stakeholders working with people of no fixed abode would work to raise awareness among policy-makers (particularly at the local level), raising the profile of the issue on the political agenda.

Secondly, one interviewee suggested the internet as a potential vehicle for information dissemination and engagement.[808] Relatedly, two interviewees noted a trend of growing use of smartphones among this population and suggested that they may be a useful mechanism to reach at least some potential voters.[809] In this context, one interviewee pointed out that people of no fixed abode increasingly use social media to read news and collect information, which could again be used as a vehicle to disseminate electoral information.[810] At the same time, one interviewee stressed that numerous people of no fixed abode, particularly those most vulnerable, and with serious mental and health issues, do not have smartphones, and so other forms of communication would continue to be necessary.[811] Another interviewee pointed out issues surrounding literacy and computer literacy as possible obstacles.[812] One interviewee shared thoughts on potential ways to engage with members of the Roma and travelling communities with no firm address.[813] The interviewee pointed out that communities on the move tend to have in their midst individuals charged with various aspects of their mobile operations (e.g. logistics, contacts with local authorities and the police). Engaging these people as well as other key individuals such as heads of families and other decision-makers may be instrumental in reaching out to the target communities. In addition, the interviewee noted the use of cultural facilitators[814] in many ongoing social projects involving the Roma community and suggested that a similar approach may be useful in the context of remote voting and electoral participation in general. Lastly, the interviewee warned that the proliferation of programmes and projects involving Roma communities may give rise to something akin to a respondent fatigue and decreased empathy towards innovative initiatives related to civic participation. This may limit the responsiveness of various communities to public outreach efforts.

Voting irregularities. Two interviewees offered comments on the potential risks of voting irregularities faced by voters of no fixed abode. According to the interviewees, in some contexts it may be difficult to safeguard that votes are free of undue pressure. For instance, one interviewee noted that due to the organisational structure of some Roma communities, voting decisions may be made by families or community leaders, jeopardising the ability of individuals to express their own preferences.[815] Another interviewee mentioned that vote-buying remains a concern in some Roma communities and contexts. The extent of the phenomenon is difficult to ascertain, though one interviewee observed that very poor Roma communities in Central and

[807] INT 1.
[808] INT 6.
[809] INT 2; INT 3.
[810] INT 2.
[811] INT 3.
[812] INT 6.
[813] INT 1.
[814] For example, professionally trained mediators who are knowledgeable on both the community and the processes one needs to go through to access public services, including civil registration, housing, employment, healthcare and political participation.
[815] INT 1.

Eastern European Member States are particularly targeted.[816] Another interviewee also suggested that in some communities women may be actively discouraged by their male family members from engaging in various public processes including elections.[817]

Similarly, other groups of people of no fixed abode may be susceptible to voting manipulations in the form of vote-buying or other forms of pressure. For instance, beneficiaries of services targeting people of no fixed abode (such as inhabitants of homeless shelters) may be perceived to be compelled to vote in a certain way, regardless of whether this is the case in reality.

These considerations prompted several interviewees to express reservations towards the use of some remote voting solutions. In particular, this was the case with proxy voting, which was perceived as carrying a comparatively high risk of voting irregularities. Similar concerns, albeit to a smaller degree, were also highlighted in connection with e-voting, with interviewees questioning the feasibility of guarding against manipulations, as well as with the use of a mobile ballot box. Specifically, with respect to the latter, one interviewee stressed that precautions and arrangements surrounding the logistics of the mobile ballot box would need to be taken to protect vulnerable individuals from any forms of intimidation.[818]

[816] INT 5.
[817] INT 4.
[818] INT 1.

6.3 Internet voting experiences

6.3.1 Internet voting in Estonia

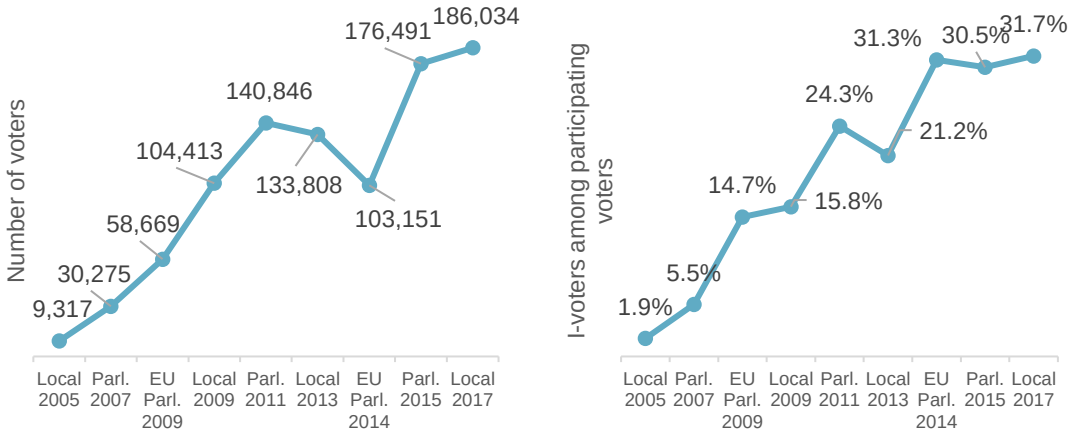
Background

This case study describes the experience of the only EU country that offers internet voting in all its elections and for all its citizens: Estonia. It has been developed by reviewing Estonian electoral legislation (Riigikogu Election Act), relevant literature and information provided by the Estonian authorities (the Estonian National Electoral Committee, the State Electoral Office, and the Estonian Information System Authority).

Implementation

Several countries have implemented and conducted internet voting trials in binding public elections, including the United Kingdom, Switzerland and the United States. However, Estonia is the only country in the world where internet voting is available for all local, national and European elections. Estonia introduced internet voting in 2005. Since then, the country has had nine elections in which electors could vote online. In 2005, 9,317 people submitted their ballot online, representing only 1.9% of voters. However, the number of e-voters has increased over time, and almost one third of participants chose this option in the last parliamentary and local elections (30.5% and 31.7% respectively).

Figure 14 Dynamics of e-voting in Estonia, 2005–2015



Source: Vassil et al. (2016) and Valimised (State Electoral Office).

The main driver behind the implementation of internet voting was to offer an additional voting channel in order to increase voters' convenience.[819] Internet voters are not bound to specific time schedules and can vote at the time that best suits them. Internet voting can also facilitate voting procedures for people living and working abroad. In this regard, in Estonia internet voting has been used as a remote voting option both within the country and from abroad.

Moreover, the implementation of internet voting in Estonia was facilitated by a tradition of e-enabled services. According to the EU eGovernment Report of 2016,[820] Estonia has a leading

[819] Solvak & Vassil (2016).
[820] European Commission (2016a).

position in eGovernment and in the UN E-Government Survey of the same year, Estonia ranked 13th in the world and 7th in Europe in the E-Government Development Index (EGDI). The country was the only middle income and former Soviet republic to rank this high. Internet banking was introduced in Estonia in 1996 and online tax declarations since 2000. These different online services provided by both public and private sectors have contributed to the positive Estonian attitude towards online services.

The technology provider for the e-voting software was selected via public procurement in 2004. Of the three tenders submitted, the offer of AS Cybernetica was selected.[821]

The voting process

Internet voting is currently available in Estonia 24 hours a day from the 10th day (at 9.00 a.m.) to the 4th day (at 6.00 p.m) before election day.[822] It takes place in advance, in order to have time to eliminate double votes.[823]

The State Electoral Office is responsible for ensuring a smooth internet voting procedure: the internet voting system is ready no later than 13 days before the election and creates the encryption key for electronic votes and the vote-opening key.[824] To be able to vote online, voters need to do download the Voter Application on their PC. This can be obtained from the website of the State Electoral Office (valimised.ee).[825] The system is in Estonian, but user manuals are available also in Russian and English. In addition, the system supports the visually impaired by using voice interfaces.

Prior to submitting their votes, citizens need to identify themselves. This can be done by using either an electronic ID-card, which is compulsory for all Estonian residents, a Digital ID or a mobile-ID. In the first case, the voter needs an ID card with PIN codes, a smart card reader, and ID card software. Voters insert the ID card into the card reader, open the State Electoral Office website, download and run the Voter Application, and identify themselves by entering the first (PIN1) code. The process is similar when using a Digital ID (which allows identification in the electronic environment and gives a digital signature). With the mobile-ID method, no card reader is required – voters only need a smartphone and a special mobile-ID SIM card. Once the voter application is running, voters enter their mobile phone number and they receive a (PIN1) code by SMS. They enter this code in the application to identify themselves.[826] If the program detects that the voter has already submitted a ballot, they are notified, but can vote again to replace the previous vote. If the voter does not have the right to vote, an error message is displayed.[827]

Once their eligibility is verified, voters see and select the candidates in their voting district.[828] Then, a second security step is applied (which mimics the two-envelope step of postal voting). The Voter Application encrypts the vote and a random number is generated by the computer with the elections-specific public key (this would correspond to the inner envelope). Afterwards, the voter signs the encrypted vote with a digital signature (outer envelope). The signature is

[821] Madise, Vinkel & Maaten (2006).
[822] Riigikogu Election Act, Art. 38.
[823] https://www.valimised.ee/en/internet-voting/internet-voting-estonia
[824] Riigikogu Election Act, Art. 48^3
[825] https://www.valimised.ee/en/internet-voting/internet-voting-estonia
[826] https://www.valimised.ee/en/internet-voting/internet-voting-estonia
[827] https://www.valimised.ee/et/e-h%C3%A4%C3%A4letamine/korduma-kippuvad-k%C3%BCsimused-kkk
[828] Riigikogu Election Act, Art. 48^4.

inserted by entering a PIN2 code associated with the ID card or entering in the mobile phone a second code voters receive by SMS.[829]

A notice screen informs voters that the vote has been accepted. The encrypted votes end up in the central server system that gathers all votes in the **i-ballot box**.[830] The server is maintained by the State Informatics Authority (RIA). Votes are then sent to the Registration Service in the State Electoral Office, which registers and confirms each encrypted and signed vote.

Before counting, the State Electoral Office anonymises the votes by removing the personal digital signatures. Votes are decrypted using the vote-opening key (private key). This key is split between the members of the National Electoral Committee, meaning that the presence of all the members is required to open the votes. The opening and counting of votes takes place in an off-line environment after 7.00 p.m. on election day.[831]

The Estonian system provides three types of verifiability:[832]

1. Individual verifiability allows voters to check that their vote has been successfully received and recorded in the i-ballot box by downloading the **Verification Application** into a smart device with camera and scanning the QR-code displayed by the Voter Application.
2. Delegated verifiability is performed by an external CISA-certified IT Auditor selected by National Electoral Committee. The Auditor evaluates the integrity of the i-ballot box, the annulment of repeated votes, the votes' anonymisation, and the counting process.
3. Public/universal verifiability is available to those who wish to oversee the i-voting process. Special courses are offered to teach how the system works and what elements should be checked during oversight.

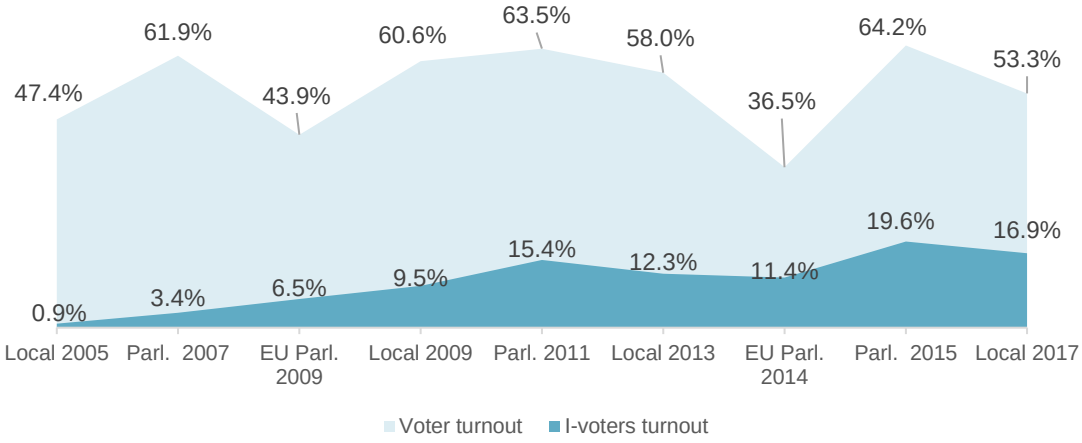
These verifications can detect whether malware has infected the voter's PC.[833] If the government has evidence that i-voting has been hacked or altered, it can cancel the electronic vote and invite voters to vote again on election day.[834] If an attack is discovered later than election day, there is the option of cancelling the election and calling a new one.

Benefits, drawbacks and outcomes

The figure below reports the turnout rates of the last elections. Internet voters' turnout rates grew from 1% to almost 20% in 2015 (but fell slightly in 2017).

[829] https://www.valimised.ee/en/internet-voting/internet-voting-estonia; https://www.valimised.ee/et/e-h%C3%A4%C3%A4letamine/korduma-kippuvad-k%C3%BCsimused-kkk
[830] https://www.valimised.ee/en/internet-voting/internet-voting-estonia; State Electoral Office of Estonia (2017).
[831] Riigikogu Election Act (2002), Art. 60^1. State Electoral Office of Estonia (2017); https://www.valimised.ee/en/internet-voting/internet-voting-estonia
[832] State Electoral Office of Estonia (2017).
[833] https://www.valimised.ee/en/internet-voting/internet-voting-estonia
[834] State Electoral Office of Estonia (2017).

