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Unveiling the Digital Odyssey: Explaining the Challenges Behind eVoting Adoption in Greece

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“Her gifts were mixed with good and evil both.”

the blind bard, Demodocus about his Muse in the Odyssey

“With the resourceful knowledge that exceeds all expectations, man proceeds towards good or evil”

Sophocles: Antigone

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Abbreviations

COVID-19	Coronavirus disease 2019
CRPD	Convention on the Rights of Persons with Disabilities
Digi-ID	Digital Identity
e	Electronic
eVoting	Electronic Voting
ELSTAT	Greek national statistics organization
EU	European Union
GDPR	General Data Protection Regulation
ICT	Communication Technologies
ID	Identity
i	Internet
iVoting	Internet Voting
IS	Information System
MoI	(Greek)Ministry of Interior
MP	Member of the Parliament
NVT	New Voting Technologies
ODIHR	Office for Democratic Institutions and Human Rights
OSCE	Organization for Security and Co-Operation in Europe
PASOK	(Greek political party) Panhellenic Socialistic Movement (Panellínio Sosialistikó Kínima)
PSC	Polling Station Committees
SIM	Subscriber Identity Module
SSI	Semi Structured Interview
SYRIZA	(Greek political party) Coalition of the Radical Left – Progressive Alliance (Synaspismós Rizospastikís Aristerás)

Abstract

This paper aims to analyse the factors hindering the adoption of remote internet voting (eVoting) in Greece's national (parliamentary) elections. It will identify the social, political, legal, administrative, and technological challenges impeding the implementation of such an initiative. As a problematization it is considering the inclusion of Greek expatriates, enhancing accessibility for disabled and hospitalized individuals, and reducing their voting costs. By examining the specific challenges within the Greek context and their role to already existing technologies that can enable eVoting, the paper aims to answer, "Why has Greece not adopted eVoting for its national elections?". Through a qualitative case study methodology involving interviews with experts from various sectors of Greece's public sector and administration, the paper concludes that Greece lacks the proper requirements for eVoting. The mentioned challenges are interconnected and underscored by issues of trust and the digital divide. Consequently, a creative legal basis for postal voting has already been applied which can enable a Hellenic eVoting, however, more legal requirements must be in place to legally support eVoting. The socio-political challenges revolve around trust and the digital divide, which affects the political will of the politicians and the voters and vice versa. Additionally other challenges were found such as the role of the centralized public administration, ideological differences, and fear of loss of political authority and votes. Except for a proper digital identity scheme, the already existing technological infrastructure that can empower eVoting is adequate but faces administrative challenges. Finally, the administrative challenges revolve around the lack of interoperability, proper human resources, and training. These challenges play a consultative role in creating a seamless and successful adoption of an eVoting system for Greece.

1 Introduction

This thesis aims to explain why remote internet voting (eVoting) has not yet been adopted for Greece‘s national (parliamentary) elections. It will identify the Greek social, political, legal, technological, and administrative challenges behind the adoption of such an initiative. It will then shed light on the challenges that the existing technologies in Greece face and cannot be used to sustain an eVoting initiative. Just as Odysseus faced the perils of the sea, for Greece this policy promotion found itself adrift as well. In other words, even though the Greek State was promoting the idea of eVoting, this never became a reality (Gibson et al., 2016, p. 282; Ministry of Interior, 2023).

According to the information provided by the Greek Ministry of the Interior (2023), 45.15% of the Greeks who were eligible to vote did not do so in the last National Elections of June 2023. To vote in Greece, a voter must go to the relevant polling station, with an ID card, where he/she is registered. Highton (2000) explains that issues revolving around mobility to the registered area can lead to lower voter turnout. For example, a Greek who works on an island for the summer, but whose polling station is registered in the capital Athens may not be able to leave or might not want to go through all the traveling to vote. Moreover, the participation in the elections of a hospitalized person is completely blocked (OSCE-ODIHR, 2023).

Furthermore, according to ELSTAT, the Greek national statistics organization, the population of Greece is gradually decreasing and due to the economic crisis, the emigration flows of educated and young people are constantly rising and will continue to do so (ELSTAT, 2021; Lamnisos et al., 2021; Tsertekidis, 2023). Despite the Greek government's efforts to facilitate voting for eligible to-vote citizens away from their polling stations during the Greek National Elections in May and June 2023(Ministry of Interior, n.d.); there have been many incidents of individuals not being able or not willing to go and vote at their registered polling station (Ministry of Interior, 2023). Additional reasons for Greek voter discouragement include employer conflicts during peak tourist seasons, registration challenges, and the distant locations of polling stations for expatriates abroad (SocioPol 2, Personal communication, July 19, 2023).

The Organization for Security and Co-Operation in Europe (OSCE)-Office for Democratic Institutions and Human Rights (ODIHR) (2023) reported that the Greek diaspora registration was low. It also mentioned that accessibility for people with disabilities or hospitalized was problematic, as there was no provision for homebound voting, and as Greece disregarded the Convention on the Rights of Persons with Disabilities (CRPD) commitments to enable independent voting and ensure accessible infrastructure at public polling stations (OSCE-ODIHR, 2023). This report comes into agreement with the previous statements for obstacles to

the accessibility of electoral participation and leads to phenomena of participative inequality (Gibson et al., 2016). That is because those obstacles increase the “cost of voting” as an activity which leads to lower voter turnout (Blais et al., 2019).

According to Gibson et al. (2016), there has been a call for the adoption of remote internet voting as a means of improving participation in the democratic elections, which Greece answered positively, but nothing has happened so far in realizing it. In 2021, Greece advanced its digitalization efforts, outlined in the "Bible of Digital Transformation," which defined the country's strategy and goals for 2020-2025 (Hellenic Republic (Government), 2021). This included the introduction of eServices like ZEUS online eVoting ballot, the secure digital registration with eGoverment credentials, and document signature for governmental transactions (EDYTE-GRNET-ZEUS, n.d). So, even though the Greek digital strategy until 2025 and the mentioned technologies that can be supportive of eVoting (SocioPol 3, personal communication, June 2023; Krimmer, 2019; State Electoral Service of Estonia, 2017) were introduced in Greece, eVoting for National Elections was still not considered.

An EU study on the challenges and opportunities of eVoting in the EU from Trechsel et al (2016), found that “Internet remote voting has the potential to increase turnout as it makes voting less costly and more convenient by minimizing travel, weather, and mobility barriers (p.8). Together with those benefits, this study also identified and explained the researched and general social, political, technological, and legal challenges to the introduction of eVoting in the EU. The study aligns with other research suggesting that addressing these challenges is crucial for achieving a successful eVoting adoption (OSCE, 2013). Success, in this context, means implementing eVoting without undermining public confidence in the election process (p.12). Moreover, Krimmer & Schuster (2008) and Trechsel et al. (2016) agree that these challenges can stop eVoting from being even considered.

By elucidating the specific challenges facing the Greek context, we can better understand why eVoting has not yet been embraced in Greece. Additionally, to include the increasing number of Greek expatriates in the elections, to enhance electoral accessibility to disabled and hospitalized people by providing homebound voting, and to decrease the cost of voting (Blais et al., 2019) this thesis aims to answer the following research question: **“Why has Greece not adopted eVoting for its national elections?”.** The following two sub-questions have been used as checkpoints, meaning points to investigate, to answer the overarching research question:

1.1 What are the legal social, political, administrative, and technological challenges for an eVoting initiative for the national elections in Greece?

1.2 What is the role of these challenges for the already existing technologies for establishing an online ballot for the Greek national Elections?

Overarchingly, the first sub-question will identify the Greek requirements and the challenges thereof behind the adoption of eVoting in Greece that contributed to the failure of its introduction to the National Elections. Subsequently, after answering the first sub-question the second sub-question will use the findings from the first to explain the role of those challenges for the already existing technologies that are supportive of eVoting, and the requirements, and technical characteristics that they will need to fulfill to be adopted for Greece's national elections. In general, eVoting requirements shed light on the challenges for their implementation (Anane et al., 2007; Trechsel et al., 2016). In other words, researching eVoting requirements identifies challenges and vice versa.

To the best of the researcher's knowledge thus far, there is no scientific literature assessing these challenges to eVoting in Greece. The existing research mostly revolves around legal considerations for eVoting (Gritzalis, 2002; Mitrou et al., 2002; Pipilou, 2022). Moreover, only some studies were found on the readiness of eVoting in Greece and public attitudes towards it (Chondros et al., 2014; Delis et al., 2015; Krimmer & Schuster, 2008). However, all of them were conducted before the blooming of the Greek eGovernance infrastructure during COVID-19 with the creation of the "Bible of Digital Transformation" which introduced the Greek digital strategy and goals from 2020 to 2025 alongside the creation of applications such as the governmental online ballot ZEUS, the secure Greek digital registration and digital document signature for governmental eServices (EDYTE-GRNET-ZEUS, n.d.; Hellenic Republic (Government), 2021, 2023)

This study will contribute to knowledge by filling the mentioned gaps in the research and by extending the existing knowledge of challenges for eVoting adoption to the Greek scenery (Thiel, 2021, p. 88; Toots, 2019, p. 5; Yin, 2017, p. 85). Moreover, it can be used by practitioners in general and by Greek policymakers as useful focal points when the conditions for eVoting have matured, and the project is initiated. That is because its methodology consists of interviews with experts which gives other experts the ability to learn and adapt from the Greek case and potentially use those findings in practice (Bartunek & Rynes, 2010).

This thesis has remote internet voting in its scope, instead of remote postal voting. That is because Gibson et al. (2016) and Krimmer & Volkamer (2005) both correlate and inform that postal voting and eVoting share the same considerations. However, they opine that security issues and other challenges like possible coercion are easier to happen in postal voting than in eVoting with its different kinds of security technicalities and system characteristics. So, researching postal voting is out of the scope of this research for contemplating the needs of its problematization.

Additionally, this thesis will have in its scope the Greek technologies such as ZEUS and the rest that were mentioned before. The Greek technologies already in place are well-aligned with the requirements for an eVoting initiative (SocioPol 2, personal communication, June 18th, 2023). For example, a public digital identity scheme which is a requirement for eVoting (Krimmer, 2019; State Electoral Service of Estonia, 2017) can reflect on the mentioned eGoverment credentials and document signature. Of course, other scholars are proposing alternative technologies, for example, blockchain technology, for the security of eVoting processes (Fusco et al., 2018; Hjálmarsson et al., 2018; Taş & Tanrıöver, 2020; Verwer et al., 2020). However, this alternative is outside of the scope of this thesis because its case study is the Greek Electoral scene and to identify the proper requirements and characteristics of a successful eVoting system the case of the Estonian eVoting is examined which does not use blockchain technology for its elections (State Electoral Service of Estonia, 2017).

An overview of this thesis' chapters is as follows. First, a general literature review will be introduced in which the author will define what eVoting means and what are the requirements for its adoption. Moreover, the same chapter will explain the main characteristics of the successful adoption of eVoting in Estonia. Then it will identify the role that such technology has in elections and the challenges that it poses for its successful adoption. The literature review will be followed by the theoretical framework that will be used as a blueprint for the methodology of this thesis. The methodology chapter will then explain the research design of this thesis to shed light on how the author provided his findings. Inside the methodology chapter, the case study of the Greek political scenery will be further developed. Then in the Results & Discussion chapter, the findings will be introduced, explained, and compared with the general existing knowledge. Finally, the conclusion will discuss to what extent this thesis has contributed to what it promised that it would contribute.

2 Background Literature Review

To understand the fundamentals of an eVoting system, it's valuable to define it and delve into the prerequisites for its adoption. To gain deeper insight into these prerequisites, examining their practical implementation in Estonia's successful national eVoting system can provide valuable lessons. Subsequently, to understand which stakeholders will be affected by the implementation of such technology the role of eVoting in elections will be discussed. Finally, to anticipate challenges in the Greek context, it's crucial to also outline the general challenges observed in the adoption of eVoting systems.

2.1 Definition of eVoting and the Requirements for its Adoption

The definition of eVoting that this study will follow is that of remote voting via the Internet which can also be found in the literature as “i-voting” (Krimmer, 2019; Krimmer & Volkamer, 2005). According to Krimmer et al. (2016) and Crompvoets et al. (2011), eGovernment can be defined as the implementation of Information and Communication Technology (ICT) like the Internet, to improve government activities and processes. In addition, eVoting according to Trechsel et al. (2016) is considered a technological innovation, that seeks to maximize convenience and access for voters by enabling them to cast their ballots from virtually any location that is Internet accessible (p.6). Combining these three definitions/statements, eVoting can be considered part of eGovernment services as it is a technological innovation that uses the internet to improve access to the process of voting. Thus, eVoting enhances accessibility for the democratic procedure of elections.

To structure a technologically secure eVoting system and to vote via the Internet the work made by (Krimmer, 2019) identifies the main aspects that such a system should have. According to the author eVoting is like postal voting but through the Internet. He highlights that the most important characteristic of an internet voting system is that the vote must be able to be cast by a laptop, a mobile phone, or a computer and its eligibility must be checked by an online channel. Moreover, he mentions that eVoting is happening in an “uncontrolled environment” which is defined as an electoral environment e.g. a polling station, but without an electoral committee to “control-monitor” it (p.421). A good example of the adoption of eVoting for national elections is the case of Estonia (Drechsler & Madise, 2004; Krimmer, 2019). That is because the State Electoral Service of Estonia has conducted traditionally its electoral processes for the country, online with internet voting since 2005 (State Electoral Service of Estonia, 2017). The same source explains the main processes for eVoting and its critical requirements and that fulfilling them is a challenge for its effective adoption and secure implementation.

First, it notes that there is an existing legal framework for the use of a digital signature and for eVoting in general. The digital signature is used to confirm the voter's choice (p.6). Then it explains that those who are eligible to vote also possess an ID card with a chip for the secure identification of the voter and his/her digital signature. Additionally, the same voters can vote by using other means of identification such as a Digi-ID (eID), a Mobile-ID, or any other legal ID document. In other words, the key to secure eVoting adoption is the existence of a legal framework that supports and legally secures the eVoting processes and a public digital identity scheme, whether this is based on a card, phone, or ID card.

Concerning the legal framework that surrounds eVoting, both Estonia and other eVoting case studies like in France mention that the same legal principles that apply to paper voting and ensure that elections are conducted in a manner that is inclusive, transparent, and reflective of the will of the electorate should apply to eVoting as well (Pinault & Courtade, 2012; State Electoral Service of Estonia, 2017; Verwer et al., 2020). Both of those cases and OSCE confirm that those principles are "Universal Suffrage" meaning the right of all adult citizens to vote without discrimination, the "Secret Ballot" a principle that ensures the privacy and anonymity of voters, the "Free and Fair Elections" which means that elections should be conducted in a manner that is free from malicious influence, fraud, or manipulation, the "One Person, One Vote" which emphasizes the equality of all voters and that every person has one vote and should not vote again and of course "Honest Counting and Reporting of Results" (OSCE, 2010, p.23). Two other important principles are also provided by OSCE (2010) and they revolve around "Free Elections" for everyone and "Fair Elections" for everyone.

Furthermore, the State Electoral Service of Estonia (2017) mentions that eVoting is happening in parallel with paper voting and is applied for the three last stages of the electoral process, meaning the voting itself via the internet, counting of eVotes, and the destruction of the private decrypting key necessary for counting the eVotes [1] after the announcement of election results (p.5). However, the Service also underlines that for these processes to be effective there are three prerequisites. The list of voters and their electoral districts that apply to them to be in an appropriate digital format. The list of candidates is to be as well in a digital format. Finally, to avoid mistakes like counting the votes twice, the eVotes should be counted separately from the paper ones. So, another requirement for an eVoting initiative is that the processes before the

[1] The author of this thesis decided to use the term "eVote(s)" for the votes that are casted in an eVoting system. The author will also use the verb "eVote" for voting via an eVoting system. Moreover, the term is similar to "i-votes" which is used by the State Electoral Service of Estonia (2017). This decision is in accordance to the definition of eVoting that this thesis follows, meaning internet voting which is seen in the literature as i-Voting (Krimmer, 2019; Krimmer & Volkamer, 2005).

voting stage, like the electoral catalogs, should be in a digital infrastructure and the votes should be counted separately.

Moreover, the bibliography that surrounds eVoting practices warns about the danger of coercion of the voters (Aziz, 2019; Grewal et al., 2013; Jamroga & Tabatabaei, 2017). It is a logical outcome to state that this danger reflects the violation of the principles of the "Secret Ballot" and "Free and Fair Elections" as the voters will be manipulated and their secrecy and privacy will be violated. To combat coercion the State Electoral Service of Estonia (2017) proposes the voter should be able to eVote many times and only the last vote would count. It also states that in case there is parallel voting between eVoting and a paper ballot then the paper ballot vote should count and should erase the eVote. These two methods protect eVoters from coercion because the coerced voter can vote again away from his coercer either with eVoting or in a traditional ballot (p.6). The Service also mentions that the voters should get notified and verified that their eVote arrived so they should receive confirmation on another device, for example, a mobile phone than the one that they used to vote. With this method, the voters will detect easily if there was a possible hacking attempt on the device that they used to eVote.

The State Electoral Service of Estonia (2017) after years of eVoting experience highlights the necessity for eVoting to take place before the paper ballot election day in case there is a possible system failure. For example, it mentions that in Estonia the eVoting procedure starts ten days before the election day and closes four days before (p.8). Finally, it urges that the system's "auditability" should be considered. This means that the system should be simple enough for other specialists and stakeholders to be able to audit/verify and observe it (p.6). This idea correlates with the guidance provided by the Handbook for the Observation of New Voting Technologies (NVT) by OSCE (2013) and it has been used as a basis for papers that analyze the trajectory of eVoting and the importance of auditing and verifiability such as that of Gibson et al. (2016). The Handbook for the Observation NVT (2013) states that the system must be technically simple so that the widest possible range of specialists can audit and observe it. This Handbook also identifies the auditing stakeholders, quoted as "analysts" and their type of analysis, observation, goals, and tasks (p.16). For example, the legal analysts are aiming towards the transparency of the initiative and its legality, and the political analysts are the contact point for the political parties, etc.

The last important requirement that is crucial for the adoption of eVoting is the matter of trust, for example, to the democratic context that surrounds the eVoting initiative but also to the use of public online services (Krimmer, 2012). The work of many political philosophers like Alexis de Tocqueville, Thomas Hobbes, and John Dunn has concluded that "Mutual trust lies at the heart of all political processes" (Zmerli & Newton, 2006, p.1). The term trust is very vague and thus it can reflect many concepts. There can be social trust that applies to political processes as

mentioned above. There can also be trust in science, and there can be trust in supernational institutions like the EU that guide Member States in implementing new technologies (Bromme et al., 2022; Gonzálvez-Gallego & Nieto-Torrejón, 2021). When it comes to technology and specifically to eVoting the "Trust to operations over the Internet" is very important (Trechsel et al., 2016, p.3). That is because according to this thesis' definition of eVoting, the whole voting procedure will happen via the Internet so eVoting is an online service that needs to be trusted to be used. Furthermore, according to Treschel et al. (2016), who worked on identifying the challenges and opportunities for eVoting in the EU Member States, citizens' online operations, such as online banking and Internet voting, always raise critical security and privacy concerns.

Trust in the online services to be fair and transparent and trust in the State itself to effectively conduct online services and eVoting using citizens' data, is the precondition for the successful usage of such a system and possibly the main reason behind Estonian eVoting success (Ehin et al., 2022; Mulholland, 2021; PWC, 2019; Budurushi et al., 2016). Ehin et al., 2022 also mention that trust in online services is built when the citizens use these services frequently. That is why they suggest that after eleven elections with eVoting the electoral body of Estonia trusts to vote with this system. In other words, the voter must be able to trust unsupervised mechanisms or as was mentioned before uncontrolled environments to record and transmit their vote (Ehin et al., 2022; Gibson et al., 2016; Krimmer, 2019). Finally, OSCE's Handbook for the Observation of NVTs (2013, p.5) highlights and overarchingly agrees with the rest of the mentioned authors that the use of NVT requires pre-existing confidence in the election administration and this confidence will be built if all the requirements are met alongside the existing challenges, that will be discussed further in the following chapters. The gathered requirements and a small explanation of each can be seen below in Table 2.1.

Table 2.1 The requirements for an eVoting system (Original synthesis with assistance from ChatGPT)

Requirement	**Description**
An eVoting System where eVoters can cast their ballots and with Online Checked Eligibility	An eVoting System where eVoters can cast their ballots and with Online Checked Eligibility
Legal Framework for eVoting	Ensures legality and security for eVoting processes and principles.
Public Digital Identity Scheme	Establishes a scheme for digital identification of voters for authentication.
Digital Infrastructure for Pre-voting Processes	Sets up digital infrastructure for processes before the voting stage such as confirming voter's choice
Separate Counting of eVotes	Ensures that eVotes are counted separately from other voting methods.
Precedence of eVoting before Paper Ballot Election Day	Specifies that eVoting should occur before the traditional paper ballot election day.
Simplicity for Observer Audit	Requires the eVoting system to be simple enough for observers to audit effectively.
Trust	Emphasizes the importance of trust in many aspects. For example in the eVoting process, both in terms of usage, security and transparency, etc.

2.2 The Main Characteristics of the Estonian eVoting

Now that the general requirements for eVoting have been mentioned the technical processes and the stages of eVoting in the practical example of Estonia will be analyzed. However, the complete analysis will not focus on many technical details but only on the main elements, such as the technology and stakeholders involved, that will enable the reader to understand overarchingly the main characteristics of Estonian eVoting.

First, the Estonian eVoting system works in what is referred to as an "envelope scheme" (State Electoral Service of Estonia, 2017, p7). The Service (2017) explains that exactly like in postal voting, the voters use an inner anonymous envelope with their voting choices and they place it inside an outer envelope with their name and signature to be sent. In eVoting the Service underlines that with the help of the software mechanisms that provide public keys for the encryption and a private key for the decryption of the vote; the voters encrypt the eVote in an "inner envelope" and sign it with their digital signature which forms the "outer envelope", and then they cast it. Consequently, when the time comes the tallier decrypts the eVote with his/her private key, sees only its content and not the identity of the voter, and finally counts the eVote. In other words, each voter has their digital signature for futher authenticity eligibility and identification and a public encryption key to put their inner voting envelope into an outer to-be-sent envelope. That is why Krimmer (2019) stated that eVoting is like postal voting but through the Internet (p. 421).

The State Electoral Service of Estonia (2017) also mentions that eVoting has four organizational stages. Pre-voting, Voting Phase, Processing Period and Counting Phase. The Pre-voting stage is a preparational stage to vote through the Internet, where the necessary organizing steps are made. For example, the candidates and the voter lists are compiled alongside the mentioned decryption and encryption of public keys and private keys, and further instructional materials are sent (p.8). Then the Voting Phase takes place where eVoting occurs parallel to the physical polling stations in case that is deemed necessary by the State of Estonia. The Service mentions that there the voters eVote via their Voter Application which is installed on their computer for eVoting (p.12). After that, the Processing Period starts where double votes are annulled, authenticity via the voter's digital signature is checked and the eligible or valid eVotes are counted. Finally, in the Counting Phase, the anonymized eVotes are decrypted by the tallier who uses his/her private key to count and determine the outcome of the election.

As highlighted by the State Electoral Service of Estonia (2017, p.9) the most important stakeholder in the eVoting initiative is the "Organizer" who has the role of the tallier and holds the private key that can decrypt all the eVotes. Then another principal party is the voters who

eVote through the Voting Application and inspect if their eVote arrived successfully to the "Collector" by receiving a confirmation in a second device that they registered that has a Verification Application (p.10). The eVoters can change their eVotes an unlimited number of times during the early voting period, with each new eVote annulling the previous ones. Also, voting at the polling station invalidates the ballot cast over the Internet (Ehin et al., 2022).

Moreover, the State Electoral Service of Estonia (2017) states that the Collector is a server that helps with the digital signature, answers verification queries on the integrity of the eVote, accepts, digitally signs them, and sends them to the Processor. The latter does the tasks that were mentioned in the Processing Period and sorts the eVotes based on their respective electoral districts. Most importantly though, the Processor anonymizes the eVotes by removing the personal digital signatures from them and sends them to the Organizer to tally them and present the outcome of the election. In addition, two other supportive parties that check the integrity of the Organizer's outcome, the data that are transferred between the mentioned parties, and assist the eVoter with possible problems are the Auditor and the Client Desk respectively. The Service (2017) mentions that it is also accompanied by many other external services that empower its eligibility and support its processes. For example, to identify further an eVoter there is an Identification Service, a Signature Service for the digital signature, and a Registration Service to check all the registered eVotes (p.10).

In conclusion, eVoting in Estonia has been established for the last eleven elections, it is an outcome of trial and error (Ehin et al., 2022), and a responsibility of many stakeholders and services (Gibson et al., 2016). For example, the State Electoral Service of Estonia (2017) suggests that the whole system is publicly verifiable by everyone "universally" (p.20). That suggestion is supported by Ehin et al. (2022) as they mention in their work that the eVoting legal basis in Estonia has been the subject of many amendments, many errors, and much guidance by OSCE (p.5) that lead to this verifiability.

2.3 The Role of eVoting in Elections

In his work on how eVoting affects democracy, Krimmer (2012) proposes that many stakeholders are influenced either positively or negatively by the introduction of such technology. This subsection will focus on the positive benefits of eVoting and the next will mention the negative effects and challenges it creates. The benefits of eVoting revolve around increasing voters' mobility, enabling voters who live outside their home country to participate in elections, extending access to democratic procedures for the hospitalized, disabled (e.g. handicapped, vision impaired) people, and finally trying to raise and/or maintain voter turnout (Krimmer, 2012). For example, that was the main reason it was used for the French parliamentary elections of 2012 (Pinault & Courtade, 2012). So, it decreases what is referred

to as the “cost of voting” as an activity that leads to bigger or more stable voter turnout (Blais et al., 2019).

In other words, eVoting enhances accessibility for the democratic procedure of elections by the use of ICT so it contributes to eParticipation (Sanford & Rose, 2007) and consequently to eDemocracy (Krimmer, 2012; Meier & Terán, 2019). Sanford and Rose, (2007) define eParticipation as the participation in societal democratic processes, mediated by ICTs (p.1). This definition agrees with other works such as that of Susha & Grönlund (2012) which further elaborate on the definition by using the United Nations definition of eParticipation which is to enable citizen engagement in decision-making through ICT. Finally, eDemocracy according to Krimmer (2012) and Meier and Terán (2019), refers to the empowerment of the civil right of participation in democratic processes and sharing of information through the use of technology. So, the term eParticipation reflects the term eDemocracy.

Furthermore, it is not only the voters that will benefit from the application of an ICT like eVoting for elections. Krimmer (2012, 2019) identified more stakeholders that will receive benefits from eVoting. The author mentions that alongside the voters there are also the election administrators, the media, the election observers, the politicians, and the vendors that will be influenced by the application of technology in elections. Other papers that agree with and complement Krimmer (2012, 2019) are those of Musiał-Karg (2014), Trechsel et al. (2016), Shat & Abbott (2016), and Agate et al. (2021). In their respective works, they propose that there are many more benefits of eVoting, for example, the effective registration and counting of complicated and large-volume elections that will be beneficial, especially for election administrators. Moreover, Krimmer (2019) pointed out that eVoting for administrators will be beneficial to combat fraud, reduce unintentionally spoilt ballots due to human error in the long run after the usage of eVoting has been tried for many rounds of elections, it will establish trust in the administrators, maintain or even raise voter turnout and all in all, organize elections more effectively (p.424).

On the other hand, regarding voter turnout, in their work on the bottleneck model of eVoting, Weber & Vassil (2011) inform that eVoting does not have a critical impact on the politically active and technological-adept citizens. However, they mention that it can increase voter turnout in the long run by engaging the otherwise disengaged citizens (peripheral citizens) in politics by using technology. By peripheral citizens, Weber & Vassil (2011) mean the citizens that are physically away from polling stations and metaphorically disengaged from politics. More specifically, based on the Estonian elections of 2007 that were conducted with internet voting (eVoting) the authors underline that using eVoting must be distinguished from its impact. They opine that the usage of eVoting technology instead of reinforcing the participation of the peripheral citizens, creates another social division for them and enhances inequality

patterns in their electoral participation. Nevertheless, they raise awareness for the fact that this does not necessarily mean that eVoting should be discarded, but that it should be spectated through the lens of their "bottleneck model". They quote that "the image of a bottleneck is usually evoked to describe a process that is constrained by one single element while other elements are idling" (p. 15). For Weber and Vassil (2011) the latter means that eVoting will be used by the politically engaged. However, in case some of those peripheral disengaged citizens finally end up using eVoting then this technology would be very impactful for their political participation since it will provide them with an effective mobilizing method to participate in elections. Finally, they conclude that the usage of eVoting is based on other motivations and not on the technology itself. In other words, simply providing the technology does not guarantee its utilization, does not guarantee positive effects and its usage depends on various motivations and challenges.

The "bottleneck model" theory agrees with Krimmer (2012,2019) and OSCE's Handbook for the observation of NVTs (2013) who mentioned that in the long run, eVoting will maintain or even increase turn-out and that "IT tools are not a panacea" (p.29). If factors like the lack of trust and confidence in the public administration are affecting the democratic institutions and processes then the technology that will be in place, will not solve those problems and will not empower the voter, but in contrast, it might affect the voter's confidence negatively (Krimmer, 2012; OSCE, 2013). Simply put, the impact of technology on democratic processes mirrors the state of democracy within the context where this technology is applied. The use of NVT does not build confidence immediately and eVoting will not solve a crisis of faith in democratic institutions, but it will try and provide access and solve the physical barriers to the voting procedure.

