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## E-PARTICIPATION IN EUROPE: A COMPARATIVE PERSPECTIVE

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**Abstract:** Public participation is a way for stakeholders of public institutions to participate in the public decision-making process, planning, organizing, and financing activities to achieve common public goals. The research underlying this paper examines the ability of EU states to support e-participation in various ways and activities. The aim of the research is to identify the particularities of EU countries regarding e-participation and to analyze comparatively the changes that took place in the administrations of European states in the period 2010–2018. For this, EViews was applied with the ARDL model (Autoregressive Distributed Lag) to analyze both the variables and the dynamics of the relations between them in the considered period. The data on which the research was conducted were selected from the Eurostat portal, the World Bank, and the United Nations E-Government Database. The results show that during the period analyzed, in most European countries platforms and programs dedicated to cooperation and consultation between the administration, citizens, and economic agents were developed. These changes have led to a reduction in the costs of operating the administrative apparatus and a considerable decrease in administrative bureaucracy. The originality of the research lies in using the ARDL analysis model on e-participation data series in most European countries when ICT (information and communication technology) had a major impact on accelerating the cooperation of administrations with their stakeholders. Good e-participation practices identified in European countries show that efforts to integrate information and communication technologies into state administrations and their relations with citizens are needed and generate major

economic and social benefits. States can take models from each other and adapt good practices to their specific realities. Research has highlighted the real need to accelerate this process in Europe, for effective communication between state administrations and between them and their stakeholders.

**Keywords:** e-participation, e-information, e-decision making, e-government.

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## Introduction

To be full members of the democratic system, citizens should be informed, active, and use opportunities to join others in society to participate in achieving common goals. There is a history of public participation. Recently, in more and more legislative systems, the right to public participation is written into law, being considered as a fundamental right of the citizens. Since 1970, many laws in New Zealand (in the fields of health, local government, the environment, etc.) have required the public administration to consult those affected by public decisions. States such as the Netherlands, Germany, Denmark, and Sweden have long regulated, in various forms, public participation and freedom of information. There are several perspectives for approaching public participation (Wang and Wan Wart, 2007). Some of the most important are presented below.

Public participation is a tool used to increase the accountability of authorities and the administration. Public participation aims to facilitate their involvement in making public decisions. The principle of public participation refers to the fact that those affected by a public decision have the right to be involved in the decision-making process. According to existing OSCE, MCIC, ECNL data (2010), the quantity and quality of the information provided by governments have increased significantly over the last 30 years, and the legal right to information is increasingly respected in OECD countries. In 1980, only 20% of OECD countries had legislation in the field of free access to public information, while in 1990 the figure doubled to 40%, and in 2000 it doubled again to 80%, exceeding 87% in 2020.

Governments in democratic states aim to initiate, diversify and encourage activities through which citizens can express their views and be heard directly and immediately by the authorities. Current models of public participation show that the efficiency of participation is achieved by integrating legal guarantees in internal rules, the main tools and methods in this regard being: e-participation; tools for monitoring the implementation of these provisions; establishing structures dedicated to bilateral cooperation; the insertion of sanctions for non-compliance with these guarantees. The efficiency of public participation depends directly on free,

fair, and complete access to information of public interest. Thus, the rules on public participation include or are related, as a rule, to the issue of the right of access to information of public interest. Social participation is not only necessary but also beneficial. This has multiple effects: it improves governance and, in general, makes society more cohesive (Barabashev et al., 2019). The degree of public participation is significantly influenced by the trust that citizens have in public institutions in a country (Teo et al., 2009). In our opinion, trust in institutions is a prerequisite for successful mobilization for effective public participation. The main reason why people need to have at least a level of trust in state institutions is that most forms of public participation involve interaction with central, regional, or local government institutions (Im et al., 2014; Im et al., 2003). If citizens do not trust these institutions, then they will not want to interact with them, the result being a civil society that is separate from the state and a conflictual relationship rather than cooperation (Kim and Lee, 2012; Shin, 2010).

E-participation is a more recent form of manifestation of e-democracy. The COVID-19 pandemic has made electronic democracy (e-democracy) more relevant and influential than ever. Social media has transformed and moved democratic processes from conventional physical spaces to virtual and digitized spaces. In 2020, COVID-19 affected the entire planet, prompting countries around the world to implement security measures to protect citizens and government employees. These administrative measures have led to major changes in the behavior of citizens and administrative institutions (Androniceanu, 2020). Thus, dialogue with citizens has been significantly reduced, and the state administrations are concentrating to find solutions for the efficient management of a diversity of economic, social, and often political issues (Barabashev, 2016). There is a need for their continuous adaptation to the context marked by the restrictions caused by the Covid-19 pandemic. The order of priorities in addressing these issues has changed and for many governments, there are only two points on this order: the health of the population and the maintenance of the economic system. Therefore, public participation was determined to adapt to the particularities of the new context. However, thanks to digital platforms such as Instagram, Facebook, or Twitter, citizens continue to express their views, send messages of mobilization for social movements, and intend to encourage change. It is a certainty that participatory activities have been facilitated by online platforms, and social networks have been increasingly used by the government to keep up with public trends and to identify political issues that citizens are interested in (Miori and Russo, 2011). Popular platforms such as Twitter and Facebook have allowed users to actively engage in online politics, expressing their views and political opinions, as well as organizing movements to draw attention to important issues (Davies and Chandler, 2013). Instant sharing and response mechanisms generated by social networking platforms have become an important e-participation tool that enables citizens to engage in decision-making and government agencies to take the lead in addressing public agenda concerns (Sanford and Rose, 2007). Several tools and templates have emerged as part of Web 2.0, which can be used or inspire the design of architecture for e-participation (Koc-Michalska et al., 2014).