Figure 15 Turnout rates



Source: Valimised (State Electoral Office).

In relative terms, the proportion of internet votes has increased considerably, from 1.9% in the 2005 local elections to a 31.7% in 2017. In the elections to the national parliament, it has grown from 5.5% (2007) to 30.5% (2015), and in the European elections from 14.7% (2009) to 31.3% (2014). The increase in internet voters is even more striking if we only consider advance voters (see Table 64), with the share growing from 7% in 2005 to 61% in 2017. Of all the internet votes cast, 2% were cast from abroad from 51 countries in 2007, growing to 5.7% from 116 countries in 2015, showing the increasing diffusion of internet voting among people voting from abroad. In fact, the use of internet voting exceeds the use of ballot papers among those voting from abroad. In the 2015 parliamentary elections, 68.7% of voters abroad used internet voting.[835] Use of mobile-ID is also growing since its introduction. From 2011 to 2015 the percentage of internet voting carried out using mobile-ID grew from 2% to 24% (see Table 64).

Internet voting, in general, is deemed to offer increased convenience compared to traditional ballot box voting. A common argument is that internet voting substantially reduces voters' costs for casting a vote. According to Vassil (2015), paper voting in Estonia is 16 times more time consuming than submitting a vote online, and Estonians living further away from polling locations are more likely to use this method (the probability is 50% or higher if they live at least 31 minutes away). Likewise, voting online avoids time spent queuing, eliminates difficulties related to finding the correct polling station, and reduces weather-related barriers.[836] At the same time, voting online requires some basic computer skills as well as some tools as summarised in the previous section (i.e. computer, smartphone, card reader, etc.). According to Vassil, people who start to vote online are likely to continue to do so in the future.

Vassil (2015) indicates that internet voting can increase turnout, or at least prevent its decline. Solvak & Vassil (2016) observe an increase in turnout after the introduction of internet voting but underline that it is not easy to establish causality. Bochsler (2010) notes that instead of attracting new voters, internet voting has simply offered a new channel to already active voters. To conclude, it seems that internet voting attracts mainly people already voting by other means. At the same time, internet voting eases accessibility for some voters who are willing to vote but encounter some difficulties or barriers, but it does not act on key factors related to abstention such as political disillusionment or lack of political interest.[837]

[835] National Electoral Committee (2016).
[836] Alvarez, Hall & Trechsel (2009).
[837] Vassil et al. (2016).

There are concerns that some socio-economic groups may benefit from internet voting more than others. However, Madise & Vinkel (2014) indicate that internet voting does not favour the well-educated young urban population. They add that computer skills and trust are predictors of internet voting use. Nevertheless, Vassil (2015) finds that after three elections with an active internet voting channel, it is not possible to identify a typical internet voter, as age, level of education and computer literacy do not affect the probability of voting online.

In addition, it is important to stress that if some people have difficulties using the i-voting system or do not feel comfortable doing so (e.g. because voting takes place in an uncontrolled environment), they can simply decide to vote at a polling station.

On the other hand, some computer security experts have voiced concerns. An independent evaluation of Estonia's internet voting system conducted by cybersecurity researchers at the University of Michigan identified two key potential vulnerabilities that could allow the manipulation of vote totals by a state-backed actor.[838] The authors indicated that the system was vulnerable to attacks both on voters' computers and on the central server. Human procedural gaps in security were also found, including:

- Observing election officials downloading key software over unsecured connections.
- Typing passwords in view of video cameras.
- Use of unsecure personal computers and USB sticks.

The analysis concluded that the Estonian e-voting system is not safe enough against attack to ensure transparency, and recommended that the Estonian government should discontinue the use of its internet voting system.[839] Simons & Jones (2012) point out that the Estonian system suffered a denial-of-service attack in 2007 and that it is unable to protect voters' computers from malware. However, the Estonian National Electoral Committee contradicted the independent evaluation and indicated that the manipulation of results described there could not be successfully performed. Moreover, it explained that the internet voting system has passed several tests and that it has enough safeguards to identify potential attacks.[840] For example, tests were performed on the system introduced last year. The Estonian Information System Authority[841] explains that these tests found some problems, which were addressed, but that it did not identify critical flaws. This body performs regular monitoring of the IT-system and publishes each year a Cyber Security Assessment, in which incidents are reported. In 2017, more than half (61%) of the incidents handled were related to malware.[842] To avoid these issues, the Estonian State Electoral Office advises that voters should have reliable anti-virus software installed on their computer as well as the latest digital signature software.[843]

[838] Springall et al. (2014).
[839] Springall et al. (2014).
[840] Trechsel et al. (2016).
[841] Estonian Information System Authority (2018).
[842] Estonian Information System Authority (2018).
[843] https://www.valimised.ee/en/internet-voting/internet-voting-estonia

Table 64 General statistics about internet voting in Estonia

	Local 2005	Parliamentary 2007	EU Parl. 2009	Local 2009	Parliamentary 2011	Local 2013	EU Parl. 2014	Parliamentary 2015	Local 2017
Eligible voters	1,059,292	897,243	909,628	1,094,317	913,346	1,086,935	902,873	899,793	1,100,647
Participating voters	502,504	555,463	399,181	662,813	580,264	630,050	329,766	577,910	586,519
Voter turnout	**47.40%**	**61.90%**	**43.90%**	**60.60%**	**63.50%**	**58.0%**	**36.50%**	**64.20%**	**53.30%**
I-voters	9,317	30,275	58,669	104,413	140,846	133,808	103,151	176,491	186,034
I-voters among eligible voters	**0.90%**	**3.40%**	**6.50%**	**9.50%**	**15.40%**	**12.3%**	**11.40%**	**19.60%**	**16.90%**
I-voters among participating voters	**1.90%**	**5.50%**	**14.70%**	**15.80%**	**24.30%**	**21.2%**	**31.30%**	**30.50%**	**31.70%**
I-votes among advance votes	**7.20%**	**17.60%**	**45.40%**	**44%**	**56.40%**	**50.5%**	**59.20%**	**59.60%**	**60.60%**
I-votes cast abroad among I-votes (based on IP-address)[844]	n/a	**2%**	**3%**	**2.8%**	**3.90%**	**4.20%**	**4.69%**	**5.71%**	**4.10%**
		51 states	66 states	82 states	105 states	105 states	98 states	116 states	115 states
I-voting period	3 days	3 days	7 days	7 days	7 days	7 days	7 days	7 days	7 days
I-voters voting via mobile-ID	n/a	n/a	n/a	n/a	2,690	11,753	11,609	22,084	44,211
Mobile-ID I-votes among all I-votes	n/a	n/a	n/a	n/a	**1.90%**	**8.6%**	**11.00%**	**12.20%**	**23.80%**

Source: Valimised (State Electoral Office)[845]

[844] In local elections, voters permanently residing abroad are not eligible for voting
[845] https://www.valimised.ee/en/archive/statistics-about-internet-voting-estonia

6.3.2 Internet voting in France

Background

France is one of the few countries in which internet voting has been used in binding national political elections – the system was available for voters from abroad in the 2012 legislative elections.[846] Several months before the following legislative election in 2017, the government announced its decision to suspend the use of internet voting. This decision was made upon recommendation from the national information system security institute (Agence Nationale de la Sécurité des Systèmes d'Information, hereafter ANSSI), given the high risk of cyberattack.[847]

The objective of this case study is to review the experience of the use of internet voting in France in 2012, understand the decision not to use it in 2017 and discuss the future of internet voting in the country.

This case study is based on information collected through desk/online review, including regulatory documents, as well as data and information from authorities involved in the organisation of elections and participation of French citizens abroad. It is also based on four interviews with key informants (Competent authorities,[848] a researcher, a representative of the industry and an expert in the legal framework around the organisation and operations of internet voting). Three out of four interviewees requested not to be named nor recorded, therefore none of the interviewees will be named. These interviews complement an interview with the national statistics agency (Institut National de la Statistique et des Études Économiques – INSEE) undertaken in preparation for the French country profile.

French people living abroad and remote voting

Over 1.8 million French people are registered in French consulate services as living abroad, but since registration is not mandatory it is estimated that the number is higher – between 2 and 2.5 million people.[849] Of these, two thirds are of voting age. In 2017, over 1.25 million French people were registered to vote from abroad.[850] However, only around 15–20% of these voted in the different elections organised that year (legislative and presidential).

Turnout has traditionally been an issue among French people living abroad, even in presidential elections, which are the national elections in which overall participation is usually the highest. Since 2002, the participation rate of French people living abroad for presidential elections has consistently been around half the overall participation rate. The situation is worse for elections in which participation is traditionally low overall. For the last European elections in 2014, the participation rate of French living abroad (11%) was around four times lower than for the overall electorate (42.4%). For these elections, voting at a polling station and using proxies are the only remote voting solutions offered to French voters abroad.

[846] Elections of representatives at the Lower House (*Assemblée Nationale*).
[847] https://www.diplomatie.gouv.fr/fr/services-aux-citoyens/actualites/article/francais-de-l-etranger-modalites-de-vote-aux-elections-legislatives-06-03-17
[848] Ministère des Affaires étrangères, Ministère de l'intérieur, ANSSI.
[849] On 31 December 2017; https://www.diplomatie.gouv.fr/fr/services-aux-citoyens/inscription-consulaire-registre-des-francais-etablis-hors-de-france/
[850] https://www.diplomatie.gouv.fr/IMG/xls/results_legislatives2017t2_avec_vpc_cle0c22f6.xls

Despite the democratic issue of low participation, the organisation of elections for French people living abroad raises both institutional and financial questions. While French citizens should have the opportunity to use their right to vote effectively, wherever they live, a balance should be found between the costs and benefits of offering new and additional remote voting solutions. In terms of benefits, those in favour of using more and better remote voting solutions claim that these would increase participation. However, there is no evidence that this would be the case. In terms of costs, the French Court of Auditors has estimated that the organisation of elections for French people living abroad cost EUR 34 million between 2011 and 2014; during this period of time were organised legislative and presidential elections (2012) and consular elections and representatives for French citizens abroad (2014).[851] The Court of Auditors estimates that the cost of organising elections abroad is three times higher than for elections in France. For presidential and legislative elections combined, the cost of organising the elections is on average EUR 7.45 per voter from France against EUR 20.50 per expat voter. The cost of organising elections for voters from abroad rises to EUR 40.60 for European elections.

Increasing participation of French people abroad is also a political opportunity. This group represented 2.7% of the electorate in 2017. It has traditionally been assumed that they vote for the Republican Party (democratic right),[852] and it is true that French voters abroad have consistently voted for the candidate of the Republican Party in the second round of the presidential elections since 1981, in most cases against the candidate of the Socialist party (democratic left). In 2002 and 2017, when the candidate of the far-right party (*Front National*) was in the second round of the presidential election, French nationals living abroad voted massively in favour of their opponent: 91.7% of votes for Jacques Chirac against Jean-Marie Le Pen in 2002 (against 82.2% in the whole country). In 2017, 89.3% of French nationals living abroad voted for Emmanuel Macron (against 66.1% for the whole country). However, in the 2012 legislative elections French voters living abroad elected primarily Socialist representatives (7 out of 11 – the others being three from the Republican Party and one Ecologist). Thus, overall, French voters living abroad tend to be as unpredictable as the rest of the electorate in France.

The size of the abstention pool among French people living abroad is also an opportunity. French *abstentionistes* abroad represented 1.1% of the total electorate in 2017 and although it is uncertain how these people would vote, bringing them to the polls could make a difference in an election.

Tentative explanations of why the participation of French nationals living abroad is so low mainly relate to the imbalance between their interest in the elections and the effort it takes for them to express their vote. Issues reported include: (1) distance between place of residence and the special polling stations organised by consulates and embassies (this distance can be particularly great in countries such as Russia, the United States and Canada), meaning voting involves a long and expensive trip; (2) issues with organising polling stations abroad in some countries, and waiting time at polling stations (reportedly three hours waiting time in Canada in 2017); (3) issues with postal voting, for instance voting documentation that does not reach the voter in time or delays in the delivery of the ballots to the administration; (4) issues with proxy voting, with principals not being able to find a reliable proxy in their constituency.

French voters abroad have several remote voting solutions available. For all elections, they can vote from polling stations at the consulate or at other locations in their country of residence, including using a proxy. For legislative and consular elections they can also use postal voting

[851] Court of Auditors (2016).
[852] https://www.interieur.gouv.fr/fr/Elections/Les-resultats

(*vote par correspondance*) and internet voting (*vote par correspondance électronique*). Internet voting has been introduced in elections for French people living abroad to facilitate participation, in particular in cases where postal voting may be unreliable because of the performance of the postal service.

Internet voting experiences in France

Elections of representatives of French people living abroad. Internet voting has been used for French people living abroad to elect their representative in the Upper House (*Sénat – Conseil supérieur des Francais de l'étranger* – CSFE, now *Assemblée des Francais de l'Etranger* – AFE) since 2003, first trialled only in the United States, then expanded in 2006 and extended to all in 2009. Internet voting was used for election of consulate representatives (*elections consulaires*) for the first time in 2014, as a replacement for vote by post, which had traditionally been offered to French voters abroad.[853] Internet voting was therefore one of three voting options for French voters abroad, together with voting at a polling station and proxy voting. Participation in these elections was low (16.5%), and 43% of voters voted online. This number is relatively high given the context of these elections, which took place at the same time as European elections for which internet voting was not available. Those who wanted to vote for both elections could use internet voting only for the consular elections and had to use other means for the European elections.

