frontiers | Frontiers in Political Science

ORIGINAL RESEARCH
published: 13 July 2022
doi: 10.3389/fpos.2022.876476

"The High Mass of Democracy" —Why Germany Remains Aloof to the Idea of Electronic Voting

Jasmin Fitzpatrick†* and *Paula Jöst*†

Department of Political Science, Johannes Gutenberg-University Mainz, Mainz, Germany

Despite the increase in citizens' use of absentee voting and examples from other countries, so far Germany remains aloof to the idea of introducing electronic voting as another form of convenience voting to its political elections. Apart from intra-party elections, no changes in the direction of electronic voting are considered in the current debate about an electoral reform. What are the reasons for the German aloofness toward electronic voting? In this article, we focus on party positions and institutional, as well as legal considerations, to provide a comprehensive answer to this question. From a normative point of view, the question of electronic voting is inextricably linked to the concept of electoral integrity, as the latter is pivotal to determine a democratic mode to select trusted representatives. Therefore, this paper first discusses the opportunities and risks for electoral integrity associated with electronic voting. Based on these considerations, we then explore reasons for the hesitancy of German legislators. To this end, we conducted expert interviews with German MPs and considered open-source documents related to the German debate about electronic voting. Our paper contributes to research on party positions on electronic voting, by relating the topic to questions about electoral integrity and considering political parties' reasoning, as well as legal and institutional constraints in the German context. We find that the main reasons provided by party representatives circle around concerns about transparency, security, accuracy, and the value of the voting act itself.

Keywords: electronic voting, Germany, democracy, electoral integrity, electoral reform

OPEN ACCESS

Edited by:
Giulia Sandri,
Lille Catholic University, France

Reviewed by:
Lukas F. Stoetzer,
Humboldt University of Berlin, Germany
Julia Partheymueller,
University of Vienna, Austria

***Correspondence:**
Jasmin Fitzpatrick
fitzpatrick@politik.uni-mainz.de

†These authors have contributed equally to this work and share first authorship

Specialty section:
This article was submitted to Elections and Representation, a section of the journal Frontiers in Political Science

Received: *15 February 2022*
Accepted: *09 June 2022*
Published: *13 July 2022*

Citation:
Fitzpatrick J and Jöst P (2022) "The High Mass of Democracy" —Why Germany Remains Aloof to the Idea of Electronic Voting. Front. Polit. Sci. 4:876476. doi: 10.3389/fpos.2022.876476

INTRODUCTION

The 2021 elections to the German Bundestag mark a record high in absentee voting: 47.3 percent of ballots were postal ballots compared to 28.6 percent during the last national election in 2017 (Bundeswahlleiter, 2017). The special circumstances of the election during the COVID-19 pandemic can be regarded the main reason for this drastic increase, however, the share of postal ballots has been steadily increasing since 1990 (**Figure 1**). This trend is visible in other European countries that allow postal ballots as well, which justifies the assumption that distant voting does find growing and stable support in Western democracies. With the evolving possibilities of technology, the introduction of electronic voting appears to be an obvious answer to this growing demand for absentee voting options in order to accommodate voters' preferences for

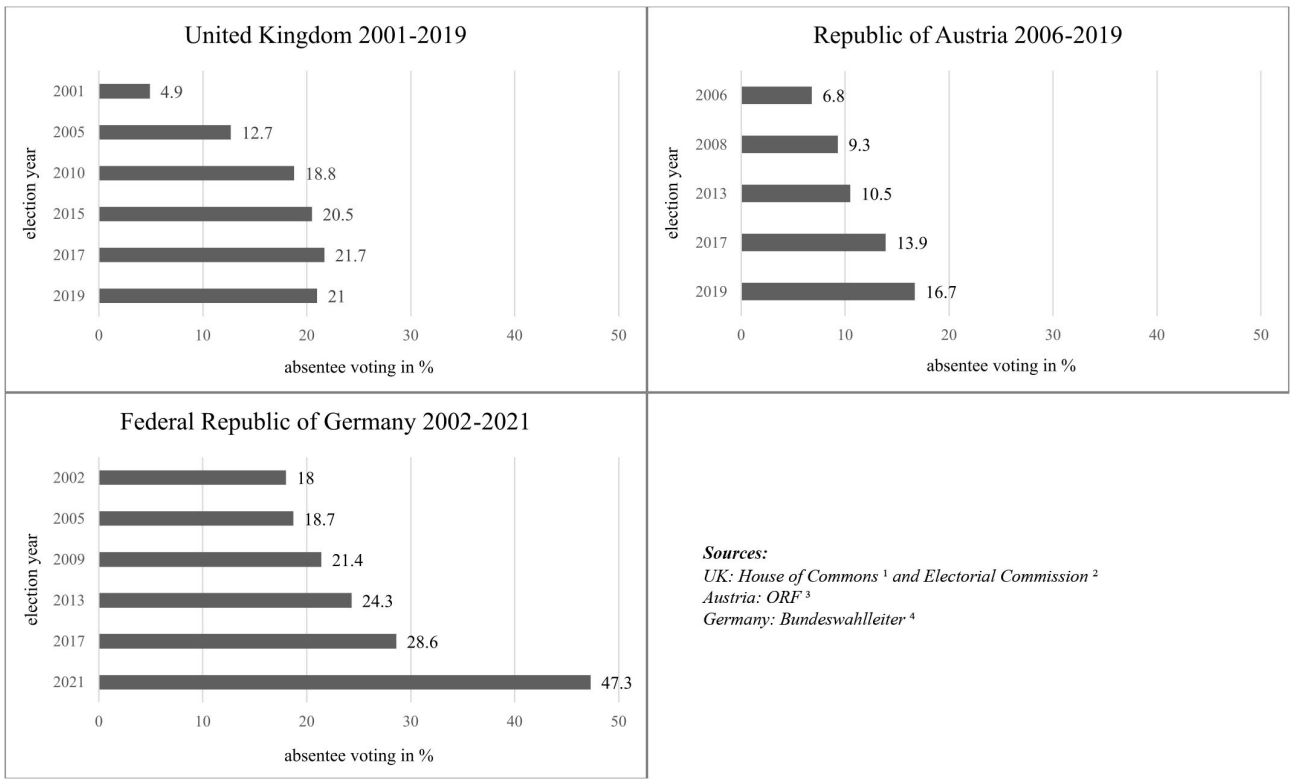

FIGURE 1 | Share of Postal Ballots by Country.

convenience voting in a democracy in the twenty-first century. In a recent survey conducted in Germany (Bitkom, 2021a), a majority of respondents expressed their willingness to cast their ballot online (18–29 years: 73 percent; 30–49 years: 66 percent; 50–64 years: 60 percent; 65 years and older: 46 percent). While disadvantages according to the respondents (Bitkom, 2021c) include the potential to make election fraud easier (49 percent), or the fear that the secrecy of voting is compromised (40 percent)–17 percent voice the concern that technically skilled citizens might benefit, hence the principle of equal vote could be violated. Yet, respondents see advantages (Bitkom, 2021b) in the fast delivery of election results (64 percent), the enhanced convenience of the voting act (56 percent), an increase in turnout (37 percent), and a decrease in costs (25 percent). In Germany, however, electronic voting (stationary or online) does not play a prominent role in the ongoing discussion on electoral system reform. Apart of the idea of changing the law on political parties by introducing modes of electronic voting during, for example, party congresses, the coalition treaty of the new governing parties does not include any paragraph on a reform of casting ballots. We argue that precisely this contrast between the recently strongly increasing number of postal voters, the new technological possibilities available, and the great willingness of the German population to vote online, on the one hand, and the absence of any concrete plans regarding e-voting in political elections on the part of politicians on the other hand, make Germany an interesting case for our analysis[1] [2] [3] [4].

What are the reasons for the German political aloofness toward electronic voting? In this article, we will provide a comprehensive answer to this question, moving party positions and institutional, as well as legal considerations onto the center stage. As a theoretical basis, we build on literature on electronic voting as well as electoral integrity to identify the chances and risks for the quality of democratic elections associated with electronic voting. Based on these considerations, we draw on open-source documents and expert interviews with MPs specialized on digital politics and electoral reforms, to distinguish different dimensions of concerns toward the introduction of electronic voting. MPs represent the party in public office (Katz and Mair, 1993) and with their thematic expertise and their position within the party, our interview partners play a prominent role within the party in central office (Katz and Mair, 1993).