The emergence of online communities geared towards creating useful applications suggests that it would be possible to design a social mediation technology that would support government public collaborations. Social networking services, such as popular media platforms and blogs, have built online platforms that allow citizens to connect with others and participate in interactive activities. There are differences between states regarding access to online environments and ICT (information and communication technology) infrastructure. Our research integrates these variables. Therefore, e-participation is influenced by the digital divide. This is also the reason why we chose to make a comparative analysis of e-participation in the states of the European Union. On the other hand, e-participation is largely based on the population's access to new technologies and connection to the infrastructure needed to use them. The disparity in e-government and e-democracy between developed and developing countries has been attributed to the digital divide. There is also skepticism about the impact that citizens can have through online participation (Al-Hujran et al., 2011; Androniceanu et al., 2020). The government must be able to ensure that online communications are secure and do not violate people's privacy.

Along with infrastructure, an essential role in e-participation is played by the education of citizens and their IT skills for e-government (Abu-Shanab, 2014, 2015; Kersting, 2013). This variable has been integrated and analyzed in the research process that underlies this work. The digital divide on the education component of citizens prevents and limits their ability to express their opinions, and excludes them from participation, handing back the initial goal of e-participation (Aichholzer and Rose, 2020; Colesca and Dobrică, 2008; Rose and Skiftenes Flak, 2008).

E-participation has evolved as a social activity involving collaboration between politicians, administration, citizens, and civil society (Greenwood, 2012). It relies on information and communication technologies to mediate this collaboration. The development of information and communication technologies is the largest and most important tool that has driven the increase of e-participation in EU countries, enabling and facilitating better collaboration between the public and governments. ICT tools help cooperation between authorities and citizens to improve legislation, but also to provide some complex services (Hung et al., 2013). These complex services require considerable interaction, including searching, selecting options based on multiple criteria, calculating results, notifications, surveys, complaints, and many other activities. Citizens need to be able to get involved in the process, at a time and place that is convenient for them, where their opinions matter. Governments need to ensure that structures are designed to cope with increased public participation and are secure. To ensure that issues are discussed in a democratic, inclusive, tolerant, and productive way, the role that intermediaries and representative organizations can play should be considered.

Through our research, we answer the following questions: (Q1) What are the similarities and differences between EU states regarding e-participation in the period analyzed? (Q2) What are the main correlations between the variables included in the research, their intensity, and how do they influence the increase of e-participation in the EU states in the period analyzed?

The research hypotheses are as follows: (H1): EU states with a higher e-government index, an advanced level of e-government indexation, and robust economic development. (H2) There is a direct correlation between the ICT infrastructure, digital skills, and education of EU citizens with an impact on the e-participation index.

Public institutions with responsibilities in certain social areas (such as employment, higher education, and child protection) are (or should be) open to all. If citizens perceive negatively the way these institutions fulfill their responsibilities, then they will not be stimulated to interact with them. Through our research, a series of particularities have been identified and analyzed.

## Literature about e-participation and other key connected concepts

European citizens are increasingly demanding transparency and accountability from state governments (Androniceanu, 2021; Ballesteros et al., 2014). New forms of active participation are emerging in the formulation of public policies that influence the activities and lives of citizens. In recent years, we have witnessed a growing concern in Europe for governments to explore new ways to inform and engage citizens and civil society organizations in decision-making. Public participation becomes an objective that ensures a democratic framework for decision-making through consultation with their main beneficiaries.

The participatory approach to political and legislative processes at the EU level is guaranteed by the Treaty of Lisbon in the sense that “Every citizen shall have the right to participate in the democratic life of the Union. Decisions shall be taken as openly and as closely as possible to the citizen” (Boussaguet, 2016). Article 11 provides: “1. The institutions shall, by appropriate means, allow citizens and representative organizations to make themselves known and to exchange views publicly on all areas of activity of the Union. 2. The institutions shall maintain an open, transparent and regular dialogue with representative associations and NGOs”. The Treaty obliges the European Commission to consult with stakeholders. Before the adoption of the Treaty of Lisbon, the European Commission drew up several documents emphasizing the importance of public participation and providing principles for implementation in practice.

E-participation refers to the direct public participation of the stakeholders of an administration in public decisions in the fields: social, economic, political, legislative, environmental, security, culture, etc. (Moreno-Enguix et al., 2019). In the last decade, electronic means have been used for this. Thus, e-participation has emerged, which is largely part of e-democracy and largely involves the use of ICT by governments, the media, political parties, and interest groups, civil society organizations, international governmental organizations or citizens and voters in any of the political processes of regions and nations, local and global communities. When participation becomes complicated, decision-making with citizen participation is necessary (Monaghan, 2012). Instead of accepting knowledge as disseminated by the media and government, through e-participation, citizens become an active part and directly contribute to the creation or development of a democratic society (Carrara, 2012; Cegarra-Navarro et al., 2014).



Electronic participation is also developing in government e-services systems. These influence the decision-making process regarding public services, and subsequent changes will be difficult to make after the existing procedures have been implemented in ICT systems. The advantages offered by ICT have facilitated the emergence of e-participation. Electronic participation or e-participation refers to the use of ICT by the stakeholders of the administrative system in a country for sustained participation in the administration, provision of services, decision making, and policy-making.