Legislative elections 2012. Internet voting was used for the first time in a national election context in 2012, and was available only for French nationals living abroad. Legislative elections take place every five years to elect the representatives of people in the Lower House (*Assemblée Nationale*). French Members of Parliament (*Députés*) are elected directly, using a majority uninominal, two-round system.

Participation in legislative elections is also an issue. Overall turnout has decreased since 1993 (by around two thirds) to reach 55% in 2012 and, for the first time, there was a participation rate under 50% in the 2017 legislative elections (48.7% in the first round and 42.6% in the second round).[854] Legislative elections typically attract fewer voters than the election of the Head of State (*elections présidentielles*), for which turnout is usually around 75%. This is particularly the case because from 2002 the legislative and presidential elections take place only a few months apart.

The 2012 legislative elections were the first for which French people living abroad elected representatives of the French community abroad (*représentants des français établis hors de France*) to the Lower House. Prior to 2012, French people living abroad voted for representatives (*Députés*) in the constituency in which they were (still) registered in France.

In the 2012 legislative elections, internet voting was one of the four voting options available for French voters registered abroad, alongside proxy voting, postal voting and voting in person at a polling station abroad. Participation was low at just over 20% for each of the two election rounds.[855] During the first round, 57% of the overseas votes were cast electronically using the internet, against 41% at a polling station and 2% by post.[856] The use of internet voting ranged

[853] Loi 2013-659 of 22 July 2013 introduces internet voting and revokes postal voting from elections of representatives of French living abroad.
[854] https://www.interieur.gouv.fr/Elections/Les-resultats/Legislatives/elecresult__LG2012/(path)/LG2012/FE.html
[855] Senat (2013).
[856] Saint-Paul (2013).

from 30% of voters in the second round in the Eastern Africa/Middle East constituency to almost 80% voters in the first round in the Northern Europe constituency.[857]

The French internet voting experience. There is no consensus about whether the elections described above were a success or not. On the take up front, the number of voters who used internet voting when it was offered shows the success of internet voting as a remote voting solution. However, participation of French nationals living abroad remained low and in line with participation in legislative elections for which internet voting was not available. We looked for, but did not find, evidence that internet voting in the context of these elections affected participation: even if the participation rate decreased by four percentage points among French voters abroad, it also decreased for the entire voting population. Moreover, nothing indicates that those who voted online in 2012 would not have voted otherwise, or that those who did not vote in elections in which internet voting was not available would have voted if internet voting were available. In the context of the French elections in which electors vote from abroad, there is no evidence that internet voting increases participation. However, as highlighted by the Court of Auditors in 2016,[858] internet voting represents an opportunity that is worth further exploring, since it may reduce the cost of organising elections without affecting participation.

To our knowledge, there is no publicly available evaluation or review of the use of internet voting in the 2012 legislative elections. Academic research on this topic is also scarce. When asked about why this was the case, an interviewee reported that that there is great interest in the research community to undertake research about this experience but that there was not sufficient information and publicly available or accessible data for researchers around this topic. This was raised as an issue with regard to the transparency of the internet voting system in France.

Technical and operational issues relating to internet voting – both in the French legislative elections in 2012 and the consular elections in 2014 – were reported. While these issues were acknowledged by the public authorities in charge of the organisation of the election, the service provider in charge of developing and implementing the system, the research community and voters from abroad themselves all called for a revision and improvement of the system rather than for suspending or suppressing internet voting as a remote voting solution for French people living abroad. These issues are reported in a 2015 report from the Upper House.[859] This report also states that an expansion of internet voting in the future can be foreseen, and their recommendations focus on how best to organise it in the near term – with the 2017 legislative elections in mind – and its expansion in the long term. Recommendations include strengthening the role of the internet voting controller (*Bureau de Vote Electronique*). While acknowledging these issues, the Court of Auditors reported in 2016 that the external system audits undertaken in 2012 did not reveal any serious issue.[860]

Discussion about using internet voting for the 2017 legislative elections

The Electoral Code (*Code Electoral*) that regulates the organisation of elections in France states that French people living abroad and registered on the electoral list at a consulate may use internet voting for legislative elections. However, since 2017, the Code also specifies that the Minister in charge of Foreign Affairs, after consulting the ANSSI (not binding) may decide to

[857] Scytl (n.d.).
[858] Court of Auditors (2016).
[859] Anziani & Lefèvre (2014).
[860] Court of Auditors (2016).

suspend the use of internet voting if, given the results of a system audit or given the 'circumstances of the election', the secrecy (*secret du vote*) and verifiability/reliability (*sincérite du scrutin*) of the vote cannot be guaranteed.

Several months before they were due to take place, the Ministry in charge of Foreign Affairs (*Ministère de l'Europe et des Affaires Étrangères*) announced its decision not to use internet voting for the 2017 legislative elections. The challenge faced by authorities is to find the right balance between securing the secrecy and reliability of the elections and facilitating access to vote to the electorate. There is little publicly available information about the rationale for the Ministry's decision. Interviewees reported that, to their knowledge, the decision was influenced by revelations of Russian hacking and other manipulation during the recent US elections (and also in the UK before the Brexit vote). According to interviewees, the extent to which the existence of this threat justified the suspension of internet voting in France is debateable. They noted that threats – if not similar but equivalent – existed in 2012 and did not lead to the suspension of the plan to use internet voting. Some also pointed out that there is no way to plan for the kind of threats that we will face in the future. As is widely accepted in the internet voting stakeholders' community and highlighted in the 2016 Court of Auditors report, there is no way to ensure that any voting system is 100% secure.[861]

The use of internet voting in France has depended on a balance between the political will to support the system and the acceptance of risks linked to its use. While internet voting was supported by all successive governments to some extent between 2003 and 2017, interviewees perceived that until 2012, the willingness to support a new, innovative remote voting solution outweighed the risk it entailed, while after 2012 and until 2017, the risk outweighed the benefits. While interviewees acknowledged that the threat was higher in 2017 than in 2012, they also pointed out that, to their knowledge, the internet voting system in place in 2017 was also better protected against attacks.

The future of internet voting in France

The use of internet voting in 2017 was only suspended, not permanently removed from the remote voting options available to French voters living abroad. Given the regulatory framework in place, the next elections in which internet voting could be used are the 2020 consular elections and the 2022 legislative elections, unless unanticipated elections are organised before that.

When asked about whether it is likely that internet voting will be used in these upcoming elections, interviewees responded that, to their knowledge, nothing indicates that it could not be the case. At the same time, they pointed out that there is no way to predict the type of cybersecurity threats that elections will face in two to four years' time, and that the same could have been said about the 2017 elections back in 2013 or 2015.

On 8 June 2018, when speaking to French people living in Montreal in Canada, President Emmanuel Macron reiterated his intention to support internet voting 'mainly' for French voters living abroad.[862] The French President announced the expansion of internet voting 'hopefully' for the next European elections in 2019 and 'for sure' for the 2022 presidential elections. This is in line with Macron's presidential programme, which promised to introduce internet voting for the presidential elections, and reinforce it for the legislative and consular elections.[863] The

[861] Court of Auditors (2016).
[862] Video available at: http://www.elysee.fr/videos/new-video-313/ (minute 1.25)
[863] En Marche (2018), Objective 3.

programme also specifies that this will be done with the objective of increasing participation and while ensuring security. These two dimensions and the lack of evidence or certainty surrounding them have been discussed elsewhere in this report, and we should therefore consider this campaign promise with caution.

This is not the first time that a plan to expand the use of internet voting in France has been considered. Despite the lack of evidence about the effect of internet voting on turnout, in 2014 a report from a representative in the Lower House proposed to extend the use of internet voting to European and national polls (presidential elections and referendums), but this proposal was not taken forward.[864] Discussion which followed – including comments from its originator and other Representatives – recommended that internet voting should either be expanded to all elections for French nationals living abroad or, if there were doubts about its reliability, removed as an option entirely.

[864] Verchère (2014).

6.3.3 UK e-voting pilots

Background

Under the UK Representation of the People Act 2000, local government bodies can submit proposals to the UK government to carry out electoral pilot schemes for local elections.[865] Schemes can focus on different aspects of voting, including e-voting. To date, the Act has been relied on for a series of e-voting pilots in 2002, 2003 and 2007,[866] in addition to pilots focusing on advance voting, all-postal voting and voter identification mechanisms. The latest e-voting pilot, in 2007, took place in local elections in five UK local authorities.[867] This case study considers the background of the pilots, what went well and less well, and outlines learning points for future similar trials.

We researched this case study principally by analysing evaluation reports on each of the five e-voting pilot schemes carried out in 2007. For each site we obtained reports for both the technical evaluation and the Electoral Commission's evaluation (any reports not available online were obtained by speaking directly with the Electoral Commission). In addition, we conducted a Google search focusing on key search terms (and snowballing from them) on 'UK pilot e-voting'. The pilot evaluation reports outlined information on a number of areas including management, technology, security and cost. We analysed these reports and present our findings below, grouping them under issues relating firstly to substantive e-voting matters, and secondly to the pilots more specifically.

Aside from the South Bucks pilot, which focused on e-counting, the pilots all trialled e-voting, including both internet and telephone options. The UK Electoral Commission commissioned evaluations of all five pilots and produced a summary of its findings in August 2007. As set out in the following table, the stated objectives of the pilots varied, but (South Bucks aside) all emphasised the importance of accessibility.

[865] Representation of the People Act 2000.
[866] Olivier-Wright & White (2008).
[867] Note: by 'e-voting' we refer to the category within the 2007 pilot scheme relating to 'remote electronic voting services (internet & telephone)'. See Olivier-Wright & White (2008).

Table 65 Pilot objectives

Cities	Objectives
Shrewsbury and Atcham[868]	Building on previous pilots by assessing key factors, including accessibility, security, patterns of usage and take-up, new innovations and efficiencies
Swindon[869]	Deliver a secure, accessible and successful election. More specifically, to deliver to time and to budget, to offer citizens an improved voting process, to enhance social inclusion and improve accessibility, to assess the impact of pre-registration, to investigate the security and improve mechanisms to detect electoral fraud, develop and improve processes, design solutions to support elections on a large scale, create cost effective solutions, learn and share lessons, and raise the UK's profile as a leader in electoral modernisation
Rushmoor[870]	Increase voter choice, increase voter turnout by increasing the opportunities to vote and to raise awareness, improve security, build confidence, facilitate voting amongst hard to reach groups, and assess the practicality of integration of an e-voting channel with existing systems and processes
South Bucks[871]	To reduce the time taken completing the count on election night, and to address the manpower challenges associated with that
Sheffield City[872]	To ensure that a secure, accessible and successful election is achieved, to test its security and operation, to adapt a new postal vote security requirement to the e-voting context, to test the impact of pre-registration, to ensure that voting options are accessible, to pave the way for the expansion of future e-voting innovations, and to evaluate feedback from voters

Results of the pilot

The Electoral Commission commissioned evaluations of all five pilots, and produced a summary of its findings in August 2007:[873]

- Online voting was considered **more convenient for voters,** but there were some issues with usability due to the design of the interface.
- Electors were **more likely to vote electronically** on polling day than in advance where this was available.
- Data, albeit limited, suggested e-voting **increased likelihood of voting for only 25–30% of electors**. Pre-registration did not necessarily result in e-voting; for example, in the Sheffield City site 66% of registrants did not vote electronically.
- Electors using internet voting **gave good feedback**, with 87% describing the process as easy and that they would like to see the system continued. The Electoral Commission found that there was 'broad but not universal public acceptance of the internet channel… however, a high risk that the confidence of the public could be significantly eroded as a result of the lack of quality assurance and transparency'.[874]

The report also included key findings on aspects of the pilot management and electoral system design:

[868] Actica Consulting (2007b).
[869] Actica Consulting (2007c).
[870] Actica Consulting (2007d).
[871] Ovum Consulting (2007).
[872] Electoral Commission (2007c); Actica Consulting (2007a).
[873] Electoral Commission (2007b).
[874] Electoral Commission (2007b), 7.

- The pilots were not well managed in some cases, and **insufficient timescales** meant there was not enough time for the design, development and testing of the software.
- There was a limited degree of **quality management**, including inappropriate quality and testing arrangements. The lack of 'effective planning, testing and quality management' at the pilots resulted in higher risk than necessary, and the 'relative success of the delivery of the pilots… was due to the efforts of individual local authorities and their suppliers, combined with good luck.'[875]
- The **level of security** was not as high as for other government IT projects, and best practice in security governance **was not followed**. As a result, the level of risk of a security incident was significantly high.
- Even with best practice security methods, there were **still risks that could have been addressed** with countermeasures in the pilots but were not. These include 'the compromise of voting devices… by viruses… attacks by people with privileged access to the system… denial-of-service attacks… trading of votes, which is a particular concern for e-votes due to the relative ease with which voting credentials can be exchanged'.[876]
- There was **limited transparency of operations** and this varied across sites (e.g. no verifiable checkpoints or audit trails).
- **Suppliers of the voting solution** varied in how they complied with security requirements. No proof was obtained of the **deletion of data** by the suppliers.
- Pre-registration was not done electronically, but on hard paper copies, meaning the **manual processing of registrations was time-consuming**.
- A significant number of electors **forgot their log-in details**. Those who pre-registered and wanted to vote in person could do so at a polling station, but there were technical issues with doing this in at least one site.
- **Cost and value for money** varied significantly between the different sites.