Thereby, we expand existing research in at least three meaningful ways: First, we provide an innovative theoretical basis for our analysis, which does not only consider normative considerations surrounding the debate about electronic voting,

[1] https://commonslibrary.parliament.uk/postal-voting-in-the-uk
[2] http://www.electoralcommission.org.uk
[3] https://oesterreich.orf.at/stories/3014824
[4] http://www.bundeswahlleiter.de

but directly relates them to broader debates about the consequences of electronic voting for electoral integrity. Thereby, we are able to assess whether reasons brought forward by political parties mirror the concerns voiced in scientific debates and whether potential consequences for electoral integrity are considered by political parties. Second, by conducting interviews with MPs from the governing parties, as well as one opposition party, our paper provides a current assessment of German political parties' positions on electronic voting, which is missing in the debate about electronic voting in Germany so far. Third, by discussing political parties' positions together with the broader institutional and legal framework for elections in Germany, we are able to comprehensively analyze their positions and also venture a prognosis for the future of electronic voting in Germany. During the interviews, it became apparent that reasons for the German aloofness include foremost concerns about the essential criterion of transparent elections. Other sources of doubt toward electronic voting circle around questions of security, accuracy and the value of the voting act itself.

The remainder of this paper is structured as follows: In the next chapter, we will define the key concepts and relate the topic of electronic voting to broader questions about electoral integrity, before we outline normative considerations on the chances and risks of electronic voting discussed in scientific research. Then, we provide a short description about milestones in the German debate about electronic voting as well as the open-source documents used, and the interviews conducted in 2021 and 2022. Next, we move on to the analysis and distinguish five dimensions of the German aloofness, which will be discussed in some detail, before we provide a cautious outlook on laboratories for change. The last chapter summarizes our main findings.

ELECTRONIC VOTING AND ELECTORAL INTEGRITY

Elections are at the heart of any democracy. Without citizens' regular participation in elections, representative democracy is inconceivable, and the legitimacy of any democratic system would be heavily endangered. However, even in well-functioning democracies many citizens regularly choose not to vote. Additionally, recent years have seen a change in the mode people choose to cast their ballot, with absentee voting being on the rise in many Western democracies even well before the COVID-19 pandemic accelerated this trend (**Figure 1**). Considering the rapid development of new technologies and the increasing importance of digital technologies, especially online devices, in citizens' everyday lives, in the last decades, digital innovations also spread to the area of democratic elections. Today, computer and software solutions already assist at some points in the electoral process, as for example in administering voter registers or aggregating the vote count from different constituencies on election day. However, the trend to integrate digital technologies into the electoral process does not stop there: A proposed measure to counter the aforementioned drop in overall turnout and to account for the high number of absentee voters is to introduce electronic voting as a means for people to cast their vote in elections. Thereby, people could cast their vote fully electronically in supranational, national, sub-national or even intra-organizational elections instead of using paper and pencil.

The idea of electronic voting has sparked the interest of practitioners and researchers alike. Many countries have since experimented with various forms of electronic voting, with Estonia being the most prominent example, as the country applies electronic voting in local elections since 2005 and in its national elections since 2007 (Veit and Huntgeburth, 2014). While some researchers speak of introducing new technologies to elections (see for example Loeber, 2020), others speak of elections becoming digital (Essex and Goodman, 2020, p. 162). A third group of researchers goes even further and already terms this the "era of cyber-elections" (Garnett and James, 2020, p. 111).

A common denominator is the perspective that electronic voting is perceived as an innovation of the voting procedure. Diffusion of innovations (Rogers and Shoemaker, 1971; Rogers, 2003) depends on different aspects that determine if an actor adopts innovations and when. Motivation for adoption on the individual level is driven by desires and attitudes (Rogers and Shoemaker, 1971, p. 182–85), i.e., "venturesomeness" (innovators), status as a leading figure (early adopters), "deliberate willingness" (early majority), skepticism (late majority), or the desire for honoring tradition (laggards). When it comes to the diffusion of electronic voting as an innovation, we can refer to different levels. While at the individual level, digital inequality needs to be considered as the main limitation, in democracies with a high level of online users, these variables are only limited in their ability to explain why some countries are more hesitant than others in adopting electronic voting as an innovation.

Reasons include technical as well as normative, especially democratic, concerns. Before moving on to show how this topic is inextricably linked to questions about electoral integrity and which opportunities and threats electronic voting introduces to the democratic realm, an important clarification must be made as to what constitutes electronic voting and which forms can be distinguished.

In this paper, when we speak of electronic voting, we follow the conceptualization of Veit and Huntgeburth (2014) and focus especially on the "collection and aggregation of voters' preferences to produce collective decisions" (Veit and Huntgeburth, 2014, p. 120). Thereby, we leave other steps of the electoral cycle, as for example voter registration or election administration, aside. In other words, we focus on the act of voting itself as well as the vote count. In most democracies, people vote through paper-based procedures either at a polling station or optionally use postal voting. Also, vote counting is a manual procedure in most contexts. If voting is supported by Information and Communication Technologies (ICT), we speak of *electronic voting*, respectively, *e-voting* (Veit and Huntgeburth, 2014, p. 121). ICT is a general and ever-evolving term that "encompasses computers, the internet, middleware as well as necessary software, storage, and much more" (Veit and Huntgeburth, 2014, p. 39).

E-voting can take place through voting machines, for example direct recording electronics (DREs) or optical scan voting

systems, in a controlled environment where official election staff is present. However, e-voting is also possible in uncontrolled environments where people can cast their vote in the absence of official staff. The latter form is called *internet-voting*, respectively, *i-voting*. I-voting is defined as "the use of the internet in voting procedures which mainly involves authentication, recording, storing, and tabulation of votes" (Veit and Huntgeburth, 2014, p. 128). Furthermore, i-voting can be divided into voting *via public computers*, for example installed in shopping malls or other frequented places, which is then often called kiosk voting, or remotely *via private computers*, respectively, mobile devices (Buchstein, 2004; Mursi et al., 2013).

When introducing new applications, devices, or procedures to democratic elections, the crucial question is how they affect the overall quality of the respective election. If the newly introduced features endanger democratic principles, they risk undermining the legitimacy of the official election results and thereby may ultimately risk the legitimacy of the whole democratic system. However, if they facilitate the democratic conduct of elections, they might well improve the quality of elections overall and ultimately also the quality of democracy.

The concept used to assess the quality of democratic elections is called *electoral integrity* and is strongly tied to the notion of *free and fair elections*. There is no consensus on how to define electoral integrity with researchers drawing either on national and international legal accounts, on democratic theory, or on standards and norms set by international organizations. In this paper, we use one of the most widely applied definitions by Norris, who defines electoral integrity as "to refer to international conventions and global norms, applying universally to all countries worldwide throughout the electoral cycle, including during the pre-electoral period, the campaign, on polling day, and its aftermath" (Norris, 2013, p. 564). One of the organizations Norris references as setting international conventions and global norms is the Organization of American States (OAS), which specifies more explicitly what constitutes a democratic election:

"The concept of democratic elections is defined in such a way that elections are considered democratic when they fulfill four basic conditions. First, elections must be *inclusive*, that is, all citizens must be effectively enabled to exercise their right to vote in the electoral process. Second, elections must be *clean*; in other words, voters' preferences must be respected and faithfully registered. Third, elections must be *competitive*, that is, they must offer the electorate an unbiased choice among alternatives. Finally, the main *public offices* must be accessed through periodic elections, and the results expressed through the citizens' votes must not be reversed" (Munck, 2007, p. 7).

So, the crucial question when it comes to introducing e-voting is: Does e-voting facilitate or endanger the democratic conduct of elections? Put differently, does e-voting increase, or decrease electoral integrity in the constituency, organization, or country where it is applied?

The aim of this paper is not to provide an empirical assessment to this question. Instead, we want to analyze the reasons the German institutional and legal framework, as well as political parties provide themselves as to why they remain mainly aloof to the idea of introducing e-voting in Germany so far. Thereby, we apply a more normative point of view and relate their arguments to the general debate about the potentials and risks of e-voting for electoral integrity. Before we move on to describe the methodology the next two subchapters will build the normative basis for the analysis by outlining normative chances and risks associated with e-voting and their consequences for electoral integrity. While the first will list and discuss chances of e-voting for electoral integrity brought forward in the literature, the second will focus on risks for electoral integrity associated with e-voting. Paragraphs within each subchapter will sum up the chances, respectively, risks, associated with e-voting and their potential to affect electoral integrity.