E-participation arose from a real need for interaction between the interests of citizens and public service providers. To a large extent, the conditions of the institutional framework of the chosen democratic model define in which part of the democratic processes participation is allowed (such as direct or representative democracy or any intermediate forms). The development of e-government towards the provision of increasingly complex services is another factor that has contributed to the increase of e-participation (Lironi, 2016).

E-participation is a process that enhances and deepens political participation and allows citizens to interact with each other, as well as with their elected representatives and civil servants using information and communication technologies.

The complexity of e-participation processes results from a large number of different areas of participation, the stakeholders involved, the levels of involvement, and the stages of the public policy-making process. Developments in e-democracy since the late 1990s have also contributed to the origins of e-participation. Interest has rapidly evolved from electronic voting to several forms of ICT-supported interaction, such as consultations, lobbying, petitioning, and voting. To these can be added those pursued outside the government, including elections, campaigns, and community information.

The term “e-participation” appeared in the early 2000s and comes from the concept of increasing civic participation in public policies through the use of information and communication technologies. Electronic participation depends directly on the development of ICTs, the growth of e-democracy, and the growth of e-government (Shkarlet et al., 2020). The development of information and communication technologies is one of the most important factors that has driven the growth of e-participation. The development of CSCW (Computer Supported Cooperative Work) and group programs aimed at different collaboration environments better supports ICT-mediated interaction, both in the workplace and in the social environment.

The United Nations (2014; 2016) calculates an e-Participation Index (EPI). It was designed by the UN Department of Economic and Social Affairs as “an additional index to the UN e-government survey”. EPI is used to assess the effectiveness of online services that stimulate the interaction and exchange of information between government and citizens, as well as the involvement of citizens in policy-making and decision-making. It is assessed based on how well a government transmits information to its constituents, how engaged citizens are in policy-making, and how empowered citizens feel in decision-making. The framework for approaching e-participation from a UN perspective consists of: (1) e-information; (2) e-consultation and (3) e-decision-making.

E-information consists of creating the possibility for citizens to have free access to information from the administration. Informing citizens requires the least degree of involvement of citizens who are informed about the activity of public institutions. In the case of e-information, citizens remain outside the administrative process. However, e-information means that the governance process is transparent enough for citizens to obtain the information needed to see to what extent the government keeps its promises and to be able to analyze what is happening in various policy areas. The information can then be used to form opinions or to organize various actions to put pressure on governments.

E-consultation is a way to support participatory democracy (Albrecht, 2012; Alemanno, 2018). Participatory democracy aims to bring decisions as close as possible to the beneficiaries, who are informed and consulted. Following the dialogue between the authorities and the citizens, as far as possible, the suggestions of the latter are integrated into the governmental interventions, thus aiming at satisfying the needs of the local communities. The principle of citizen consultation is a basic principle of public administration that Western democracies follow closely so that a series of studies, comments, and good practices have developed around it. The public administration in the administrative-territorial units is organized and functions based on the principles of consulting the citizens in solving the local problems of special interest. E-consultation facilitates an increased degree of involvement of citizens who not only read and get information but have the opportunity to express their views during the consultations. Citizens are consulted on both issues of national and local interest. E-consultation can be done by: consulting citizens in public debates; citizens' participation in the meetings of national and local legislative and decision-making forums; referendum; legislative initiatives; and other partnerships.

E-decision-making consists of the direct involvement of citizens in decision-making processes, which generate a series of benefits with a direct impact on the quality and appropriate adaptation of public policies.

Based on the three components, the e-participation index is determined. The resulting index score is a basic measure that reflects how inclusive a government is. E-participation implies the maximum participation from the citizens who should show initiative, maturity, and dedication becoming co-participants of the governing process.

Active e-participation is a higher stage, which allows citizens to become decision-making partners in public policy. It is a dialogue on positions of collaboration between the public institution and the citizens. Active participation requires that citizens be involved in setting public policy objectives, be able to express their views on various alternative solutions, and propose implementation strategies. This type of participation is, at the moment, quite rare. From an OECD (2021) perspective, e-participation, with its three forms, is a key tool to strengthen the transparency, efficiency, and effectiveness of legal regulations, improving the quality of rules and programs and reducing the costs borne by both governments and citizens (Grimmelikhuijsen and Meijer, 2014).

The rules and principles of e-participation are regulated differently in various states. Some have mandatory value (Bosnia and Herzegovina, Romania), others

do not (Austria, Croatia, UK). Regulations adopted at the national level should capitalize on existing practices or create higher standards. Citizen participation can take various forms, tools, and methods, during all procedural stages of drafting and implementing regulation or policy. The choice of applicable forms of consultation is influenced by specific factors, as it resulted from our research (Panopoulou et al., 2014).

## The role and contributions of European institutions to the creation and development of e-participation in Europe

Public participation is based on several important principles specified by both European institutions and other international organizations. In 2002, The European Commission adopted the General Principles and Minimum Standards for Stakeholder Consultation by the Commission. These are the following:

- participation – which covers all stages of developing a public policy, from design to implementation;
- openness and accountability – the European institutions must act openly and explain and take responsibility for their activities, to be understood and credible;
- efficiency – stakeholders must be involved in the development of public policy early, respecting the principle of proportionality to the impact of the proposal;
- coherence – participation must include feedback, evaluation, and review mechanisms.