Effectiveness and risks to effectiveness

As outlined in Table 66, the pilots were effective in delivering the principal results intended, in terms of services trialled. However, across all sites, the main risk identified related to timescales being too short. The lack of time for different aspects of the e-voting trials meant that there were clear risks for effective development, testing and implementation of the e-voting solutions. In addition to these risks, as outlined above, a key issue associated with the pilots related to security and fraud prevention mechanisms, which were found to be at an insufficient level.

[875] Electoral Commission (2007b), 8–9.
[876] Electoral Commission (2007b), 8.

Table 66 Successes and risks

	Shrewsbury and Atcham[877]	Swindon[878]	Rushmoor[879]	South Bucks[880]	Sheffield City[881]
Effectiveness of service	Service available as advertised	Service available as advertised	Service available as advertised	Technology facilitated the count and led to few staff being required	Service available as advertised
Main risk to effectiveness	Short timescale available for design, development and implementation	Extremely short timescales, which affected development, testing and deployment / implementation	Short timescale available for design, development and implementation	Software problems delayed results but did not prevent them	Compressed timescale for the design, development and implementation of the e-voting system

Costs and value for money

The evaluation reports for the 2007 pilots reveal a wide range of results relating to costs, as shown in Table 67. Total costs for a pilot ranged from GBP 257,648 in South Bucks to GBP 1,185,423 in Swindon. However, it should be taken into account that the Swindon pilot generated approximately five times as many votes as in South Bucks. A similarly wide range of results is evident for the percentage of voters voting electronically. This ranged from 3.43% of voters in Sheffield City to 24.1% of voters in Swindon. Sheffield City's technical evaluation report addressed its particularly low turnout, commenting that 'Given the relatively low take up of the e-voting channels this would tend to suggest that the pilot did not represent particularly good value for money.'[882] In sum, the figures show a great deal of divergence in the different pilots' value for money. It should be noted, when considering the value for money of all pilots, that 'Should the system be reused and/or shared across linked councils then all cost would be expected to be substantially reduced.'[883]

[877] Actica Consulting (2007b).
[878] Actica Consulting (2007c).
[879] Actica Consulting (2007d).
[880] Ovum Consulting (2007).
[881] Actica Consulting (2007a).
[882] Actica Consulting (2007a).
[883] Actica Consulting (2007b).

Table 67 Costs data for the 2007 e-voting pilots

	Shrewsbury and Atcham[884]	Swindon[885]	Rushmoor[886]	South Bucks[887]	Sheffield City[888]
Total cost[889]	£1,085,795	£1,185,423	£584,775	£257,648	£680,000[890]
Cost per elector	£27	£8.33	£9.60	£12.41[891]	£1.80
Cost per e-voter	£625	£102.50	£152.80	£113.14[892]	£150.00
Number of e-voters	1,737 (10.2% of voters)	11,565 (24.1% of voters)	3,825 (18% of voters)	2,276 (16.3% of voters)	4,621 (3.43% of voters)

Learning points

The following table outlines the key learning points detailed in the five sites' technical evaluation reports. With the exception of South Bucks, which had a different remit of e-counting, the lessons that recur across all sites and can therefore arguably be taken to be the most important relate to the following:

- Providing strategic direction to any future piloting.
- Allowing for sufficient timescales for effective development, testing and implementation.
- Ensuring effective testing.

In addition, further learning points that appeared more than once related to ensuring adequate documentation is produced, ensuring a systematic and comprehensive risk assessment, and ensuring that independent quality assurance is undertaken throughout the pilot activity (including development).

[884] Actica Consulting (2007b).
[885] Actica Consulting (2007c).
[886] Actica Consulting (2007d).
[887] Ovum Consulting (2007); Electoral Commission (2007d).
[888] Actica Consulting (2007a).
[889] Note: figures taken from technical evaluations – figures are different in the Electoral Commission reports.
[890] The total cost for the Sheffield City e-voting pilot – GBP 680,000 – is the figure after a discount and the components needed regardless of e-voting have been deducted (the figure with these would be GBP 760,000). See Actica Consulting (2007a).
[891] This is for the electronic voting trial, with figures for the electronic counting trial outlined in the Electoral Commission's report.
[892] This is for the electronic voting trial, with figures for the electronic counting trial outlined in the Electoral Commission's report.

Table 68 Learning points identified in the technical reports

Cities	Learning points
Shrewsbury and Atcham[893]	- Provide strategic direction - Allow for sufficient time - Ensure adequate documentation is produced - Ensure systematic and comprehensive risk assessment - Ensure effective testing - Ensure independent quality assurance activities are undertaken throughout the pilot, not only at the end
Swindon[894]	- Provide strategic direction and commitment - Allow for sufficient time - Ensure independent quality assurance is conducted in procurement - Ensure close engagement between stakeholders when developing software - Ensure effective testing - Ensure awareness of vulnerabilities and other security implications
Rushmoor[895]	- Provide strategic direction - Allow for sufficient time - Ensure adequate documentation is produced - Ensure systematic and comprehensive risk assessment - Ensure effective testing
South Bucks[896]	- Pilot seen as successful - Electronic counting seen as the way forward - Project management needs to be improved
Sheffield City[897]	- Provide strategic direction - Allow for sufficient time - Ensure adequate documentation is produced - Ensure systematic and comprehensive risk assessment - Ensure independent quality assurance activities are undertaken throughout the pilot development - Ensure that all involved with a pilot project understand their responsibilities, including their contractual obligations

The summary produced by the Electoral Commission also outlined some key learning points with regard to the future implementation of pilots:

- **To increase security and confidence,** it is 'essential that there is significant centrally provided evaluation and testing… best achieved through the provision of an accreditation and certification scheme'[898] and 'It is essential that sufficient time is allowed for testing'.[899]
- **To ensure transparency of operations,** '…there is a need for clear guidance as to what should be observable during the e-voting process'.[900]
- **To facilitate accessibility,** 'any future trials of e-voting should provide sufficient lead-in time to ensure that… [accessibility for disabled electors and other hard-to-reach groups] issues are addressed'.[901]

[893] Actica Consulting (2007b).
[894] Actica Consulting (2007c).
[895] Actica Consulting (2007d).
[896] Ovum Consulting (2007).
[897] Actica Consulting (2007a).
[898] Electoral Commission (2007b), 7.
[899] Electoral Commission (2007b), 8–9.
[900] Electoral Commission (2007b), 8–9.
[901] Electoral Commission (2007b), 8–9.

- **Closing the e-vote before polling day might significantly reduce e-voting,** possibly due to a lack of awareness about the closing date. 'Any future implementation of e-voting should ensure that the e-voting channels remain open until the close of poll.'[902]

The report also produced recommendations to act on before any further e-voting pilots:[903]

1) A comprehensive electoral modernisation framework covering the role of e-voting.
2) Implementation of a central process for testing and approving e-voting solutions.
3) Allowing for sufficient time for planning e-voting pilots (approximately six months between contract award and the election).

The government responded to the Electoral Commission's 2007 summary report, indicating it would take on the recommendations in any future e-voting initiatives.[904] No further trials have taken place in the UK since.

[902] Electoral Commission (2007b), 7.
[903] Electoral Commission (2007b), 10.
[904] Olivier-Wright & White (2008).

6.3.4 Internet voting in municipalities

Background

This case study presents experiences of internet voting at the local level. It has been developed by reviewing the information available online about relevant initiatives and by contacting those involved, including both representatives from the municipalities and technology providers.

Implementation of internet voting is frequently easier at the local level. Firstly, legislation may be more flexible. In fact, some countries do not allow internet voting in nationwide elections, but municipalities can use it for local consultations (e.g. Romania). Secondly, municipalities may decide to impose less strict security requirements than national authorities, which reduces both the complexity and the economic cost. They may opt for simpler solutions because they can consider the topics put to vote as less critical than national elections. For instance, many consultations are non-binding. Moreover, authorities may feel that hackers are less interested in rigging local consultations than other bigger events (e.g. the US Presidential Election). Nonetheless, there may be stakeholders potentially interested in manipulating elections and consultations at local level (for example, regarding decisions related to land use) and, therefore, some security features are still essential.

The local initiatives covered in this case involve several municipalities from Romania (Brașov, Făgăraș and Râșnov), Norway (Ås, Ski, Nesodden, Stavanger, Sola, Hammerfest, Kvalsund, Måsøy, Nord-Odal, Sør-Odal), Denmark (City of Aarhus), Italy (City of Milan and municipalities from its metropolitan area), and Spain (Cities of Madrid and Barcelona).

Overview of initiatives

The types of poll covered here vary considerably. They include non-binding consultations, elections of representatives to advisory councils, and participatory budgeting. In Romania, internet voting has been used for online non-binding referendums.[905] In 2017, the pilot Votul Meu Online,[906] implemented by the Asociatia Pro Democratia Club Braila (Braila Club Pro Democracy Association)[907] and Penrose CDB,[908] was launched in three different cities: Brașov, Făgăraș and Râșnov. The topic of the consultation was different in each municipality. In Braşov, the referendum was related to making an important street in the city centre one-way. In the other two municipalities, questions were related to the future development of the city; inhabitants were asked, for example, to help decide whether to give priority to tourism or industry.[909]

In 2016, 10 Norwegian municipalities had local referendums in which internet voting and normal paper voting were both possible.[910] It should be noted that many e-government services already existed in Norway and, moreover, internet voting was used in the 2013 parliamentary elections.

[905] Romanian election law does not allow internet voting and, thus, it cannot be used for binding decisions.
[906] Asociația Pro Democrația (2017).
[907] http://www.apd.ro/ro_RO/
[908] https://www.penrose-cdb.com/
[909] Interview with Sorin Pavel, Penrose CDB CEO.
[910] Input provided by Henrik Nore, CEO at NVTC AS and responsible for the E-vote2011 and E-vote2013 projects in Norway.

The Danish city of Aarhus used internet voting for the elections to the Elderly Council in 2013 and 2017.[911] This council is composed of people who are at least 60 years old and it acts as advisory board to the city council on all matters related to the elderly.[912] The Danish law on social services establishes that all municipalities should have such a council. However, they can choose whether to offer internet voting as an option or not. Similarly to Norway, the interviewee from the municipality of Aarhus explained that Danish public services usually use online communication, so people are used to it. He added that they can, nevertheless, apply to receive printed copies of the information and that 20% of the elderly in Aarhus make use of this exemption, as they do not use a device with internet access for their communications.[913] Thus, the remaining 80% constitute the electorate who can use internet voting.

The city of Milan and other municipalities in the Lombardy region have used internet voting for participatory budgeting and for public consultations.[914] In 2016, Milan launched an initiative on participatory budgeting,[915] which has been followed by a similar initiative for the municipalities in the same metropolitan area, 'ELIGO Smart City' (which is provided by a private company, ELIGO).[916] An interviewee from ELIGO explained that this initiative allowed municipalities to organise their own internet vote to decide, among other things, on the creation or removal of pedestrian areas, or between different urban renewal proposals. This interviewee claimed that the initiative allows citizens to participate actively in public decisions, and it provides more transparency regarding how public money is spent.[917]

In Spain, the city of Madrid launched 'Decide Madrid',[918] a participation platform that has the aim of promoting participation through digital mechanisms. The minimum age required to vote through this tool is 16 years. The platform allows citizens to make proposals, and those that obtain the support of 1% of registered citizens can progress to the final voting stage.[919] The first voting occurred in February 2017 and citizens could vote online, by post or in person in several locations in the city. Some examples of the proposals that have been voted on through the platform are '100% sustainable Madrid', which received an 89% of the votes, and 'A single ticket for public transport' (94% of the votes). Citizens have also been able to vote on the improvement of the pedestrian area in Gran Vía street, and on the actions that should be prioritised in specific neighbourhoods.[920]

Lastly, the platform Decidim.org[921] was born as a result of a request from Barcelona City Hall and it is now being used in more than 30 cities. The platform enables different participatory mechanisms: collecting proposals, having debates, participatory budgets, etc. It also includes a module for voting in consultations. Salt (in the province of Girona) has used this recently for a consultation with a Yes/No answer regarding the name of a public space.[922] Moreover, through the platform, citizens can give support to specific proposals and some municipalities use such support as a voting mechanism (as a system of aggregating preferences), for example to reach a decision about how to spend part of the budget.[923]

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[911] Commune of Ældrerådet and Aarhus (2017).
[912] Interview with Claus Rasmussen, municipality of Aarhus.
[913] Interview with Claus Rasmussen, municipality of Aarhus.
[914] Interview with Filippo Pugliatti, ELIGO (Italy).
[915] ELIGO (2016).
[916] https://www.eligo.social/eligo-smart-city/
[917] Interview with Filippo Pugliatti, ELIGO (Italy).
[918] https://decide.madrid.es/
[919] Gutiérrez (2017).
[920] Decide Madrid (2017a).
[921] https://decidim.org
[922] https://decidim.salt.cat/processes/uoctubre
[923] Interview with a member of Decidim.org.