Chances for Electoral Integrity

The normative debate about the consequences of e-voting for electoral integrity does not provide a clear-cut answer as to whether voting and counting should be assisted by electronic devices. Overall, the arguments for and against e-voting can be regarded as an extension of the discussion of absentee voting in general (e.g., Brady and McNulty, 2011; Bryant, 2020; Nyhuis, 2021). Proponents of e-voting stress that especially the use of remote voting techniques and voting computers placed at locations, where people frequently go, could increase participation and therefore overall turnout in elections (Veit and Huntgeburth, 2014; Haque and Carroll, 2020). As a form of convenient voting, e-voting aims for making voting more comfortable for citizens (e.g., Herrnson et al., 2019). Consequently, they argue that e-voting has the potential to counter declining turnout trends (Kersting and Baldersheim, 2004).

Moreover, some highlight that e-voting could reduce turnout inequality more generally, as it tackles the existing turnout gap between those who regularly turn out to vote and those who are less likely to vote by providing new means and opportunities to bolster participation, especially of those underrepresented (Garnett and James, 2020). Also, remote voting from home or various public places makes waiting time in front of polling stations obsolete. Brady and McNulty (2011) provide evidence that the location of the polling station matters. Making voting more convenient by introducing e-voting modes therefore has the potential to reduce the turnout gap.

Furthermore, by using e-voting techniques, elections could become more accessible. In this line of thought, accessibility refers to a more inclusive process of voting (Loncke and Dumortier, 2004). Voting electronically could simplify the act of voting (Kersting and Baldersheim, 2004), especially in more complex voting systems where multiple votes need to be cast and computer systems can assist in keeping an overview. Making the act of voting more accessible to citizens could also speak to the principle of non-discrimination by increasing turnout among disabled or ill people, and citizens living abroad, or suffering from language barriers that prevent them from going to a regular polling station (Riera and Brown, 2003; Loncke and Dumortier, 2004). Thereby, elections could become more inclusive and fairer, and equality of participation could be improved, increasing electoral integrity overall.

Also, proponents of direct democracy expect that more convenient and accessible e-voting opportunities could improve citizens' active participation in politics more generally and enable them to decide on various political issues directly (Buchstein, 2004; Loncke and Dumortier, 2004). However, some researchers also acknowledge that the potential of e-voting to include some may at the same time exclude others, which lack the ability or devices necessary to vote electronically (for a similar line of argument see: Kersting and Baldersheim, 2004; Roseman and Stephenson, 2005). This phenomenon relates to broader debates about the digital divide (e.g., Veit and Huntgeburth, 2014).

Besides the strong participation and turnout argument, proponents of e-voting stress that e-voting could improve the accuracy and efficiency of elections. Elections could become more accurate by permitting voters to gain more information about voting options (Riera and Brown, 2003), as electronic devices can offer various additional information features not available in paper and pencil voting. This in turn might prevent mistakes and reduce the number of invalid or wrongly cast votes and lead to more accurate election outcomes (Karger, 2004; Germann, 2021 for Switzerland).

Moreover, e-voting has the potential to increase the speed of elections, as results can be easily aggregated electronically and do not need to be counted by hand. Also, archiving of votes could become easier and faster (Loncke and Dumortier, 2004). However, the latter argument is contested, as critics argue that results could also easily get lost electronically due to technical failures or manipulation (Haque and Carroll, 2020). And without a paper trail, reliable recounts become difficult. Beside increased speed, e-voting also allows for a more flexible ballot design that is open to last minute changes (Riera and Brown, 2003). Furthermore, many proponents argue that e-voting is more cost-efficient than postal ballots and regular paper and pencil voting (Veit and Huntgeburth, 2014; Garnett and James, 2020; Haque and Carroll, 2020). Therefore, proponents of e-voting believe that e-voting would lead to more efficient elections.

The arguments brought forward by proponents of e-voting, which mainly center around participation, turnout, accessibility, accuracy, and efficiency, paint a positive picture for electoral integrity especially regarding the inclusiveness and cleanliness of elections. However, there are several aspects that dampen researchers' and practitioners' enthusiasm, raising concerns about potential negative effects of e-voting for electoral integrity (e.g., Essex and Goodman, 2020). These concerns will be described in more detail in the next subchapter.

Risks for Electoral Integrity

One of the most frequently voiced concerns is security. Security issues concern the act of voting, as well as the counting and archiving of votes. On election day, concerns range from issues about clear authentication to ensure that one person does not vote multiple times and identity theft is impossible, fear of bot attacks or voter manipulation through advertising or deep fakes on the voting platform, digital voter suppression, hacking of voting platforms through domestic or even foreign actors, to technical failures that prevent citizens from casting their vote (Karger, 2004; Kersting and Baldersheim, 2004; Loncke and Dumortier, 2004; Mursi et al., 2013; Garnett and James, 2020; Haque and Carroll, 2020). Manipulation or technical failures can also affect the counting process or the process of faithfully archiving all votes in case a recount becomes necessary. If there is no paper trail from voting machines, how can those responsible for election administration ensure that the votes counted reflect the votes cast and have not been manipulated (Schryen and Rich, 2009; Haque and Carroll, 2020)? And even if there is a paper trail, how can we be sure that the printer did not malfunction at some point? Also, how can officials guarantee that no votes are erased from the system (Garnett and James, 2020)?

However, Willemson (2017) argues that paper-based voting procedures also suffer from security issues. Therefore, he concludes that in the context of paper-based voting "the feeling of security [is] based on historical experience rather than rational risk analysis" (Willemson, 2017, p. 295). Similarly, studies from the broader debate on absentee voting conclude that skepticism toward the correct count of postal votes is justified (e.g., Nyhuis, 2021 for the German case).

Nevertheless, the security concerns associated with e-voting lead to another unresolved issue concerning the trade-off between transparency and secrecy. On the one hand, the voting process must be transparent, meaning "[v]oters should be able to possess a general understanding of the whole process" (Mursi et al., 2013, p. 3). On the other hand, ballot secrecy requires that voting remains fully anonymous, so "[n]o one should be able to determine how any individual voted" (Mursi et al., 2013, p. 3). Ballot secrecy is a precondition to ensure free elections, where no coercion or vote buying can take place (Loncke and Dumortier, 2004). E-voting is often criticized for its inherent lack of transparency as the technical processes are not directly observable raising doubts about whether votes cast are recorded and counted as intended by the voter (e.g., Riera and Brown, 2003; Schryen and Rich, 2009). However, increasing transparency by providing receipts or confirmations about the successful electronic transfer of the vote create new risks for ballot secrecy, especially when i-voting is applied from private computers (e.g., Buchstein, 2004; Loncke and Dumortier, 2004; Veit and Huntgeburth, 2014). Countering this criticism, Willemson (2017) stresses that paper-based systems also fail to ensure full anonymity and transparency, as papers could also be traced back to individuals and no one can observe every single step from the act of voting until the final results are announced.

Concerns about security as well as secrecy and transparency translate into another severe issue associated with e-voting: a lack of public trust. Without public trust in the free and fair conduct of elections, election outcomes might not be accepted by the public, endangering the legitimacy of elections *per se* and the political system more broadly (for a similar line of argument see: Buchstein, 2004, p. 49). Indeed, an experiment by Bryant (2020) shows that the voting method influences voter confidence, where absentee voting is associated with significantly lower trust than in person voting. With absentee voting being on the rise in many countries, this has important implications for public trust in electoral outcomes.

Researchers argue that this issue is even more severe for e-voting than for postal voting (e.g., Pieters, 2010; for a

contrasting view see: Willemson, 2017). Reasons for this are the security and secrecy concerns raised above. Many citizens worry about the security of their private information, as well as the correctness, verifiability, and reliability of the whole process if more technology is involved and many formerly visible steps suddenly become invisible to them (Karger, 2004; Essex and Goodman, 2020; Garnett and James, 2020). Especially, close election results might raise doubts about the correctness of the election if e-voting was applied (Buchstein, 2004). However, some researchers even argue that e-voting is more reliable as it reduces human errors in the process (Pieters, 2010). Nevertheless, Garnett and James (2020) highlight that security concerns can raise public distrust independent of whether they "are real or imagined" (Garnett and James, 2020, p. 119).

Another reason for public distrust of e-voting is the complexity of the processes involved. People must trust experts to evaluate the technological processes at work behind the scenes, as most citizens lack the technological skills to assess them themselves. Also, as mentioned above, e-voting requires general knowledge and the ability to use the web and electronic devices. Citizens lacking these skills might feel excluded and consequently might express even stronger distrust vis-à-vis e-voting. Even if only some people lack trust in e-voting to produce free and fair election outcomes, this is highly problematic for the political system (Buchstein, 2004).