One of the recent Council of Europe documents is the “Guidelines for Civil Participation in the Political Decision-Making Process”, adopted by the Council of Ministers in 2017. According to the Council of Europe, there are four main forms of participation:

- Information: At all levels of decision-making, all necessary information should be presented in a clear and easy-to-understand language, as well as in an appropriate and accessible format, without unjustified administrative obstacles and, in principle, free of charge, by open data principles. Public authorities should ensure free access, both offline and online, to unrestricted public documents and information, as well as the re-use of such information.
- Consultation: Public policy views should be compiled, as part of the official procedure, by individuals, NGOs, etc., through various tools such as meetings, public hearings, focus groups, surveys, questionnaires, and digital tools. Public authorities should provide public feedback on the outcome of the consultations, giving reasons for the final decisions.
- Dialogue: Dialogue is a structured, long-term, and result-oriented process, based on a mutual interest in exchanging views between public authorities, individuals, NGOs, and civil society in general. Various platforms can be established as a permanent space for dialogue and participation, platforms that can include regular public hearings, public forums, advisory boards, or similar structures.



- Active involvement: This refers to the opportunities for citizen participation in decision-making processes offered by public authorities to individuals, NGOs, and civil society in general that extend beyond the limits of the three forms of participation listed above. Working groups or committees for the co-elaboration of documents, based on transparent criteria and processes, can be included here.

The Council of Europe (2016), through the Code of Good Practice for Civil Participation in the Decision-Making Process, has established several important principles for civil participation:

- Participation, as a way of collecting and channeling the views of interested citizens, through non-governmental organizations, to the political decision-making process.
- Trust, as the honest interaction between the actors involved.
- Assumption of responsibility and transparency, both by non-governmental organizations and by the authorities.
- The independence of NGOs, as they must be recognized as free and independent entities about their aims, decisions, and activities.

The Guidelines for Civil Participation in the Political Decision-Making Process, adopted by the Council of Ministers in 2017, also specify the principles that should govern the participation of all stakeholders in public decisions:

- mutual respect between all actors, as a basis for honest interaction and mutual trust;
- respect for the opinion of NGOs, regardless of whether or not their opinions coincide with the opinion of public authorities;
- respect for the positions expressed by public authorities, which have the competence and responsibility for public decisions;
- openness, transparency, and accountability;
- receptivity, all actors involved providing adequate feedback;
- non-discrimination and inclusion so that all voices, including those of the underprivileged or the most vulnerable, can be heard and taken into account;
- gender equality and equal participation of all groups, including those with special interests and needs, such as young people, the elderly, people with disabilities or minorities;
- accessibility through the use of a clear language and appropriate means of participation, offline or online, as well as through any device.

The European framework for e-participation is constantly evolving. The key document that offers guarantees of public participation is the Convention for the Protection of Human Rights and Fundamental Freedoms, through Article 10, which protects freedom of expression, and Article 11 – freedom of assembly and association. According to the statement in the Report of the Secretary General of the Council of Europe (2015), “exercised together, they support a complete and effective system of power balance, in which power is responsible. Guaranteeing the exercise of these rights is a precondition for the active participation of civil society in the decision-making process at all levels of government”.

The right of access to relevant information held by public bodies, in particular by those acting in the public interest, is a precondition for effective participation.

The 2009 Convention on Access to Official Documents expressly stipulates the conditions for exercising this right, introducing both the minimum standards to be applied by the authorities in processing requests for access to official documents and the right of the signatories to the Convention to ensure greater accessibility. Article 10 of the Convention provides: “On its initiative and where deemed appropriate, a public authority shall take the necessary measures to publish its official documents in the interest of promoting transparency and efficiency of public administration and encouraging informed public participation in such matters of general interest”.

Electronic democracy is a form of public participation in the EU. The 2001 Recommendation of the Committee of Ministers to the Member States on citizen participation in local public life was the first instrument in this regard, recommending that governments develop a public policy in this area. The 2009 Recommendation of the Committee of Ministers to the Member States on electronic democracy (e-democracy) recognizes that electronic information and communication facilitates greater democratic participation of individuals and groups, as well as greater transparency and accountability of democratic institutions and processes. The resolution also contains concrete guidelines for the introduction and development of e-democracy.

The importance of public participation has been recognized by many other Council of Europe instruments, many of which target the local level. The Committee of Ministers’ Recommendation (2009) on the evaluation, audit, and monitoring of participation and participation policies at local and regional levels also includes a tool for self-assessment of citizen participation.

The right to participate in the work of local authorities was introduced by the Additional Protocol to the European Charter of Local Self-Government, regulating the measures for the practical application of this right and establishing the authorities to which it applies. Article 1 contains legislative measures introducing binding guarantees to ensure the right to participate.

The Congress of Local and Regional Authorities pays special attention to the participation of citizens through non-governmental organizations. Resolution 385 of 2015 on “Promoting active citizenship by building partnerships with civil society” focuses on the application and updating of the above-mentioned Code of Good Practice for Civic Participation in the Decision-Making Process.

In the states of the European Union, there is a continuous concern for the diversification and consolidation of forms of e-participation to increase the quality of interaction between public institutions and citizens so that public participation in decision-making processes contributes to strengthening e-democracy. Some examples of progress in the field of e-participation in European countries are presented in the next section of our paper.

## Good practices of e-participation in EU member states

In the states of the European Union, there are a variety of ways in which states support e-participation. Some relevant examples are presented below.