In Aarhus, the main motivations behind the implementation of internet voting were cutting the costs and the willingness to explore new technologies.[924] Likewise, in the Romanian municipalities the goal was to see how citizens would react to the internet voting system and how they interacted with it.[925]

Voting process and the technology used

In order to take part in internet voting events, voters need an internet connection, and a computer, tablet or mobile phone. The Romanian pilots used open-source software because it allows people to audit the system, which is very important in the event of complaints, and because it does not require a licence. More specifically, they updated existing software, the Helios Voting App.[926] An interviewee from Decidim.org explained that the fact that the platform is open-source facilitates participation and collaboration among cities with common needs, as well as with developers. The system is being used by more than 40 cities worldwide, which are also contributing to the improvement of the software. He added that open-source software saves public administrations large amounts of money which would otherwise go to private companies.[927] The Madrid participation platform runs on the software Consul,[928] which is also open-source. Aarhus[929] and the Italian municipalities,[930] however, did not use open-source software. (See Section 6.3.6 for another discussion about using open-source software.)

The way in which participants can be identified varies between municipalities. In Aarhus, an e-mail was sent to voters with a link to the system where they could vote. The e-mail included a unique code that they had to produce in order to be allowed to vote (this was personal and also unique for that specific election). Previously, the municipality had prepared the list of eligible voters and forwarded it to the company in charge of providing the voting system.[931] The identification method used by the Italian municipalities could include a simple e-mail, the tax code, a SMS or the SPID (the Public Digital Identity System).[932] In the Romanian municipalities there was a registration period during which citizens had to enter their name, address and ID card number on the online platform. The Romanian election authority (AEP) then used the Personal Identification Number[933] and the family name of those who had registered to verify their eligibility. AEP gave the final list of registrants to Penrose, which generated random names that were uploaded to the platform. The platform then sent the credentials to the eligible voters. Usernames were randomly generated, so that they could not be linked with actual individuals.[934] Similarly, citizens need to provide their ID number, postal code and date of birth to the Decidim.org platform so that the system verifies that they are real people and that they reside in the municipality. Then they are allowed to vote or support proposals.[935]

Regarding data protection, ELIGO explains that it stores data within the system for 30 days, after which it is deleted, unless the contract is renewed.[936] In Decidim.org, citizens do not provide

[924] Interview with Claus Rasmussen, municipality of Aarhus.
[925] Interview with Sorin Pavel, Penrose CDB CEO.
[926] Interview with Sorin Pavel, Penrose CDB CEO.
[927] Interview with a member of Decidim.org.
[928] Consul – Open Government and E-Participation Web Software; https://github.com/consul/consul
[929] Interview with Claus Rasmussen, municipality of Aarhus.
[930] Interview with Filippo Pugliatti, ELIGO (Italy).
[931] Interview with Claus Rasmussen, municipality of Aarhus.
[932] Interview with Filippo Pugliatti, ELIGO (Italy).
[933] A unique non-changeable personal number given to Romanian nationals at birth.
[934] Interview with Sorin Pavel, Penrose CDB CEO.
[935] Interview with a member of Decidim.org.
[936] Interview with Filippo Pugliatti, ELIGO (Italy).

their name and surname (only ID number, postal code and date of birth). The only thing that is kept is a hash of the ID number (where the latter is converted by a formula into a very long code). Therefore, if the platform is attacked, the hacker would only be able to obtain this long code and an e-mail address.[937]

In the Romanian pilots, the vote was encrypted so that nobody could see the content of the ballot. Moreover, the decryption key was split between six members of different organisations, including staff from Penrose, from the municipality, and from the Romanian Election Authority. All of them were needed to decrypt the votes.[938] Contrary to the system used in Romania, the consultation module in Decidim.org does not encrypt the vote. However, they consider that the level of security that the platform offers is enough for its purpose (aimed at the whole participatory process, not only voting). Nonetheless, an external internet voting system, with cryptography and other security features, could be incorporated in the platform.[939]

Main benefits and challenges

According to the interviewees, one of the main benefits of using internet voting in the local context is the reduction of costs. The interviewee from the municipality of Aarhus explained that internet voting was much cheaper than the option of setting up polling stations across the city.[940] It must be noted, though, that the implementation of internet voting can still entail some costs. For example, the system in the Norwegian municipalities was not end-to-end verifiable, due to the fact that implementing this feature is time-consuming and expensive.[941] Similarly, Decidim.org explains that the current system installation is easy and cheap, although it needs updating and maintenance. However, creating a layer for internet voting would be more complex and expensive as electronic voting requires more robust systems, higher security, and more powerful machines to break the link between the organisation that provides the census and the one in charge of voting operations.[942]

In terms of adoption, there are some differences between initiatives. The first voting event in Decide Madrid received a total of 963,887 votes, 49% of which were submitted via the online platform, 17% at a polling station and 34% sent by post.[943] On the other hand, the number of citizens who used this tool was 214,076,[944] 55% of whom preferred to vote by post, 36% internet voting and only 11% went to a polling station.[945] In Norway, the average of internet voting use across municipalities was 63.5%, ranging from 46.1% in Kvalsund to 81.4% in Ås.[946] The average turnout in these municipalities was 42.8%.[947] In Romania, the consultation in Brașov registered a turnout of 56%, the one in Râșnov reached 59% of the eligible voters, and in Făgăraș half of voters participated.[948] In Aarhus, the turnout in 2017 was low: there were 66,000 eligible voters, but only 11,800 actually participated (18%). The interviewee from the

[937] Interview with a member of Decidim.org.
[938] Interview with Sorin Pavel, Penrose CDB CEO.
[939] Interview with a member of Decidim.org.
[940] Interview with Claus Rasmussen, municipality of Aarhus.
[941] Input provided by Henrik Nore, CEO at NVTC AS and responsible for the E-vote2011 and E-vote2013 projects in Norway.
[942] Interview with a member of Decidim.org.
[943] Decide Madrid (2017b).
[944] Several proposals were put to vote; Decide Madrid (2018).
[945] Decide Madrid (2017b).
[946] Input provided by Henrik Nore, CEO at NVTC AS and responsible for the E-vote2011 and E-vote2013 projects in Norway.
[947] Input provided by Henrik Nore, CEO at NVTC AS and responsible for the E-vote2011 and E-vote2013 projects in Norway; https://distriktssenteret.no/kommunereformen/folkeavstemninger/
[948] Input provided by Penrose CDB.

municipality indicates that the main problem was not the option itself, but the communication. The municipality tried to advertise and promote the elections, but found it particularly difficult to create interest.[949]

On the other hand, the Italian private company ELIGO claims that the internet voting option encourages citizens' engagement and helps to promote transparency.[950] For Decidim.org, the main benefit is that the platform provides a place for social interaction and the fact that it includes all parts of the participatory project, such as proposing initiatives and debating, and it can also integrate voting. Moreover, in view of the provider, the platform is user-friendly, which facilitates citizens' experience.[951] According to Penrose, the main benefit in the Romanian municipalities was awareness-raising since, before the pilots, most people did not know how an internet voting system worked.[952]

Municipalities face some challenges in implementing internet voting, similar to those arising at other levels of government. These span from citizens' reluctance to use this mechanism to the risk of its abuse. For example, in Italian municipalities the main issue encountered was related to the risk that someone could vote on behalf of others using the tax code.[953] Similarly, in Romania, the biggest issue faced was voter identification, because many people did not feel comfortable inputting their personal ID on the website. Penrose observed that many people started the online voting process and entered the website, but stopped when they reached the registration page.[954] Another challenge in the Romanian municipalities was adapting and bringing up to date the functionalities of the voting app.[955] Other challenges during the implementation of Votul Meu Online were the small budget available and the lack of technical capacity in the municipality.[956]

The interviewee from the municipality of Aarhus explained that if any issue arose while using the system, elderly voters could call either a hotline managed by the municipality or another managed by the IT company. In addition, they were able to ask for the assistance of students who could come to their home to help them with the process.[957] Lastly, it is interesting to note that some companies are interested in implementing blockchain-based solutions in the future. One of our interviewees highlighted that blockchain seems to be more secure in terms of the risk posed by hackers, but less so in terms of secrecy of the vote.[958]

6.3.5 Internet voting in political parties

Background

Political parties in Europe are increasingly making use of internet voting to perform internal elections (e.g. primaries) and to consult their members (or sometimes a larger electorate) about a number of topics, ranging from government agreements to specific policy decisions. Political

[949] Input provided by Henrik Nore, CEO at NVTC AS and responsible for the E-vote2011 and E-vote2013 projects in Norway.
[950] Interview with Filippo Pugliatti, ELIGO (Italy).
[951] Interview with a member of Decidim.org.
[952] Interview with Sorin Pavel, Penrose CDB CEO.
[953] Interview with Filippo Pugliatti, ELIGO (Italy).
[954] Interview with Sorin Pavel, Penrose CDB CEO.
[955] Input provided by Penrose CDB.
[956] Interview with Sorin Pavel, Penrose CDB CEO.
[957] Interview with Claus Rasmussen, municipality of Aarhus.
[958] Interview with Filippo Pugliatti, ELIGO (Italy).

parties do not have the same capacity as public administrations to set up polling stations across the country or to organise postal voting. In this context, internet voting becomes attractive – and even more so for parties that wish to increase the participation of their members.

This case study mainly focuses on the experiences of the European Green Party,[959] Spanish Podemos,[960] and Movimento 5 Stelle (M5S) from Italy.[961] It has been developed by reviewing the information available online about these initiatives, by contacting those involved (representatives from both the parties and the technology providers), and by interviewing a researcher specialising in the use of decision-making platforms and applications in European political parties. It must be noted that there are several other examples of the use of internet voting within political parties. For example, it has also been used for electing the ALDE coordinators and Steering Committee[962] and the leadership of the British Labour Party,[963] for the primaries of the Right and Centre in France (only for those abroad)[964] and the Romanian National Liberal Youth (TNL),[965] and for a consultation about a governance agreement conducted by the party governing the city of Barcelona (Barcelona En Comú).[966]

The European Green Party used internet voting for its 2013 and 2014 primaries,[967] but the method will not be used for the next European elections because there is no plan to conduct primaries (due to an internal decision, not related to internet voting).[968] Scytl provided the voting solution.

Podemos employs internet voting for any kind of decision (elections for party internal positions, choosing the electoral lists, consultations regarding government agreements, selecting which social projects should be funded, etc.).[969] They have a platform on their website for these participatory processes.[970]

M5S uses internet voting to enable the active participation of its members in the life of the party through, for example, the writing of law and the vote for the selection of M5S candidates.[971] The party uses the Rousseau Platform.[972] A beta version of the Rousseau system was online as early as the end of October 2013.[973]

The main motivation to use internet voting within parties seems to be the fact that it allows a larger number of voters to be reached and the holding of voting events on a frequent basis. In contrast to general elections, here internet voting is often the only channel available, as the implementation of other voting methods is deemed not feasible. The interviewee from the European Green Party explained that they used internet voting for their primaries with the aim of allowing everybody in the EU to vote; electors could not vote by other means as it would have been impossible to check whether people were voting more than once.[974] Similarly, for Podemos the use of internet voting is considered the only way to get to know the opinion of its members

[959] https://europeangreens.eu/
[960] https://podemos.info/
[961] https://www.movimento5stelle.it/
[962] ALDE (2018).
[963] WebRoots Democracy (2015).
[964] http://www.primaire2016.org/
[965] https://www.scytl.com/en/customers/tnl-national-liberal-youth/
[966] Barcelona En Comú (2017).
[967] https://europeangreens.eu/news/green-primary-easy
[968] Interview with the European Green Party.
[969] Input provided by Podemos (Team of Digital Processes, Systems and Computer Security).
[970] https://participa.podemos.info/es
[971] https://rousseau.movimento5stelle.it/
[972] https://rousseau.movimento5stelle.it/index.php
[973] Pantaleo (2016).
[974] Interview with the European Green Party.

in a periodic way and make them participate in important decisions. For this purpose, internet voting is the only option at the moment.[975]

Voting process and technology

This section explains how parties selected the technology provider and the main characteristics of the solution they implemented, based on the information gathered from interviews. See the case study on implementation of internet voting (Section 6.3.6) for a description of how technology providers were selected in initiatives led by public authorities.

In order to select a technology provider, the European Green Party first performed some research. Then they issued a call for and evaluated different proposals. Scytl was considered the best option. The interviewee explained that the ultimate choice was based on the company's experience with election procedures, multinational and multilingual projects and their proven success record. Furthermore, the company size guaranteed an adequate back up and the necessary specialist skills.[976] Podemos chose nVotes, also after evaluating other tools. They selected this company because of the guarantees offered by the solution and because they provide free/libre software.[977] After selecting the provider and before running the elections, the European Green Party did a test with a hacker. This hacking test took place over two days with the main result that the system was considered sufficiently robust, as the hacker did not succeed in breaking the system.[978] Similarly, Podemos does a test before starting each voting process.[979]

In order to vote, individuals require a device with an internet connection. In the European Green Party primaries, voters could vote from any computer running a standard browser, and with mobile devices (iPhone, Android based) or tablets (iPad, Android).[980] Likewise, for voting within Podemos, members can vote from a computer or mobile device with internet and a reasonably up-to-date web browser.[981]

Identification is required to be allowed to vote (for an overview of identification mechanisms in remote voting see Section 6.1.1). Those registered in Podemos' participation platform can take part in the voting events of their corresponding territory. During the voting period, eligible voters use their mobile phone to authenticate themselves in the system, which only allows one vote per phone number. An analysis of voters' patterns is also performed to detect potential cases of fraud.[982] Members of M5S are able to vote by logging into a website. Since the European Green Party primaries were open to all EU citizens, people willing to participate first had to register on the website, providing their e-mail address and mobile number. After this, they received an e-mail with an activation link (this was a one-time link). Individuals had to click on it and then they were sent a username via e-mail and a password via SMS. Using both the username and the password, participants could log in to cast their vote. Registrants were also asked to fill out a captcha.[983]

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[975] Input provided by Podemos (Team of Digital Processes, Systems and Computer Security).
[976] Interview with the European Green Party.
[977] Input provided by Podemos (Team of Digital Processes, Systems and Computer Security).
[978] Interview with the European Green Party.
[979] Input provided by Podemos (Team of Digital Processes, Systems and Computer Security).
[980] Interview with the European Green Party.
[981] Input provided by Podemos (Team of Digital Processes, Systems and Computer Security) and Eduardo Robles, nVotes.
[982] Input provided by Podemos (Team of Digital Processes, Systems and Computer Security).
[983] Interview with the European Green Party.