As mentioned before other stakeholders besides the voters and election administrators will be influenced by the introduction of eVoting and these are the politicians who will support the initiative, the vendors (inventors) that will create the technology, the media, and election observers. The effect of eVoting on the media and election observers will be analyzed in the section that follows. According to Krimmer (2012) for the politicians that will champion the technology the benefits revolve around what is known as the "first mover advantage" (p.423) as they will have a better understanding of this technology thus achieving a long-term competitive advantage (Kerin et al., 1992). Moreover, Krimmer (2012) opines that the politicians will appear that they are progressive, as they are embracing new technologies. The same author proposes that vendors will also benefit fiscally by selling their eVoting technology and also in terms of prestige by consulting on its usage. the effect of eVoting on the media and election observers will be analyzed in the section that follows.

2.4 The General Challenges for an eVoting Initiative

Alongside the mentioned benefits there are many challenges to be considered for the successful adoption of technologies like eVoting (Trechsel et al., 2016). For example, OSCE's Handbook for the Observation of NVT (2013) underlines that there are legal, administrative/organizational, and social challenges that should be fully addressed for the successful adoption of eVoting (p.5). Otherwise, the Handbook warns that if these challenges are not addressed before introducing eVoting for elections, it may damage public confidence in the election process.

Agreeing with the mentioned dimensions of challenges, Trechsel et al. (2016) and Krimmer, (2012) complementary identified and explained the general challenges to the introduction of eVoting in eDemocracy. They also agreed that these dimensions of challenges influence the adoption of eVoting for electoral processes. In addition to the legal, administrative, and social challenges the authors added political and technological challenges as well. Specifically for the existence of political challenges the work of Mahrer & Krimmer (2005) agrees with Trechsel et al (2016) since it highlights politicians as an inhibiting factor for the implementation of NVT and ICT in eDemocracy (p.1). Finally regarding the technological challenges indeed Gibson et al. (2016), Krimmer (2019), and the State Electoral Service of Estonia, (2017) agree that those exist in the form of verifiability, dependability, security, anonymity, and trust of the eVoting system in use. So altogether there are legal, administrative, social, political, and technological challenges to the successful implementation of eVoting.

More specifically, regarding the legal challenges both Gritzalis (2002) and Trechsel et al., (2016) agree that eVoting should be compliant with the state's legal and regulatory framework and it must ensure that is usable by its users. Moreover, constitutionally the process of eVoting is required to adhere to the principles that traditional voting also adheres to, thus it needs to be general, free, equal, secret, direct, and democratic (Gritzalis, 2002, p. 541). For example, Gritzalis (2002) explains that the eVoting system must be general for the whole population that is eligible to vote and should eVote in an uncoerced and secret manner by having an equal number of votes each, that is not monitored. The whole procedure should be transparent and secure enough to be democratic says Gritzalis (2002) and agrees with Ehin et al. (2022) and Gibson et al. (2016).

The same considerations were mentioned both by OSCE (2010, 2013) and the State Electoral Service of Estonia (2017) as requirements for a legal eVoting initiative. There might also be the need for amendments and other changes in the electoral law of a country case that wants to apply eVoting exactly like it happened many times in Estonian eVoting history (Drechsler & Madise, 2004; Ehin et al., 2022). Additionally, the State Electoral Service of Estonia (2017) as mentioned before underlines that the system must ensure the auditability/verifiability of

observers such as the legal observers and the media. This directly corresponds to Krimmer (2012) who opines that it will be challenging for the media and the general election to enhance the transparency of the process by observing such a technology. He explains that in contrast with a paper ballot which is an easier and more physical procedure for an observer to audit, this technology can be difficult to understand and more technically sophisticated. In other words, if a state decides to use eVoting for its elections, an important legal challenge to be addressed is establishing a legal basis that reflects the respective state's constitution (Trechsel et al., 2016). It must also ensure and protect the fundamental rights of elections like universal suffrage, transparency, and the others that were mentioned before by OSCE (2010).

When it comes to administrative challenges OSCE (2013) underlines that eVoting introduces administrative complexity in the electoral process (p.5). For example, some of the mentioned complexities are the training of possible new human resources and election officials, providing voter education, testing, and evaluating and procuring the software. As proven before in the eVoting analysis of Estonia based on the report by the State Electoral Service of Estonia (2017), indeed the successful implementation of eVoting requires administrative cooperation between many services and stakeholders, especially if eVoting will run in parallel with a paper ballot. For example, as it was mentioned before by the State Electoral Service of Estonia (2017) in the pre-voting stage electoral lists and other important documents must be digitalized and in case of parallel voting a paper vote should cancel the eVote. That means that preparation and communication between the two types of voting is crucial. So overarchingly another challenge is dealing with the administrative complexity that eVoting requires.

Moreover, Trechsel et al. (2016) propose that the social challenges at least for the EU mainly revolve around the digital gap or digital divide which they define as the social differences and the technical inequality behind the access and use of technology (p. 5). In other words, "who has a personal computer and internet at home, but also who is sufficiently technologically literate to be able to interact with an online voting platform" (Trechsel et al., 2016, p 19). That's why this term could also be met in the bibliography as digital (i)literacy (Bawden, 2008) An explanation that also agrees with other definitions of the digital divide such as that of van Dijk (2006) who defines it as "the gap between those who have and do not have access to computers and the Internet" (p.1).

Trechsel et al. (2016) have also identified as a social challenge the use of language in multilingual countries, such as Estonia, and the effects of eVoting on the symbolic dimension of voting which includes phenomena such as family voting or intimidating and turning voting into a banal "day-to-day" activity (p20). The findings on social challenges of the Trechsel et al (2016) paper agree with the findings in other papers such as that of Mitrou et al. (2002), Gerlach & Gasser (2009), Hayashi & Baranauskas, (2008), Weber & Vassil (2011) and Krimmer (2012,

2019) that conclude that the digital divide is indeed crucial and can create another social division alongside enhancing inequality patterns in the electoral participation. Also, they agree with the findings of Pipilou (2022) who pointed out that the use of technology could turn voting into something trivial. So overarchingly, considering the digital divide, multilingual needs, and the triviality of elections through eVoting are the mentioned main social challenges.

On the other hand, Trechsel et al. (2016) note that the political challenges behind implementing an eVoting initiative in the EU revolve around issues of political neutrality of the initiative, meaning that the procedure can seem to benefit a specific political faction, or even stakeholder in case the whole preparation of the initiative is outsourced to the private sector, affecting the trust between the parties and the voters, and the trust from the citizens towards the provider of the initiative, for example, the private or public sector. They also add that political neutrality does not depend on the technology used in eVoting but on the preferences on what voting method the voters prefer to use, and that derives from their political views (p.15). However, they do note that the evidence so far is not "uniform", and it depends on the political context of a country (p.15). Indeed, some papers conclude that eVoting is not neutral (Van den Besselaar & Oostveen, 2003), and others that it has been a political success (Chevallier et al., 2006). Trechsel et al. (2016) mention that issues related to the fiscal costs of the initiative might also become a challenge for the initial investment.

Additional political challenges derive from the work of Krimmer (2019) and Mahrer & Krimmer, (2005). More specifically Mahrer & Krimmer in their work on "identifying the notion of the Middleman Paradox" explain that even though the politicians are the ones who will champion technological innovations for the needs of eDemocracy, acting as "Middlemen" for the vendors that are willing and capable to provide it, they can act as opposers/inhibitors as well (p.38). That is because there is always the danger of the fear of losing vote shares when the electorate changes due to new ways of voting for example by introducing new electoral laws ultimately hindering decision-making on eVoting (Krimmer, 2019). So overarchingly the main political challenges revolve around the political neutrality of the initiative, the trust towards the provider, its economic cost, and the Middleman Paradox.

The technological challenges according to Trechsel et al. (2016) can be human-related and technology-related. On the human side, the study highlights the need for the human resources of the initiative to have the know-how to ensure its security and transparency (p.17). On the technological side, they underline the need for the system to be secure from attacks, viruses, coercion of voters, and multiple voting and to ensure anonymity, security, and identification of a voter and his/her eVote. These challenges agree with the guidance provided by OSCE (2013). Moreover, the State Electoral Service of Estonia (2017) showed that many of the mentioned aspects of the technological side of the technological challenges can be overcome by a public

and frequently used digital identity scheme. This scheme being a requirement for a secure eVoting (State Electoral Service of Estonia, 2017) can also be considered a challenge to create for the successful adoption and usage of an eVoting initiative. So to sum up the technological challenges revolve around the need for an experienced human resource that will organize the initiative, a system that will be secure and transparent, and a public digital identity scheme.

However, one thing that must be addressed is that the categories of eVoting challenges have instances that can overlap with each other. For example, Trechsel et al. (2016) mentioned that one of the technological challenges of the initiative is the digital literacy of the voters or in other words the digital divide which is also a part of the social challenges. Creating a secure eVoting system can reflect on the legal challenges as well because the system protects the election Principles as mentioned by OSCE (2010). Also, overarching is the challenge of trust that can take many forms and can reflect on many challenges. For example, it was mentioned before in many parts of the literature review, that there is a matter of trust towards the operations over the Internet, towards the provider of the initiative, towards the democratic context in which the initiative operates, towards the State towards technology, science, etc.

Additionally, the challenge of Trust according to (Trechsel et al., 2016) can be an overarching challenge for all the categories of challenges. For example, they underline that trust is fundamental for its political consideration, or that trust in operations over the Internet is an important sociotechnical challenge. Those statements agree with Ehin et al. (2022), Gibson et al. (2016), Krimmer (2012), and OSCE (2013). Finally, according to Trechsel et al. (2016), eVoting procedures must prioritize transparency and participation to foster the necessary trust.

For the initiative to succeed, the system must operate effectively and securely, upholding fundamental election principles such as the secrecy of the vote (p.13, p.16). This adherence to core principles is crucial for earning trust and ensuring the usage of eVoting systems (Budurushi et al., 2016; Gibson et al., 2016; Trechsel et al., 2016). Thus, it can be said that building trust is intertwined with the legal, technological, and administrative challenges. The legal framework for an eVoting initiative should prioritize transparency and stakeholder participation. Additionally, the eVoting system must technologically and administratively ensure the collaboration of many stakeholders (OSCE, 2013; Willem & Lucidarme, 2014). This empowers the mentioned statement by the author of this thesis that “the categories of eVoting challenges have instances that can overlap with each other”. The challenges and their categories alongside a small explanation can be seen in Table 2.2.

Table 2.2 The general legal, administrative, social, political, and technological challenges (Original synthesis with assistance from ChatGPT)

Category	Challenge	Description
Legal Challenges	Establishing a Legal Basis Reflecting State Constitution	Ensuring that the legal framework for eVoting aligns with the constitution to protect fundamental electoral rights such as universal suffrage.
Administrative Challenges	Administrative Complexity of eVoting	Dealing with the intricate administrative procedures and logistics required for implementing eVoting systems.
Social Challenges	Digital Divide	Addressing the disparity in access to technology, which can empower social divisions and inequality in electoral participation.
	Trivialization of Voting	Preventing the perception that voting is trivialized by technology, which could diminish its importance and impact on society.
	Language Barrier in Multilingual Countries	Overcoming challenges related to language diversity to ensure inclusivity and accessibility in eVoting processes.
Political Challenges	Political Neutrality	Ensuring that eVoting initiatives remain neutral and do not favor any specific political faction or stakeholder, especially if outsourced.
	Initiative Costs	Managing the financial burden associated with implementing eVoting systems, which can be substantial.
	Middleman Paradox	Navigating the paradox where politicians champion eDemocracy but may also oppose or obstruct its implementation due to various interests.
Technological Challenges	Human Resources and Expertise	Ensuring that the personnel involved in eVoting initiatives possess the necessary skills and knowledge to maintain security and transparency.
	System Security and Integrity	Addressing technical challenges such as protecting the system from attacks, ensuring voter anonymity, and preventing coercion and fraud.
	Digital Identity Scheme	Implementing a robust digital identity scheme to enhance security, transparency, and identification of voters and their votes in eVoting systems.

Overlapping Challenge	Trust	Implementing an eVoting initiative that is politically, legally, socially, and technologically trusted.

3 Theoretical Framework

The theoretical framework that has been used as a compass (Yin, 2017) to further identify and codify the Greek social, political, legal, technological, and administrative/organizational challenges is the framework of the factors behind the application of an eVoting service by Shat & Abbott (2016). Moreover, this framework alongside the gathered literature review encompassed the formulation of questions to the interviewees that this thesis's authors communicated to reach the findings. The latter statement will be further elaborated in the Methodology chapter of the thesis.

Initially, other frameworks were taken under consideration by the author of this thesis to encompass its modus operandi. For example, the framework of Information Systems (IS) Failure by Sauer (1993) and Sauer & Davis (2009) was considered. It explains the adoption failure of IS based on their performance and indicates the important aspects of its success such as the effective project organization, information system, and enabling by its supporters. However, even though this framework was fundamental for the creation of similar frameworks of IS adoption failure (Kim & Iijima, 2005) and its aspects can correlate with eVoting adoption, it was not eVoting-specific. Thus, it was not chosen for the needs of this thesis.

Moreover, other eVoting-specific frameworks have been created that focus mainly on the security and thus technological aspects of eVoting (AlHogail & AlShahrani, 2019; Verwer et al., 2020). However, the problematization needs of this thesis proposed a framework that researches the political, social, legal, and administrative challenges alongside the technological ones. The framework in use does reflect these needs, Shat & Abbott (2016), categorized the main factors and the main stakeholders that pose challenges to the implementation of an eVoting service. The categories of factors of the framework that are depicted in Figure 1 are «Political Factors, Capability, Trust» and in the end «Acceptance».

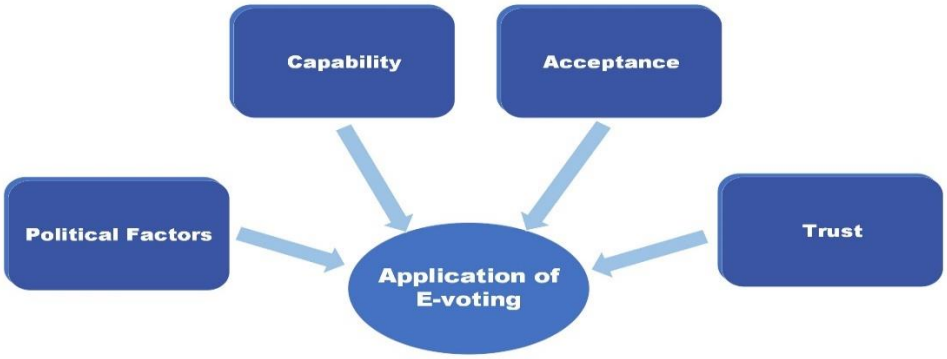

Figure 1 Mapping diagram of the factors that affect the application of an eVoting service (Shat & Abbott, 2016)

The authors define as Political Factors the political will that supports the initiative and stems from the voters and the "government" (p.8). In other words, the authors explain that the two

main sources of Political Factors are the will of politicians and the will of the voters to support the adoption of such IS innovation and technological services to be used for elections. This finding from Shat and Abbott (2016), agrees with the literature review that has been collected to explain the role of eVoting for elections, its requirements, and challenges.

For example, it almost completely agrees and correlates with another framework named "The eVoting Mirabilis" (Krimmer, 2012, p. 13; Krimmer & Schuster, 2008) that investigates the stakeholder groups and the dimensions (legal, political, social, and technological) that are influential and create challenges for the application of ICT like eVoting to electoral processes. The mentioned framework has been re-used in research and has been more established (Krimmer et al., 2020; Krimmer & Fischer, 2017), whereas the framework in use (Shat & Abbott, 2016) is comparatively less promoted. This can mark a limitation. The author of this thesis also decided to use the Shat and Abbott (2016) framework because he found the categories of this framework a bit more specific and straightforward, particularly noting the inclusion of the Trust category, which depiction was absent in other frameworks. However, this decision may pose a limitation if these specific categories fail to encompass more general challenges that may arise. Moreover, the Mirabilis framework (Krimmer, 2012; Krimmer & Schuster, 2008) has identified that indeed voters who will use the system and the politicians who will run in the elections with it are influential stakeholders in an eVoting initiative. Of course, as mentioned in the literature review part of this thesis, the Mirabilis (2008, 2012) is further supported by other works such as that of Trechsel et al. (2016) and of course by the framework in use (Shat & Abbott, 2016).

Also, at least for the case study research that their framework was based upon, Shat & Abbott (2016) opine that the political will of the politicians is more important than the political will of the voters. This statement does not correlate with any of the mentioned theses from the literature review. However, it can be said that it further contributes to what Trechsel et al. (2016) underlined when they were researching the political factors behind the adoption of eVoting in Europe; meaning that evidence is not uniform, and it depends on the political context of a country. In other words, this finding by Shat & Abbott (2016) can be considered as a limitation on the external validity of their framework as specific findings may differ from case to case. Nevertheless, the general conclusion that politicians and the voters are influential stakeholders for the "Political Will" behind an eVoting initiative is agreed upon by many papers (Drechsler & Madise, 2004b; Krimmer, 2012; Trechsel et al., 2016).

Moreover, according to Shat & Abbott (2016) "Capability" is defined as "infrastructure (technological, legal), personnel, finances, and the ability to protect the systems against fraud and corruption" (p.9). The authors mention that "Capability" can also take the form of the capability of the electoral body to vote with this technology as well. This is directly connected

with the mentioned literature on the Social Challenges behind eVoting and specifically with the digital divide or any other challenge in using such technology (Krimmer, 2012, 2019; Trechsel et al., 2016; van Dijk, 2006). Furthermore “Capability” in the form of legal and technological infrastructure, the appropriate personnel involved in the initiative, the finances, and the security against fraud and corruption (Shat & Abbott, 2016) all reflect on the mentioned Legal, Administrative, and Technological Challenges (Ehin et al., 2022; Gibson et al., 2016; Gritzalis, 2002; Krimmer, 2012; Organization for Security and Co-operation in Europe (OSCE), 2013; State Electoral Service of Estonia, 2017; Trechsel et al., 2016). For example, Shat & Abbott (2016) highlight the need for a capable human resource, a secure eVoting system, a digital identity scheme, and a legal basis for transparency and auditability. These requirements are exactly what was proposed by the OSCE's Handbook for NVT (2013), by the State Electoral Service of Estonia, (2017) and Trechsel et al. (2016). Also, the finances reflect the Political Challenge of the fiscal costs for the deployment of an eVoting technology (Trechsel et al., 2016).

Additionally, Shat and Abbott (2016) commented that many elements contribute to the factor of Trust, such as hacking concerns, citizens’ fraud, and corruption by political leaders (p.9). First, those considerations that revolve around the authors’ understanding of aspects behind trust reflect on the mentioned Technological Challenges for a secure system and Political Challenges such as the challenge of the eVoting system not benefiting a specific political faction (Trechsel et al., 2016). Second this statement correlates with the mentioned importance of trust as a requirement for eVoting and the necessity of building trust as a challenge for its successful adoption (Budurushi et al., 2016; Gibson et al., 2016; Krimmer, 2012). It also underscores the ambiguity surrounding the term "trust" and the various conceptualizations of trust that are debated. (Bromme et al., 2022; Gonzálvez-Gallego & Nieto-Torrejón, 2021; Trechsel et al., 2016).

Shat & Abbott (2016) propose that the “Acceptance” factor derives from the three previous factors (Political Will, Capability, and Trust). More specifically they underline that for eVoting to be accepted, all of the factors must be met (p. 10). That means that if one of the other three factors is missing then the initiative will fail. However, a criticism of the framework by the author of this thesis lies in the fact that this is not an actual factor but the outcome of the three previous ones. Furthermore, for this part of their work, the authors mainly collected solutions for the “Acceptance” of eVoting that can be used as a source of literature to support possible recommendations. So, it will not be considered for the operationalization of the framework for this thesis and the coding and identification of the Greek challenges behind the adoption of eVoting.

As said at the beginning of this chapter the idea behind the use of this theoretical framework is to create a sufficient "blueprint" for this thesis to build upon. This idea correlates with the famously cited book about case study methodology in social sciences by Robert K. Yin (2017). In his work, Yin (2017) mentions that a theoretical framework should be considered a blueprint for a study to investigate why different things occur (p.70). Moreover, Yin (2017) underlines that for explanatory research such as this, which is trying to explain why eVoting in Greece has not been adopted yet, certain subjects may benefit from existing works, as the work of Shat and Abbott (2016), to offer a sufficient theoretical framework for crafting a focused case study (Yin, 2017, pp. 70, 351). Additionally, this framework was chosen based on the criteria for a "sound theoretical framework", according to the work of Thiel (2021) who introduced methods for public sector research. The framework reflects on the fourth criterion of "simplicity" which follows the idea of the feasibility and straightforwardness of a theoretical model that "does not contain more variables and concepts than necessary to provide an adequate explanation for the phenomenon studied" (p.40). Indeed, it is clear that the authors managed to narrow down all those factors behind the implementation of eVoting into three categories Political Factors, Capability, and Trust.

Nevertheless, some may argue that employing only three categories to encompass numerous factors could be deemed superficial and overly simplistic. For example, the category Capability according to Shat and Abbott (2016) reflects a plethora of capability challenges. That is why the author of this thesis decided to extend the framework and dissect the category Political Factors and Capability into different categories; Political Will: Politicians, Political Will: Voters, Capability: The Greek Electorate, and Capability: Legal, Administrative, and Technological Infrastructure. The aim is to distinguish between the challenges that politicians and voters will bring for the initiative and between the capability of the voters to use an eVoting system. Together with the distinction between the capability of legal, administrative/organizational, and technological infrastructure to support such a system. The operationalization of these categories will be further elaborated in the methodology chapter of this thesis. On the other hand, the category of Trust will not be dissected but it will remain vague since this code can reflect on the many contextual "faces" of trust (Bromme et al., 2022; Gonzálvez-Gallego & Nieto-Torrejón, 2021).

The rationale behind the decision to extend the framework was made based on Yin (2017) who underlines that the paradox of theory lies in its dual nature, while it directs where to focus the attention, it also has the potential to obstruct the ability to perceive other perspectives or "nuances" (p.70). That is why group coding different findings only as "Capability" may hinder the distinct nature of different kinds of capabilities. Subsequently, the theoretical framework of Shat and Abbott (2016) corresponds to the needs of this paper because it provides

complementary background research and it connects with the existing knowledge as proven before (Krimmer, 2012; Mahrer & Krimmer, 2005; Trechsel et al., 2016).

According to Yin (2017, p. 71), a good case study framework should reflect on previous cases and the general literature review. Yin (2017) explains that by extending or validating previous theoretical work on a subject, authors can empower the external validity of their case study by aiming for analytic generalization of their findings (p.77). In simpler terms by applying a previously used theory that is supported by a sufficient literature review then it is argued that a single case study can contribute to external validity. The Shat and Abbott (2016) framework in use was created for the inclusion in the elections through an eVoting system of the Palestinian "diaspora" (expatriates) which correlates with part of the problematization of this thesis, which is the inclusion in the process of voting of the Greek expatriates that are eligible to vote. So, the limitations of using the framework of the factors behind the application of an eVoting service by Shat & Abbott (2016) mainly reflect the possible contextual differences between the Palestinian case study that this framework based its creation and the Greek case study that this thesis will investigate. For example, one of these differences could be the role of Trust in an established democracy such as Greece and the more troubled case of Palestine (Evriviades, 1979; Rogan & Shlaim, 2001).

However not only does the framework correlate with the mentioned existing frameworks and research but Yin (2017) also highlights that these differences will be crucial for comparing the results with other existing cases. That is because Yin (2017) opines that when aiming for explanatory depth and external validity, a case study evaluation can be based on previous similar theoretical concepts or principles as an essential component of its design and data collection methodologies (p.73). The extension of the framework and thus the main codes that will categorize the challenges for eVoting adoption are depicted in Figure 2 below. Those categories of challenges if they are addressed before introducing eVoting to elections will lead to an unchallenged "Successful Hellenic eVoting Adoption" in the sense that it will adhere to the requirements for voting online (Table 2.1) and those requirements will be fullfilled without the mentioned challenges (Table 2.2), so that ultimately the adoption of eVoting will not pose a danger to democracy (OSCE, 2013).

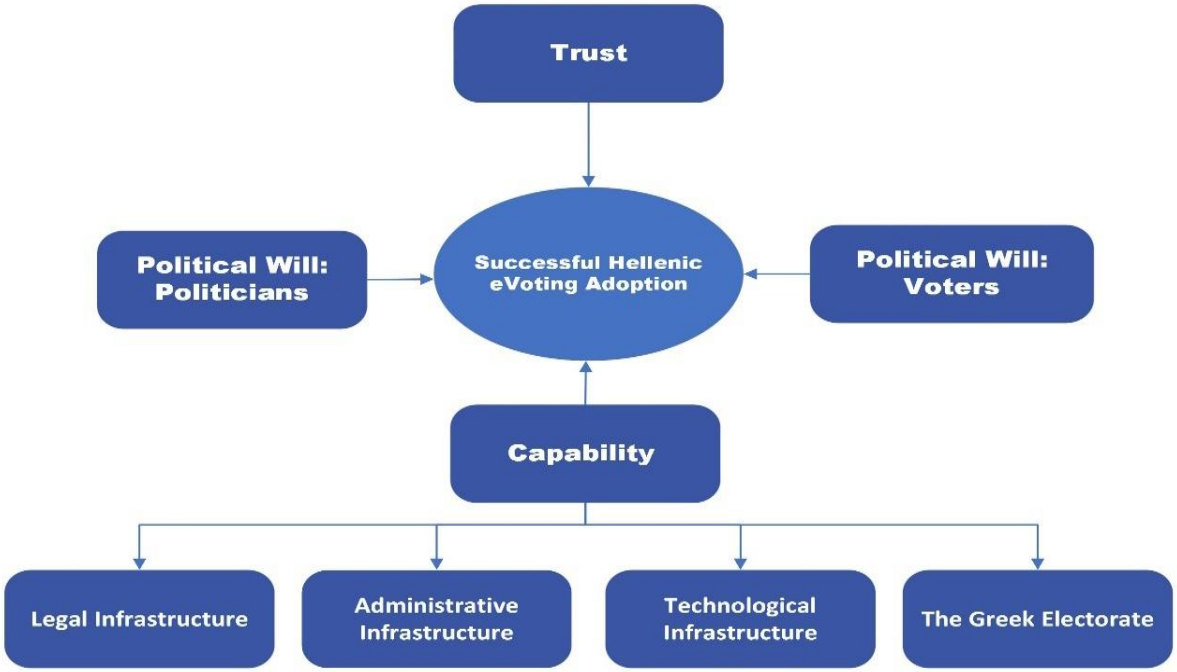

Figure 2 The extended framework that will encompass the methodology

4 Methodology

This part of the thesis will analyze the research strategy that was used to answer the two sub-questions and ultimately the main research question. Moreover, this chapter includes case study literature, which serves a dual purpose. First introducing the reader to the context of Greece and enhancing the case study methodology. Second, providing detailed information about the politico-administrative evolution, the modus operandi of Greek elections, and the technologies that can support eVoting.

4.1 Research Strategy

A deductive explanatory qualitative single case study (Hyde, 2000; Yin, 2017) was conducted to implement the framework (Shat & Abbott, 2016) and explain the reasons behind the lack of eVoting adoption in Greece. This single case study aims to assess the Greek legal, political, social, technological, and administrative/organizational landscape regarding eVoting. Moreover, it is deductive because it seeks to see if the general challenges on eVoting apply to the specific case of Greece (Hyde, 2000, p.1). It also aims to provide detailed and somewhat generalizable findings (Gomm et al., 2000; Tsang, 2014). According to Thiel (2021), explanatory research is applicable when it aims to establish the causes and circumstances that have led to certain attitudes or policy measures (p.18). This correlates with the main research question and the Greek State not adopting eVoting thus far. The use of a case study instead of a survey was based on the limitation that the sample unit for a survey would be too small in comparison with Greece's larger population and thus not representable (Yin, 2017). Overarchingly it must be noted that the author of this thesis decided to follow what Woolcock (2013) stated in his research which is that "questions should guide methods, not vice versa" (p.1).

In the previous chapters, the literature on eVoting, its general requirements, challenges, and practical applications, were explained and introduced. Yin (2017) mentions that reviewing the literature before choosing a research question and a case study approach to answer is fundamental (p.33). Also, that is why a single case study over a multiple case study approach was chosen. After reviewing the literature and finding numerous correlations between other eVoting studies and eVoting frameworks with Shat and Abbott's theoretical framework (2016), it became evident that the framework's theoretical propositions could be tested within a single case study to ascertain their validity and the validity of the results (Yin, 2017). Simultaneously, proving the validity of the theoretical propositions means that this single case study can contribute to knowledge and theory building by confirming and/or extending the theory and providing an in-depth explanation of the phenomenon (Thiel, 2021, p. 88; Toots, 2019, p. 5;

Yin, 2017, p. 85). Moreover, there is the limitation of a single case study methodology becoming an obstacle to the external validity of the results of research (Pearson & Coomber, 2010; Thiel, 2021; Yin, 2017). External validity refers to the logic by which case study findings can be applied to situations beyond the original case study lies in the relevance of similar theoretical concepts or principles (Findley et al., 2021; Thiel, 2021, p. 152; Yin, 2017, p. 349).

To try and approach external validity through the single case study of Greece the author of this thesis decided to design his research structure based on the idea of "analytical generalization" by Yin (2017) which also agrees with other works on the benefits of qualitative case study research on external validity (Gomm et al., 2000; Tsang, 2014). Yin (2017) explains that analytical generalization aims to generalize the previous concrete instances (in this case of eVoting in other countries) through qualitative single-case study research by comparing results (p.73). This will be realized in the "Results and Discussion" chapter of this thesis based on the information gathered in the literature review. In other words, the author argues that even though some contextual matters on the challenges of eVoting can differ between countries cases, such as the matter of the level of trust in democratic institutions or political will for eVoting; concerns over system failure, hacking, fraud coercion, digital divide, the role of politicians, etc are common among cases. Moreover, according to the literature review conducted for this thesis, it is clear that when researching for challenges behind eVoting adoption the dimensions that should be considered are indeed the legal, political, social, technological, and administrative (Gibson et al., 2016; Krimmer, 2012; Krimmer & Schuster, 2008; Shat & Abbott, 2016; Trechsel et al., 2016).