Trust seems to be the key in the acceptance of e-voting among the population. If people are willing to accept the risks associated with e-voting as they are willing to accept the risks of paper-based procedures, trust in e-voting might grow over time and e-voting might improve the quality of democratic elections. However, if they do not accept and trust e-voting, introducing e-voting to democratic elections might endanger the legitimacy of elections even in long established democracies. In the same vein, Mursi et al. (2013) stress that "the lack of trustworthiness is the main reason why e-voting is not widely spread even though e-voting is expected to be more efficient than the current plain paper voting" (Mursi et al., 2013, p. 6).

In sum, concerns about security, secrecy, transparency, and the required skills for e-voting have the potential to pose a direct threat to electoral integrity by violating principles for democratic elections, like inclusiveness and cleanliness. Additionally, they have the potential to undermine public trust in elections, for example trust in the cleanliness of elections, and thereby question electoral integrity also indirectly. For this indirect mechanism to work, it is not of primary concern whether these issues are real or only perceived by citizens (Garnett and James, 2020).

Besides the risks discussed so far, there are several open questions that add to the debate about e-voting and its consequences for electoral integrity, involving questions about its implementation, regulation, and the ownership of hardware and software (e.g., Garnett and James, 2020; Loeber, 2020). A holistic approach to e-voting must ensure that democratic principles for elections are met at any step of the electoral process, also when it comes to the implementation and regulation of procedures, as well as ownership questions. Otherwise, they also have the inherent potential to undermine electoral integrity.

Lastly, one group of arguments raised by researchers that also indirectly affects electoral integrity is "the privatization of the voting process" (Buchstein, 2004, p. 54) through e-voting, in this case especially i-voting. These researchers highlight the symbolic meaning of voting at a polling station, as a kind of ceremonial procedure, which they argue gets lost when citizens vote at other public places or at home (Buchstein, 2004). Transferring the act of voting from the public sphere to the private sphere, they argue, reduces the visibility of election procedures, and hampers their verifiability by everyone, which in turn affects the overall quality of elections (Karger, 2004). Additionally, Veit and Huntgeburth (2014) outline that voting at a polling station makes voters aware of the importance of their vote, which might be degraded to a spontaneous decision when cast from home or any public place with internet access. However, as many risks brought forward in this subchapter, this issue applies not only to i-voting, but also to absentee voting in general.

Based on these normative considerations, societies and their governments have to evaluate whether they adopt modes of e-voting into their electoral processes or not. Before we take a closer look at the German debate, the following chapter provides a brief overview of the data used.

METHODOLOGICAL APPROACH

We base our case presentation on two different types of material: open-source documents and expert interviews with MPs. In seminal party literature, MPs represent the party in public office (Katz and Mair, 1993) and can therefore provide important information on a party's position. With their thematic expertise and their position within the party, our interview partners play a prominent role within the party in central office (Katz and Mair, 1993). In our opinion, the interviews are an appropriate proxy in this case because parties' election programs do not contain sections dealing with the digitalization of voting processes at the state or party level. Yet, voting on the policy program or deciding on leadership is a central aspect of will formation and decision-making that can be transferred into the digital sphere (for the party level see Fitzpatrick, 2021).

Combining open-source data with expert interviews enables us to highlight the development of the German debate and to provide background information to assess the future development regarding the introduction of e-voting in different settings within the German political system. **Figure 2** displays an overview of important steps in the development of the German debate.

Open-source documents include rulings by the German Constitutional Court, reports provided by the Research Services of the Bundestag (WD) and a report by the Office of Technology Assessment at the German Bundestag (TAB). In addition to these general sources, we had a look at the party programs of all parties in the German Bundestag. As a result of the pandemic, parties had to move several processes of their decision-making processes online. Embracing these new, technology assisted paths and considering the urgent demand for digital solutions that

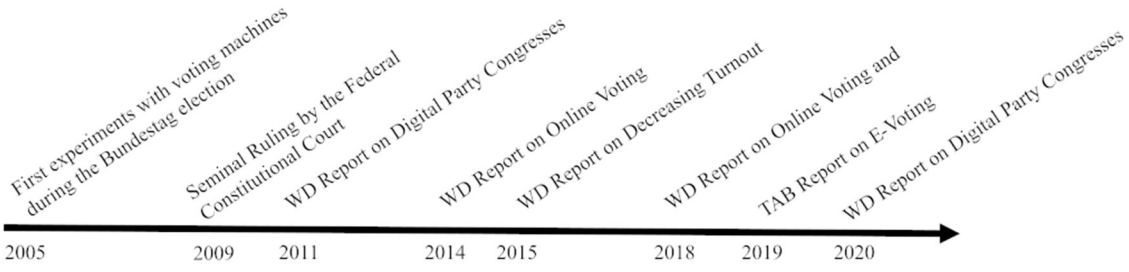

FIGURE 2 | Timeline of steps shaping the debate on E-Voting in Germany.

surfaced during the pandemic in civil society, we want to portray how parties reacted to the challenges. The state and national elections held in 2021 provided a setting where parties repeatedly had to elaborate their ideas for a more digitalized Germany.

In addition to these open-source documents, we base our case presentation on expert interviews. Criteria for the selection of interview partners were their expertise in digital politics, their ability to speak on behalf of their party and their familiarity with the debate on electoral reforms. Consequently, we contacted the spokesperson on digital politics and the delegate to the electoral reform commission of all parties represented in the twentieth German Bundestag inviting them both at the same time to an exchange on electronic voting and electoral integrity. We did this for transparency reasons and in order to enable coordination between the offices of both MPs for each party. We were able to realize interviews with MPs of all governing parties and with MPs of one opposition party. For the social democratic party (SPD), the Greens (Bündnis 90/Die Grünen) and the liberal democratic party (FDP), we interviewed the spokespersons on digital politics, for the right-wing party AfD (Alternative für Deutschland), we interviewed the delegate to the electoral reform who also presides the party's program committee. The MPs of the Christian democratic union (CDU), the Christian social union (CSU) and the Left (Die Linke) declined our interview request or did not react to the initial email and the reminder.

The interviews were conducted between December 2021 and February 2022 (after the Bundestag election 2021 and after the government formation) digitally *via* MS Teams. We recorded and transcribed the interviews (with permission of the interviewees). The transcripts in German are provided as **Supplementary Material** to this paper. The interviews lasted for about half an hour each and were semi-structured following a list of questions covering institutional, normative, security, and political aspects of e-voting. The initial questions are included in the **Supplementary Material**.

We coded the interviews separately. Codes consisted of the above-mentioned normative principles: Accessibility, accuracy, efficiency and speed, cost, turnout, security, reliability and trust, transparency, and secrecy. We compared the emphasis MPs put on these principles and describe similarities and differences in argumentation in the following section. The interviews were conducted in German, the quotes were translated by the authors.

WHY GERMANY REMAINS ALOOF TOWARD E-VOTING AND WHERE WE MIGHT EXPECT CHANGE

The German electoral system allows citizens to cast their votes *via* mail. This mode of voting has experienced a rise in popularity. An expansion of convenience voting could meet voters' demands. Yet, Germany has a very strict law on data privacy and a recent survey suggests that a noteworthy share of citizens has doubts about the public administration's capability to handle their data responsibly and securely (Initiative D21, 2018). However, not only citizens doubt the public administrations' technological capabilities, but also politicians express skepticism and hesitancy toward electronic modes of voting, although to slightly varying degrees and for different reasons. But why exactly does Germany remain aloof to the idea of e-voting? In the following paragraphs and based on the open-source documents and especially on the interviews with the MPs, we identify five dimensions for the German political aloofness toward electronic voting. We will specify each dimension based on the normative considerations elaborated above and connect them to statements derived from the different sources. Sources are discussed in the following section jointly, because the Research Services of the Bundestag are by design an important source for MPs in exercising their duties. MPs we interviewed partly referred to the content of the reports by the Research Services, the report of the Office of Technology Assessment at the German Bundestag, or the ruling of the German Federal Constitutional Court. Hence, by connecting the information derived from these sources, we provide a comprehensive overview of reasons for the German aloofness.

Transparency and Secrecy

Article 38 of the German Basic Law defines five principles for the electoral process: general, direct, free, equal, and secret. Any introduction of e-voting has to meet the demands posed by these principles. In 2009, the German Federal Constitutional Court dealt with the compatibility of electronic modes of elections with Basic Law. Until today, this ruling is the foundation of German policy making in this regard. The court emphasized the public character of elections. Therefore, the public needs to be able to monitor all steps of the electoral process and to verify the compliance with Article 38. The

ruling corresponds with the demand for transparency and the dangers of privatizing the voting act and thereby lowering its symbolic meaning described above. For the employment of technologically assisted modes of election, this poses a challenge: Technological procedures are complex and only a small share of the public is able to understand these procedures, i.e., read and verify codes even if they were public. Consequently, unless this criterion is met, the introduction of e-voting in national elections is unconstitutional in Germany. MP Rößner (Greens) highlights that the whole debate about e-voting in Germany cooled down and nearly came to a halt after this ruling.