Once the vote was cast in the European Green Party primaries, the vote was encrypted using a digital envelope. One server collected the votes.[984] The votes from the members of Podemos are encrypted in the voters' browser and are sent encrypted to the ballot box.[985] In both the Green primaries and Podemos cases, the decryption of the ballot box takes place after a mixing process, where the identity of the voter is removed and it is not possible to link a voter with the content of their ballot[986] (for more information on encryption and vote secrecy, see Section 6.1.3.)

The German Pirate Party took a different approach. The platform they used (Liquidfeedback), did not protect secrecy, as the system was completely transparent. The reason for this is that designers believed that no system could give a proof of being completely trustworthy. Therefore, having the vote visible to everybody was the only way to verify the integrity of the election.[987] However, this caused a long and intense internal debate in the Berlin section of the party on privacy issues, as there were members who did not want their vote to be visible.[988]

In Podemos, voters can verify on their computer that the encrypted vote corresponds to their choice. After having cast the vote, they receive a locator code with which they can confirm that it is included in the ballot box. Moreover, once the results are announced, the verifiable results are published (which includes the description of the voting event, the encrypted votes, and the list of decrypted votes anonymised). Everybody can download this information to check that the published results correspond to the sum of decrypted votes, that with all decrypted votes it is possible to generate all encrypted votes (without revealing the link between them), and that the locator code can be generated by using an encrypted vote.[989] The party indicates that these verifiability features are mechanisms to prevent the suppression/change of someone else's vote.[990]

In the Green primaries, voters obtained at the end of the session a confirmation that the vote had been submitted. Later on, members of Scytl, affiliates of the Member Parties, and the notary were present when the ballot box was opened. The process was verified by an independent auditor with an academic background in electoral administration and election social acceptance and trust.[991]

Regarding the protection of data, the Green Party did not have access to voter information, only to the number of people who had voted. Scytl kept the data only for a specific time period (to allow addressing of potential counting issues) and then it was destroyed.[992] After the voting process, participants received a last e-mail with the results of the primary. Then all personal and process data was erased through a certified procedure in the presence of a notary. Participants were, however, asked whether they agreed to the transfer of their contact data to the Green party of their country. The data of those who agreed to receive further information were

[984] Interview with the European Green Party.
[985] Input provided by Podemos (Team of Digital Processes, Systems and Computer Security).
[986] Interview with the European Green Party; Input provided by Podemos (Team of Digital Processes, Systems and Computer Security).
[987] Interview with Marco Deseriis, researcher on the use of decision-making platforms and applications in European political parties.
[988] Interview with Marco Deseriis, researcher on the use of decision-making platforms and applications in European political parties.
[989] Input provided by Podemos (Team of Digital Processes, Systems and Computer Security).
[990] Input provided by Podemos (Team of Digital Processes, Systems and Computer Security).
[991] Interview with the European Green Party.
[992] Interview with the European Green Party.

transferred in a secure way to the respective party. The latter had to respect national data protection legislation and offer an option to unsubscribe from any lists.[993]

Regarding voting in Podemos, nVotes do not have access to the list of eligible voters, as the party is in charge of the authentication and authorisation.[994] This list is managed by the party legal team and the person in charge of data protection. Only authorised people have access to it, and they are in charge of system maintenance and giving support to the registered members.[995] On the other hand, nVotes manages the voting operation and the party leadership cannot know how members voted.[996]

An interviewee from Northeastern University who conducts research on the use of decision-making platforms and applications in European political parties explained that in Rousseau, because voting is neither anonymous nor encrypted, the platform managers (who are connected to the party leadership or are themselves the party leadership) have exclusive access to the database with the voting record. Additionally, it raises the risk that party members who vote may be profiled (as voting is used for multiple purposes, from the party primaries to the approval of the party programme, to the expulsion of dissidents, and so on)[997] (see the case study on data protection, Section 6.1.6, for more information on profiling). The Italian Data Protection Authority indicated that Movimento 5 Stelle used an outdated system that could entail risks of unauthorised access to data.[998] In fact, the platform has been criticised for its lack of transparency in the management process of users' data.[999]

Main benefits and challenges

The main benefits of using internet voting according to the Green Party were that it enabled the inclusion of as many people as possible and it allowed citizens to be involved in EU decision-making.[1000] Likewise, for Podemos the main benefits are reaching high levels of participation by members who could not be reached by using traditional means, as that would require high costs and effort.[1001] The above-mentioned interviewee conducting research on European political parties considers that internet voting offers to party members the possibility of contributing more to the life of the party and to provide input. In consequence, according to this interviewee, party members may feel they are listened to, and this can help strengthen the relationship between the party leader and the party base. But he adds that the process must be transparent and fair, otherwise it can result in loss of trust.[1002]

The interviewee from the Green Party noted that the main challenge in the primaries was to ensure that people would vote only once. The Green Party did not have a list of electors as the primaries were open to the whole EU adult population. The solution was two-step identification, as described above. Another challenge was that some older people did not have a computer or internet connection; this group was encouraged to find somebody who could provide them with

[993] Interview with the European Green Party.
[994] Input provided by Eduardo Robles, nVotes.
[995] Input provided by Podemos (Team of Digital Processes, Systems and Computer Security).
[996] Interview with Marco Deseriis, researcher on the use of decision-making platforms and applications in European political parties.
[997] Interview with Marco Deseriis, researcher on the use of decision-making platforms and applications in European political parties.
[998] Corriere della Sera (2018).
[999] Garante per La Protezione Dei Dati Personali (2017).
[1000] Interview with the European Green Party.
[1001] Input provided by Podemos (Team of Digital Processes, Systems and Computer Security).
[1002] Interview with Marco Deseriis, researcher on the use of decision-making platforms and applications in European political parties.

access to the internet. Lastly, there were some technical difficulties. For example, early on there were issues with SMS delivery in certain countries; the IT company, Scytl, managed to solve them. The party established a helpdesk to aid voters, and in case of technical problems, they contacted the technology provider who could access the system to solve them.[1003]

For Podemos, the main challenge was the need to increase the level of trust in the system and, at the same time, streamline the management of voting events, reducing the resources needed to conduct them.[1004] Moreover, early on they received many complaints regarding system usability. Later, following some improvements and the fact that members became more acquainted with the system, complaints decreased. The party considers that there is still room for improvement, especially with regards to voters who have lower ICT skills.[1005]

During the 'Parlamentarie',[1006] the online primary election inside M5S, the platform crashed. The official statement was that the origin of the problems was the high turnout of voters, called to choose between eight candidates.[1007]

Implementing internet voting has some costs, but the political parties interviewed considered the method to be cheaper than other methods (as mentioned before, they often offer it as a replacement and not as a complement to the other options). Podemos does not consider the costs to be high, because it would not be possible to conduct voting in the same way (with the same frequency and territorial extension) if they had to use traditional voting means. Nevertheless, the current costs do not allow them to conduct all the voting processes that they would like.[1008] The implementation of internet voting comprised a large proportion of the pre-campaign budget of the European Green Party, because this was their main pre-campaign tool.[1009] To cover part of the costs, the Rousseau Platform allows supporters to make donations. At the time of writing, the amount reported to have been donated on the site is about EUR 610,000.[1010]

The interviewed researcher specialising in online platforms and political parties points to another potential problem: the fact that participation tends to drop over time in these systems,[1011] as the more frequent consultations are, the less people participate. He explains that when people vote once every five years they understand the importance of the event. However, if they are asked to vote every three weeks, the perception of the importance of the vote decreases. He stresses that this low participation is a serious issue, as it casts doubt on how representative the consultations are. Liquidfeedback, the platform used by the German Pirate Party, tried to deal with this by allowing voters to delegate their vote. But this created concentrated power as some people were receiving many more delegations than others and were de facto acting as representatives ('superdelegates').[1012]

[1003] Interview with the European Green Party.
[1004] Input provided by Podemos (Team of Digital Processes, Systems and Computer Security).
[1005] Input provided by Podemos (Team of Digital Processes, Systems and Computer Security).
[1006] http://www.ilblogdellestelle.it/2018/01/iniziano_le_parlamentarie_del_movimento_5_stelle_buon_voto_a_tutti.html
[1007] Il Post (2017).
[1008] Input provided by Podemos (Team of Digital Processes, Systems and Computer Security).
[1009] Interview with the European Green Party.
[1010] https://rousseau.movimento5stelle.it//fund_raising.php
[1011] Deseriis, M. (2018).
[1012] Interview with Marco Deseriis, researcher on the use of decision-making platforms and applications in European political parties.

6.3.6 Implementation of internet voting

Background

This case study reviews some of the key issues related to the implementation of internet voting. The information comes from public administrations that have implemented internet voting, technology providers and academics specialising in internet voting and similar topics (through in-depth interviews, reports, academic papers, information submitted in writing to the research team, etc.). It includes experiences both in EU countries and in third countries (Switzerland, Norway, Canada, etc.), all of which can provide valuable insights for those wanting to implement internet voting.

Motivation and triggers

The first step is to decide if internet voting is appropriate in a specific jurisdiction, which implies defining the objectives that the new system will pursue. An interviewee from Universitat Rovira i Virgili who conducts research on electronic voting indicated that if there is a lot of tension in the country, internet voting may only increase the problems. Likewise, if the current electoral system already works well, it may not be worth implementing internet voting (e.g. if electors know how to vote, if there have been no major scandals, if results are available on election night, etc.). On the other hand, it may be considered convenient for people abroad (especially in countries with a large diaspora), when countries have experienced problems with slow counting, and in countries with geographically dispersed population and people living in remote areas.[1013]

Therefore, it is important to be aware of the context and the specific characteristics and objectives of each country. For example, in Switzerland, the internet voting project is closely linked to the specific Swiss political system of direct democracy (which implies an average of four votes a year), to the development of postal voting and to the specific needs of its cantons.[1014] In Norway, the main motivation was to increase the number of voting options available, especially for people with disabilities and citizens living abroad.[1015]

Another motivation frequently mentioned is cost cutting (see Section 4.2.6 for a more detailed discussion of costs). However, Archer et al. (2014) indicate that internet voting tends to increase costs, because it is implemented as a complementary voting channel rather than as a replacement. This may, however, depend on organisational elements. For example, if people have to register in advance to vote online, it is possible to reduce the expenditure related to postal voting by avoiding sending ballots to those who have registered. Likewise, prior registration allows the reduction of the number of polling stations if many people have opted for internet voting. On this issue, the interviewee responsible for the E-vote2011 and E-vote 2013 projects in Norway considered that internet voting pilots require an investment, but that they could bring savings in the long term.[1016]

[1013] Interview with Jordi Barrat, professor of constitutional law (Universitat Rovira i Virgili) and expert on electronic voting and electoral processes.
[1014] Information provided by Ardita Driza Maurer, former director of the federal Internet voting project at the Swiss Federal Chancellery.
[1015] Interview with Henrik Nore, CEO at NVTC AS and responsible for the E-vote2011 and E-vote2013 projects in Norway.
[1016] Interview with Henrik Nore, CEO at NVTC AS and responsible for the E-vote2011 and E-vote2013 projects in Norway.

It must be noted that the decision on whether internet voting should be implemented may not lie only with the incumbent government administration. It may require changing laws (in some cases even the constitution), and that may need a qualified majority in the parliament. Thus, it may be necessary to reach a high level of consensus among several political parties.