In France, the [data.assemblee-nationale.fr](https://data.assemblee-nationale.fr) platform operates, which aims to ensure access to information and consultation at the level of national institu-

tions, aiming at a series of specific objectives, such as: strengthening the mechanisms for transparency of legislative processes and the functioning of the National Assembly; strengthening the links between citizens and their elected representatives; and soliciting the opinion and expertise of citizens. This platform offers citizens the opportunity to develop tools or applications by reusing the data provided and to participate in democratic debates; making available more than 800,000 documents of the National Assembly. Another digital platform is Data.gouv.fr. This is an online platform that collects various information on taxes, budgets, subsidies, expenses, land use, unemployment, housing renovation, air quality measures, public service addresses, delinquency and crime, tourism statistics, election results, and social security costs. Through the platform, citizens can produce, consolidate or supplement data or exchange data of public interest. There are four levels of use: (1) as a citizen – accessing public data; (2) as a manufacturer – the creation of innovative data sets; (3) as a re-user – transformation and visualization of available data sets; (4) as a developer – the use of data on its site.

The optimal functioning of the platform depends on its continuous updating with new data from all areas of the public sector. In March 2016, it included 22,996 data items, 98,739 resources, 1,438 reuses, 13,660 users and 677 registered organizations.

The Open Municipal Information (Open State) program was created in the Netherlands to increase the level of information and active participation of citizens. It has been applied at the level of local public authorities, with the specific aim of creating a “democracy of action”, in which citizens can address social issues alone, without the intervention of a public authority, through access to all data in the public sector. This program offers citizens the opportunity to submit alternative proposals on how to address specific issues in the community. In June 2015, the “Law on the re-use of public authorities’ information” was adopted in the Netherlands, transposing EU Directive 81/37/2013 on the re-use of public sector information, adopted in 2013 by the European Parliament and the EU Council (EC, 2016). Through this law, the legal framework has been created through which ministries, municipalities, provinces, museums, libraries, and archives are obliged both to provide all information from the public sector for their reuse and to respond to requests for reuse.

Standards of Public Participation have been developed and implemented in Austria. They have been applied at the level of federal authorities and all sectors of public administration to maximize the effectiveness and efficiency of public participation, the document called Standards of Public Participation emphasizes information, consultation, and active participation of citizens. Improvements have been made to the consultation process through the adoption and implementation of these standards. The standards are currently recommended for use in all sectors of general government and are divided into three sections, as follows: (1) standards for the preparation of the participation process; (2) standards for the implementation of the participation process; (3) monitoring and evaluation standards after the participation process.

Denmark has been involved in the adoption of e-democracy solutions for over 15 years. Thus, Denmark currently has a mechanism for involving and

consulting citizens called eDem, which is composed of numerous initiatives to support and complement democracy and dialogue with citizens through applications. The key elements of the eDem implementation are: (1) the existence of awareness-raising events, both at the level of citizens and the level of public authorities, regarding participatory approaches; (2) the creation of a general mechanism for public participation, including different levels of participation and tools used; (3) the introduction of effective inclusion policies that enable everyone to participate in decision-making processes, such as people with disabilities or the elderly.

In Belgium, there is a platform that provides a participatory regulatory framework by developing a comprehensive system of passive and active open government instruments for all agencies at all levels of public authority. Thus, the existence of the normative framework for participation creates the possibility of applying a unitary and complete open system of governance for all public authorities' agencies located in the Flemish community and the Flemish region. In addition, the Flemish authorities are setting up a special body to deal with requests for guarantees of open governance.

In Finland, the project for the electronification and digitization of the participation process called the National e-Participation Environment project was implemented. Through this, the national and local authorities in Finland seek to support consultation and active involvement, with the overall aim of developing community services and promoting efficient administration. To promote a proactive approach to democracy and to facilitate interaction between citizens, non-governmental organizations, decision-makers of central and local public authorities, and public administration, six different electronic services have been developed that allow different forms of participation, all easily accessible to all. An example is the digital platform Kansalaisaloite.fi. This is an online platform for submitting initiatives for Finnish citizens with the right to vote to launch initiatives and obtain statements in support of these initiatives. The second example is the online platform Kuntalaisaloite.fi. It is used for submitting citizens' initiatives to municipal authorities. It is an online system similar to the one presented above, used to collect and support citizens' initiatives, but only locally. According to the Law on local public authority, the inhabitants of the municipality have the right to submit initiatives related to the activities of the municipality, which can be of three types: (1) normal, submitted by municipal residents; (2) initiatives on a matter within the competence of the municipal council, supported by at least 2% of persons with the right to vote; (3) initiatives regarding a municipal referendum, submitted by at least 5% of persons with the right to vote. The third example is the online digital platform Otakantaa.fi. This is an online platform for dialogue, which allows for various forms of public consultation and participation from the development of laws, strategies, and planning programs, the evaluation of services and policies, to the mapping of citizens' needs and ideas. The platform can be used at the level of ministries, municipalities, institutes, NGOs, and citizens for open discussions on various topics. The fourth example is the online platform Lausuntopalvelu.fi. It is used for consultation and allows public authorities at both national and local levels to so-

licit proposals from citizens, to facilitate and monitor public consultations. The platform offers citizens and organizations the opportunity to submit proposals and view other proposals. It can be seen that by implementing the digitization program several benefits are obtained, such as (1) Creating an e-participation system, composed of different levels of public participation; (2) Raising awareness and educating citizens about the use of e-Participation services; (3) Ensuring legal obligations and ensuring the political will to use e-Platform tools.

In Italy, the digital platform Open Council of Europesione-Monithon online platforms was created. The program proposed by the Italian authorities is implemented at the national and regional level, providing citizens with the opportunity to track and monitor their expenditure and impact on the community. Through the OpenCouncil of Europesione-Monithon, their online platforms aim to: (1) encourage the more active involvement of citizens in the supervision of public expenditures and their efficiency; (2) provide support to building people's confidence in managing public funds.