As it was mentioned in the introduction the research question for this thesis is **"Why has Greece not adopted eVoting for its national elections?"**. Furthermore, after reviewing the literature on eVoting adoption the following two sub-questions have been used as checkpoints, meaning points to investigate, to answer the overarching research question:

1.1. What are the social, political, administrative, legal, and technological challenges for an eVoting initiative for the national elections in Greece?

1.2 What is the role of these challenges for the already existing technologies for establishing an online ballot for the Greek national elections?

Both Yin (2017) and Thiel (2021) agree that explanatory questions usually start with asking why, how, or under which circumstances something occurs. Yin (2017) proposes that a case study becomes relevant when the researcher is trying to understand the "how" or "why" a particular phenomenon operates (p.33). Moreover, the first sub-question will identify the mentioned challenges behind implementing eVoting in Greece. Then, after answering the first sub-question the second sub-question will provide insights into the role that these challenges

play in the already existing Greek technologies that are useful/supportive for an eVoting initiative. Answering the second sub-question will also explain what other technological aspects/requirements that surround eVoting must be in place to adapt to the needs of the Greek national elections. Ultimately validating the results of the first sub-question by "applying" them to a micro example of an already-used eVoting technology in Greece. This will be further elaborated in the Case Study literature part of this thesis where the existing Greek technologies that can support eVoting will be introduced. Then after answering those two sub-questions the answer to why Greece has not adopted eVoting for its national elections will be derived.

To answer the main research questions and its sub-questions as it was mentioned a deductive explanatory qualitative single case study was used. The deductive, explanatory, and single case study rationale has been argued. Moreover, the methodology before discussed the matter of external validity. On the other hand, there is also a discussion about the internal validity of this research by choosing a qualitative methodology. (Adcock & Collier, 2002; Thiel, 2021; Yin, 2017). First, internal validity refers to the level at which a research study is trustworthy and its results reliable and non-biased (Adcock & Collier, 2002; Fossey et al., 2002; Thiel, 2021). The author decided to use a qualitative approach to illuminate his findings because he chose to assess the opinion of experts on the challenges behind the adoption of a Hellenic eVoting by interviewing them in a semi-structured manner (Fossey et al., 2002; Thiel, 2021; Yin, 2017).

The semi-structured interviewing (SSI) method seems as the proper style of interviewing to receive more depth and detailed answers since it allows greater flexibility than a structured interview by asking a mixture of closed- and open-ended questions, often accompanied by follow-up why or how questions (W. Adams, 2015, p. 1; Thiel, 2021, p. 71). Additionally, the decision to interview experts stems from the author's Greek and political scientist background, granting access to experts and an understanding of Greece's political context, as a political scientist fluent in the Greek language. This unique practical insider knowledge perspective offers insights that might also not be accessible through interviews conducted in another language (Bogner et al., 2009).

Of course, both an expert's opinion and the opinion of the author who is part of the Greek society could always be biased (Thiel, 2021). This statement should be considered as a limitation of this research. Subjectivity and bias are usual criticisms of interviewing and qualitative methodology that can damage the validity of findings (Adcock & Collier, 2002, p. 3). To balance the bias among the interviewees the author used the method of triangulation that according to Thiel (2021), is used in qualitative research for the reduction of threats to validity and reliability (p. 52). The author interviewed two experts for four out of the five categories of challenges (political, social, legal, and technological), to triangulate and validate the findings. Furthermore, all the interviewees were practitioners, including former and current academics,

who have held or currently hold significant positions within the Greek Public Administration. Their diverse expertise resulted in them offering in-depth insights not only into their respective categories of challenges but also into others, except for legal challenges, which were considered more delicate. However, the legal experts provided insights into the other challenges. It can be argued that this plurality of opinions except from the diverse backgrounds of the interviewees also reflects the overlapping nature of the challenges behind eVoting, especially the challenge of trust, as was proposed before in the literature review. Also, that is why the author decided not to pursue another two interviewers specifically for the administrative challenges, since the ones that were interviewed already have or had an administrative background thus providing a plethora of administrative challenges based on their theoretical and practitioner experience with the Greek Public Sector and Administration. The latter can be considered as another limitation of this thesis.

The choice of interviewee specialty was based on the guidance provided by the report assessment of the Greek early parliamentary elections of May 21st 2023 by OSCE-ODIHR (2023), by the general literature review of the stakeholders for each dimension (Krimmer, 2012; Krimmer & Schuster, 2008; Trechsel et al., 2016) and ultimately from the theoretical framework in use (Shat & Abbott, 2016). More specifically the ODIHR report (2023) provided a list of the people who are responsible for conducting the Greek National/Parliamentary elections and their expertise. As a starting point, the author came into contact with these experts, and they answered positively or provided him with an equivalent representative. Before proceeding with the analysis of the interviewees, it is essential to note that the selection of participants was validated through a short snowball sampling, which involved reaching out to potential interviewees referred by existing participants (Goodman, 1961; Parker et al., 2019). The snowball sampling was realized in the following way. First, the initial interviewees answered the call, and then at the end of the interview or in a follow-up email, they were asked if they could recommend another contact who fits the research criteria (Parker et al., 2019, p. 1). The snowball sampling was successful and stopped when the interviewees referred the author of this thesis to an interviewee that they had already interviewed (Goodman, 1961, p. 2).

OSCE-ODIHR's report from 2023 which specifically focused on Greece, aligns with the broader literature review and Shat & Abbott's (2016) framework. This correlation supports the selection of interviewees based on their expertise, which empowers the relevance between the general stakeholders for eVoting challenges and the Greek experts who should be interviewed. By combining all the mentioned sources, it can be argued that the following stakeholders should be interviewed for their respective categories. For the political challenges, politicians who run for elections or already hold office should be targeted. Then for the social challenges, academics, members of the Ministry of the Interior, organizations from the Civil Society, and

also the voters can be interviewed. For the legal challenges members of the Supreme Court of Greece or lawyers, academics of constitutional law are the ones that should come into contact for the research. For the Technological challenges the vendors or for the case of Greece, the IT experts behind the implementation of Greece's eServices can be contacted. Finally, for administrative challenges, the Ministry of the Interior or the Ministry of Digital Governance and the private sector can also be contacted.It must be noted that this list is not exhaustive but just indicative of the main stakeholders for the general eVoting dimensions as mentioned by (Krimmer & Schuster, 2008; Shat & Abbott, 2016; Trechsel et al., 2016) and as guided specifically by Greece by OSCE-ODIHR (2023).

Moreover, the author did not manage to interview a stakeholder from the media or a member of a group from the Civil Society. This can be considered as a limiting factor for the findings of this thesis as well. For example, a member of a group that represents people with disabilities could bring fruitful insights and findings. One more limitation that could be considered is the fact that the author decided to not assess the voters for their opinion since they do not fall under the category of experts by profession (Baker & Lovell, 2006), and since a survey would not be representative of Greece's larger population (Yin, 2017). Instead, the author assessed experts for the social challenges. Ultimately, the questions for the interviews regarding social and political challenges were combined, leading to the title of "Sociopolitical challenges". This decision occurred because the interviewees for the political challenges had a political, practitioner, and academic background that enabled them to discuss the social challenges as well.

More specifically, for the political and social challenges, four interviews were conducted to triangulate and validate their findings. The first one was with the caretaker Minister of Digital Governance of Greece between the two rounds of elections (May and June 2023). Except for holding temporary office as a minister, he is also a professor of Information & Communication Systems Engineering and had researched issues about eVoting for Greece at the beginning of the millennium. The next interviewee was a candidate at the time of the elections of 2023 for the main opposition left-wing party SYRIZA and is an associate professor of Political Sciences and Political Philosophy. The general aim was to have a politician from the right wing and a politician from the left wing assess the challenge of the non-political neutrality of the eVoting initiative which originates from the support of eVoting from specific political wings (Trechsel et al., 2016, p. 15). However, the political alignment of the first interviewee is unknown since the role of a caretaker Minister is to direct the ministry until the next government takes place (Syntagma Watch, 2023). Nevertheless, this specific interviewee participated as he mentioned (personal communication, June 22, 2023) in the general political discussions of the method of voting for the 2023 parliamentary which had to include the Greek expatriates (OSCE-ODIHR,

2023). The latter will be elaborated further in the next chapter, it was mentioned now to further support the choice of this participant and their insight.

The other two interviewees for the political and social challenges were as follows. The third one is currently a professor of applied statistics, and political sciences, and a director of the Laboratory of Applied Political Research. The mentioned Laboratory conducts among others also survey-based research on the Greek elections (either regional or national) and the voters' behavior (Laboratory of Applied Political Research, n.d.). This interviewee was also proposed by one other following the snowball sample method (Goodman, 1961; Parker et al., 2019). The last interviewee for this category of challenges was a referral from the initial people who were contacted and pointed out by the report from OSCE-ODIHR (2023). He is one of the core members of the Directorate for Elections of the Greek Ministry of Interior with longitudinal practitioner experience in conducting elections. All of these interviewees covered a large area of the political challenges for an eVoting initiative. Raised awareness about the social challenges and gave a plethora of administrative findings for eVoting. Especially the caretaker minister provided many findings on the technical challenges as well.

For the legal challenges, the two interviewees are the following. The first is an assistant professor of Constitutional Law, Data Protection Law, and Bioethics in Greece, and a director of the Laboratory of Bioethics, Technology Ethics and Law. Moreover, the same interviewee recently published a book on the Constitutional Challenges of eVoting in Greece. The latter reflects the fact that eVoting needs a constitutional legal basis (Gibson et al., 2016; Trechsel et al., 2016). The second interviewee is a professor at the Department of Information and Communication Systems Engineering the president of the Institute for Privacy, Personal Data and Technology, and Attorney at Law in Athens. The latter also was part of a panel of experts that researched eVoting for Greece at the beginning of the millennium and has experience as a legal observer at a polling station during elections. Both these interviewees being academics and practitioners covered a wide area of the Legal Challenges and the social externalities of eVoting.

For the technological challenges, the two interviewees are the following. The first is a professor of Management Science and Technology and a director of Research and Development at the National Network of Infrastructures for Research and Technology - Hellas (EDYTE-GRNET). GRNET is a Greek technology company, which within the limits of a private-public partnership has been operating under the Ministry of Digital Governance since August 2019. It provides networking, cloud computing, HPC, data management, and eInfrastructure services to academic, research, and educational institutions, as well as public sector agencies (EDYTE-GRNET, 2016). In other words, it's the company responsible for the eServices of Greece. Moreover, the interviewee is one of the main designers behind ZEUS (EDYTE-GRNET-

ZEUS, n.d.), the online governmental ballot used for inter-organizational eVoting purposes that will be further elaborated in the next chapter. The second interviewee for the technological challenges is a graduate of the National Center for Public Administration and Local Government, a member of the Ministry of Interior-Directorate of Elections, and a holder of a PhD in Information Technology. This interviewee was also proposed by one other following the snowball sample method (Goodman, 1961; Parker et al., 2019). Both interviewees complemented and contrasted each other on the technical capabilities of the Greek Infrastructure but also on the Administrative and Sociopolitical challenges that surround them. Finally the interviews for the technological challenges aimed to cover both the technological and the human-related aspects as mentioned before (Trechsel et al., 2016).

The first interview took place on the 18th of June 2023 and the last was conducted on April 2nd, 2024. This can be argued as a limitation of the methodology because the dates can reflect a possible longitudinal case study that usually assesses phenomena of longer and different time periods (Fosso Wamba et al., 2015; Thiel, 2021, p. 56). However, the only event that transpired after the 18th of June 2023 was the implementation of postal voting for the first time in Greece for the European Elections of 2024 (Ministry of Interior, n.d.). So, it can be argued that there was not an impactful event in the "Electoral Cycle" that could critically change the opinions of the interviewees (International IDEA, n.d.). The impact of the introduction of the Greek postal voting for a Greek eVoting according to the experts will be discussed in the "Results and Discussion" chapter. The interviewees with their reference names and the challenges that they were interviewed for alongside the date of the interview are shown in Table 4.1 below.

Table 4.1 The interviews (Original synthesis with assistance from ChatGPT)

Challenges	**Expertise (Abridged)**	**Date**
Socio-political challenges	Caretaker Minister of Digital Governance (SocioPol 1)	2023-06-22
Socio-political challenges	Political Candidate, Professor of Political Sciences and Philosophy (SocioPol 2)	2023-07-19
Socio-political challenges	Director of Applied Political Research (SocioPol 3)	2023-06-18
Socio-political challenges	Ministry of Interior - Directorate for Elections (SocioPol 4)	2024-04-02
Legal challenges	Professor of Constitutional Law – Legal eVoting expert (Legal 1)	2024-03-06
Legal challenges	Professor of Information and Communication Systems (ICT) Engineering, Active Constitutional Lawyer (Legal 2)	2024-03-21
Technological challenges	Director of GRNET (Tech 1)	2024-03-22
Technological challenges	Civil Servant -IT (Tech 2)	2024-03-27

Since the interviewees are both practitioners and academics in the field then the findings and in-depth insights based on their experience can contribute to practice (Bartunek & Rynes, 2010). It can be argued that the findings of this thesis can transfer knowledge from experts to other case studies that are considering implementing eVoting for elections and it can give them the ability to learn and adapt from the Greek case and potentially use those findings in practice.

The data from the interviews were managed in the following way. First, as shown in Table 4.2 below the initial questions reflected on the five codes of the extended theoretical framework that is used for this research and is depicted in Figure 2. This idea agrees with Thiel (2021, p. 147) and Yin (2017) who underlined that in deductive qualitative research, the codes will correspond with the operationalization of the framework and will guide the interview. The sociopolitical challenges were mainly related to questions that revolved around the matter/codes of the Political Will of the Politicians and the Voters alongside the matter of Trust, the Capability of the Greek Electorate. They also contributed to the Capability of the Administrative, and Technological Infrastructure. A plethora of findings for Administrative Challenges that reflect on the Political Challenges came up from the Socio-political interviews. That is why several findings were also added to the category of Capability Administrative Infrastructure.

Each interviewee had five to six main questions to answer alongside follow-up questions (W. Adams, 2015, p. 1; Thiel, 2021, p. 71). After reviewing the transcript of the interviews, the answers that fell below the mentioned categories were coded and gathered as such by the author. The same rule applied to the follow-up questions or other quotes from the interviewees that reflected on the framework's codes. Software for coding was not used. The same logic was followed for the Legal and Technological challenges. This can be considered as another limitation in the sense that the coding relied on the author's coding skills. Initially, the questions revolved around assessing the Capabilities of the Greek Legal, Technological Infrastructure. Nevertheless, the interviewees also provided administrative input that reflected on the Administrative Infrastructure as a challenge for the already existing Technological Infrastructure. Every time an interviewee mentioned a challenge it was added and was considered. Furthermore, given that the interviewees expressed opinions on nearly all aspects of the challenges, a similar approach was adopted for addressing these contributions. For example, if the interviewees from the technical challenges pointed out sociopolitical challenges, then these were also coded as part of the sociopolitical challenges. Of course, the origins of the challenges and the agreements and disagreements of the interviewees are also analyzed in the "Results and Discussion" chapter.

As mentioned, the questions were in an SSI form (Adams, 2015, p. 1; Thiel, 2021, p. 71). An overarching example of an interviewing instance would be as follows. First, a mixture of

closed- and open-ended questions was asked, often accompanied by follow-up why or how questions or examples (Thiel, 2021, p. 95). For example, a main question was “According to your opinion what is the role of political will for eVoting in Greece?” or “Why do you believe that even though ZEUS exists, it has not yet been adopted for National elections?”, etc. So, if an interviewee answered that there is no will of the politicians for eVoting, the follow-up question to them would be “Why do you think that is?” and the answer would be codified as a challenge of “Political Will: Politicians” or accordingly depending on the given context.

The questions were formulated by combining the knowledge gathered from the literature review on the requirements and challenges of eVoting and then dissecting them to comply with the framework’s codes (Thiel, 2021, pp. 95, 147; Yin, 2017). For example, a question was added for the interviewees of the Technological Challenges that aimed to shed light on both the sub-questions of this thesis by comparing the existing Greek technologies/artifacts like the digital signature with the Estonian ones and assessing the shortcomings of Greek technologies in specific areas.

Table 4.2 The interviewee type and the reflected codes and questions (Original synthesis, assisted by ChatGPT, translated from Greek to English using DeepL)

Interviewee Type	Code	Question
Socio-Political Interviewee	Political Will: Politicians	According to your opinion, how do you assess the political will for an Electronic Voting initiative at the national election level?
Socio-Political Interviewee	Political Will: Citizens	How do you assess the will of the citizens for such an initiative both inside and outside Greece, e.g. in the Greek Diaspora?
Socio-Political Interviewee	Trust	What do you think is the role of citizens' trust in government and technology in the development of the initiative?
Socio-Political Interviewee	Capability: Legal, Administrative, and Technological Infrastructure	In your opinion, are there any challenges in the country's infrastructure or capabilities for the E-voting initiative, and if so which ones?
Socio-Political Interviewee	Capability: The Greek Electorate	How do you assess the readiness and capacity of the Greek electorate for e-voting?
Socio-Political Interviewee	Capability: Legal, Administrative, and Technological Infrastructure	What is the role of the centralized structure of the Greek public administration in the initiative?
Legal Interviewee	Capability: Legal Infrastructure	In your opinion, to what extent is the Greek legal framework ready to handle and flexible enough to change and adapt to digital elections?
Legal Interviewee	Capability: Legal Infrastructure	On the decision-making level, how easy it is to change the modus of elections, what is needed legislatively and/or executively to

		change the electoral law and hold elections electronically?
Legal Interviewee	Capability: Legal Infrastructure	Is conducting elections electronically primarily a constitutional issue and if so what is the role of the Constitution in conducting elections electronically?
Legal Interviewee	Capability: Legal Infrastructure	To what extent does the Constitution support or impede the conduct of elections electronically?
Legal Interviewee	Capability: Legal Infrastructure	What should an e-voting system guarantee to be legally valid in the Greek legal context?
Technological Interviewee	Capability: Technological Infrastructure	In your opinion, are there any challenges in the country's digital infrastructure for the e-voting project and if so which ones?
Technological Interviewee	Capability: Administrative and Technological Infrastructure	To what extent are the human resources, both technical and electoral officials, ready to staff and conduct digital elections effectively?
Technological Interviewee	Capability: Technological Infrastructure	To what extent can the digital artifacts of the Greek digital governance support the conduct of elections electronically?
Technological Interviewee	Capability: Technological Infrastructure	To what extent do they reflect the artifacts of other countries such as the Estonian digital identity, a country with a traditionally successful digital ballot box?
Technological Interviewee	Capability: Technological Infrastructure	To what extent are security issues from external actors already preoccupying the country's digital governance to engage and prepare for defense against hacking attempts for digital elections?
Technological Interviewee	Technological Infrastructure	Do you know why institutionalized digital ballots like ZEUS have not been proposed to support a national digital ballot?

Furthermore, it must be noted that a special question that aimed to assess the role of the centralized structure of the Greek public administration for eVoting was added. As it will be further elaborated in the next chapter, this question was added because Greece is one of the most centralized countries (OECD) (2016, 2023). That question reflects on the sociopolitical challenges because it mostly affects matters of decision-making for the promotion and adoption of eVoting. However, there are instances that it created administrative challenges as well. Ultimately, the data collected from the interviews will elucidate the nature and specific points of challenges surrounding aspects such as the Political Will of the Politicians or the Greek

Electorate or Trust, etc. Moreover, they will shed light on the possible deficiencies present in Greek technologies. Thus answering the main research question.

Overarchingly the following instructions from Thiel (2021, p.95) that agree with Wildemuth (2016) encompassed the formulation of questions. First ask clear, concise questions that avoid ambiguity and leading language. Finally, tailor questions to the respondents' reality and experiences by avoiding jargon or complexity. The interviews are presented in the Appendix in the Greek language. However, a superficial translation using DeepL has been made for the reader of this thesis. The idea of not translating the transcript into English is based on the rationale that a translation changes the "original" data collected (Lopez et al., 2008). Finally, ChatGPT has been used to assist the author in summing up his body of text, paraphrasing it, and subsequently creating the tables of this thesis.

4.2 Case Study: The Greek Political Scene

Greece is often referred to as the birthplace of democracy (Covert, 2011). However, its ancient Greek political heritage should not be considered the de facto guarantor of its democratic future. That is because the direct Ancient Greek democracy does not fully reflect on the evolution to the modern Hellenic Republic of Greece (Ober & Hedrick, 1996). This chapter aims to profile Greece historically and administratively. Then it will provide the reader with insights into how elections work in Greece and about the mentioned technologies that can be supportive of eVoting. By introducing the historical evolution of the Greek State, the reader will understand better the social and political characteristics that have defined the Greek administration and innovation capacity. Moreover, by introducing the modus operandi of the Greek National Elections the reader can detect the similarities and differences between the Elections in Estonia and Greece. Finally, it is important to provide context for the Greek existing technologies that reflect on the gathered eVoting requirements.

4.2.1 A Greek Historical Journey: Profiling Greece

As was shown before trust is important for the adoption of an eVoting initiative. To provide a comprehensive understanding of the evolution of the modern Greek state, political culture, and the possible origins behind the challenges encountered in its public administration and innovation, it is essential to delve into a historical retrospective journey, because history plays a reforming role in administrative development (G. B. Adams, 1992; Sayre, 1958).

According to Trombetas (1976) in 1830, after years of revolutionizing against the Ottoman Empire, Greece became an independent state and its independence was guaranteed by Great Britain, France, and Russia. Following a plethora of political turmoil, political assassinations, foreign rulers, bankruptcy, coups d’ Etat, wars against its neighbors, and a civil war between

the German-oriented King of Greece (Royalists) and the Allies-oriented Greek Prime Minister Venizelos (Venizelists) which divided the citizens of the country (p.9); the Greek “parliamentarianism”, which was established in 1864, closely following the model of Western parliamentarism came to an end in August 1936 only to be replaced by a dictatorship (Legg, 1969; Trombetas, 1976). Trombetas (1976) concludes his historical research by mentioning that in the limits of the Second World War in 1941 Greece entered a period of occupation by the Nazi regime.

Furthermore, in his work “The stunted democracy: parties and Elections, 1946-1967” Nikolakopulos (2001) continues the story by explaining that after the German occupation Greece fell into a civil war between the Greek “conservative partisans” and the Greek “communists” (Close, 2013) that furthered divided the country. According to Close (2013), the Greek civil war finished in 1950. The political result of the Greek Civil War was the defeat of the communist forces and the criminalization of the Greek Communist Party until 1974 even though it had a considerable amount of followers (if not exiled) still living and voting in Greece (Nikolakopulos, 2001).

From 1950 until 1967 Greece followed a series of governments that failed to cohesively hold power and fell one after the other while at the same time political leaders were quitting their respective parties and creating new ones (Nikolakopulos, 2001). The author underscores that during this era, the primary rivalry between these parties centered on the contestation of who would be hailed as the "true patriot", the anti-communist defender of Greece against its communist neighbors, such as the Yugoslavians, Bulgarians, and Albanians. Concurrently, the parties struggled with how to address the emergence of the umbrella party of the illegal Communist Party of Greece, known as the Greek Democratic Left.

This rivalry over the claim to true patriotism, as noted by Nikolakopulos (2001), and further supported by Pantazopulos (2000), divided the primarily anti-communist parties into two camps: those inclined towards conservatism and hard anti-communism and those embracing a more socially inclusive approach. This division, they conclude, culminated in the emergence of the Central and Central-Left parties in Greece, a result of both absorbing the voter base of and collaborating with, the Greek Democratic Left in numerous elections. However, this did not dissipate quietly within Greek society; rather, it sparked political turmoil and acts of violence between the two factions, epitomized by the slogan “unyielding struggle”(Karavites, 1980). This memorable catchphrase was coined by the leader of the main opposition central party which also was the grandfather of a former Prime Minister of Greece, Giorgos Papandreou.

The consequence of this “stunted democracy” and the unyielding struggle of the “centrals” against the conservative right was the Greek military Junta of 1967 which ended after

sociopolitical struggles, inner-dictatorship crises in 1974, and the invasion of Turkey to Cyprus (Doulis, 2011). Parliamentary democracy was reinstated, accompanied by pledges of national unity from the Prime Minister at the time, Konstantinos Karamanlis, who held office both before and after the dictatorship. Within this framework, the Communist Party of Greece was once again legalized, as documented by Evriviades (1979). After Karamanlis's tenure, his newly founded right-wing party, New Democracy, continued to shape the political landscape of Greece alongside the central-left party PASOK, led by another prominent figure from the pre-dictatorship era, Andreas Papandreou. Papandreou assumed the role of Prime Minister immediately afterward. Under his leadership, significant strides were made in establishing a welfare state, implementing social reforms, and undertaking comprehensive overhauls in public administration and that is because his party PASOK had also the characteristics of a reforming social "populist" movement which made it popular to the people (Evriviades, 1979; Pantazopulos, 2000).

Both New Democracy and PASOK continued to govern Greece successively until the onset of the economic crisis in 2008 (Verney, 2014). Their leadership persisted both before and after the crisis until 2015, marking a pivotal period in Greece's economic and democratic trajectory (Vasilopoulou & Halikiopoulou, 2015). A quick look at the Greek governments and their Prime Ministers, as documented in the General Secretariat for Legal and Parliamentary Affairs (n.d.) alongside the work of all the aforementioned authors, shows that, in the limits of the political instability before the dictatorship of 1967, the forefathers of Greece's modern political leaders rose to power, gathered influence and withheld places in government by creating the ancestral parties of the modern-day ones. For instance, both before 1967 and after 1974, Kyriakos Mitsotakis, the current Prime Minister of Greece (2019-2024) and leader of the New Democracy party, had his father at the helm. Similarly, the grandfather and father of former Prime Minister Giorgos Papandreou were influential figures within the primary opposition party, PASOK (before the dictatorship known as the Central Union). They stood in opposition to the more "conservative partisan" faction led by Konstantinos Karamanlis, initially called the National Radical Union and after the dictatorship renamed New Democracy. Intriguingly, Konstantinos Karamanlis was the uncle of another former Prime Minister of New Democracy who shared his name and played a pivotal role for Greece within this very party.

In other words, all of these divisions from the 19th century until 2015 between the Royalists and the Venizelists, the Communists, and the Anti-Communists, the Conservative Right and the Central/Central Left parties, and then the New Democracy and PASOK; alongside the worldwide historical events that affected the Greek political instability, its "stunted democracy" and the economic crisis (OSCE-ODIHR, 2023; Vasilopoulou & Halikiopoulou, 2015), shaped and dichotomized the modern Greek administrative, voting and political culture into what is known as cultural dualism (Vasilopoulou & Halikiopoulou, 2020).

4.2.2 The Impact of Greece's History on its Politico-Administrative Culture, Innovation, and Trust

As it was discussed before one role that history played for Greece was the blooming of Greek political dynasties. In some cases around the globe, political dynasties are connected with negative effects on the diffusion of centralism into decentralized governance (Tusalem & Pe-Aguirre, 2013). Moreover, they have been identified as the reason behind inequality when it comes to the distribution of political power and democratic representation (Dal Bó et al., 2009).

Another role is the empowering of the Greek administrative tradition of centrism and clientelism. According to the Organisation for Economic Co-operation and Development (OECD) (2016, 2023), Greece is one of the most centralized countries in its public administration structure and is characterized by a limited role for subnational authorities. Further research supports that political and fiscal centralization and decentralization of administrations play the role of enabler or disabler in technological public innovations (Chi et al., 2021; Dadashpoor & Yousefi, 2018; Taylor, 2007), which according to its definition (Trechsel et al., 2016) eVoting is one. To elaborate a bit on these terms, Faerman, (2021) explains that, "Centralization refers to organizational structures and procedures that concentrate power and decision-making authority at the highest levels of the organizational hierarchy" e.g., a central government in unitary states (like Greece), and "decentralization refers to organizational structures and procedures that allow for power sharing and delegation of decision-making authority to lower levels of the organizational hierarchy" (p.1), e.g., municipalities or states in a federal state.

Samatas (1993) underlines that the organization and operation of the entire Greek "state apparatus" were imposed and perpetuated by the two Greek ruling forces i.e., Néa Dimokratía and PASOK, to serve their politico-economic interests (p.1). This means that the "bureaucrat", meaning the public administrator in Greece is not neutral but appointed. At least according to Samatas (1993), this happened back in 1993 when the author published his paper. The more contemporary work of Lampropoulou (2021) and Bouillet & Darques (2024) confirms what Samatas (1993) wrote. More specifically Bouillet & Darques (2024) mention that strong networks of old traditions of clientelism are dominant in the relations between rural and urban areas influencing the turnout and other voting behaviors. Complementary Lampropoulou (2021) found out that agentification policies in Greece were rather pushed by the EU as they never became coherent because of the centralized and politicized tradition of the Greek State. Thus, It can be said that centralization and clientelism are "Greek" characteristics. Specifically for Greek clientelism the work of Papadoulis (2006) underlines that clientelism and patronage

in political and public life have dominated the political parties, the parliamentary debates, and legislative practices, as well as society itself. Complementary the work by Eisenstadt & Roniger (1984) supports that the phenomena of patronage and clientelism are related to the shaping of central aspects of a country's social structure.

Moreover, political clientelism and patronage are two characteristics that according to research influence the trust of citizens toward institutions (Torsello, 2012), electoral promises (Keefer & Vlaicu, 2008), and bureaucracies that implement policies (Bustikova & Corduneanu-Huci, 2017). Additionally, the impact of clientelism and patronage on trust could lead to further social and political division and overall skepticism towards bureaucracy and democratic values such as meritocracy (Cruz & Keefer, 2015; Taylor-Gooby, 2006; Tsai et al., 2011). For example, in Greece alongside what was proposed by Samatas (1993), Lampropoulou (2021), and Bouillet & Darques (2024), the work of Vasilopoulou & Halikiopoulou (2015) characterizes the Greek political scene as "bipolar" both until 2012 with the political division between the parties of New Democracy and PASOK and until 2015 with the electoral win of the left party SYRIZA.