Acquiring the technology

Once the decision to implement internet voting has been taken, the next step is to acquire the technology. One option is for public administrations to launch a public procurement to find a private vendor that can develop and operate the solution and pay a licence to the company over a specific time period (e.g. the licence may be for just one election, for several years, etc.). The procurement strategy of New South Wales (Australia), for example, aims to use off-the-shelf software if possible and a procurement process is launched for each state election. EveryoneCounts[1017] was chosen for the elections in 2011 and Scytl[1018] for those in 2015.[1019] Estonia initiated a public procurement for internet voting software in 2004. Three tenders were submitted and the offer of AS Cybernetica[1020] was selected.[1021] In 2016, the company won the bid for renewing the i-voting system.[1022] In France, there was a public tender for a limited period for purchasing the technology and deploying it in a national datacentre.[1023] In Switzerland, Zurich selected the company Unisys[1024] to develop and manage the internet voting system[1025] and Neuchâtel chose Scytl.[1026] However, Neuchâtel already had an e-government portal (*guichet unique*) with an authentication system and the internet voting system was incorporated into it.[1027] Scytl prepares the software and Swiss Post is the entity in charge of providing the internet voting system to Neuchâtel and to other cantons (Fribourg, Thurgau and Glarus).[1028] However, the ultimate responsibility for the conduct of internet voting lies with the cantonal authority in charge of elections.[1029]

Public administrations can also develop their own product. The canton of Geneva opted for developing and operating its own system and it considers that this option offers higher security and trust; moreover, it did not want to rely on a private provider.[1030] The Norwegian government bought their software in 2009 following a public tender based on a competitive dialogue.[1031] Collaboration was promoted among the different companies that tendered, with good practices shared. Finally, Ergo and Scytl won the tender.[1032] It made sense for the government to own the software, as it had invested funds to develop it during the competitive dialogue process. Moreover, it was considered advantageous to own it rather than having to depend on a vendor, especially because the market for internet voting solutions at the time was relatively

[1017] https://www.everyonecounts.com
[1018] https://www.scytl.com/en/
[1019] Electoral Commission NSW. (2017).
[1020] https://cyber.ee/en/about-us/
[1021] Madise, Vinkel & Maaten (2006).
[1022] Cybernetica (2016).
[1023] Interview with Jordi Puiggalí, Scytl CSO.
[1024] https://www.unisys.com/
[1025] Trechsel (2013).
[1026] OSCE/ODIHR (2016d).
[1027] Interview with Jordi Puiggalí, Scytl CSO.
[1028] Swiss Post (2018a, 2018b).
[1029] Information provided by Ardita Driza Maurer, former director of the federal Internet voting project at the Swiss Federal Chancellery.
[1030] CHVote (2017).
[1031] http://www.nvtc.no/blog-item1.html
[1032] Interview with Jordi Puiggalí, Scytl CSO.

underdeveloped.[1033] Similarly, Archer et al. (2014) indicate that the advantage of developing one's own system is that it allows the creation of a tailored solution and that it may provide greater transparency. On the other hand, they note that this option is more expensive initially and maybe also be more expensive in the long term.

A final option is that public administrations may decide to use a system from another jurisdiction. This may be a particularly convenient option for smaller jurisdictions that lack the skills for developing and managing an internet voting system. The Swiss regulation specifies that those cantons that do not have their own system can contract a private enterprise or use a system from another canton.[1034] This is what Geneva and Zurich did. The Geneva administration is in charge of running the internet voting on behalf of the cantons (e.g. Bern and Lucerne). These cantons give their voters' list to Geneva and receive the results after voting has finished.[1035]

Regardless of the option chosen, a key point highlighted in several reports and in some of the interviews conducted is that the public administration must be well-informed on all the relevant topics surrounding internet voting. Moreover, the public administration must keep control over the provider during the whole process of developing and using the technology. It is important that the administration takes a leading role also when deciding on whether internet voting should be implemented. For instance, the computer scientist Barbara Simons of the NGO Verified Voting, who considers that internet voting should not be implemented as security cannot be ensured, stressed that it is not enough to trust the vendor of the solutions if they say they are secure. She added that the key is to independently discuss the security issues with experts in computer science security.[1036]

Another interviewee, a researcher on electronic voting and electoral processes, explained that sometimes electoral administrations launch internet voting projects without having an understanding of the challenges that this entails (for example, directly trusting what the private providers tell them), which usually leads to failure. He considers it a requirement that the electoral administration has a good understanding of internet voting prior to establishing a dialogue with the technology provider, believes in the project, invests some money (for example, to hire experts), and plans for the long term.[1037] Similarly, a report prepared for the Legislative Assembly of British Columbia (Canada) stresses that electoral administrations should have control over the technology provider. The administration, and not the vendor, should also be in charge of overseeing the elections. Moreover, the report underlines that in order to perform these tasks the administration needs technology experts.[1038]

Certification

Apart from developing internet voting solutions and selecting a technology provider, public authorities can also have a key role in regulating which systems can operate in a certain jurisdiction. In this domain, Archer et al. (2014) proposed the establishment of a technical committee in charge of authorising internet voting solutions in British Columbia. They specify that this committee should be independent from the involved stakeholders (private companies,

[1033] Interview with Henrik Nore, CEO at NVTC AS and responsible for the E-vote2011 and E-vote2013 projects in Norway.
[1034] Ordonnance sur les droits politiques, Art, 27k.
[1035] Archer et al. (2014).
[1036] Interview with Barbara Simons, Verified Voting.
[1037] Interview with Jordi Barrat, professor of constitutional law (Universitat Rovira i Virgili) and expert on electronic voting and electoral processes.
[1038] Archer et al. (2014).

political actors) but that it should include both representatives from the election administration and people with technological expertise.

Switzerland has already established a system to certify internet voting solutions. An external service must confirm that the requirements imposed by the Swiss Federal Chancellery are met. This service must also check that the security measures and the internet voting system are aligned with the recent developments in the field.[1039] The Swiss Federal Chancellery set the conditions for internet voting systems in 2013. Firstly, they must guarantee the security and reliability of the vote and should also be easy to use. Secondly, a document explaining the system and its operation must be provided. Lastly, a risk assessment should be conducted, which should verify that the security risks are low. The assessment must examine several issues, including the accuracy of results, the secrecy of the vote, the availability of functions, and the protection of electors' personal data.[1040]

In Switzerland, if online systems are to be deployed to more than 30% of the electorate, they must provide individual verifiability, which implies allowing voters to check that their vote has not been manipulated or intercepted. To be used by more than 50% of the electorate, a system must provide complete verifiability, meaning that voters or auditors should be able to detect every manipulation or falsification of results. Auditors should also be able to evaluate counting correctness (while preserving the secrecy of the vote).[1041] The Swiss Federal Chancellery undertook an authorisation process in 2015, in which the systems from Geneva and Neuchâtel were approved. However, the system from Zurich was not granted authorisation.[1042]

Software licence

There is a debate regarding whether internet voting software should be open source or not. Some consider that this would be preferable because it permits revision. For instance, Norway opted for open-source software in order to offer more transparency.[1043] The source code for the Geneva system is available online.[1044] The administration believes this enhances transparency as it allows any computer specialist to review it. Moreover, specialists can propose improvements to the source code.[1045] However, using open-source software is not a federal requirement in Switzerland. For instance, the source code for Neuchâtel is not public,[1046] although Swiss Post indicate that there are plans to publish it.[1047] (On the other hand, the interviewed researcher on electronic voting noted that in Norway the source code was public, but nobody reviewed it.[1048])

Some companies have opted for open/free software. nVotes[1049] uses a free/libre software license, so that anyone can view, use, copy, modify and redistribute the source code. The company considers that this provides more confidence, transparency and technological independence to

[1039] Ordonnance sur les droits politiques, Art, 27k.
[1040] Ordonnance de la ChF sur le vote électronique (OVotE). Art. 2–5.
[1041] Ordonnance de la ChF sur le vote électronique (OVotE). Art. 2–5.
[1042] OSCE/ODIHR (2016d).
[1043] Interview with Henrik Nore, CEO at NVTC AS and responsible for the E-vote2011 and E-vote2013 projects in Norway
[1044] République et Canton de Genève (2018).
[1045] CHVote (2017).
[1046] OSCE/ODIHR (2016d).
[1047] Swiss Post (2018a).

[1049] https://nvotes.com/

the organisation running the election.[1050] The Votem[1051] protocol is public, which allows people to audit the system, to criticise it and to provide feedback.[1052]

On the other hand, Scytl does not produce open-source software. The company offers licenses to open the code to public scrutiny but not for use for other purposes. It asserts that the fact that it provides verifiability[1053] allows the auditing of the election without requiring the direct auditing of the software.[1054] The eBallotsoftware is also private, and no contributors are allowed.[1055]

Other relevant issues relevant to the implementation of internet voting systems

Some administrations decide to perform **tests** before deploying an internet voting system. For example, a pilot test took place in Washington D.C. in 2010, before the planned implementation of an internet voting system for military and overseas voters. However, a team from the University of Michigan hacked the system and managed to change ballots. As a result, the public administration decided to cancel the option of returning the ballot through the internet (the option of downloading a blank ballot was maintained).[1056] However, as mentioned in Section 4.2.5, some difficulties in conducting effective pilots have been identified. Therefore, the fact that a test has been successful may not guarantee that a real election is safe from attacks.

A common practice to minimise risks is to first implement a system with a restricted part of the population. In the French elections, it was implemented only for overseas voters, in Norway it started with 10 municipalities, and in New South Wales (Australia) it was first aimed only at voters with disabilities (mainly voters with visual impairments). A report on the implementation of internet voting in British Columbia indicated that if internet voting was deployed it should only be offered to those with accessibility problems, rather than universally.[1057]

The type of voting and the specific subject put to vote may also be relevant when deciding whether to implement internet voting, as well as when setting the security requirements. For example, considerations may be very different if the system is for the national elections or for a non-binding consultation in a municipality. It is also important to note that internet voting is usually implemented as a complementary option and not a substitute. This avoids discriminating against those with lower ICT skills and it provides alternatives for those who may not trust internet voting. However, in some cases it may not be feasible to deploy alternatives to internet voting (for instance when the entity organising the voting is a municipality or a non-public organisation).

[1050] Input provided by Eduardo Robles, nVotes.
[1051] https://votem.com/
[1052] Interview with Jeffrey Stern, Votem Corp; Becker et al. (2018).
[1053] https://www.scytl.com/en/online-voting-technology-security/#
[1054] Interview with Jordi Puiggalí, Scytl CSO.
[1055] Interview with eBallot.
[1056] Simons & Jones (2012).
[1057] Archer et al. (2014).

7 Conclusions

This section outlines the main findings of the study and our recommendations.

The primary aim of this study has been to review and map remote voting solutions in the EU and identify the benefits and drawbacks of the various options available to citizens. As such, this report provides the most comprehensive overview of remote voting solutions in the EU to date. It is intended as a resource for countries to understand the variety of remote voting options, how voting is administered in different electoral contexts, and the benefits and drawbacks of each option.

However, it should be stressed that this study's findings in most cases depend on the context in which the remote voting solutions were implemented. This means that a given practice, if successfully implemented in a given context, could be ineffective in another context. The research team was extremely cautious about not generalising findings based on anecdotal evidence. Another limitation in the extent to which this study can formulate policy recommendations on whether and how to support remote voting solutions is the scarcity of conclusive evidence in relation to the impact of available options, for instance on turnout.

7.1 Overview of remote voting options in the EU

7.1.1 What types of remote voting solutions are available?

This study has reviewed and mapped **seven types of remote voting options**: (1) voting by post; (2) voting by proxy; (3) voting in person from abroad (e.g. in a consulate); (4) voting at special polling station inside the country (e.g. in a hospital or prison); (5) voting using a mobile polling station (6) voting in a polling station outside the district of residence; and (7) internet voting. The options may vary between citizens voting from within the country and those voting from abroad.

The extent to which remote voting options are available varies greatly across the EU. Some types of remote voting are available in most countries; for example, in-person voting from abroad and postal voting from abroad are both available in 19 Member States. Others are available in only one country: for example, internet voting is only available in one country for residents within the country (Estonia), and in two countries for voters abroad (Estonia and France). French voters from abroad can vote by post, proxy, at special polling stations and via the internet under certain conditions, while Malta does not have any option for voting from abroad.

There is also a great **variety in terms of the situation within Member States**: while French voters from abroad have many options for voting remotely, proxy voting is the only remote voting solution available for voters within the country.

7.1.2 Why and how does the operation of remote voting solutions vary across Member States?

The way **remote voting options operate in practice differs between countries**, in some cases markedly. This may depend, for example, on the **electoral system**; it may be difficult to organise remote polling stations in countries in which ballot papers must be constituency-specific, and these countries may choose to restrict this option to elections in which all voters select from the same candidate list. It may also depend on wider aspects of **voting**

administration, such as the method by which voters are registered, and whether this is the result of passive or active registration. The implementation of remote voting options may also differ depending on the **design of the solution**: for example, while proxy voters in the UK must cast their ballot on behalf of the voter, proxy voters in Sweden instead collect pre-filled and sealed ballots from the primary voters and simply deliver them to the polling station.

Variation in the use of remote voting options may be the result of **demographic factors** (countries with a widespread diaspora, for example, may find it difficult to provide sufficient overseas in-person polling stations). It may also be driven in part by **values**: for example, Malta's emphasis on secrecy and the integrity of the ballot over accessibility for overseas voters. It is also important to acknowledge that the debate in Member States regarding what voting options should be offered is sometimes linked to the **debate on who is entitled to be part of the political community**. Some Member States withdraw the right to vote for certain prisoners or people who have been living abroad for a long period; others prefer to facilitate voting rights for all.

While mapping the different remote voting solutions found across the EU, we noticed that it is not common practice for countries to perform a needs assessment in relation to the types of remote voting solutions that could be introduced. The remote voting offer in a given Member State is more strongly linked to the voting tradition in the country than to a policy decision informed by an assessment of the requirements of the voting population, of the gaps of the 'traditional' voting system, and of the combination of remote voting solutions already offered. While this is beyond the remit of the European Commission, Member States could use research to explore the extent to which their voting system is fit for the needs of its voting population, and whether it would be convenient to extend their remote voting offering. More research and evidence in this area would be an important step towards a better understanding of democracy in Europe.

7.1.3 What are the implications of this variety of remote voting options?

While the variety of voting methods available to nationals of a Member State mainly concerns that Member State alone, it has wider implications when it comes to the European Parliament elections: **citizens may be voting for the same election under different systems**, which means that different citizens can have different opportunities. For example, EU citizens studying in Germany and preferring to vote in the European Parliament elections for the candidates of their country of origin could have different options depending on their nationality: Maltese students would need to travel to Malta, Croatian students would go to the nearest foreign polling station, Italian students would deposit their votes in a mailbox, and Estonian students could vote from their room on the internet. Similar disparities may arise, for example, for citizens working abroad or on secondment, people on holiday, or military personnel on duty abroad.