In our interviews, all MPs pointed out the importance of transparent elections for legitimation and acknowledged the restrictions this ruling sets to the introduction of e-voting in Germany. MP Höferlin (FDP) mentioned the ambivalence between transparency and secrecy outlined above and pronounced his concern to tamper with the well-trusted and widely acknowledged German electoral process: In contrast even to other Western democracies, there is a large acceptance of electoral outcomes and the consequences for government formation. MP Höferlin's (FDP) fear is that a complex and technologically sophisticated e-voting process will provoke a decrease in public trust in the election outcome. Quite similarly, MP Zimmermann (SPD) emphasizes the beauty of simplicity of paper and pencil-elections: any concerns of a miscount can be easily overcome by a simple recount. Thus, even those MPs with a high interest and affinity for digital solutions have high regards for the paper-based German electoral process. They are very conscious about this fact and stressed it during the interviews.

The impact of the Constitutional Court's ruling was repeatedly reassessed and the German Bundestag has repeatedly dealt with the question of moving elections online (Wissenschaftliche Dienste, 2011, 2014, 2015, 2018, 2020). In 2014, the Research Services of the German Bundestag issued a report on experiences of e-voting in other countries and possibilities for the German context. Tapping on the issue of secrecy in accordance with Article 38 of the Basic Law, the paper draws on a ruling by the German Federal Constitutional Court regarding postal voting. The judges explained the importance of the generality of voting and that the principle of non-disclosure may be violated to a minimal degree in order to guarantee the general character of the election (Wissenschaftliche Dienste, 2014).

MP Glaser (AfD) pronounced concerns in this regard: He emphasized that it should be of interest to include those into democratic processes that are interested and that it should not be a goal to include anyone at any price. A scenario he painted was that of a crowd of people sitting in a Sushi bar on election day voting together. In his opinion, this would be disgraceful to the act of voting and violate the important norm of secrecy.

Accessibility and Turnout

As mentioned before, German citizens have the possibility to cast their vote as a postal vote—even without any further explanation. This mode already provides voters with more flexibility in casting their ballot. On the one hand, especially i-voting has the potential to increase this flexibility to create even more inclusive elections and to increase turnout and thereby increasing electoral integrity, by for example allowing disabled or ill people, as well as citizens living abroad to cast their vote in a convenient way. On the other hand, as described above, relying solely on e-voting has the potential to exclude those unable to handle digital devices and hence reducing the inclusiveness of elections and electoral integrity more broadly. This ambivalence is also acknowledged by MP Zimmermann (SPD), who points to the potential of e-voting for barrier-free elections, as well as to the importance of digital literacy to participate in fully electronic elections. MP Zimmermann (SPD) and MP Höferlin (FDP) caution that the mode of casting a ballot needs to be easily usable by everyone. In the same vein, the Research Services of the German Bundestag point out that based on Article 38 of the Basic Law, online-only elections violate the requirement of generality. Therefore, e-voting could only provide an additional mode of casting the votes. The MPs we interviewed agreed that e-voting might provide an additional convenient way for citizens abroad or citizens with a physical impairment to cast their vote. Regarding young voters, MPs doubted a beneficial effect for turnout in young voters' cohorts. MP Zimmermann (SPD) doubts that the format or mode of casting a ballot is decisive for people's decision to turn out to vote.

A report by the Research Services of the German Bundestag dealt precisely with causes of and solutions for a decreasing turnout. Part of the report discusses the introduction of e-voting in elections. While it also refers to the seminal ruling of the Constitutional Court, the main reason why it dismisses e-voting are security concerns nurtured by the experiences in other countries (Wissenschaftliche Dienste, 2015). These issues will be further discussed below.

Efficiency and Speed

E-voting is often regarded a cost-efficient solution for elections. However, being asked about his view on this argument, MP Zimmermann (SPD) argues that the costs of e-voting will not be lower than those of paper and pencil procedures. Thereby, he points to high expenses for technology, software, and training. He also emphasizes that the costs of elections are very small compared to other areas of government spending. MP Rößner (Greens) even argues that the question should not be about cost-efficiency in the first place, as she also expects e-voting to induce high costs, but rather about whether turnout can be increased and the act of voting does not lose its symbolic meaning, an argument that will be elaborated in more detail later in this paper.

Elections in large democracies are a complicated process and determining the results takes hours at best, if not days or weeks until the final outcome is verified. Technology can speed things up. By automating the counting and transmitting the results from each polling station to the election administration, for example, reliable results might be gathered more quickly. While the ruling of the Constitutional Court established considerable barriers for the introduction of e-voting in Germany, it also

provided suggestions. One of these suggestions is highlighted in the report by the Research Services of the German Bundestag (Wissenschaftliche Dienste, 2014): Voters might be provided with a printed receipt that verifies their vote. These receipts should be submitted, e.g., at the polling station. The collection of all receipts provides an opportunity to verify the election result and to eliminate doubts about the accuracy of the results. MP Höferlin (FDP) pointed to these forms of electronic support:

"The counting of the ballot papers is then conducted electronically and as realized in the census, you just count a certain percentage by hand, in randomly determined polling stations in order to compare the results and also have the possibility to recount" (interview with Höferlin, 2022, January 18).

MP Höferlin (FDP) thinks that this electronic support would be especially beneficial in elections at the local level where voting is complicated because one citizen has more than one vote and the possibilities of accumulating or splitting their vote.

"In my opinion, this would be an intermediate step, which at least for now would be much easier to implement, would massively accelerate the election process" (interview with Höferlin, 2022, January 18).

However, he also pointed out that it might be more difficult to secure technical systems against failure, while the German law knows pragmatic and effective solutions to keep elections running if e.g., personnel is missing on election day.

MP Rößner (Greens) agrees that the complexity of local elections already leads to a high share of postal voting in these elections, yet she expresses her doubts that a technical solution would fully solve this problem.

MP Glaser (AfD) sees great benefits in on site voting machines and refers to the experience at party congresses. Results can be generated quickly and in controversial points with an unclear majority the employment of electronic devices is helpful to determine the outcome of a vote. He also argues that voting machines can reduce human errors and manipulation during counting.

MP Zimmermann (SPD) is more skeptic about the employment of voting machines. He explains this with his visit of polling stations in the US and his observation that the act of voting and the electoral process itself became an arena for politics and controversies. He states that this is fortunately not the case in Germany, where the election process and result is largely uncontested. MP Zimmermann (SPD): "It might come unexpected that the digital politics spokesman of his party who otherwise calls himself an internet optimist, is a completely conservative fan of paper and pencil when it comes to elections" (interview with Zimmermann, 2021, December 9). This leads to the norms of election security and accuracy.

Security and Accuracy

The security of the electoral process is a major concern when it comes to the introduction of e-voting, especially relating to the principle of cleanliness when it comes to electoral integrity. This concern includes the manipulation of elections at different points throughout the process, displaying the correct options, saving and transmitting the correct vote, aggregating the votes correctly etc. Along with transparency, security is the Achilles' heel of e-voting and is related to the norm of accuracy. While security refers rather to the risk of manipulation and bad intention, inaccuracy may also be a side effect of negligence. Nevertheless, both can pose severe dangers for electoral integrity.

Concerning security, the Constitutional Court states in its ruling that the manipulation of software and hardware has to be eliminated beyond doubt so that the principles of voting, especially the principle of equal votes, are respected (Bundesverfassungsgericht, 2009). The electronic voting system presents a vulnerable point for the legitimation of the democratic system. Enemies from within and from outside the country may attempt to hack the system and alter the election results. MP Zimmermann (SPD) stresses that "every system can be hacked" (interview with Zimmermann, 2021, December 9). However, he also acknowledges that postal ballots as well have an inherent potential for manipulation, which mirrors an argument brought forward in scientific debates about e-voting. MP Glaser (AfD) went even further and questioned the constitutionality of voting by mail out of convenience if no illness or disability prevents the voter to go to the polls.

MP Höferlin (FDP) is optimistic that a technical solution can be implemented to prevent any such form of manipulation. He adds however that merely the rumor of a manipulation is enough to deteriorate the legitimation of the election. Combined with shortcomings in the transparency of the technological implementation of the election this has a severe impact on actual and perceived electoral integrity. MP Glaser (AfD) expects interference from forces outside the country, however, points out that other critical situations like a patient's health at a hospital are also digitalized.