Vasilopoulou & Halikiopoulou (2015) also inform of a new division in Greece in 2015 that originated from the economic crisis of 2008, which was the division between pro and anti-memorandum, meaning those who were in favor of resolving the economic crisis within the "confines of the eurozone" and those who wanted to reject European membership (p.15). Finally, amidst the backdrop of emerging social, economic, and political divisions, Greece witnessed the rise of the Golden Dawn, a neo-Nazi party. Positioned against both the eurozone and those advocating for European membership rejection and in favor of authoritarianism, the party garnered significant support, nearly rivaling the opposition in terms of electoral percentages (Georgiadou, 2013; Toloudis, 2014; Vasilopoulou & Halikiopoulou, 2015).

All of these divisions and political turmoil affected the trust of Greek citizens in democratic institutions throughout the years and during the COVID-19 pandemic where conspiracy theories both by citizens and by political parties were and are still blooming. (Massou et al., 2023; Mavris, 2014; Sapountzis & Condor, 2013; Stylianou, 2022; Tsouvelas et al., 2023). It is clear that alongside the mentioned factors also conspiracy theories damage people's trust in democratic institutions (Moore, 2018; Pantazi et al., 2022; van Prooijen et al., 2022) and thus the adoption of technological innovations (AlHogail & AlShahrani, 2019; Bahmanziari et al., 2003). For example, it is true that during COVID-19 the Greek eGovernance infrastructure bloomed as it has been documented by the relevant governmental document called "Bible of Digital Transformation" which introduced the Greek digital strategy and goals from 2020 to 2025, alongside the creation of around 1700 eServices and relevant trainings (Hellenic Republic (Government), 2021). So, it can be said that indeed digital innovation has been initiated in Greece.

However, results by research made based on two DESI indexes of 2020 and 2024 show that even though there was positive progress, Greece faced and still faces challenges in its digitization and innovation that revolve around bureaucracy, low quality of services, the complexity of procedures and other institutional and governmental constraints (Komninos et al., 2024; Laitsou et al., 2020). These results can be empowered by pre-pandemic research such as that of Katsikas & Gritzalis, (2017) that underline the poor performance of digitalization in Greece, thus agreeing with the currently mentioned research and proving that there are long-lasting problems in Greece's public administration at least from 2017 until today (2024) that must be addressed. Hofstede (2001) explains that there are consequences of a country's culture to its organization and administration and in the capability of initiating innovation. On the national index based on his work Greece has been found as the country with the biggest "Uncertainty Avoidance" which is correlated with risk aversion and thus innovation aversion (Espig et al., 2021; Hofstede Insights Ltd, n.d.; Souitaris, 2001). It must be noted that for the work of Hofstede (2001) as mentioned above, some agree, some are more critical (Fang, 2003; Rinne et al., 2012; Signorini et al., 2009) and some complement Hofstede's work with other indexes, ideas but also factors for innovation diffusion (Desmarchelier & Fang, 2016; Hamers, 2021; Kaasa & Vadi, 2010).

Hofstede's index and theory (2001, n.d.) and Greece's historical retrospection, along with its impact on the country's public administration and political culture, may demonstrate a correlation with Greece's innovative capacity (Kattel et al., 2022; Mazzucato, 2011). Moreover, even though Greece initiated innovative eGoverment technologies and services there are still many challenges to its implementation (Komninos et al., 2024; Laitsou et al., 2020). In other words, as shown before among other criticism, Hofstede's theory focuses on innovation initiation and not on the challenges of its implementation, a statement that also agrees with Hamers (2021). Since eVoting is an eGoverment service, the challenges behind its implementation and adoption should be identified, and analyzed and the cultural lens of Hofstede should be taken under consideration but not as the only explanation behind the lack of eVoting adoption/implementation in Greece.

4.2.3 The Modus Operandi of Elections in Greece According to OSCE-ODIHR

To give context to the readers of the background of Greece's elections, and to be able to compare the results and how elections in Estonia work, it is important to provide information on how the Greek Parliamentary elections operate and who are its main stakeholders.

According to the report made by OSCE-ODIHR for the Greek parliamentary elections of May 2023 (OSCE-ODIHR, 2023), the main aspects of the Greek Elections are the following. First, the parliament consists of 300 members. The head of the elected government is the Prime

Minister, and the government will stay in power for 4 years. Moreover, the report quotes that Parliamentary elections are primarily regulated by the 1975 Constitution (last amended in 2008), the 2007 Law on Parliamentary Elections ("election law", last amended in 2018), and the 1994 Law on Financing Political Parties (last amended in 2022) accompanied by a 2019 law to facilitate voting from outside the Greek territory to include the Greek expatriates (p.3). The elections also happen on Sunday. Moreover, there is only one minority that is recognized in Greece and is protected by the Lausanne Peace Treaty of 1923 and that is the Muslim religious minority in Thrace. The report specifically mentions that Greece does not recognize a minority status of any ethnic or linguistic communities and does not collect statistical data on these populations (p 6-7). However, that does not mean that they do not exist alongside immigrant minorities with different languages (European Union, 2010)

Voting is compulsory for all citizens who reach 17 years and for the first time, Greek citizens residing abroad were able to register and vote in polling stations situated in embassies and consulates (OSCE-ODIHR, 2023). However, OSCE-ODIHR (2023) underlines that their registration was low. Moreover, it highlights that there is no measure in place for the exclusion of people with disabilities or the hospitalized since there is no homebound/remote voting (p.5). On the same page, the report mentions that the requirements to be eligible to vote from outside of Greece were that a person should have resided in Greece for at least two years over the last 35 years and that the voter has submitted in the current or the previous year a tax declaration to the Revenue Authority. According to the MoI (Ministry of Interior, n.d.) and OSCE-ODIHR (2023), there are currently approximately 9.5 million eligible voters from the 11 million residing in Greece and individual voters' data can be checked online throughout the year. In 2023 the Greek Parliament decided to ban political parties, whose leaders have been convicted of certain crimes against the state, from competing in criminal activities, such as the members from the neo-nazi Golden Dawn party (OSCE-ODIHR, 2023, p. 3; Vasilopoulou & Halikiopoulou, 2015, 2020).

For the Administrative aspect of the voting procedure, OSCE-ODIHR's report (2023, p.4) mentions that election management in Greece lacks a central election commission, with responsibilities divided among multiple institutions. The Ministry of Interior handles the logistical and administrative tasks such as compiling voter lists, distributing election materials, and announcing results. The Supreme Court oversees contestant registration and appoints chairpersons and members of polling station committees (PSCs). Additionally, an ad hoc Supreme Electoral Court certifies final election results. An inter-party working committee, comprising one representative from each parliamentary party, facilitates cross-party dialogue and consultations on campaign regulations, although it lacks regulatory authority. The PSCs consist of a chairperson, a secretary, and four members. The chairpersons are judges and lawyers and are appointed by the Supreme Court, while other members that could be voters are

randomly selected by the first-instance courts from the list of registered voters. Finally, for the 2024 EU elections, the Greek State opted to implement postal voting (Ministry of Interior, n.d.). This decision may have been influenced by proposals from the OSCE-ODIHR

4.2.4 The Greek eService Technologies that Correlate with eVoting System Requirements

Amid the COVID-19 pandemic, the Greek State pushed its digital transformation processes (Boufounou et al., 2022; Tsekeris & Mastrogeorgiou, 2020; Vratimos, 2022). In June 2021 the Hellenic Government published a governmental document called “The Bible of Digital Transformation 2020-2025” in which it recorded all the interventions in the digital infrastructure of Greece and its digital goals from 2020 until 2025 (Hellenic Republic (Government), 2021). Moreover, the mentioned GRNET, the Greek public sector technology company operating under the Ministry of Digital Governance since August 2019, introduced ZEUS a governmental online digital ballot that is used for inter-organizational online elections (EDYTE-GRNET-ZEUS, n.d.).

As was mentioned before a key requirement for eVoting adoption is a public digital identity scheme that is used by the citizens frequently. Greece in 2023 started pushing for new identities based on the eIDAS regulation for the promotion and implementation of national digital identification all over the EU (digiGOV-innoHUB, 2023; European Commission, n.d.). Furthermore, in 2023, the Greek government progressed with the decision to introduce a new form of "digital" identity card, which will replace the outdated "plastic" card (Hellenic Republic (Government), 2023).

However, what is used by the citizens of Greece and theoretically can be proven useful for the preliminary registration process, and for the voting process and somehow resemble the functionalities of digital identity is the secure Greek digital registration for eServices (SocioPol 3, personal communication, June 18, 2023). The citizens of Greece use their login credentials to access their eGov eServices in “gov. gr”. For example, those eGov services are used for daily actions such as authorizing proxies or creating self-declaration forms. The credentials to log in to these eServices can be either citizens’ personal web-banking credentials or their integrated tax administration information system (Taxisnet) credentials (Fosso Wamba et al., 2015; Hellenic Republic (Government), 2021, p. 141). Moreover, the Greek digital document signature for governmental eServices can resemble a digital signature since it provides the authenticity of a digital signature (SocioPol 3, personal communication, June 18 2023). An example of such a signature is seen in the Estonian eVoting case, as mentioned before, and reported by the State Electoral Service of Estonia (2017).

5 Results and Discussion

This chapter will answer the two sub-questions of this thesis that will contribute to answering the main research question, “Why has Greece not adopted eVoting for its national elections?”, respectively. Starting with the first subquestion “What are the legal, social, political, technological, and administrative challenges for an eVoting initiative for the national elections in Greece? Then those findings will shed light on the second sub-question “What is the role of these challenges for the already existing technologies for establishing an online ballot for the Greek national elections?”. Moreover, this chapter will analyze and compare the results with the existing literature. The results from the experts that reflect on the respective categories will be introduced and then they will be interpreted. The discussion will also shed light on the matters of the internal and external validity of the findings alongside possible limitations that appeared during the analysis.

5.1 Sub-question 1.1 The challenges behind the adoption of eVoting for Greece’s national elections

Within every chapter, a table of the results will be depicted alongside a small explanation of each of them if the challenge is not straightforward. Moreover, at the end of chapter 5.1.4, a final and holistic discussion for the first sub-question that will also contribute to the findings of the second sub-question will take place.

5.1.1 The Greek Legal Challenges

The results of this category reflect on the code Capability: Legal Infrastructure. They evaluate Greece's legal preparedness for adopting eVoting in national elections. According to the Greek legal experts, they highlight the current laws and legal expertise, the legal requirements for such initiative, as well as the challenges, weaknesses, and strengths of Greece's legal framework. In other words, they asses the Greek legal infrastructure for the adoption of eVoting. The insights of this chapter provide focal points for addressing legal issues in the potential implementation of eVoting for Greece’s national elections.

The two experts in this category of challenges meaning the Professor of Constitutional Law – Legal eVoting expert (Legal 1) and the Professor of ICT Engineering- Active Constitutional Lawyer (Legal 2), agreed and complemented each other. Their only difference was that one was more positive towards eVoting and the other was more cautious. This fact is empowered by their two distinct quotes “We should not consider if the State should adopt eVoting but how” (Legal 1, personal communication, March 6, 2024) and “We should consider if and which

system supports the main democratic principles" (Legal 2, personal communication, March 21, 2024).

Both experts agreed that an eVoting system should Constitutionally guarantee what a traditional paper ballot already does. In other words, it must guarantee the fundamental democratic voting principles of universality, immediacy, secrecy, freedom, and of course audibility, accountability, and transparency, to allow the will of the people to be shaped in a way that is authentic and verifiable (Legal 2, personal communication, March 21, 2024; Legal 1, personal communication, March 6, 2024). The last quote was also agreed upon by the Civil Servant-IT (Tech 2) (personal communication, March 27, 2024). Moreover, both legal experts agreed that it must be legally reassured that the system should not reinforce one voting principle and weaken another. For example, both legal experts explained that the principle of secrecy that relates to the principle of freedom is not allowed to challenge the principle of universality and vice versa (Legal 1, personal communication, March 6, 2024; Legal 2, personal communication, March 21, 2024). For example, just because eVoting can empower the universality of the vote does not mean that the system should allow for the content of the eVote to be traced back to the voter. That is why Legal 1 underlined that it must be reassured that one principle does not overshadow the other and that democracy is promoted via eVoting (personal communication, March 6, 2024).

Furthermore, both legal experts opined that there is no need for the Constitution to change to entertain the adoption of eVoting (Legal 2, personal communication, March 21, 2024; Legal 1, personal communication, March 6, 2024). For example, Legal 2 explained that if the eVoting system legally and technically safeguards the main principles of voting, there is no need for a constitutional revision because the basic core of the principles is protected (personal communication, March 21, 2024). However, even though Legal 1 agreed, she also underlined that this is always debatable, and it depends on how the Constitution is interpreted by the respective "lawmaker" (personal communication, March 6, 2024). More specifically, Legal 1 mentioned that there is a Constitutional law (Law:51 paragraph 4 of the Greek Constitution) that allows for the people outside of Greece to vote via a "convenient way". She then explained that this law proposes that only people outside of Greece are allowed to vote remotely (personal communication, March 6, 2024). So, if the lawmaker interprets the Constitution in this strict and "grammatical" interpretation then every non-traditional voting, be it postal voting or eVoting, should apply only to Greek expatriates (Legal 1, personal communication, March 6, 2024).

Then Legal 2 complemented her colleague by explaining that this is the law that the Greek government is currently using to introduce postal voting for the European Elections of 2024 for Greeks both outside and inside the country (personal communication, March 21, 2024).

According to her opinion, that means that the lawmaker already creatively interpreted the Constitution to introduce postal voting thus turning this legal decision into a pivotal point for such creative interpretation for other voting means like eVoting (personal communication, March 21, 2024). So, for the introduction of eVoting, both interviewees agreed that only changes in the Electoral Law should happen. They also agreed that revising Greece's hard-to-change rigid Constitution (Higgins, 1905) is very time-consuming and politically complex and on the other hand, a simple ministerial decision to be voted by the parliament is too superficial since the future of the country is at stake (Legal 2, personal communication, March 21, 2024; Legal 1, personal communication, March 6, 2024).

Both legal experts also underlined the importance of privacy through data protection for such an initiative. For example, both explained that there is an internal law (law 46/24-2019) that endorses the EU-GDPR privacy and security law for data protection and governance (European Union, 2018). However, this is where their disagreements started. Even though Legal 1 supported this law (personal communication, March 6, 2024), Legal 2 deemed it "lousy" (personal communication, March 21, 2024). She emphasized that it contradicts EU-GDPR law due to numerous exceptions regarding rights and prohibitions for the Public Sector. According to her, this prompted the Greek Data Protection Authority in 2020, and later the European Commission in a letter to the Greek government, to request changes. She then also mentioned that the role of the Greek Data Protection Authority in the initial design of such an initiative and the protection of the principle of secrecy should be considered. That is because she added that this Authority has already been consulted for the consideration of postal voting in Greece and of other inter-party voting procedures such as that of SYRIZA in 2024 (personal communication, March 21, 2024).

Another point of disagreement between the legal experts was the readiness of the legal human resources to deal with such an initiative. The more positive Legal 1 said that she has faith in the existing legal human resource for eVoting, whereas Legal 2 mentioned that the legal experts will not be able to verify, observe, or audit all the processes of such a system (Legal 2, personal communication, March 21, 2024; Legal 1, personal communication, March 6, 2024). Legal 2 also underlined that human resources, both legal and administrative, should be re-examined to avoid relying only on tech experts for such initiatives because they are not yet ready to verify the legality of such technology (personal communication, March 21, 2024). The latter suggestion was also supported by the Political Candidate Professor of Political Sciences and Philosophy (SocioPol 2), the Civil Servant of the Ministry of Interior - Directorate for Elections (SocioPol 4), the Director of GRNET (Tech 1), and Tech 2 (personal communication, July 7, 2023; personal communication, March 2, 2024; personal communication, April 27, 2024). Interestingly, Tech 2 also mentioned that ZEUS the online ballot was proposed for the inter-organizational elections of the MoI, but its legal experts rejected it since they were "afraid" of

the decryption and encryption measures of the eVoting procedure (personal communication, March 27, 2024). This can shed light on the legal expert readiness to handle eVoting but also on the capabilities of the Greek Electorate that will be presented later.

To avoid matters of coercion that reflect on the principle of secrecy and thus freedom and to deal with the digital divide, Legal 2 proposed that it should be legally guaranteed that eVoting should be an alternative way of voting alongside the traditional ballot (personal communication, March 21, 2024), which was also agreed to by all the interviewees. She also noted that eVoting and traditional voting should not happen in parallel,time-wise, but at a different time in case there is a leakage of information from the system that can influence the decision of the rest of the voters (personal communication, March 21, 2024). Another legal challenge that was mentioned by the non-legal experts was the fact that there are instances of corruption in the polling stations that must be checked (SocioPol 2, personal communication July 19, 2023; SocioPol 4, personal communication, April 2, 2024). Finally, the same interviewees also agreed that independent authorities that will audit the whole process should be established according to the example of Estonia. A table of the gathered findings on the legal challenges is depicted in Table 5.1.

Table 5.1 Findings on the Greek Legal Challenges for eVoting adoption (Original synthesis, assisted by Chat GPT)

Greek Legal Challenges
eVoting should guarantee the Democratic Voting Principles
eVoting should maintain a balance among Democratic Principles without prioritizing One over Others.
eVoting should promote the Principles of Democracy
Changes in Electoral Law to support eVoting should be considered
Data Protection and the role of the Greek Data Protection Authority in the initial design of the system should be considered
Legal Human Resource Readiness that will work on and for the initiative should be examined
It should be guaranteed that eVoting will be an alternative alongside the traditional Ballot
Timely Separation of eVoting and Traditional Voting should be ensured
Establishment of Independent Authorities and Anti-corruption Measures should be introduced

The Greek Legal challenges reflect the general ones as mentioned in the literature review of this thesis. For example, both the legal interviewees underlined the need for an existing legal framework to accompany the introduction of eVoting and protect the fundamental voting principles as proposed by OSCE (2010, p.23) and agreed upon by others (Ehin et al., 2022; Gibson et al., 2016; Gritzalis, 2002; State Electoral Service of Estonia, 2017; Trechsel et al., 2016). Moreover, another correlation between the interviewees and the literature has been found concerning that the same legal principles that apply to paper voting and ensure that elections are conducted in a manner that is inclusive, transparent, and reflective of the will of the electorate should apply to eVoting as well (Pinault & Courtade, 2012; State Electoral Service of Estonia, 2017; Verwer et al., 2020). More correlations can be found between the need for eVoting occurring at a different time than the traditional paper ballot election day as

was also proposed by the State Electoral Service of Estonia (2017). Moreover, another common ground was the need for simplicity and thus for auditability and verifiability of the eVoting system by all the stakeholders and especially the legal experts, to enhance transparency, legality and to avoid relying only on technology experts exactly as proposed by OSCE (2013).

For Greece, according to the interviewees the existing legal framework should consider changes in the electoral law to be compliant with eVoting. However, this is always in the eyes of the legal beholder. In other words, other lawmakers or legal experts can propose changes to the Constitution or just a normal governmental decision to be voted on by the Greek parliament. Nevertheless, the fact that the two legal experts both agreed that the Greek electoral law should change for eVoting comes into agreement with the general legal challenges of making amendments and changes that were proposed (Drechsler & Madise, 2004b; Ehin et al., 2022; Trechsel et al., 2016). Another agreement with the literature on eVoting is the fact that all the interviewees proposed that eVoting should happen in parallel with traditional voting, which reflects the modus operandi of eVoting in Estonia (State Electoral Service of Estonia, 2017). In this way, universal access to elections and the principle of Universal Suffrage is guaranteed because voters who do not know how to use the system can always go and vote in a polling station. A complete Greek legal framework for such an initiative does not exist. However the fundamental laws that postal voting for the European elections of 2024 was based upon alongside a common understanding of the legal requirements for eVoting do exist and can work as enablers for the legality of an eVoting initiative.

The establishment of independent authorities and the consideration of the role of the Greek Data Protection Authority can also correlate with the modus operandi of eVoting Estonia. That is because as was mentioned in the literature except for the main Estonian eVoting stakeholders there are other supportive external services (State Electoral Service of Estonia, 2017). Moreover, this can also correlate to the fact that the Greek Public Sector has been historically staffed by nonneutral but politically appointed civil servants (Bouillet & Darques, 2024; Lampropoulou, 2021; Samatas, 1993). So the need for an actual independent authority that will support the legality and political neutrality of such initiatives is crucial. Moreover, even though there was a disagreement between the two legal experts on the capabilities of the legal human resource to audit an eVotig initiative, most of the interviewees agreed that the legal personnel should be re-examined before its introduction exactly as proposed by OSCE (2013). These two lead to the addition of two legal challenges for such an initiative. To the best of the knowledge of the author of this thesis, what does not reflect the rest of the literature is the matter of eVoting maintaining an overall balance among the democratic principles without prioritizing one over the others. However, it can be supported that even though this is not explicitly mentioned it can be derived from the legal challenges that highlight the necessity of eVoting to adhere to what traditional voting adheres to.

In the end, there was a sufficient amount of expert agreement behind the changes and challenges thereof that must happen legally to support the fundamental eVoting requirements in Greece. So, it can be argued that this category of challenges has been validated and that internal validity has been approached (Thiel, 2021; Yin, 2017). The same can be argued for the external validation of the legal findings even though they reflected the Greek case study. That is because the main legal considerations are reflecting the general literature review on the legal challenges for eVoting, thus validating and extending for the Greek case the existing knowledge via the use of the Shat & Abbot framework 2016.

5.1.2 The Greek Socio-Political Challenges

The results of this category reflect on the codes of Political Will: Politicians, Political Will: Voters, Capability: the Greek Electorate, and Trust. They assess the challenges that politicians pose for eVoting, alongside the willingness and the actual capability of the voters to use such technology. They shed light on the role that the centralized administrative culture has in Greece for its decision-making and innovative capacity. They also identify the different faces and the challenging role of Trust in decision-making, confidence-building, and willingness to use and promote eVoting in Greece. The findings of this chapter provide focal points for addressing sociopolitical issues before the potential implementation of eVoting for Greece's national elections.

The four experts in this category of challenges were the Caretaker Minister of Digital Governance (SocioPol 1), Political Candidate, Professor of Political Sciences and Philosophy (SocioPol 2) Director of Applied Political Research (SocioPol 3) Member of the Ministry of Interior - Directorate for Elections (SocioPol 4). The interviewees both complemented and in some cases disagreed with each other. All the interviewees noted that the Political Will of politicians is influenced by various trust issues and the digital divide-illiteracy among voters. This, in turn, impacts the political will of the voters, creating a reciprocal effect, meaning an effect that is equal for both sides of Political Will. Some interviewees also opined that there are ideological reasons alongside administrative challenges that influence the will of the politicians and their voters for such an initiative (Tech 1, personal communication, March 22, 2024; Tech 2, personal communication, March 27, 2024; SocioPol 4, personal communication, April 2, 2024; SocioPol 3, personal communication June 18, 2023; SocioPol 2, personal communication, July 19, 2023; SocioPol 1, June 22, 2023; Legal 2 personal communication, March 21, 2024). Also many times during the coding procedure the codes Political Will: Politicians, Political Will: Voters, and Trust overlapped. So the findings for this sub-chapter will focus first on that relationship and then on the actual Capability of the Greek Electorate to eVote.

There was a common agreement between the four main sociopolitical interviewees that the Political Will for eVoting is non-existent (SocioPol 1, personal communication, June 22, 2023; SocioPol 2 personal communication, July 19, 2023; SocioPol 3, personal communication, June 18, 2023; SocioPol 4, personal communication, April 2, 2024). Three out of the four expert interviewees agreed that the politicians of Greece are not "mature" enough yet to discuss or even put such a matter on the agenda (SocioPol 1, personal communication, June 22, 2023; SocioPol 2 personal communication, July 19, 2023; SocioPol 4, personal communication, April 2, 2024). Also, one of them pointed out that politicians can be mature but do not want to introduce such technology because it will be disruptive for some of their supporters and have negative effects on them (SocioPol 3, personal communication, June 18, 2023).

SocioPol 1, being a Caretaker Minister during the national elections of 2023 was part of the discussions on how to include the expatriates of Greece in the elections. He noted that there was a big disagreement among the politicians on how to include the expatriates alongside a fear of losing the authority in case a proposed remote eVoting scheme fails. He also added that even just proposing eVoting as a remote voting method would bring a certain amount of disruptive debate that is politically unwanted. Ultimately leading to the matter of eVoting not being high on the political agenda (SocioPol 1, personal communication, June 2023). There was even a big political debate about who is considered an expatriate which took a long time to settle and to reach a common agreement between the different parties (SocioPol 2, personal communication, July 2023). In the words of an interviewee "Disagreement between the politicians is reason (factor) number one behind such innovations" (SocioPol 1, personal communication, June 22, 2023).

Moreover, SocioPol 3, mentioned that this political disagreement regarding the definition of the Greek expatriate reflects on the general lack of political will of the politicians to make changes to the electoral law to support the accessibility to the elections both for the expatriates and for the citizens that reside away from their voting municipality. He underlined that this is one of the reasons why the criteria to be a voter outside of Greece were very strict and that is why not many expatriates voted (personal communication, June 18, 2023). This statement was also supported by another interviewee who complemented his peer and mentioned that many times Greek expatriates were too far away from a dedicated polling station, which led them to not even care to register for the elections (SocioPol 2, personal communication, July 19, 2023). Another source behind the challenge of the lack of political will of the politicians and of some part of the voters for eVoting was the idea that eVoting would make polling stations obsolete and thus the allowances of the stakeholders involved in them, as stated in the case study literature review, will be lost. This leads to these stakeholders either not proposing or even blocking sometimes such innovations for their politically affiliated circle. Additionally, politicians might oppose the introduction of eVoting because changes in the electoral law could

shift the voting focus from individual candidates in specific electoral districts mainly to the party itself. The expert explained that Greece's electoral system dictates that if a voter casts a ballot outside their registered electoral district for a candidate, the vote goes to the party and not to a specific candidate MP (Sociopol 3, personal communication, June 18, 2023).

Furthermore, all the sociopolitical interviewees agreed that it would be appropriate for eVoting to start on a local municipal level of elections to be diffused to the political leaders and acquainted by the voters. However, Greece's overcentralized clientele public administration acts more as a challenge to be dealt with than as an enabler for such initiatives (SocioPol 1, personal communication, June 22, 2023; SocioPol 3 personal communication June 18, 2023; SocioPol 2, personal communication, July 19, 2023; SocioPol 4, personal communication, April 2, 2024). The first two sociopolitical experts agreed that eVoting cannot be pushed at a local level because even though many reforms tried to happen, still the centralized administration of Greece stops the local government from evolving and creates inequalities (SocioPol 1, personal communication, June 22, 2023; SocioPol 2, personal communication, July 19, 2023). For example, this direct quote summarized the administrative mindset behind the responsibilities of the local government, " they think (the central government) that the local government is there to only gather the trash from the city streets" (SocioPol 1, personal communication, June 22, 2023). Moreover, another interviewee mentioned that even local governance through decision-making and co-creation of general initiatives with a collaboration of the civil society and the mayor is very "atrophic" (SocioPol 4, personal communication, April 2, 2024). He also noted that local decision-making originates from the Greek parliament in Athens, then moves to the respective municipal prefect and their political faction, and finally to the mayor and their faction which both hold the majority of the local parliament. This process ultimately results in a top-down approach and to what the interviewee mentioned "The mayors are doing freely whatever they like" (personal communication, April 2, 2024).

The latter opinion was supported by another sociopolitical interviewee who mentioned that this is indeed a challenge for any innovation when it comes to elections (SocioPol 3, personal communication, June 18, 2023). For example, the expert highlighted that there is still a misconception that the state's budget allocation to municipalities is based on the "legal" population (those that don't reside but are registered to vote in the municipality) rather than the permanent population (those who actually reside and vote in the municipality). So, with initiatives such as eVoting the mobilization of the citizens back to the municipalities that they are registered will become unnecessary and the number of the legal population of municipalities will drop and of others will rise. This ultimately leads to the idea that a municipality will have a smaller legal population and thus will receive a smaller budget. So, politicians like mayors who could be enablers of such innovation both locally and nationwide

are posing a challenge to its introduction and sideline eVoting (SocioPol 3, personal communication, June 18, 2023).

In addition, the interviewees mentioned different administrative and technological challenges that reflect the fiscal cost of an eVoting initiative. Tech 2 who is an IT expert for the MoI emphasized that the cost of an eVoting system increases with the level of security it provides. So an impeccable eVoting system will be very expensive. He also mentioned that because such a voting method must be in parallel with the traditional voting one, the state will shoulder this financial and organizational cost as well and that this is considered by the political elite before they take on such initiative (personal communication, March 27, 2024). Then Tech 1 who is one of the directors responsible for the Greek eGoverment services highlighted that the introduction of eVoting will be decided based on a financial cost-benefit analysis. He supported that the technology for such an initiative exists however the appropriate administrative organization could be lacking (Tech 1, personal communication, March 22, 2024). His hypothesis was verified by the plethora of administrative challenges that were mentioned by almost all the interviewees which can lead to extra financial costs to fix them (SocioPol 4, personal communication, April 2, 2024). Some interviewees stated that some of the technologies that exist can be supportive of eVoting as they are (Sociopol 3, personal communication, June 18, 2023) and others disagreed and said that they need to be upgraded for security reasons (SocioPol 1, personal communication, June 22, 2023; Tech 2, personal communication, March 27, 2024). So it can be argued that an eVoting initiative will lead to organizational and technological costs that will be a factor to consider. The technological and administrative challenges will be further elaborated in the chapters that follow.