While proposing a **common approach to the availability of remote voting** for European Parliament elections would reduce the complexity of the current status quo, it would affect the prerogatives of Member States. In addition it could not be guaranteed that any agreed approach would facilitate participation in all cases. It should also be stressed that if such an approach implied a reduction of the remote voting options, this too might have undesirable impacts on participation. Moreover, as demonstrated by the 2016 Eurobarometer data, the elements of the electoral process valued by citizens – such as secrecy, accessibility and protection from coercion and fraud – may differ across Member States, with consequences for the acceptability of a particular voting method to a particular Member State citizenry.

7.2 What are the benefits of the use of remote voting solutions?

The primary benefit of using remote voting options is that of enabling citizens to have access to the vote. In this regard, the use of remote voting solutions can help **facilitate the act of voting** for:

- Those voters who **live in remote areas**. This is the case for postal vote, vote by proxy, voting in mobile polling stations and internet voting.
- Those who **live abroad**. This is the case for voting in polling stations abroad, postal voting, vote by proxy and internet voting, especially in places where there is no consulate, embassy or other location in which a polling station could be established.
- Those for whom voting can be difficult given their **health condition** (for example, elderly or disabled voters). This is the case for postal voting, vote by proxy, voting in special polling stations within the country, voting in mobile polling stations within the country and internet voting. However, some people consider going to vote at their polling station to be an important part of the process, and some interviewees were concerned that remote voting solutions may be used as an excuse to avoid making standard in-person voting options accessible, which would be an undesirable outcome; in this regard, it is suggested that remote voting should be an addition to standard voting systems rather than a substitution for them.
- Those who **cannot leave the place in which they are residing** at the time of the election; for example, residents of a hospital, prison, retirement home or their own home. This is the case for postal voting, proxy voting, voting in special polling stations within the country, voting in mobile polling stations within the country and internet voting.
- Those who live close to their polling station but **need to travel on the day of the election**, for example because of professional duties or leisure activities. This is the case for all voting solutions.
- Those who live close to their polling station but **cannot or do not want to leave their house the day of the election**, for example because they have family duties or plans on the day of the elections. This is the case for postal voting, proxy voting, voting in mobile polling stations within the country and internet voting.

While undertaking this research we focused on looking for information about how disadvantaged groups of citizens have access to the vote. While we found data about groups such as voters from abroad, voters with health issues and voters in custody, there is a particularly wide research gap regarding **voters of no fixed abode**. The extent to which remote voting solutions can help these citizens is unclear, since their participation is more linked to whether and how they can register and receive the voting material, rather than how they can cast their vote.

Greater transparency about how citizens such as those listed above have access to vote in their country would help them to understand what help is on offer and how best to participate in the democratic process; it would also help to ensure that democracy is a reality for all citizens in the European Union. Our findings suggest that more work is needed to understand the situation of these citizens better, and to support them. When researching remote voting possibilities, it is important that Member States include in their analysis the effect on specific groups, including people of no fixed abode.

7.3 What are the drawbacks of the use of remote voting solutions?

Ultimately, adding additional voting methods increases the overall complexity of the voting system: the relationship between voters and authorities may involve more back-and-forth application and delivery relationships between different voters, authorities, and voting solution providers. While remote voting options can increase accessibility for voters, this may also present issues relating to electoral legitimacy and additional administrative burdens for the state. Issues related to all remote voting solutions include:

- Access to remote voting solutions may require an **additional application or registration**, which may dissuade voters from using it.
- **Observing remote voting solutions** may be more complex and difficult to organise than observing elections in traditional polling stations, and therefore not happen.
- New and relevant information about candidates may come to light close to the election day but after some voters have already cast their ballot (for example, by post or on the internet), resulting in an **information asymmetry** between voters.
- Remote voting solutions that take place in an uncontrolled environment may present a higher risk of fraud, coercion, family voting or other compromises to the integrity of the vote. If countries are intent on minimising the risk, the need to **verify the identity of the person** who actually casts the vote, to ensure that the person voted freely and without coercion, and to guarantee the secrecy of the vote may present an additional administrative burden.
- Remote in-person voting solutions may have **financial and administrative consequences** for states or for particular hosting institutions (such as hospitals or prisons), depending on whether they are introduced in addition to or instead of existing methods.
- There may be **political disagreement** over the method and extent of voting by a diaspora, particularly if this is seen to be politically advantageous to a particular party.

It is important to note that increasing voting options also increases variation among the public in their experience of voting and elections. In this regard, the convenience of remote voting options and their off-site (and in some cases non-public) nature may also change the way in which voters engage with the process of voting as a civic act with public consequences. While more difficult to assess (although some literature has explored this topic), this should be considered as a relevant factor in deciding whether to implement remote voting solutions. In seeking to implement remote voting solutions, Member States should first establish what aspects of the voting process they seek to prioritise; convenience may not necessarily be the primary outcome of value.

7.4 What is the impact of the use of remote voting solutions on electoral participation?

This study has shown that certain approaches work in some contexts. The diversity across and within Member States implies that **it is difficult to dissociate the context from the outcomes** of remote voting in terms of take up and participation. Remote voting solutions and their outcomes are closely linked to the context in which they are situated and there is no one-size-fits-all solution or combination of solutions. Expectations for what remote voting solutions

can contribute should be managed with caution and backed up with evidence taking into account the context in which the evidence was found, and whether it is transferable to other contexts.

Outcomes depend not only on context but also on **how the voting options are designed and implemented**, as within each option there are several features that need to be determined and which vary across countries (e.g. whether a prior application is needed to use the option, the identification mechanism, etc.). When thinking about implementing a new remote voting option, Member States should first consider the needs of the specific voters whose access to the ballot they are trying to facilitate, and the extent to which their chosen method meets these needs in practice.

Beyond this, **there is little evidence about the effect of remote voting solutions** on election outcomes or voting behaviour. In particular there is little evidence that remote voting solutions affect overall **turnout**. It is also important to stress that there are several factors related to turnout and one should be wary of assuming that simply adding a voting option will lead to an increase in participation. Therefore, Member States would need to apply a **package of measures** to increase turnout including, for example, new or improved remote voting options, awareness-raising campaigns relating to the European Parliament elections and the role of the European Parliament, and strategies to increase the trust in EU institutions and political actors in general. In the aforementioned Eurobarometer survey of citizens following the 2014 European Parliament elections, the top reasons for abstaining given by respondents who did not participate in the elections were lack of trust or dissatisfaction with politics in general (23%), lack of interest in politics (19%), and a conviction that their vote has no consequences or will not change anything (14%). These views will not necessarily be easily addressed by the provision of additional remote voting options.

7.5 What is the current status of internet voting within the EU?

While many pilot projects and trials of internet voting took place in early 2000s and 2010s, fewer have taken place in recent years. However, our mapping has shown that there has seemingly been renewed interest in a few countries in exploring internet voting solutions.

Nonetheless, concern over the potential cybersecurity risks of electronic voting systems – and the potential consequences for the legitimacy of election results and ballot integrity – remains valid. At its core, internet voting is a qualitatively different form of remote voting: one in which oversight and validation of the election moves from being confirmation of the undertaking of adequate procedures (such as the sealing of postal ballots and counting of votes) to relying instead on the judgement of specialists with regard to the integrity of the system.

In addition to securing the appropriate expertise and ensuring adherence to technical standards, a key enabler of effective internet voting implementation may be trust in the system. Multiple studies have consistently observed a positive association between trust in the internet, trust in internet voting, internet use and internet proficiency on the one hand and likelihood to use the internet to vote on the other. Where studies have made a comparison with other potential predictors, these factors have consistently been found to be more strongly associated with the uptake of or intention to use internet voting. The receptiveness of the population to internet voting may therefore also grow overall in coming years as internet penetration and digital skills increase – although, as discussed above, this may not necessarily result in an increase in turnout.

Countries implementing internet voting have sought to **balance the trade-off between risk and convenience** for voters by taking measures to reduce or minimise the risk to overall results. For example, France offers internet voting solely to a (relatively) small constituency

(voters overseas) who cannot attend the polling station on the day. Switzerland has different levels of security required for different scales of elections.

Piloting internet voting solutions may also help to test systems before implementation: for example, UK legislation provides for the piloting of new voting methods at local elections, in order to test changes to electoral administration in an arguably lower-risk setting before wider roll-out. Piloting solutions at a local level may also enable the use of quasi-experimental methods to study the impact of new methods on voting patterns and outcomes by comparing pilot areas to other demographically similar areas.

Equally, the focus on internet voting should not obscure other ways in which **digital and e-government technologies can facilitate the administration of elections**, including better enabling the provision of other remote options. For example, several countries allow voters to submit online applications to use a specific voting option, and have implemented IT systems for voters' registration, for counting the votes and for transmitting the results. Some countries (e.g. Romania and Lithuania) use an IT system to check on election day whether a person wanting to cast their vote is registered in the electoral roll and whether this person has already voted in another polling station. Voting documents in the Netherlands are delivered by e-mail to those abroad, while the UK uses scanning machines to validate signatures in postal ballots. In Croatia voters can use an online application to change their polling station (with the option to select any location within the country or abroad) until a few days before the elections.

7.6 Research gaps

This report illustrates the difficulty of drawing clear conclusions about what works in terms of increasing participation and by extension the difficulty of offering recommendations for what should be done to increase turnout in the next European Parliament elections. While a wide range of practices exist and are in place in different contexts across Member States, the evidence about effects on participation is scarce.

This report calls for evidence about the effects of remote voting solutions on participation. Even if the findings from such research are unlikely to lead to recommendations that are generalisable beyond the specific context in which the evidence was found, evidence would at least show what works in that specific context and, if nothing else, inform policy decisions to introduce or revoke remote voting solutions in a given country. While such research would be within the remits of Member States, the European Commission could support the process by helping them understand what works and how voting solutions affect participation, based on what has been already implemented or trialled in other Member States or in third-countries.

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Member States legislation

The section below presents the main legislative sources that the research team used in preparation of the country fiches and the final study report.

Belgium

Belgian Elections Act (Kieswetboek):
http://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=nl&la=N&cn=1894041230&table_name=wet

Bulgaria

Election Code (last update October 2017).

Cyprus

Law n. 141(I)/2002. Law Concerning the Civil Registry:
http://www.cylaw.org/nomoi/enop/non-ind/2002_1_141/full.html

Law n. 37/1959. The Law Concerning the Election of the President and Vice-President of the Republic (updated as of 18.3.2018) (in Greek and English):
http://www.cylaw.org/nomoi/enop/non-ind/1959_1_37/full.html

Law n. 72/1979. The Law Concerning the Election of Members of the Parliament (updated as of 18.3.2018) (in Greek): http://www.cylaw.org/nomoi/enop/non-ind/1979_1_72/full.html

Law n. 10(I)/2004. The Law Concerning the Election of Members of the European Parliament.
In Greek (updated as of 18.3.2018):
http://www.cylaw.org/nomoi/enop/non-ind/2004_1_10/full.html
In English (updated as of 6.12.2013):
http://www.moi.gov.cy/moi/moi.nsf/All/44A209D312E8DB52C2257A7900249BD7?OpenDocument

Law n. 206/1989. The Law Concerning the Conducting of Referendums (in Greek):
http://www.cylaw.org/nomoi/enop/non-ind/1989_1_206/full.html

Law n. 111/1985. The Municipalities Law (Law n. 111/1985 – updated as of 18.3.2018) (in Greek): http://www.cylaw.org/nomoi/enop/non-ind/1985_1_111/full.html

The Constitution of the Republic of Cyprus.
In Greek (updated as of 18.3.2018, including the Tenth Amendment of 2016):
http://www.cylaw.org/nomoi/enop/non-ind/syntagma/full.html
In English (not updated with the latest Amendments):
http://www.presidency.gov.cy/presidency/presidency.nsf/all/1003AEDD83EED9C7C225756F0023C6AD/$file/CY_Constitution.pdf

Reg. n. 18/86. Regulations Concerning the Conducting of Municipality Referendums:
http://www.cylaw.org/KDP/data/1986_1_18.pdf

Germany

European Electoral Act (Europawahlgesetz [EuWG]).

European Electoral Regulations (Europawahlordnung [EuWO]).

Federal Electoral Act (Bundeswahlgesetz [BWG]).

Federal Electoral Regulations (Bundeswahlordnung [BWO]).

Denmark

The Danish Constitution (1953) (Danmarks Riges Grundlov): http://www.grundloven.dk

Folketing (Parliamentary) Elections Act (last update December 2017): https://www.retsinformation.dk/Forms/R0710.aspx?id=194769

BEK No. 1136 of 18/10/2017. Bekendtgørelse om brevstemmeafgivning i kriminalforsorgens anstalter og arresthusene (Executive Order on postal voting from the Office of the Prosecutor, detention centres and prisons) (last update October 2017): https://www.retsinformation.dk/Forms/R0710.aspx?id=194183

BEK No. 1137 of 18/10/2017. Bekendtgørelse om brevstemmeafgivning i visse boformer og boliger efter lov om social service og boliglovgivningen (Executive Order on postal voting in Certain Homes and Homes pursuant to the Act on Social Services and Housing Law) (last update October 2017): https://www.retsinformation.dk/Forms/R0710.aspx?id=194184

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