In Poland, the concept of participatory budgeting first appeared in Sopot in 2011, which is a process by which citizens of a given city can be involved, individually or through an organization, in the allocation of public funds. The participatory budgeting program in Wroclaw was introduced in 2013 and is, according to statistics, one of the best examples in Poland. Local authorities allocate part of the funds from the city budget for financing project ideas proposed by citizens, examined, and approved by local authorities. The final drafts are selected following a voting process expressed by the citizens and are implemented in accordance with the previously developed program. The participatory budgeting process consists of several forms of active citizen involvement, including the creation and proposal of projects, participation in panel discussions, the possibility to monitor the entire procedure on the Internet, the final vote on projects, and more. For the final review, before the vote, the Wroclaw Municipal Office must hold consultations with project leaders and Office employees in at least 14 districts of the city of Wroclaw. The authorities also organize special meetings to evaluate the implemented projects.

In Latvia, there is an institutionalization of E-Participation. Manabalss.lv is an internet portal (run by the Foundation for Public Participation – a non-profit organization), which has been recognized as a success story in the field of open governance worldwide.

These examples show the many transformations that have taken place in EU countries and the fact that e-participation is evolving in different ways and with different intensities by integrating information technologies for the progressive and motivated attraction of citizens in the decision-making process in a modern European democratic society.

## Research methods and data

We applied the ARDL for panel data for the EU member states for the period 2010–2018, studying the determinants of e-participation. The data was collected from Eurostat, the World Bank and the United Nations E-Government Database. Table 1 contains the variables and their significance.



Table 1

**The definitions of variables**

Variable	Description of the variable	Symbol of the variable	Data sources
E-participation index	The use of online services to facilitate the interaction between government and citizens	EP	<a href="https://publicadministration.un.org/">https://publicadministration.un.org/</a>
Expense % GDP	Cash payments for operating activities of the government in providing goods and services	EXPG	World Bank
ICT employment of total	The percentage of employment of ICT specialists out of total	ICT	Eurostat

**Sources:** Compiled by authors (- hereinafter, unless otherwise noted).

Public budgeting is an important tool and a conventional measure in public institutions because of the public resources allocation, the use of the taxpayers' money, prudent financial planning, and so on. The e-participation index is computed on a scale from 0 to 1 and evaluates the quality of public administration websites to provide online information to the citizens.

In this study, the key research questions (RQ) are the following:

RQ1: In the long run, do ICTs have a positive influence on e-participation?

RQ2: In the long run, does public spending positively influence long-term participation?

These long-term correlations have been tested using ARDL panel data models.

The research hypotheses are the following: (Ho1): EU states that have a higher e-government index have a robust economic development; (Ho2): There is a direct correlation between the ICT infrastructure, digital skills, and education of EU citizens with an impact on the e-participation index.

The autoregressive distributed regression lag model (ARDL) was created by Pesaran et al. (1996; 1999 and 2001). ARDL is superior to other cointegration techniques, such as Johansen (1988) and Engle and Granger (1987), and Johansen and Juselius in 1990. Engle and Granger's cointegration approach (1987) tests the long-run relationship between several variables (Kao, 1999). Johansen and Juselius's (1990) cointegration approach works for variables with the same order of integration, such as the first difference. The ARDL method estimates short-run and long-run causality for variables with mixed orders of integration  $I(0)$  and  $I(1)$ .

We perform four panel unit root tests to test the non-stationarity of the variables. We discover that we have a mixture of  $I(0)$  (EXPG) and  $I(1)$  (EP and ICT) variables, therefore we can apply ARDL. Then we examine the short-run and the long-run dynamics of the model.

The relationship between EP, EXPG, and ICT follows a temporal trajectory, in the long run reaching an equilibrium path.

The coefficient of the error correction term (ect) describing the long-run causality should be negative, larger than -2, and statistically significant. If these conditions are fulfilled, then the adjustment of variables to the long-run equilibrium is ensured.

Table 2 shows the Pearson correlation matrix of the three variables. The positive weak correlation between ICT and public expenses means investments in ICT modernization of the public sector. The implementation of new technology in public organizations means the transformation of governmental operations to improve organizational effectiveness and the government's relationship with the public (Kim and Kim, 2020). This explains the weak positive correlation of 0.35 between ICT and EP.

Table 2

### Pearson Correlation matrix

	ICT	EXPG	EP
ICT	1	0.243023	0.353617
EXPG	0.243023	1	-0.050265
EP	0.353617	-0.050265	1

## Main results, analysis and interpretation

To check the order of integration of selected variables we used four panel unit root tests: Levin, Lin and Chu (2002), Im, Pesaran and Shin (2003), and ADF-Fisher and PP-Fisher developed by Maddala and Wu (1999) and Choi (2001). The panel unit root tests statistics and the probabilities in parentheses are reported in Table 3. EXPG is stationary at level, while EP and ICT are stationary at first difference. For lag length, we use the automatic selection according to Schwarz Info Criterion.