The sociopolitical interviewees also agreed that political ideology poses a challenge to the adoption of eVoting, influencing both its promotion by politicians and its acceptance and usage by voters when it comes to their preferences of voting methods. More specifically they explained in the limits of the liberal principles of individualism and freedom of choice (Kymlicka, 2017), more liberal right, central, and central left-wing politicians and voters could be more accepting of technologies such as eVoting that promote the accessibility to the elections of the individual (personal communication, June 22, 2023; personal communication, June 18, 2023; personal communication July 19, 2023; personal communication, May 2, 2024). In general left-wing parties and especially non-liberal ones like the Greek Communist Party seek social participation as they consider that elections are social and not an individual event. They would promote the physical participation of their voters and not their digital (SocioPol 2, personal communication, July 19, 2023; SocioPol 3 personal communication, June 18, 2023; SocioPol 4, personal communication, April 2, 2024).

Furthermore, according to the experiences of some of the interviewees of eVoting through ZEUS for academic elections during the COVID-19 era, the participation in elections of the student voters of the central and right-wing youth parties, that in Greece reflect on the main political parties, was bigger than in previous years (Legal 1, personal communication, March 3, 2024; SocioPol 1, personal communication, June 22, 2023). However, during those academic elections, many nonliberal left-wing parties raised their voice that there was coercion of the vote and a lack of transparency in the process (SocioPol 1, personal communication, June 22, 2023). This interviewee also underlined that such instances of lack of trust for the process are exactly the mentioned “disruptive political debate” that is unwanted by politicians, which leads to disagreements and drops the matter of eVoting at the bottom of the political agenda (personal communication, June 22, 2023). Even though the interviewees noted a change in how the citizens of Greece deal with transactions and governmental eServices through the Internet (Legal 1, personal communication, March 6, 2024; Legal 2, personal communication, March 21, 2024; SocioPol 1, personal communication, June 22, 2023, SocioPol 3, personal communication, June 18, 2023), when it comes to voting through the Internet in Greece things are different (SocioPol 4, personal communication, April 2, 2024).

All the interviewees agreed that a major sociopolitical challenge for eVoting in Greece is the lack of trust in public and private institutions. This lack of trust and constant suspicion/insecurity towards many stakeholders stems from the historical evolution of Greece (Legal 2, personal communication, March 21, 2024; SocioPol 1, personal communication, June 22, 2023; SocioPol 4, personal communication, April 2, 2024). Moreover, this lack of trust is compounded by the digital divide and digital illiteracy among the Greeks, which affects their willingness to vote online and the politicians' inclination to promote such an initiative, as they do not fully understand it. (Legal 2, personal communication, March 21, 2024; SocioPol 1, personal communication, June 22, 2023; SocioPol 4, personal communication, April 2, 2024). Both the voters and even the people who are involved in the elections lack proper digital training which creates an atmosphere of diffused distrust towards NVTs. Thus promoting a general feeling of technological paragonization and technophobia, especially in age groups that did not grow up with the daily use of the Internet (Legal 2, personal communication, March 21, 2024; SocioPol 1, personal communication, June 22, 2023; SocioPol 4, personal communication, April 2, 2024; Tech 2, personal communication, March 27, 2024).

However, according to the interviewees, there are more modern and realistic reasons why both politicians and voters do not trust institutions or each other. The interviewees agreed that traditional voting has been tested throughout the years and has been a point of critique and amendment and that the same space to grow should be given also to eVoting for its successful adoption (Tech 1, personal communication, March 22, 2024; Legal 1, personal communication, March 6, 2024; SocioPol 1, personal communication, June 22, 2023, SocioPol 4, personal

communication, April 2, 2024; Legal 1, personal communication, March 6, 2024). However, as was already mentioned it is challenging for eVoting to originate on a local level so it should start for example from the central government. Another interviewee then mentioned that in general there is a distrust between the political parties of Greece which limits their cooperation for such initiatives, empowers disagreements, and leads to a more diffused distrust in the society (SocioPol 4, personal communication, April 2, 2024). The same interviewee also highlighted that the political system should produce confidence and trust in itself from "its head", meaning top-down, and for Greece, this will be challenging to happen (personal communication, April 2, 2024). It was agreed upon by most of the interviewees that this general and mutual distrust is not unfounded. Contemporary scandals in Greece fueled this distrust of voting in an uncontrolled environment away from the ballot box and of parties cooperating with each other (SocioPol 4, personal communication, April 2, 2024; SocioPol 2, personal communication, June 18th, 2023; Legal 2, personal communication, March 21, 2024). Other instances of corruption in the polling stations, clientele relations, lack of proper audits, and mutual coating/covering of errors from the central to the local level and vice versa were also mentioned (SocioPol 4, personal communication, April 2, 2024; SocioPol 2, personal communication, June 18th, 2023).

For example, the "Predatorgate scandal" in 2022 (International Amnesty, 2023) was one of the modern scandals that fueled the general distrust in Greece especially between parties (SocioPol 4, personal communication, April 2, 2024; SocioPol 2, personal communication, June 18th, 2023). Even though this is under investigation, Prime Minister Mitsotakis alongside his nephew is accused of using spying software of the National Intelligence Service to wiretap private calls of other political leaders of the opposition and military personnel. Another example was the data leakage and usage for digital campaigning by a European Parliament candidate from the same party as the Prime Minister (SocioPol 4, personal communication, April 2, 2024), which ended up with both MoI and the candidate being fined. These two mentioned scandals together with the politico-administrative history of Greece and the general digital illiteracy affect the will of many stakeholders to promote voting in an uncontrolled environment. For the interviewees it was almost impossible to blindly trust a technocrat (tech expert) to verify the process under these conditions because "if you do not see the votes coming out from the sack" or "if you don't see them dropping with your own eyes in the ballot you do not trust the process" (SocioPol 4, personal communication, April 2, 2024; SocioPol 2, personal communication, July 19, 2023; Legal 2, personal communication, March 21, 2024).

Those scandals also empowered the matter of rising and ground-gaining conspiracy theories from the far-right conservative and sometimes far-left political wings, which was also highlighted as a challenge for eVoting adoption by three out of the four sociopolitical interviewees (SocioPol 4, personal communication, April 2, 2024; SocioPol 2, personal

communication, June 18th, 2023; SocioPol 1, personal communication, June 22, 2023; Tech 1, personal communication, March 22, 2024). That is why it was noted that matters of trust for eVoting after the election will be raised with “ulterior political motives” (SocioPol 4, personal communication, April 2, 2024). The interviewees emphasized that trust in the electoral process fundamentally hinges on trust in the outcome of its results (SocioPol 4, personal communication, April 2, 2024; Legal 2, personal communication March 21, 2024; Tech 2, personal communication, March 27, 2024). Only one sociopolitical expert was not so negatively connotated for the lack of trust in the democratic context of Greece. However, he noted that if eVoting is the only method of voting then trust issues and general insecurity will occur (SocioPol 3, personal communication, June 18, 2023).

The results of the national elections in Greece through eVoting will probably be defied by political demagogues mostly from the far-right conservative parties that are already part of the parliament and are defying the results of the current traditional elections which are supposedly very well-trusted by the Greek electoral stakeholders (SocioPol 4, personal communication, April 2, 2024; Tech 2, personal communication, March 27, 2024; SocioPol 2, personal communication, July 19, 2023). For example, different demagogues already challenge the results of the traditional ballots because the whole electoral process is a product of a public-private partnership between the MoI and the public-procured company named Singular Logic (SocioPol 4, personal communication, April 2, 2024; Tech 2, personal communication, March 27, 2024). However, this time with eVoting their argument could be even stronger because the transparency and auditability of the eVoting procedure rely on technocrats and they can be easily influenced (SocioPol 2, personal communication, June 18th, 2023). Unlike traditional voting, eVoting is not as tangible and thus harder for the public to verify independently (SocioPol 4, personal communication, April 2, 2024; Legal 2, personal communication, March 21, 2024; SocioPol 1, personal communication, June 22, 2023).

The interviewees mentioned that while there is always a matter of trust regarding the safety of Internet transactions in areas such as eCommerce, eBanking, and eVoting via ZEUS for academic or inter-organizational elections, people still engage in these activities (SocioPol 1, personal communication, June 22, 2023; SocioPol 4, personal communication, April 2, 2024). However, when it comes to national elections, the larger number of voters, the varying levels of acceptance and understanding of the technology, and the high stakes of the elections demand different and higher levels of different kinds of trust (SocioPol 4, personal communication, April 2, 2024; Legal 2, personal communication, March 21, 2024; SocioPol 1, personal communication, June 22, 2023; Legal 1, personal communication, March 6, 2024, SocioPol 2, personal communication, July 19, 2023). That is why all the interviewees agreed that Greece is not yet ready to conduct its national elections without the thus far mentioned challenges being dealt with first.

Other kinds of Trust challenges that were proposed by the interviewees and reflected in the mentioned results are the following. First, there is the matter of trust from the state and politicians towards the voters for the freedom and secrecy of the vote in case there are high numbers of coercion due to the digital illiteracy of the voters. The state must make sure that the will of the people of Greece through elections remains authentic, uncoerced, and thus unspoiled (Legal 2, personal communication, March 21, 2024; Tech 2 personal communication, March 27, 2024). Then there is always the lack of trust from the politicians in the safety of the system (SocioPol 1, personal communication, June 22, 2023; SocioPol 2, personal communication, July 19, 2023; Tech 2, personal communication, March 27, 2024), which is accompanied by the lack of trust due to the lack of the proper personnel to audit the system and the process and ultimately not checking the verifiability of the will of the people that will vote through eVoting (Legal 2, personal communication, March 21, 2024). The latter interviewee who researched eVoting in Greece back in 2002 and is also a professor of ICT engineering also mentioned that even asking what happens in a system failure or in recounting the votes shows a lack of trust because of the lack of transparency/verifiability. She also underlined the potential debate over which technology to use for eVoting, with a focus on enhancing transparency through options like open-source common-based creation (personal communication, March 21, 2024). This aligns with the views of many other interviewees who believe that initiating and potentially co-creating such initiatives at the local level will be beneficial for their adoption and diffusion. (SocioPol 2, personal communication, July 19, 2023; SocioPol 4, personal communication, April 2, 2024).

In a less negative atmosphere, all the interviewees agreed and identified that the following social groups would be more welcoming to using eVoting and voting without having to go to the polling station. The first group would be the citizens who work seasonally for the summer in case the elections happen again between May and September (SocioPol 2, personal communication, July 19, 2023). Alongside these groups are the hospitalized and the people with disabilities (SocioPol 2, personal communication, July 19, 2023; Legal 1, personal communication, March 6, 2024). The younger people and “especially the ones that would prefer to go to the beach on a summer Sunday morning than wait in line at the polling station” (SocioPol 4, personal communication, April 2, 2024; Legal 1, personal communication, March 6, 2024). Finally, based on his research on applied political and electoral statistics SocioPol 3 mentioned that eVoting will solve a big mobility problem for almost 2 million Greek citizens who would have to move to the municipalities that they are registered to vote (SocioPol 3, personal communication, June 18, 2023).

However, once again it must be noted that all the interviewees agreed that eVoting should be in parallel with traditional voting methods. That is because with this there will be no social groups that will be excluded from the elections, there will be fewer trust issues and there will

be less coercion of the voter because he/she can vote physically (SocioPol 3, personal communication, June 18, 2023; SocioPol 2, personal communication, July 19, 2023; Legal 1, personal communication, March 6, 2024; Legal 2, personal communication, March 21, 2024). The latter statement will be further discussed in the technological challenges. Other interviewees also mentioned that if all the discussed legal and sociopolitical and the (upcoming) administrative and technological challenges are addressed, the eVoting initiative will be well-organized, will not fail and no political authority will be lost. It could also benefit parties with a predominantly young voter base (SocioPol 2, personal communication, July 19, 2023; SocioPol 4, personal communication, April 2, 2024). Nevertheless, in this regard, only one interviewee mentioned that if voting becomes only digital then it can also become a trivial thing, like scrolling on Facebook (SocioPol 2, personal communication, July 19, 2023).

Specifically for the code Capability of the Greek Electorate, which reflects on the capabilities of the voters to use an eVoting technology, all the interviewees agreed that the digital divide will challenge the eVoters to use such a system and it can further the matter of coercion. There exists a digital gap between the older and younger generations (SocioPol 4, personal communication, April 2, 2024; SocioPol 1, personal communication, June 22, 2023) with the younger people being more acquainted with eVoting and technology in general. A fact that is proven by the diffused use of eVoting for academic elections in Greece during COVID-19 (Legal 1, personal communication, March 3, 2024; SocioPol 1, personal communication, June 22, 2023; SocioPol 2, personal communication, July 19, 2023). Moreover, one of the creators of ZEUS underlined that he never got any complaints about the difficulty of using such a system (Tech 1, personal communication, March 22, 2024). On the other hand, as mentioned before, Tech 2 pointed out that ZEUS was proposed for the inter-organizational elections of the MoI, but its legal experts rejected it since they were “afraid” of the decryption and encryption measures of the eVoting procedure (personal communication, March 2024). The latter statement was also supported by SocioPol 4 who works in the MoI and said that they never voted online even during COVID-19 (personal communication, April 2, 2024).

An important finding for this category came from the Caretaker Minister of Digital Governance for the national/parliamentary elections of 2023 (SocioPol 1) and was supported by other experts as well. Even though many of the interviewees supported that using eServices in Greece is now a common practice and that capabilities have somewhat evolved (Legal 1, personal communication, March 3, 2024; Legal 2, personal communication, March 21, 2024; SocioPol 3, personal communication, June 18, 2023), the minister disagreed. He mentioned that it is well-known that statistics on Greek eServices usage can be misleading. That is because it is also a common practice for citizens to give their eGov credentials to their accountants or to people who are more acquainted with technology to do their eServices for them (SocioPol 1, personal communication, June 22, 2023; Legal 2, personal communication, March 21, 2024;

Tech 2, personal communication, March 27, 2024; SocioPol 4, personal communication, March 2, 2024). This adds another challenge to the capabilities of the Greek electorate which is that of eServices "password" sharing since voters can give their credentials to others to eVote for them. This can always lead to the coercion of the authentic expression of the will of the people through their vote as it was also mentioned in the legal challenges, since the proxy voter might eVote for something else (SocioPol 1, personal communication, June 22, 2023; Legal 2, personal communication, March 21, 2024; SocioPol 3, personal communication, June 18, 2023; Tech 2, personal communication, March 27, 2024). A table of all the findings on the sociopolitical challenges alongside an explanation of each is presented in Table 5.2.

Table 5.2 Findings on the Greek Sociopolitical Challenges for eVoting adoption (Original synthesis, assisted by Chat GPT)

Category	Greek Sociopolitical Challenges	Description
Political Will: Politicians	No Political Will of Politicians	The political will for eVoting is non-existent.
	Immaturity of Politicians	Politicians are not mature enough to discuss or put eVoting on the agenda.
	Supporter Disruption	Politicians do not want to introduce eVoting as it will be disapproved by their supporters in the polling stations.
	Disagreement Among Politicians	There is significant disagreement among politicians about eVoting.
	Fear of Losing Authority	Fear of losing authority if a proposed eVoting scheme fails.
	Unwanted Debate	Proposing eVoting would bring disruptive debate that is politically unwanted.
	Overcentralized Administration	Greece's overcentralized clientele public administration poses a challenge to local administration & decision-making
	Inhibition by Local Politicians	Mayors and local politicians pose a challenge to the bottom-up co-created introduction of eVoting.
	Organizational and Technological Costs	High costs for a secure and administratively well-organized eVoting system will influence politicians.
	Electoral Law's Negative Impact on Politician's Candidacy	Politicians may resist eVoting because it could alter the voting focus from individual candidates in specific electoral districts to the party as a whole
Political Will: Politicians & Voters	Political Ideology	Political ideology influences the adoption of eVoting differently.

	Liberal Right, Central, and Central Left-wing Politicians/Voters	More accepting of technologies like eVoting.
	Non-Liberal Left-Wing Parties	Prefer physical participation over digital participation in elections. Especially the Communistic Party of Greece
	Obsolescence of Polling Stations	eVoting would make polling stations obsolete, affecting polling stations' stakeholder allowances.
	Triviality of vote	Voting will become a trivial thing like scrolling on Facebook if it becomes digital
Trust	Lack of Trust in Public and Private Institutions	Major sociopolitical challenge for eVoting in Greece that challenges the democratic context of the country.
	Digital Divide and Illiteracy	Affects willingness to vote online and politicians' inclination to promote eVoting.
	Distrust Among Political Parties	Contemporary scandals and mutual distrust limit the cooperation of political parties for such initiatives.
	Corruption and Clientele Relations	Corruption, lack of proper audits, and clientele relations in the public sector create distrust.
	Rising Conspiracy Theories	Far-right and far-left demagogues may attempt to delegitimize eVoting results.
	Higher Levels of Trust Required	National elections require different and higher levels of trust.
	Distrust from State to Voters	Lack of trust from the state in the freedom and secrecy of the vote. The state aims for an authentic outcome in which a high level of coercion of voters can corrupt.
	Lack of Trust in eVoting System Safety	Politicians' lack of trust in the safety of the system.
	Lack of Trust Due to Inadequate and Unqualified Personnel	Lack of proper personnel to audit the system and process.
Capability: The Greek Electorate	Digital Divide	Digital divide will challenge voters and can further matters of coercion.
	Digital Gap Between Generations	Significant digital gap between older and younger generations.
	Password Sharing-Proxy Voting	Risk of voters sharing their credentials, leading to coercion.

As was mentioned, all the interviewees underlined that indeed eVoting enables voters who live outside of their home country or municipality to vote. Moreover, they agreed that it extends access to the elections for the handicapped and hospitalized, ultimately reflecting what was mentioned in the literature review on the benefits of eVoting (Krimmer, 2012; Pinault & Courtade, 2012; Trechsel et al., 2016). Some of the interviewees also agreed that the introduction of eVoting will be beneficial for political parties with an electoral base of young

voters thus appearing more progressive (Krimmer, 2012). In this regard there was no finding that correlated with the mentioned political party benefit of "first mover advantage" (Kerin et al., 1992; Krimmer, 2012). These were the most positive attitudes of the interviewees towards eVoting. After that, many of the sociopolitical challenges discussed created a skeptical atmosphere for adopting eVoting in Greece. These challenges align with the general sociopolitical issues highlighted in both the literature review and the Greek case study analysis (Komninos et al., 2024; Trechsel et al., 2016; Vasilopoulou & Halikiopoulou, 2020). For example, all those warnings from the experts of the different factors that can lead to coercion such as the Greek digital divide, or the vote-sharing indeed correspond with the bibliography that surrounds eVoting practices and the dangers of coercion (Aziz, 2019; Grewal et al., 2013; Jamroga & Tabatabaei, 2017). Moreover, the importance of the system being simple enough for different experts to be able to verify it so that the auditing does not have to rely only on appointed technocrats was raised as an issue due to the lack of trust in the Greek institutions. This is reflected in the proposals from the Handbook for the Observation of NVTs of OSCE (2013) and others (Gibson et al., 2016) that emphasized the need for audibility of the voting system from different analysts.

According to Trechsel et al. (2016), trust in the operations over the Internet is important for eVoting. There was a common agreement among many interviewees that indeed the perceptions of using the Internet for online transactions but also for Internet voting for inter-organizational purposes have changed for the better since nowadays this is a common practice. However, the experts underlined that this kind of Internet operations do not require the same amount of trust that voting for national elections does. That is because the stakes are different; in this case, it concerns the future of Greece. Additionally, the scale of participants is much larger, and their varying electoral capabilities are influenced by the digital divide and differing levels of understanding of such technologies. In the literature review, it was also argued that trust and confidence in the state itself to conduct eVoting fair and transparently is the precondition for its success in Estonia and after many rounds of online elections, eVoting is more trusted than before (Budurushi et al., 2016; Ehin et al., 2022; Mulholland, 2021; PWC, 2019). According to the findings, the same level of trust cannot be found in Greece. That is because Greece's historical evolution stigmatized its public sector and empowered the characteristics of clientele relations, patronage, and over-centrist administration which challenges many aspects of trust until today.

These phenomena have led to a top-to-bottom decision-making culture that can be obscure, corrupt, and challenging for bottom-up initiatives that according to the findings could affect trust positively. The interviewees mentioned many times that eVoting could start on a local level for voters and politicians to trust it but this top-to-bottom decision-making culture blocks such initiatives. In other words, the centralized public administration of Greece alongside its

negative characteristics poses many challenges to technological innovation and overarchingly to building trust. This statement correlates with the case study bibliography about the disabling role of a centralized government in public innovations (Chi et al., 2021; Dadashpoor & Yousefi, 2018; Taylor, 2007) and the empowering of centralism through patronage and clientelism (Eisenstadt & Roniger, 1984). Under these conditions, the Greek state cannot empower or embrace innovations since it cannot build innovative capacities and ultimately become entrepreneurial (Kattel et al., 2022; Mazzucato, 2011). Furthermore, these conditions correlate with the "Uncertainty Avoidance" findings for Greece of Hofstede (2001) and others (Espig et al., 2021; Hofstede Insights Ltd, n.d.; Souitaris, 2001) that explained that there are consequences of a country's culture to its organization and administration and in the capability of initiating innovation. However, in the case of Greece, it is not the culture that affected the innovation capacities of Greece but history alongside the continuance of clientelism, centralism, patronage, and recent scandals that impacted the trust in its democratic institutions.

Moreover, the state cannot even trust itself. The interviewees highlighted a common mistrust between the political parties of Greece that is only fueled by recent scandals like the Predatorgate scandal (International Amnesty, 2023). Ehin et al. (2022) also commented that in Estonia eVoting is an outcome of trial and error. In Greece, with politicians fearing losing authority, with demagogues poised to exploit any failure of such a system by defying the results, and political conspiracy theorists on the rise, there is no margin for error and little openness to making amendments. Furthermore, the need for independent authorities to verify the whole process was also mentioned a lot by the interviewees both for this category of challenges and in the legal category. This can reflect both the political challenge of neutrality of such initiatives (Trechsel et al., 2016) and the fact that the Greek public sector bureaucracy is not neutral (Samatas, 1993). Indeed based on the findings, trust in the democratic institutions of Greece is damaged, and this bloomed conspiracy theories that hurt the sociopolitical trust and adoption of technological innovations (AlHogail & AlShahrani, 2019; Moore, 2018; Tsouvelas et al., 2023). So it is clear that eVoting cannot be a political success under the challenging lack of the fundamental precondition of trust (Gibson et al., 2016). This statement is explanatory and reflects the mutually interconnected relationship between Trust, the Political Will of the Politicians, and the Political Will of the Voters. Once again this lack of trust affects negatively the will of the voters to use such technology and the politicians to promote it and vice versa.

It must be noted that the matter of trust when it comes to Greece has many other faces as well. There is the mentioned trust of the voters towards the democratic institutions or towards the private provider. There is also the trust of the politicians towards such technologies that derive from the digital divide, alongside their' and the state's distrust towards their voters in case there are high rates of coercion from this voting method. To the best of the knowledge of the author

of this thesis, these matters of trust do not directly reflect on the gathered bibliography, because they are Greek-specific and because the bibliography focused more on matters of general distrust towards the public democratic institutions and operations over the internet (Gibson et al., 2016; Trechsel et al., 2016). That is why the code of Trust was left as general as possible to identify the specific nature of trust in the Greek sociopolitical scenery. It can be argued that this statement provides an in-depth explanation of the challenge of Trust especially in the Greek context exactly as was proposed by Yin (2017) in the Methodology chapter. So for Greece, trust influences the will of politicians, which in turn affects the will of the voters, and vice versa.

The former statement disagrees with the findings of Shat & Abbott that proposed that the political will of the politicians is more important than the will of the voters (2016). That is because Shat & Abbott, based on their case study of Palestine, propose a top-down dynamic when it comes to stakeholders influencing each other. For Greece, the findings propose a mutually influential relationship. Once again this reflects on what Trechsel et al. (2016) proposed, meaning that evidence depends on the political context of a country. Additionally, according to the findings, alongside trust and the will of voters other challenges influence the decision of politicians to promote eVoting in Greece. For example, the high fiscal costs of reorganizing the administration for an eVoting initiative, along with upgrading or developing an eVoting system, mirror the literature review on the political challenges of eVoting adoption, particularly regarding substantial financial investments (Trechsel et al., 2016). Once again this finding will be further elaborated in the next two sub-chapters. Furthermore, digital illiteracy is affecting the maturity of voters, administrators, and politicians to promote or even discuss and comprehend such technologies, reflecting the social challenge of the digital divide (Trechsel et al., 2016). Political ideology also plays a role in the adoption of eVoting since more liberal politicians and citizens will be more willing to use and promote such technology whereas more conservative and non-liberal parties will not. This highlights the broader sociopolitical challenges for eVoting, indicating that the decision to use eVoting is influenced by factors beyond the technology itself. These factors include voters' preferences for certain voting methods, which are often shaped by their political views (Trechsel et al., 2016; Weber & Vassil, 2011).

When it comes to conspiracy theories and political demagogues, most interviewees combined these terms and explained that demagogues would attack the trustworthiness of everything surrounding an eVoting initiative to win votes and gain appeal. However, it is the author's opinion that political demagogues might also support such initiatives only to bet on their failure or undermine the technology's effectiveness in producing trustworthy results to gain votes and that this is something that future decision-makers should be aware of when they are reviewing their supporters. It should be noted that no interviewee explicitly expressed concern about

eVoting technology benefiting a specific political faction. Nevertheless, they did express worries about the lack of trust due to insufficient transparent mechanisms, inadequate laws, administrative inefficiencies, the potential bias of administrators and technocrats, conspiracy theories demagogues, and recent scandals involving the current government. This means that if eVoting is implemented without dealing with these challenges first, then possibly there will be no political neutrality and the whole procedure will damage even more the public confidence in the election process and the Greek democracy (OSCE, 2013).

The interviewees also expressed concerns that relying solely on eVoting could create a social division due to the digital divide, as not all voters are digitally literate or capable of using the system. This, coupled with the phenomenon of password sharing, could lead to proxy voting and raise issues of coercion. This extends the problematization of Weber and Vassil (2011) in their work on the bottleneck model as a social challenge. Not only eVoting can create social division but it also empowers coercion. Moreover, the interviewees agreed that indeed eVoting can enable people who did not vote for mobility reasons to now vote thus engaging the so-called peripheral disengaged citizens as introduced by Weber and Vassil (2011). A final general social challenge was the triviality of voting as a procedure if it becomes fully digital which was mentioned by one interviewee and correlated with the same thoughts provided by Pipilou, (2022). A limitation of the social part of the sociopolitical findings is that more social challenges, like linguistic and accessibility challenges, might have been identified if interviewees from different civil society organizations representing minorities had been included in this study. Moreover, more concerns could have been raised and findings would have been identified specifically for the verifiability of the initiative if experts representing the media were interviewed. The former and latter stakeholders were mentioned in the literature review as stakeholders that are influenced by eVoting in the elections (Krimmer, 2012, 2019).

Finally, the Middleman Paradox (Mahrer & Krimmer, 2005), meaning the political challenge of the inhibiting role of such innovations from politicians that should act as an enabler was also met in the findings. The interviewees pointed out that politicians might prevent the introduction of eVoting due to fears of its potential failure and the subsequent loss of authority. Moreover, they might not want eVoting because they might lose votes due to changes in the electoral law. They also want to avoid unnecessary debates over this voting method, possible dissatisfaction from their supporters (e.g., polling station stakeholders who would lose allowances), and ideological opposition to such methods. Overall, politicians are perceived as being immature and unprepared to handle such initiatives.

However, based on the interviews these factors behind the lack of political will of politicians should always be considered alongside the mentioned crisis of trust that Greece has been going through in the last decades. Based on that the author believes that because trust in the political

context that eVoting will be adopted in, is a fundamental requirement, and because it influences many stakeholders, it should be considered a “first-wave” or priority sociopolitical challenge to overcome. Moreover, politicians, if they have identified this sociopolitical challenge but also the others, might be wise for not wanting such technologies to be introduced without the proper supporting environment, meaning an environment without all the aforementioned issues. What is important to notice is the significant impact of the digital divide on all stakeholders and their understanding of technology. Additionally, local initiatives and innovations, including local eVoting elections that could pave the way for national eVoting and trust diffusion, cannot thrive due to the centralized decision-making and administrative structure that hinders their progress.

In general, all the experts, particularly the sociopolitical ones, mostly agreed on the sociopolitical challenges behind eVoting adoption in Greece for the national elections. Their minor disagreements were primarily about the specific factors contributing to these challenges. The experts were aware of the importance of the requirement of trust and independent and diverse auditing for an eVoting initiative. For example, they mentioned that indeed the initiative needs independent auditing because relying only upon “technocrats” creates a sense of insecurity, leading to the idea that voting in an uncontrolled environment without the proper trust to ensure the validity of the process is challenging for Greece.

The interviewees provided a plethora of sociopolitical challenges that revolved around those requirements such as the lack of trust, political will, and the digital divide, and raised awareness about their mutual influencing and specific to the Greek context relationships. So since there were sufficient levels of agreement for the findings it can be argued that this category of challenges has been validated and that internal validity has been approached effectively (Thiel, 2021; Yin, 2017). Nevertheless, after conducting the interviews and identifying the challenges, another limitation that arose is the fact that interviewing politicians or members specifically of the current government (New Democracy party) could have better supported the internal validity of the findings, for example by providing a better counter-argumentative and possibly more positive perspective.

The main sociopolitical considerations reflect the general literature review on the social and political challenges of eVoting. It can be argued that the existing knowledge on eVoting has been extended to the Greek context, validating many aspects of the challenges that are not unique to Greece using the Shat & Abbott (2016) framework. In other words, the external validation of the sociopolitical findings, while specific to the Greek case study, also in many aspects aligns with broader general challenges. So, since a previously used theory that was supported by a relevant eVoting literature review has been applied it can be commented that analytic generalization through a single case study has been reached and thus external validity has been approached (Thiel, 2021; Yin, 2017).

5.1.3 The Greek Technological Challenges

The results of this category reflect the code Capability: Technological Infrastructure. They evaluate Greece's technological infrastructure preparedness for adopting eVoting in national elections. They also highlight the peripheral to eVoting Greek technologies that exist, the readiness of the technological human resource to take up eVoting, as well as the challenges, weaknesses, and strengths of Greece's technological capacities. The insights of this chapter provide focal points for addressing technological issues in the potential implementation of eVoting for Greece’s national elections.