MP Zimmermann (SPD): "Yes, I think a safe online election is technologically possible, but an online election offers great gateways for disinformation campaigns, for delegitimization of a ballot, because it is easier [to seed doubt]" (interview with Zimmermann, 2021, December 9).

In terms of accuracy, the report by the Research Services of the German Bundestag (Wissenschaftliche Dienste, 2014) points out that the visual design of ballot papers and the ballot screen have to be identical. This is especially important for candidates in the bottom segment of the ballot: they need to be visible without the necessity of scrolling. This identical display of voting options is, therefore, an absolute condition for accuracy. Another important aspect in this regard is the elimination of multiple votes—online and offline. Research Services (Wissenschaftliche Dienste, 2014) refer to Karpen (2005) and suggest an electronic electoral register that is constantly updated and marks voters that cast their vote online in order to inform personnel in the polling station that this voter is not eligible to cast their vote again. This debate is inseparably related to the debate of voter identification. In our interviews, this point was especially stressed by MP Höferlin (FDP) who explained that a safe and secure authentication of voters is a condition for any further step in the process. He referred to Germans' hesitance to use E-ID cards which could provide a secure authentication of voters. This hesitancy was also mentioned by MP Zimmermann (SPD). MP Rößner (Greens)

also sees this lack of digital authentication, however, she also describes the danger of compromising the secrecy of voting and connects this aspect to the larger debate of the right to remain anonymous online—something the Greens stand up for. She also pointed out that e-voting might reduce errors and lead to more correct results, as the software can help voters to keep track about the number of votes cast, which is especially useful on the communal level in Germany where voters can cast many votes. However, she also stresses that is must still be possible for voters to intentionally cast an invalid ballot as a free expression of one's opinion.

MP Rößner (Greens), MP Höferlin (FDP), and MP Zimmermann (SPD) mostly refer to concerns regarding manipulation by forces from abroad in connection to e-voting and therefore stress the benefits of paper ballots. In contrast, MP Glaser (AfD) connects the danger of manipulation and inaccuracy of counting votes rather to the current system of paper and pencil-voting. He points out that human error or politically inspired bad intention are a danger and on site voting machines would provide a benefit eliminating these causes of flaws in vote counting. Public concerns about security endanger electoral integrity and the legitimacy of elections, as they have the inherent potential to undermine public trust. MP Rößner (Greens) agrees in this regard that acts of manipulation, only perceived ones as well as real ones, have the potential to undermine public trust.

Reliability and Trust

The extraordinary importance of creating reliability and trust becomes evident through the seminal ruling by the Constitutional Court that rules out e-voting if the criterion of transparency and traceability of the electoral process to the public is compromised. All MPs we interviewed agreed with this perception. As mentioned above a lack of public trust has the potential to indirectly endanger electoral integrity as well. MP Höferlin (FDP) described the public acceptance of e-voting as his biggest concern and stressed that the German system has implemented mechanisms to secure reliability and trust:

"We have a lot of volunteers on the ground who count the votes. As a rule, the election officers pay extreme attention to the fact that different political parties are involved in the counting. So that there exists a quasi-mutual control of the political forces in Germany– right from the beginning and because that is just so easy to understand, there is usually little to no doubt about the election result in Germany in the public" (interview with Höferlin, 2022, January 18).

Furthermore, he argues that the complex and largely invisible processes involved in e-voting require voters to delegate the inspection of voting processes to experts. Consequently, voters need to trust experts to verify the free and fair conduct of elections, creating a different type of trust and legitimation for election results. It turned out that all three MPs who function as digital spokesperson of their party [Höferlin (FDP), Zimmermann (SPD), Rößner (Greens)] declared that despite their overall enthusiasm about technological advance and digital solutions they remain very skeptic, even more so than others in their parties toward e-voting. The simplicity, traceability, and the option for recounts of the paper ballot procedure is seen as a stable source of trust in the election outcome. All four MPs pointed to the elections being the backbone of democracy. MPs Höferlin (FDP), Rößner (Greens), and Zimmermann (SPD) referenced the symbolic meaning of going to the polls for democracy, while MP Glaser (AfD) refused the term "symbolic" but rather referred the danger of "trivialization of the vote" (interview with Glaser, 2022, February 8). Voting-by-click was perceived as almost ungraceful by some. Zimmermann (SPD) refers to elections as the "High Mass of democracy" (interview with Zimmermann, 2021, December 9), a phrase commonly used in German media reports on elections. The danger of losing the symbolic meaning of voting, or, respectively, trivializing the act of voting, and thereby devaluating voting as the High Mass of democracy and the almost ceremonial act of going to the polls on election day, was a strong concern for all our interview partners. This is especially interesting, as this aspect is discussed rather casually in the literature compared to issues related to security, transparency and public trust. So, while most of the arguments and concerns brought forward in the documents and interviews discussed in this analytical part mirror the chances and risks from the theoretical literature on the topic, the symbolic meaning of the act of voting seems to be especially prevalent to political parties when discussing the introduction of e-voting.

In our interviews, MP Rößner (Greens) stated: "I wouldn't underestimate this. You deal with it appropriately and yes, this is an act, of course also it means a threshold, but at the same time it means a bit of this awareness that it is also a right to vote, perhaps also a civic duty" (interview with Rößner, 2022, January 6).

Similarly, MP Zimmermann (SPD) described: "There are still many people in our country who dress up on election Sundays and they go to the polling station, they take their children there. Children sometimes find this fascinating. And then you go to the voting booth, and you make your cross, it's kind of something special to throw this ballot paper into the ballot box" (interview with Zimmermann, 2021, December 9).

Laboratories for Change

All the above-mentioned points in mind, it is very unlikely that Germany will introduce any form of e-voting in public elections in the near future. Considering the concerns voiced by political parties, as well as the legal and institutional constraints that characterize the current situation in Germany, concerns about the potential of e-voting to decrease electoral integrity directly, as well as indirectly, seem to dominate the debate. Yet, there are areas that experience a digitalization that could lead to a more experienced German public. This might trigger a reinterpretation of the aspect of transparency, which is critically emphasized in the ruling by the Constitutional Court. The report published by the Office of Technology Assessment at the German Bundestag 10 years after the seminal ruling by the Federal Constitutional Court (Kind and Bovenschulte, 2019) for example points to other electronically held elections in Germany, i.e., elections to executive boards of clubs, academic senates etc. In these elections, e-voting is expected to become more frequently used.

Additionally, the COVID-pandemic forced the increase of online-conferences not only for businesses but also for political

TABLE 1 | Summary of parties' positions on E-Voting in Germany based on expert interviews.

	SPD (Government)	FDP (Government)	Greens (Government)	AfD (Opposition)
Party position	Contested within party	Contested within party	Contested within party	Not mentioned
Transparency and secrecy	Vital for elections Necessary for legitimation Postal voting might produce similar problems in terms of secrecy	Vital for elections Necessary for legitimation Public transparency is difficult to achieve. Secrecy is technically not a problem, when authentication is secured (German problem)	Vital for elections Necessary for legitimation	Vital for elections Necessary for legitimation Public transparency as a smart criterion, yet, this is a problem of the current system as well. Secrecy might be compromised by e-voting. E-voting is a trivialization of the electoral act
Accessibility and turnout	e-voting decreases barriers for some but raises barriers for others. digital literacy as a condition. hybrid elections as a solution. it is not the mode of election that decides about turnout	No general mobilization effects. e-voting would not necessarily mobilize young voters	Studies indicate that e-voting does not necessarily result in higher turnout. e-voting might lower barriers for those who cannot go to a polling station	Increasing turnout is not a necessary goal, politically interested citizens should be the target convenience voting only for those who cannot go to a polling station due to health issues
Efficiency and speed	Not explicitly mentioned	Enhanced speed especially for nationwide or complex, local elections	Not primarily a question of cost-efficiency	Fast and clean solution for voting during party congresses. During pandemic special circumstances
Security and accuracy	There is no secure system. E-ID as a condition for e-voting	Problem of fail-safe and resilient IT-systems. Danger of foreign hackers. E-ID as a condition	Past digital attacks on German institutions justify doubts concerning the security of e-voting. Attacks must not be underestimated. Anonymity must be ensured. Accuracy might be enhanced when system returns an error message in case of an invalid input, however, at the same time submitting an invalid vote must be an actual option	Accuracy is enhanced by e-voting. On site voting machines are regarded an enhancement of democratic procedures. Main concern of manipulation during vote count at current electoral procedure; e-voting can produce better results, free from human error. Hacking portrays a potential threat, yet this is no reason to waive e-voting
Reliability and trust	German culture of hesitancy toward E-ID. It is easier to sow the seed of doubt than to allay doubt. Current form of electoral process enjoys trust and support never change a working system	Current form enables mutual control of political forces and enjoys trust. Possibility: electronically supported election where every step can be monitored analogously. Acceptance is the key for any electoral system	Not explicitly mentioned	e-voting produces more reliable result than current form, where human errors are a problem; counting votes by machines is more neutral
Biggest concern regarding e-voting	Transparency	Public acceptance	Security	Trivialization of the voting act