Table 3

### Panel Unit Root tests

At levels			
	EP	EXPG	ICT
<i>Unit root (Common Unit Root Process)</i>			
Levin, Lin & Chu	-3.97692 (0.0000)	-9.71596 (0.0000)	-0.16912 (0.4329)
Im, Pesaran & Shin	0.95453 (0.8301)	-2.88492 (0.0020)	1.28133 (0.9000)
ADF-Fisher Chi-square	6328 (0.8906)	97.0166 (0.0003)	56.9973 (0.3642)
PP-Fisher Chi-square	35.0960 (0.9785)	100.652 (0.0001)	66.8520 (0.1125)
At first difference			
<i>Unit root (Common Unit Root Process)</i>			
Levin, Lin & Chu	-18.47 (0.0000)	-12.7202 (0.0000)	-37.8117 (0.0000)
Im, Pesaran & Shin	-7.61311 (0.0000)	-5.73884 (0.0000)	-18.1962 (0.0000)
ADF-Fisher Chi-square	169.419 (0.0000)	137.873 (0.0000)	271.219 (0.0000)
PP-Fisher Chi-square	171.221 (0.0000)	165.343 (0.0000)	367.257 (0.0000)

We established that the considered variables have a mixed order of integration  $I(0)$  and  $I(1)$ , none of the variables is  $I(2)$  and the dependent variable EP is integrated of order one. Therefore, the most adequate estimation procedure is panel ARDL. From four possible models, the one selected was ARDL (2,2,2), with the Akaike Information Criterion having the minimal value of -5.114055.

Table 4

**Panel ARDL (2,2,2) estimation**

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
<i>Long Run Equation</i>				
ICT	0.088331	1.39E-06	63503.86	0
EXPG	0.009867	6.21E-07	15896.83	0
<i>Short Run Equation</i>				
COINTEQ01	-0.609998	0.191527	-3.184921	0.0021
D(EP(-1))	0.098854	0.173105	0.571062	0.5696
D(ICT)	0.1665	0.127683	1.304009	0.196
D(ICT(-1))	0.342574	0.161734	2.118128	0.0373
D(EXPG)	-0.003106	0.014582	-0.213011	0.8319
D(EXPG(-1))	-0.023723	0.013889	-1.707981	0.0916
C	0.001851	0.044275	0.041797	0.9668

The dependent variable is e-participation EP. The independent variables are government expenses and ICT employment total. Table 4 contains the estimations of the long-run elasticities, the short-run coefficients, and the speed of adjustment to the long-run equilibrium.

The coefficient of the error correction term -0.60 is negative, greater than -2, and statistically significant at the 1% level. This means that the speed of adjustment towards the long-run equilibrium is about 60% over each year. From the error correction term, one can infer joint causality of the variables, that is, all variables jointly have a long-run effect on the dependent variable EP. The long-term elasticity of EXPG relative to EP is 0.009867, positive and significant at a 1% level, confirming hypothesis 1 (Ho1). The long-term elasticity of ICT relative to EP is 0.088331, positive and significant at a 1% level, confirming hypothesis 2 (Ho2).

Regarding the short-term component (Tab. 4), the results proved that the coefficients of the first and second lags of ICT and the second lag coefficient of EXPG are significant at 10%. This implies that in the short term, e-participation is influenced by both independent variables. The positive correlation between ICT and EP is also confirmed in the short term. Also in the short term, the impact of EXPG on EP is negative. One reason for this negative short-term correlation may be the early stage of monitoring the performance of the public administration sector

in some EU countries, as explained by Mihaiu (2014). A 1% change in ICT would lead to an increase of 0.088331% in EP in the long run.

The positive dependence between EP and ICT is validated by Polat et al. (2013), in the sense that increased use of information and communication technologies, especially the internet, leads to the transformation of governments into more effective organizations. The distribution of ICT people in government structures will improve internal efficiency and citizens will benefit from better services and easier access to information, as noticed by Phang and Kankanhalli (2008). The main objective of EP is to attract practitioners in decision-making. The on-line available services and information will bring a high e-participation of citizens in government portals (Aljazzaf et al., 2020, Veit and Huntgeburth, 2014; Piehler et al. 2016).

The long-term coefficient of ICT (0.088331) is considerably smaller than the short-term coefficient of the first lag of ICT (0.342574), which reflects an orientation of the EU countries on the short-term acceleration of digital government structures.

A 1% change in EXPG would lead to an increase of 0.009867% in EP in the long run. The same positive correlation is obtained by Moreno-Enguix et al. (2019) who consider that a high level of public expenditure efficiency is associated with a high level of e-government and democracy.

In total, four ARDL model specifications were considered. Finally, we selected an ARDL (2,2,2) but in Figure 1 and Table 5 one can see how well some other ARDL models performed in terms of minimizing AIC. In Table 5, one can see that one could choose the best ARDL model specification taking into account one of the following information criteria: Akaike Information Criterion (AIC), Schwarz Criterion (BIC), Hannan-Quinn Criterion (HQ), or the log-likelihood value. Here we considered that the best ARDL model has the lowest AIC value. The graph in Figure 1 also shows the four models together with their AIC values.