The two experts in this category of challenges were one of the Directors of GRNET (Tech 1), which is the public sector company responsible for the eServices of Greece, and the Civil Servant-IT (Tech 2) a civil servant of the MoI that is an IT expert. Both interviewees offered numerous insights into Greece's technological capacity, along with several administrative and organizational considerations that must be addressed for the successful conduct of elections through eVoting. That is why many times during the coding procedure the Technological infrastructure overlapped with the Administrative Infrastructure. Nevertheless, the administrative challenges will be further elaborated in the next chapter. In this chapter, only the administrative challenges that are closely related to the technological ones will be mentioned. It must be noted that the interviewees were mostly agreeing with each other but had a different undertone about eVoting. For example, Tech 1 was more positive toward the technological capacities of Greece and towards that initiative while his peer was in general more reluctant. Tech 1 happened to be also one of the creators of ZEUS the governmental online ballot, so he had an in-depth insight into the strengths and weaknesses of his technology. He also shared his perspective on why ZEUS has not been adopted for national elections which will be elaborated in the chapter that will answer the second subquestion.

Tech 1 explained that Greece's digital infrastructure is performing well. For example, Gov. gr, the eServices website, provides over 1500 services hosted across six data centers. He also noted that if digital elections were required, Greece would have the necessary human and technological resources to implement them for the improvement or design of such technology and could leverage resources from partners like Amazon through GRNET. Overall, he said that there are no issues with the digital infrastructure (personal communication, March 22, 2024). The previous statements were also supported by other interviewees for example the Caretaker Minister of Digital Governance (SocioPol 1, personal communication, June 22, 2023; SocioPol 3, personal communication, June 18, 2023). Moreover, SocioPol 4 agreed that for this part of the eVoting design process, meaning the back-office part the human resources indeed exists (personal communication, April 2, 2024)

On the other hand, Tech 2 did not comment on that statement but immediately turned the focus of the conversation to the permanent problem of the danger of the eVoting system being hacked. He mentioned that there are always security gaps in every digital service and to reach a perfectly secure system a great economic investment should take place (personal communication, March 27, 2024). A statement that was also supported by other interviewees (SocioPol 1, personal communication, June 22, 2023; SocioPol 2, personal communication, July 19, 2023). For that, his colleague replied that at least for the eServices in Gov. gr the best possible security measures have been taken. In general, he explained that hacking attempts on Greek services are happening almost every day, and that cybersecurity is high on the agenda of Greece's digital governance. Otherwise, the current eServices would not even exist (Tech 1, personal communication, March 22, 2024). Tech 1 also agreed with the latter statement by commenting that the MoI has a department of cyber security that cooperates with the Ministry of Digital Governance of Greece (personal communication, March 27, 2024).

When it comes to a digital public identity scheme that is a requirement for the authentication of the voter the two technology experts mentioned the following. First Tech 2 said that just logging in with "taxisnet" credentials is not enough because it is common knowledge that these credentials are shared between the citizens and their trusted family members or accountants. So, a new identity scheme must take place to avoid matters of coercion from proxy voters and in general password sharing (personal communication, March 27, 2024). The following was not commented on by Tech 1 but what the expert said was that GRNET closely cooperates and follows the Estonian digital example and that the only difference between the Greek eServices and the Estonian ones is the SIM card in the national ID that does not exist in Greece (personal communication, March 27, 2024). Other interviewees like SocioPol 4 who is a civil servant in MoI complemented the previous findings and said that eIDAS has not yet been promoted even in the public sector as a regulation in Greece and the issue and use of the new Greek ID cards is not diffused (personal communication, April 2, 2024). So, it can be said that a more secure and commonly used Greek digital identity scheme must be established before and for a Greek eVoting.

On the other hand, Tech 2 also explained that the digital and human resource infrastructure for the pre-voting stage does exist, and the electoral catalogs are in a digital form. However, these catalogs are always updated based on the changes in the different groups of the electoral body. For example, he commented that the electoral body is composed of many special social groups like army personnel, navy personnel, expatriates, etc. These groups are constantly on the move. Thus, he noted that electoral catalogs (rolls) are not static, and they are reviewed every two months. The expert also highlighted that these reviews and edits are happening digitally. In general, he was positive that the pre-voting stage of eVoting, meaning the necessary organizing steps are done digitally and are stored in a database. Moreover, he was glad that the different

people who are working in the polling stations on the days of elections have been given electronic tablets to communicate with the database (personal communication, March 27, 2024). The former statement was also agreed by SocioPol 4 who said that indeed the polling station members (stakeholders) are using tablets (personal communication, April 2, 2024).

On the other hand, Tech 1 noted that even though the pre-voting stage is digital, it might not be in the form that GRNET or any other provider might want it to be. This requires extra effort to shape the data of the elections according to the needs of the provider of eVoting. Moreover, both the technological interviewees emphasized that successfully conducting nationwide online elections involves not only the technological aspect but also the accompanying organizational/administrative one (Tech 1, personal communication, March 22, 2024; Tech 2, personal communication, March 27, 2024). Tech 1 explained that the "protocol states" that eVoting should happen in parallel with traditional voting to include all social groups and to avoid coercion. So whatever operations exist in traditional voting must also exist in eVoting and of course, those two methods of voting must be under one common technological-administrative mechanism. The best example of this, he said, is the rule that traditional voting must cancel the digital one so that there is no multiple voting and so that a voter who has been coerced to vote digitally to cancel his/her vote physically (personal communication, March 27, 2024; SocioPol 3, personal communication, June 18, 2023). That requires cooperation between the technological and the administrative aspects which is not easy to coordinate successfully (Tech 1, personal communication, March 22, 2024; Legal 2, personal communication, March 21, 2024).

Tech 2 complemented his colleague by mentioning that it does not matter how sophisticated is a security mechanism. "A chain is as strong as its weakest link" and in this regard, the weakest link is human error. He also explained that both he and the MoI are not capable of knowing if there will be people with digital skills in the polling stations since they will come from different departments and institutions of the Greek Public sector like the High Court (personal communication, March 27, 2024; SocioPol 4, personal communication, April 2, 2024). So, then he and many other experts proposed that all the stakeholders for the eVoting initiative should be trained and educated digitally beforehand. That is because the digital divide affects not only the voters and the politicians but also the people that will be responsible in the polling stations for the balance between traditional voting and eVoting at the polling stations (Tech 2, personal communication, March 27, 2024; Tech 1, personal communication, March 22, 2024; Legal 2, personal communication, March 21, 2024; SocioPol 4, personal communication, personal communication, April 2, 2024).

The Greek elections in cybersecurity terms are an important "attack vector" as Tech 1 explained so they require extra effort in their design and in their cooperation between the technological

and the administrative aspects (personal communication, March 22, 2024). Because then there is going to exist the permanent problem of the danger of the eVoting system being hacked that Tech 2 was warning about. Moreover, Legal 2, being also a professor of ICT Engineering, commented that the system must, by design, protect the secrecy of the vote. This includes safeguarding against hacking and ensuring the protection of citizens' privacy and their data. In general, she commented that there is no maturity of the stakeholders (administrators and politicians) when they are designing such systems (personal communication, March 21, 2024). One final challenge that was mentioned by Tech 2 was the fact that an effective digital infrastructure has not progressed or does not exist in many remote island and mountainous areas of Greece. This makes traditional voting even more imperative and poses a technological and administrative challenge for the implementation of eVoting in such areas (Tech 2, personal communication, March 27, 2024). The gathered considerations and challenges are depicted in Table 5.3

Table 5.3 Findings on the Greek Technological Challenges for eVoting adoption (Original synthesis, assisted by Chat GPT)

Challenge	Description
No issues with the Digital Infrastructure or the Digitalization Human Resource	Greece has the necessary know-how and infrastructure for digital services, including over 1500 services hosted across six data centers.
Security Gaps in Digital Services require Big Financial Investment to Fill	Achieving a perfectly secure system requires significant economic investment as there are always security vulnerabilities in digital services.
Cybersecurity is Prioritized	Cybersecurity is a high priority in Greece's digital governance.
Need for a Secure Digital Identity Scheme	Establishing a new and commonly used Greek digital identity scheme is essential for implementing Hellenic eVoting.
A Digital Pre-voting Stage exists	The pre-voting stage involves organizing steps done digitally and stored in a database, with election workers using tablets to communicate with the database.
Data Shaping for eVoting Provider Might be needed	The pre-voting stage data might not be in the required form for GRNET or other providers, necessitating extra effort to format the data appropriately.
Parallel eVoting and Traditional Voting will challenge the Organization and Communication of those two	eVoting should occur alongside traditional voting to include all social groups and combat coercion, with both methods operating under one common technological-administrative mechanism.
Physical Votes Cancel Digital Votes should be an Important Characteristic of the Voting Process	Physical votes should override digital votes to maintain integrity in the voting process. An important characteristic that requires the seamless cooperation of the technological and administrative aspects of the election process
Training and Education for all the Stakeholders should be promoted	All stakeholders especially the polling station operators involved in eVoting must be trained and educated to develop digital skills.
Human Error is the Weakest Link in the Security Chain	Human error is a significant vulnerability, with the digital divide affecting not only voters and politicians but also polling station operators.

Lack of Stakeholder Maturity	There is a lack of maturity among stakeholders in designing eVoting systems.
Protection of Vote Secrecy by Design	The system must be designed to protect the secrecy of the vote, ensuring voter privacy and data security.
Ineffective Digital Infrastructure in Remote Rural Areas of Greece	Digital infrastructure has not progressed or does not exist in many remote rural islands but also mountainous areas of Greece

In general, the experts' opinions on the Greek technological challenges for eVoting reflected on the general ones for example by Trechsel et al., (2016). The distinction between technology-related and human-related technological challenges was also explained by the interviewees for the Greek case. For example, the overall security of the system from hacking and the proper training of the human resources that will be operating the eVoting elections were analyzed.

The interviewees opined that the Greek digital infrastructure and the cybersecurity thereof is effective since it runs a plethora of eServices. Tech 2 however mentioned that this is not the case for every area of Greece since remote areas lack the proper digital infrastructure for such technology. This makes the use of traditional voting and thus the cooperation of eVoting and the traditional ballot imperative. Otherwise, by using only eVoting the citizens of these areas will be excluded from the elections. Moreover, when it comes to eVoting it will be prudent for the system to be more secure because the stakes are higher, and the elections are more complex since it requires cooperation between the technological and the administrative aspects of the voting procedure. The security aspect of the system and the overall cooperation between the aforementioned two aspects lead to a fiscal and organizational investment as was proposed in the sociopolitical challenges.

Greece's digital identity scheme which is a fundamental requirement for eVoting to securely authenticate the voter is almost non-existent because its usage is not promoted. The diffused and common use of a digital identity scheme marks a considerable requirement for the adoption of eVoting. Moreover, using widely promoted software technologies like the "taxisnet-gov. gr" credentials to log in to the eVoting system poses a significant risk of voter coercion due to the prevalent issue of password sharing. Another fundamental challenge of every aspect of eVoting where its warnings correlate with the guidance provided by OSCE (2013). Another requirement for eVoting was the fact that the pre-voting stage items such as the electoral catalogs must be digital (State Electoral Service of Estonia, 2017). According to the interviewees, the stages before the eVoting itself have a digital hypostasis. However, this must always fit and correspond to the needs of the provider of the technology. Which could create an extra challenge. Other Greek technological artifacts like the digital signature that was mentioned in the last chapter of the case study were not mentioned by the interviewees, except for ZEUS which will be analyzed later.

The digital divide plays an important and overlapping challenging role in the adoption of eVoting. The voters will be unable to use the system leading to them sharing their passwords, so there will be coercion and there is a danger of the principle of the "secrecy of the vote" being disrupted. Also, the stakeholders in the polling station such as the party or the legal representatives or operators do not have the necessary digital skills to ensure the security and transparency of the initiative. This can lead to possible security issues because as was mentioned by the interviewees and the bibliography (OSCE), 2013; Trechsel et al., 2016), the technological challenges are technology and human-related thus inexperient users can prove to cause security or operational problems. In other words, while the human resources and know-how to create, and improve, an eVoting system do exist, there is a lack of proper training for the personnel in the polling stations that need to understand, operate, verify, and integrate it with the traditional voting system. The digital divide also affects the maturity levels for the discussion of eVoting and according to the interviewees, the design of such a system must consider all the voting principles that traditional voting does. This can ultimately lead to relying on technocrats which will affect the trust in such a system as was proposed in the sociopolitical challenges. These considerations also reflect on the guidance provided by OSCE (2013) and of course the implementation thereof in Estonia (State Electoral Service of Estonia, 2017). That is why it was mentioned before that the challenges and the categories have instances that can overlap with each other.

To sum up, the interviewees were overall informed of the requirements and the challenges of eVoting in Greece. They believed that the success of eVoting does not only rely on the technological but also the administrative aspect. Overall, the administrative "human" aspect was found to be problematic. Whereas the technological aspect lacked an identity scheme and a mature consideration for eVoting system that will reflect the security levels for national elections. Finally, the digital divide affects the authentication of the voters and the authenticity of the vote, and some remote areas do not have a proper digital infrastructure. Those two statements make the promotion of a secure public identity scheme and the coexistence of eVoting and traditional voting two crucial requirements and challenges for the Greek case. It can be argued that especially an identity scheme which is a requirement for eVoting adoption should be considered the first step to overcoming the technological challenges and so be part of the "first wave" of technological challenges to overcome. The latter statement is also supported by the State Electoral Service of Estonia (2017) as was mentioned it explains that many security challenges that revolve around the authentication of the voters and their eVotes can be dealt with by having a proper digital identity scheme in place and in use.

In the end, there was a sufficient amount of expert agreement behind the technological challenges for eVoting requirements in Greece. So, it can be stated that this category of challenges has been validated and that internal validity has been approached (Thiel, 2021; Yin,

2017). The same can be argued for the external validation of the technological findings even though they reflected the Greek case study. That is because the main technological Greek considerations both refer specifically to Greece but also reflect the general literature review on the technological challenges for eVoting. For example, the initial distinction between technology-related and human-related technological challenges. Thus, approaching the validation and extension of the existing knowledge, from the Greek case via the use of the Shat & Abbot framework (2016).

5.1.4 The Greek Administrative Challenges

The results of this category reflect on the code Capability: Administrative Infrastructure. They evaluate Greece's administrative/organizational infrastructure preparedness for adopting eVoting in national elections. They assess the strengths and weaknesses of the administrative organizational structures that will accompany the eVoting Greek technologies that exist and the readiness of the administrative human resources to take up eVoting. The insights of this chapter provide focal points for addressing administrative issues in the potential implementation of eVoting for Greece's national elections.

All the experts provided insights into the administrative challenges of Greece's public sector, especially when it comes to the introduction of NVTs like eVoting. The biggest contributors to this subcategory of challenges were the two civil servants from the Greek MoI (SocioPol 4, Tech 2) as it was expected since it is the ministry that handles elections administratively in Greece. Moreover, the next bigger contributor was Legal 2 as she also researched the introduction of eVoting in 2002 and has experience as a legal observer in polling stations.

To start with many experts mentioned that besides the general distrust and the digital divide which affects many aspects of eVoting and technological innovation comprehension and diffusion, there are also other important administrative matters to attend to (SocioPol 2, personal communication, July 19, 2023; SocioPol 1, personal communication, June 22, 2023; SocioPol 4, personal communication, April 2, 2024). For example, the interviewees proposed many instances that the electoral catalogs were not updated in time for the elections, leading people who have passed away to not show up to vote and thus depicting a different number of total voters and wrong percentages of abstentions (SocioPol 2, personal communication, July 19, 2023). Moreover, as mentioned before it is a very important requirement for the Greek sociopolitical scenery and for the matter of trust for independent agencies to be implemented to audit the eVoting system which by itself leads to a challenge of creating such organizations (SocioPol 2, personal communication, July 19, 2023; SocioPol 4, personal communication, April 2 , 2024). Also, in the previous chapter, it was found by the two technological experts (Tech 1, Tech 2) that even though the pre-voting stage administrative items are in a digital form

they should correlate with the needs of the provider, proving an extra administrative challenge. Moreover, it was also found that a new public digital identity scheme must take place because the current one is prone to coercion due to password sharing.

Both Legal 2, Tech 1, Tech 2, and SocioPol 4 agreed that introducing eVoting is not only a political, social, legal, and technological but also a "huge" administrative project (personal communication, March 21, 2024; personal communication March 22, 2024; personal communication, March 2,7 2024; personal communication, April 2, 2024). Tech 1 and SocioPol 4 specifically commented that the relevant ministries, meaning the MoI and the Ministry of Digital Governance, alongside Greece's High Court must jointly design the whole eVoting process. Tech 1 also mentioned that this can take many months to complete and that enhancing the digital skills of all the stakeholders is crucial. Legal 2 underlined that to achieve proper auditing, transparency, accountability, and traceability, and to strengthen the democratic principles of elections, it is essential to redesign the entire process. She explained that for Greece, this means the whole electoral model must change, along with the introduction of new roles, new services, and the assurance of new competencies. (personal communication, March 21, 2024). Because the legal expert was skeptical towards these capacities of the public sector she proposed that most probably the initiative will be staffed and organized by the private sector.

The two civil servants (Tech 2 and SocioPol 4) then complemented the legal expert's opinion. Tech 2 explained that Greece has 20000 polling centers in 56 electoral districts. The cooperation and interaction between the eVoting system and the traditional polling stations with each having their own peculiarities must be ensured. He then continued by explaining that first in some remote areas, there is not even digital infrastructure, meaning an adequate Internet connection. Moreover, he underlined that the MoI will not be able to know, asses the quality, or staff all the human resources needed for both the eVoting procedures and for the polling station and that all the agencies that are responsible for the elections must have the appropriate digital skills (personal communication, March 27, 2024). In addition to the previous statement, Legal 1 also proposed that before implementing eVoting, Greece must undergo a comprehensive digitization of all state services, rather than the current fragmented approach (personal communication, March 6, 2024).

SocioPol 4 complemented his peers by shedding light and explaining the reasons behind the opinions of all the mentioned interviewees for the administrative challenges. First, he explained that even though the operators of the polling stations have been given tablets to handle the electoral catalogs and communicate with MoI during the elections, they still use handwritten catalogs as well. He also commented that after the elections are finished all that data gathered, both digital and handwritten, are just archived in an unstructured manner. For example, he said

that many times MoI wanted to publish research based on those data but since nothing was structured the research stopped. Second, he highlighted that many organizational steps must be in place for NVTs to be introduced and trust to be built for all the stakeholders involved. He believed that technology would be advantageous for administrators by enhancing the transparency of the process. Even traditional elections, often perceived as more trustworthy, are not free from corruption, political pressure on polling station employees, and various opportunities for fraud. He opined that technology has the potential to address and mitigate these issues. This is why he highlighted the need for independent auditing organizations to be established. He also commented that “digital bureaucracy” is late in Greece. Changes for the Commissions’ “Single Digital Gateway” (European Commission, n.d.-b) are late and the e-IDAS is non-existent. So, indeed he complemented his peers when it comes to digitizing many other procedures before eVoting, training the involved personnel, and establishing independent organizations for transparency (personal communication, April 2, 2024).

Furthermore, according to him the main reason that the public sector must rely on the private sector for eVoting and for other services is because of the silos and the lack of interoperability between many agencies, offices, and organizations of the public sector. He noted that even though Greece’s public administration is centralized and top-down still there is no cohesion. He comments that, although the Greek public sector personnel are well-equipped and evolving due to the retirement of older employees and the decline of patronage as hiring becomes exam-based, internal cooperation still suffers from the persistence of silos. The public sector lacks networks due to entrenched silos, leading to a "dominant logic" of outsourcing services to the private sector like Singular Logic (personal communication, April 2, 2024). This practice complicates the interconnection between the two operational systems and hinders the interconnection of operations of the private sector as well (SocioPol 4, personal communication, April 2, 2024). He commented that many digitalization agencies are doing the same job but they are not aware of it. He also warned that there are three outcomes of this outsourcing logic. First technical knowledge is not shared between the public sector and is lost. Second, no checks take place which can lead to further obscurity and of course, a feeling of distrust for possible private sector ulterior motives is diffused both in the public administration and also to the politicians and society.

The interviewee believes that achieving interoperability, independence from political attachments, and networking cohesion between the Ministry of Interior, the Ministry of Digital Transformation, and the High Court, as well as various public sector digitalization agencies in Greece, is crucial. This would reduce reliance on the private sector, foster collaboration with technocrats, facilitate knowledge sharing, and build trust (SocioPol 4, personal communication, April 2, 2024). While challenging, these steps are essential to address because they enhance democratic trust, which is fundamental for the success of eVoting. Thus, SocioPol 4

complemented and explained the statements made by his peers in this section. The mentioned considerations and findings on the challenges are depicted in Table 5.4.

Table 5.4 Findings on the Greek Administrative Challenges for eVoting adoption (Original synthesis, assisted by Chat GPT)

Administrative Challenges	Description
Outdated Electoral Catalogs should be always reviewed	Electoral catalogs are not updated in time, leading to deceased individuals being listed as voters, causing discrepancies in voter numbers and abstention percentages.
Trust and Auditing Challenges	Need for independent agencies to audit the eVoting system to build trust, posing the challenge of creating such organizations. Even traditional elections face issues like corruption and fraud
Digital Form Correlation	Administrative items in digital form must align with provider requirements, presenting additional administrative challenges.
Joint Design by Ministries & High Court	The Ministry of Interior, Ministry of Digital Governance, and High Court must collaboratively design the eVoting process, a time-consuming task requiring enhanced digital skills for all stakeholders
Comprehensive Redesign	The entire electoral process needs redesigning to ensure proper auditing, transparency, accountability, and traceability, requiring changes to the electoral model, new roles, services, and competencies.
Ensuring Cooperation	Interaction between the eVoting system and traditional polling stations must be ensured, accounting for their unique characteristics.
Lack of Digital Infrastructure	Remote areas lacking digital infrastructure pose a significant administrative challenge for the infrastructure to be expanded
Re-design of a New Public Digital Identity Scheme	A new commonly used public digital identity scheme should take place. That is because the already existing ones are prone to coercion due to password-sharing
Staffing and Skills	The Ministry of Interior struggles to assess the quality or staff necessary human resources for eVoting and polling stations, requiring appropriate digital skills across all election-responsible agencies.
Comprehensive State Digitization	Greece needs comprehensive digitization of all state services before implementing eVoting, rather than the current fragmented approach.
Delayed Digital Bureaucracy	Digital bureaucracy advancements in Greece are lagging, with delayed changes for the European Commission's "Single Digital Gateway" and non-existent e-IDAS.
Interoperability, Independence, and Cohesion should be achieved	Achieving interoperability, independence from political attachments, and networking cohesion between key ministries and public sector agencies is crucial to reducing reliance on the private sector and building trust.
Outsourcing Challenge's Impact	Outsourcing services to the private sector due to public sector silos and lack of interoperability leads to technical knowledge loss, lack of checks, and distrust due to perceived private sector ulterior motives.
Enhancing Democratic Trust	Steps to enhance interoperability and networking are essential to build democratic trust, fundamental for the success of eVoting.

The experts highlighted the fact that eVoting is a project characterized by administrative complexity. According to them, the entire electoral process must be re-designed to reflect an organized, effective, legal, transparent, and free eVoting process. That means that at least for the administrative part the personnel that staff the Greek polling stations need to be trained digitally. Furthermore, there was not a direct quote about educating the voters to use such a system. However, this can be derived from the fact that there was a common agreement that all the stakeholders of this process are affected by the digital divide and thus must be educated. All these considerations reflect the literature review on the administrative challenges as proposed by OSCE (2013). Moreover, as it was shown in the case of Estonia the whole eVoting initiative requires administrative cooperation between many services, and stakeholders, especially if it will run in parallel with traditional voting (State Electoral Service of Estonia, 2017). This was also made clear by the experts that deemed it necessary for the three main public sector institutions behin the elections in Greece, meaning the MoI the Ministry of Digital Transformation, and the High Court, to cooperate for the design of this initiative. Of course, alongside those three institutions, many independent ones should also be created and assigned to support trust and the legalization of eVoting through its verifiability. Again, this also reflects on the modus operandi of eVoting in Estonia, with supportive peripheral parties such as the Auditor, Identification Service, etc. (State Electoral Service of Estonia, 2017).

However, as was proposed Greece's public administration lacks interoperability, and its departments are subject to silos. This impedes cooperation and knowledge-sharing among public sector services, exacerbates fragmentation, and encourages the outsourcing of services to private sector companies like Singular Logic, which organized the last elections in Greece. In addition, it does not promote checks and control from the state to these operations. Moreover, since outsourcing is the prevailing modus operandi, these companies utilize different systems that are not interoperable, hindering collaboration with both each other and the public sector. Ultimately leading to the promotion of further distrust towards the public sector. The lack of interoperability is also proven by the admittance of the interviewees for example with quotes such as that the MoI will not be able to know or assess the quality of all the human resources needed for both the eVoting procedures and for the polling station. That is because different organizations are appointing different "employees" and there is no in-between communication or a common database for information cohesion.

It also seems that the experts agreed on the fact that the human resources for the technological aspect alongside the proper digital infrastructure is there at least for the fundamental technological steps towards this initiative. However, all of them agreed that on the user side, the digital divide and the skills of the administrators, operators, and stakeholders in general should be reviewed. SocioPol 4 mentioned that even though every person in the polling station has his/her own tablet, some still use paper catalogs and of course, all of this plethora of

gathered data is just archived in an unstructured way so that it cannot easily be reused. The interviewees also recognized the fact that clientele relations are a danger both for fraud during the traditional elections and also for the general decision-making process for eVoting as was discussed in the sociopolitical challenges. Only SocioPol 4 mentioned that indeed technology like eVoting will help these instances of fraud and patronage, as was also opined by Krimmer (2019) on the role of eVoting in elections. Moreover, he seemed positive that the fresh personnel of the public sector are getting more capable of dealing with technology because there is a bigger meritocracy in the hiring process and because the politically appointed bureaucrats (Samatas, 1993) are slowly retiring.

One fundamental requirement however that is missing in Greece is the proper digital public identity scheme (Krimmer, 2019; State Electoral Service of Estonia, 2017) which indeed will prove a challenge to create for eVoting. Also, digital bureaucracy in Greece is indeed slow. For example, the eIDAS regulation has not yet been implemented in the main organizations of Greece's public sector such as the MoI. Moreover, the fact that some remote areas lack the proper digital infrastructure or even access to the Internet, presents a significant challenge for the further implementation and adoption of eVoting in these locations. All of these administrative challenges can lead to what was mentioned in the case study literature and was supported by the interviewees, that even though Greece initiated innovative eGovernment technologies and services there are still many challenges to its implementation (Komninos et al., 2024; Laitsou et al., 2020).

In general, indeed all the interviewees contributed to the input behind the administrative challenges. However, Tech 2 and mostly SocioPol 4 provided the most in-depth explanation of the factors contributing to the general lack of administrative prowess in Greece. This explanation not only reflected the observations of their peers and the case study literature but also introduced considerations, such as the lack of interoperability and cohesion, which were not mentioned in the literature. Within the bounds of internal validity, although SocioPol 4's findings align with the ideas of other interviewees, it would have been preferable for these specific in-depth findings to be validated by being triangulated by another interviewee who would be interviewed specifically for administrative challenges. This lack of additional validation represents a limitation of these findings.

Nevertheless, the main administrative considerations reflected the general literature review on administrative challenges for eVoting. It can be argued that the existing knowledge on eVoting has been extended to the Greek context, validating many aspects of the challenges that are not only unique to Greece, using the Shat & Abbott (2016) framework. The external validation of the administrative findings, while providing specific considerations to the Greek case study, also in many aspects aligns with broader general challenges. So, since a previously used theory

that was supported by a relevant eVoting literature review has been applied it can be commented that analytic generalization through a single case study has been reached and thus external validity has been approached (Thiel, 2021; Yin, 2017).

To overarchingly answer the first sub-question of what the challenges for an eVoting initiative for Greece's national elections are. At this point, Greece lacks many of the fundamental requirements to adopt eVoting for its national elections. After analyzing and identifying the sociopolitical, legal, technological, and now administrative challenges for eVoting it must be noted that an overarching requirement and thus challenge is that it should reflect traditional voting in every aspect. For example, the decision-making maturity that ensures the design of paper ballots and that upholds the fundamental legal voting principles and thus creates trust must also be applied to eVoting to support and promote democracy. The same can be said for all the aspects that are parts of the theoretical framework in use. The same political will, levels of trust, will of the people to vote, and the same effective administrative, legal, and for eVoting technological infrastructure must be met. Specifically for the technological infrastructure as Budurushi et al. (2016) mentioned the constitutional requirements of voting should be translated into technical ones for eVoting. For example, as will be elaborated in the next chapter, the secrecy of the vote and the free, fair, and transparent elections should be protected by the eVoting's system technical characteristics.

Even though there was a general agreement that the technological infrastructure, know-how, and staffing are overall adequate, matters of trust and the digital divide are affecting the sociopolitical, administrative, legal, and technological aspects of the adoption of eVoting. The digital divide affects the comprehensive capabilities of the political leaders, the voters, and the legal experts to promote, support, use, and audit such technologies effectively. Nevertheless, when it comes to the legal challenges indeed the Greek "lawmaker" was creative when he/she was legally drafting postal voting for the current EU elections based on the Constitution. This can signal the same creativity to be used for eVoting. However, it is the opinion of the author of this thesis that this willingness from the politicians to promote postal voting after so many years and after so many countries using it already came from the fact that it was pushed by OSCE after the organization realized the challenges to the accessibility of the voters and proposed for Greece to undertake efforts to make alternative voting methods (OSCE-ODIHR, 2023). Of course, compared with eVoting postal voting does not use the same amount of technology, so it was easier to comprehend as well. The former statement of policies getting pushed for Greece can also reflect what was mentioned in the case study literature by Lampropoulou (2021) who found out that agentification policies in Greece were rather pushed by the EU and that they never became coherent because of the centralized and politicized tradition of the Greek State

On the other hand, trust indeed poses many challenges for eVoting to be adopted in Greece. First, it stops the political parties from cooperating. Then it stops them and the state from trusting the voters to eVote in an uncoerced manner due to the password sharing phenomena which also derive from the digital divide. Then matters of corruption centralism and patronage in the public administration also create distrust among the administrators and stop these initiatives from growing and evolving in a bottom-up manner locally. This could foster trust among voters and local politicians, but it is currently not being implemented. This is compounded by a lack of trust in the system's safety due to potential security issues. Additionally, the shortage of adequately trained administrative personnel, affected by digital illiteracy, leads to reliance on technocrats, creating further obscurity. These primary challenges of trust and the digital divide deter politicians from endorsing and promoting eVoting, which in turn discourages their followers (voters). However, it was shown that this relationship is also reciprocal.