parties. However, the German Bundestag has dealt with the possibility of online party congresses long before the pandemic. In 2011, the Research Services of the German Bundestag commented on virtual party congresses held since 2000 by some German parties (Wissenschaftliche Dienste, 2011). The report draws connections to the assemblies of other organizations of civil society and saw the possibility to hold party congresses online. The Basic Law and the specifications of the German Party Law lead to certain limitations. Art. 21 of the Basic Law says parties' internal structure must comply with the democratic principles. This transfers the application of the election principles of Article 38 of the German Basic Law to parties. Therefore, the argument of transparency is essential for elections within parties as well. This aspect is not properly reflected in the report of the Research Services (Wissenschaftliche Dienste, 2011). A second report issued in 2020 considers this limitation and concludes that party congresses where elections take place are in line with the constitutional framework, since the strict limitations only apply for parliamentary elections. The report, however, also points to a resolution by the Bundestag's committee on inner affairs which regards online elections as unconstitutional and suggests a two-step procedure, where an online election is the first step and a postal election on the same matter is a confirmatory second step (Wissenschaftliche Dienste, 2020, p. 8). The report also points to a gap in law-making that clarifies elections during online party congresses (Wissenschaftliche Dienste, 2020, p. 4). In our interviews, online party congresses were brought up by the MPs as well. MP Rößner (Greens) distinguishes between votes on matters like party programs and the election of party leaders. While the election of individuals should not be an act of e-voting because of controversies and possible recounts, the vote on issues may be very well an online-only procedure. MP Höferlin (FDP) agrees and argues that the election on positions is much more controversial and votes on aspects of the program or other issues have never been a close call in his memory. However, he admits that he can imagine that some members might file a proposition for a non-electronic vote in controversial debates.

The coalition treaty signed by SPD, FDP, and Greens includes a paragraph on the reform of the Party Law (SPD et al., 2021, p. 10–11):

"We want to bring the Law on Political Parties up to date and, in particular, enable parties to conduct digital decision-making and, within the framework of constitutional limits, digital elections. This shall involve all parliamentary groups."

Apart from these forms of online participation, the coalition treaty discusses a revision of the Law on Works Councils where online elections shall be preliminarily introduced and tested. Additionally, there are also other arenas where e-voting could be applied in Germany. MP Zimmermann (SPD) referred to his experience with neighborhood voting in Seoul and stated that he could imagine applications of e-voting to enhance elements of direct democracy on the neighborhood level in Germany as well. According to him these low-level applications could help to gain experiences with e-voting in a low-risk environment, where potential technical failures or manipulation do not exert the same potential to endanger political legitimacy as when they occur on higher political levels. As already mentioned above, MP Höferlin (FDP) could imagine applying technological support to the process of counting, as long as verification *via* paper trails is still possible. MP Glaser (AfD) was positive toward using voting machines at polling stations. According to him, these systems should then be under state supervision.

CONCLUSION

This paper had two intentions: Connecting e-voting with the debate on electoral integrity and explaining the German aloofness toward e-voting. We provided an overview of chances and risks associated with e-voting in terms of enhancing or deteriorating electoral integrity. Important normative considerations include transparency and secrecy, accessibility and turnout, efficiency and speed, security and accuracy, and reliability and trust. These dimensions structured our analysis of the German case. We based our analysis on open-source documents which included the seminal ruling of the German Federal Constitutional Court, reports by the Research Services of the German Bundestag, a report of the Office of Technology Assessment at the German Bundestag, election programs from all parliamentary parties, and the coalition treaty of the current government. Additionally, we conducted expert interviews with spokespersons for digital politics from the FDP, the Greens, and the SPD and the former delegate to the electoral reform commission from the AfD. This combination of sources enabled us to portray constitutional, technological, security and cultural reasons for the German aloofness toward e-voting in elections. While the seminal ruling of the Constitutional Court is widely considered to restrict e-voting because of the comprehensive definition of the requirement of transparency, it is to be emphasized that the court does not regard e-voting itself as unconstitutional. With an increase in general digital literacy, the requirements for transparency might be met at some point in the future. Until then, online authentication in Germany is an immediate requirement to ensure the accuracy of e-voting. In addition, technological solutions for the realization of e-elections need to be implemented and tested to ensure secure elections. While all of these reasons for the German aloofness toward e-voting can be lifted by technological advancement and experience, the cultural aspect seems to persist: elections as the High Mass of democracy hold a moment of symbolic meaning for some, a moment of democratic dignity for others. While we find differences in the explanation, the MPs we interviewed rejected i-voting. On site e-voting does not experience the same rejection, yet, is mostly seen critical when it comes to transparency and security by MPs of the governing parties. Clear benefits of on site e-voting in comparison to the current system was only pronounced by the MP from the opposition party. Over all, this high regard of the electoral process as an almost sacred moment seems to be the ultimate reason for German hesitancy toward e-voting. However, this is not mirrored in the current literature on e-voting. Regarding the normative dimensions derived from the literature, **Table 1** provides a summarizing overview on party positions concerning the introduction of e-voting.

We were also able to identify areas for change which include mainly intra-party decision-making and decision-formation in civil society. The coalition treaty signed in December 2021 entails some suggestions where we might expect digitally supported procedures of will formation and decision making.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/**Supplementary Material**, further inquiries can be directed to the corresponding author/s.

ETHICS STATEMENT

Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

ACKNOWLEDGMENTS

We thank Albrecht Glaser (AfD), Manuel Höferlin (FDP), Tabea Rößner (Greens), and Jens Zimmermann (SPD) for their willingness to share their insights with us. We thank Julia Partheymueller and Lukas Stoetzer for their helpful comments. We also would like to thank Timo Sprang, Julian Degler, and Lucas Schwarz for their assistance and Dagmar McCaslin for her comments on the final draft.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpos.2022.876476/full#supplementary-material

REFERENCES

Bitkom (2021a). *Anteil Der Befragten, Die Sich Vorstellen Können, Bei Einer Bundestags-, Landtags- Oder Kommunalwahl Ihre Stimme Online Abzugeben, Nach Altersgruppen in Deutschland Im Jahr 2021: 9 September, 2021*. Available online at: https://de.statista.com/statistik/daten/studie/1265121/umfrage/online-teilnahme-an-wahlen-in-deutschland-nach-altersgruppen/ (accessed April 24, 2022).

Bitkom (2021b). *Was Spricht Aus Ihrer Sicht Für Online-Wahlen? 9 September, 2021*. Available online at: https://de.statista.com/statistik/daten/studie/1265125/umfrage/vorteile-von-online-wahlen-in-deutschland/ (accessed April 24, 2022).

Bitkom (2021c). *Was Spricht Aus Ihrer Sicht Gegen Online-Wahlen? 9 September, 2021*. Available online at: https://de.statista.com/statistik/daten/studie/1265128/umfrage/nachteile-von-online-wahlen-in-deutschland/

Brady, H. E., and McNulty, J. E. (2011). Turning out to vote: the costs of finding and getting to the polling place. *Am. Polit. Sci. Rev.* 105, 115–134. doi: 10.1017/S0003055410000596

Bryant, L. A. (2020). Seeing is believing: an experiment on absentee ballots and voter confidence. *Am. Polit. Res.* 48, 700–704. doi: 10.1177/1532673X20922529

Buchstein, H. (2004). "Online democracy. is it viable? Is it desirable? Internet voting and normative democratic theory," in *Electronic Voting and Democracy: A Comparative* Analysis, eds N. Kersting, and H. Baldersheim (London: Palgrave MacMillan Ltd), 39–58. doi: 10.1057/9780230523531_3

Bundesverfassungsgericht (2009). *Verwendung Von Wahlcomputern Bei Der Bundestagswahl 2005 Verfassungswidrig*. Available online at: https://www.bundesverfassungsgericht.de/SharedDocs/Pressemitteilungen/DE/2009/bvg09-019.html (accessed February 14, 2022).

Bundeswahlleiter (2017). *Anteil Der Briefwählerinnen Und Briefwähler Bei Den Bundestagswahlen 1994 Bis 2017 Nach Ländern (Auf Grundlage Des Amtlichen Endergebnisses)*. Available online at: https://www.bundeswahlleiter.de/dam/jcr/b4aeabb8-7fac-473e-8581-cd718cb7a007/BTW_ab94_briefwahl.pdf (accessed February 14, 2022).