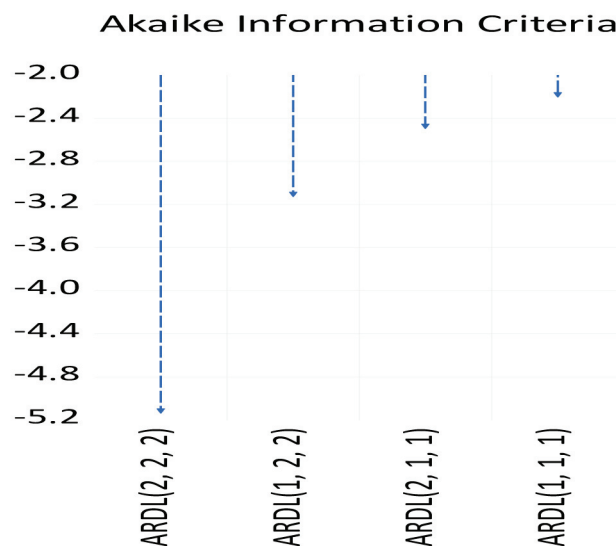


Figure 1: Model selection criteria graph

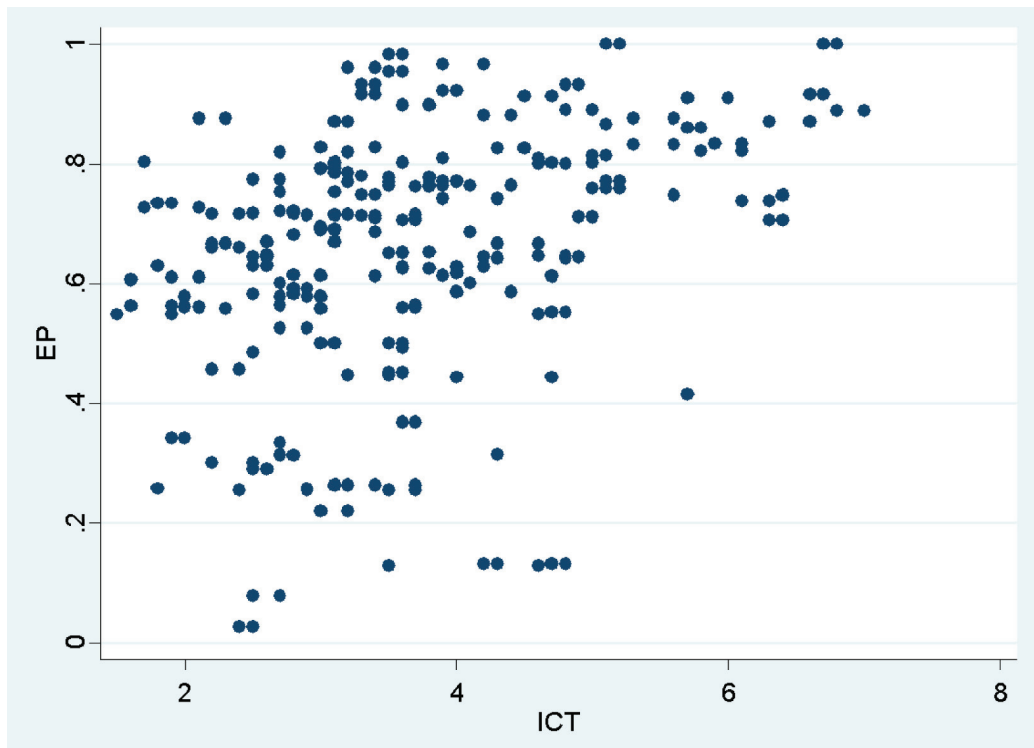
Table 5

**Model selection criteria table**

Model	LogL	AIC*	BIC	HQ	Specification
4	743.3179	-5.114055	-2.129433	-3.90826	ARDL(2, 2, 2)
2	499.023364	-3.102068	-0.539357	-2.066727	ARDL(1, 2, 2)
3	403.838229	-2.470724	-0.329923	-1.605835	ARDL(2, 1, 1)
1	345.242474	-2.178171	-0.459279	-1.483735	ARDL(1, 1, 1)

Since the correlations discovered between variables ICT and EXPG, and ICT and EP, are relatively weak (the absolute values of coefficients are less than 0.4), we included scatter plots of the relationships between variables, to more accurately highlight the dependence between the variables.

In Figure 2 one can see a graphical representation of the dependence between ICT and e-participation.



**Figure 2: The relationship between ICT and e-participation**

A two-way scatter plot can be used to show the relationship between ICT and EP for our panel of 27 members states and period 2010–2019. As we would expect, there is a positive relationship between ICT and EP, as can be seen in Figure 2. This positive correlation is also shown in the correlation matrix in Table 2, where the correlation coefficient between ICT and EP is 0.35. Figure 2 also confirms RQ1.



## Conclusions

This paper presents a panel data ARDL model in which the determinants of e-participation are ICT employment of total and government expenses. The study proposed the ARDL technique to determine the long and short-run relationships between the variables. The speed of adjustment towards the long-run equilibrium is about 60% over each year. This means that 60% of the EP deviation from long-run equilibrium was adjusted over each year. From the error correction term one can infer joint causality of the variables, that is, all variables jointly have a long-run effect on the dependent variable EP. The long-term elasticity of EXPG relative to EP is 0.009867, positive and significant at a 1% level. The long-term elasticity of ICT relative to EP is 0.088331, positive and significant at a 1% level.

Regarding the short-term component (Table 4), the results proved that the coefficients of the first lags of EXPG and ICT are significant at 10%, implying that in the short term, e-participation is influenced by both independent variables.

A 1% change in ICT would lead to an increase of 0.088331% in EP in the long run. The long-term coefficient of ICT (0.088331) is considerably smaller than the short-term coefficient of ICT (0.342574), which reflects an orientation of the EU countries in the short term on the acceleration of digital government structures.

The research answered the two questions and validated the two hypotheses. These results show that on the medium and long term, the administrations of European states that invest in ICT will have a growing index of e-participation.

The limitations of this research could be the relatively short period of analysis, 2010–2018, due to the lack of data and the reduced number of variables involved. Some possible future research directions would be the application of alternative panel data models, such as difference or system GMM (Generalised Method of Moments) estimators or quantile regression models using an extended group of research variables.

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