Additionally, it must be reminded that IT tools are not a panacea. If factors like the lack of trust and confidence in the public administration are affecting the democratic institutions and processes then the technology that will be in place, will not solve those problems and will not empower the voter, but in contrast, it might affect the voter's confidence negatively (Krimmer, 2012; OSCE, 2013). For Greece thus far that is the case since fundamental trust and confidence in skills are missing. It is the opinion of the author, that these are the more fundamental sociopolitical challenges to eVoting. If those challenges are overcome, then the "second wave" challenges will enter the fray. These are matters of the political ideology behind the usage and support of initiative. Followed by matters of the triviality of elections as an institution.

Both the interviewees and the author agree that if the aforementioned challenges are overcome there will be no fear from the politicians of losing authority if they promote eVoting and the conspiracy demagogues can be disregarded since the conditions for its adoption are going to be more mature. However, the Middleman paradox might always take place as a challenge because there is the probability that many politicians will dislike electoral changes because of the use of eVoting which will make voters vote for the party and not for a specific candidate or a specific municipal district. The same politicians might also be subject to pressure from their supporters working in the polling stations that will also lose their temporary assignments and thus State allowances. Finally changes in the population of the municipalities might indeed still "scare" the local politicians leading them to stop eVoting from being promoted. One final significant sociopolitical challenge to consider, after addressing issues of trust and the digital divide, is the fiscal cost. Overcoming the technical security challenges of the eVoting system requires substantial investment, as so does organizing the administrative aspects and promoting digital infrastructure in remote areas of Greece as was proposed by many others in this and the technological challenges chapter.

The same considerations can be extended to the legal challenges since indeed the legal personnel that will be involved in eVoting should be digitally literate. Moreover, laws must be created that will accompany possible new-found politically neutral and independent organizations that will support eVoting. Together with those laws and regulations possibly a new framework of the role of Greece's Data Protection Authority in the design of the system and of course changes in the Electoral Law of Greece should be considered. Moreover, it was found that because of the digital divide and the fact that different social groups can be excluded from the digital processes of eVoting, it should be guaranteed legally that eVoting will be an alternative to the traditional ballot. First, with that, a better balance between the principles of voting is upheld since access to elections has become universal. Second, matters of digital coercion of the vote might be decreased because the voter can always vote physically, which is also a requirement for the modus operandi protocol of eVoting. Consequently, in this way eVoting promotes democracy since it will provide further access to elections and not "deny" it to citizens who will not be able to use the technology.

To sum up the first subquestion, there are many political, social, technological, legal, and administrative challenges when it comes to eVoting adoption in Greece. All these challenges have instances that overlap with each other and affect each other. For example, matters of trust are challenging every aspect of the challenges, alongside the digital divide. Those factors empower other challenges like the lack of political will to promote the initiative. So according to OSCE (2010) when there is insufficient trust in a country's democratic context to guarantee fair elections or a lack of stakeholders with the necessary digital skills to ensure honest voting, counting, and reporting of results, implementing eVoting for national elections can be perilous for democracy. However, ZEUS the governmental online ballot is still used in Greece for inter-organizational elections. For example, in universities, agencies, hospitals, etc. This presumes a level of trust in this technology to be used. So why isn't also ZEUS proposed to conduct online elections for Greece? The answer alongside the role of the mentioned challenges for these existing technologies to be established for national elections in Greece will be found in the next chapter.

5.2 Sub-question 1.2 The role of the challenges of eVoting adoption for the already existing Greek technologies

This chapter will present and analyze expert opinions on the existing technologies that could support the implementation of eVoting in Greece's national elections. While some of these technologies were mentioned in the previous sub-question due to their relevance to the findings, this section will provide a more detailed discussion of established technologies such as ZEUS, along with a brief elaboration on the previously mentioned technologies. The results of this chapter reflect on different quotes from the interviewees that were coded based on the

framework in use, exactly as it was mentioned in the methodology. For example, quotes about the capability of ZEUS and other technologies to enable and conduct eVoting were coded as Capability: Technological Infrastructure. However, the role of the gathered challenges for these technologies is derived from the results and the discussion of sub-question 1.1.

Initially, it must be noted that it was found during the interviews that especially during COVID-19 all the interviewees have used ZEUS before for elections in their respective workplaces. So all of the interviewees had both an expert opinion and a user experience with this technology. Moreover, Tech 1 being one of the directors for the company responsible for the design of Greece's eServices, was also one of the experts that created ZEUS. He shared his experience and his opinion on why ZEUS has not yet been promoted to be used for national elections. As mentioned before a technological but also administrative requirement for the successful adoption of eVoting is the use of a public digital identity scheme(State Electoral Service of Estonia, 2017). In Greece, the main enabler for such an initiative is the eIDAS regulation that promotes and facilitates national digital identification all over the EU (digiGOV-innoHUB, 2023; European Commission, n.d.). Moreover, Greece pushed for the creation of new updated "digital" as it named them identity cards, which replaced the outdated plastic cards (Hellenic Republic (Government), 2023). It was also found from the interviews that eIDAS has not yet been established for Greece and that the new identity cards have not yet been fully promoted or even issued (SocioPol 4 personal communication, April 2, 2024).

It was also argued by one interviewee that citizens can use their secure Greek digital registration for eServices (taxis net/gov.gr credentials) to log in for eVoting and verify themselves with a two-factor authenticator by using their phones. That is because these "taxisnet" credentials are more commonly used and resemble a digital public identity scheme (SocioPol 3, personal communication, June 18, 2023). Nevertheless, this opinion has faced a multitude of opposing viewpoints. That is because the citizens of Greece are sharing their taxisnet credentials with their accountants or with people who are more acquainted with technology to do their eServices for them (SocioPol 1, personal communication, June 22, 2023; Legal 2, personal communication, March 21, 2024; Tech 2, personal communication, March 27, 2024; SocioPol 4, personal communication, March 2, 2024). That password-sharing phenomenon leads to possible coercion and the danger of the distorted outcome of the eVotes since those proxy voters can eVote something else than what they were asked to. Ultimately leading to the use of these credentials to log in to eVoting for national elections being dangerous for democracy and the principles of elections as mentioned by OSCE (2010). So, as was mentioned before as a challenge a new and more used digital identity scheme must be in place for eVoting in Greece. It must also be noted that the same interviewee who suggested using the taxisnet credentials also recommended the Greek digital document signature technology for authenticity and digital signing, following the example of eVoting in Estonia (SocioPol 3,

personal communication, June 18, 2023; State Electoral Service of Estonia, 2017). However, no other interviewee commented on this statement. This can be marked as a limitation of the internal validity of this specific finding.

Tech 1 being one of the designers of ZEUS informed in his interview that his system follows the protocols of the Estonian eVoting system the only difference is that, unlike Estonia's system, which uses SIM identity cards for login and authentication, ZEUS provides users with login credentials for this purpose. Moreover, he elaborated that there is an election committee that can be used as a contact point for the users/eVoters of the system. After casting the eVote the interviewee commented that encryption and decryption protocols take place exactly like the Estonian system and a "cryptographic mixing" technique is used to differentiate the authentication of the eVote from the content of the eVote, so that in the end the tallier who will decrypt the eVote will know only what the eVoter eVoted and if he/she is eligible to eVote without revealing his/her identity. A verification is sent to the eVoter that his eVote was counted correctly. Of course, a voter can cast his ballot how many times he/she wants until the end of the voting period to avoid matters of coercion and in case the voters change their minds. The interviewee mentioned that he has not heard of any complaints about the use of ZEUS. Also, he supported that in GRNET they make due diligence when it comes to the security of the system. However, if ZEUS will be used for national elections then because of the importance of this "attack vector" an upgrade on the system security should probably take place (Tech 1, personal communication, March 27, 2024). So one characteristic from the technical side is that ZEUS should be upgraded for its security. A statement that agrees with the rest of the interviewees.

It is clear that except for the lack of a digital identity scheme and the possible security upgrades the ZEUS will need, the system follows indeed the same processes that eVoting in Estonia does according to the literature (State Electoral Service of Estonia, 2017). When asked why ZEUS has not yet been promoted for national elections Tech 2 answered for two main reasons. First, decisions like that are made in a cost-benefit analysis, meaning fiscally. So the decision-makers probably found the traditional ballot cheaper than eVoting as a main method of elections. Second, he said that traditional voting is more trusted and has been used for ages, alluding to a matter of trust in the method of voting and reflecting the findings of the previous sub-question. Other interviewees who have also used ZEUS found its processes difficult to understand, for example with the rejection of its use from the MoI (Tech 2, personal communication, March 27, 2024), reflecting on the unpreparedness of administrators for such technologies. The same interviewee also mentioned that the need to vote non-physically during COVID-19 made the use of ZEUS imperative and that is why it was generally used by the public sector (including universities) and that indeed its security levels need an upgrade that will be very costly.

Moreover his colleague in the MoI, SocioPol 4 mentioned and agreed with SocioPol 1, Legal 1, Legal 2, and SocioPol 2 that it is different to use this technology for smaller scale elections usually from people of an organization with some digital skills and technology comprehension and different for widespread use for national elections. He elaborated on the sociopolitical findings from sub-question 1.1, emphasizing that the scale of participants is larger and that there are varying levels of trust and understanding/comprehension of the technology. Ultimately, different stakes are at play, like the future of the country (personal communication, April 2, 2024; SocioPol 1, personal communication, June 22 , 2023; Legal 1, personal communication, March 6, 2024; Legal 2 , personal communication, March 21, 2024; SocioPol 2, July 19, 2023). Two final system requirements were mentioned by Legal 2, who as a reminder has researched eVoting technologies and is also a professor of systems engineering. First, the system must ensure that the eVoting ballots remain sealed until the traditional ballots are opened for counting. In other words, the system should be secure enough to prevent eVote leaks before the final election outcome, as any breach could influence voters' choices. Second, she underlined that the verification of the eVote that is given to the voter after he/she eVoted must be in a specific way that will not show exactly what the voter eVoted. That is because for Greece this will empower clientele relations and patronage. After all, the voter can always go to his/her patrons and prove that he/she eVoted for them (personal communication, April 21, 2024). This finding reflects the challenge of clientele relations in the public sector of Greece. The findings of this chapter are shown in Table 5.5

Table 5.5 Findings on the role of the challenges for the existing Greek eVoting enabling technologies (Original synthesis, assisted by Chat GPT)

Existing technology	**Description**
Gov. gr Credentials Log in to the eVoting System	eIDAS not established, new IDs not promoted, taxisnet credentials common, password-sharing issues, potential coercion, risk of vote distortion.
ZEUS	Needs a security upgrade to prevent eVote leaks. Not chosen because traditional voting is cheaper and more trusted. ZEUS has difficult processes which reflects on the unprepared administrators. Not ready for national elections because of the larger participant scale, varying levels of trust/understanding of technology from all the stakeholders and stakes higher (country's future). Verification of the vote needs to be as general as possible to avoid empowering clientele relations.
Digital Signature Technology	No findings.

After analyzing the opinions of the experts for the already existing technologies and specifically for ZEUS it can be said that the role of the challenges identified in sub-question 1.1 serves to guide the enhancement of Greece's existing technological infrastructure, enabling

the creation and support of a legitimate, efficient, fair, secure, and unchallenged eVoting system. In other words, these challenges are consultive and aim to promote democracy, not hinder it. The challenges that were found in the previous sub-question point out requirements that are now validated and “tested” in the micro-example of an eVoting system that is in use in Greece. Except for the fact that a digital identity scheme that is widely used by the citizens should be re-introduced for eVoting to avoid password sharing because of the digital divide; ZEUS as an eVoting system is not ready to be promoted for more widespread elections. That is because, although ZEUS shares similar technical characteristics with Estonia's established eVoting system, its security levels are questioned and for them to be upgraded it will be costly. Moreover, it requires varying levels of trust and understanding of the technology from voters, politicians, and administrators. These requirements have supposedly been carefully approached throughout the years when it comes to traditional voting.

After analyzing and answering both the sub-questions the answer to the main research question “Why has Greece not adopted eVoting for its national elections?” is as follows. Even though the technological infrastructure of Greece according to the interviewees is acceptable. When it comes to eVoting there are further social, political, legal, administrative, and technological requirements that lead to challenges that must be faced for its adoption in Greece. These challenges are interconnected and often reinforce each other, with trust issues and the digital divide acting as prominent factors that affect the rest. These challenges hinder the promotion of eVoting initiatives, for example by politicians and by the centralized public administration and raise concerns about the fairness and integrity of elections. These considerations are validated by the fact that indeed eVoting technologies such as ZEUS exist but for the mentioned reasons they are not promoted for national elections.

Alongside these prominent factors, additional nuanced reasons are contributing to the lack of eVoting adoption. For example, the disabling role of bottom-up initiatives of the centralized Greek government. Variations in political ideology influencing voting preferences, fear of demagogues and conspiracy theorists, the "Middleman paradox" where politicians can impede eVoting for their own benefit, the imperative to redesign the system to mitigate coercion risks, and the necessity of creating a secure digital identity scheme to prevent password sharing. Together with implementing eVoting in parallel with traditional methods and enhancing eVoting security.

Addressing these issues would incur additional fiscal costs and also organizational costs to educate the administrators and deal with the mistrust and the silos in the public sector that damages a cohesive approach from all the stakeholders involved. According to OSCE (2010), when trust in democratic processes is lacking, and there is insufficient digital literacy among stakeholders, the use of eVoting in national elections can pose risks to democracy. So, if it is

assumed that politicians are benevolent taking this under consideration should discourage them from undertaking the promotion of eVoting under the current state of Greece. Finally, the author believes that as a society, we have reached a technological potential, and we can make fair use of technology but that is only if we have our priorities and our existing protection mechanisms in line.

6 Conclusion

This thesis problematized that absence in Greek elections is high because there is no alternative to traditional voting and because people must travel to their specific polling stations to vote. This mobility to polling stations discourages voters from traveling, especially if they live or work far away from them. Additionally, the decreasing population of Greece and the rise of expatriates makes remote voting even more important. It was also deduced that the expat registration for the last national elections was low since they also had to travel long distances to where there was an appointed Greek polling station in their respective residing countries. This Odyssey for a voter to vote along with accessibility concerns raised by OSCE for the hospitalized and people with disabilities, highlight the importance of an alternative remote voting method. Greece approached the matter of eVoting for national elections, but this policy got lost as well somewhere along the way.

This thesis asked as a main research question why Greece has not adopted eVoting for its national elections. The answer is that eVoting has not yet been adopted because there are political, social, technological, administrative, and legal challenges that hinder its adoption. Additionally, many of these challenges stem from the lack of appropriate prerequisites for introducing eVoting into a democratic context. Finally, it was also found that these challenges serve as guidance for improving the Greek technological infrastructure to enable the effective and fair implementation of eVoting. In other words, for eVoting to be introduced to a democratic context it must fulfill specific requirements that pose specific political, social, legal, technological, and administrative challenges. It would be irresponsible to consider that Greece is ready for eVoting because the impact of technology on democratic processes mirrors the state of democracy within the context where this technology is applied.

Democracy in Greece is suffering for historical and contemporary reasons that have fueled a mutual general distrust towards technology, the democratic context that supports it, the politicians that promote it, and the voters that will use it. Additionally, this distrust is empowered by the digital divide that especially affects the technological understanding of politicians, the capabilities of the administration for eVoting, and the voters to eVote in a fair and uncoerced manner. Greece’s clientele relations patronage and centralized government prove extra challenging for matters of bottom-down local eVoting emergence, they promote distrust and obscurity as an antithesis to transparency for the system.

Moreover, because of the digital divide, it is imperative for eVoting to be supportive and parallel to traditional voting which in turn creates additional administrative challenges since the seamless cooperation between all the stakeholders from the Ministries and the High Court

of Greece to the polling administrators and the eVoting technology is crucial. Nevertheless, this cooperation is difficult as the public sector of Greece lacks cohesion, and interoperability and is subject to departmental silos. For the needs of eVoting a more secure system and a new digital public identity that is commonly used must be implemented which creates extra administrative, technological, and fiscal sociopolitical challenges. The aforementioned must of course be surrounded by a new and developed legal framework that is staffed by legal experts with digital skills to further empower the verifiability and legality of the system. Even if these challenges are overcome there is a plethora of other challenges to follow that this thesis also identified. Additionally, despite Greece making important steps towards its digitalization, all these requirements challenge the introduction and adoption of eVoting for its national elections. That is because eVoting must uphold the same democratic principles and remain as unchallenged as traditional voting. The use of NVT does not build confidence immediately and eVoting will not solve a crisis of faith in democratic institutions, but it will try and provide access and solve the physical barriers to the voting procedure.

This thesis managed to fill the research gap that existed on the social, political, administrative, and technological challenges of eVoting in Greece. It updated the literature on the legal challenges for eVoting that was conducted before the blooming of the Greek eGovernacne infrastructure during COVID-19. Moreover, except from filling the mentioned gaps in the research it also validated and extended the knowledge of the challenges behind the adoption of eVoting by identifying the transferability of these challenges into different contexts and ultimately finding results that reflect and extend the existing literature. Furthermore, it can be argued that it managed to contribute to practice as well. That is because it provides useful focal points for future policymakers if they decide to introduce eVoting in Greece. Additionally, its results are supported by experts' opinions giving in-depth insights into Greece and its eVoting requirements and challenges. This can provide other experts the ability to learn and adapt from the Greek case and potentially use those findings in practice. Finally, it has also societal relevance since if these challenges and requirements are met and eVoting is implemented then accessibility to the elections will be empowered.

However, this thesis certainly has its limitations. First, there were framework limitations. For example, the framework in use is less established compared to other frameworks, which may limit its acceptance and application. So, future research can focus on identifying eVoting challenges in Greece based on other frameworks such as the eVoting Mirabilis framework (Krimmer & Fischer, 2017) which is more established and used in other contexts (Krimmer & Schuster, 2008). Moreover, because the findings on eVoting are always subject to contextual differences (Trechsel et al., 2016), results between Greece and the case of Palestine where the framework in use was based were a bit different. For example, in Greece, it was found that there is a mutually interconnected relationship between trust, the political will of the politicians,

and the political will of the voters, whereas, for the framework in use, this relation highlighted mostly the importance of the will of the politicians. In this regard, further research can focus on shedding light on this relationship in different country contexts. Another limitation is the bias of the author being part of the Greek society and the bias of the expert's opinion. Because nothing can be done for the first bias, at least for the experts' bias the research strategy followed triangulation methods to empower the validity of its results. However, that was not the case specifically for the administrative challenges. The initial results from those challenges came from the opinions of all the experts and were elaborated by only one expert. This marks a limitation for the validity of these results. So, future research can focus solely on identifying the in-depth factors behind the administrative challenges for eVoting in Greece by using at least two interviewees.

Moreover, the voters' opinion was not assessed and the political will of the voters for such an initiative relied on experts' opinions that have researched such topics. So, another future research can revolve around the Greek voters' opinion of eVoting, especially after the EU elections of 2024 remote postal voting in Greece was in effect. A limitation of the social part of the sociopolitical findings is that more challenges like linguistic and accessibility challenges, might have been identified alongside challenges to the verifiability of eVoting elections if interviewees from different civil society organizations representing minorities and media experts had been included in this study. This marks both a limitation but also future research by interviewing experts from civil society and the media that can further contribute to the academic and societal relevance of this kind of research.

Another limitation that arose is the fact that interviewing politicians or members specifically of the current government (New Democracy party) could have better supported the internal validity of the findings, for example by providing a more positive counter-argumentative perspective. Additionally, instead of interviewing a caretaker minister and one candidate politician for the (socio)political challenges, the study could have included the opinions of two active politicians of different parties or one non-caretaker minister alongside one active politician. This approach would provide a broader triangulated and politically balanced perspective on their views regarding being elected through eVoting technology. Nevertheless, the caretaker minister provided enough insider information on many aspects of eVoting and on how political decision-making for these innovations is happening. In other words, future research could focus only on the political challenges but this time the interviewees could be two rival politicians or one that holds office and the other that is elected. Perspectives that align with the literature review on the political neutrality challenge of eVoting.

Additionally, only one interviewee talked about the role that the existing digital signature technology in Greece can have for the digital signing of an eVote. This limitation to the findings

can be translated into further research. For example to asses the role of the digital signature technology for eVoting. Finally, through the legal interviews, an interesting topic for research was found. That is the role of the Greek Data Protection Authority in the design of eVoting. The Authority already plays a consulting role for postal voting and other online voting interparty elections such as that of SYRIZA in 2024.

References

Adams, G. B. (1992). Enthralled with Modernity: The Historical Context of Knowledge and Theory Development in Public Administration. *Public Administration Review*, *52*(4), 363–373. https://doi.org/10.2307/3110396

Adams, W. (2015). *Conducting Semi-Structured Interviews*. https://doi.org/10.1002/9781119171386.ch19

Adcock, R., & Collier, D. (2002). Measurement Validity: A Shared Standard for Qualitative and Quantitative Research. *American Political Science Review*, *95*(3), 529–546. https://doi.org/10.1017/S0003055401003100

Agate, V., De Paola, A., Ferraro, P., Lo Re, G., & Morana, M. (2021). SecureBallot: A secure open source e-Voting system. *Journal of Network and Computer Applications*, *191*, 103165. https://doi.org/10.1016/j.jnca.2021.103165

AlHogail, A., & AlShahrani, M. (2019). Building Consumer Trust to Improve Internet of Things (IoT) Technology Adoption. In H. Ayaz & L. Mazur (Eds.), *Advances in Neuroergonomics and Cognitive Engineering* (pp. 325–334). Springer International Publishing. https://doi.org/10.1007/978-3-319-94866-9_33

Aziz, A. (2019). Coercion-Resistant E-Voting Scheme with Blind Signatures. *2019 Cybersecurity and Cyberforensics Conference (CCC)*, 143–151. https://doi.org/10.1109/CCC.2019.00009

Bahmanziari, T., Pearson, J. M., & Crosby, L. (2003). Is Trust Important in Technology Adoption? A Policy Capturing Approach. *Journal of Computer Information Systems*, *43*(4), 46–54. https://doi.org/10.1080/08874417.2003.11647533

Baker, J., & Lovell, K. (2006). *How expert are the experts? An exploration of the concept of 'expert' within Delphi panel techniques* (Vol. 14). Nurse Researcher. https://doi.org/10.7748/nr2006.10.14.1.59.c6010

Bartunek, J. M., & Rynes, S. L. (2010). The Construction and Contributions of "Implications for Practice": What's in Them and What Might They Offer?

Academy of Management Learning & Education, *9*(1), 100–117. https://doi.org/10.5465/amle.9.1.zqr100

Bawden, D. (2008). Origins and concepts of digital literacy. *Digital Literacies: Concepts, Policies and Practices*, *30*(2008), 17–32.

Bogner, A., Littig, B., & Menz, W. (2009). Introduction: Expert Interviews — An Introduction to a New Methodological Debate. In A. Bogner, B. Littig, & W. Menz (Eds.), *Interviewing Experts* (pp. 1–13). Palgrave Macmillan UK. https://doi.org/10.1057/9780230244276_1

Boufounou, P., Mavroudi, M., Toudas, K., & Georgakopoulos, G. (2022). Digital Transformation of the Greek Banking Sector in the COVID Era. *Sustainability*, *14*(19), Article 19. https://doi.org/10.3390/su141911855

Bouillet, M., & Darques, R. (2024). Living in Greece Outside Cities: Rural-Urban Relationships. In R. Darques, G. Sidiropoulos, & K. Kalabokidis (Eds.), *The Geography of Greece: Managing Crises and Building Resilience* (pp. 217–242). Springer International Publishing. https://doi.org/10.1007/978-3-031-29819-6_14

Bromme, R., Mede, N. G., Thomm, E., Kremer, B., & Ziegler, R. (2022). An anchor in troubled times: Trust in science before and within the COVID-19 pandemic. *PLOS ONE*, *17*(2), e0262823. https://doi.org/10.1371/journal.pone.0262823

Budurushi, J., Renaud, K., Volkamer, M., & Woide, M. (2016). An investigation into the usability of electronic voting systems for complex elections. *Annals of Telecommunications*, *71*. https://doi.org/10.1007/s12243-016-0510-2

Bustikova, L., & Corduneanu-Huci, C. (2017). Patronage, Trust, and State Capacity: The Historical Trajectories of Clientelism. *World Politics*, *69*(2), 277–326. https://doi.org/10.1017/S0043887116000265

Chevallier, M., Warynski, M., & Sandoz, A. (2006). *Success Factors of Geneva's e-Voting System*.

Chi, M., Muhammad, S., Khan, Z., Ali, S., & Li, R. Y. M. (2021). Is centralization killing innovation? The success story of technological innovation in fiscally

decentralized countries. *Technological Forecasting and Social Change*, *168*, 120731. https://doi.org/10.1016/j.techfore.2021.120731

Chondros, N., Delis, A., Gavatha, D., Kiayias, A., Koutalakis, C., Nicolacopoulos, I., Paschos, L., Roussopoulou, M., Sotirelis, G., Stathopoulos, P., Vasilopoulos, P., Zacharias, T., Zhang, B., & Zygoulis, F. (2014). Electronic Voting Systems – From Theory to Implementation. In A. B. Sideridis, Z. Kardasiadou, C. P. Yialouris, & V. Zorkadis (Eds.), *E-Democracy, Security, Privacy and Trust in a Digital World* (Vol. 441, pp. 113–122). Springer International Publishing. https://doi.org/10.1007/978-3-319-11710-2_11

Close, D. H. (2013). *Greek Civil War, The*. Routledge. https://doi.org/10.4324/9781315845654

Covert, K. (2011). *Ancient Greece: Birthplace of Democracy*. Capstone. https://books.google.com/books?hl=en&lr=&id=bQQAb6yWHHEC&oi=fnd&pg=PA6&dq=greece+the+birthplace+of+democracy&ots=vPSP_Y1Oe0&sig=QaFrjQxzOh63Q-63xF-yIsMilrk

Crompvoets, J., Vancauwenberghe, G., Bouckaert, G., & Vandenbroucke, D. (2011). Practices to Develop Spatial Data Infrastructures: Exploring the Contribution to E-Government. In S. Assar, I. Boughzala, & I. Boydens (Eds.), *Practical Studies in E-Government: Best Practices from Around the World* (pp. 229–248). Springer. https://doi.org/10.1007/978-1-4419-7533-1_13

Cruz, C., & Keefer, P. (2015). Political Parties, Clientelism, and Bureaucratic Reform. *Comparative Political Studies*, *48*(14), 1942–1973. https://doi.org/10.1177/0010414015594627

Dadashpoor, H., & Yousefi, Z. (2018). Centralization or decentralization? A review on the effects of information and communication technology on urban spatial structure. *Cities*, *78*, 194–205. https://doi.org/10.1016/j.cities.2018.02.013

Dal Bó, E., Dal Bó, P., & Snyder, J. (2009). Political Dynasties. *The Review of Economic Studies*, *76*(1), 115–142. https://doi.org/10.1111/j.1467-937X.2008.00519.x

Delis, A., Gavatha, K., Kiayias, A., Koutalakis, C., Nikolakopoulos, E., Paschos, L., Rousopoulou, M., Sotirellis, G., Stathopoulos, P., Vasilopoulos, P., Zacharias†, T., & Zhang, B. (2015). *Pressing the button for European elections: Verifiable e-voting and public attitudes toward internet voting in Greece*. https://doi.org/10.1109/EVOTE.2014.7001141

Desmarchelier, B., & Fang, E. (2016). National Culture and Innovation diffusion. Exploratory insights from agent-based modeling. *Technological Forecasting and Social Change, 105*, 121–128. https://doi.org/10.1016/j.techfore.2016.01.018

digiGOV-innoHUB. (2023, June 15). *Διαδικτυακή παρουσίαση: Συστήματα ηλεκτρονικής ταυτοποίησης (eID) και ο κανονισμός eIDAS – Πέμπτη 15 Ιουνίου 2023 – digiGOV-innoHUB*. https://digigov.innohub.gr/eidas-event/

Doulis, T. (2011). *The Iron Storm: The Impact on Greek Culture of the Military Junta, 1967-1974*. Xlibris Corporation.

Drechsler, W., & Madise, Ü. (2004a). *Electronic Voting in Estonia* (pp. 97–108). https://doi.org/10.1057/9780230523531_6

Drechsler, W., & Madise, Ü. (2004b). Electronic Voting in Estonia. In N. Kersting & H. Baldersheim (Eds.), *Electronic Voting and Democracy* (pp. 97–108). Palgrave Macmillan UK. https://doi.org/10.1057/9780230523531_6

EDYTE-GRNET. (2016, April 18). *Company—GRNET Website*. https://grnet.gr/en/company/

EDYTE-GRNET-ZEUS. (n.d.). *Zeus Electronic Voting*. Retrieved April 30, 2024, from https://zeus.grnet.gr/zeus/

Ehin, P., Solvak, M., Willemson, J., & Vinkel, P. (2022). Internet voting in Estonia 2005–2019: Evidence from eleven elections. *Government Information Quarterly*, *39*(4), 101718. https://doi.org/10.1016/j.giq.2022.101718

Eisenstadt, S. N., & Roniger, L. (1984). *Patrons, Clients and Friends: Interpersonal Relations and the Structure of Trust in Society*. Cambridge University Press.