Essex, A., and Goodman, N. (2020). Protecting electoral integrity in the digital age: developing e-voting regulations in Canada. *Elect. Law J. Rules Polit. Policy* 19, 162–179. doi: 10.1089/elj.2019.0568

Fitzpatrick, J. (2021). "The five-pillar model of parties' migration into the digital," in *Digital Parties*, eds O. Barberà, G. Sandri, P. Correa, and J. Rodríguez-Teruel (Cham: Springer International Publishing), 23–42. doi: 10.1007/978-3-030-78668-7_2

Garnett, H. A., and James, T. S. (2020). Cyber elections in the digital age: threats and opportunities of technology for electoral integrity. *Elect. Law J. Rules Polit. Policy* 19, 111–126. doi: 10.1089/elj.2020.0633

Germann, M. (2021). Making votes count with internet voting. *Polit. Behav.* 43, 1511–1533. doi: 10.1007/s11109-020-09598-2

Glaser, A. (2022). *Interview by Authors. February 8, 2022.*

Haque, Z., and Carroll, D. (2020). Assessing the impact of information and communication technologies on electoral integrity. *Elect. Law J. Rules Polit. Policy* 19, 127–148. doi: 10.1089/elj.2019.0558

Herrnson, P. S., Hanmer, M. J., and Koh, H. Y. (2019). Mobilization around new convenience voting methods: a field experiment to encourage voting by mail with a downloadable ballot and early voting. *Polit. Behav.* 41, 871–895. doi: 10.1007/s11109-018-9474-4

Höferlin, M. (2022). *Interview by Authors. January 18, 2022.*

Initiative D21 (2018). *Welche Bedenken Haben Sie Im Bereich Datenschutz/Datensicherheit, Die Sie Von Einer (Intensiveren) Nutzung Von Online-Behördendiensten Abhalten?* Available online at: https://de.statista.com/statistik/daten/studie/167114/umfrage/bedenken-beim-datenschutz-bei-egovernment-angeboten/

Karger, P. (2004). "Electronic voting in Germany: political elections online, utopia or the future," in *Electronic Voting and Democracy: A Comparative* Analysis, eds N. Kersting, and H. Baldersheim (London: Palgrave MacMillan Ltd), 134–148. doi: 10.1057/9780230523531_9

Karpen, U. (2005). *Elektronische Wahlen? Einige verfassungsrechtliche Fragen*. 1. *Aufl. European Association of Legislation (EAL) 10*. Baden-Baden: Nomos-Verl.-Ges.

Katz, R. S., and Mair, P. (1993). The evolution of party organizations in Europe: the three faces of party organization. *ARP* 14, 593–617. doi: 10.15763/issn.2374-7781.1993.14.0.593-617

Kersting, N., and Baldersheim, H. (2004). "Electronic voting and democratic issues: an introduction," in *Electronic Voting and Democracy: A Comparative* Analysis, eds N. Kersting and H. Baldersheim (London: Palgrave MacMillan Ltd). doi: 10.1057/9780230523531_1

Kind, S., and Bovenschulte, M. (2019). E-*Voting – Mögliche Alternative Zu Traditionellen Wahlverfahren*. Available online at: https://publikationen.bibliothek.kit.edu/1000133911 (accessed January 30, 2022).

Loeber, L. (2020). Use of technology in the election process: who governs? *Elect. Law J. Rules Polit. Policy* 19, 149–161. doi: 10.1089/elj.2019.0559

Loncke, M., and Dumortier, J. (2004). Online voting: a legal perspective. *Int. Rev. Law Comput. Technol.* 18, 59–79. doi: 10.1080/13600860410001674742

Munck, G. L. (2007). *Methods for Election Observation: A Manual for OAS Electoral Observation Missions*. Unpublished manuscript. Available online at:

https://www.oas.org/en/spa/docs/methods%20manual.pdf (accessed January 28, 2022).

Mursi, M. F. M., Assassa, G., Abdelhafez, A., and Samra, K. M. A. (2013). "On the development of electronic voting: a survey. *Int. J. Comput. Applic.* 61, 1–11. doi: 10.5120/10009-4872

Norris, P. (2013). The new research agenda studying electoral integrity. *Elect. Stud.* 32, 563–575. doi: 10.1016/j.electstud.2013.07.015

Nyhuis, D. (2021). Bequem, aber fehleranfällig: die dunkelziffer ungewerteter briefwahlstimmen. *Polit. Vierteljahresschr.* 62, 597–619. doi: 10.1007/s11615-021-00358-3

Pieters, W. (2010). "Verifiability of electronic voting: between confidence and trust," in *Data Protection in a Profiled World*, eds S. Gutwirth, Y. Poullet, and P. de Hert (Dordrecht: Springer), 157–175. doi: 10.1007/978-90-481-8865-9_9

Riera, A., and Brown, P. (2003). Bringing confidence to electronic voting. *Electro. J. e-Govern.* 1, 43–50. Available online at: www.ejeg.com

Rogers, E. M. (2003). *Diffusion of Innovations, 5 Edn.* New York, NY: Free Press.

Rogers, E. M., and Shoemaker, F. F. (1971). *Communication of Innovations: A Cross-Cultural Approach, 2nd edn.* New York, NY: The Free Press.

Roseman, G. H., and Stephenson, E. F. (2005). The effect of voting technology on voter turnout: do computers scare the elderly? *Public Choice* 123, 39–47. doi: 10.1007/s11127-005-3993-3

Rößner, T. (2022). *Interview by Authors. January 6, 2022.*

Schryen, G., and Rich, E. (2009). Security in large-scale internet elections: a retrospective analysis of elections in Estonia, the Netherlands, and Switzerland. *IEEE Trans. Inform. For. Secur.* 4, 729–744. doi: 10.1109/TIFS.2009.2033230

SPD., Bündnis 90/Die Grünen., and FDP. (2021). *Mehr Fortschritt Wagen: Bündnis Für Freiheit, Gerechtigkeit Und Nachhaltigkeit*. Available online at: https://www.bundesregierung.de/breg-de/service/gesetzesvorhaben/koalitionsvertrag-2021-1990800 (accessed February 14, 2022).

Veit, D., and Huntgeburth, J. (2014). *Foundations of Digital Government: Leading and Managing in the Digital Era.* Berlin: Springer.

Willemson, J. (2017). "Bits or paper: which should get to carry your vote?" in *Electronic Voting: Second International Joint Conference, E-Vote-ID 2017 Bregenz, Austria, October 24-27, 2017 Proceedings*, eds R. Krimmer, M. Volkamer, N. Braun Binder, N. Kersting, O. Pereira, and C. Schürmann (Cham: Springer), 292–305. doi: 10.1007/978-3-319-68687-5_18

Wissenschaftliche Dienste (2011). *Online-Parteitage*. Wissenschaftliche Dienste. Available online at: https://www.bundestag.de/resource/blob/412750/5df6998bf0f8908abeafb90ef17e9bea/WD-3-327-11-pdf-data.pdf

Wissenschaftliche Dienste (2014). *Online-Wahlen: Erfahrungen in Anderen Staaten Und (Verfassungs-) Rechtliche Voraussetzungen Für Eine Einführung in Deutschland*. Wissenschaftliche Dienste. Available online at: https://www.bundestag.de/resource/blob/412066/df70d4a9753c21463cff4030d510cf06/WD-3-030-14-pdf-data.pdf (accessed January 30, 2022).

Wissenschaftliche Dienste (2015). *Sinkende Wahlbeteiligung in Deutschland: Ursachen Und Lösungsvorschläge*. Wissenschaftliche Dienste. Available online at: https://www.bundestag.de/resource/blob/407782/1d83e5629dc19e1d2299fb2ff135680d/WD-1-008-15-pdf-data.pdf

Wissenschaftliche Dienste (2018). *Online-Wahlen Und Abstimmungen*. Wissenschaftliche Dienste. Available online at: https://www.bundestag.de/resource/blob/568156/d18e7620a4a1ce8ccb581a3bd6b73a3c/WD-3-191-18-pdf-data.pdf

Wissenschaftliche Dienste (2020). Verfassungsrechtliche Zulässigkeit Von Online-Parteitagen Und Elektronischen Abstimmungen. Wissenschaftliche Dienste. Available online at: https://www.bundestag.de/resource/blob/803404/ee6a567c0691869d8101a558cb6fe468/WD-3-249-20-pdf-data.pdf

Zimmermann, J. (2021). *Interview by Authors. December 9, 2021.*

Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.