Espig, A., Mazzini, I. T., Zimmermann, C., & de Carvalho, L. C. (2021). National culture and innovation: A multidimensional analysis. *Innovation & Management Review*, *19*(4), 322–338. https://doi.org/10.1108/INMR-09-2020-0121

European Commission. (n.d.-a). *eIDAS Regulation | Shaping Europe's digital future*. Retrieved May 31, 2024, from https://digital-strategy.ec.europa.eu/en/policies/eidas-regulation

European Commission. (n.d.-b). *Single digital gateway—European Commission*. Retrieved May 30, 2024, from https://single-market-economy.ec.europa.eu/single-market/single-digital-gateway_en

European Union. (2010, December 31). *Tolerance and Cultural Diversity Discourses in Greece | European Website on Integration*. https://migrant-integration.ec.europa.eu/library-document/tolerance-and-cultural-diversity-discourses-greece_en

European Union. (2018, November 7). *What is the GDPR? Europe's new data privacy and security law*. GDPR.Eu. https://gdpr.eu/what-is-gdpr/

Evriviades, M. L. (1979). Greece After Dictatorship. *Current History*, *77*(451), 162–185.

Faerman, S. (2021). Centralization and Decentralization: Balancing Organizational and Employee Expectations. *Global Encyclopedia of Public Administration, Public Policy, and Governance*. https://www.academia.edu/93158698/Centralization_and_Decentralization_Balancing_Organizational_and_Employee_Expectations

Fang, T. (2003). A Critique of Hofstede's Fifth National Culture Dimension. *International Journal of Cross Cultural Management*, *3*(3), 347–368. https://doi.org/10.1177/1470595803003003006

Findley, M. G., Kikuta, K., & Denly, M. (2021). External Validity. *Annual Review of Political Science*, *24*(Volume 24, 2021), 365–393. https://doi.org/10.1146/annurev-polisci-041719-102556

Fossey, E., Harvey, C., Mcdermott, F., & Davidson, L. (2002). Understanding and Evaluating Qualitative Research. *Australian & New Zealand Journal of Psychiatry*, *36*(6), 717–732. https://doi.org/10.1046/j.1440-1614.2002.01100.x

Fosso Wamba, S., Akter, S., Edwards, A., Chopin, G., & Gnanzou, D. (2015). How 'big data' can make big impact: Findings from a systematic review and a longitudinal case study. *International Journal of Production Economics*, *165*, 234–246. https://doi.org/10.1016/j.ijpe.2014.12.031

Fusco, F., Lunesu, M. I., Pani, F. E., & Pinna, A. (2018). Crypto-voting, a Blockchain based e-Voting System. *KMIS*, 221–225. https://www.scitepress.org/PublishedPapers/2018/69621/69621.pdf

General Secretariat for Legal and Parliamentary Affairs, G. S. (n.d.). *Γενική Γραμματεία Νομικών και Κοινοβουλευτικών Θεμάτων | Κυβερνήσεις από το 1909 έως σήμερα [General Secretariat for Legal and Parliamentary Affairs | Governments from 1909 to the present day]*. Retrieved April 12, 2024, from https://gslegal.gov.gr/?page_id=776&sort=time

Georgiadou, V. (2013). Right-wing populism and extremism: The rapid rise of "Golden Dawn" in crisis-ridden Greece. *Right-Wing in Europe*, 75.

Gerlach, J., & Gasser, U. (2009). *Three Case Studies from Switzerland: E-Voting*. https://www.alexandria.unisg.ch/handle/20.500.14171/76893

Gibson, J. P., Krimmer, R., Teague, V., & Pomares, J. (2016). A review of E-voting: The past, present and future. *Annals of Telecommunications*, *71*(7), 279–286. https://doi.org/10.1007/s12243-016-0525-8

Gomm, R., Hammersley, M., & Foster, P. (2000). *Case Study Method: Key Issues, Key Texts*. SAGE.

Gonzálvez-Gallego, N., & Nieto-Torrejón, L. (2021). Can open data increase younger generations' trust in democratic institutions? A study in the European Union. *PLOS ONE*, *16*(1), e0244994. https://doi.org/10.1371/journal.pone.0244994

Goodman, L. A. (1961). Snowball Sampling. *The Annals of Mathematical Statistics*, *32*(1), 148–170.

Grewal, G. S., Ryan, M. D., Bursuc, S., & Ryan, P. Y. A. (2013). Caveat Coercitor: Coercion-Evidence in Electronic Voting. *2013 IEEE Symposium on Security and Privacy*, 367–381. https://doi.org/10.1109/SP.2013.32

Gritzalis, D. A. (2002). Principles and requirements for a secure e-voting system. *Computers & Security*, *21*(6), 539–556. https://doi.org/10.1016/S0167-4048(02)01014-3

Hamers, S. (2021). *The effect of culture on innovation initiation and innovation implementation, a comparative study using Hofstede's cultural dimensions and the Global Innovation Index.* https://theses.ubn.ru.nl/handle/123456789/11370

Hayashi, E., & Baranauskas, M. C. (2008). Facing the digital divide in a participatory way – an exploratory study. *International Federation for Information Processing Digital Library; HUMAN-COMPUTER INTERACTION SYMPOSIUM (HCIS 2008);* https://doi.org/10.1007/978-0-387-09678-0_13

Hellenic Republic (Government). (2021). *Βίβλος Ψηφιακού Μετασχηματισμού 2020-2025 [Digital Transformation Bible 2020-2025]*. https://digitalstrategy.gov.gr/en/

Hellenic Republic (Government). (2023, September). *Ραντεβού για την έκδοση δελτίου ταυτότητας [Book an appointment for the new identity card]*. Gov.Gr. https://www.gov.gr/ipiresies/polites-kai-kathemerinoteta/stoikheia-polite-kai-tautopoietika-eggrapha/id

Higgins, H. B. (1905). The Rigid Constitution. *Political Science Quarterly*, *20*(2), 203–222. https://doi.org/10.2307/2140397

Hjálmarsson, F. Þ., Hreiðarsson, G. K., Hamdaqa, M., & Hjálmtỳsson, G. (2018). Blockchain-based e-voting system. *2018 IEEE 11th International Conference on Cloud Computing (CLOUD)*, 983–986. https://ieeexplore.ieee.org/abstract/document/8457919/

Hofstede, G. (2001). Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations. *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations*. https://doi.org/10.1016/S0005-7967(02)00184-5

Hofstede Insights Ltd. (n.d.). *Country comparison tool*. Retrieved April 23, 2024, from https://www.hofstede-insights.com/country-comparison-tool

Hyde, K. F. (2000). Recognising deductive processes in qualitative research. *Qualitative Market Research: An International Journal*, *3*(2), 82–90. https://doi.org/10.1108/13522750010322089

International Amnesty. (2023, January 26). *Greece's surveillance scandal must shake us out of complacency*. Amnesty International. https://www.amnesty.org/en/latest/news/2023/01/greeces-surveillance-scandal-must-shake-us-out-of-complacency/

International IDEA. (n.d.). *Online Electoral Cycle | International IDEA*. Retrieved May 2, 2024, from https://www.idea.int/data-tools/tools/online-electoral-cycle

Jamroga, W., & Tabatabaei, M. (2017). Preventing Coercion in E-Voting: Be Open and Commit. In R. Krimmer, M. Volkamer, J. Barrat, J. Benaloh, N. Goodman, P. Y. A. Ryan, & V. Teague (Eds.), *Electronic Voting* (pp. 1–17). Springer International Publishing. https://doi.org/10.1007/978-3-319-52240-1_1

Kaasa, A., & Vadi, M. (2010). How does culture contribute to innovation? Evidence from European countries. *Economics of Innovation and New Technology*, *19*(7), 583–604. https://doi.org/10.1080/10438590902987222

Karavites, P. (1980). Greek Politicians and the Palace, 1961-67. *Southeastern Europe*, *7*(1), 171–190. https://doi.org/10.1163/187633380X00137

Katsikas, S., & Gritzalis, S. (2017). Digitalization in Greece: State of Play, Barriers, Challenges, Solutions. In *Public Administration and Information Technology* (pp. 355–375). https://doi.org/10.1007/978-3-319-54142-6_19

Kattel, R., Drechsler, W., & Karo, E. (2022). *How to make an entrepreneurial state: Why innovation needs bureaucracy*. Yale University Press. https://books.google.com/books?hl=en&lr=&id=RvR-EAAAQBAJ&oi=fnd&pg=PP1&dq=how+to+make+an+entrepreneurial+state+&ots=EghjToy8xP&sig=UZ6pROVU7tJzW0ktmspfhbqyNdY

Keefer, P., & Vlaicu, R. (2008). Democracy, Credibility, and Clientelism. *The Journal of Law, Economics, and Organization*, *24*(2), 371–406. https://doi.org/10.1093/jleo/ewm054

Kerin, R. A., Varadarajan, P. R., & Peterson, R. A. (1992). First-Mover Advantage: A Synthesis, Conceptual Framework, and Research Propositions. *Journal of Marketing*, *56*(4), 33–52. https://doi.org/10.1177/002224299205600404

Kim, H., & Iijima, J. (2005). A Framework for Analysis of Systems Failure in Information Systems Integration. *Industrial Engineering and Management Systems*, *4*.

Komninos, D., Dermatis, Z., Papageorgiou, C., & Anastasiou, A. (2024). Comparative Analysis between Greece and Cyprus of the Impact of Digital Transformation on the Development of Quality of Life. *Theoretical Economics Letters*, *14*(1), Article 1. https://doi.org/10.4236/tel.2024.141014

Krimmer, R. (2012). *The Evolution of E-voting: Why Voting Technology is Used and How it Affects Democracy*.

Krimmer, R. (2019). *A Structure for New Voting Technologies: What They Are, How They Are Used and Why: Bridging the Gap Between Information Systems Research and Practice* (pp. 421–426). https://doi.org/10.1007/978-3-030-06234-7_39

Krimmer, R., & Fischer, D.-H. (2017). *The E-Voting Mirabilis: A Conceptual Framework for the Analysis of ICT in Elections.*

Krimmer, R., Melanie, V., Beckert, B., Küsters, R., Kulyk, O., Cid, D. D., & Solvak, M. (Eds.). (2020). *Electronic Voting*. Springer International Publishing. https://www.springerprofessional.de/en/electronic-voting/18413650

Krimmer, R., Ogonek, N., Gorbacheva, E., Räckers, M., Becker, J., Broucker, B., & Crompvoets, J. (2016). *Towards Efficient EGovernment: Identifying Important Competencies for EGovernment in European Public Administrations*.

Krimmer, R., & Schuster, R. (2008). *The E-Voting Readiness Index.* (p. 136).

Krimmer, R., & Volkamer, M. (2005). *Bits or Paper? Comparing Remote Electronic Voting to Postal Voting.* (p. 232).

Kymlicka, W. (2017). Liberal individualism and liberal neutrality. In *John Rawls* (pp. 235–258). Routledge. https://www.taylorfrancis.com/chapters/edit/10.4324/9781315251431-9/liberal-individualism-liberal-neutrality-kymlicka

Laboratory of Applied Political Research. (n.d.). *Publications | PolRes*. Retrieved April 30, 2024, from http://www.polres.gr/en/node/9

Laitsou, E., Kargas, A., & Varoutas, D. (2020). Digital Competitiveness in the European Union Era: The Greek Case. *Economies*, *8*(4), Article 4. https://doi.org/10.3390/economies8040085

Lampropoulou, M. (2021). Agencification in Greece: A parallel public sector? *International Journal of Public Sector Management*, *34*(2), 189–204. https://doi.org/10.1108/IJPSM-09-2020-0252

Legg, K. R. (1969). *Politics in Modern Greece*. Stanford University Press.

Lopez, G. I., Figueroa, M., Connor, S. E., & Maliski, S. L. (2008). Translation Barriers in Conducting Qualitative Research With Spanish Speakers. *Qualitative Health Research*, *18*(12), 1729–1737. https://doi.org/10.1177/1049732308325857

Mahrer, H., & Krimmer, R. (2005). Towards the Enhancement of e-Democracy: Identifying the Notion of the 'Middleman Paradox. *Inf. Syst. J.*, *15*, 27–42. https://doi.org/10.1111/j.1365-2575.2005.00184.x

Massou, E., Tsouvelas, G., & Prodromitis, G. (2023). Public trust, conspiracy theories and political ideology in the COVID-19 era: A cross-sectional Greek study. *Social Sciences & Humanities Open*, *8*(1), 100715. https://doi.org/10.1016/j.ssaho.2023.100715

Mavris, T. P. P., Yiannis. (2014, November 17). Crisis of institutions deepening in Greece. *The Press Project - Ειδήσεις, Αναλύσεις, Ραδιόφωνο, Τηλεόραση*. https://thepressproject.gr/crisis-of-institutions-deepening-in-greece/

Mazzucato, M. (2011). The entrepreneurial state. *Soundings*, *49*(49), 131–142.

Meier, A., & Terán, L. (2019). *eDemocracy & eGovernment: Stages of a Democratic Knowledge Society*. Springer International Publishing. https://doi.org/10.1007/978-3-030-17585-6

Ministry of Interior. (n.d.). *Υπουργείο Εσωτερικών – ΥΠΕΣ*. Retrieved April 30, 2024, from https://www.ypes.gr/en/

Mitrou, L., Gritzalis, D., & Katsikas, S. (2002). *Revisiting Legal and Regulatory Requirements for Secure E-Voting* (Vol. 86, p. 480). https://doi.org/10.1007/978-0-387-35586-3_37

Moore, A. (2018). Conspiracies, Conspiracy Theories and Democracy. *Political Studies Review*, *16*(1), 2–12. https://doi.org/10.1111/1478-9302.12102

Mulholland, P. (2021, January 26). Estonia leads world in making digital voting a reality. *Financial Times*. https://www.ft.com/content/b4425338-6207-49a0-bbfb-6ae5460fc1c1

Musiał-Karg, M. (2014). The use of e-voting as a new tool of e-participation in modern democracies. *Przegląd Politologiczny*, *4*.

Nikolakopulos, Ē. (2001). *Η καχεκτική δημοκρατία: Κόμματα και εκλογές, 1946-1967 (Vol. 4) [The stunted democracy: Parties and elections, 1946-1967]* (Vol. 4). Patakēs.

Ober, J., & Hedrick, C. (1996). *Demokratia: A Conversation on Democracies, Ancient and Modern*. Princeton University Press.

OECD. (2016). *GREECE OECD https://www.oecd.org › MLG-Framework-Greece PDF*. https://www.google.com/search?q=GREECE%0D%0AOECD%0D%0Ahttps%3A%2F%2Fwww.oecd.org+%E2%80%BA+MLG-Framework-Greece%0D%0APDF%0D%0ABecause+Greece+is+one+of+the+most+centralised+countries+in+the+OECD%2C+the+share+of+subnational+total+expenditure%2C+investment%2C+staff+expenditure%2C+and+public+&client=firefox-b-d&sca_esv=85596a7ea76cb4a1&sca_upv=1&biw=1408&bih=607&sxsrf=ACQVn08ezTTiNSux8D8gxcDkB54gHWo6Qw%3A1713626606846&ei=7t0jZueUM9WJ9u8PqpuBqA4&ved=0ahUKEwjnw7bJjNGFAxXVhP0HHapNAOUQ4d

UDCBA&uact=5&oq=GREECE%0D%0AOECD%0D%0Ahttps%3A%2F%2Fwww.oecd.org+%E2%80%BA+MLG-Framework-Greece%0D%0APDF%0D%0ABecause+Greece+is+one+of+the+most+centralised+countries+in+the+OECD%2C+the+share+of+subnational+total+expenditure%2C+investment%2C+staff+expenditure%2C+and+public+&gs_lp=Egxnd3Mtd2l6LXNlcnAi2QFHUkVFQ0UKT0VDRApodHRwczovL3d3dy5vZWNkLm9yZyDigLogTUxHLUZyYW1ld29yay1HcmVlY2UKUERGCkJlY2F1c2UgR3JlZWNlIGlzIG9uZSBvZiB0aGUgbW9zdCBjZW50cmFsaXNlZCBjb3VudHJpZXMgaW4gdGhlIE9FQ0QsIHRoZSBzaGFyZSBvZiBzdWJuYXRpb25hbCB0b3RhbCBleHBlbmRpdHVyZSwgaW52ZXN0bWVudCwgc3RhZmYgZXhwZW5kaXR1cmUsIGFuZCBwdWJsaWMgMgcQIxgnGOoCMgcQIxgnGOoCMgcQIxgnGOoCMgcQIxgnGOoCMgcQIxgnGOoCMgcQIxgnGOoCMgcQIxgnGOoCMgcQIxgnGOoCMgcQIxgnGOoCMgcQIxgnGOoCMhQQABiABBjjBBi0AhjpBBjqAtgBATIUEAAYgAQY4wQYtAIY6QQY6gLYAQFIxQlQxQVYxQVwAXgAkAEAmAEAoAEAqgEAuAEDyAEA-AEB-AECmAIBoAIMqAIMmAMMugYGCAEQARgBkgcBMaAHAA&sclient=gws-wiz-serp

OECD. (2023). *Oecd economic surveys: Greece 2023*. https://doi.org/10.1787/c5f11cd5-en

Organization for Security and Co-operation in Europe (OSCE). (2010). *Election Observation Handbook: Sixth Edition*. https://www.osce.org/odihr/elections/68439

Organization for Security and Co-operation in Europe (OSCE). (2013). *Handbook for the Observation of New Voting Technologies*. https://www.osce.org/odihr/elections/new_voting_technologies

OSCE-ODIHR. (2023, May 21). *Greece, Early Parliamentary Elections, 21 May 2023: Final Report*. https://www.osce.org/odihr/elections/greece/558300

Pantazi, M., Papaioannou, K., & van Prooijen, J.-W. (2022). Power to the People: The Hidden Link Between Support for Direct Democracy and Belief in Conspiracy

Theories. *Political Psychology*, *43*(3), 529–548. https://doi.org/10.1111/pops.12779

Pantazopulos, A. (2000). *Ο ελληνικός εθνικο - λαϊκισμός: η περίπτωση του ΠΑΣΟΚ [Greek national populism: the case of PASOK]* [Διδακτορική Διατριβή, Αριστοτέλειο Πανεπιστήμιο Θεσσαλονίκης (ΑΠΘ). Σχολή Νομικών, Οικονομικών και Πολιτικών Επιστημών. Τμήμα Νομικής-PhD Thesis, Aristotle University of Thessaloniki, Faculty of Law, Economics and Political Sciences. Department of Law, Faculty of Law, Political Sciences, Political Economy and Political Science, Faculty of Economics, Political Science and Political Science, Department of Law.]. http://hdl.handle.net/10442/hedi/25372

Papadoulis, K. J. (2006). Clientelism, Corruption and Patronage in Greece: A Public Administration Approach. *Teaching Public Administration*, *26*(1), 13–24. https://doi.org/10.1177/014473940602600102

Parker, C., Scott, S., & Geddes, A. (2019). Snowball Sampling. *SAGE Research Methods Foundations*. http://methods.sagepub.com/foundations/snowball-sampling

Pearson, M., & Coomber, R. (2010). The challenge of external validity in policy-relevant systematic reviews: A case study from the field of substance misuse. *Addiction*, *105*(1), 136–145. https://doi.org/10.1111/j.1360-0443.2009.02713.x

Pinault, T., & Courtade, P. (2012). *E-voting at expatriates' MPs elections in France*. Gesellschaft für Informatik eV. https://dl.gi.de/bitstreams/66bd4a1f-3f1c-4af4-b0bd-49abf8d621e0/download

Pipilou, E. (2022). *The prospect to establish and implement electronic voting in the electoral processes in Greece*. https://doi.org/10.26263/amitos-611

PWC. (2019). *Estonia – the Digital Republic Secured by Blockchain*. https://www.google.com/search?q=Estonia+%E2%80%93+the+Digital+Republic+Secured+by+Blockchain+pwc&client=firefox-b-d&sca_esv=65b627a4699ea87d&sca_upv=1&sxsrf=ACQVn09whpXC0KxSRPqgp8_Kj1cNi06fVw%3A1713441487836&ei=zwohZpHAMtOM9u8P0eC2yAQ&ved=0ahUKEwjR4-

b52suFAxVThv0HHVGwDUkQ4dUDCBA&uact=5&oq=Estonia+%E2%80%93+the+Digital+Republic+Secured+by+Blockchain+pwc&gs_lp=Egxnd3Mtd2l6LXNlcnAiOkVzdG9uaWEg4oCTIHRoZSBEaWdpdGFsIFJlcHVibGljIFNlY3VyZWQgYnkgQmxvY2tjaGFpbiBwd2MyBRAhGKABSOQOUJ8GWJcNcAF4AZABAJgBlQGgAeUEqgEDMC41uAEDyAEA-AEC-AEBmAIGoAL7BMICChAAGLADGNYEGEfCAgYQABgWGB7CAggQABiABBiiBJgDAIgGAZAGCJIHAzEuNaAHvA0&sclient=gws-wiz-serp#ip=1

Rinne, T., Steel, G. D., & Fairweather, J. (2012). Hofstede and Shane Revisited: The Role of Power Distance and Individualism in National-Level Innovation Success. *Cross-Cultural Research*, *46*(2), 91–108. https://doi.org/10.1177/1069397111423898

Rogan, E. L., & Shlaim, A. (2001). *The War for Palestine: Rewriting the History of 1948*. Cambridge University Press.

Samatas, M. (1993). Debureaucratization Failure in Post-Dictatorial Greece: A Sociopolitical Control Approach. *Journal of Modern Greek Studies*, *11*(2), 187–217.

Sanford, C., & Rose, J. (2007). Characterizing eParticipation. *International Journal of Information Management*, *27*(6), 406–421. https://doi.org/10.1016/j.ijinfomgt.2007.08.002

Sapountzis, A., & Condor, S. (2013). Conspiracy Accounts as Intergroup Theories: Challenging Dominant Understandings of Social Power and Political Legitimacy. *Political Psychology*, *34*(5), 731–752. https://doi.org/10.1111/pops.12015

Sauer, C. (1993). Understanding Support—Lessons from a case study. *Australasian Journal of Information Systems*, *1*(1), Article 1. https://doi.org/10.3127/ajis.v1i1.433

Sauer, C., & Davis, G. B. (2009). Information Systems Failure. In *Encyclopedia of Library and Information Sciences* (3rd ed.). CRC Press.

Sayre, W. S. (1958). Premises of Public Administration: Past and Emerging. *Public Administration Review*, *18*(2), 102–105. https://doi.org/10.2307/973789

Shat, F., & Abbott, P. (2016, August 24). *The Main Factors Affecting E-voting Service Implementation: The Case of Palestine*. The 25th International Conference on Information Systems Development (ISD2016), University of Economics in Katowice, Poland.

Signorini, P., Wiesemes, R., & Murphy, R. (2009). Developing alternative frameworks for exploring intercultural learning: A critique of Hofstede's cultural difference model. *Teaching in Higher Education*, *14*(3), 253–264. https://doi.org/10.1080/13562510902898825

Souitaris, V. (2001). Strategic Influences of Technological Innovation in Greece. *British Journal of Management*, *12*(2), 131–147. https://doi.org/10.1111/1467-8551.00190

State Electoral Service of Estonia. (2017). *General Framework of Electronic Voting and Implementation thereof at National Elections in Estonia* (IVXV-ÜK-0.99). https://www.regeringen.ax/sites/default/files/attachments/page/estonia-e-voting-2017.pdf

Stylianou, A. (2022). *Γνώση και πάθος στη νεότερη φιλοσοφία [Passion and knowledge in modern philosophy]*. ΠΟΛΙΣ [POLIS]. https://biblionet.gr/titleinfo/

Susha, I., & Grönlund, Å. (2012). eParticipation research: Systematizing the field. *Government Information Quarterly*, *29*(3), 373–382. https://doi.org/10.1016/j.giq.2011.11.005

Syntagma Watch. (2023). Η Υπηρεσιακή Κυβέρνηση κατά το άρθρο 37 Σ [The Caretaker Government under Article 37 S]. *Syntagma Watch*. https://www.syntagmawatch.gr/trending-issues/h-yphresiakh-kyvernhsh-kata-to-arthro-37-s/

Taş, R., & Tanrıöver, Ö. Ö. (2020). A systematic review of challenges and opportunities of blockchain for E-voting. *Symmetry*, *12*(8), 1328.

Taylor, M. Z. (2007). Political Decentralization and Technological Innovation: Testing the Innovative Advantages of Decentralized States. *Review of Policy Research*, *24*(3), 231–257. https://doi.org/10.1111/j.1541-1338.2007.00279.x

Taylor-Gooby, P. (2006). Social Divisions of Trust: Scepticism and Democracy in the GM Nation? Debate. *Journal of Risk Research*. https://doi.org/10.1080/13669870500288742

Thiel, S. van. (2021). *Research methods in public administration and public management: An introduction* (2nd ed.). Routledge. https://doi.org/10.4324/9781003196907

Toloudis, N. (2014). The Golden Dawn: The Financial Crisis and Greek Fascism's New Day. *New Labor Forum*, *23*(1), 38–43. https://doi.org/10.1177/1095796013513566

Toots, M. (2019). Why E-participation systems fail: The case of Estonia's Osale.ee. *Government Information Quarterly*, *36*(3), 546–559. https://doi.org/10.1016/j.giq.2019.02.002

Torsello, D. (2012). Clientelism and Social Trust in Comparative Perspective: Particularism versus Universalism. *International Journal of Humanities and Social Science*, *2*(23), 71–78.

Trechsel, A. H., Kucherenko, V. V., & Ferreira Da Silva, F. (2016). *Potential and challenges of e-voting in the European Union*. https://cadmus.eui.eu/handle/1814/44926

Trombetas, T. P. (1976). The Greek political system. *The Greek Review of Social Research*, 147–156.

Tsai, M.-C., Laczko, L., & Bjørnskov, C. (2011). Social Diversity, Institutions and Trust: A Cross-National Analysis. *Social Indicators Research*, *101*(3), 305–322. https://doi.org/10.1007/s11205-010-9670-z

Tsang, E. W. K. (2014). Generalizing from Research Findings: The Merits of Case Studies. *International Journal of Management Reviews*, *16*(4), 369–383. https://doi.org/10.1111/ijmr.12024

Tsekeris, C., & Mastrogeorgiou, Y. (2020). Contextualising COVID-19 as a Digital Pandemic. *Homo Virtualis*, *3*(2), Article 2. https://doi.org/10.12681/homvir.25445

Tsouvelas, G., Massou, E., & Prodromitis, G. (2023). Trust in institutions in Greece amidst the COVID-19 era: Ideological and existential parameters. *Dialogues in Clinical Neuroscience & Mental Health*, *6*(2), Article 2. https://doi.org/10.26386/obrela.v6i2.267

Tusalem, R. F., & Pe-Aguirre, J. J. (2013). The Effect of Political Dynasties on Effective Democratic Governance: Evidence From the Philippines. *Asian Politics & Policy*, *5*(3), 359–386. https://doi.org/10.1111/aspp.12037

Van den Besselaar, P., & Oostveen, A.-M. (2003). *E-voting technology is not neutral!* (p. 221).

van Dijk, J. A. G. M. (2006). Digital divide research, achievements and shortcomings. *Poetics*, *34*(4), 221–235. https://doi.org/10.1016/j.poetic.2006.05.004

van Prooijen, J.-W., Spadaro, G., & Wang, H. (2022). Suspicion of institutions: How distrust and conspiracy theories deteriorate social relationships. *Current Opinion in Psychology*, *43*, 65–69. https://doi.org/10.1016/j.copsyc.2021.06.013

Vasilopoulou, S., & Halikiopoulou, D. (2015). GREEK POLITICS: Economic Crisis or Crisis of Democracy? *World Affairs*, *178*(3), 13–18.

Vasilopoulou, S., & Halikiopoulou, D. (2020). Political culture. *The Oxford Handbook of Modern Greek Politics*, 335.

Verney, S. (2014). 'Broken and Can't be Fixed': The Impact of the Economic Crisis on the Greek Party System. *The International Spectator*, *49*(1), 18–35. https://doi.org/10.1080/03932729.2014.877222

Verwer, M. B., Dionysiou, I., & Gjermundrød, H. (2020). Trustedevoting (Tev) a secure, anonymous and verifiable blockchain-based e-voting framework. In S. Katsikas & V. Zorkadis (Eds.), *E-Democracy – Safeguarding Democracy and Human Rights in the Digital Age* (pp. 129–143). Springer International Publishing. https://doi.org/10.1007/978-3-030-37545-4_9

Vratimos, A. (2022). Digital Transformation & COVID-19: The Case of Greece. *ESI Preprints*, *8*, 103–103.

Weber, T., & Vassil, K. (2011). A Bottleneck Model of E-voting. Why Technology Fails to Boost Turnout. *New Media & Society*, *13*, 1336–1354. https://doi.org/10.1177/1461444811405807

Wildemuth, B. M. (2016). *Applications of Social Research Methods to Questions in Information and Library Science*. Bloomsbury Publishing USA.

Willem, A., & Lucidarme, S. (2014). Pitfalls and Challenges for Trust and Effectiveness in Collaborative Networks. *Public Management Review*. https://www.tandfonline.com/doi/abs/10.1080/14719037.2012.744426

Woolcock, M. (2013). Using case studies to explore the external validity of 'complex' development interventions. *Evaluation*, *19*(3), 229–248. https://doi.org/10.1177/1356389013495210

Yin, R. K. (2017). *Case Study Research and Applications Design and Methods* (6th ed.). SAGE Publications, Inc. https://us.sagepub.com/en-us/nam/case-study-research-and-applications/book250150

Zmerli, S., & Newton, K. (2006). Trust in people, confidence in political institutions, and satisfaction with democracy. In *Citizenship and Involvement in European Democracies*. Routledge.

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Appendix

(in a separate document as requested by the KU Loket submission page)